

Standards Gap Analysis for Cooperative Intelligent Transportation Systems

Results: Solution Perspective: European Union

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Standards Harmonisation Working Group Harmonisation Task Group 7



Standards Gap Analysis for Cooperative ITS HTG7-3-1-EU Results: Solution Perspective: European Union



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1. Introduction

1.1 Background

Advancements in transportation technologies are rapidly transforming the world's strategies for increasing safety; gaining operational, mobility, and cost efficiencies; opening access to underserved communities; and reducing environmental impacts from transportation. Using new forms of short-range communications, vehicles and devices are now capable of broadcasting or receiving data that allow them to sense the movements and status of other surrounding devices. These cooperative exchanges create a three hundred sixty degree awareness that, when further fused with other open data, can enable drivers and other users of the transportation system to receive alerts and warnings regarding the formation of threats and hazards. The alerts and warnings created through these communication technologies provide the opportunity to prevent some crashes, thereby reducing fatalities, injuries, and property damage. The cooperative exchange of data in this manner can also enhance the benefits of automation.

Access to new data sets can also transform network operations and minimize the capital investment costs of infrastructure owners and operators. Broadcast data sets from users within a highly mobile environment can complement or potentially supersede the need for significant roadside equipment on major roads. These new data can also form a more complete representation of conditions on the arterial network, including road weather impacts, effects of traffic signal timing, support for incident and emergency responders, or changes in traveller decisions, among other conditions.

Standards for interfaces in the public interest can play a key role in delivering these benefits to communities that implement cooperative-ITS technologies. Technical standards are developed to address coordination problems and overcome technical barriers that exist when different organizations need to work together while preserving their institutional and proprietary processes. The International Organization for Standards (ISO) defines a standard as, "... a document, established by a consensus of subject matter experts and approved by a recognized body that provides guidance on the design, use or performance of materials, products, processes, services, systems or persons." The end documents, which frequently represent the interests of the experts and parties that gather to develop them, are vetted by experts. Recognized benefits include improved safety, mobility, and sustainability for the travelling public and enhanced interoperability within an open market environment.¹

¹ See definitions at: the European Committee for Standardization (CEN):

<u>https://www.cen.eu/work/ENdev/whatisEN/Pages/default.aspx</u>; the International Organization for Standards (ISO): <u>https://www.iso.org/sites/ConsumersStandards/1_standards.html</u>; Wikipedia:

<u>https://en.wikipedia.org/wiki/Technical_standard</u>; the National Institute of Standards and Technology (NIST): https://www.nist.gov/services-resources/standards-and-measurements.



1.2 History

In 2011, the United States (US) Department of Transportation (USDOT) and the European Commission (EC) approved a <u>Harmonisation Action Plan</u> to guide EC-US standards development via Harmonisation Task Groups (HTGs). The plan recognises that successful, interoperable, nationwide or regional, cooperative technology implementations are critically dependent upon consistent application of complete, technically sound standards and policies for critical functions, interfaces, and *information flows*². This worldwide need applies to the common services of a cooperative systems environment as well as to global markets for vehicles, devices, and applications. While the envisioned end state appears very similar in many parts of the world, past analyses have been regional and independent in nature and have proceeded with varying levels of coordination. The HTGs allow participating countries to collaborate on technical ITS issues that are of common interest and thus leverage critical expertise and resources while potentially realizing more compatible worldwide solutions.

Transport Certification Australia (TCA) joined the HTG initiatives in January 2014 by bringing security expertise and co-leadership to the sixth HTG (HTG6).³

1.3 HTG7

With the emergence in 2015 of plans in the US, Europe, and Australia to develop pilot *Cooperative Intelligent Transportation Systems* (*C-ITS*)⁴ projects, a new HTG was established to identify how existing standards could support new C-ITS installations (i.e., "standards solutions for C-ITS") and, in doing so, identify the issues in standards that could pose risks for deployers. This seventh HTG (HTG7) began in late 2015 as a joint effort between the EC, the USDOT, and TCA, with the Japan Ministry of Land, Infrastructure, Transport and Tourism (MLIT) joining in 2017.

Specifically, the objective of HTG7 was to identify standards that comprehensively support large-scale C-ITS deployments. HTG7 expects that fulfilling this objective will allow:

² Terms that are in **bold italics** in this report are defined in a companion report, the **HARTS Reference Compendium** (**HTG7-5**), which defines all of the terms used throughout this report set. Terms defined in the reference compendium are bold faced and italicised within each HARTS report upon their first use.

³ Results of HTG6 are located here: <u>https://ec.europa.eu/digital-single-market/news/harmonized-security-policies-</u> cooperative-intelligent-transport-systems-create-international.

⁴ C-ITS is a subset of ITS that requires the mutual, secure exchange of data between *independent* trusted entities (i.e., parties that have no contractual relationship). In other words, while traditional ITS typically deals with exchanges among system components owned and managed by a single or limited number of entities; these new ITS services expand this scope to include system components (e.g., vehicles) that may be owned and managed by any number of different entities. The scope of the HTG7 analysis included the C-ITS interfaces (i.e., exchanges between parties with no contractual relationship but with security and authentication as the basis for trust) as well as the more traditional "back-office" flows (between contracted parties) that enable the provision of the C-ITS services. This architecture presents a level of connectivity suggesting an "Internet of Things" for transportation.



- 1. Governments, standards organisations, and other interested stakeholders to track *issues* regarding those interfaces and information flows that are of significant public interest within the C-ITS *architecture*, facilitating engagement with experts to address them;
- 2. ITS deployment teams, device manufacturers, and application developers to identify candidate standards-based *solutions* that are available to them for planning, understand the issues associated with those solutions, and mitigate the risks associated with those issues in their deployments. Future ITS deployment teams around the world will have a clearer understanding about which system functions and interfaces are critical for *interoperability* and where standards are defined (or not yet defined) to support interoperability.

1.4 Globally Harmonised Reference Architecture

To establish a foundation for analysing standards, the international HTG7 team first developed the Harmonised Architecture Reference for Technical Standards (HARTS). HARTS facilitates the understanding of the applicability of standards (ITS standards and other Information and Communications Technology (ICT) standards) for the successful implementation of *C-ITS services*⁵. HARTS provided the framework for the HTG7 team to identify key interfaces that need to be standardised in the public interest and served as the basis for performing the gap and overlap analysis of C-ITS standards for those interfaces.

HARTS is an internationally harmonised reference architecture based on:

- National ITS Architecture Framework
 (NIAF) from Australia
- EU's Framework Architecture (FRAME) from Europe
- Connected Vehicle Reference
 Implementation Architecture (CVRIA)
 from the US
- C-ITS architecture constructs from Japan

The body of work produced by HTG7 includes key resources for industry, such as HARTS and the accompanying HTG7 reports. These tools not only provide a starting point for the ITS community to address the technical and interoperability challenges that face wide-scale ITS deployment; but also provide tactical guidance on standards, solutions, and risks for current or near-term project teams planning and implementing ITS systems. Although the reports are based on a globally harmonised **reference architecture**, they formally recognise and accommodate regional and local approaches to ITS services, solutions, and standards.

1.5 Format of HTG7 Reports

The results summarized in this Executive Summary are presented in greater detail in the HTG7 series of reports:

• Executive Overview (<u>HTG7-1</u>) - A high-level summary of the approach, process and the key results of HTG7.

⁵ For the purpose of this report, the term "C-ITS service" is intended to include all ITS services encompassed by the HARTS service packages; at the time of publication 34 are available on the HARTS website (http://htg7.org).



- **Analysis Methodology** (<u>HTG7-2</u>) Presents the HTG7 methodology used to develop HARTS, perform the gap analysis, and develop proposed resolutions.
- Issues and Proposed Resolutions (<u>HTG7-3</u>, this document) Summarises the issues identified through HTG7 analysis and proposes actions to resolve the issues. It introduces a series of more detailed reports, detailed below, each of which identifies the same set of proposed resolutions but adopts a presentation format and includes details relevant to a different perspective.
 - Results: Solution Perspective for Deployers (<u>HTG7-3-1-AU</u>, <u>HTG7-3-1-EU</u>, <u>HTG7-3-1-JP</u>, <u>HTG7-3-1-US</u>) Addresses development or implementation teams in their planning and procurement processes. This detailed report lists each solution along with its associated issues and proposed resolutions and is divided into four regional sub-reports, one for each participating region. (The region is reflected by the appended 2-letter region code⁶).
 - Results: Resolution Perspective for Standards Developers (<u>HTG7-3-2</u>) -Presents each proposed resolution along with its associated issues and the data exchanges affected by these issues. This detailed report can assist standards development communities and governments in their planning and work processes.
 - Results: Service Package Perspective (<u>HTG7-3-3-AU</u>, <u>HTG7-3-3-EU</u>, <u>HTG7-3-3-EU</u>, <u>HTG7-3-3-US</u>) Offers road operators the opportunity to evaluate the "readiness" of *service packages*. This detailed report lists each service package, the data exchanges contained within the service package, and the issues associated with each solution for each data exchange. In this respect, this report helps deployers understand the levels of risk due to the standards gaps. The report is divided into 4 regional reports, one for each participating region. (The region is reflected by the appended the 2-letter region code⁶).
- HARTS Website Overview (<u>HTG7-4</u>) Provides an overview of the HARTS public website, available at <u>http://htg7.org</u>. It describes each aspect of the website and provides instructions on how to submit comments about the information on the website.
- HARTS Reference Compendium (<u>HTG7-5</u>) Provides reference material including:
 - A glossary of terms and associated definitions
 - Acronyms and associated meanings
 - Graphic symbols and associated meanings
 - Explanations of key terms and their inter-relationships

⁶ As defined by ISO 3166-1:2013 Codes for the representation of names of countries and their subdivisions – Part 1: Country codes



1.6 Conventions

While the HTG7 Report set was developed using United Kingdom (UK) English, the HARTS (toolset and website) was developed using US English. Whenever an extract from HARTS is presented within the HTG7 Report set, it will retain its US English spelling.

As noted in footnote 2 on page 2, this report is supplemented by the HARTS Reference Compendium (HTG7-5), which defines all of the terms used throughout this report set. Terms defined in the reference compendium are bold faced and italicised within each HARTS report upon their first use.

1.7 Purpose of this Document

This document, **Results: Solution Perspective: European Union** (HTG7-3-1-EU), is one of nine detailed reports designed to report the issues found and their proposed resolutions, each from a unique perspective. They are adjuncts to the Summary of Issues and Proposed Resolutions (HTG7-3) report, which summarises the results of the HTG7 analysis, summarises the key issues identified during the analysis, and provides a comprehensive set of proposed and prioritised resolutions. The nine detailed reports offer three different technical perspectives, with two of those perspectives further broken out into the four regions encompassed by the HTG7 analysis. The specific detailed reports are as follows:

- Solution Perspective: Assists implementation teams in understanding the issues surrounding each solution contained within the HARTS analysis; there is one detailed report for each of the four regions covered by the HARTS analysis. The name of each of the four reports will have a two-letter identifier (-AU, -EU, -JP or -US) at the end of the report identifier and the electronic filename.
- **Resolution Perspective:** Provides an overarching view of the work that still needs to be completed to provide a fully interoperable C-ITS environment and is intended primarily for standards development organisations and governmental entities.
- Service Package Perspective: For entities that are deploying C-ITS, such as governmental agencies, product vendors and others that are interesting in the complete end-to-end implementation of an ITS service package; there is one detailed report for each of the four regions covered by the HARTS analysis. The identifier of each of the four reports will have a two-letter identifier (-AU, -EU, -JP or -US) at the end of the report title and the electronic filename.

Please note that each of these detailed reports is extremely large and therefore not intended for printing.



2. Report Perspective

There is a separate regional report within this detailed report collection for each of the participating regions: Australia, the European Union, Japan and the United States. In accordance with guidance in ISO 42010-2011, "*Systems and software engineering — Architecture description*", this detailed report is designed to address a specific set of concerns, or perspective, of a specific group of stakeholders.

This detailed report provides the solution perspective for the European Union. It provides a table of HARTS analysis results structured to provide insight to project teams within the European Union who are tasked with assessing, designing, and deploying standards-based solutions when deploying new, or augmenting existing, service packages.

This detailed report is intended to assist these teams in the implementation of specific solutions. This guidance provides an awareness of the issues and associated risks associated with each potential solution. Once a project team is aware of the issues, they will be better prepared to develop appropriate and effective workarounds.

To assist this type of project team, the results in this detailed report are organised by solution, listing each issue/proposed resolution pair that is applicable to the solution. Under each issue/ proposed resolution pair that is applicable to the solution, the detailed report then alphabetically lists each *information triple* (*source*, *destination* and information flow) that uses the solution and is associated with the indicated issue/ proposed resolution pairs. This is summarised in Figure 1.

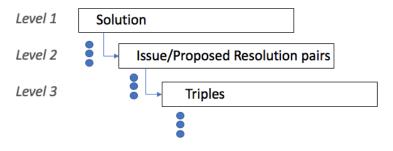


Figure 1: Solution Perspective Overview



3. Report Structure

As shown in Figure 1 above, there are multiple levels within the detailed report. Each level will consist of one, or possibly two, header rows followed by one or more content rows. Given the multi-level detailed report structure, higher-level sorting fields are typically displayed in header rows (e.g., at the start of the detailed report and when values change) while the lowest-level sorting fields may only appear in content rows. When the header field value is changed, the page header for each subsequent page is changed accordingly. Figure 2 below illustrates the detailed report structure, and each field included in the detailed report is subsequently defined in Table 1.

Level 1	Solution N	lame:	Text			Number of Issues:	5	Total Issue Sev	verity: 5	54
	text									
Level 2	lssue	Issue Des	cription	Issue Severity	Proposed Resolution	Resolution Descriptio	n	Timeframe	Applicabil	lity
	text	text		Ultra	text	text		Urgent	AU, EU	
Level 3			Informatio	n Triples using this solu	tion and affected by this issue that w	ould be addressed by this Propos	sed Resolu	tion		
	Source			Destination		Flow				
	Source 1			Destinatio	on 1	Flow 1				
	Source 1			Destinatio	on 2	Flow 1				
	Source 2			Destinatio	on 5	Flow 23				
	Source 3			Destinatio	on 9	Flow 45				

Figure 2: Solution Perspective Report Structure

The following table contains the field name, its description and its value range for each of the detailed report fields in Chapter 4. They are listed in the table below according to the order in which they appear in the detailed report in Chapter 4. Additionally, the table also shows the sorting criteria used for the detailed report, including the order of sorting fields, the sorting method used, and the sort direction.



Table 1: Solution Perspective Report Field Descriptions

Report		Field Information			Sort Crite	ria
Level	Title	Description	Value Range	Order	Measure	Direction
	Solution Name	The name of the solution expressed as a hyphenated concatenation of the HARTS <i>data profile</i> and the HARTS <i>communication profile</i> that collectively define the solution.		1	Alphabetic	Ļ
	Number of Issues	A count of the issues that have been assigned to the solution.	Non-negative integer	-	-	-
1	Total Issue Severity	The sum of the severity rating values of all issue instances associated with the solution. The severity rating value for each severity level is assigned below: 1. Low = 1 2. Medium = 3 3. High = 8 4. Ultra = 32		-	-	-
	Solution Description	A summary description of the information flow. NOTE: Only the description text is displayed; the title of this field is not shown.	ASCII	_	-	-
2	Issue	The name of the issue, which will correspond to one of the 43 defined issue types.	ASCII; See HTG7-5 for a complete list of issue types.		Alphabetic	Ļ
	Issue Description	A textual description of the issue type.	ASCII	-	-	-

⁷ ASCII (American Standard Code for Information Exchange)

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Report		Field Information			Sort Crite	ria
Level	Title	Description	Value Range	Order	Measure	Direction
	Issue Severity	An indication of how severe the issue is deemed to be. If the severity of the issue needs to be decided when assigning the issue, multiple issues can be created with slightly different names and definitions. For example, "Data may not be fully defined (low)" and "Data not fully defined (medium)".	High, Medium, Low)	2	List Order	Ļ
	Proposed Resolution	The name of the proposed resolution, which will correspond to one of the 112 defined proposed resolutions.		_	-	-
	Resolution Description	A description of the proposed resolution.	ASCII	-	-	-
	Timeframe	The timeframe in which the proposed resolution needs to be addressed in order to eliminate, or mitigate, the associated issues(s) which will facilitate wide-scale deployments of impacted solutions, information triples and service packages.	Near-Term, Medium-	-	-	-
	Applicability	The HARTS region or regions in which the proposed resolution is relevant.	Multiple from the following list (AU, EU, JP, US)	_	-	-
3	Source	The HARTS <i>physical object</i> that is the source of the information in the flow. The combination of the source, destination and the information flow constitute the "information triple".	ASCII	4	Alphabetic	Ļ

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Report		Field Information			Sort Crite	ria
Level	Title	Description	Value Range	Order	Measure	Direction
	Destination	The HARTS physical object that is the destination of the information in the flow. The combination of the source, destination and the information flow constitute the "information triple".		5	Alphabetic	Ļ
	FlowName	Name for the information that is exchanged between two physical objects in the <i>physical view</i> of HARTS. Information flows and their communication requirements define the interfaces which formed the basis for the standards analysis conducted by HTG7. The combination of the source, destination and the information flow constitute the "information triple".	ASCII	6	Alphabetic	Ļ



The table of results is shown below.

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HTG7-3-1-EU: Solution Perspective European Union

11:51:05 AM

Solution Name:	(None-Data) - BTP/GeoNetworking/G5	Number of Issues:	
Solution Name:	(None-Data) - BTP/GeoNetworking/G5	Number of Issues:	

This solution is used within the E.U., and Australia. It combines standards associated with (None-Data) with those for V-X: BTP/GeoNetworking/G5. The (None-Data) standards include an unspecified BTP/GeoNetworking/G5 standards include lower-layer standards that support broadcast, near constant, low latency vehicle-to-vehicle and vehicle-to-infrastructure communications using the ETSI GeoNetworking/G5.

lssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to pro transmitter of a message is not the same or generated by a central system and sent to t generated by one vehicle and rebroadcast	f the generator of the message (e the RSE for transmission or a mes
Source			Triples using this solution and affected by stination	this Issue that would be addressed by the Proposed Re	esolution Flow Name
Connected Vehicle Roa	adside Equipment	Per	rsonal Information Device		pedestrian safety information
Connected Vehicle Roa	adside Equipment	Vel	hicle OBE		traffic gap information
Connected Vehicle Roa	adside Equipment	Ve	hicle OBE		vehicle payment request
Other Vehicle OBEs		Vel	hicle OBE		intersection infringement info
Personal Information I	Device	Co	nnected Vehicle Roadside Equipment		personal location
Personal Information I	Device	Vel	hicle OBE		personal location
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		intersection infringement info
Vehicle OBE		Oth	her Vehicle OBEs		intersection infringement info
Vehicle OBE		Oth	her Vehicle OBEs		vehicle road information
Vehicle OBE		Oth	her Vehicle OBEs		vehicle travel time data
lssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Intersection infringement	Develop an internationally acceptable ITS a for providing intersection infringment infor	
				this Issue that would be addressed by the Proposed Re	
Source			stination		Flow Name
Other Vehicle OBEs			hicle OBE		intersection infringement info
Vehicle OBE		Cor	nnected Vehicle Roadside Equipment		intersection infringement info
Vehicle OBE		Oth	her Vehicle OBEs		intersection infringement info

6	То	tal Issue Severity:	45	
6	То	tal Issue Severity:	45	
		at the upper layers ndle over the 5.9G		
		Timeframe	Applicability	
ere the (e.g., a messag essage	je	Urgent	Australia, Eur Union	opean
		Timeframe	Applicability	
fines the rules ent.		Urgent	United States	;

	(None-Data) - BTP/GeoNetworking/G5			Number of Issues: 6 T	otal Issue Severity	: 45
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device).	Urgent	Australia, European Union, United States, Japan
				by this Issue that would be addressed by the Proposed Resolution		
Source Vehicle OBE			stination her Vehicle OBEs	Flow Name vehicle road information		
VENICIE OBE				venicle road mormation		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
icertainty about ist revocation echanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
Source			Triples using this solution and affected stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	oadside Equipment		rsonal Information Device	pedestrian safety information		
Connected Vehicle Ro	oadside Equipment	Ve	hicle OBE	traffic gap information		
Connected Vehicle Ro	oadside Equipment	Ve	hicle OBE	vehicle payment request		
Other Vehicle OBEs		Ve	hicle OBE	intersection infringement info		
Personal Information	Device	Co	nnected Vehicle Roadside Equipment	personal location		
Personal Information	Device	Ve	hicle OBE	personal location		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	intersection infringement info		
Vehicle OBE		Ot	her Vehicle OBEs	intersection infringement info		
Vehicle OBE		Ot	her Vehicle OBEs	vehicle road information		
Vehicle OBE						

lution Name:	(None-Data) - BTP/GeoNetworking/G5			Number of Issues: 6 To	otal Issue Severity	45
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, Europear Union
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	adside Equipment		rsonal Information Device	pedestrian safety information		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	traffic gap information		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	vehicle payment request		
Other Vehicle OBEs		Ve	hicle OBE	intersection infringement info		
Personal Information	Device	Co	nnected Vehicle Roadside Equipment	personal location		
Personal Information	Device	Ve	hicle OBE	personal location		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	intersection infringement info		
Vehicle OBE		Otl	her Vehicle OBEs	intersection infringement info		
Vehicle OBE		Ot	her Vehicle OBEs	vehicle road information		
Vehicle OBE		Otl	her Vehicle OBEs	vehicle travel time data		
ıe	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
otocol features	A feature of the protocol is not fully	Low	V-L: GeoNetworking	Determine how to implement GeoNetworking without unduly flooding the network and, if	Urgont	Australia Europoa
tly not applicable	applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.			feasible, prove out concept.	Urgent	
tly not applicable he given context	applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9	Information	Triples using this solution and affected b	feasible, prove out concept.	orgent	
tly not applicable he given context Source	applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Information T Des		feasible, prove out concept.	orgent	
tly not applicable he given context Source Connected Vehicle Ro	applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Information ⁻ Des Per	Triples using this solution and affected b stination	feasible, prove out concept. If the proposed Resolution Flow Name		
tly not applicable he given context Source Connected Vehicle Ro Connected Vehicle Ro	applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Information ⁻ Des Per Ve	Triples using this solution and affected b stination rsonal Information Device	feasible, prove out concept. y this Issue that would be addressed by the Proposed Resolution Flow Name pedestrian safety information		
tly not applicable he given context Source Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro	applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Information ⁻ Des Per Ve Ve	Triples using this solution and affected b stination rsonal Information Device hicle OBE	feasible, prove out concept.		
tly not applicable he given context Source Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro Other Vehicle OBEs	applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Information Tops Des Per Ve Ve Ve	Triples using this solution and affected b stination rsonal Information Device hicle OBE hicle OBE	feasible, prove out concept. avy this Issue that would be addressed by the Proposed Resolution Flow Name pedestrian safety information traffic gap information vehicle payment request		
tly not applicable he given context	applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Information Tops Des Per Ve Ve Ve Co	Triples using this solution and affected be stination rsonal Information Device hicle OBE hicle OBE	feasible, prove out concept. avy this Issue that would be addressed by the Proposed Resolution Flow Name pedestrian safety information traffic gap information vehicle payment request intersection infringement info		
tly not applicable the given context Source Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro Other Vehicle OBEs Personal Information	applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Information Tops Des Per Ve Ve Ve Co Ve	Triples using this solution and affected be stination rsonal Information Device hicle OBE hicle OBE hicle OBE nnected Vehicle Roadside Equipment	feasible, prove out concept. av this Issue that would be addressed by the Proposed Resolution Flow Name pedestrian safety information traffic gap information vehicle payment request intersection infringement info personal location		
Source Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro Other Vehicle OBEs Personal Information	applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Information T Des Per Ve Ve Ve Co Ve	Triples using this solution and affected be stination rsonal Information Device hicle OBE hicle OBE hicle OBE nnected Vehicle Roadside Equipment hicle OBE	feasible, prove out concept. avy this Issue that would be addressed by the Proposed Resolution Flow Name pedestrian safety information traffic gap information vehicle payment request intersection infringement info personal location personal location		
tly not applicable the given context Source Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro Other Vehicle OBEs Personal Information Vehicle OBE	applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Information T Des Per Ve Ve Ve Co Ve Co Ot	Triples using this solution and affected be stination rsonal Information Device hicle OBE hicle OBE hicle OBE nnected Vehicle Roadside Equipment hicle OBE	feasible, prove out concept. y this Issue that would be addressed by the Proposed Resolution Flow Name pedestrian safety information traffic gap information vehicle payment request intersection infringement info personal location personal location intersection infringement info intersection infringement info		Australia, European Union, United State

Solution Name:	(None-Data) - BTP/GeoNetworking/G5			Number of Issues:
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Intersection infringement	Develop an internationally acceptable ITS application specification that def for providing intersection infringment information within a local environme
		Information	Triples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution
Source		De	stination	Flow Name
Other Vehicle OBEs		Ve	hicle OBE	intersection infringement info
Vehicle OBE		Со	nnected Vehicle Roadside Equipment	intersection infringement info
Vehicle OBE		Ot	her Vehicle OBEs	intersection infringement info
Solution Name:	(None-Data) - DATEX Messaging TCP			Number of Issues:

This solution is used within the European Union. It combines standards associated with (None-Data) with those for C-C: DATEX Messaging TCP. The (None-Data) standards include an unspecified set of standards at the upper layers. The C-C: DATEX Messaging TCP standards include lower-layer standards that support partially secure communications between two centres as commonly used in Europe.

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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	Develop one or more internationally accept standards and define rules on when to use support for authentication, authorization, needed. Once the application layer standard(s) are standards will need to be updated to docu	which one. The standard(s) shou confidentiality, and non-repudiat developed, most ITS Information
Source			- Triples using this solution and affected by estination	γ this Issue that would be addressed by the Proposed R	esolution Flow Name
Authorizing Center			enter		permission request received
Authorizing Center		Ot	ther Authorizing Centers		permission request coordination
Cellular Communicatio	ons Provider	Tr	affic Management Center		comm-derived travel time data
Cellular Communicatio	ons Provider	Tr	ansportation Information Center		comm-derived travel time data
Center		Au	uthorizing Center		permission request
Center		Au	uthorizing Center		permission update request
Center		М	aint and Constr Management Center		equipment maintenance request
Center		М	ap Update System		map update notification
Center		Se	ervice Monitor System		service maintenance request
Center		Se	rvice Monitor System		system monitoring
Data Distribution Syste	em	Se	ervice Monitor System		service maintenance request
Data Distribution Syste	em	Se	ervice Monitor System		support system status
Emergency Manageme	ent Center	Tr	affic Management Center		emergency traffic control request
Emissions Managemer	nt Center	Tr	ansportation Information Center		air quality information
Fleet and Freight Mana	agement Center	In	termodal Terminal		freight transportation status
Fleet and Freight Mana	agement Center	Tr	ansportation Information Center		route request
Intermodal Terminal		Fle	eet and Freight Management Center		freight transportation status

6	Total Issue Severity:	45	
	Timeframe	Applicability	
fines the rules ent.	Urgent	United States	
2	Total Issue Severity:	35	
<u> </u>	Total Issue Severity.	55	

	Timeframe	Applicability	
communication puld include ation, as on Layer	Urgent	Australia, European Union, United States	5
, at(s).			

lution Name: (None-Data) - DATEX Messaging TCP		Number of Issues: 2 To	tal Issue Severity	: 35
Intermodal Terminal	Traffic Management Center	intermodal freight event information		
Maint and Constr Management Center	Map Update System	current infrastructure restrictions		
Map Update System	Center	map updates		
Map Update System	Other Map Update Systems	map update coordination		
Other Authorizing Centers	Authorizing Center	permission request coordination		
Other Map Update Systems	Map Update System	map update coordination		
Other Transportation Information Centers	Transportation Information Center	multimodal information		
Other Transportation Information Centers	Transportation Information Center	transit service information		
Parking Management System	Map Update System	parking facility geometry		
Privacy Protection Gateway	Center	protected location and address flow		
Service Monitor System	Center	RSE fault data		
Service Monitor System	Center	service maintenance status		
Service Monitor System	Data Distribution System	service maintenance status		
Service Monitor System	Maint and Constr Management Center	RSE fault data		
Service Monitor System	Wide Area Information Disseminator	service maintenance status		
Traffic Management Center	Emergency Management Center	emergency traffic control information		
Traffic Management Center	Intermodal Terminal	intermodal freight traffic confirmation		
Traffic Management Center	Map Update System	map update notification		
Traffic Regulatory Authority	Transportation Information Center	traffic-related regulations		
Transportation Information Center	Fleet and Freight Management Center	route plan		
Transportation Information Center	Media	traveler information for media		
Transportation Information Center	Other Transportation Information Centers	multimodal information		
Transportation Information Center	Other Transportation Information Centers	transit service information		
Transportation Information Center	Wide Area Information Disseminator	traffic-related regulations		
Transportation Information Center	Wide Area Information Disseminator	traveler information for media		
Wide Area Information Disseminator	Service Monitor System	service maintenance request		
Wide Area Information Disseminator	Service Monitor System	support system status		
sue Issue Description	Issue Severity Proposed Resolution	Resolution Description	Timeframe	Applicability
ata profile notPerformance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra C-C: System monitoring	Develop an internationally acceptable ITS application specification for the Service Monitor System to monitor other centers and support systems and to report issues.	Urgent	Australia, Europear Union, United State
		this Issue that would be addressed by the Proposed Resolution	·	
Source	Destination	Flow Name		
Center	Service Monitor System	system monitoring		
Data Distribution System	Service Monitor System	support system status		
Data Distribution System Wide Area Information Disseminator	Service Monitor System	support system status		

Source	Destination	Flow Name
Center	Service Monitor System	system monitoring
Data Distribution System	Service Monitor System	support system status
Wide Area Information Disseminator	Service Monitor System	support system status

Solution Name:	(None-Data) - DATEX Messaging TCP				Number of Issues:
lssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: EU emergency traffic control	Update DATEX to support the provision of en complete application specification.	nergency traffic control infor
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resc F	olution Flow Name
Emergency Managem	ent Center		affic Management Center		emergency traffic control request
Traffic Management	Center	Em	ergency Management Center	6	emergency traffic control informatic
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Core authorization - coordination among centres	Develop an internationally acceptable standa coordination information triples contained w	-
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resc F	plution flow Name
Authorizing Center		Otl	her Authorizing Centers	ł	permission request coordination
Other Authorizing Cer	nters	Au	thorizing Center	ţ	permission request coordination
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Core authorization - base services	Develop an internationally acceptable standar request, permission update request, permiss identification information triples contained w	ion request received, and dev
Source			- Triples using this solution and affected b stination	ے۔ y this Issue that would be addressed by the Proposed Resc ح	olution low Name
Authorizing Center			nter		permission request received
Center		Au	thorizing Center		permission request
Center			thorizing Center		permission update request

2	Total Issue Severity:	35	
	Timeframe	Applicability	
mation with a	Near-term	Australia, Eur Union	opean
on			
	Timeframe	Applicability	
equest Service Package	Near-term	Australia, Eur Union, United	
	Timeframe	Applicability	
ets, permission vice Service Package	Urgent e.	Australia, Eur Union, United	

Image: the state information flow.ContributioncontributionContributionUnion, United stateImage: the state information flow.Union, United stateUnion, United stateUnion, United stateImage: the state information flow.Union, United stateImage: the state information flow.Image: the state information flow.Image: the state information flow.Image: the state information flow.Union, United stateImage: the state information flow.Image: the state information flow.<	olution Name:	(None-Data) - DATEX Messaging TCP			Number of Issues: 2	Total Issue Severit	y: 35
Bayes of the D3 stack have not been defined Coordination equipment maintenance and status information Union, United stat Internation flow. Union, United stat Ender Union End	ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
		layers of the OSI stack have not been defined	Ultra			Near-term	Australia, European Union, United States
Center Sende Monitor System Sende Monito	Source						
bat Dath Dubbin System Service Monitor System	Center		Ma	int and Constr Management Center	equipment maintenance request		
Service Mainter System Center Service Mainter System Service Mainter S	Center		Ser	rvice Monitor System	service maintenance request		
Service Monitor SystemCenterservice maintenance statusService Monitor SystemDBB Distribution Systemservice maintenance statusService Monitor SystemMaint and Constr Musangement CenterSFE fault damaService Monitor SystemWalker and Constr Musangement CenterSFE fault damaService Monitor SystemService Monitor System <td>Data Distribution Sy</td> <td>/stem</td> <td>Ser</td> <td>vice Monitor System</td> <td>service maintenance request</td> <td></td> <td></td>	Data Distribution Sy	/stem	Ser	vice Monitor System	service maintenance request		
service Monitor System → Service maintenance satus service Monitor System → Sie Public data and compt Management Center Service Monitor System → Sie Public Proposed Area Information Disseminator Service Monitor System → Sie Public Proposed Area Information Disseminator Service Monitor System → Service maintenance satus Service Maint	Service Monitor Sys	tem	Cer	nter	RSE fault data		
service Monitor System Maix and Constr Management Center Bis full data service Monitor System Service Monitor System service maintenance status Vice Area Information Disseminator Service Monitor System service maintenance request Vice Area Information Parker Issue Service Monitor System service maintenance request Vice Area Information Parker Issue Service Monitor System Resolution Description Resolution Specification specification specification that defines the Upgent for Upgent information specification	Service Monitor Sys	tem	Ce	nter	service maintenance status		
Service Monitor System Wide Area information Disseminator service Monitor System service maintenance request Service Monitor System Service Monitor System Service Monitor System Resolution Description Immediate Control Main Account System Service Monitor System Resolution Description Immediate Control Main Account System Mai	Service Monitor Sys	tem	Da	ta Distribution System	service maintenance status		
Vide Are Information Service Monitor System Service maintenance request Vide Area Information Flow Vine frame Applicability Vide Area Information Flow Issue Description Issue Description Issue Description Implicability Applicability Applicability <td>Service Monitor Sys</td> <td>stem</td> <td>Ma</td> <td>int and Constr Management Center</td> <td>RSE fault data</td> <td></td> <td></td>	Service Monitor Sys	stem	Ma	int and Constr Management Center	RSE fault data		
spe Issue Description Issue Severity Proposed Resolution Resolution Description Time frame Applicability at a profile not fined Performance, functionality, and the upper- layers of the OS Istack have not been defined Ultra C:: Distribute maps Develop an internationally acceptable ITS application specification that defines the rules for updating maps, roadway geometry, and intersection geometry among centres (e.g., between a Map Update System and a centre). Urgent Australia, Europea Union, United Stat Center Map Update System	Service Monitor Sys	stem	Wi	de Area Information Disseminator	service maintenance status		
ata profile not fined Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow. Ultra C-C: Distribute maps Develop an internationally acceptable ITS application specification that defines the rules for updating maps, roadway geometry, and intersection geometry among centres (e.g., between a Map Update System and a centre). Urgent Australia, Europea Union, United Stat Centre Neg Update System and a flected by the solution and affected by the solution and affected by the solution detween a Map Update System current infrastructure restrictions Urgent Australia, Europea Union, United Stat Maint and Constr Management Center Map Update System map update coordination Image updates Image update Image u	Wide Area Informat	tion Disseminator	Ser	rvice Monitor System	service maintenance request		
effined layers of the OSI stack have not been defined office for updating maps, roadway geometry, and intersection geometry among centres (e.g., to the properties descent by the Properies descent by the Properies descent by the	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Source Destination Flow Name Center Map Update System map update notification Maint and Constr Management Center Map Update System current infrastructure restrictions Map Update System Center map update System map update coordination Map Update Systems Other Map Update System map update System map update coordination Other Map Update Systems Map Update System map update coordination map update System Parking Management System Map Update System map update System map update System map update System Traffic Management Center Map Update System Map Update System map update coordination map update System Traffic Management System Map Update notification ter Map Update System Map Update System Map Update System map update notification Timeframe Applicability Traffic Management System Map Update System Map Update System map update notification Map Update System map update coordination Subce Servition Performance, functionality, and the upper- layers of the OSI stack have not b		layers of the OSI stack have not been defined	Ultra	C-C: Distribute maps	for updating maps, roadway geometry, and intersection geometry among centres (e.g.,	Urgent	Australia, European Union, United State
Center Map Update System map update notification Maint and Constr Management Center Map Update System current infrastructure restrictions Map Update System Center map update coordination Map Update Systems Other Map Update Systems map update coordination Other Map Update Systems Map Update System map update coordination Parking Management System Map Update System map update coordination Traffic Management System Map Update System map update coordination Traffic Management System Map Update System map update coordination Traffic Management System Map Update System map update coordination Traffic Management System Map Update System map update coordination tage of the OSI stack have not been defined fined V-L: Private location and address Pevelop an internationally acceptable ITS application specification that defines the operation of a Privacy Protection Gateway. Urigent Australia, Europeae Union, United State Source Utformation Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Urigent Union, United State	Source						
Map Update System Center map update Map Update System Other Map Update Systems map Update Systems map update coordination Other Map Update Systems Map Update System map update coordination Parking Management System Map Update System map update coordination Traffic Management System Map Update System map update coordination Traffic Management System Map Update System map update coordination Traffic Management System Map Update System map update coordination Traffic Management System Map Update System map update coordination Traffic Management System Map Update System map Update System Traffic Management System Map Update System map Update System Traffic Management System Map Update System map Update System Step Cescription Issue Secverity Proposed Resolution Resolution Description map update System Supplication specification that defines the Uprese Union Uprese (Sistex have not been defined for this information flow. Ultra V-L: Private location and affected by this Issue that would be addressed by the Proposed Resolution pervision of a Privacy Protection Gateway. Urgent Australia, Europea Union, Union Uniot Sistex have not been Union Union, United Stat							
Map Update System Other Map Update Systems parking facility geometry Traffic Management System map Update System <th< td=""><td>Maint and Constr N</td><td>lanagement Center</td><td>Ma</td><td>ip Update System</td><td>current infrastructure restrictions</td><td></td><td></td></th<>	Maint and Constr N	lanagement Center	Ma	ip Update System	current infrastructure restrictions		
Other Map Update System Map Update System map update coordination Parking Management System Map Update System parking facility geometry Traffic Management System Map Update System map update notification Traffic Management System Issue Description Issue Severity Proposed Resolution and affected by this Issue that would be addressed by the Proposed Resolution flow. Timeframe Applicability ue Issue Description Issue Severity Proposed Resolution and affected by this Issue that would be addressed by the Proposed Resolution Specification that defines the Urgent Australia, Europea operation of a Privacy Protection Gateway. Urgent Australia, Europea Operation of a Privacy Protection Gateway. Source Unformation flow. Unformation triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Flow Name Flow Name	Map Update System	n	Ce	nter	map updates		
Parking Management System Map Update System parking facility geometry Traffic Management Center Map Update System map update notification sue Issue Description Issue Severity Proposed Resolution Resolution Description Timeframe Applicability at a profile not fined Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow. Ultra V-L: Private location and address Develop an internationally acceptable ITS application specification that defines the operation of a Privacy Protection Gateway. Urgent Australia, European Union, United State source Unformation Flow. Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Destination Flow Name	Map Update System	n	Otl	ner Map Update Systems	map update coordination		
Traffic Management Curve May Update System map update notification sue Issue Description Issue Severity Proposed Resolution Resolution Description Timeframe Applicability atta profile not fined Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow. Ultra V-L: Private location and address Develop an internationally acceptable ITS application specification that defines the operation of a Privacy Protection Gateway. Urgent Australia, European Union, United State Source Union, United State Solution Destination Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Destination Flow Name	Other Map Update	Systems	Ma	ip Update System	map update coordination		
Issue Description Issue Severity Proposed Resolution Resolution Description Timeframe Applicability ata profile not ifined Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow. Ultra V-L: Private location and address Develop an internationally acceptable ITS application specification that defines the operation of a Privacy Protection Gateway. Urgent Australia, Europea Union, United State Source Source Union Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Destination Flow Name	Parking Manageme	nt System	Ma	p Update System	parking facility geometry		
Ata profile not efined Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow. Ultra V-L: Private location and address Develop an internationally acceptable ITS application specification that defines the operation of a Privacy Protection Gateway. Urgent Australia, European Union, United State Source Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Flow Name	Traffic Managemen	t Center	Ma	ip Update System	map update notification		
efined layers of the OSI stack have not been defined for this information flow. Union, United State of this information flow.	ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Source Destination Flow Name		layers of the OSI stack have not been defined	Ultra			Urgent	Australia, European Union, United States
	Source						
		Gateway					
		Page 7 of 137					

Solution Name:	(None-Data) - DATEX Messaging TCP				Number of Issues:	2	Total Issue Severity:	35
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Develop standard for electronic distribution of traffic regulations	Develop an internationally acceptable standard to e of electronic traffic regulations to enable proper op jurisdictional boundaries.	-	-	Urgent	Australia, Europe Union, United St
Source			Friples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Resolution Flow Nan				
Traffic Regulatory A	uthority		insportation Information Center		lated regulations			
Transportation Info	rmation Center	Wi	de Area Information Disseminator	traffic-re	lated regulations			
olution Name:	(None-Data) - EU-ICIP-C2F				Number of Issues:	5	Total Issue Severity:	54

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							:		•	:		•
							:			:		
							:	:	:	:	:	:
							:	:	:			:

This solution is used within the European Union. It combines standards associated with (None-Data) with those for I-F: EU-ICIP-C2F. The (None-Data) standards include an unspecified set of standards at the upper layers. The I-F: EU-ICIP-C2F standards include lower-layer placeholder for a European solution currently under development. It is planned that the EU-ICIP will provide guidance as to what lower-layer standards should be used in various environments, but it is not expected to directly specify these layers.

lssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Security not orovided	The solution does not provide any significant security and a communications link using this solution is easily hacked.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to standards and define rules on when to use each one. The standar support for authentication, authorization, confidentiality, and no needed.	d(s) should
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name	
Center		Co	nnected Vehicle Roadside Equipment	RSE application information	on
Center		Со	nnected Vehicle Roadside Equipment	RSE application install/upg	grade
Center		Co	nnected Vehicle Roadside Equipment	RSE control commands	
Connected Vehic	le Roadside Equipment	Ce	nter	device identification	
Connected Vehic	le Roadside Equipment	Ce	nter	protected location and ad	dress flow
Connected Vehic	le Roadside Equipment	Ce	nter	RSE application status	
Connected Vehic	le Roadside Equipment	Da	ta Distribution System	local situation data	
Connected Vehicl	le Roadside Equipment	Fie	ld Support Equipment	RSE application install/upg	grade
Connected Vehic	le Roadside Equipment	Fie	ld Support Equipment	RSE configuration settings	\$
Connected Vehicl	le Roadside Equipment	Fie	eld Support Equipment	RSE control commands	
Connected Vehic	le Roadside Equipment	Fie	ld Support Equipment	RSE status	
Connected Vehicl	le Roadside Equipment	ITS	Roadway Equipment	environmental situation d	lata
Connected Vehic	le Roadside Equipment	ITS	S Roadway Equipment	intersection infringement	info
Connected Vehicl	le Roadside Equipment	ITS	Roadway Equipment	pedestrian location inform	nation
Connected Vehic	le Roadside Equipment	ITS	Roadway Equipment	roadway dynamic signage	data
Connected Vehicl	le Roadside Equipment	ITS	S Roadway Equipment	signal preemption request	t
Connected Vehic	le Roadside Equipment	ITS	S Roadway Equipment	signal priority service requ	Jest
Connected Vehic	le Roadside Equipment	ITS	S Roadway Equipment	signal service request	
Connected Vehic	le Roadside Equipment	ITS	S Roadway Equipment	traffic situation data	
Connected Vehicl	le Roadside Equipment	Ma	aint and Constr Management Center	reduced speed warning st	atus

			-
	Timeframe	Applicability	
ommunication uld include ation, as	Urgent	Australia, Eur Union, United	opean d States

Soverside Volta BandowsMains and Goate Mangement GameMains and Source SourceCarverside Volta Bandowski KanarmetOne Canonast Volta Bandowski Kanarmetand and volta bandowski KanarmetCarverside Volta Bandowski KanarmetSock Game SourceMains Canonast Volta Bandowski KanarmetCarverside Volta Bandowski KanarmetSock Game SourceMains Canonast Volta Bandowski KanarmetCarverside Volta Bandowski KanarmetTarle Mangemet GameMains Canonast Volta Bandowski KanarmetCarverside Volta Bandowski KanarmetTarle Mangemet GameMains Canonast Volta Bandowski KanarmetCarverside Volta Bandowski KanarmetTarle Mangemet GameMains Canonast Volta Bandowski KanarmetCarverside Volta Bandowski KanarmetTarle Mangemet GameMains Canonast Volta Bandowski KanarmetCarverside Volta Bandowski KanarmetTarle Mangemet GameMains Canonast Volta Bandowski KanarmetCorverside Volta Bandowski KanarmetTarle Mangemet GameMains Canonast Volta Bandowski KanarmetCorverside Volta Bandowski KanarmetTarle Mangemet GameMains Canonast Volta Bandowski KanarmetCorverside Volta Bandowski KanarmetTarle Mangemet GameMains Canonast Volta Bandowski KanarmetCorverside Volta Bandowski KanarmetTarle Mangemet GameMains Canonast Volta Bandowski KanarmetCorverside Volta Bandowski KanarmetTarle Mangemet GameMains Canonast Volta Bandowski KanarmetCorverside Volta Bandowski KanarmetTarle Mangemet GameMains Canonast Volta Bandowski KanarmetCorverside Volta Bandowski KanarmetTarle Mangemet GameMains Canonast Volta Bandowski Kana	olution Name: (None-Data) - EU-ICIP-C2F		Number of Issues:5Total Issue Severity:54
Carcats Weis basis faijanetEnd Concord Weis Basis faijanetweight and the lege Merg dataCorrects Weis Basis faijanetEnd Kanagared CodeEar andCorrects Weis Basis faijanetTalk Kanagared Codeensemal basis to thatCorrects Weis Basis faijanetTalk Kanagared Codeensema basis faijanetCorrects Weis Basis faijanetTalk Kanagared Codeensema basis faijanetCorrects Weis Basis faijanetTalk Kanagared Codeensema basis faijanetCorrects Weis Basis faijanetTalk Kanagare	Connected Vehicle Roadside Equipment	Maint and Constr Management Center	vehicle signage application status
Concept which backets tagenet!Annut Mangement Systemconcept which backets tagenet!Concept which backets tagenet!Sin statusConcept which backets fagunersTells Mangement Cenerwerrameted Status indiaConcept which backets fagunersTells Mangement Cenerwerrameted StatusConcept which backets fagunersTells Mangement Cenertells statusConcept which backets fagunersTells Mangement Cenerwerrameted StatusConcept which backets fagunersMangement Cenerwerrameted StatusConcept which backets fagunersMangement Cenerwerrameted Status </td <td>Connected Vehicle Roadside Equipment</td> <td>Map Update System</td> <td>vehicle location data for mapping</td>	Connected Vehicle Roadside Equipment	Map Update System	vehicle location data for mapping
Constabilities instabilities	Connected Vehicle Roadside Equipment	Other Connected Vehicle Roadside Equipment	wrong way vehicle detected
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	ITS Roadway Equipment	Connected Vehicle Roadside Equipment	intersection control status
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	ITS Roadway Equipment	Connected Vehicle Roadside Equipment	pedestrian crossing status

Solution Name:	(None-Data) - EU-ICIP-C2F		Number of Issues:
ITS Roadway Equipment		Connected Vehicle Roadside Equipment	reduced speed warning info
ITS Roadway Equipment		Connected Vehicle Roadside Equipment	roadway dynamic signage status
ITS Roadway Equipment		Connected Vehicle Roadside Equipment	track status
ITS Roadway Equipment		Connected Vehicle Roadside Equipment	traffic gap information
ITS Roadway Equipment		Connected Vehicle Roadside Equipment	vehicle signage local data
ITS Roadway Equipment		Maint and Constr Management Center	noise data
ITS Roadway Equipment		Maint and Constr Management Center	roadway advisory radio status
ITS Roadway Equipment		Maint and Constr Management Center	roadway dynamic signage status
ITS Roadway Equipment		Maint and Constr Management Center	speed monitoring information
ITS Roadway Equipment		Maint and Constr Management Center	traffic detector data
ITS Roadway Equipment		Maint and Constr Management Center	traffic images
ITS Roadway Equipment		Other ITS Roadway Equipment	signal control data
ITS Roadway Equipment		Other Traffic Signal Controller	local priority request details
ITS Roadway Equipment		Traffic Management Center	environmental sensor data
ITS Roadway Equipment		Traffic Management Center	pedestrian safety warning status
ITS Roadway Equipment		Traffic Management Center	rail crossing blockage notification
ITS Roadway Equipment		Traffic Management Center	rail crossing status
ITS Roadway Equipment		Traffic Management Center	right-of-way request notification
ITS Roadway Equipment		Traffic Management Center	roadway advisory radio status
ITS Roadway Equipment		Traffic Management Center	roadway dynamic signage status
ITS Roadway Equipment		Traffic Management Center	roadway warning system status
ITS Roadway Equipment		Traffic Management Center	signal control status
ITS Roadway Equipment		Traffic Management Center	speed monitoring information
ITS Roadway Equipment		Traffic Management Center	stop sign gap assist status
ITS Roadway Equipment		Traffic Management Center	traffic detector data
ITS Roadway Equipment		Traffic Management Center	traffic images
ITS Roadway Equipment		Traffic Management Center	variable speed limit status
ITS Roadway Equipment		Wayside Equipment	rail crossing blockage notification
ITS Roadway Equipment		Wayside Equipment	rail crossing operational status
Maint and Constr Managem	nent Center	Connected Vehicle Roadside Equipment	reduced speed warning info
Maint and Constr Managem	nent Center	Connected Vehicle Roadside Equipment	vehicle signage application info
Maint and Constr Managem	nent Center	ITS Roadway Equipment	roadway advisory radio data
Maint and Constr Managem	nent Center	ITS Roadway Equipment	roadway dynamic signage data
Maint and Constr Managem	nent Center	ITS Roadway Equipment	speed monitoring control
Maint and Constr Managem	nent Center	ITS Roadway Equipment	traffic detector control
Maint and Constr Managem	nent Center	ITS Roadway Equipment	video surveillance control

5



Solution Name:	(None-Data) - EU-ICIP-C2F		Number of Issues: 5	Total Issue Severity:	54	
Map Update System		Connected Vehicle Roadside Equipment	map updates			-
Map Update System		Connected Vehicle Roadside Equipment	parking facility geometry			
Map Update System		Connected Vehicle Roadside Equipment	roadway geometry			
Map Update System		Parking Management System	parking facility geometry			
Map Update System		Public Information Device	map updates			
Other Connected Vehicle R	oadside Equipment	Connected Vehicle Roadside Equipment	wrong way vehicle detected			
Other ITS Roadway Equipm	lent	ITS Roadway Equipment	signal control data			
Other Traffic Signal Contro	ler	ITS Roadway Equipment	local priority request details			
Parking Management Syste	m	Connected Vehicle Roadside Equipment	parking management application info			
Parking Management Syste	m	Connected Vehicle Roadside Equipment	vehicle signage local data			
Traffic Management Cente	r	Connected Vehicle Roadside Equipment	intersection management application info			
Traffic Management Cente	r	Connected Vehicle Roadside Equipment	intersection safety application info			
Traffic Management Cente	r	Connected Vehicle Roadside Equipment	queue warning application information			
Traffic Management Cente	r	Connected Vehicle Roadside Equipment	rail crossing application info			
Traffic Management Cente	r	Connected Vehicle Roadside Equipment	reduced speed warning info			
Traffic Management Cente	r	Connected Vehicle Roadside Equipment	situation data collection parameters			
Traffic Management Cente	r	Connected Vehicle Roadside Equipment	speed management application information			
Traffic Management Cente	r	Connected Vehicle Roadside Equipment	stop sign gap assist info			
Traffic Management Cente	r	Connected Vehicle Roadside Equipment	traffic monitoring application info			
Traffic Management Cente	r	Connected Vehicle Roadside Equipment	vehicle signage application info			
Traffic Management Cente	r	Connected Vehicle Roadside Equipment	work zone application info			
Traffic Management Cente	r	ITS Roadway Equipment	environmental sensors control			
Traffic Management Cente	r	ITS Roadway Equipment	pedestrian safety warning control			
Traffic Management Cente	r	ITS Roadway Equipment	rail crossing control data			
Traffic Management Cente	r	ITS Roadway Equipment	rail crossing request			
Traffic Management Cente	r	ITS Roadway Equipment	roadway advisory radio data			
Traffic Management Cente	r	ITS Roadway Equipment	roadway dynamic signage data			
Traffic Management Cente	r	ITS Roadway Equipment	roadway warning system control			
Traffic Management Cente	r	ITS Roadway Equipment	signal control commands			
Traffic Management Cente	r	ITS Roadway Equipment	signal control device configuration			
Traffic Management Cente	r	ITS Roadway Equipment	signal control plans			
Traffic Management Cente	r	ITS Roadway Equipment	signal system configuration			
Traffic Management Cente	r	ITS Roadway Equipment	speed monitoring control			
Traffic Management Cente	r	ITS Roadway Equipment	stop sign gap assist control			
Traffic Management Cente	r	ITS Roadway Equipment	traffic detector control			
Traffic Management Cente	r	ITS Roadway Equipment	variable speed limit control			

Tardic Maragement Center ITS Roadway Equipment webso surveillance control Transportation Information Center Connected Vehicle Roadside Equipment read webs investigation information center Transportation Information Center Connected Vehicle Roadside Equipment read webs investigation info Transportation Information Center Connected Vehicle Roadside Equipment transportation Information application Info Wayde Equipment Connected Vehicle Roadside Equipment arriving train information Wayde Equipment Connected Vehicle Roadside Equipment trak status Wayde Equipment Connected Vehicle Roadside Equipment trak status Wayde Equipment Transportation Information trak status State Description Issue Severity Proposed Resolution Resolution Description Age roll in formation Information Informat		
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Source Performance, functionality, and the upper- lared Information flow. Other connected Vehicle Roadside Equipment Flow Name Connected Vehicle Roadside Equipment Issue Description Issue Severity Proposed Resolution Resolution Description device identification for providing distributing wrong way vehicle alerts in real-time. Develop an internationally acceptable ITS application specification for providing distributing wrong way vehicle alerts in real-time. Source Source Untra Other Connected Vehicle Roadside Equipment wrong way vehicle detected wrong way vehicle detected Connected Vehicle Roadside Equipment Other Connected Vehicle Roadside Equipment wrong way vehicle detected wrong way vehicle detected Connected Vehicle Roadside Equipment Issue Description Issue Severity Proposed Resolution Description ref Issue Description Issue Severity Proposed Resolution Description wrong way vehicle detected ref Issue Description Issue Severity Proposed Resolution Description wrong way vehicle detected ref Issue Description Issue Severity Proposed Resolution Description wrong way vehicle detected ref Issue Description Issue Severity Proposed Resolution Description wrong way vehicl		Australia, European Union, United States
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ta profile not ined Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow. Ultra V-L: Wrong way vehicle detected Develop an internationally acceptable ITS application specification for providing distributing wrong way vehicle alerts in real-time. Source Information flow. Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Destination wrong way vehicle detected Connected Vehicle Roadside Equipment Other Connected Vehicle Roadside Equipment wrong way vehicle detected Use Issue Description Issue Severity Proposed Resolution Develop an internationally acceptable ITS application specification that defines the run for updating maps, roadway geometry, and intersection geometry among centres (e.g. between a Map Update System and a centre).	Timeframe	Applicability
Source Destination Flow Name Connected Vehicle Roadside Equipment Other Connected Vehicle Roadside Equipment wrong way vehicle detected Other Connected Vehicle Roadside Equipment Issue Description Issue Severity Proposed Resolution Resolution Description ta profile not Performance, functionality, and the upper-layer of the OSI stack have not been defined Ultra C-C: Distribute maps Develop an internationally acceptable ITS application specification that defines the run for updating maps, roadway geometry, and intersection geometry among centres (e.g. between a Map Update System and a centre)	Urgent	Australia, European Union, United States
Connected Vehicle Roadside Equipment Other Connected Vehicle Roadside Equipment wrong way vehicle detected Other Connected Vehicle Roadside Equipment Issue Oescription Issue Severity Proposed Resolution Resolution Description a profile not ined Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow. Ultra C-C: Distribute maps Develop an internationally acceptable ITS application specification that defines the run for updating maps, roadway geometry, and intersection geometry among centres (e.g. between a Map Update System and a centre).		
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ined layers of the OSI stack have not been defined for updating maps, roadway geometry, and intersection geometry among centres (e.g. between a Map Update System and a centre).	Timeframe	Applicability
	_	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Source Destination Flow Name		
Map Update System Parking Management System parking facility geometry		

olution Name:	(None-Data) - EU-ICIP-C2F			Number of Issues:5To	otal Issue Severit	y: 54
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Message signs	Develop an internationally acceptable ITS application specification for managing message signs for secure communications with proper access control.	Urgent	Australia, European Union, United State
Source			riples using this solution and affected b tination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle R	oadside Equipment	ITS	Roadway Equipment	roadway dynamic signage data		
ITS Roadway Equipm	lent	Co	nnected Vehicle Roadside Equipment	roadway dynamic signage status		
ITS Roadway Equipm	lent	Ma	int and Constr Management Center	roadway dynamic signage status		
ITS Roadway Equipm	lent	Tra	ffic Management Center	roadway dynamic signage status		
ITS Roadway Equipm	lent	Tra	ffic Management Center	roadway warning system status		
Maint and Constr Ma	anagement Center	ITS	Roadway Equipment	roadway dynamic signage data		
Traffic Management	Center	ITS	Roadway Equipment	roadway dynamic signage data		
Traffic Management	Center	ITS	Roadway Equipment	roadway warning system control		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Signal control	Develop an internationally acceptable ITS application specification for the interface between a traffic signal controller and a roadside station to exchange raw data related to the SPaT, SRM, and SSM using the secure centre-to-field protocol.	Urgent	Australia, European Union, United State
Source			riples using this solution and affected b tination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle R	oadside Equipment	ITS	Roadway Equipment	signal preemption request		
Connected Vehicle R	oadside Equipment	ITS	Roadway Equipment	signal priority service request		
Connected Vehicle R	oadside Equipment	ITS	Roadway Equipment	signal service request		
ITS Roadway Equipm	lent	Co	nnected Vehicle Roadside Equipment	conflict monitor status		
ITC Deadway Fauinm	lent	Co	nnected Vehicle Roadside Equipment	intersection control status		
ITS Roadway Equipm						
	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
sue ata profile not	Issue DescriptionPerformance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Issue Severity Ultra	Proposed Resolution I-F: Speed enforcement	Resolution Description Develop an internationally acceptable ITS application specification for the use case of allowing a center to remotely control a speed enforcement application within ITS Roadway Equipment.	Timeframe Future	Applicability Australia, European Union
sue ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined	Ultra	I-F: Speed enforcement riples using this solution and affected b	Develop an internationally acceptable ITS application specification for the use case of allowing a center to remotely control a speed enforcement application within ITS Roadway Equipment.		Australia, European
sue ata profile not efined Source	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra Information T Des	I-F: Speed enforcement Friples using this solution and affected b	Develop an internationally acceptable ITS application specification for the use case of allowing a center to remotely control a speed enforcement application within ITS Roadway Equipment.		Australia, European
sue ata profile not efined Source ITS Roadway Equipm	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra Information T Des Ma	I-F: Speed enforcement Friples using this solution and affected b tination int and Constr Management Center	Develop an internationally acceptable ITS application specification for the use case of allowing a center to remotely control a speed enforcement application within ITS Roadway Equipment.		Australia, Europear
sue ata profile not efined Source	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra Information T Des Ma Tra	I-F: Speed enforcement Friples using this solution and affected b	Develop an internationally acceptable ITS application specification for the use case of allowing a center to remotely control a speed enforcement application within ITS Roadway Equipment.		Australia, European

Je	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
a profile not ined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Exception-based reporting	Develop an internationally acceptable ITS application specification for managing exception-based reports from other local field devices.	Urgent	Australia, European Union, United States
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
ITS Roadway Equipm	ent	Co	nnected Vehicle Roadside Equipment	vehicle signage local data		
Parking Management	t System	Co	nnected Vehicle Roadside Equipment	vehicle signage local data		
ar	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
a profile not ined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Highway advisory radio	Develop an internationally acceptable ITS application specification for managing highway advisory radios for secure communications with proper access control.	Medium-term	United States
Source			Friples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
ITS Roadway Equipm	ent		int and Constr Management Center	roadway advisory radio status		
ITS Roadway Equipm	ent	Tra	ffic Management Center	roadway advisory radio status		
Maint and Constr Ma	nagement Center	ITS	Roadway Equipment	roadway advisory radio data		
Traffic Management	Center	ITS	Roadway Equipment	roadway advisory radio data		
ıe	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
a profile not ined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Speed warning	Develop an internationally acceptable ITS application specification for providing roadway configuration data, current speed limits, warning parameters and thresholds to a speed warning application.	Urgent	Australia, European Union, United State
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle R	oadside Equipment	Ma	int and Constr Management Center	reduced speed warning status		
Connected Vehicle Re	padside Equipment	Tra	ffic Management Center	reduced speed warning status		
ITS Roadway Equipm	ent	Co	nnected Vehicle Roadside Equipment	reduced speed warning info		
ITS Roadway Equipm	ent	Tra	ffic Management Center	variable speed limit status		
Maint and Constr Ma	nagement Center	Col	nnected Vehicle Roadside Equipment	reduced speed warning info		
Traffic Management	Center	Col	nnected Vehicle Roadside Equipment	reduced speed warning info		
Traffic Management	Center	ITS	Roadway Equipment	variable speed limit control		
Je	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
a profile not ined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Private location and address	Develop an internationally acceptable ITS application specification that defines the operation of a Privacy Protection Gateway.	Urgent	Australia, European Union, United State
Source			- Friples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle R	padside Equipment		nter	protected location and address flow		

lution Name:	(None-Data) - EU-ICIP-C2F			Number of Issues:5T	otal Issue Severit	t y: 54
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Transportation sensor systems	Develop an internationally acceptable ITS application specification for exchanging transportation sensor station data with a management entity that uses the secure centre-to-field protocol.	Urgent	Australia, European Union, United States
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
ITS Roadway Equipn	nent	M;	aint and Constr Management Center	traffic detector data		
ITS Roadway Equipn	nent	Tra	affic Management Center	traffic detector data		
Maint and Constr M	anagement Center	ITS	S Roadway Equipment	traffic detector control		
Traffic Management	t Center	ITS	Roadway Equipment	traffic detector control		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Secure installation/update of software	Develop an internationally acceptable standard for the secure installation, update, and validation of software (including application, support, and OS software) on devices. The process should allow a system to determine which devices have been updated and provide a mechanism to define when such updates are allowed, recommended, and required.	Urgent	Australia, European Union, United States
Source				y this Issue that would be addressed by the Proposed Resolution Flow Name		
Center			stination nnected Vehicle Roadside Equipment	RSE application install/upgrade		
Connected Vehicle F	Roadside Equipment		eld Support Equipment	RSE application install/upgrade		
Field Support Equipr			nnected Vehicle Roadside Equipment	RSE application install/upgrade		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Weather information	Develop an internationally acceptable ITS application specification for directing an RSE to provide weather information to vehicles.	Urgent	Australia, European Union, United States
Courses				by this Issue that would be addressed by the Proposed Resolution		
Source Connected Vehicle F	Roadside Equipment		stination ansportation Information Center	Flow Name road weather advisory status		
	mation Center	Co				

olution Name:	(None-Data) - EU-ICIP-C2F			Number of Issues: 5 To	otal Issue Severity	5 4
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Data aggregation	Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres).	Urgent	Australia, European Union, United State
Source			Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	padside Equipment	ITS	Roadway Equipment	environmental situation data		
Connected Vehicle Ro	padside Equipment	ITS	Roadway Equipment	traffic situation data		
Connected Vehicle Ro	padside Equipment	Tra	affic Management Center	environmental situation data		
Connected Vehicle Ro	padside Equipment	Tra	affic Management Center	traffic situation data		
Connected Vehicle Ro	padside Equipment	Tra	ansportation Information Center	environmental situation data		
Data Distribution Syst	tem	Со	nnected Vehicle Roadside Equipment	situation data collection parameters		
Traffic Management	Center	Co	nnected Vehicle Roadside Equipment	situation data collection parameters		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not ïned	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: CCTV	Develop an internationally acceptable ITS application specification for exchanging CCTV camera data with a management entity that uses the secure centre-to-field protocol.	Medium-term	Australia, European Union, United State
Source			Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
ITS Roadway Equipme	ent		aint and Constr Management Center	traffic images		
ITS Roadway Equipme	ent	Tra	affic Management Center	traffic images		
Maint and Constr Ma	nagement Center	ITS	Roadway Equipment	video surveillance control		
Traffic Management	Center	ITS	Roadway Equipment	video surveillance control		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry between a centres (e.g., a Map Update System) and field equipment.	Urgent	Australia, European Union, United State Japan
Source			Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Map Update System			nnected Vehicle Roadside Equipment	map updates		
		Co	nnected Vehicle Roadside Equipment	parking facility geometry		
Map Update System						
Map Update System Map Update System			nnected Vehicle Roadside Equipment	roadway geometry		

olution Name:	(None-Data) - EU-ICIP-C2F				Number of Issues:
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
oata profile not lefined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Application management	Develop an internationally acceptable ITS a managing applications (e.g., enabling, mon	
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed R	esolution Flow Name
Center			nnected Vehicle Roadside Equipment		RSE application information
Center		Co	nnected Vehicle Roadside Equipment		RSE control commands
Connected Vehicle R	loadside Equipment	Cer	nter		RSE application status
Connected Vehicle R	loadside Equipment	Fie	ld Support Equipment		RSE configuration settings
Connected Vehicle R	loadside Equipment	Fie	ld Support Equipment		RSE control commands
Connected Vehicle R	loadside Equipment	Fie	ld Support Equipment		RSE status
Connected Vehicle R	loadside Equipment	Ma	aint and Constr Management Center		vehicle signage application status
Connected Vehicle R	loadside Equipment	Ser	rvice Monitor System		RSE status
Connected Vehicle R	loadside Equipment	Tra	affic Management Center		intersection management application
Connected Vehicle R	loadside Equipment	Tra	ffic Management Center		intersection safety application status
Connected Vehicle R	loadside Equipment	Tra	affic Management Center		queue warning application status
Connected Vehicle R	loadside Equipment	Tra	ffic Management Center		speed management application status
Connected Vehicle R	toadside Equipment	Tra	affic Management Center		traffic monitoring application status
Connected Vehicle R	loadside Equipment	Tra	affic Management Center		vehicle signage application status
Connected Vehicle R	loadside Equipment	Tra	affic Management Center		work zone application status
Field Support Equipm	nent	Co	nnected Vehicle Roadside Equipment		RSE configuration settings
Field Support Equipm	nent	Co	nnected Vehicle Roadside Equipment		RSE control commands
Field Support Equipm	nent	Co	nnected Vehicle Roadside Equipment		RSE status
Maint and Constr Ma	anagement Center	Co	nnected Vehicle Roadside Equipment		vehicle signage application info
Traffic Management	Center	Co	nnected Vehicle Roadside Equipment		intersection management application
Traffic Management	Center	Co	nnected Vehicle Roadside Equipment		intersection safety application info
Traffic Management	Center	Co	nnected Vehicle Roadside Equipment		queue warning application information
Traffic Management	Center	Co	nnected Vehicle Roadside Equipment		speed management application inform
Traffic Management	Center	Co	nnected Vehicle Roadside Equipment		traffic monitoring application info
Traffic Management	Center	Co	nnected Vehicle Roadside Equipment		vehicle signage application info
Traffic Management	Center	Co	nnected Vehicle Roadside Equipment		work zone application info
Tunnel Management	t System	Co	nnected Vehicle Roadside Equipment		vehicle signage application info

5	5 Total Issue Severity:		
	Timeframe	Applicability	
erically	Urgent	Australia, Eur Union, United	opean d States
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	(None-Data) - EU-ICIP-C2F			Number of Issues: 5 To	otal Issue Severity	: 54
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not Tined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: EU signal operations	Develop an ITS application specification for exchanging configuration, plans, status, and commands for signal control and signal systems using the secure centre-to-field protocol.	Urgent	Australia, European Union
Source			riples using this solution and affected by tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
ITS Roadway Equipm	ient	Otł	ner ITS Roadway Equipment	signal control data		
ITS Roadway Equipm	lent	Oth	ner Traffic Signal Controller	local priority request details		
ITS Roadway Equipm	ient	Tra	ffic Management Center	right-of-way request notification		
ITS Roadway Equipm	lent	Tra	ffic Management Center	signal control status		
Other ITS Roadway E	quipment	ITS	Roadway Equipment	signal control data		
Other Traffic Signal O	Controller	ITS	Roadway Equipment	local priority request details		
Traffic Management	Center	ITS	Roadway Equipment	signal control commands		
Traffic Management	Center	ITS	Roadway Equipment	signal control device configuration		
Traffic Management	Center	ITS	Roadway Equipment	signal control plans		
Traffic Management	Center	ITS	Roadway Equipment	signal system configuration		
ıe	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
a profile not ned	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Intersection infringement	Develop an internationally acceptable ITS application specification that defines the rules for providing intersection infringment information within a local environment.	Urgent	United States
Source			riples using this solution and affected by tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle R	oadside Equipment		Roadway Equipment	intersection infringement info		
		Laura Carrattan	Providence di Desceluatione		T ime for ma	Annelisehilter
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
	Deutenness functionality, and the unner	Ultra	C-V: Update central map	Develop an internationally acceptable ITS application specification that defines the rules	Medium-term	Australia Europoan
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	ond	database	for updating a central map database, including roadway and intersection geometry, based on real-world data readings from vehicles and transmitted to a map update system.		
•	layers of the OSI stack have not been defined		database	for updating a central map database, including roadway and intersection geometry, based		Australia, European Union, United State Japan

C	lefined	for this information flow.		database	for updating a central map database, inclu on real-world data readings from vehicles	S , S	
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
	Source		Des	tination		Flow Name	
	Connected Vehicle Ro	adside Equipment	Ma	p Update System		vehicle location data for mapping	

Solution Name:	(None-Data) - EU-ICIP-C2F				Number of Issues:
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Environmental sensor stations	Develop an internationally acceptable ITS applicat environmental sensor stations for secure commun	-
Source			Triples using this solution and affected by stination	this Issue that would be addressed by the Proposed Resolution Flow N	
ITS Roadway Equip	ment	Со	nnected Vehicle Roadside Equipment	enviro	nmental sensor data
ITS Roadway Equip	ment	Tra	affic Management Center	enviro	nmental sensor data
Traffic Manageme	nt Center	ITS	Roadway Equipment	enviro	nmental sensors control
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Still under development	A draft of the standard has been developed by the working group, but it was still under development at the time the HARTS analysis was performed.	Medium	I-F: Data aggregation	Develop an internationally acceptable ITS applicat collected data and report the information to inter	•
Courses.				this Issue that would be addressed by the Proposed Resolution	
Source Connected Vehicle	Roadside Equipment		stination Roadway Equipment	Flow N	name
	Roadside Equipment		affic Management Center		nmental situation data
	Roadside Equipment		ansportation Information Center		nmental situation data
connected vehicle		110	ansportation mormation center	envio	IIIIEIItai SituatioII Udld

5 T	otal Issue Severity:	54	
	Timeframe	Applicability	
naging cess control.	Near-term	Australia, Eur Union, United	
	Timeframe	Applicability	
RSE to aggregate res).	Urgent	Australia, Eur Union, United	

lution Name:	(None-Data) - EU-ICIP-C2F			Number of Issues: 5	Total Issue Severity	y: 54
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
aft not available ritical)	The standards development organization has established a work item for the subject standard but a draft is not available for this critical feature to enable the interface. The draft may be missing due to the work item being new or simply a lack of activity on the work item.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United State
				by this Issue that would be addressed by the Proposed Resolution		
Source Center			tination nnected Vehicle Roadside Equipment	Flow Name RSE application information		
Center			nnected Vehicle Roadside Equipment	RSE application install/upgrade		
				RSE application install/upgrade		
Center	a deida Familana at		nnected Vehicle Roadside Equipment			
Connected Vehicle Ro			nter	device identification		
Connected Vehicle Ro		Cer		protected location and address flow		
Connected Vehicle Ro		Cer		RSE application status		
Connected Vehicle Ro			a Distribution System	local situation data		
Connected Vehicle Ro			d Support Equipment	RSE application install/upgrade		
Connected Vehicle Ro			d Support Equipment	RSE configuration settings		
Connected Vehicle Ro			d Support Equipment	RSE control commands		
Connected Vehicle Ro			d Support Equipment	RSE status		
Connected Vehicle Ro			Roadway Equipment	environmental situation data		
Connected Vehicle Ro			Roadway Equipment	intersection infringement info		
Connected Vehicle Ro			Roadway Equipment	pedestrian location information		
Connected Vehicle Ro			Roadway Equipment	roadway dynamic signage data		
Connected Vehicle Ro			Roadway Equipment	signal preemption request		
Connected Vehicle Ro			Roadway Equipment	signal priority service request		
Connected Vehicle Ro			Roadway Equipment	signal service request		
Connected Vehicle Ro			Roadway Equipment	traffic situation data		
Connected Vehicle Ro			int and Constr Management Center	reduced speed warning status		
Connected Vehicle Ro			int and Constr Management Center	vehicle signage application status		
Connected Vehicle Ro			p Update System	vehicle location data for mapping		
Connected Vehicle Ro			ner Connected Vehicle Roadside Equipn			
Connected Vehicle Ro	oadside Equipment	Par	king Management System	connected vehicle parking data		
Connected Vehicle Ro			vice Monitor System	RSE status		
Connected Vehicle Ro	oadside Equipment	Tra	ffic Management Center	environmental situation data		
Connected Vehicle Ro		Tra	ffic Management Center	intersection management application status		
Connected Vehicle Ro	oadside Equipment	Tra	ffic Management Center	intersection safety application status		

Solution	Name:	(None-Data) - EU-ICIP-C2F		Number of Issues:
Con	nected Vehicle Roadside E	quipment	Traffic Management Center	queue warning application status
Con	nected Vehicle Roadside E	quipment	Traffic Management Center	rail crossing application status
Con	nected Vehicle Roadside E	quipment	Traffic Management Center	reduced speed warning status
Con	nected Vehicle Roadside E	quipment	Traffic Management Center	speed management application status
Con	nected Vehicle Roadside E	quipment	Traffic Management Center	stop sign gap assist RSE status
Con	nected Vehicle Roadside E	quipment	Traffic Management Center	traffic monitoring application status
Con	nected Vehicle Roadside E	quipment	Traffic Management Center	traffic situation data
Con	nected Vehicle Roadside E	quipment	Traffic Management Center	vehicle signage application status
Con	nected Vehicle Roadside E	quipment	Traffic Management Center	work zone application status
Con	nected Vehicle Roadside E	quipment	Transportation Information Center	electric charging station information
Coni	nected Vehicle Roadside E	quipment	Transportation Information Center	environmental situation data
Con	nected Vehicle Roadside E	quipment	Transportation Information Center	road weather advisory status
Coni	nected Vehicle Roadside E	quipment	Transportation Information Center	traveler information application status
Con	nected Vehicle Roadside E	quipment	Wayside Equipment	rail crossing blockage notification
Coni	nected Vehicle Roadside E	quipment	Wayside Equipment	rail crossing operational status
Data	a Distribution System		Connected Vehicle Roadside Equipment	local traveler information distribution
Data	a Distribution System		Connected Vehicle Roadside Equipment	situation data collection parameters
Field	d Support Equipment		Connected Vehicle Roadside Equipment	RSE application install/upgrade
Field	d Support Equipment		Connected Vehicle Roadside Equipment	RSE configuration settings
Field	d Support Equipment		Connected Vehicle Roadside Equipment	RSE control commands
Field	d Support Equipment		Connected Vehicle Roadside Equipment	RSE status
ITS F	Roadway Equipment		Center	device identification
ITS F	Roadway Equipment		Connected Vehicle Roadside Equipment	arriving train information
ITS F	Roadway Equipment		Connected Vehicle Roadside Equipment	conflict monitor status
ITS F	Roadway Equipment		Connected Vehicle Roadside Equipment	environmental sensor data
ITS F	Roadway Equipment		Connected Vehicle Roadside Equipment	intersection control status
ITS F	Roadway Equipment		Connected Vehicle Roadside Equipment	ITS roadway equipment information
ITS F	Roadway Equipment		Connected Vehicle Roadside Equipment	pedestrian crossing status
ITS F	Roadway Equipment		Connected Vehicle Roadside Equipment	reduced speed warning info
ITS F	Roadway Equipment		Connected Vehicle Roadside Equipment	roadway dynamic signage status
ITS F	Roadway Equipment		Connected Vehicle Roadside Equipment	track status
ITS F	Roadway Equipment		Connected Vehicle Roadside Equipment	traffic gap information
ITS F	Roadway Equipment		Connected Vehicle Roadside Equipment	vehicle signage local data
ITS F	Roadway Equipment		Maint and Constr Management Center	noise data
ITS F	Roadway Equipment		Maint and Constr Management Center	roadway advisory radio status
ITS F	Roadway Equipment		Maint and Constr Management Center	roadway dynamic signage status
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ution Name: (N	lone-Data) - EU-ICIP-C2F		Number of Issues:
ITS Roadway Equipment		Maint and Constr Management Center	speed monitoring information
ITS Roadway Equipment		Maint and Constr Management Center	traffic detector data
ITS Roadway Equipment		Maint and Constr Management Center	traffic images
ITS Roadway Equipment		Other ITS Roadway Equipment	signal control data
ITS Roadway Equipment		Other Traffic Signal Controller	local priority request details
ITS Roadway Equipment		Traffic Management Center	environmental sensor data
ITS Roadway Equipment		Traffic Management Center	pedestrian safety warning status
ITS Roadway Equipment		Traffic Management Center	rail crossing blockage notification
ITS Roadway Equipment		Traffic Management Center	rail crossing status
ITS Roadway Equipment		Traffic Management Center	right-of-way request notification
ITS Roadway Equipment		Traffic Management Center	roadway advisory radio status
ITS Roadway Equipment		Traffic Management Center	roadway dynamic signage status
ITS Roadway Equipment		Traffic Management Center	roadway warning system status
ITS Roadway Equipment		Traffic Management Center	signal control status
ITS Roadway Equipment		Traffic Management Center	speed monitoring information
ITS Roadway Equipment		Traffic Management Center	stop sign gap assist status
ITS Roadway Equipment		Traffic Management Center	traffic detector data
ITS Roadway Equipment		Traffic Management Center	traffic images
ITS Roadway Equipment		Traffic Management Center	variable speed limit status
ITS Roadway Equipment		Wayside Equipment	rail crossing blockage notification
ITS Roadway Equipment		Wayside Equipment	rail crossing operational status
Maint and Constr Management (Center	Connected Vehicle Roadside Equipment	reduced speed warning info
Maint and Constr Management (Center	Connected Vehicle Roadside Equipment	vehicle signage application info
Maint and Constr Management (Center	ITS Roadway Equipment	roadway advisory radio data
Maint and Constr Management (Center	ITS Roadway Equipment	roadway dynamic signage data
Maint and Constr Management (Center	ITS Roadway Equipment	speed monitoring control
Maint and Constr Management (Center	ITS Roadway Equipment	traffic detector control
Maint and Constr Management (Center	ITS Roadway Equipment	video surveillance control
Map Update System		Connected Vehicle Roadside Equipment	map updates
Map Update System		Connected Vehicle Roadside Equipment	parking facility geometry
Map Update System		Connected Vehicle Roadside Equipment	roadway geometry
Map Update System		Parking Management System	parking facility geometry
Map Update System		Public Information Device	map updates
Other Connected Vehicle Roadsi	de Equipment	Connected Vehicle Roadside Equipment	wrong way vehicle detected
Other ITS Roadway Equipment		ITS Roadway Equipment	signal control data
Other Traffic Signal Controller		ITS Roadway Equipment	local priority request details

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Solution Name:	(None-Data) - EU-ICIP-C2F		Number of Issues:
Parking Management System	n	Connected Vehicle Roadside Equipment	parking management application info
Parking Management System	n	Connected Vehicle Roadside Equipment	vehicle signage local data
Traffic Management Center		Connected Vehicle Roadside Equipment	intersection management application
Traffic Management Center		Connected Vehicle Roadside Equipment	intersection safety application info
Traffic Management Center		Connected Vehicle Roadside Equipment	queue warning application information
Traffic Management Center		Connected Vehicle Roadside Equipment	rail crossing application info
Traffic Management Center		Connected Vehicle Roadside Equipment	reduced speed warning info
Traffic Management Center		Connected Vehicle Roadside Equipment	situation data collection parameters
Traffic Management Center		Connected Vehicle Roadside Equipment	speed management application inform
Traffic Management Center		Connected Vehicle Roadside Equipment	stop sign gap assist info
Traffic Management Center		Connected Vehicle Roadside Equipment	traffic monitoring application info
Traffic Management Center		Connected Vehicle Roadside Equipment	vehicle signage application info
Traffic Management Center		Connected Vehicle Roadside Equipment	work zone application info
Traffic Management Center		ITS Roadway Equipment	environmental sensors control
Traffic Management Center		ITS Roadway Equipment	pedestrian safety warning control
Traffic Management Center		ITS Roadway Equipment	rail crossing control data
Traffic Management Center		ITS Roadway Equipment	rail crossing request
Traffic Management Center		ITS Roadway Equipment	roadway advisory radio data
Traffic Management Center		ITS Roadway Equipment	roadway dynamic signage data
Traffic Management Center		ITS Roadway Equipment	roadway warning system control
Traffic Management Center		ITS Roadway Equipment	signal control commands
Traffic Management Center		ITS Roadway Equipment	signal control device configuration
Traffic Management Center		ITS Roadway Equipment	signal control plans
Traffic Management Center		ITS Roadway Equipment	signal system configuration
Traffic Management Center		ITS Roadway Equipment	speed monitoring control
Traffic Management Center		ITS Roadway Equipment	stop sign gap assist control
Traffic Management Center		ITS Roadway Equipment	traffic detector control
Traffic Management Center		ITS Roadway Equipment	variable speed limit control
Traffic Management Center		ITS Roadway Equipment	video surveillance control
Transportation Information	Center	Connected Vehicle Roadside Equipment	electric charging services inventory
Transportation Information	Center	Connected Vehicle Roadside Equipment	road weather advisory info
Transportation Information	Center	Connected Vehicle Roadside Equipment	traveler information application info
Tunnel Management System	1	Connected Vehicle Roadside Equipment	vehicle signage application info
Wayside Equipment		Connected Vehicle Roadside Equipment	arriving train information
Wayside Equipment		Connected Vehicle Roadside Equipment	track status
Wayside Equipment		ITS Roadway Equipment	arriving train information

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olution Name:	(None-Data) - EU-ICIP-C2F			Number of Issues:5	Total Issue Severity:	54
Wayside Equipment		ITS	Roadway Equipment	track status		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
dentifier registry loes not exist	The standard defines a field which requires a globally unique identifier, but no registration authority exists to assign these values.	Medium	Identifier registry	Implement a centralised identifier registry network that ensures the assignment of globally unique C-ITS identifiers.	Urgent	Australia, European Union, United States
		Information 7	Friples using this solution and affected b	by this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Connected Vehicle	Roadside Equipment	Cei	nter	device identification		
ITS Roadway Equipr	nent	Cer	nter	device identification		
olution Name:	(None-Data) - FNTP/M5			Number of Issues: 4	Total Issue Severity:	41

This solution is used within the E.U., and Australia. It combines standards associated with (None-Data) with those for V-X: FNTP/M5. The (None-Data) standards include an unspecified set of standards at the upper layers. The V-X: FNTP/M5 standards include lower-layer standards that support connectionless, broadcast and unicast, near constant, ultra-low latency vehicle-to-any communications within ~300m using Fast Network Transport Profile (FNTP) over the 5 GHz spectrum as allocated within a region. The broadcast mode is interoperable with WAVE WSMP. The M5 radio of this profile can receive ITS G5 frames.

lssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Intersection infringement	Develop an internationally acceptable ITS application specification that defines the rules for providing intersection infringment information within a local environment.	Urgent	United States
		Information 1	Friples using this solution and affected by	this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Other Vehicle OBEs		Vel	hicle OBE	intersection infringement info		
Vehicle OBE		Сог	nnected Vehicle Roadside Equipment	intersection infringement info		
Vehicle OBE		Oth	ner Vehicle OBEs	intersection infringement info		

	Issue Description	issue sevenity	Proposed Resolution	Resolution Description	Timeframe	Applicability
efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device).	Urgent	Australia, European Union, United States, Japan
		Information 1	Triples using this solution and affected b	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	stination	Flow Name		
Vehicle OBE		Oth	her Vehicle OBEs	vehicle road information		

5	Total Issue Seve

otal issue Severity:

41

olution Name:	(None-Data) - FNTP/M5				Number of Issues:
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revoking the privileges of a certificate auth recognized within a region) and of an ITS s misbehave).	nority (e.g., if an authority is no lo
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed R	esolution Flow Name
Connected Vehicle Ro	adside Equipment	Per	rsonal Information Device		pedestrian safety information
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE		traffic gap information
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE		vehicle payment request
Other Vehicle OBEs		Ve	hicle OBE		intersection infringement info
Personal Information	Device	Co	nnected Vehicle Roadside Equipment		personal location
Personal Information	Device	Ve	hicle OBE		personal location
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		intersection infringement info
Vehicle OBE		Ot	ner Vehicle OBEs		intersection infringement info
Vehicle OBE		Otl	ner Vehicle OBEs		vehicle road information
Vehicle OBE		Otl	ner Vehicle OBEs		vehicle travel time data
Vehicle OBE	Issue Description	Oti Issue Severity	Proposed Resolution	Resolution Description	vehicle travel time data
	Issue Description Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.			Resolution Description Standardise on a single solution for provid Australia; currently BTP/GeoNetworking/G are not interoperable at the Subnet or Trans	ing DSRC communications withir 55 and FNTP/M5 are competing s
lssue Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this	Issue Severity Medium	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for provid Australia; currently BTP/GeoNetworking/G	ing DSRC communications within 55 and FNTP/M5 are competing s nsnet layers.
Issue Overlap of standards Source	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Issue Severity Medium Information	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for provid Australia; currently BTP/GeoNetworking/G are not interoperable at the Subnet or Tra	ing DSRC communications within 55 and FNTP/M5 are competing s nsnet layers. Resolution Flow Name
Source Connected Vehicle Ro	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Issue Severity Medium Information Des Per	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5 Triples using this solution and affected by stination	Standardise on a single solution for provid Australia; currently BTP/GeoNetworking/G are not interoperable at the Subnet or Tra	ing DSRC communications within i5 and FNTP/M5 are competing s nsnet layers. tesolution Flow Name pedestrian safety information
Issue Overlap of standards Source Connected Vehicle Ro Connected Vehicle Ro	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Issue Severity Medium Information Des Per Ve	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5 Triples using this solution and affected by stination rsonal Information Device hicle OBE	Standardise on a single solution for provid Australia; currently BTP/GeoNetworking/G are not interoperable at the Subnet or Tra	ing DSRC communications within 55 and FNTP/M5 are competing s nsnet layers. tesolution Flow Name pedestrian safety information traffic gap information
Issue Overlap of standards Source Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Issue Severity Medium Information Des Per Ve Ve	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5 Friples using this solution and affected by stination rsonal Information Device hicle OBE hicle OBE	Standardise on a single solution for provid Australia; currently BTP/GeoNetworking/G are not interoperable at the Subnet or Tra	ing DSRC communications within 55 and FNTP/M5 are competing s nsnet layers. tesolution Flow Name pedestrian safety information traffic gap information vehicle payment request
Source Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Issue Severity Medium Information Per Ve Ve Ve Ve Ve Ve Ve	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5 Friples using this solution and affected by stination rsonal Information Device hicle OBE hicle OBE hicle OBE	Standardise on a single solution for provid Australia; currently BTP/GeoNetworking/G are not interoperable at the Subnet or Tra	ing DSRC communications within 55 and FNTP/M5 are competing s nsnet layers. tesolution Flow Name pedestrian safety information traffic gap information vehicle payment request intersection infringement info
Dverlap of standards Source Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Issue Severity Medium Information Per Ve Ve Ve Co	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5 Friples using this solution and affected by stination rsonal Information Device hicle OBE hicle OBE	Standardise on a single solution for provid Australia; currently BTP/GeoNetworking/G are not interoperable at the Subnet or Tra	ing DSRC communications within 55 and FNTP/M5 are competing sons nsnet layers. tesolution Flow Name pedestrian safety information traffic gap information vehicle payment request intersection infringement info personal location
Source Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro Other Vehicle OBEs Personal Information	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Issue Severity Medium Information Des Per Ve Ve Ve	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5 Triples using this solution and affected by stination rsonal Information Device hicle OBE hicle OBE hicle OBE hicle OBE	Standardise on a single solution for provid Australia; currently BTP/GeoNetworking/G are not interoperable at the Subnet or Tra	ing DSRC communications within 55 and FNTP/M5 are competing s nsnet layers. tesolution Flow Name pedestrian safety information traffic gap information vehicle payment request intersection infringement info
Source Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro Other Vehicle OBEs Personal Information I Personal Information I	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Issue Severity Medium Information Des Per Ve Ve Co Ve	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5 Triples using this solution and affected by stination rsonal Information Device hicle OBE	Standardise on a single solution for provid Australia; currently BTP/GeoNetworking/G are not interoperable at the Subnet or Tra	ing DSRC communications within 55 and FNTP/M5 are competing sons net layers.
Source Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro Connected Vehicle Ro Other Vehicle OBEs Personal Information I Personal Information I Vehicle OBE	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Issue Severity Medium Information Des Over Ver Over Over Over Over Over Over Over Ov	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5 Triples using this solution and affected by stination rsonal Information Device hicle OBE hicle OBE	Standardise on a single solution for provid Australia; currently BTP/GeoNetworking/G are not interoperable at the Subnet or Tra	ing DSRC communications within 55 and FNTP/M5 are competing sons insnet layers.

4	Total Issue Severity:	41	
	Timeframe	Applicability	
vels, including onger n starts to	Urgent	Australia, Eur Union, United	
	Timeframe	Applicability	
n Europe and solutions that	Urgent	Australia, Eur Union	opean

So	lution Name:		(None-Data) - FNTP/M5			٦	Number of Issues:
Is	sue	Issue	e Description	Issue Severity	Proposed Resolution	Resolution Description	
fu	erformance not lly defined nedium)	11 '	performance rules are not fully defined his information flow.	Medium	V-L: Intersection infringement	Develop an internationally acceptable ITS application for providing intersection infringment information with	
						this Issue that would be addressed by the Proposed Resolution	
	Source			De	stination	Flow Name	
	Other Vehicle OBEs			Ve	hicle OBE	intersection	n infringement info
	Vehicle OBE			Co	nnected Vehicle Roadside Equipment	intersection	n infringement info
	Vehicle OBE			Ot	her Vehicle OBEs	intersection	n infringement info
So	lution Name:		(None-Data) - Guaranteed Internet (US)			1	Number of Issues:

This solution is used within the U.S., E.U., and Australia. It combines standards associated with (None-Data) with those for I-I: Guaranteed Internet (US). The (None-Data) standards include an unspect Guaranteed Internet (US) standards include lower-layer standards that support secure communications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certifications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 secur

Issue	Issue Description	Issue Severity Proposed Resolution Resolution Description Ti		Timeframe	Applicability	
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Update SIRI for other transport modes	Revise the SIRI application specification to support the exchange of ferry, airline, and inter- city rail information between centres.	Near-term	Australia, European Union
Source			riples using this solution and affected by tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Alternate Mode Trar	isportation Center	Tra	nsportation Information Center	alternate mode incident information		

lssu	e	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
	ned	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: System monitoring	Develop an internationally acceptable ITS application specification for the Service Monitor System to monitor other centers and support systems and to report issues.	Urgent	Australia, European Union, United States
					this Issue that would be addressed by the Proposed Resolution		
	Source		Des	tination	Flow Name		
	Data Distribution Syste	m	Ser	vice Monitor System	support system status		

ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Core authorization - coordination among centres	Develop an internationally acceptable standard for the user permission request coordination information triples contained within the Core Authorization Service Package.	Near-term	Australia, European Union, United State
		Information [•]	Triples using this solution and affected b	y this Issue that would be addressed by the Proposed Resolution		
Source		De	stination	Flow Name		
Authorizing Center		Ot	her Authorizing Centers	permission request coordination		
Other Authorizing Ce	enters	Au	thorizing Center	permission request coordination		

4	Tot	tal Issue Severity:		41	
		Timeframe	ŀ	Applicability	
fines the rules ent.		Urgent	ι	Jnited States	

35

ecified set of sta	andards at the	upper lay	ers. Th	e I-I:
ates.				

Total Issue Severity:

2

	(None-Data) - Guaranteed Internet (US)				Number of Issues: 2	Total Issue Severity:	35
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability
ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Core authorization - base services	request, permission update request, permis	dard for the user permission sets, permission ssion request received, and device within the Core Authorization Service Package	Urgent	Australia, European Union, United States
Source			riples using this solution and affected I tination	by this Issue that would be addressed by the Proposed Re	solution Flow Name		
Authorizing Center		Cer			permission request received		
Authorizing Center		Coo	operative ITS Credentials Management	System	user permission sets		
Center		Aut	horizing Center		permission request		
Center		Aut	horizing Center		permission update request		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability
ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Private location and address	Develop an internationally acceptable ITS a operation of a Privacy Protection Gateway.		Urgent	Australia, European Union, United States
Source			riples using this solution and affected I tination	by this Issue that would be addressed by the Proposed Re	solution Flow Name		
Connected Vehicle R	Roadside Equipment	Cer			protected location and address flow		
Connected Vehicle R	Roadside Equipment	Coo	operative ITS Credentials Management	System	protected location and address flow		
Privacy Protection G	ateway	Cer	nter		protected location and address flow		
Privacy Protection G	ateway	Coo	operative ITS Credentials Management	System	protected location and address flow		

Solution Name:	(None-Data) - Guaranteed Internet (US)				Number of Issues:
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Security and credentials management - base services	Develop an internationally acceptable stan information, device enrolment information revocations, and misbehaviour report infor and Credentials Management Service Packa	, security credentials, security cre mation triples contained within th
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Re	esolution Flow Name
Center			ooperative ITS Credentials Management S	System	device enrollment information
Center		Сс	operative ITS Credentials Management S	System	misbehavior report
Connected Vehicle R	Roadside Equipment	Co	ooperative ITS Credentials Management S	System	device enrollment information
Connected Vehicle R	Roadside Equipment	Co	ooperative ITS Credentials Management S	System	misbehavior report
Cooperative ITS Cred	dentials Management System	Ce	enter		security credential revocations
Cooperative ITS Cred	dentials Management System	Ce	enter		security credentials
Cooperative ITS Cred	dentials Management System	Ce	enter		security policy and networking informat
Cooperative ITS Cred	dentials Management System	Со	onnected Vehicle Roadside Equipment		security credential revocations
Cooperative ITS Cred	dentials Management System	Co	onnected Vehicle Roadside Equipment		security credentials
Cooperative ITS Cred	dentials Management System	Со	onnected Vehicle Roadside Equipment		security policy and networking informat
Cooperative ITS Cred	dentials Management System	Da	ata Distribution System		security credential revocations
Cooperative ITS Cred	dentials Management System	Da	ata Distribution System		security credentials
Cooperative ITS Cree	dentials Management System	Da	ata Distribution System		security policy and networking informat
Cooperative ITS Cred	dentials Management System	Ob	oject Registration and Discovery Service		security credential revocations
Cooperative ITS Cred	dentials Management System	Ob	oject Registration and Discovery Service		security credentials
Cooperative ITS Cred	dentials Management System	Ob	oject Registration and Discovery Service		security policy and networking informat
Cooperative ITS Cred	dentials Management System	Se	rvice Monitor System		security credential revocations
Cooperative ITS Cred	dentials Management System	Se	rvice Monitor System		security credentials
Cooperative ITS Cred	dentials Management System	Se	rvice Monitor System		security policy and networking informat
Cooperative ITS Cred	dentials Management System	W	ide Area Information Disseminator		security credential revocations
Cooperative ITS Cred	dentials Management System	W	ide Area Information Disseminator		security credentials
Cooperative ITS Cred	dentials Management System	W	ide Area Information Disseminator		security policy and networking informat
Data Distribution Sys	stem	Co	ooperative ITS Credentials Management S	System	device enrollment information
Data Distribution Sys	stem	Co	ooperative ITS Credentials Management S	System	misbehavior report
Object Registration a	and Discovery Service	Co	ooperative ITS Credentials Management S	System	device enrollment information
Object Registration a	and Discovery Service	Co	ooperative ITS Credentials Management S	System	misbehavior report
Service Monitor Syst	tem	Co	ooperative ITS Credentials Management S	System	device enrollment information
Service Monitor Syst	tem	Co	ooperative ITS Credentials Management S	System	misbehavior report
Wide Area Informati	ion Disseminator	Co	ooperative ITS Credentials Management S	System	device enrollment information
Wide Area Informati	ion Disseminator	Сс	ooperative ITS Credentials Management S	System	misbehavior report

2 Total Issue Severity		35]
	Timeframe	Applicability	
networking redential the Security	Urgent	Australia, Eur Union, United	
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nation			

lution Name:	(None-Data) - Guaranteed Internet (US)			Number of Issues:2T	otal Issue Severity	35
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Security and credentials management - coordination among CCMS	Develop internationally acceptable standardised solutions that facilitate Credential Management Systems coordination of enrolment credentialing, authorization credentialing, misbehavior analysis and certificate revocation processes, so that actions undertaken by one CCMS may be properly referenced and/or utilized by other CCMS, and so that relevant information for these activities may be appropriately shared between CCMS.	Near-term	Australia, European Union, United States
Source			- Triples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
	lentials Management System		ner CCMS	authorization coordination		
	lentials Management System	Oth	ner CCMS	enrollment coordination		
Cooperative ITS Cred	lentials Management System	Oth	ner CCMS	misbehavior analysis coordination		
Cooperative ITS Cred	lentials Management System	Oth	ner CCMS	revocation coordination		
Other CCMS		Cod	operative ITS Credentials Management S	System authorization coordination		
Other CCMS		Cod	operative ITS Credentials Management S	System enrollment coordination		
Other CCMS		Cod	operative ITS Credentials Management S	System misbehavior analysis coordination		
Other CCMS		Cod	operative ITS Credentials Management S	System revocation coordination		
Je	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
a profile not ined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Secure installation/update of software	Develop an internationally acceptable standard for the secure installation, update, and validation of software (including application, support, and OS software) on devices. The process should allow a system to determine which devices have been updated and provide a mechanism to define when such updates are allowed, recommended, and required.	Urgent	Australia, European Union, United State
Source				y this Issue that would be addressed by the Proposed Resolution		
Center			Destination Flow Name Connected Vehicle Roadside Equipment RSE application install/upgrade Field Support Equipment RSE application install/upgrade			
Connected Vehicle R	oadside Equipment					
Field Support Equipn	nent		nnected Vehicle Roadside Equipment	RSE application install/upgrade		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry between a centres (e.g., a Map Update System) and field equipment.	Urgent	Australia, European Union, United State Japan
Course				y this Issue that would be addressed by the Proposed Resolution		
Source Map Update System			tination Dic Information Device	Flow Name map updates		
	Page 29 of 137					

lution Name:	(None-Data) - Guaranteed Internet (US)			Number of Issues: 2	Total Issue Severit	ty: 35
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Credentials management system	Implement regional (security) credentials management systems that are interoperable.	Urgent	Australia, European Union, United State
Source			Triples using this solution and affected b stination	/ this Issue that would be addressed by the Proposed Resolution Flow Name		
Center		Со	operative ITS Credentials Management S	ystem device enrollment information		
Center		Co	operative ITS Credentials Management S	ystem misbehavior report		
Connected Vehicle	Roadside Equipment	Co	operative ITS Credentials Management S	ystem device enrollment information		
Connected Vehicle	Roadside Equipment	Co	operative ITS Credentials Management S	ystem misbehavior report		
Cooperative ITS Cre	dentials Management System	Ce	nter	security credential revocations		
Cooperative ITS Cre	dentials Management System	Ce	nter	security credentials		
Cooperative ITS Cre	dentials Management System	Ce	nter	security policy and networking information		
Cooperative ITS Cre	dentials Management System	Co	nnected Vehicle Roadside Equipment	security credential revocations		
Cooperative ITS Cre	dentials Management System	Co	nnected Vehicle Roadside Equipment	security credentials		
Cooperative ITS Cre	dentials Management System	Co	nnected Vehicle Roadside Equipment	security policy and networking information		
Cooperative ITS Cre	dentials Management System	Da	ta Distribution System	security credential revocations		
Cooperative ITS Cre	dentials Management System	Da	ta Distribution System	security credentials		
Cooperative ITS Cre	dentials Management System	Da	ta Distribution System	security policy and networking information		
Cooperative ITS Cre	dentials Management System	Ob	ject Registration and Discovery Service	security credential revocations		
Cooperative ITS Cre	dentials Management System	Ob	ject Registration and Discovery Service	security credentials		
Cooperative ITS Cre	dentials Management System	Ob	ject Registration and Discovery Service	security policy and networking information		
Cooperative ITS Cre	dentials Management System	Se	vice Monitor System	security credential revocations		
Cooperative ITS Cre	dentials Management System	Se	vice Monitor System	security credentials		
Cooperative ITS Cre	dentials Management System	Se	vice Monitor System	security policy and networking information		
Cooperative ITS Cre	dentials Management System	Wi	de Area Information Disseminator	security credential revocations		
Cooperative ITS Cre	dentials Management System	Wi	de Area Information Disseminator	security credentials		
Cooperative ITS Cre	dentials Management System	Wi	de Area Information Disseminator	security policy and networking information		
Data Distribution Sy	vstem	Co	operative ITS Credentials Management S	ystem device enrollment information		
Data Distribution Sy	vstem	Co	operative ITS Credentials Management S	ystem misbehavior report		
Object Registration	and Discovery Service	Co	operative ITS Credentials Management S	ystem device enrollment information		
Object Registration	and Discovery Service	Co	operative ITS Credentials Management S	ystem misbehavior report		
Service Monitor Sys	stem	Co	operative ITS Credentials Management S	ystem device enrollment information		
Service Monitor Sys	stem	Со	operative ITS Credentials Management S	ystem misbehavior report		
Wide Area Informat	tion Disseminator	Со	operative ITS Credentials Management S	ystem device enrollment information		
Wide Area Informat	tion Disseminator	Со	operative ITS Credentials Management S	ystem misbehavior report		

Solution Name:	(None-Data) - Guaranteed Internet (US)				Number of Issues:	2	Total Issue Severity:	35
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revoc revoking the privileges of a certificate authority recognized within a region) and of an ITS station misbehave).	(e.g., if an authority is no	longer	Urgent	Australia, European Union, United States
Source			riples using this solution and affected by tination	this Issue that would be addressed by the Proposed Resolut Flow	on Name			
Alternate Mode Tran	sportation Center		nsportation Information Center		rnate mode incident information	n		
Alternate Mode Trar	sportation Center	Tra	nsportation Information Center	alter	rnate mode information			
Alternate Mode Trar	sportation Center	Tra	nsportation Information Center	alter	rnate mode service demand info	D		
Alternate Mode Tran	sportation Center	Tra	nsportation Information Center	serv	ice request			
Authorizing Center		Ce	nter	perr	nission request received			
Authorizing Center		Co	operative ITS Credentials Management S	ystem user	permission sets			
Authorizing Center		Otl	ner Authorizing Centers	perr	nission request coordination			
Center		Au	thorizing Center	perr	nission request			
Center		Au	horizing Center	perr	nission update request			
Center		Co	nnected Vehicle Roadside Equipment	RSE	application install/upgrade			
Center		Co	operative ITS Credentials Management S	ystem devi	ce enrollment information			
Center		Co	operative ITS Credentials Management S	ystem mist	behavior report			
Connected Vehicle R	oadside Equipment	Ce	nter	prot	ected location and address flow	V		
Connected Vehicle R	oadside Equipment	Co	operative ITS Credentials Management S	ystem devi	ce enrollment information			
Connected Vehicle R	oadside Equipment	Co	operative ITS Credentials Management S	ystem mist	oehavior report			
Connected Vehicle R	oadside Equipment	Co	operative ITS Credentials Management S	ystem prot	ected location and address flow	V		
Connected Vehicle R	oadside Equipment	Fie	ld Support Equipment	RSE	application install/upgrade			
Connected Vehicle R	oadside Equipment	Pay	ment Administration Center	acce	ess violation notification			
Connected Vehicle R	oadside Equipment	Pay	ment Administration Center	road	l use history			
Cooperative ITS Cred	entials Management System	Ce	nter	secu	rity credential revocations			
Cooperative ITS Cred	entials Management System	Ce	nter	secu	rity credentials			
Cooperative ITS Cred	entials Management System	Ce	nter	secu	rity policy and networking infor	rmation		
Cooperative ITS Cred	entials Management System	Co	nnected Vehicle Roadside Equipment	secu	rity credential revocations			
Cooperative ITS Cred	entials Management System	Co	nnected Vehicle Roadside Equipment	secu	rity credentials			
Cooperative ITS Cred	entials Management System	Co	nnected Vehicle Roadside Equipment	secu	rity policy and networking infor	rmation		
Cooperative ITS Cred	entials Management System	Da	a Distribution System	secu	rity credential revocations			
Cooperative ITS Cred	entials Management System	Da	a Distribution System	secu	rity credentials			
Cooperative ITS Crec	entials Management System	Da	a Distribution System	secu	rity policy and networking infor	rmation		
Cooperative ITS Cred	entials Management System	Ob	ject Registration and Discovery Service	secu	rity credential revocations			
Cooperative ITS Cred	entials Management System	Ob	ject Registration and Discovery Service	secu	rity credentials			

Solution Name:	(None-Data) - Guaranteed Internet (US	5)	Number of Issues:
Cooperative ITS Credentia	als Management System	Object Registration and Discovery Service	security policy and networking inform
Cooperative ITS Credentia	als Management System	Other CCMS	authorization coordination
Cooperative ITS Credentia	als Management System	Other CCMS	enrollment coordination
Cooperative ITS Credentia	als Management System	Other CCMS	misbehavior analysis coordination
Cooperative ITS Credentia	als Management System	Other CCMS	revocation coordination
Cooperative ITS Credentia	als Management System	Service Monitor System	security credential revocations
Cooperative ITS Credentia	als Management System	Service Monitor System	security credentials
Cooperative ITS Credentia	als Management System	Service Monitor System	security policy and networking inform
Cooperative ITS Credentia	als Management System	Wide Area Information Disseminator	security credential revocations
Cooperative ITS Credentia	als Management System	Wide Area Information Disseminator	security credentials
Cooperative ITS Credentia	als Management System	Wide Area Information Disseminator	security policy and networking inform
Data Distribution System		Cooperative ITS Credentials Management System	device enrollment information
Data Distribution System		Cooperative ITS Credentials Management System	misbehavior report
Data Distribution System		Service Monitor System	support system status
DMV		Payment Administration Center	registration
Emissions Management C	enter	Payment Administration Center	low emissions zone coordination
Emissions Management C	enter	Payment Administration Center	low emissions zone operations inform
Field Support Equipment		Connected Vehicle Roadside Equipment	RSE application install/upgrade
Map Update System		Public Information Device	map updates
Object Registration and D	iscovery Service	Cooperative ITS Credentials Management System	device enrollment information
Object Registration and D	iscovery Service	Cooperative ITS Credentials Management System	misbehavior report
Other Authorizing Centers	S	Authorizing Center	permission request coordination
Other CCMS		Cooperative ITS Credentials Management System	authorization coordination
Other CCMS		Cooperative ITS Credentials Management System	enrollment coordination
Other CCMS		Cooperative ITS Credentials Management System	misbehavior analysis coordination
Other CCMS		Cooperative ITS Credentials Management System	revocation coordination
Payment Administration (Center	Connected Vehicle Roadside Equipment	road use charges
Payment Administration 0	Center	Connected Vehicle Roadside Equipment	vehicle payment request
Payment Administration (Center	DMV	license request
Payment Administration 0	Center	Emissions Management Center	low emissions zone coordination
Payment Administration (Center	Enforcement Center	payment violation notification
Payment Administration 0	Center	Parking Management System	vehicle payment request
Payment Administration 0	Center	Public Information Device	traveler payment request
Payment Administration 0	Center	Public Information Device	user account reports
Privacy Protection Gatewa	ау	Center	protected location and address flow
Privacy Protection Gatewa	ау	Cooperative ITS Credentials Management System	protected location and address flow

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2	Total Issue Severity:	35
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lution Name: (None-Data) - Guaranteed Internet (US)			Number of Issues:	2	Total Issue Severity:	35
Public Information Device	Payment Administration Center	user acco	ount setup			
Public Information Device	Transit Management Center	transit inf	formation user request			
Service Monitor System	Cooperative ITS Credentials Management System	device en	orollment information			
Service Monitor System	Cooperative ITS Credentials Management System	misbehav	vior report			
Wide Area Information Disseminator	Cooperative ITS Credentials Management System	device en	orollment information			
Wide Area Information Disseminator	Cooperative ITS Credentials Management System	misbehav	vior report			

(None-Data) - Guaranteed Internet (X.509) Solution Name:

Number of Issues:

This solution is used within the U.S., E.U., and Australia. It combines standards associated with (None-Data) with those for I-I: Guaranteed Internet (X.509). The (None-Data) standards include an uns I-I: Guaranteed Internet (X.509) standards include lower-layer standards that support secure communications with guaranteed delivery between ITS equipment using mainstream Internet security standards that support secure communications with guaranteed delivery between ITS equipment using mainstream Internet security standards that support secure communications with guaranteed delivery between ITS equipment using mainstream Internet security standards that support secure communications with guaranteed delivery between ITS equipment using mainstream Internet security standards that support secure communications with guaranteed delivery between ITS equipment using mainstream Internet security standards that support secure communications with guaranteed delivery between ITS equipment using mainstream Internet security standards that support secure communications with guaranteed delivery between ITS equipment using mainstream Internet security standards that support secure communications with guaranteed delivery between ITS equipment using mainstream Internet security standards that support secure communications with guaranteed delivery between ITS equipment using mainstream Internet security sta

Issu	ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined		Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: System monitoring	Develop an internationally acceptable ITS application specification for the Service Monitor System to monitor other centers and support systems and to report issues.	Urgent	Australia, European Union, United States
			Information T	riples using this solution and affected by	this Issue that would be addressed by the Proposed Resolution		
	Source		Des	tination	Flow Name		
	Data Distribution Syste	m	Ser	vice Monitor System	support system status		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Core authorization - coordination among centres	Develop an internationally acceptable standard for the user permission request coordination information triples contained within the Core Authorization Service Package.	Near-term	Australia, European Union, United States
5				y this Issue that would be addressed by the Proposed Resolution		
Source Authorizing Center			stination her Authorizing Centers	Flow Name permission request coordination		
Other Authorizing Cer	nters		thorizing Center	permission request coordination		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not	Performance, functionality, and the upper-	Ultra	Core authorization - base	Develop an internationally acceptable standard for the user permission sets, permission	Urgent	Australia, European
defined	layers of the OSI stack have not been defined for this information flow.		services	request, permission update request, permission request received, and device identification information triples contained within the Core Authorization Service Package.		Union, United States
			Triples using this solution and affected by	request, permission update request, permission request received, and device identification information triples contained within the Core Authorization Service Package. y this Issue that would be addressed by the Proposed Resolution		Union, United States
Source		Des	Triples using this solution and affected by stination	request, permission update request, permission request received, and device identification information triples contained within the Core Authorization Service Package. y this Issue that would be addressed by the Proposed Resolution Flow Name		Union, United States
		Des	Triples using this solution and affected by	request, permission update request, permission request received, and device identification information triples contained within the Core Authorization Service Package. y this Issue that would be addressed by the Proposed Resolution		Union, United States
Source		Des Cer	Triples using this solution and affected by stination	request, permission update request, permission request received, and device identification information triples contained within the Core Authorization Service Package. y this Issue that would be addressed by the Proposed Resolution Flow Name		Union, United States

1	Total Issue Severity:	32					
specified set of standards at the upper layers. The							
tandards (X.509).							

	Timeframe	Applicability
ts, permission vice Service Package.	Urgent	Australia, European Union, United States

	(None-Data) - Guaranteed Internet (X.50	9)			Number of Issues: 1	Total Issue Severit	y: 32
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Equipment maintenance coordination	Develop an internationally acceptable ITS an equipment maintenance and status information of the		Near-term	Australia, European Union, United States
Source			riples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Re	solution Flow Name		
Service Monitor Syst	em	Cer	nter		RSE fault data		
Service Monitor Syst	em	Ma	int and Constr Management Center		RSE fault data		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability
ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Security and credentials management - base services	Develop an internationally acceptable stand information, device enrolment information, revocations, and misbehaviour report inform and Credentials Management Service Packa	security credentials, security credential nation triples contained within the Security	Urgent	Australia, European Union, United States
Source			riples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Re	solution Flow Name		
	dentials Management System		ect Registration and Discovery Service		security credential revocations		
Cooperative ITS Cred	dentials Management System	Ob	ect Registration and Discovery Service		security credentials		
Cooperative ITS Cred	dentials Management System	Ob	ect Registration and Discovery Service		security policy and networking information		
Object Registration a	and Discovery Service	Cod	operative ITS Credentials Management S	System	device enrollment information		
Object Registration a	and Discovery Service	Cod	operative ITS Credentials Management S	iystem	misbehavior report		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability
ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Private location and address	Develop an internationally acceptable ITS an operation of a Privacy Protection Gateway.	oplication specification that defines the	Urgent	Australia, European Union, United States
Source			riples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Re	solution Flow Name		
Connected Vehicle R	oadside Equipment		nter		protected location and address flow		

ata profile not)9)		Number of Issues: 1 To	tal Issue Severity	/: 32
ata profile not	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Object registration and discovery	Investigate mechanisms to register and discover objects within the ITS network.	Near-term	Australia, European Union, United States
Source			riples using this solution and affected by tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Center			ject Registration and Discovery Service	object registration		
Connected Vehicle Roa	adside Equipment	Ob	ject Registration and Discovery Service	object registration		
Data Distribution Syste	em	Ob	ject Registration and Discovery Service	object registration		
Object Registration an	nd Discovery Service	Ce	nter	object discovery		
Object Registration an	nd Discovery Service	Co	nnected Vehicle Roadside Equipment	object discovery		
Object Registration an	nd Discovery Service	Da	a Distribution System	object discovery		
Object Registration an	nd Discovery Service	Wi	de Area Information Disseminator	object discovery		
Wide Area Information	n Disseminator	Ob	ject Registration and Discovery Service	object registration		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Secure installation/update of software	Develop an internationally acceptable standard for the secure installation, update, and validation of software (including application, support, and OS software) on devices. The process should allow a system to determine which devices have been updated and provide a mechanism to define when such updates are allowed, recommended, and required.	Urgent	Australia, European Union, United State
Source			riples using this solution and affected by tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Center		Co	nnected Vehicle Roadside Equipment	RSE application install/upgrade		
Connected Vehicle Roa	adside Equipment	Fie	ld Support Equipment	RSE application install/upgrade		
Field Support Equipme	ent	Co	nnected Vehicle Roadside Equipment	RSE application install/upgrade		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Data aggregation	Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres).	Urgent	Australia, European Union, United States
			riples using this solution and affected by tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Source						

Solution Name: (None-Data) - Guaranteed Internet (X.509			9)			Number of Issues:
lss	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
		Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Distribute maps	Develop an internationally acceptable ITS applic for distributing maps, roadway geometry, and in (e.g., a Map Update System) and field equipmer	ntersection geometry betw
	Source			riples using this solution and affected by tination	this Issue that would be addressed by the Proposed Resoluti Flow	ion v Name
	Map Update System		Put	olic Information Device	map	o updates
lss	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Data profile not definedPerformance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.						
		layers of the OSI stack have not been defined	Ultra	Credentials management system	Implement regional (security) credentials mana	gement systems that are ir
	fined	layers of the OSI stack have not been defined	Information T	system	this Issue that would be addressed by the Proposed Resolution	ion
		layers of the OSI stack have not been defined	Information T	system	this Issue that would be addressed by the Proposed Resolution	- ·
	Source	layers of the OSI stack have not been defined	Information T Des	system	this Issue that would be addressed by the Proposed Resoluti Flow	ion
	Source Cooperative ITS Creder	layers of the OSI stack have not been defined for this information flow.	Information T Des Obj	system Triples using this solution and affected by tination	this Issue that would be addressed by the Proposed Resoluti Flow Secu	ion v Name
	Source Cooperative ITS Creder Cooperative ITS Creder	layers of the OSI stack have not been defined for this information flow.	Information T Des Obj	system Triples using this solution and affected by tination ject Registration and Discovery Service	this Issue that would be addressed by the Proposed Resoluti Flow secu	tion v Name urity credential revocations
	Source Cooperative ITS Creder Cooperative ITS Creder	layers of the OSI stack have not been defined for this information flow.	Information T Des Ob Ob	system Triples using this solution and affected by tination ject Registration and Discovery Service ject Registration and Discovery Service	this Issue that would be addressed by the Proposed Resoluti Flow secu	tion v Name urity credential revocations urity credentials

Solution Name:

(None-Data) - Guaranteed Mobile Internet (X.509)

This solution is used within the U.S., E.U., and Australia. It combines standards associated with (None-Data) with those for I-M: Guaranteed Mobile Internet (X.509). The (None-Data) standards include an unspecified set of standards at the upper layers. The I-M: Guaranteed Mobile Internet (X.509). The (None-Data) standards include an unspecified set of standards at the upper layers. The I-M: Guaranteed Mobile Internet (X.509). The (None-Data) standards include lower-layer standards that support secure communications with guaranteed delivery between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intneret connection method.

Iayers of the OSI stack have not been defined for this information flow. discovery Union, United discovery Source Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Destination Flow Name Object Registration and Discovery Service Personal Information Device object discovery Object Registration and Discovery Service Velicle OBE object discovery Surce Issue Description Issue Severity Resolution Description	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Source Destination Flow Name Object Registration and Discovery Service Personal Information Device object discovery Object Registration and Discovery Service Vehicle OBE object discovery Object Registration and Discovery Service Vehicle OBE object discovery Seve Issue Description Issue Severity Proposed Resolution Resolution Description Timeframe Applicability at a profile not efined Performance, functionality, and the upper- for this information flow. Ultra C-V: EU signal priority/preemption Develop an ITS application specification for a centre to exchange requests and status for signal priority/preemption along a route with a vehicle. Medium-term Union Australia, Eur Union Source Unformation flow. Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Testination Net Proposed Resolution Flow Name Medium-term Australia, Eur Union	•	layers of the OSI stack have not been defined	Ultra		Investigate mechanisms to register and discover objects within the ITS network.	Near-term	Australia, European Union, United States
Object Registration and Discovery Service Personal Information Device object discovery Object Registration and Discovery Service Vehicle OBE object discovery Issue Description Issue Severity Proposed Resolution Resolution Description Timeframe Applicability Ita profile not fined Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow. Ultra C-V: EU signal priority/preemption Develop an ITS application specification for a centre to exchange requests and status for signal priority/preemption along a route with a vehicle. Medium-term Union Australia, Eur Union							
Object Registration JDiscovery Service Velice OBE Object discovery State Issue Description Issue Severity Proposed Resolution Resolution Description Timeframe Applicability ata profile not fined Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow. Ultra C-V: EU signal priority/preemption Develop an ITS application specification for a centre to exchange requests and status for signal priority/preemption along a route with a vehicle. Medium-term Union Australia, Eur Union Source Unice Unice <td>Source</td> <td></td> <td>Des</td> <td>tination</td> <td>Flow Name</td> <td></td> <td></td>	Source		Des	tination	Flow Name		
Issue Description Issue Severity Proposed Resolution Resolution Description Timeframe Applicability ata profile not efined Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow. Ultra C-V: EU signal priority/preemption Develop an ITS application specification for a centre to exchange requests and status for signal priority/preemption along a route with a vehicle. Medium-term Union Australia, Eur Union Source Source Union Develop an ITS application specification specification for a centre to exchange requests and status for layers of the OSI stack have not been defined for this information flow. Medium-term priority/preemption Develop an ITS application specification specification for a centre to exchange requests and status for signal priority/preemption along a route with a vehicle. Medium-term Union Australia, Eur Union	Object Registration a	and Discovery Service	Pe	sonal Information Device	object discovery		
Atta profile not efined Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow. Ultra C-V: EU signal priority/preemption Develop an ITS application specification for a centre to exchange requests and status for signal priority/preemption along a route with a vehicle. Medium-term Australia, Eur Union Source Information flow. Information and affected by this Issue that would be addressed by the Proposed Resolution Flow Name Flow Name	Object Registration a	and Discovery Service	Ve	hicle OBE	object discovery		
Iayers of the OSI stack have not been defined for this information flow. priority/preemption signal priority/preemption along a route with a vehicle. Union Source Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Destination Destination Flow Name	ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Source Destination Flow Name	•	layers of the OSI stack have not been defined	Ultra	_		Medium-term	Australia, European Union
Emergency Management Center Emergency Vehicle OBE green wave information			Destination		Flow Name		
			Emergency Vehicle OBE		green wave information		

1	Total Issue Severity:	32]
	Timeframe	Applicability	
efines the rules ween a centres	Urgent	Australia, Eur Union, United Japan	-
	Timeframe	Applicability	
nteroperable.	Urgent	Australia, Eur Union, United	-
rmation			

2	Total Issue Severity:	35				
de an unspecified set of standards at the upper						
which may be a	actively moving based o	n V 500				

Number of Issues:

So	lution Name:	(None-Data) - Guaranteed Mobile Intern	net (X.509)			Number of Issues:
Is	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
tr	ncertainty about ust revocation echanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust r revoking the privileges of a certificate auth recognized within a region) and of an ITS st misbehave).	ority (e.g., if an authority is no lo
	Source			Triples using this solution and affected by stination	r this Issue that would be addressed by the Proposed Re	esolution Flow Name
	Care Facility			nergency Vehicle OBE		care facility status
	Care Facility			nergency Vehicle OBE		medical records
	Emergency Management Center Emergency Vehicle OBE		Em	nergency Vehicle OBE		green wave information
			Ca	re Facility		care facility status request
	Emergency Vehicle OF	3E	Ca	re Facility		medical records request
	Object Registration ar	nd Discovery Service	Pe	rsonal Information Device		object discovery
	Object Registration ar	nd Discovery Service	Ve	hicle OBE		object discovery

Number of Issues:

(None-Data) - Internet (X.509)

Solution Name:

This solution is used within the U.S., E.U., and Australia. It combines standards associated with (None-Data) with those for I-I: Internet (X.509). The (None-Data) standards include an unspecified set (X.509) standards include lower-layer standards that support secure communications between ITS equipment using mainstream Internet security standards (X.509).

Iss	Issue Issue Description		Issue Severity	Proposed Resolution	Resolution Description
	ta profile not ined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: System monitoring	Develop an internationally acceptable ITS application specification for the S System to monitor other centers and support systems and to report issues.
	Source			Friples using this solution and affected by stimation	this Issue that would be addressed by the Proposed Resolution Flow Name
	Wide Area Information Disseminator		Ser	vice Monitor System	support system status

2	Total Issue Severity:	35]
	Timeframe	Applicability	
vels, including longer n starts to	Urgent	Australia, Eur Union, United	-

2	Total Issue Severity	: 35
t of standards a	t the upper layers. T	he I-I: Internet

	-		
	Timeframe	Applicability	
Service Monitor s.	Urgent	Australia, Europea Union, United Stat	

olution Name:	(None-Data) - Internet (X.509)			Number of Issues: 2 To	otal Issue Severity	: 35
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for updating maps, roadway geometry, and intersection geometry among centres (e.g., between a Map Update System and a centre).	Urgent	Australia, European Union, United States
Source			riples using this solution and affected tination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Center		Ma	p Update System	map update notification		
Maint and Constr M	anagement Center	Ma	p Update System	current infrastructure restrictions		
Map Update System		Ce	nter	intersection geometry		
Map Update System		Ce	nter	map updates		
Map Update System		Ot	ner Map Update Systems	map update coordination		
Map Update System		Ра	king Management System	parking facility geometry		
Other Map Update S	systems	Ma	p Update System	map update coordination		
Parking Managemer	it System	Ma	p Update System	parking facility geometry		
Traffic Management	Center	Ma	p Update System	map update notification		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Develop standard for electronic distribution of traffic regulations	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries.	Urgent	Australia, European Union, United State
Source			riples using this solution and affected tination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Transportation Infor	mation Center	Wi	de Area Information Disseminator	traffic-related regulations		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Update central map database	Develop an internationally acceptable ITS application specification that defines the rules for updating a central map database, including roadway and intersection geometry, based on real-world data readings from vehicles and transmitted to a map update system.	Medium-term	Australia, European Union, United States Japan
Source	-1		Friples using this solution and affected tination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle F	loadside Equipment		p Update System	vehicle location data for mapping		
		Issue Severity	December of December of	Resolution Description	Timofromo	Applicability
			Proposed Resolution	Resolution Description	Timeframe	Applicability
	Issue Description					
rformance not ly defined	Issue Description The performance rules are not fully defined for this information flow.	Medium	C-C: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for updating maps, roadway geometry, and intersection geometry among centres (e.g., between a Map Update System and a centre).	Urgent	Australia, European Union, United States
sue erformance not lly defined nedium) Source	The performance rules are not fully defined	Medium		for updating maps, roadway geometry, and intersection geometry among centres (e.g.,	Urgent	Australia, European Union, United States

Solution Name: (N	None-Data) - Local Broadcast Wireless (AU/EU)	Number of Issues:
Solution Name: (N	None-Data) - Local Broadcast Wireless (AU/EU)	Number of Issues:

lution Name:	(None-Data) - Local Broadcast Wireless (AU/EU)			Number of Issues:	5	Total Issue Severity:	44
lution Name:	(None-Data) - Local Broadcast Wireless (AU/EU)			Number of Issues:	5	Total Issue Severity:	44
				X: Local Broadcast Wireless (AU/EU). The (None-Data reless solutions, such as DSRC technologies, 5G LTE, o		inspecified set	of standards at the up	per layers.
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
ecurity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide so transmitter of a message is not the same of the ge generated by a central system and sent to the RSE generated by one vehicle and rebroadcast by anot	enerator of the message for transmission or a m	(e.g., a messa	ge Urgent	Australia, Europ Union
Source			Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow N				
Connected Vehicle Roa	adside Equipment		rsonal Information Device		aveler information			
Connected Vehicle Roa	adside Equipment	Pe	rsonal Information Device	locatio	n correction			
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	arrivin	g train information			
Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	driver	display conflict warning			
Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	local tr	aveler information			
Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	locatio	n correction			
Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	map u	pdates			
Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	parkin	g facility geometry			
Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	rail cro	ssing warning			
Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	roadw	ay geometry			
ITS Roadway Equipme	int	М	aint and Constr Vehicle OBE	roadw	ay advisory radio status			
ITS Roadway Equipme	ent	М	aint and Constr Vehicle OBE	roadw	ay dynamic signage status			
ITS Roadway Equipme	ent	М	aint and Constr Vehicle OBE	traffic	detector data			
ITS Roadway Equipme	ent	М	aint and Constr Vehicle OBE	traffic	images			
Maint and Constr Vehi	icle OBE	ITS	S Roadway Equipment	roadw	ay advisory radio data			
Maint and Constr Vehi	icle OBE	ITS	S Roadway Equipment	roadw	ay dynamic signage data			
Maint and Constr Vehi	icle OBE	ITS	S Roadway Equipment	traffic	detector control			
Maint and Constr Vehi	icle OBE	ITS	S Roadway Equipment	video s	surveillance control			
Other Vehicle OBEs		Ve	hicle OBE	vehicle	headlight dim request			
Other Vehicle OBEs		Ve	hicle OBE	vehicle	road information			
Other Vehicle OBEs		Ve	hicle OBE	vehicle	e travel time data			
Personal Information I	Device	Co	nnected Vehicle Roadside Equipment	private	e location and address flow			
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	driver	display conflict warning			
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	driver	display snapshots			
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	private	e location and address flow			
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	service	response			
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	vehicle	e profile			

Sol	lution Name:	(None-Data) - Local Broadcast Wireless (A	AU/EU)			Number of Issues:
Iss	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
	ata profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Vehicle headlight dimming	Develop an ITS application specification for headlights. NOTE: This analysis should cons needed or whether existing market product	ider whether this information
	Source			riples using this solution and affected by tination	\prime this Issue that would be addressed by the Proposed Re	esolution Flow Name
	Other Vehicle OBEs		Veł	nicle OBE		vehicle headlight dim request
	Vehicle OBE		Oth	ner Vehicle OBEs		vehicle headlight dim request
lss	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
	ata profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Message signs	Develop an internationally acceptable ITS a signs for secure communications with prop	
	Source			riples using this solution and affected by tination	v this Issue that would be addressed by the Proposed Re	esolution Flow Name
	ITS Roadway Equipme	nt	Ma	int and Constr Vehicle OBE		roadway dynamic signage status
	Maint and Constr Vehi	icle OBE	ITS	Roadway Equipment		roadway dynamic signage data
lss	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Da	sue ata profile not efined	Issue Description Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Issue Severity Ultra	Proposed Resolution I-F: Highway advisory radio	Resolution Description Develop an internationally acceptable ITS a advisory radios for secure communications	
Da	ata profile not	Performance, functionality, and the upper- layers of the OSI stack have not been defined	Ultra	I-F: Highway advisory radio	Develop an internationally acceptable ITS a	with proper access control.
Da	ata profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra Information T Des	I-F: Highway advisory radio	Develop an internationally acceptable ITS a advisory radios for secure communications	with proper access control.
Da	ata profile not efined Source	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra Information T Des Ma	I-F: Highway advisory radio riples using this solution and affected by tination	Develop an internationally acceptable ITS a advisory radios for secure communications	with proper access control. esolution Flow Name
Da	ata profile not efined Source ITS Roadway Equipme	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra Information T Des Ma ITS	I-F: Highway advisory radio riples using this solution and affected by tination int and Constr Vehicle OBE	Develop an internationally acceptable ITS a advisory radios for secure communications	with proper access control. esolution Flow Name roadway advisory radio status
Da de	ata profile not efined Source ITS Roadway Equipme Maint and Constr Vehi	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra Information T Des Ma ITS	I-F: Highway advisory radio riples using this solution and affected by tination int and Constr Vehicle OBE Roadway Equipment	Develop an internationally acceptable ITS a advisory radios for secure communications this Issue that would be addressed by the Proposed Re	with proper access control. esolution Flow Name roadway advisory radio status roadway advisory radio data
Da de	ata profile not efined Source ITS Roadway Equipme Maint and Constr Vehi sue ata profile not	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow. nt icle OBE Issue Description Performance, functionality, and the upper- layers of the OSI stack have not been defined	Ultra Information T Des Ma ITS Issue Severity Ultra Information T	I-F: Highway advisory radio riples using this solution and affected by tination int and Constr Vehicle OBE Roadway Equipment Proposed Resolution V-L: Distribute maps	Develop an internationally acceptable ITS a advisory radios for secure communications this Issue that would be addressed by the Proposed Re Resolution Description Develop an internationally acceptable ITS a for distributing maps, roadway geometry, a	with proper access control. esolution Flow Name roadway advisory radio status roadway advisory radio data pplication specification that de and intersection geometry to a
Da de	ata profile not efined Source ITS Roadway Equipme Maint and Constr Vehi sue ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow. It icle OBE Issue Description Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra Information T Des Ma ITS Issue Severity Ultra Information T Des	I-F: Highway advisory radio riples using this solution and affected by tination int and Constr Vehicle OBE Roadway Equipment Proposed Resolution V-L: Distribute maps	Develop an internationally acceptable ITS a advisory radios for secure communications this Issue that would be addressed by the Proposed Re Resolution Description Develop an internationally acceptable ITS a for distributing maps, roadway geometry, a local source.	with proper access control. esolution Flow Name roadway advisory radio status roadway advisory radio data pplication specification that de and intersection geometry to a esolution
Da de	ata profile not efined Source ITS Roadway Equipme Maint and Constr Vehi sue ata profile not efined Source	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow. Int icle OBE Issue Description Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra Information T Des Ma ITS Issue Severity Ultra Ultra Information T Des Ver	I-F: Highway advisory radio riples using this solution and affected by tination int and Constr Vehicle OBE Roadway Equipment Proposed Resolution V-L: Distribute maps riples using this solution and affected by tination	Develop an internationally acceptable ITS a advisory radios for secure communications this Issue that would be addressed by the Proposed Re Resolution Description Develop an internationally acceptable ITS a for distributing maps, roadway geometry, a local source.	with proper access control. esolution Flow Name roadway advisory radio status roadway advisory radio data pplication specification that de and intersection geometry to a esolution Flow Name

5 T	otal Issue Severity:	44	
	Timeframe	Applicability	
ehicle to dim its flow is still e.	Urgent	European Uni	on
	Timeframe	Applicability	
naging message	Urgent	Australia, Eur Union, United	
	Timeframe	Applicability	
naging highway	Medium-term	United States	
	Timeframe	Applicability	
fines the rules vehicle from a	Urgent	Australia, Eur Union, United Japan	

		AU/EU)		Number of Issues: 5 To	otal Issue Severit	y: 44
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Driver display conflicts	Develop an ITS application specification for identifying that a vehicle is displaying the incorrect information to a driver and alerting appropriate entities.	Near-term	Australia, European Union
Source			Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle R	Roadside Equipment	Ve	hicle OBE	driver display conflict warning		
Vehicle OBE		Со	nnected Vehicle Roadside Equipment	driver display conflict warning		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	driver display snapshots		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not ined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Private location and address	Develop an internationally acceptable ITS application specification that defines the operation of a Privacy Protection Gateway.	Urgent	Australia, European Union, United State
Source			Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Personal Information	n Device	Co	nnected Vehicle Roadside Equipment	private location and address flow		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	private location and address flow		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not ined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Transportation sensor systems	Develop an internationally acceptable ITS application specification for exchanging transportation sensor station data with a management entity that uses the secure centre-to-field protocol.	Urgent	Australia, European Union, United State
Source			Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Source ITS Roadway Equipm	nent	Des				
		De: Ma	stination	Flow Name		
ITS Roadway Equipm Maint and Constr Ve		De: Ma	stination aint and Constr Vehicle OBE	Flow Name traffic detector data	Timeframe	Applicability
ITS Roadway Equipm Maint and Constr Ve Je a profile not	hicle OBE	De: Ma ITS	stination aint and Constr Vehicle OBE i Roadway Equipment	Flow Name traffic detector data traffic detector control	Timeframe Urgent	Australia, European
ITS Roadway Equipm Maint and Constr Ve Je a profile not ined	Issue Description Performance, functionality, and the upper- layers of the OSI stack have not been defined	De: Ma ITS Issue Severity Ultra	stination aint and Constr Vehicle OBE B Roadway Equipment Proposed Resolution Secure and accurate location and time standards Triples using this solution and affected b	Flow Name traffic detector data traffic detector control Resolution Description Develop/adopt an internationally acceptable standard/solution for synchronising and continuously maintaining location and time information throughout the ITS environment in a secure and reliable manner with sufficient accuracy (including leap seconds) and confidence. by this Issue that would be addressed by the Proposed Resolution		Applicability Australia, European Union, United State
ITS Roadway Equipm	Issue Description Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	De: Ma ITS Issue Severity Ultra Ultra	stination aint and Constr Vehicle OBE is Roadway Equipment Proposed Resolution Secure and accurate location and time standards	Flow Name traffic detector data traffic detector control Resolution Description Develop/adopt an internationally acceptable standard/solution for synchronising and continuously maintaining location and time information throughout the ITS environment in a secure and reliable manner with sufficient accuracy (including leap seconds) and confidence.		Australia, European

Solution Name:	(None-Data) - Local Broadcast Wireless (AU/EU)		Number of Issues:
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: CCTV	Develop an internationally acceptable ITS application specification for excha camera data with a management entity that uses the secure centre-to-field
		Information ⁻	Triples using this solution and affected by	this Issue that would be addressed by the Proposed Resolution
Source		Des	stination	Flow Name
ITS Roadway Equipme	ent	Ma	aint and Constr Vehicle OBE	traffic images
Maint and Constr Veh	nicle OBE	ITS	s Roadway Equipment	video surveillance control
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Distribute maps	Develop an internationally acceptable ITS application specification that define for distributing maps, roadway geometry, and intersection geometry and as regulations and restrictions over mobile Internet from a centre to user device vehicle or personal information device).
		Information -	Triples using this solution and affected by	this Issue that would be addressed by the Proposed Resolution
Source			stination	Flow Name
Other Vehicle OBEs		Ve	hicle OBE	vehicle road information

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5	10	tal Issue Severity:	44	
		Timeframe	Applicability	
changing CCTV eld protocol.		Medium-term	Australia, Eur Union, Unite	
		Timeframe	Applicability	
efines the rules associated evices (e.g., a		Urgent	Australia, Eur Union, Uniter Japan	

lution Name:	(None-Data) - Local Broadcast Wireless	(AU/EU)		Number of Issues:5	Total Issue Severi	ty: 44
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ncertainty about ust revocation echanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
Source			riples using this solution and affected tination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	oadside Equipment		sonal Information Device	local traveler information		
Connected Vehicle Ro	oadside Equipment	Per	sonal Information Device	location correction		
Connected Vehicle Ro	oadside Equipment	Vel	nicle OBE	arriving train information		
Connected Vehicle Ro	oadside Equipment	Vel	nicle OBE	driver display conflict warning		
Connected Vehicle Ro	oadside Equipment	Vel	nicle OBE	local traveler information		
Connected Vehicle Ro	oadside Equipment	Vel	nicle OBE	location correction		
Connected Vehicle Ro	oadside Equipment	Vel	nicle OBE	map updates		
Connected Vehicle Ro	oadside Equipment	Ve	nicle OBE	parking facility geometry		
Connected Vehicle Ro	oadside Equipment	Vel	nicle OBE	rail crossing warning		
Connected Vehicle Ro	oadside Equipment	Vel	nicle OBE	roadway geometry		
ITS Roadway Equipm	ent	Ma	int and Constr Vehicle OBE	roadway advisory radio status		
ITS Roadway Equipm	ent	Ma	int and Constr Vehicle OBE	roadway dynamic signage status		
ITS Roadway Equipm	ent	Ma	int and Constr Vehicle OBE	traffic detector data		
ITS Roadway Equipm	ent	Ma	int and Constr Vehicle OBE	traffic images		
Maint and Constr Vel	hicle OBE	ITS	Roadway Equipment	roadway advisory radio data		
Maint and Constr Vel	hicle OBE	ITS	Roadway Equipment	roadway dynamic signage data		
Maint and Constr Vel	hicle OBE	ITS	Roadway Equipment	traffic detector control		
Maint and Constr Vel	hicle OBE	ITS	Roadway Equipment	video surveillance control		
Other Vehicle OBEs		Vel	nicle OBE	vehicle headlight dim request		
Other Vehicle OBEs		Vel	nicle OBE	vehicle road information		
Other Vehicle OBEs		Vel	nicle OBE	vehicle travel time data		
Personal Information	n Device	Co	nnected Vehicle Roadside Equipment	private location and address flow		
Vehicle OBE		Cor	nnected Vehicle Roadside Equipment	driver display conflict warning		
Vehicle OBE		Con	nnected Vehicle Roadside Equipment	driver display snapshots		
Vehicle OBE		Cor	nnected Vehicle Roadside Equipment	private location and address flow		
Vehicle OBE		Cor	nnected Vehicle Roadside Equipment	service response		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	vehicle profile		
Vehicle OBE		Oth	ner Vehicle OBEs	vehicle headlight dim request		

ution Name:	(None-Data) - Local Broadcast Wireless (A	AU/EU)		Number of Issues: 5	Total Issue Severit	y: 44
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, Europear Union
Source			riples using this solution and affected by ination	this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	adside Equipment		sonal Information Device	local traveler information		
Connected Vehicle Ro	adside Equipment	Per	sonal Information Device	location correction		
Connected Vehicle Ro	adside Equipment	Veh	icle OBE	arriving train information		
Connected Vehicle Ro	adside Equipment	Veh	icle OBE	driver display conflict warning		
Connected Vehicle Ro	adside Equipment	Veh	icle OBE	local traveler information		
Connected Vehicle Ro	adside Equipment	Veh	icle OBE	location correction		
Connected Vehicle Ro	adside Equipment	Veh	icle OBE	map updates		
Connected Vehicle Ro	adside Equipment	Veh	icle OBE	parking facility geometry		
Connected Vehicle Ro	adside Equipment	Veh	icle OBE	rail crossing warning		
Connected Vehicle Ro	adside Equipment	Veh	icle OBE	roadway geometry		
ITS Roadway Equipme	ent	Mai	nt and Constr Vehicle OBE	roadway advisory radio status		
ITS Roadway Equipme	ent	Mai	nt and Constr Vehicle OBE	roadway dynamic signage status		
ITS Roadway Equipme	ent	Mai	nt and Constr Vehicle OBE	traffic detector data		
ITS Roadway Equipme	ent	Mai	nt and Constr Vehicle OBE	traffic images		
Maint and Constr Veh	icle OBE	ITS	Roadway Equipment	roadway advisory radio data		
Maint and Constr Veh	icle OBE	ITS	Roadway Equipment	roadway dynamic signage data		
Maint and Constr Veh	icle OBE	ITS	Roadway Equipment	traffic detector control		
Maint and Constr Veh	icle OBE	ITS	Roadway Equipment	video surveillance control		
Other Vehicle OBEs		Veh	icle OBE	vehicle headlight dim request		
Other Vehicle OBEs		Veh	icle OBE	vehicle road information		
Other Vehicle OBEs		Veh	icle OBE	vehicle travel time data		
Personal Information	Device	Con	nected Vehicle Roadside Equipment	private location and address flow		
Vehicle OBE		Con	nected Vehicle Roadside Equipment	driver display conflict warning		
Vehicle OBE		Con	nected Vehicle Roadside Equipment	driver display snapshots		
Vehicle OBE		Con	nected Vehicle Roadside Equipment	private location and address flow		
Vehicle OBE		Con	nected Vehicle Roadside Equipment	service response		
Vehicle OBE		Con	nected Vehicle Roadside Equipment	vehicle profile		
Vehicle OBE		Oth	er Vehicle OBEs	vehicle headlight dim request		

Solution Name:	(None-Data) - Local Broadcast Wireless (otal Issue Severity	44				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability	
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	Secure and accurate location and time standards	Develop/adopt an internationally acceptable standard/solution for synchronising and continuously maintaining location and time information throughout the ITS environment in a secure and reliable manner with sufficient accuracy (including leap seconds) and confidence.	Urgent	Australia, European Union, United States	
				y this Issue that would be addressed by the Proposed Resolution			
Source		Des	stination	Flow Name			
Connected Vehicle R	oadside Equipment	Personal Information Device		location correction			
Connected Vehicle R	oadside Equipment	Vel	hicle OBE	location correction			
olution Name: (None-Data) - Mobile Internet (X.509) 46							

This solution is used within the U.S., E.U., and Australia. It combines standards associated with (None-Data) with those for I-M: Mobile Internet (X.509). The (None-Data) standards include an unspecified set of standards at the upper layers. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Interet connection method.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Core authorization - base services	Develop an internationally acceptable standard for the user permission sets, permission request, permission update request, permission request received, and device identification information triples contained within the Core Authorization Service Package.	Urgent	Australia, European Union, United States
Source			riples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name	,	
Personal Information	on Device	Ce	nter	device identification		
Vehicle OBE		Ce	nter	device identification		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Core authorization - requests	Develop an internationally acceptable standard for the permission application and permission application receipt information triples contained within the Core Authorization Service Package.	Medium-term	Australia, European Union, United States
Source			riples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Center		Pe	sonal Information Device	permission application receipt		
Personal Information	on Device	Ce	permission application			
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).	Urgent	Australia, European Union
Source			riples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Transportation Info	rmation Center		nicle OBE	road weather advisories		
	D 45					

So	lution Name:	(None-Data) - Mobile Internet (X.509)				Number of Issues:
Is	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
	ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Private location and address	Develop an internationally acceptable ITS ap operation of a Privacy Protection Gateway.	plication specification that de
	Source			- Triples using this solution and affected by tination	ر y this Issue that would be addressed by the Proposed Reso F	olution flow Name
	Personal Information I	Device	Priv	vacy Protection Gateway	I	private location and address flow
	Vehicle OBE		Priv	vacy Protection Gateway	1	private location and address flow
ls	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
	ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Fleet management	Develop an ITS application specification for n the location of fleet vehicles such as emerged	
	Source			Friples using this solution and affected by tination	y this Issue that would be addressed by the Proposed Reso F	plution flow Name
	Emergency Vehicle OB	3E	Em	ergency Management Center	(emergency vehicle tracking data
	Personal Information I	Device	Ser	vice Monitor System		PID status
	Vehicle OBE		Ser	vice Monitor System	(OBE status
ls	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
	ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: EU signal priority/preemption	Develop an ITS application specification for a signal priority/preemption along a route with	÷ ,
	Source			Friples using this solution and affected by tination	y this Issue that would be addressed by the Proposed Reso F	olution low Name
	Emergency Manageme	ent Center	Em	ergency Vehicle OBE	Į	green wave information
	Emergency Vehicle OB	BE	Em	ergency Management Center	ł	green wave request
ls	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
	ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Signal operations	Develop an ITS application specification for p vehicles from a centre for environmental ber	0
	Source			riples using this solution and affected by tination	y this Issue that would be addressed by the Proposed Reso F	olution Flow Name
	Traffic Management C	Center		nicle OBE		intersection status

4 T o	tal Issue Severity:	46	
	Timeframe	Applicability	
fines the	Urgent	Australia, Eur Union, United	-
	Timeframe	Applicability	
ding managing les	Medium-term	United States	
	Timeframe	Applicability	
and status for	Medium-term	Australia, Eur Union	opean
	Timeframe	Applicability	
nformation to	Urgent	Australia, Eur Union	opean

					otal Issue Severity	: 46
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ita profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device).	Urgent	Australia, European Union, United States Japan
				by this Issue that would be addressed by the Proposed Resolution		
Source Map Update System			stination rsonal Information Device	Flow Name map updates		
Map Update System			hicle OBE	map updates		
Map Update System			hicle OBE	parking facility geometry		
Map Update System			hicle OBE	roadway geometry		
Traffic Management (Center		hicle OBE	vehicle road information		
Je	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
a profile not ined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Automated lane control data	Develop an internationally acceptable ITS application specification for providing control commands and operating parameters for automated vehicle systems, including platooning operations.	Medium-term	Australia, European Union, United State
C				by this Issue that would be addressed by the Proposed Resolution		
Source Traffic Management 0	Contor		stination hicle OBE	Flow Name automated lane control data		
Traine Management C		VC				
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		
					Timeframe	Applicability
a profile not	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Develop standard for electronic distribution of traffic regulations	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries.	Urgent	Australia, European
a profile not ined	Performance, functionality, and the upper- layers of the OSI stack have not been defined	Information 1	Develop standard for electronic distribution of traffic regulations Triples using this solution and affected b	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries.		Australia, European
a profile not ined Source	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Information T Des	Develop standard for electronic distribution of traffic regulations Triples using this solution and affected t stination	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries. by this Issue that would be addressed by the Proposed Resolution Flow Name		Australia, European
a profile not ined Source Transportation Inform	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Information T Des Per	Develop standard for electronic distribution of traffic regulations Triples using this solution and affected t stination rsonal Information Device	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries. by this Issue that would be addressed by the Proposed Resolution Flow Name traffic-related regulations		Australia, European
ta profile not Fined Source Transportation Inform Transportation Inform	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Information T Des Per Vel	Develop standard for electronic distribution of traffic regulations Triples using this solution and affected to stination rsonal Information Device hicle OBE	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries. by this Issue that would be addressed by the Proposed Resolution Flow Name traffic-related regulations traffic-related regulations	Urgent	Australia, European Union, United State
a profile not ined Source Transportation Inform Transportation Inform	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Information T Des Per	Develop standard for electronic distribution of traffic regulations Triples using this solution and affected t stination rsonal Information Device	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries. by this Issue that would be addressed by the Proposed Resolution Flow Name traffic-related regulations		Australia, European
ta profile not fined Source Transportation Inform Transportation Inform ue ta profile not	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Information T Des Per Vel	Develop standard for electronic distribution of traffic regulations Triples using this solution and affected to stination rsonal Information Device hicle OBE	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries. by this Issue that would be addressed by the Proposed Resolution Flow Name traffic-related regulations traffic-related regulations	Urgent	Australia, European Union, United State Applicability
ta profile not fined Source Transportation Inform Transportation Inform ue ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Information T Des Per Vel Issue Severity Ultra	Develop standard for electronic distribution of traffic regulations Triples using this solution and affected b stination rsonal Information Device hicle OBE Proposed Resolution C-V: Work zone status	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries. by this Issue that would be addressed by the Proposed Resolution Flow Name traffic-related regulations traffic-related regulati	Urgent	Australia, European Union, United State Applicability Australia, European
ita profile not fined Source Transportation Inform	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow. nation Center Issue Description Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Information T Des Per Vel Issue Severity Ultra Information T Des	Develop standard for electronic distribution of traffic regulations Triples using this solution and affected to stination rsonal Information Device hicle OBE Proposed Resolution C-V: Work zone status	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries. by this Issue that would be addressed by the Proposed Resolution Flow Name traffic-related regulations traffic-related regulations Resolution Description Develop an ITS application specification for a maintenance and construction vehicle to report and update the status of a work zone to a centre.	Urgent	Australia, European Union, United States Applicability Australia, European

Solution Name:	(None-Data) - Mobile Internet (X.509)			Number of Issues:
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Update central map database	Develop an internationally acceptable ITS application specification that defined for updating a central map database, including roadway and intersection g on real-world data readings from vehicles and transmitted to a map updat
Source			Friples using this solution and affected b	y this Issue that would be addressed by the Proposed Resolution Flow Name
Vehicle OBE			ip Update System	vehicle location and motion for map
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Transit vehicle schedule management	Develop an ITS application specification for managing transit vehicle sched performance data from transit vehicles to a centre.
Source			Friples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name
Transit Management	Center	Tra	nsit Vehicle OBE	transit schedule information
Transit Vehicle OBE		Tra	nsit Management Center	transit vehicle schedule performance
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Situation data	Develop an internationally acceptable ITS application specification for the distributing collected situation data (e.g., BSMs/CAMs, sensors, probe data vehicles and remote interested parties (e.g., centres).
Source			Friples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name
Vehicle OBE			ta Distribution System	vehicle situation data
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Data not defined (high)	Required data elements are not defined.	High	C-V: Fleet management	Develop an ITS application specification for managing fleet vehicles, includ the location of fleet vehicles such as emergency vehicles and transit vehicl
Source			Friples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name
Emergency Vehicle C	BE	Em	ergency Management Center	emergency vehicle tracking data
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Fleet management	Develop an ITS application specification for managing fleet vehicles, includ the location of fleet vehicles such as emergency vehicles and transit vehicl
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name
Emergency Vehicle C	DBE	Em	ergency Management Center	emergency vehicle tracking data

4 T	otal Issue Severity:	46	
	Timeframe	Applicability	
efines the rules geometry, based te system.	Medium-term	Australia, Eur Union, Unitec Japan	-
pping			
	Timeframe	Applicability	
dule	Near-term	Australia, Eur Union	opean
e			
	Timeframe	Applicability	
use case of a, etc.) between	Urgent	Australia, Eur Union, United	-
	Timeframe	Applicability	
ding managing les	Medium-term	United States	
	Timeframe	Applicability	
ding managing les	Medium-term	United States	

olution Name:	(None-Data) - Mobile Internet (X.509)			Number of Issues: 4 To	otal Issue Severity	: 46
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erformance not ully defined nedium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Signal operations	Develop an ITS application specification for providing intersection status information to vehicles from a centre for environmental benefits.	Urgent	Australia, European Union
Source			Friples using this solution and affected t tination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Traffic Management	Center	Vel	hicle OBE	intersection status		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erformance not lly defined nedium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Update central map database	Develop an internationally acceptable ITS application specification that defines the rules for updating a central map database, including roadway and intersection geometry, based on real-world data readings from vehicles and transmitted to a map update system.	Medium-term	Australia, European Union, United States, Japan
Source			- Friples using this solution and affected b tination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Vehicle OBE			ip Update System	vehicle location and motion for mapping		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
entifier registry es not exist	The standard defines a field which requires a globally unique identifier, but no registration authority exists to assign these values.	Medium	Identifier registry	Implement a centralised identifier registry network that ensures the assignment of globally unique C-ITS identifiers.	Urgent	Australia, European Union, United States
Source			Friples using this solution and affected t	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Personal Information	Device	Cer	nter	device identification		
Vehicle OBE		Cer	nter	device identification		
lution Name:	(None-Data) - ODG-OCIT-C			Number of Issues: 3 To	otal Issue Severity	: 38
	ithin the European Union. It combines standards er-layer ODG proprietary protocol used within the		-	ODG-OCIT-C. The (None-Data) standards include an unspecified set of standards at the upper ral stations	layers. The C-C: O	DG-OCIT-C
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
curity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer	Urgent	Australia, European Union, United States
		Information 7	Finles using this colution and offected b	standards will need to be updated to document data in appropriate format(s).		
Source			tination	Flow Name		
Cellular Communicati			ffic Management Center	comm-derived travel time data		
Emergency Managem	ent Center		ffic Management Center	emergency traffic control request		
Intermodal Terminal		Tra	ffic Management Center	intermodal freight event information		

standards meldae low										
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description						
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	 Develop one or more internationally acceptable, secure, centre-to-centre constandards and define rules on when to use which one. The standard(s) shou support for authentication, authorization, confidentiality, and non-repudiationed. Once the application layer standard(s) are developed, most ITS Information standards will need to be updated to document data in appropriate format(s) 						
				y this Issue that would be addressed by the Proposed Resolution						
Source		De	stination	Flow Name						
Cellular Communicat	tions Provider	Tra	affic Management Center	comm-derived travel time data						

Cellular Communications Provider	Traffic Management Center	comm-derived travel time
Emergency Management Center	Traffic Management Center	emergency traffic control r
Intermodal Terminal	Traffic Management Center	intermodal freight event in

ution Name: Traffic Managemen	(None-Data) - ODG-OCIT-C	Fm	ergency Management Center	emergency traffic control information	otal Issue Severit	
Traffic Management Center		Intermodal Terminal		intermodal freight traffic confirmation		
Traffic Managemen			p Update System	map update notification		
	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
sue						
ita profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: EU emergency traffic control	Update DATEX to support the provision of emergency traffic control information with a complete application specification.	Near-term	Australia, European Union
Source			Friples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Emergency Manage	ment Center	Tra	ffic Management Center	emergency traffic control request		
Traffic Managemen	t Center	Em	ergency Management Center	emergency traffic control information		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata profile not	Performance, functionality, and the upper-	Ultra	C-C: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for updating maps, roadway geometry, and intersection geometry among centres (e.g.,	Urgent	Australia, European Union, United State
fined	layers of the OSI stack have not been defined for this information flow.			between a Map Update System and a centre).		
Source				between a Map Update System and a centre). y this Issue that would be addressed by the Proposed Resolution		
efined Source Traffic Managemen	for this information flow.	Des	Triples using this solution and affected b stination up Update System	between a Map Update System and a centre).		
Source Traffic Managemen	for this information flow.	De: Ma	itination Ip Update System	between a Map Update System and a centre). y this Issue that would be addressed by the Proposed Resolution Flow Name map update notification	Timeframe	Applicability
Source Traffic Managemen	for this information flow. t Center Issue Description	Des Ma Issue Severity	tination p Update System Proposed Resolution	between a Map Update System and a centre). y this Issue that would be addressed by the Proposed Resolution Flow Name map update notification Resolution Description	Timeframe	Applicability
Source Traffic Managemen	for this information flow. t Center Issue Description The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open	De: Ma	itination Ip Update System	between a Map Update System and a centre). y this Issue that would be addressed by the Proposed Resolution Flow Name map update notification	Timeframe Urgent	Applicability Australia, European Union, United State
Source Traffic Managemen sue	for this information flow. t Center Issue Description The document may be publicly available but it is not a formal standard developed according to open standards development rules and	Des Ma Issue Severity	tination p Update System Proposed Resolution	between a Map Update System and a centre). y this Issue that would be addressed by the Proposed Resolution Flow Name map update notification Resolution Description Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as		Australia, European
Source Traffic Managemen sue ot an open andard	for this information flow. t Center Issue Description The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open	Des Ma Issue Severity Medium	tination up Update System Proposed Resolution C-C: Secure communications Triples using this solution and affected b	between a Map Update System and a centre). y this Issue that would be addressed by the Proposed Resolution Flow Name map update notification Resolution Description Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s). y this Issue that would be addressed by the Proposed Resolution		Australia, European
Source Traffic Managemen ue t an open	for this information flow. t Center Issue Description The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	De: Ma Issue Severity Medium Information	Proposed Resolution C-C: Secure communications	between a Map Update System and a centre). y this Issue that would be addressed by the Proposed Resolution Flow Name map update notification Resolution Description Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).		Australia, European
Source Traffic Managemen ue of an open andard	for this information flow. t Center Issue Description The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Des Ma Issue Severity Medium Information Des Tra	tination up Update System Proposed Resolution C-C: Secure communications Friples using this solution and affected b tination	between a Map Update System and a centre). y this Issue that would be addressed by the Proposed Resolution Flow Name map update notification Resolution Description Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s). y this Issue that would be addressed by the Proposed Resolution Flow Name		Australia, European
Source Traffic Managemen ue of an open andard Source Cellular Communica	for this information flow. t Center Issue Description The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard. tions Provider ment Center	Des Ma Issue Severity Medium Information Des Tra Tra	tination up Update System Proposed Resolution C-C: Secure communications Triples using this solution and affected b tination ffic Management Center	between a Map Update System and a centre). y this Issue that would be addressed by the Proposed Resolution Flow Name map update notification Resolution Description Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s). y this Issue that would be addressed by the Proposed Resolution Flow Name comm-derived travel time data		Australia, European
Source Traffic Managemen ue It an open indard Source Cellular Communica Emergency Manage	for this information flow. t Center Issue Description The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard. tions Provider ment Center I	Des Ma Issue Severity Medium Information Des Tra Tra	tination up Update System Proposed Resolution C-C: Secure communications Triples using this solution and affected b tination ffic Management Center ffic Management Center	between a Map Update System and a centre). y this Issue that would be addressed by the Proposed Resolution Flow Name map update notification Resolution Description Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s). y this Issue that would be addressed by the Proposed Resolution Flow Name comm-derived travel time data emergency traffic control request		Australia, European
Source Traffic Managemen sue ot an open andard Source Cellular Communica Emergency Manage Intermodal Termina	for this information flow. t Center Issue Description The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard. tions Provider ment Center I t Center	Des Ma Issue Severity Medium Information Des Tra Tra Tra Em	tination up Update System Proposed Resolution C-C: Secure communications Criples using this solution and affected b tination fric Management Center ffic Management Center iffic Management Center	between a Map Update System and a centre). y this Issue that would be addressed by the Proposed Resolution Flow Name map update notification Resolution Description Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s). y this Issue that would be addressed by the Proposed Resolution Flow Name comm-derived travel time data emergency traffic control request intermodal freight event information		Australia, European

This solution is used within the European Union. It combines an undefined set of upper-layer standards with those for I-F: ODG-OCIT-O. The I-F: ODG-OCIT-O standards include lower-layer ODG proprietary, published protocol used within the EU for road traffic data exchange between central stations and field devices

Solution Name:	(None-Data) - ODG-OCIT-O				Number of Issues:
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Security not provided	The solution does not provide any significant security and a communications link using this solution is easily hacked.	High	I-F: Secure communications	Develop one or more internationally accept standards and define rules on when to use support for authentication, authorization, on needed.	each one. The standard(s) should
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed R	esolution Flow Name
Connected Vehicle F	Roadside Equipment	ITS	s Roadway Equipment		signal priority service request
Connected Vehicle F	Roadside Equipment	Tra	affic Management Center		traffic situation data
ITS Roadway Equipn	nent	Ot	her ITS Roadway Equipment		signal control data
ITS Roadway Equipn	nent	Tra	affic Management Center		roadway warning system status
ITS Roadway Equipm	nent	Tra	affic Management Center		traffic detector data
Other ITS Roadway I	Equipment	ITS	s Roadway Equipment		signal control data
Traffic Management	t Center	ITS	s Roadway Equipment		traffic detector control
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Signal control	Develop an internationally acceptable ITS a between a traffic signal controller and a ro the SPaT, SRM, and SSM using the secure c	adside station to exchange raw d
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed R	esolution Flow Name
Connected Vehicle F	Roadside Equipment	ITS	Roadway Equipment		signal priority service request

ไรรเ	Je	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		
	Data profile not definedPerformance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.		Ultra	I-F: Message signs	Develop an internationally acceptable ITS application specification for massigns for secure communications with proper access control.		
	<i>c</i>				this Issue that would be addressed by the Proposed Resolut		
	Source		Des	tination	Flow	v Name	
	ITS Roadway Equipmen	nt	Tra	ffic Management Center	road	dway warning system status	
ไรรเ	Je	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		
Data profile not defined			I-F: Transportation sensor systems	Develop an internationally acceptable ITS application specification for exc transportation sensor station data with a management entity that uses th to-field protocol.		
Source			Friples using this solution and affected by stination	this Issue that would be addressed by the Proposed R	esolution Flow Name	
ITS Roadway Equipme	nt	Tra	ffic Management Center		traffic detector data	
Traffic Management C	enter	ITS	Roadway Equipment		traffic detector control	

3	Total Issue Severity:	43	
	Timeframe	Applicability	
ommunication uld include iation, as	Urgent	Australia, Eur Union, United	-
	T :	A	
	Timeframe	Applicability	
interface data related to	Urgent	Australia, Eur Union, United	
	Timeframe	Applicability	
naging message	Urgent	Australia, Eur Union, United	
	Timeframe	Applicability	
hanging e secure centre	Urgent -	Australia, Eur Union, United	

Solution Name:	(None-Data) - ODG-OCIT-O			Number of Issues: 3 To	otal Issue Severity	y: 43
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Data aggregation	Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres).	Urgent	Australia, European Union, United States
Courses.				by this Issue that would be addressed by the Proposed Resolution		
Source Connected Vehicle F	Roadside Equipment		stination	Flow Name traffic situation data		
lssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: EU signal operations	Develop an ITS application specification for exchanging configuration, plans, status, and commands for signal control and signal systems using the secure centre-to-field protocol.	Urgent	Australia, European Union
Source			- Friples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
ITS Roadway Equipr	nent		her ITS Roadway Equipment	signal control data		
Other ITS Roadway	Equipment	ITS	Roadway Equipment	signal control data		
lssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Not an open standard	The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Medium	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United State
Source			Friples using this solution and affected t	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle F	Roadside Equipment		Roadway Equipment	signal priority service request		
Connected Vehicle	Roadside Equipment	Tra	ffic Management Center	traffic situation data		
ITS Roadway Equipr	nent	Ot	her ITS Roadway Equipment	signal control data		
ITS Roadway Equipr	nent	Tra	ffic Management Center	roadway warning system status		
ITS Roadway Equipr	nent	Tra	ffic Management Center	traffic detector data		
Other ITS Roadway	Equipment	ITS	Roadway Equipment	signal control data		
Traffic Management	t Center	ITS	Roadway Equipment	traffic detector control		
olution Name:	(None-Data) - UTMC			Number of Issues: 2 To	otal Issue Severity	y: 35
			-	-F: UTMC. The I-F: UTMC standards include lower-layer standards that support secure centre-t ilities, implementations are strongly encouraged to use SNMPv3 to ensure adequate security.	o-field and field-t	o-field
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information	Medium	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include	Urgent	Australia, Europear Union, United State

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.

Solution Name:	(None-Data) - UTMC			Number of Issues: 2	Total Issue Severity:	35
Source			Triples using this solution and affected I stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle	Roadside Equipment	Tra	ffic Management Center	traffic situation data		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Data aggregation	Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres).	e Urgent	Australia, Europea Union, United Stat
		Information ⁻	Triples using this solution and affected I	by this Issue that would be addressed by the Proposed Resolution		
Source			stination	Flow Name		
			affic Management Center	traffic situation data		

This solution is used within the U.S., E.U., and Australia. It combines standards associated with (None-Data) with those for C-X: Wide Area Broadcast (Upper). The (None-Data) standards include an unspecified set of standards at the upper layers. The C-X: Wide Area Broadcast (Upper) standards include lower-layer standards that support one entity broadcasting information to all wireless devices over an area that covers at least a metropolitan area without any expectation of acknowledgement or response; security is provided by the upper-layers.

sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
oiquitous oadcast chnology	With the continual enhancement of broadcast technologies and a mixture of free and subscriber-based systems, it is difficult to identify any single technology that can be used to reliably reach the bulk of drivers in a timely manner.	Low	C-V: Wide-area broadcast subnet and hybrid communications	Standardise one or more mechanisms by which wide-area broadcast messages can be received by a defined minimum percentage of transportation users that are currently operating within a specified geographic area. The required minimum percentage is dependent on the type of information being transmitted and will need to be determined by the expert community. Some alerts (e.g., tornado warnings) will require near 100% reception, while other messages (e.g., road works ahead) may require significantly lower minimum percentages. The minimum percentage may be made up with a variety of technologies using hybrid communications and the ITS station architecture.	Urgent	Australia, European Union, United State
				by this Issue that would be addressed by the Proposed Resolution		
Source Transportation Inf	formation Center		tination sonal Information Device	Flow Name emergency traveler information		
Transportation Inf			nicle OBE	emergency traveler information		
•	ation Disseminator	Pei	sonal Information Device	traffic-related regulations		
Wide Area Inform	ation Disseminator	Ve	nicle OBE	traffic-related regulations		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	Develop standard for electronic distribution of traffic regulations	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries.	Urgent	Australia, European Union, United State
Source			riples using this solution and affected l tination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
	ation Disseminator		rsonal Information Device	traffic-related regulations		
Wide Area Inform	ation Disseminator	Ve	nicle OBE	traffic-related regulations		

This solution is used within the European Union. It combines standards associated with [Null] with those for V-X: Local Broadcast Wireless (AU/EU). The [Null] standards include no standards in the upper layers (i.e., this occurs where the

(None-Data) - Wide Area Broadcast (Upper)

Solution Name:

2	Total Issue Severity:	33
unspecified set	of standards at the upr	or lavors

Number of Issues:

Number of Issues:

Solution Name:	[Null] - Local Broadcast Wireless (AU/EU)		Number of Issues: 3 To	otal Issue Severity	: 9
	ndled by the lower layers and the communication utions, such as DSRC technologies, 5G LTE, etc.	profile contains	all of the standards required to H	handle the flow). The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer sta	indards that supp	ort local-area
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
Source			Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	service advertisement		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
		Information 1	riples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Connected Vehicle Roadside Equipment		Vel	nicle OBE	service advertisement		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union
		Information T	riples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Connected Vehicle Ro	adside Equipment	Vel	nicle OBE	service advertisement		

Solution Name: EU: CA Service - BTP/GeoNetworking/G5

This solution is used within the E.U., and Australia. It combines standards associated with EU: CA Service with those for V-X: BTP/GeoNetworking/G5. The EU: CA Service standards include upper-lay situation awareness information flows. The V-X: BTP/GeoNetworking/G5 standards include lower-layer standards that support broadcast, near constant, low latency vehicle-to-vehicle and vehicle-to-GeoNetworking Bundle over the 5.9GHz spectrum.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
		Information T	riples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Commercial Vehicle O	BE	Cor	nnected Vehicle Roadside Equipment	local signal priority request		
Commercial Vehicle O	Commercial Vehicle OBE		nnected Vehicle Roadside Equipment	vehicle location and motion		

8	Total Issue Severity:	27				
yer standards required to implement V2x safety to-infrastructure communications using the ETSI						
lo-initastructur	e communications using	s the LISI				

Sol	ution Name:	EU: CA Service - BTP/GeoNetworking/G5		Number of Issues:
	Commercial Vehicle OBE		Vehicle OBE	special vehicle type alert
	Emergency Vehicle OBE		Connected Vehicle Roadside Equipment	local signal preemption request
	Emergency Vehicle OBE		Connected Vehicle Roadside Equipment	vehicle location and motion
	Emergency Vehicle OBE		Vehicle OBE	special vehicle type alert
	Maint and Constr Vehicle OB	E	Vehicle OBE	special vehicle type alert
	Other Vehicle OBEs		Connected Vehicle Roadside Equipment	vehicle location and motion
	Other Vehicle OBEs		Vehicle OBE	vehicle control event
	Other Vehicle OBEs		Vehicle OBE	vehicle location and motion
	Transit Vehicle OBE		Connected Vehicle Roadside Equipment	vehicle location and motion
	Transit Vehicle OBE		Vehicle OBE	special vehicle type alert
	Vehicle OBE		Connected Vehicle Roadside Equipment	vehicle control event
	Vehicle OBE		Connected Vehicle Roadside Equipment	vehicle ID
	Vehicle OBE		Connected Vehicle Roadside Equipment	vehicle location and motion
	Vehicle OBE		Connected Vehicle Roadside Equipment	vehicle location and motion for surveilla
	Vehicle OBE		Other Vehicle OBEs	vehicle control event
	Vehicle OBE		Other Vehicle OBEs	vehicle location and motion
	Vehicle OBE		Personal Information Device	vehicle location and motion

S

8	Total Issue Severity:	27	
eillance			

sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
ncertainty about ust revocation echanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revoking the privileges of a certificate aut recognized within a region) and of an ITS misbehave).	hority (e.g., if an authority is no lo
				by this Issue that would be addressed by the Proposed	
Source Commercial Vehicle (OBE		stination nnected Vehicle Roadside Equipment		Flow Name local signal priority request
Commercial Vehicle			onnected Vehicle Roadside Equipment		vehicle location and motion
Commercial Vehicle (hicle OBE		special vehicle type alert
Emergency Vehicle O		Co	onnected Vehicle Roadside Equipment		local signal preemption request
Emergency Vehicle O			onnected Vehicle Roadside Equipment		vehicle location and motion
Emergency Vehicle O			hicle OBE		special vehicle type alert
Maint and Constr Vel			hicle OBE		special vehicle type alert
Other Vehicle OBEs			onnected Vehicle Roadside Equipment		vehicle location and motion
Other Vehicle OBEs			hicle OBE		vehicle control event
Other Vehicle OBEs			hicle OBE		vehicle location and motion
Transit Vehicle OBE			onnected Vehicle Roadside Equipment		vehicle location and motion
Transit Vehicle OBE			hicle OBE		special vehicle type alert
Vehicle OBE			onnected Vehicle Roadside Equipment		vehicle control event
Vehicle OBE			onnected Vehicle Roadside Equipment		vehicle ID
Vehicle OBE			onnected Vehicle Roadside Equipment		vehicle location and motion
Vehicle OBE			onnected Vehicle Roadside Equipment		vehicle location and motion for surve
Vehicle OBE			her Vehicle OBEs		vehicle control event
Vehicle OBE		Ot	her Vehicle OBEs		vehicle location and motion
Vehicle OBE			ersonal Information Device		vehicle location and motion
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
ta not fully fined (medium)	Some of the data elements for this information flow are not fully defined.	Medium	V-L: Trailer information for vehicle location and motion	Standardise the mechanism for the BSM, properties related to articulated vehicles.	
Source	n.		Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed	Resolution Flow Name
Emergency Vehicle O	DBE		nnected Vehicle Roadside Equipment		vehicle location and motion
Other Vehicle OBEs		Ve	hicle OBE		vehicle location and motion
Transit Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle location and motion
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle location and motion
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle location and motion for surve
Vehicle OBE		Ot	her Vehicle OBEs		vehicle location and motion

8 T	otal Issue Severity:	27	
	Timeframe	Applicability	
vels, including longer n starts to	Urgent	Australia, Eur Union, United	
eillance			
	Timeframe	Applicability	
onvey geometric	Urgent	Australia, Eur Union, United	
eillance			

Solution Name: EU: CA Service - BTP/GeoNetworking/G5					Number of Issues:	
Is	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
0,	verlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and DENM	Standardise on a single solution for providing information can be transmitted using CAM or	
	Source			Friples using this solution and affected by stination	this Issue that would be addressed by the Proposed Resort F	olution low Name
	Commercial Vehicle OBE Emergency Vehicle OBE Maint and Constr Vehicle OBE Other Vehicle OBEs Transit Vehicle OBE Vehicle OBE			hicle OBE		special vehicle type alert
			Ve	hicle OBE	S	special vehicle type alert
			Vel	hicle OBE	2	special vehicle type alert
			Vel	hicle OBE	N	vehicle control event
			Ve	hicle OBE	2	special vehicle type alert
			Col	nnected Vehicle Roadside Equipment	Ň	vehicle control event
			Oth	her Vehicle OBEs	١	vehicle control event

Timeframe Applicability currently this Urgent Australia, European Union	8	Total Issue Severity:	27]
		Timeframe	Applicability	
	currently this	Urgent		opean

olution Name:	EU: CA Service - BTP/GeoNetworking/G5	;			Number of Issues:
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communicatio Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are cor are not interoperable at the Subnet or Transnet layers.	
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed R	esolution Flow Name
Commercial Vehicle O	BE		nnected Vehicle Roadside Equipment		local signal priority request
Commercial Vehicle O	BE	Co	nnected Vehicle Roadside Equipment		vehicle location and motion
Commercial Vehicle O	BE	Ve	hicle OBE		special vehicle type alert
Emergency Vehicle OE	BE	Co	nnected Vehicle Roadside Equipment		local signal preemption request
Emergency Vehicle OE	BE	Co	nnected Vehicle Roadside Equipment		vehicle location and motion
Emergency Vehicle OE	3E	Ve	hicle OBE		special vehicle type alert
Maint and Constr Veh	icle OBE	Ve	hicle OBE		special vehicle type alert
Other Vehicle OBEs		Co	nnected Vehicle Roadside Equipment		vehicle location and motion
Other Vehicle OBEs		Ve	hicle OBE		vehicle control event
Other Vehicle OBEs		Ve	hicle OBE		vehicle location and motion
Transit Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle location and motion
Transit Vehicle OBE		Ve	hicle OBE		special vehicle type alert
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle control event
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle ID
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle location and motion
Vehicle OBE		Со	nnected Vehicle Roadside Equipment		vehicle location and motion for surveil
Vehicle OBE		Ot	her Vehicle OBEs		vehicle control event
Vehicle OBE		Ot	her Vehicle OBEs		vehicle location and motion
Vehicle OBE		Pe	rsonal Information Device		vehicle location and motion
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
verlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and SRM	Standardise on a single solution for reques transmitted using CAM or SRM.	ting signal priority; currently this
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed R	esolution Flow Name
Commercial Vehicle O	BE	Со	nnected Vehicle Roadside Equipment		local signal priority request
Emergency Vehicle OE	3E	Co	nnected Vehicle Roadside Equipment		local signal preemption request

8	Tot	tal Issue Severity:	27]
		Timeframe	Applicability	
n Europe and solutions that		Urgent	Australia, Eur Union	opean
eillance				
		Timeframe	Applicability	
s request can b)e	Urgent	Australia, Eur Union	opean

sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability
se case not onsidered in design ritical)	While the indicated standards nominally address the information flow, the design details may not meet performance or other requirements because this particular use case was not the focus of the design effort.	High	V-L: Special vehicle alert	Develop an internationally acceptable ITS an vehicle alerts.	pplication specification for sending special	Urgent	Australia, European Union, United State
Source			Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Re	solution Flow Name		
Commercial Vehicle C	BE		hicle OBE		special vehicle type alert		
Emergency Vehicle O	BE	Ve	hicle OBE		special vehicle type alert		
Maint and Constr Veh	icle OBE	Ve	hicle OBE		special vehicle type alert		
Transit Vehicle OBE		Ve	hicle OBE		special vehicle type alert		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability
otocol features rtly not applicable the given context	A feature of the protocol is not fully applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Low	V-L: GeoNetworking	Determine how to implement GeoNetworki feasible, prove out concept.	ing without unduly flooding the network and, if	Urgent	Australia, European Union, United State
Source			Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Re	solution Flow Name		
Commercial Vehicle C	BE		nnected Vehicle Roadside Equipment		local signal priority request		
Commercial Vehicle C	BE	Co	nnected Vehicle Roadside Equipment		vehicle location and motion		
Commercial Vehicle C	BE	Ve	hicle OBE		special vehicle type alert		
Emergency Vehicle O	BE	Co	nnected Vehicle Roadside Equipment		local signal preemption request		
Emergency Vehicle O	BE	Co	nnected Vehicle Roadside Equipment		vehicle location and motion		
Emergency Vehicle O	BE	Ve	hicle OBE		special vehicle type alert		
Maint and Constr Ver	icle OBE	Ve	hicle OBE		special vehicle type alert		
Other Vehicle OBEs		Co	nnected Vehicle Roadside Equipment		vehicle location and motion		
Other Vehicle OBEs		Ve	hicle OBE		vehicle control event		
Other Vehicle OBEs		Ve	hicle OBE		vehicle location and motion		
Transit Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle location and motion		
Transit Vehicle OBE		Ve	hicle OBE		special vehicle type alert		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle control event		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle ID		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle location and motion		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle location and motion for surveillance		
Vehicle OBE		Otl	her Vehicle OBEs		vehicle control event		
Vehicle OBE		Otl	her Vehicle OBEs		vehicle location and motion		
Vehicle OBE		Per	rsonal Information Device		vehicle location and motion		

Solution Name:	EU: CA Service - BTP/GeoNetworking/G	5		Number of Issues: 8	Total Issue Severit	y: 27
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not ully defined medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles.	Urgent	Australia, European Union
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Commercial Vehicle	OBE	Co	nnected Vehicle Roadside Equipment	local signal priority request		
Emergency Vehicle	DBE	Co	nnected Vehicle Roadside Equipment	local signal preemption request		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Special vehicle alert	Develop an internationally acceptable ITS application specification for sending special vehicle alerts.	Urgent	Australia, European Union, United States
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Commercial Vehicle	OBE		hicle OBE	special vehicle type alert		
Maint and Constr Ve	hicle OBE	Ve	hicle OBE	special vehicle type alert		
Transit Vehicle OBE		Ve	hicle OBE	special vehicle type alert		

Solution Name:	EU: CA Service - BTP/GeoNetworking/G	5			Number of Issues:
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: CAM	Develop an internationally acceptable ITS a case where it applies and when the CAM sh	
Source			Triples using this solution and affected b estination	y this Issue that would be addressed by the Proposed Ro	esolution Flow Name
Commercial Vehicle C	DBE	Co	onnected Vehicle Roadside Equipment		local signal priority request
Commercial Vehicle C	DBE	Co	onnected Vehicle Roadside Equipment		vehicle location and motion
Commercial Vehicle C	DBE	Ve	ehicle OBE		special vehicle type alert
Emergency Vehicle Of	BE	Co	onnected Vehicle Roadside Equipment		local signal preemption request
Emergency Vehicle Of	BE	Co	onnected Vehicle Roadside Equipment		vehicle location and motion
Emergency Vehicle Of	BE	Ve	ehicle OBE		special vehicle type alert
Maint and Constr Veh	icle OBE	Ve	ehicle OBE		special vehicle type alert
Other Vehicle OBEs		Co	onnected Vehicle Roadside Equipment		vehicle location and motion
Other Vehicle OBEs		Ve	ehicle OBE		vehicle control event
Other Vehicle OBEs		Ve	ehicle OBE		vehicle location and motion
Transit Vehicle OBE		Co	onnected Vehicle Roadside Equipment		vehicle location and motion
Transit Vehicle OBE		Ve	ehicle OBE		special vehicle type alert
Vehicle OBE		Co	onnected Vehicle Roadside Equipment		vehicle control event
Vehicle OBE		Co	onnected Vehicle Roadside Equipment		vehicle ID
Vehicle OBE		Co	onnected Vehicle Roadside Equipment		vehicle location and motion
Vehicle OBE		Co	onnected Vehicle Roadside Equipment		vehicle location and motion for sur
Vehicle OBE		0	ther Vehicle OBEs		vehicle control event
Vehicle OBE		0	ther Vehicle OBEs		vehicle location and motion
Vehicle OBE		Pe	ersonal Information Device		vehicle location and motion
lssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: EU signal priority	Develop an ITS application specification for priority to authorised vehicles.	a traffic signal to provide pre-
Source			Triples using this solution and affected bestination	y this Issue that would be addressed by the Proposed Re	esolution Flow Name
Emergency Vehicle OI	BE		onnected Vehicle Roadside Equipment		local signal preemption request
olution Name:	EU: CA Service - CEN 5.8Ghz DSRC				Number of Issues:

This solution is used within the European Union. It combines standards associated with EU: CA Service with those for V-X: CEN 5.8Ghz DSRC. The EU: CA Service standards include upper-layer standards required to implement V2x safety situation

8	Total Issue Severity:	27]
	Timeframe	Applicability	
A for each use each condition.	Urgent	Australia, Eur Union	opean
eillance			
	Timeframe	Applicability	
emption or	Urgent	Australia, Eur Union	opean
	Total Issue Severity:	3	

Solution Name:	EU: CA Service - CEN 5.8Ghz DSRC			Number of Issues: 1 T	otal Issue Severity:	3
wareness information	flows. The V-X: CEN 5.8Ghz DSRC standards incl	ude lower-layer s	tandards that are compliant with	n ISO 21217 with the complication that remote tachographs are based on the CEN-DSRC at 5	.8 GHz.	
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: CAM	Develop an internationally acceptable ITS application specification for CAM for each use case where it applies and when the CAM should include optional fields for each condition.	Ũ	Australia, Europea Union
				y this Issue that would be addressed by the Proposed Resolution		
Source		De	stination	Flow Name		
Commercial Vehicle O	BE	Co	nnected Vehicle Roadside Equipment	vehicle location and motion		
olution Name:	EU: CA Service - FNTP/M5			Number of Issues: 6 T	otal Issue Severity:	23

Solution Name:

This solution is used within the E.U., and Australia. It combines standards associated with EU: CA Service with those for V-X: FNTP/M5. The EU: CA Service standards include upper-layer standards required to implement V2x safety situation awareness information flows. The V-X: FNTP/M5 standards include lower-layer standards that support connectionless, broadcast and unicast, near constant, ultra-low latency vehicle-to-any communications within ~300m using Fast Network Transport Profile (FNTP) over the 5 GHz spectrum as allocated within a region. The broadcast mode is interoperable with WAVE WSMP. The M5 radio of this profile can receive ITS G5 frames.

sue	Issue Description	Issue Severity Proposed Resolution	Resolution Description	Timeframe	Applicability
ncertainty about ust revocation echanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United State
Source		Information Triples using this solution and affected l Destination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Commercial Vehicle	OBE	Connected Vehicle Roadside Equipment	local signal priority request		
Commercial Vehicle	OBE	Connected Vehicle Roadside Equipment	vehicle location and motion		
Commercial Vehicle	OBE	Vehicle OBE	special vehicle type alert		
Emergency Vehicle (OBE	Connected Vehicle Roadside Equipment	local signal preemption request		
Emergency Vehicle (OBE	Connected Vehicle Roadside Equipment	vehicle location and motion		
Emergency Vehicle (OBE	Vehicle OBE	special vehicle type alert		
Maint and Constr Ve	ehicle OBE	Vehicle OBE	special vehicle type alert		
Other Vehicle OBEs		Connected Vehicle Roadside Equipment	vehicle location and motion		
Other Vehicle OBEs		Vehicle OBE	vehicle control event		
Other Vehicle OBEs		Vehicle OBE	vehicle location and motion		
Transit Vehicle OBE		Connected Vehicle Roadside Equipment	vehicle location and motion		
Transit Vehicle OBE		Vehicle OBE	special vehicle type alert		
Vehicle OBE		Connected Vehicle Roadside Equipment	vehicle control event		
Vehicle OBE		Connected Vehicle Roadside Equipment	vehicle ID		
Vehicle OBE		Connected Vehicle Roadside Equipment	vehicle location and motion		
Vehicle OBE		Connected Vehicle Roadside Equipment	vehicle location and motion for surveillance		
Vehicle OBE		Other Vehicle OBEs	vehicle control event		

6 **Total Issue Severity:** 23

ution Name:	EU: CA Service - FNTP/M5			Number of Issues: 6	otal Issue Severit	y: 23
Vehicle OBE		Ot	her Vehicle OBEs	vehicle location and motion		
Vehicle OBE		Pe	rsonal Information Device	vehicle location and motion		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
a not fully ined (medium)	Some of the data elements for this information flow are not fully defined.	Medium	V-L: Trailer information for vehicle location and motion	Standardise the mechanism for the BSM, CAM, and DENM to accurately convey geometric properties related to articulated vehicles.	Urgent	Australia, Europear Union, United State
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Emergency Vehicle Of	BE	Co	nnected Vehicle Roadside Equipment	vehicle location and motion		
Other Vehicle OBEs		Ve	hicle OBE	vehicle location and motion		
Transit Vehicle OBE		Co	nnected Vehicle Roadside Equipment	vehicle location and motion		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	vehicle location and motion		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	vehicle location and motion for surveillance		
Vehicle OBE		Ot	her Vehicle OBEs	vehicle location and motion		
le	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and DENM	Standardise on a single solution for providing vehicle event information; currently this information can be transmitted using CAM or DENM.	Urgent	Australia, European Union
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Commercial Vehicle O	DBE		hicle OBE	special vehicle type alert		
Emergency Vehicle Of	BE	Ve	hicle OBE	special vehicle type alert		
Maint and Constr Veh	icle OBE	Ve	hicle OBE	special vehicle type alert		
Other Vehicle OBEs		Ve	hicle OBE	vehicle control event		
Transit Vehicle OBE		Ve	hicle OBE	special vehicle type alert		
Vehicle OBE		Со	nnected Vehicle Roadside Equipment	vehicle control event		
Vehicle OBE		Ot	her Vehicle OBEs	vehicle control event		
ie	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and SRM	Standardise on a single solution for requesting signal priority; currently this request can be transmitted using CAM or SRM.	Urgent	Australia, Europear Union
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Commercial Vehicle C	DBE		nnected Vehicle Roadside Equipment	local signal priority request		
Commercial venicle C			nnected Vehicle Roadside Equipment	local signal preemption request		

Solution Name:	EU: CA Service - FNTP/M5				Number of Issues:
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providin Australia; currently BTP/GeoNetworking/G are not interoperable at the Subnet or Tran	5 and FNTP/M5 are competing sc
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Re	esolution Flow Name
Commercial Vehicle O	BE		nnected Vehicle Roadside Equipment		local signal priority request
Commercial Vehicle O	BE	Co	nnected Vehicle Roadside Equipment		vehicle location and motion
Commercial Vehicle O	BE	Ve	hicle OBE		special vehicle type alert
Emergency Vehicle OB	3E	Co	nnected Vehicle Roadside Equipment		local signal preemption request
Emergency Vehicle OB	3E	Co	nnected Vehicle Roadside Equipment		vehicle location and motion
Emergency Vehicle OB	BE	Ve	hicle OBE		special vehicle type alert
Maint and Constr Vehi	icle OBE	Ve	hicle OBE		special vehicle type alert
Other Vehicle OBEs		Со	nnected Vehicle Roadside Equipment		vehicle location and motion
Other Vehicle OBEs		Ve	hicle OBE		vehicle control event
Other Vehicle OBEs		Ve	hicle OBE		vehicle location and motion
Transit Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle location and motion
Transit Vehicle OBE		Ve	hicle OBE		special vehicle type alert
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle control event
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle ID
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle location and motion
Vehicle OBE		Со	nnected Vehicle Roadside Equipment		vehicle location and motion for surveil
Vehicle OBE		Ot	her Vehicle OBEs		vehicle control event
Vehicle OBE		Ot	her Vehicle OBEs		vehicle location and motion
Vehicle OBE		Pe	rsonal Information Device		vehicle location and motion
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Use case not considered in design (critical)	While the indicated standards nominally address the information flow, the design details may not meet performance or other requirements because this particular use case was not the focus of the design effort.	High	V-L: Special vehicle alert	Develop an internationally acceptable ITS a vehicle alerts.	pplication specification for sendi
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Re	esolution Flow Name
Commercial Vehicle O	BE	Ve	hicle OBE		special vehicle type alert
Emergency Vehicle OB	3E	Ve	hicle OBE		special vehicle type alert
Maint and Constr Vehi	icle OBE	Ve	hicle OBE		special vehicle type alert
Transit Vehicle OBE		Ve	hicle OBE		special vehicle type alert

6	То	otal Issue Severity:	23]
		Timeframe	Applicability	
n Europe and solutions that		Urgent	Australia, Eur Union	opean
eillance				
		Timeframe	Applicability	
ding special		Urgent	Australia, Eur Union, United	

Solution Name:	EU: CA Service - FNTP/M5			Number of Issues:6	Total Issue Severity:	23
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Special vehicle alert	Develop an internationally acceptable ITS application specification for sending special vehicle alerts.	Urgent	Australia, European Union, United States
Source			Friples using this solution and affected by stination	r this Issue that would be addressed by the Proposed Resolution Flow Name		
Commercial Vehicle O	BE		hicle OBE	special vehicle type alert		
Maint and Constr Veh	icle OBE	Ve	hicle OBE	special vehicle type alert		
Transit Vehicle OBE		Ve	hicle OBE	special vehicle type alert		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles.	Urgent	Australia, European Union
Source			Friples using this solution and affected by stination	this Issue that would be addressed by the Proposed Resolution Flow Name		
Commercial Vehicle C	BE		nnected Vehicle Roadside Equipment	local signal priority request		
Emergency Vehicle OF	BE	Co	nnected Vehicle Roadside Equipment	local signal preemption request		

	EU: CA Service - FNTP/M5					:y: 23
2	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
case not idered in design dium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: CAM	Develop an internationally acceptable ITS application specification for CAM for each use case where it applies and when the CAM should include optional fields for each condition.	Urgent	Australia, Europear Union
ource			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Commercial Vehicle O	BE		nnected Vehicle Roadside Equipment	local signal priority request		
Commercial Vehicle O	BE	Со	nnected Vehicle Roadside Equipment	vehicle location and motion		
Commercial Vehicle O	BE	Ve	hicle OBE	special vehicle type alert		
Emergency Vehicle OE	BE	Со	nnected Vehicle Roadside Equipment	local signal preemption request		
mergency Vehicle OE	BE	Co	nnected Vehicle Roadside Equipment	vehicle location and motion		
mergency Vehicle OE	BE	Ve	hicle OBE	special vehicle type alert		
laint and Constr Veh	icle OBE	Ve	hicle OBE	special vehicle type alert		
ther Vehicle OBEs		Со	nnected Vehicle Roadside Equipment	vehicle location and motion		
ther Vehicle OBEs		Ve	hicle OBE	vehicle control event		
ther Vehicle OBEs		Ve	hicle OBE	vehicle location and motion		
ransit Vehicle OBE		Со	nnected Vehicle Roadside Equipment	vehicle location and motion		
ransit Vehicle OBE		Ve	hicle OBE	special vehicle type alert		
ehicle OBE		Co	nnected Vehicle Roadside Equipment	vehicle control event		
ehicle OBE		Co	nnected Vehicle Roadside Equipment	vehicle ID		
ehicle OBE		Co	nnected Vehicle Roadside Equipment	vehicle location and motion		
ehicle OBE		Co	nnected Vehicle Roadside Equipment	vehicle location and motion for surveillance		
ehicle OBE		Ot	her Vehicle OBEs	vehicle control event		
ehicle OBE		Ot	her Vehicle OBEs	vehicle location and motion		
ehicle OBE		Ре	rsonal Information Device	vehicle location and motion		
	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
case not idered in design dium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles.	Urgent	Australia, Europea Union
ource			- Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Emergency Vehicle OE	3E		nnected Vehicle Roadside Equipment	local signal preemption request		
ion Name:	EU: CA Service - Local Broadcast Wireless			Number of Issues: 6	Fotal Issue Severit	:v: 18

	ness information flows. The V-X: Local Broadcast					
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ecurity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Emergency Vehicle O	BE	Co	nnected Vehicle Roadside Equipment	local signal preemption request		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	vehicle location and motion for surveillance		
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Incertainty about rust revocation nechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Emergency Vehicle O	BE		nnected Vehicle Roadside Equipment	local signal preemption request		
Vehicle OBE		Со	nnected Vehicle Roadside Equipment	vehicle location and motion for surveillance		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata not fully efined (medium)	Some of the data elements for this information flow are not fully defined.	Medium	V-L: Trailer information for vehicle location and motion	Standardise the mechanism for the BSM, CAM, and DENM to accurately convey geometric properties related to articulated vehicles.	Urgent	Australia, European Union, United States
			 Triples using this solution and affected b stination 	- y this Issue that would be addressed by the Proposed Resolution Flow Name		
Source						
Source Vehicle OBE			nnected Vehicle Roadside Equipment	vehicle location and motion for surveillance		
	Issue Description		nnected Vehicle Roadside Equipment Proposed Resolution	vehicle location and motion for surveillance Resolution Description	Timeframe	Applicability
Vehicle OBE		Co			Timeframe Urgent	Applicability Australia, European Union
Vehicle OBE sue verlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this	Co Issue Severity Medium Information	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5	Resolution Description Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers. y this Issue that would be addressed by the Proposed Resolution		Australia, European
Vehicle OBE	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Co Issue Severity Medium Information	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5	Resolution Description Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.		Australia, European

	Information Triples using this solution and affected by this Issue that would be addressed l	by the Proposed Resolution
Source	Destination	Flow Name
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion for surve

Solution Name:	EU: CA Service - Local Broadcast Wireless	s (AU/EU)		Number of Issues:
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and SRM	Standardise on a single solution for requesting signal priority; currently the transmitted using CAM or SRM.
C				this Issue that would be addressed by the Proposed Resolution
Source Emergency Vehicle OB	E		tination Inected Vehicle Roadside Equipment	Flow Name local signal preemption request
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre- priority to authorised vehicles.
Source			· iriples using this solution and affected by tination	r this Issue that would be addressed by the Proposed Resolution Flow Name
Emergency Vehicle OB	E	Cor	nnected Vehicle Roadside Equipment	local signal preemption request
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: CAM	Develop an internationally acceptable ITS application specification for CA case where it applies and when the CAM should include optional fields for
Source			riples using this solution and affected by tination	this Issue that would be addressed by the Proposed Resolution Flow Name
Emergency Vehicle OB	E		nnected Vehicle Roadside Equipment	local signal preemption request
Vehicle OBE		Cor	nnected Vehicle Roadside Equipment	vehicle location and motion for sur
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre- priority to authorised vehicles.
Source			riples using this solution and affected by tination	this Issue that would be addressed by the Proposed Resolution Flow Name
Emergency Vehicle OB	E		nnected Vehicle Roadside Equipment	local signal preemption request
Solution Name:	EU: CA Service - Mobile Internet (X.509)			Number of Issues:
		ds associated with	n FU: CA Service with those for I-	M: Mobile Internet (X.509). The EU: CA Service standards include upper-lay

This solution is used within the E.U., and Australia. It combines standards associated with EU: CA Service with those for I-M: Mobile Internet (X.509). The EU: CA Service standards include upper-layer standards required to implement V2x safety situation awareness information flows. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Interet connection method.

6 T o	tal Issue Severity:	18	
	Timeframe	Applicability	
iis request can be	Urgent	Australia, Eur Union	opean
	Timeframe	Applicability	

	Timeframe	Applicability	
emption or	Urgent	Australia, European Union	

	Timeframe	Applicability
M for each use r each condition.	Urgent	Australia, European Union

veillance

	Timeframe	Applicability	
emption or	Urgent	Australia, Eur	opean
1	otal Issue Severity:	3	

Solution Name:	EU: CA Service - Mobile Internet (X.509)			Number of Issues: 1	otal Issue Severity:	3
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: CAM	Develop an internationally acceptable ITS application specification for CAM for each use case where it applies and when the CAM should include optional fields for each condition.	Urgent	Australia, European Union
		Information 7	Friples using this solution and affected b	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	stination	Flow Name		
Vehicle OBE		Da	ta Distribution System	vehicle situation data		

Sal	lution	Name:
30	ution	Name.

EU: Contextual Speed Information Service - Local Broadcast Wireless (AU/EU)

Number of Issues:

This solution is used within the E.U., and Australia. It combines standards associated with EU: Contextual Speed Information Service with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Contextual Speed Information Service standards include upper-layer standards that support for providing speed information to a vehicle from roadside infrastructure. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.

ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ecurity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
Source			Friples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	adside Equipment	Vel	hicle OBE	reduced speed notification		
Connected Vehicle Ro	adside Equipment	Vel	hicle OBE	speed management information		
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ncertainty about ust revocation	The mechanisms used to prevent bad actors from sending authorized messages is	Medium	Misbehavior detection and security revocation	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer	Urgent	Australia, European Union, United States
	unproven.		mechanism	recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).		
nechanism	unproven.	Des	Friples using this solution and affected b	misbehave). y this Issue that would be addressed by the Proposed Resolution		
nechanism Source	unproven.	Des Vel	Friples using this solution and affected b tination	misbehave). y this Issue that would be addressed by the Proposed Resolution Flow Name		
Source Connected Vehicle Ro Connected Vehicle Ro	unproven.	Des Vel Vel	Friples using this solution and affected b tination hicle OBE	misbehave). y this Issue that would be addressed by the Proposed Resolution Flow Name reduced speed notification	Timeframe	Applicability
mechanism Source Connected Vehicle Ro	unproven. Padside Equipment P	Des Vel Vel	Triples using this solution and affected b stination hicle OBE hicle OBE	misbehave). y this Issue that would be addressed by the Proposed Resolution Flow Name reduced speed notification speed management information	Timeframe Urgent	Applicability Australia, European Union
Source Connected Vehicle Ro Connected Vehicle Ro Source	unproven.	Des Veh Veh Issue Severity Medium	Triples using this solution and affected b stination hicle OBE hicle OBE V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	misbehave). y this Issue that would be addressed by the Proposed Resolution Flow Name reduced speed notification speed management information Resolution Description Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special		Australia, European

4	Total Issue Severity:	12

Solution Name:	EU: Contextual Speed Information Service	e - Local Broadca	st Wireless (AU/EU)	Number of Issues: 4 To	otal Issue Severity:	12
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union
		Information T	riples using this solution and affected b	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Connected Vehicle Roa	adside Equipment	Vel	nicle OBE	reduced speed notification		
Connected Vehicle Roa	adside Equipment	Vel	nicle OBE	speed management information		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Use case not considered in design	Issue Description While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Issue Severity Medium	Proposed Resolution V-L: EU vehicle signage data	Resolution Description Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC.	Timeframe Urgent	Applicability Australia, European Union
Issue Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the	Medium	V-L: EU vehicle signage data	Develop an ITS application specification for providing vehicle signage data to vehicles over		Australia, European
Use case not considered in design	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the	Medium	V-L: EU vehicle signage data	Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC.		Australia, European
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium Information T Des	V-L: EU vehicle signage data riples using this solution and affected b	Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC.		Australia, European

Solution Name:

EU: Contextual Speed Information Service - Mobile Internet (X.509)

This solution is used within the E.U., and Australia. It combines standards associated with EU: Contextual Speed Information Service with those for I-M: Mobile Internet (X.509). The EU: Contextual Speed In upper-layer standards that support for providing speed information to a vehicle from roadside infrastructure. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Interet connection method.

ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
verlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).	Urgent	Australia, European Union
Courses				y this Issue that would be addressed by the Proposed Resolution		
Source Traffic Management Co			tination nicle OBE	Flow Name speed management information		

2	Total Issue Severity:	6
eed Informat	ion Service standards ir	nclude
ecure commu	nications between two	entities,

Number of Issues:

Solution Name:	EU: Contextual Speed Information Service	e - Mobile Interr	net (X.509)		Number of Issues: 2	Total Issue Severity:	6
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicl	le signage to the vehicle from a centre	. Urgent	Australia, European Union
		Information 7	Friples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution			
Source		Des	stination	Flow Nam			
Traffic Management C	enter	Ve	hicle OBE	speed ma	anagement information		

Sol	lution	Name	•
30	ution	INALLE	٠

EU: Data Probe Management - Local Broadcast Wireless (AU/EU)

Number of Issues:

This solution is used within the E.U., and Australia. It combines standards associated with EU: Data Probe Management with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Data Probe Ma standards that define how to manage the reporting of probe data. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions are a broadcast wireless wireless (AU/EU).

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability			
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union			
Source	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Source Elow Name								
Source Destination Connected Vehicle Roadside Equipment Vehicle OBE		vehicle situation data parameters							

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
		Information ⁻	Friples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Connected Vehicle R	oadside Equipment	Ve	hicle OBE	vehicle situation data parameters		

	ssue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ad wł	Aultiple standards have been developed to ddress this information and it is unclear which standard should be used to address this pecific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union
		Information T	riples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Connected Vehicle Roadsic	ide Equipment	Vel	nicle OBE	vehicle situation data parameters		

5	Total Issue Severity:	15
lanagement sta	ndards include upper lay	yer
lutions, such as	DSRC technologies, 5G	LTE, etc.

Solution Name:	EU: Data Probe Management - Local Bro	adcast Wireless (AU/EU)	Number of Issues: 5 To	otal Issue Severity	15
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Situation data	Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMs/CAMs, sensors, probe data, etc.) between vehicles and remote interested parties (e.g., centres).	Urgent	Australia, European Union, United States
				by this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Connected Vehicle Ro	adside Equipment	Vel	nicle OBE	vehicle situation data parameters		
Connected Vehicle Ro	adside Equipment Issue Description	Ver Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ssue Jse case not considered in design					Timeframe Urgent	Australia, European
	Issue Description While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the	Issue Severity Medium	Proposed Resolution C-V: Situation data	Resolution Description Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMs/CAMs, sensors, probe data, etc.) between		
Issue Use case not considered in design	Issue Description While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the	Issue Severity Medium	Proposed Resolution C-V: Situation data	Resolution Description Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMs/CAMs, sensors, probe data, etc.) between vehicles and remote interested parties (e.g., centres).		Australia, European

Number of Issues: Solution Name: EU: Data Probe Management - Mobile Internet (X.509)

This solution is used within the E.U., and Australia. It combines standards associated with EU: Data Probe Management with those for I-M: Mobile Internet (X.509). The EU: Data Probe Management s define how to manage the reporting of probe data. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intneret connection method.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Situation data	Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMs/CAMs, sensors, probe data, etc.) between vehicles and remote interested parties (e.g., centres).	Urgent	Australia, European Union, United States
		Information 7	riples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Transportation Info	rmation Center	Vel	nicle OBE	vehicle situation data parameters		

sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
se case not onsidered in design nedium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-V: Situation data	Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMs/CAMs, sensors, probe data, etc.) between vehicles and remote interested parties (e.g., centres).	Urgent	Australia, European Union, United States
		Information T	riples using this solution and affected by	this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Transportation Information Center		Vehicle OBE		vehicle situation data parameters		
lution Name:	EU: Data Transmodel - DATEX Messaging	ТСР		Number of Issues: 2 To	tal Issue Severity	/: 35

2	Total Issue Severity:	6
standards inc	lude upper layer standa	rds that
th of which m	ay be actively moving h	ased on

ransmodel", the sho encies by using mat	rt name for the European Standard "Public Trans	port Reference Da	ata Model" (EN 12896), which p	for C-C: DATEX Messaging TCP. The EU: Data Transmodel standards include upper-layer rovides the standard facilitates interoperability between information processing system . The C-C: DATEX Messaging TCP standards include lower-layer standards that support	s of the transport operat	cors and
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ecurity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	 Develop one or more internationally acceptable, secure, centre-to-centre communical standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s). 		Australia, European Union, United State
Source			- Friples using this solution and affected b tination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Traffic Management	Center		nsit Management Center	traffic control priority status		
Transit Management	Center	Tra	ffic Management Center	traffic control priority request		
Transit Management	Center	Tra	nsportation Information Center	transit and fare schedules		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: US signal priority/preemption	Develop an ITS application specification for centres to exchange requests and status f signal priority/preemption along a route.	for Medium-term	United States
Source			Friples using this solution and affected b tination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Traffic Management	Center		Insit Management Center	traffic control priority status		
Transit Management	Center	Tra	ffic Management Center	traffic control priority request		

This solution is used within the European Union. It combines standards associated with EU: Data Transmodel with those for I-M: Mobile XML. The EU: Data Transmodel standards include upper-layer standards required to implement "Transmodel", the short name for the European Standard "Public Transport Reference Data Model" (EN 12896), which provides the standard facilitates interoperability between information processing systems of the transport operators and agencies by using matching definitions, structures and meanings for their data for the systems being part of one solution. The I-M: Mobile XML standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 or IEEE 1609.2 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intneret connection method.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-V: Transit vehicle schedule management	Develop an ITS application specification for managing transit vehicle sche performance data from transit vehicles to a centre.
Source			Friples using this solution and affected by tination	this Issue that would be addressed by the Proposed Resolution Flow Name
Transit Vehicle OBE		Tra	nsit Management Center	transit vehicle schedule performance

	Timeframe	Applicability
dule	Near-term	Australia, European Union
e		

Solution Name:	EU: Data Transmodel - Mobile XML				Number of Issues:	2	Total Issue Severity:	35
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Transit vehicle schedule management	Develop an ITS application specification for managi performance data from transit vehicles to a centre.	*	2	Near-term	Australia, Europear Union
		Information ⁻	Triples using this solution and affected b	y this Issue that would be addressed by the Proposed Resolution				
Source		Des	stination	Flow Nar	ne			
Transit Managemen	t Center	Tra	ansit Vehicle OBE	transit so	chedule information			
Transit Vehicle OBE		Tra	nsit Management Center	transit v	ehicle schedule performance			
Solution Name:	FU: Data Transmodel - ODG-OCIT-C				Number of Issues:	3	Total Issue Severity:	38

EU: Data Transmodel - ODG-OCIT-C Solution Name:

This solution is used within the European Union. It combines standards associated with EU: Data Transmodel with those for C-C: ODG-OCIT-C. The EU: Data Transmodel standards include upper-layer standards required to implement "Transmodel", the short name for the European Standard "Public Transport Reference Data Model" (EN 12896), which provides the standard facilitates interoperability between information processing systems of the transport operators and agencies by using matching definitions, structures and meanings for their data for the systems being part of one solution. The C-C: ODG-OCIT-C standards include lower-layer ODG proprietary protocol used within the EU for road traffic data exchange between central stations

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.		Australia, European Union, United States
				Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).		
Source			riples using this solution and affected by tination	r this Issue that would be addressed by the Proposed Resolution Flow Name		
Traffic Management C	Center	Tra	nsit Management Center	traffic control priority status		
Transit Management (Center	Tra	ffic Management Center	traffic control priority request		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: US signal priority/preemption	Develop an ITS application specification for centres to exchange requests and status for signal priority/preemption along a route.	Medium-term	United States
Source			riples using this solution and affected by tination	this Issue that would be addressed by the Proposed Resolution Flow Name		
Traffic Management C	Center	Tra	nsit Management Center	traffic control priority status		
Transit Management (Center	Tra	ffic Management Center	traffic control priority request		

	EU: Data Transmodel - ODG-OCIT-C			Number of Issues: 3 To	otal Issue Severity	y: 38
е	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
an open dard	The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Medium	C-C: Secure communications	 Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer 	Urgent	Australia, European Union, United State
				standards will need to be updated to document data in appropriate format(s).		
ource			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Traffic Management	Center	Tra	ansit Management Center	traffic control priority status		
Transit Management	t Center	Tra	affic Management Center	traffic control priority request		
ion Name:	EU: DATEX - DATEX Messaging TCP			Number of Issues: 6 To	otal Issue Severity	y: 47
				ATEX Messaging TCP. The EU: DATEX standards include upper-layer standards required to excl	-	lata and
				t support partially secure communications between two centres as commonly used in Europe		
2	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
irity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, Europear Union, United State
				Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).		
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Alternate Mode Tran	isportation Center	Tra	affic Management Center	alternate mode incident information		
Alternate Mode Tran Connected Vehicle R			affic Management Center ansportation Information Center	alternate mode incident information environmental situation data		
	oadside Equipment	Tra	-			
Connected Vehicle R	oadside Equipment nent Center	Tra	ansportation Information Center	environmental situation data		
Connected Vehicle R Emergency Manager	oadside Equipment nent Center anagement Center	Tra Tra Ce	ansportation Information Center	environmental situation data incident information		
Connected Vehicle R Emergency Manager Maint and Constr Ma	oadside Equipment ment Center anagement Center anagement Center	Tra Tra Ce Tra	ansportation Information Center ansportation Information Center nter	environmental situation data incident information equipment maintenance status		
Connected Vehicle R Emergency Manager Maint and Constr Ma Maint and Constr Ma	oadside Equipment ment Center anagement Center anagement Center anagement Center	Tra Tra Ce Tra Tra	ansportation Information Center ansportation Information Center nter affic Management Center	environmental situation data incident information equipment maintenance status work zone information		
Connected Vehicle R Emergency Manager Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma	oadside Equipment ment Center anagement Center anagement Center anagement Center anagement Center	Tra Tra Ce Tra Tra Tra	ansportation Information Center ansportation Information Center nter affic Management Center ansportation Information Center	environmental situation dataincident informationequipment maintenance statuswork zone informationmaint and constr work plans		
Connected Vehicle R Emergency Manager Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma	oadside Equipment ment Center anagement Center anagement Center anagement Center anagement Center anagement Center	Tra Tra Ce Tra Tra Tra Tra	ansportation Information Center ansportation Information Center Inter affic Management Center ansportation Information Center ansportation Information Center	environmental situation dataincident informationequipment maintenance statuswork zone informationmaint and constr work plansroadway maintenance status		
Connected Vehicle R Emergency Manager Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma	oadside Equipment ment Center anagement Center anagement Center anagement Center anagement Center anagement Center anagement Center anagement Center	Tra Tra Ce Tra Tra Tra Tra Tra	ansportation Information Center ansportation Information Center Inter affic Management Center ansportation Information Center ansportation Information Center ansportation Information Center	environmental situation dataincident informationequipment maintenance statuswork zone informationmaint and constr work plansroadway maintenance statuswork zone information		
Connected Vehicle R Emergency Manager Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma	oadside Equipment ment Center anagement Center anagement Center anagement Center anagement Center anagement Center anagement Center ement Centers ement Centers	Tra Tra Ce Tra Tra Tra Tra Tra Tra	ansportation Information Center ansportation Information Center affic Management Center ansportation Information Center ansportation Information Center ansportation Information Center affic Management Center	environmental situation dataincident informationequipment maintenance statuswork zone informationmaint and constr work plansroadway maintenance statuswork zone informationdevice data		
Connected Vehicle R Emergency Manager Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Other Traffic Manage Other Traffic Manage	oadside Equipment ment Center anagement Center anagement Center anagement Center anagement Center anagement Center anagement Center ement Centers ement Centers	Tra Tra Ce Tra Tra Tra Tra Tra Tra	ansportation Information Center ansportation Information Center affic Management Center ansportation Information Center ansportation Information Center ansportation Information Center affic Management Center affic Management Center	environmental situation dataincident informationequipment maintenance statuswork zone informationmaint and constr work plansroadway maintenance statuswork zone informationdevice datadevice status		
Connected Vehicle R Emergency Manager Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Other Traffic Manage Other Traffic Manage Other Traffic Manage	oadside Equipment ment Center anagement Center anagement Center anagement Center anagement Center anagement Center ement Centers ement Centers ement Centers	Tra Tra Ce Tra Tra Tra Tra Tra Tra Tra	ansportation Information Center ansportation Information Center affic Management Center ansportation Information Center ansportation Information Center affic Management Center affic Management Center affic Management Center	environmental situation dataincident informationequipment maintenance statuswork zone informationmaint and constr work plansroadway maintenance statuswork zone informationdevice datadevice statusroad network conditions		
Connected Vehicle R Emergency Manager Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Other Traffic Manage Other Traffic Manage Other Traffic Manage Other Traffic Manage	oadside Equipment ment Center anagement Center anagement Center anagement Center anagement Center anagement Center anagement Center ement Centers ement Centers ement Centers anagement Centers	Tra Tra Ce Tra Tra Tra Tra Tra Tra Tra Tra	ansportation Information Center ansportation Information Center affic Management Center ansportation Information Center ansportation Information Center affic Management Center affic Management Center affic Management Center affic Management Center affic Management Center	environmental situation dataincident informationequipment maintenance statuswork zone informationmaint and constr work plansroadway maintenance statuswork zone informationdevice datadevice statusroad network conditionsincident information		
Connected Vehicle R Emergency Manager Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Maint and Constr Ma Other Traffic Manage Other Traffic Manage Other Traffic Manage Other Transportation Other Transportation	oadside Equipment ment Center anagement Center anagement Center anagement Center anagement Center anagement Center anagement Center ement Centers ement Centers ement Centers anagement Centers anagement Centers	Tra Tra Ce Tra Tra Tra Tra Tra Tra Tra Tra Tra	ansportation Information Center ansportation Information Center affic Management Center ansportation Information Center ansportation Information Center affic Management Center affic Management Center affic Management Center affic Management Center ansportation Information Center ansportation Information Center	environmental situation dataincident informationequipment maintenance statuswork zone informationmaint and constr work plansroadway maintenance statuswork zone informationdevice datadevice statusroad network conditionsincident informationparking information		

Solution Name:	EU: DATEX - DATEX Messaging TCP				Number of Issues:	6	Total Issue Severity:	47
Parking Managemer	nt System	Tra	ffic Management Center		parking information			
Parking Managemer	nt System	Tra	nsit Management Center		parking information			
Parking Managemer	nt System	Tra	insportation Information Center		parking information			
Surface Transportati	ion Weather Service	Tra	ffic Management Center		transportation weather information			
Traffic Management	Center	Em	ergency Management Center		incident information			
Traffic Management	Center	Em	ergency Management Center		road network conditions			
Traffic Management	Center	Ma	int and Constr Management Center		incident information			
Traffic Management	Center	Ma	int and Constr Management Center		road network conditions			
Traffic Management	Center	Oth	ner Traffic Management Centers		device data			
Traffic Management	Center	Oth	ner Traffic Management Centers		device status			
Traffic Management	Center	Oth	ner Traffic Management Centers		road network conditions			
Traffic Management	Center	Tra	nsportation Information Center		incident information			
Traffic Management	Center	Tra	insportation Information Center		road network conditions			
Traffic Management	Center	Tra	nsportation Information Center		traffic control information			
Traffic Management	Center	Tra	insportation Information Center		traffic demand management informat	ion		
Traffic Management	Center	Tra	nsportation Information Center		traffic image meta data			
Traffic Management	Center	Tra	insportation Information Center		traffic images			
Transportation Infor	mation Center	Flee	et and Freight Management Center		incident information			
Transportation Infor	mation Center	Flee	et and Freight Management Center		road network conditions			
Transportation Infor	mation Center	Oth	ner Transportation Information Centers		incident information			
Transportation Infor	mation Center	Oth	ner Transportation Information Centers		parking information			
Transportation Infor	mation Center	Oth	ner Transportation Information Centers		road network conditions			
Transportation Infor	mation Center	Oth	ner Transportation Information Centers		traffic image meta data			
Transportation Infor	mation Center	Oth	ner Transportation Information Centers		traffic images			
Transportation Infor	mation Center	Tra	ffic Management Center		road network environmental situation	data		
Transportation Infor	mation Center	Wie	de Area Information Disseminator		broadcast traveler information			
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Situation data	Develop an internationally acceptable ITS a distributing collected situation data (e.g., B centres.			Urgent	Australia, European Union, United State
				this Issue that would be addressed by the Proposed R				
Source Transportation Infor	mation Center		tination Ific Management Center		Flow Name road network environmental situation	data		
Transportation mor		11a			read network charonmental situation	Gutu		

	EU: DATEX - DATEX Messaging TCP			Number of Issues: 6 To	otal Issue Severit	y: 47
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ita profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: AU weather information	Adopt an existing weather information centre-to-centre data profile for use within the region.	Near-term	Australia, European Union, United States
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Surface Transportat	tion Weather Service	Tra	affic Management Center	transportation weather information		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta profile not fined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Equipment maintenance coordination	Develop an internationally acceptable ITS application specification for C-C exchange of equipment maintenance and status information	Near-term	Australia, European Union, United States
Source			- Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Maint and Constr M	lanagement Center	Cer	nter	equipment maintenance status		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta not fully fined (medium)	Some of the data elements for this information flow are not fully defined.	Medium	I-F: Data aggregation	Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres).	Urgent	Australia, European Union, United States
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
	Roadside Equipment	Des				
Connected Vehicle F	Roadside Equipment Issue Description	Des Tra	stination	Flow Name	Timeframe	Applicability
Connected Vehicle F sue ill under		Des Tra	stination	Flow Name environmental situation data	Timeframe Urgent	Applicability Australia, European Union, United States
Connected Vehicle F sue ill under	Issue Description A draft of the standard has been developed by the working group, but it was still under development at the time the HARTS analysis	Des Tra Issue Severity Medium	Proposed Resolution I-F: Data aggregation	Flow Name environmental situation data Resolution Description Develop an internationally acceptable ITS application specification for an RSE to aggregate	11	Australia, European
Connected Vehicle F sue ill under evelopment	Issue Description A draft of the standard has been developed by the working group, but it was still under development at the time the HARTS analysis was performed.	Des Tra Issue Severity Medium	stination ansportation Information Center Proposed Resolution I-F: Data aggregation Triples using this solution and affected b	Flow Name environmental situation data Resolution Description Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres). y this Issue that would be addressed by the Proposed Resolution	11	Australia, European
Connected Vehicle F ue Il under velopment Source Connected Vehicle F	Issue Description A draft of the standard has been developed by the working group, but it was still under development at the time the HARTS analysis was performed.	Des Tra Issue Severity Medium	Ansportation Information Center Proposed Resolution I-F: Data aggregation Triples using this solution and affected bestination	Flow Name environmental situation data Resolution Description Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres). y this Issue that would be addressed by the Proposed Resolution Flow Name	11	Australia, European
Connected Vehicle F sue ill under evelopment Source Connected Vehicle F sue erformance not Ily defined	Issue Description A draft of the standard has been developed by the working group, but it was still under development at the time the HARTS analysis was performed. Roadside Equipment	Des Tra Issue Severity Medium Information T Des Tra	stination ansportation Information Center Proposed Resolution I-F: Data aggregation Triples using this solution and affected bestination ansportation Information Center	Flow Name environmental situation data Resolution Description Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres). y this Issue that would be addressed by the Proposed Resolution Flow Name environmental situation data	Urgent	Australia, European Union, United States Applicability Australia, European
Connected Vehicle F sue ill under evelopment Source	Issue Description A draft of the standard has been developed by the working group, but it was still under development at the time the HARTS analysis was performed. Roadside Equipment Issue Description The performance rules are not fully defined	Tra Issue Severity Medium Information T Des Tra Issue Severity Medium Issue Severity Medium	stination ansportation Information Center Proposed Resolution I-F: Data aggregation Triples using this solution and affected bestination ansportation Information Center Proposed Resolution C-C: WAID	Flow Name environmental situation data Resolution Description Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres). y this Issue that would be addressed by the Proposed Resolution Flow Name environmental situation data Resolution Description Develop an internationally acceptable ITS application specification for providing	Urgent	Australia, European Union, United States

Solution Name:		EU: DATEX - DATEX Messaging TCP				Number of Issues:
Issue	Issue	e Description	Issue Severity	Proposed Resolution	Resolution Description	
Use case not considered in design (medium)	addr not r parti	e the indicated standards nominally ess the information flow, the design may meet practical constraints because this cular use case was not the focus of the gn effort.	Medium	C-C: Road work information	Develop an internationally acceptable ITS application road works and seasonal maintenance data.	tion specification for C-C e
Source				Triples using this solution and affected by stination	this Issue that would be addressed by the Proposed Resolutio Flow ۱	
Maint and Constr Man	nageme	nt Center	Tra	affic Management Center	work	zone information
Maint and Constr Management Center				ansportation Information Center	work	zone information

Solution Name:

EU: DATEX - ODG-OCIT-C

This solution is used within the European Union. It combines standards associated with EU: DATEX with those for C-C: ODG-OCIT-C. The EU: DATEX standards include upper-layer standards required to exchange and share data and information in the field of traffic and travel. The C-C: ODG-OCIT-C standards include lower-layer oDG proprietary protocol used within the EU for road traffic data exchange between central stations

ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability	
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	 Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s). 	Urgent	Australia, Euro Union, United	
				y this Issue that would be addressed by the Proposed Resolution			
Source Alternate Mode Trans	constation Center		tination Iffic Management Center	Flow Name alternate mode incident information			
Other Traffic Manager			ffic Management Center	road network conditions			
_							
Traffic Management C			ergency Management Center	road network conditions			
Traffic Management C			issions Management Center	road network conditions			
Traffic Management C	Center	Fle	et and Freight Management Center	road network conditions			
Traffic Management C	Center	Ma	int and Constr Management Center	road network conditions			
Traffic Management C	Center	Ot	ner Traffic Management Centers	road network conditions			
Traffic Management C	Center	Tra	nsit Management Center	road network conditions			
Traffic Management C	Center	Tra	insportation Information Center	road network conditions			

6	То	tal Issue Severity:		47	
		Timeframe	A	Applicability	
exchange of		Urgent		Australia, Euro Jnion, United	-
	_				

2 Total Issue Severity:

Number of Issues:

6

lution Name:	EU: DATEX - ODG-OCIT-C			Number of Issues: 2 To	otal Issue Severity:	6
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ot an open andard	The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Medium	C-C: Secure communications	 Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s). 	Urgent	Australia, European Union, United States
				y this Issue that would be addressed by the Proposed Resolution		
Source		Des	stination	Flow Name		
Alternate Mode Tran	nsportation Center	Tra	ffic Management Center	alternate mode incident information		
Other Traffic Manage	ement Centers	Tra	ffic Management Center	road network conditions		
Traffic Management	Center	Em	ergency Management Center	road network conditions		
Traffic Management	Center	Em	issions Management Center	road network conditions		
Traffic Management	Center	Fle	et and Freight Management Center	road network conditions		
Traffic Management	Center	Ma	int and Constr Management Center	road network conditions		
Traffic Management	Center	Ot	her Traffic Management Centers	road network conditions		
Traffic Management	Center	Tra	nsit Management Center	road network conditions		
Traffic Management	Center	Tra	insportation Information Center	road network conditions		

Solution Name:	EU: DEN Service - BTP/GeoNetworking/G5	Number of Issues:
This solution is used within	the E.U., and Australia. It combines standards associated with EU: DEN Service with those for V-X: BTP/GeoNetworking/G5. The EU: DEN Servic	e standards include upper-

This solution is used within the E.U., and Australia. It combines standards associated with EU: DEN Service with those for V-X: BTP/GeoNetworking/G5. The EU: DEN Service standards include upper-layer standards required to implement V2x decentralized environmental notification information flows. The V-X: BTP/GeoNetworking/G5 standards that support broadcast, near constant, low latency vehicle-to-vehicle and vehicle-to-infrastructure communications using the ETSI GeoNetworking Bundle over the 5.9GHz spectrum.

ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ecurity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, Europear Union
				by this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Commercial Vehicle C	DBE	Fle	et and Freight Management Center	vehicle environmental data		
Commercial Vehicle C	DBE	Ve	hicle OBE	special vehicle type alert		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	intersection safety warning		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	queue warning information		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	vehicle collision warning		
Connected Vehicle Ro	padside Equipment	Ve	hicle OBE	wrong way vehicle detected		
Emergency Vehicle O	BE	Ve	hicle OBE	special vehicle type alert		
Maint and Constr Ver	icle OBE	Ve	hicle OBE	special vehicle type alert		
Other Vehicle OBEs		Ve	hicle OBE	intersection infringement info		
Other Vehicle OBEs		Ve	hicle OBE	vehicle collision warning		

So	lution Name:	EU: DEN Service - BTP/GeoNetworking/G	35			Number of Issues:
	Other Vehicle OBEs		Ve	hicle OBE		vehicle control event
	Other Vehicle OBEs		Ve	hicle OBE		vehicle environmental data
	Other Vehicle OBEs		Ve	hicle OBE		vehicle hazard event
	Other Vehicle OBEs		Ve	hicle OBE		wrong way vehicle detected
	Transit Vehicle OBE		Ve	hicle OBE		special vehicle type alert
	Vehicle OBE		Со	onnected Vehicle Roadside Equipment		intersection infringement info
	Vehicle OBE		Co	onnected Vehicle Roadside Equipment		vehicle control event
	Vehicle OBE		Со	onnected Vehicle Roadside Equipment		wrong way vehicle detected
	Vehicle OBE		Ot	her Vehicle OBEs		intersection infringement info
	Vehicle OBE		Ot	her Vehicle OBEs		vehicle collision warning
	Vehicle OBE		Ot	her Vehicle OBEs		vehicle control event
	Vehicle OBE		Ot	her Vehicle OBEs		vehicle hazard event
	Vehicle OBE		Ot	her Vehicle OBEs		wrong way vehicle detected
Is	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
	erformance not efined (high)	The performance rules are not defined for this information flow.	High	V-L: CAM and DENM	Standardise on a single solution for providi information can be transmitted using CAM	
	Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed R	esolution Flow Name
	Commercial Vehicle C	DBE	Fle	eet and Freight Management Center		vehicle environmental data
	Other Vehicle OBEs		Ve	ehicle OBE		vehicle environmental data

8	Total Issue Severity:	32	
	Timeframe	Applicability	
urrently this	Urgent	Australia, Euro Union	pean

Solution Name:	EU: DEN Service - BTP/GeoNetworking/	G5		Number of Issues:
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all le revoking the privileges of a certificate authority (e.g., if an authority is no recognized within a region) and of an ITS station (e.g., in case an ITS station misbehave).
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name
Commercial Vehicle	OBE	Fle	eet and Freight Management Center	vehicle environmental data
Commercial Vehicle	OBE	Ve	hicle OBE	special vehicle type alert
Connected Vehicle R	oadside Equipment	Ve	hicle OBE	intersection safety warning
Connected Vehicle R	oadside Equipment	Ve	hicle OBE	queue warning information
Connected Vehicle R	oadside Equipment	Ve	hicle OBE	vehicle collision warning
Connected Vehicle R	oadside Equipment	Ve	hicle OBE	wrong way vehicle detected
Emergency Vehicle C	DBE	Ve	hicle OBE	special vehicle type alert
Maint and Constr Ve	hicle OBE	Ve	hicle OBE	special vehicle type alert
Other Vehicle OBEs		Ve	hicle OBE	intersection infringement info
Other Vehicle OBEs		Ve	hicle OBE	vehicle collision warning
Other Vehicle OBEs		Ve	hicle OBE	vehicle control event
Other Vehicle OBEs		Ve	hicle OBE	vehicle environmental data
Other Vehicle OBEs		Ve	hicle OBE	vehicle hazard event
Other Vehicle OBEs		Ve	hicle OBE	wrong way vehicle detected
Transit Vehicle OBE		Ve	hicle OBE	special vehicle type alert
Vehicle OBE		Со	nnected Vehicle Roadside Equipment	intersection infringement info
Vehicle OBE		Со	nnected Vehicle Roadside Equipment	vehicle control event
Vehicle OBE		Со	nnected Vehicle Roadside Equipment	wrong way vehicle detected
Vehicle OBE		Ot	her Vehicle OBEs	intersection infringement info
Vehicle OBE		Ot	her Vehicle OBEs	vehicle collision warning
Vehicle OBE		Ot	her Vehicle OBEs	vehicle control event
Vehicle OBE		Ot	her Vehicle OBEs	vehicle hazard event
Vehicle OBE		Ot	her Vehicle OBEs	wrong way vehicle detected

8	Total Issue Severity:	32]
	Timeframe	Applicability	
evels, including longer on starts to	Urgent	Australia, Eur Union, United	opean d States

Solution Name:	EU: DEN Service - BTP/GeoNetworking/G	5			Number of Issues:
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providi Australia; currently BTP/GeoNetworking/G are not interoperable at the Subnet or Trar	5 and FNTP/M5 are competing s
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed R	esolution Flow Name
Commercial Vehicle O	BE	Fle	et and Freight Management Center		vehicle environmental data
Commercial Vehicle O	DBE	Ve	hicle OBE		special vehicle type alert
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE		intersection safety warning
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE		queue warning information
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE		vehicle collision warning
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE		wrong way vehicle detected
Emergency Vehicle OF	BE	Ve	hicle OBE		special vehicle type alert
Maint and Constr Veh	icle OBE	Ve	hicle OBE		special vehicle type alert
Other Vehicle OBEs		Ve	hicle OBE		intersection infringement info
Other Vehicle OBEs		Ve	hicle OBE		vehicle collision warning
Other Vehicle OBEs		Ve	hicle OBE		vehicle control event
Other Vehicle OBEs		Ve	hicle OBE		vehicle environmental data
Other Vehicle OBEs		Ve	hicle OBE		vehicle hazard event
Other Vehicle OBEs		Ve	hicle OBE		wrong way vehicle detected
Transit Vehicle OBE		Ve	hicle OBE		special vehicle type alert
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		intersection infringement info
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle control event
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		wrong way vehicle detected
Vehicle OBE		Otl	her Vehicle OBEs		intersection infringement info
Vehicle OBE		Otl	her Vehicle OBEs		vehicle collision warning
Vehicle OBE		Otl	her Vehicle OBEs		vehicle control event
Vehicle OBE		Otl	her Vehicle OBEs		vehicle hazard event
Vehicle OBE		Otl	her Vehicle OBEs		wrong way vehicle detected

8	Tota	l Issue Severity:	32	
	1	imeframe	Applicability	
in Europe and solutions that	ι	Jrgent	Australia, Eur Union	opean

Issue Issue Description Issue Severity Proposed Resolution Resolution Description Timeframe We trap of standards Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow. Medium V-L: CAM and DENM Standardise on a single solution for providing vehicle event information; currently this information can be transmitted using CAM or DENM. Urgent Source Information flow. Information Trakes using this solution and affected by the twould be addressed by the Proposed Resolution Destination can be transmitted using CAM or DENM. Urgent Maint and Constr Vehicle OBE Vehicle OBE Special vehicle type alert Information Provide OBE Vehicle OBE Vehicle OBE Vehicle OBE Special vehicle type alert Information Vehicle OBE Vehicle OBE Vehicle OBE Vehicle OBE Information Information Vehicle OBE	Applicability Australia, European Union
information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information flow. information flow. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information flow. information flow. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information flow. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using CAM or DENM. information can be transmitted using C	
Source Destination Flow Name Commercial Vehicle OBE special vehicle type alert special vehicle type alert Emergency Vehicle OBE Vehicle OBE special vehicle type alert Maint and Constr Vehicle OBE Vehicle OBE special vehicle type alert Other Vehicle OBE Vehicle OBE vehicle OBE vehicle control event Transit Vehicle OBE Vehicle OBE vehicle CoBE special vehicle type alert Vehicle OBE Vehicle OBE vehicle CoBE special vehicle type alert Vehicle OBE Vehicle OBE special vehicle type alert special vehicle type alert Vehicle OBE Vehicle OBE special vehicle type alert special vehicle type alert Vehicle OBE Vehicle OBE special vehicle type alert special vehicle type alert Vehicle OBE Vehicle OBE special vehicle type alert special vehicle type alert Vehicle OBE Vehicle OBE vehicle control event vehicle control event Vehicle OBE Vehicle OBE vehicle control event vehicle control event Vehicle OBE Vehicle OBE vehicle control event vehicle control event Vehicle OBE	
Commercial Vehicle OBE Vehicle OBE special vehicle type alert Emergency Vehicle OBE Vehicle OBE special vehicle type alert Maint and Constr Vehicle OBE Vehicle OBE vehicle OBE Other Vehicle OBE Vehicle OBE vehicle OBE Transit Vehicle OBE Vehicle OBE vehicle OBE Vehicle OBE Vehicle OBE vehicle OBE Vehicle OBE Vehicle OBE vehicle OBE Vehicle OBE Vehicle OBE vehicle COBE Vehicle OBE Other Vehicle OBEs vehicle control event Vehicle OBE Other Vehicle OBEs vehicle control event SEXE Sexe Ort Other Vehicle OBEs vehicle control event Sex Case not on sign deristion findow, the design deristing not meet performance or other is particular use case Proposed Resolution Resolution Description Timeframe Vehicle alerts. Vehicle alerts. Develop an internationally acceptable ITS application specification for sending special vehicle alerts. Vehicle alerts. Vehicle alerts.	
Image on the Vehicle OBE Vehicle OBE special vehicle type alert Maint and Constr Vehicle OBE Vehicle OBE special vehicle type alert Other Vehicle OBE Vehicle OBE vehicle OBE Transit Vehicle OBE Vehicle OBE special vehicle type alert Vehicle OBE Vehicle OBE vehicle control event Vehicle OBE Other Vehicle OBEs vehicle control event Vehicle OBE Other Vehicle OBEs vehicle control event Vehicle OBE Other Vehicle OBEs vehicle control event	
Maint and Constr Velice OBE Velice OBE special vehicle type alert Other Vehice OBE Velice OBE vehice oBE Transit Vehicle OBE Velice OBE special vehicle type alert Vehice OBE Vehice OBE vehice control event Vehice OBE Vehice OBE vehice control event Vehice OBE Vehice OBE vehice control event Vehice OBE vehice control event vehice control event Vehice OBE vehice control event vehice control event Vehice OBE vehice control event vehice control event Vehice OBE Vehice OBE vehice control event vehice Control event vehice control event vehice control event vehice OBE Vehice OBE vehice control event vehice control event vehice OBE Vehice OBE vehice control event vehice control event vehice Second control event Vehice OBE vehice control event vehice control event vehice Second control event Vehice OBE vehice control event vehice control event vehice Second control event Vehice OBE vehice control event vehice control event <t< td=""><td></td></t<>	
Other Vehicle OBEs Vehicle OBE vehicle control event Transit Vehicle OBE special vehicle type alert Vehicle OBE vehicle control event Ssue Issue Description Issue Severity Proposed Resolution Resolution Description Timeframe Social ered in design details may not meet performance or other requirements because this particular use case V-L: Special vehicle alert Develop an internationally acceptable ITS application specification for sending special Urgent	
Transit Vehicle OBE Vehice OBE special vehicle type alert Vehicle OBE Connected Vehicle Roadside Equipment vehicle control event Vehice OBE Other Vehice OBEs vehicle control event ssue Issue Description Issue Severity Proposed Resolution Resolution Description ssue case not orsidered in design critical) While the indicated standards nominally address the information flow, the design details may not meet performance or other requirements because this particular use case Vehicle alert Develop an internationally acceptable ITS application specification for sending special Urgent	
Vehicle OBE Vehicle control event vehicle control event Vehicle OBE Other Vehicle OBEs vehicle control event ssue Issue Description Issue Severity Proposed Resolution Resolution Description Timeframe se case not onsidered in design critical) While the indicated standards nominally address the information flow, the design details may not meet performance or other requirements because this particular use case V-L: Special vehicle alert Proposed Resolution Develop an internationally acceptable ITS application specification for sending special vehicle alerts. Urgent	
Vehicle OBE vehicle control event ssue Issue Description Issue Severity Proposed Resolution Resolution Description Timeframe Vse case not onsidered in design critical) While the indicated standards nominally address the information flow, the design details may not meet performance or other requirements because this particular use case V-L: Special vehicle alert Develop an internationally acceptable ITS application specification for sending special vehicle alerts. Urgent	
ssueIssue DescriptionIssue SeverityProposed ResolutionResolution DescriptionTimeframeUse case not considered in design critical)While the indicated standards nominally address the information flow, the design details may not meet performance or other requirements because this particular use caseWile highV-L: Special vehicle alertDevelop an internationally acceptable ITS application specification for sending special vehicle alerts.Urgent	
Jse case not considered in design details may not meet performance or other requirements because this particular use case $details may not meet performance or other requirements because this particular use case details may not meet performance or other requirements because this particular use case details may not meet performance or other matrix and the performance or other matrix and $	Applicability
	Australia, European Union, United State
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Source Destination Flow Name	
Commercial Vehicle OBE Vehicle OBE special vehicle type alert	
Emergency Vehicle OBE Vehicle OBE special vehicle type alert	
Maint and Constr Vehicle OBE Vehicle OBE Special vehicle type alert	
Transit Vehicle OBE Vehicle OBE special vehicle type alert	

ution Name:	EU: DEN Service - BTP/GeoNetworking/	05		Number of Issues: 8 T	otal Issue Severity	: 32
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
otocol features rtly not applicable the given context	A feature of the protocol is not fully applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Low	V-L: GeoNetworking	Determine how to implement GeoNetworking without unduly flooding the network and, if feasible, prove out concept.	Urgent	Australia, European Union, United States
				y this Issue that would be addressed by the Proposed Resolution		
Source Commercial Vehicle O	RF		stination eet and Freight Management Center	Flow Name vehicle environmental data		
Commercial Vehicle O			hicle OBE	special vehicle type alert		
Connected Vehicle Roa			hicle OBE	intersection safety warning		
Connected Vehicle Roa			hicle OBE	queue warning information		
			hicle OBE			
Connected Vehicle Roa Connected Vehicle Roa			hicle OBE	vehicle collision warning wrong way vehicle detected		
			hicle OBE			
Emergency Vehicle OB Maint and Constr Vehi				special vehicle type alert		
	CIE OBE		hicle OBE	special vehicle type alert		
Other Vehicle OBEs			hicle OBE	intersection infringement info		
Other Vehicle OBEs			hicle OBE	vehicle collision warning		
Other Vehicle OBEs			hicle OBE	vehicle control event		
Other Vehicle OBEs			hicle OBE	vehicle environmental data		
Other Vehicle OBEs			hicle OBE	vehicle hazard event		
Other Vehicle OBEs			hicle OBE	wrong way vehicle detected		
Transit Vehicle OBE			hicle OBE	special vehicle type alert		
Vehicle OBE			nnected Vehicle Roadside Equipment	intersection infringement info		
Vehicle OBE			nnected Vehicle Roadside Equipment	vehicle control event		
Vehicle OBE			nnected Vehicle Roadside Equipment	wrong way vehicle detected		
Vehicle OBE		Ot	her Vehicle OBEs	intersection infringement info		
Vehicle OBE		Ot	her Vehicle OBEs	vehicle collision warning		
Vehicle OBE		Ot	her Vehicle OBEs	vehicle control event		
Vehicle OBE		Ot	her Vehicle OBEs	vehicle hazard event		
Vehicle OBE		Ot	her Vehicle OBEs	wrong way vehicle detected		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
rformance not ly defined edium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Environmental data sharing	Develop an internationally acceptable ITS application specification for sharing environmental data from vehicles to other local entities. The effort should consider efforts to date under both J2735 and DENM.	Urgent	Australia, European Union, United States
				y this Issue that would be addressed by the Proposed Resolution		
Source Other Vehicle OBEs			stination hicle OBE	Flow Name vehicle environmental data		
Other vehicle OBES		Ve		venicie environmental data		

ution Name:	EU: DEN Service - BTP/GeoNetworking/G	G5		Number of Issues: 8	otal Issue Severit	y: 32
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
formance not y defined edium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Special vehicle alert	Develop an internationally acceptable ITS application specification for sending special vehicle alerts.	Urgent	Australia, European Union, United States
Source			Triples using this solution and affected by stination	this Issue that would be addressed by the Proposed Resolution Flow Name		
Commercial Vehicle C	DBE	Ve	hicle OBE	special vehicle type alert		
Maint and Constr Veh	icle OBE	Ve	hicle OBE	special vehicle type alert		
Transit Vehicle OBE		Ve	hicle OBE	special vehicle type alert		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
rformance not ly defined edium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Intersection infringement	Develop an internationally acceptable ITS application specification that defines the rules for providing intersection infringment information within a local environment.	Urgent	United States
Source			- Triples using this solution and affected by stination	- v this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	adside Equipment		hicle OBE	intersection safety warning		
Other Vehicle OBEs		Ve	hicle OBE	intersection infringement info		
Vehicle OBE		Со	nnected Vehicle Roadside Equipment	intersection infringement info		
Vehicle OBE		Ot	her Vehicle OBEs	intersection infringement info		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
e case not nsidered in design edium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: DENM	Develop an internationally acceptable ITS application specification for DENM for each use case where it applies and when the DENM should include optional fields for each condition.	Urgent	Australia, European Union
Source				r this Issue that would be addressed by the Proposed Resolution Flow Name		
Source Connected Vehicle Ro	padside Equipment		stination hicle OBE	wrong way vehicle detected		
Other Vehicle OBEs			hicle OBE	vehicle collision warning		
Other Vehicle OBEs		Ve	hicle OBE	vehicle control event		
Other Vehicle OBEs		Ve	hicle OBE	vehicle hazard event		
Other Vehicle OBEs		Ve	hicle OBE	wrong way vehicle detected		
Vehicle OBE		Со	nnected Vehicle Roadside Equipment	vehicle control event		
Vehicle OBE		Со	nnected Vehicle Roadside Equipment	wrong way vehicle detected		
Vehicle OBE		Ot	her Vehicle OBEs	vehicle collision warning		
Vehicle OBE		Ot	her Vehicle OBEs	vehicle control event		
Vehicle OBE		Ot	her Vehicle OBEs	vehicle hazard event		
Veniele OBE			her Vehicle OBEs	wrong way vehicle detected		

Solution Name:	EU: DEN Service - BTP/GeoNetworking/	35			Number of Issues: 8	Total Issue Severity:	32
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Vehicle collision warning	Standardise the complete ITS application specificati vehicles are about to collide.	on for exchanging alerts locally that	Urgent	European Union
Source	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed R Source Destination				ne		
Connected Vehicle Ro	adside Equipment	Vehicle OBE		vehicle c	ollision warning		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Environmental data sharing	Develop an internationally acceptable ITS application specification for sharing environmental data from vehicles to other local entities. The effort should consider efforts to date under both J2735 and DENM.	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Source Destination						
Other Vehicle OBEs			hicle OBE	vehicle environmental data		

ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Intersection infringement	Develop an internationally acceptable ITS application specification that defines the rules for providing intersection infringment information within a local environment.	Urgent	United States
		Information 7	riples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	intersection safety warning		
Other Vehicle OBEs		Ve	hicle OBE	intersection infringement info		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	intersection infringement info		
Vehicle OBE		Otl	ner Vehicle OBEs	intersection infringement info		

This solution is used within the European Union. It combines standards associated with EU: DEN Service with those for I-F: EU-ICIP-C2F. The EU: DEN Service standards include upper-layer standards environmental notification information flows. The I-F: EU-ICIP-C2F standards include lower-layer placeholder for a European solution currently under development. It is planned that the EU-ICIP will standards should be used in various environments, but it is not expected to directly specify these layers.

s required to implement V2x decentralized	ł
Il provide guidance as to what lower-layer	

olution Name:	EU: DEN Service - EU-ICIP-C2F			Number of Issues: 2	Fotal Issue Severity	: 16		
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability		
ecurity not rovided	The solution does not provide any significant security and a communications link using this solution is easily hacked.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States		
Source			Friples using this solution and affected b tination	by this Issue that would be addressed by the Proposed Resolution Flow Name				
Connected Vehicle R	oadside Equipment		Roadway Equipment	intersection infringement info				
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability		
raft not available Critical)	The standards development organization has established a work item for the subject standard but a draft is not available for this critical feature to enable the interface. The draft may be missing due to the work item being new or simply a lack of activity on the work item.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States		
Source			Friples using this solution and affected l	by this Issue that would be addressed by the Proposed Resolution Flow Name				
Connected Vehicle R	oadside Equipment		Roadway Equipment	intersection infringement info				
olution Name:	EU: DEN Service - FNTP/M5			Number of Issues: 6	Fotal Issue Severity	: 28		
This solution is used within the E.U., and Australia. It combines standards associated with EU: DEN Service with those for V-X: FNTP/M5. The EU: DEN Service standards include upper-layer standards required to implement V2x decentralized environmental notification information flows. The V-X: FNTP/M5 standards include lower-layer standards that support connectionless, broadcast and unicast, near constant, ultra-low latency vehicle-to-any communications within ~300m using Fast Network Transport Profile (FNTP) over the 5 GHz spectrum as allocated within a region. The broadcast mode is interoperable with WAVE WSMP. The M5 radio of this profile can receive ITS G5 frames.								
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability		
rformance not fined (high)	The performance rules are not defined for this information flow.	High	V-L: CAM and DENM	Standardise on a single solution for providing vehicle event information; currently this information can be transmitted using CAM or DENM.	Urgent	Australia, European Union		
			- Friples using this solution and affected l tination	by this Issue that would be addressed by the Proposed Resolution Flow Name				
Source								
Commercial Vehicle	OBE	Fle	et and Freight Management Center	vehicle environmental data				

		5
	Information Triples using this solution and affected by	this Issue that would be addressed by the Proposed Resolution
Source	Destination	Flow Name
Commercial Vehicle OBE	Fleet and Freight Management Center	vehicle environmental data
Other Vehicle OBEs	Vehicle OBE	vehicle environmental data

ution Name:	EU: DEN Service - FNTP/M5				Number of Issues:
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
ncertainty about rust revocation nechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust r revoking the privileges of a certificate author recognized within a region) and of an ITS st misbehave).	ority (e.g., if an authority is no lo
Source				by this Issue that would be addressed by the Proposed Re	
Source Commercial Vehicle	OBE		stination eet and Freight Management Center		Flow Name vehicle environmental data
Commercial Vehicle	OBE	Ve	hicle OBE		special vehicle type alert
Connected Vehicle R	oadside Equipment	Ve	hicle OBE		intersection safety warning
Connected Vehicle R	oadside Equipment	Ve	hicle OBE		queue warning information
Connected Vehicle R	oadside Equipment	Ve	hicle OBE		vehicle collision warning
Connected Vehicle R	oadside Equipment	Ve	hicle OBE		wrong way vehicle detected
Emergency Vehicle C	DBE	Ve	hicle OBE		special vehicle type alert
Maint and Constr Ve	hicle OBE	Ve	hicle OBE		special vehicle type alert
Other Vehicle OBEs		Ve	hicle OBE		intersection infringement info
Other Vehicle OBEs		Ve	hicle OBE		vehicle collision warning
Other Vehicle OBEs		Ve	hicle OBE		vehicle control event
Other Vehicle OBEs		Ve	hicle OBE		vehicle environmental data
Other Vehicle OBEs		Ve	hicle OBE		vehicle hazard event
Other Vehicle OBEs		Ve	hicle OBE		wrong way vehicle detected
Transit Vehicle OBE		Ve	hicle OBE		special vehicle type alert
Vehicle OBE		Со	nnected Vehicle Roadside Equipment		intersection infringement info
Vehicle OBE		Со	nnected Vehicle Roadside Equipment		vehicle control event
Vehicle OBE		Со	nnected Vehicle Roadside Equipment		wrong way vehicle detected
Vehicle OBE		Ot	her Vehicle OBEs		intersection infringement info
Vehicle OBE		Ot	her Vehicle OBEs		vehicle collision warning
Vehicle OBE		Ot	her Vehicle OBEs		vehicle control event
Vehicle OBE		Ot	her Vehicle OBEs		vehicle hazard event
Vehicle OBE		Ot	her Vehicle OBEs		wrong way vehicle detected

6	Total Issue Severity:	28]
	Timeframe	Applicability	
evels, including longer on starts to	Urgent	Australia, Eur Union, United	opean d States

Sol	ution Name:	EU: DEN Service - FNTP/M5				Number of Issues:
lss	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
0	verlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and DENM	Standardise on a single solution for providir information can be transmitted using CAM	-
	Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Re	solution Flow Name
	Commercial Vehicle O	BE		hicle OBE		special vehicle type alert
	Emergency Vehicle OB	E	Ve	hicle OBE		special vehicle type alert
	Maint and Constr Vehi	cle OBE	Ve	hicle OBE		special vehicle type alert
	Other Vehicle OBEs	Other Vehicle OBEs		hicle OBE		vehicle control event
	Transit Vehicle OBE Vehicle OBE		Ve	hicle OBE		special vehicle type alert
			Co	nnected Vehicle Roadside Equipment		vehicle control event
	Vehicle OBE		Ot	her Vehicle OBEs		vehicle control event

6	Total Issue Severity:	28	
	Timeframe	Applicability	
currently this	Urgent	Australia, Eur Union	opean

Solution Name: EU: DEN Service - FNTP/M5 Number of Issues:							
ls	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		
0	verlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providi Australia; currently BTP/GeoNetworking/G are not interoperable at the Subnet or Trar	5 and FNTP/M5 are competing sc	
	Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed R	esolution Flow Name	
	Commercial Vehicle O	BE		eet and Freight Management Center		vehicle environmental data	
	Commercial Vehicle O	BE	Ve	hicle OBE		special vehicle type alert	
	Connected Vehicle Roa	adside Equipment	Ve	hicle OBE		intersection safety warning	
	Connected Vehicle Roa	adside Equipment	Ve	hicle OBE		queue warning information	
	Connected Vehicle Roa	adside Equipment	Ve	hicle OBE		vehicle collision warning	
	Connected Vehicle Roa	adside Equipment	Ve	hicle OBE		wrong way vehicle detected	
	Emergency Vehicle OB	E	Ve	hicle OBE		special vehicle type alert	
	Maint and Constr Vehi	icle OBE	Ve	hicle OBE		special vehicle type alert	
	Other Vehicle OBEs		Ve	hicle OBE		intersection infringement info	
	Other Vehicle OBEs		Ve	hicle OBE		vehicle collision warning	
	Other Vehicle OBEs		Ve	hicle OBE		vehicle control event	
	Other Vehicle OBEs		Ve	hicle OBE		vehicle environmental data	
	Other Vehicle OBEs		Ve	hicle OBE		vehicle hazard event	
	Other Vehicle OBEs		Ve	hicle OBE		wrong way vehicle detected	
	Transit Vehicle OBE		Ve	hicle OBE		special vehicle type alert	
	Vehicle OBE		Co	nnected Vehicle Roadside Equipment		intersection infringement info	
	Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle control event	
	Vehicle OBE		Co	nnected Vehicle Roadside Equipment		wrong way vehicle detected	
	Vehicle OBE		Ot	her Vehicle OBEs		intersection infringement info	
	Vehicle OBE		Ot	her Vehicle OBEs		vehicle collision warning	
	Vehicle OBE		Ot	her Vehicle OBEs		vehicle control event	
	Vehicle OBE		Ot	her Vehicle OBEs		vehicle hazard event	
	Vehicle OBE		Ot	her Vehicle OBEs		wrong way vehicle detected	

6	Total Issue Sever	i ty: 28]
	Timeframe	Applicability	
in Europe and solutions that	Urgent	Australia, Eur Union	opean
	<u>,</u>		

olution Name:	EU: DEN Service - FNTP/M5			Number of Issues: 6	Total Issue Severit	
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
se case not onsidered in design ritical)	While the indicated standards nominally address the information flow, the design details may not meet performance or other requirements because this particular use case was not the focus of the design effort.	High	V-L: Special vehicle alert	Develop an internationally acceptable ITS application specification for sending special vehicle alerts.	Urgent	Australia, European Union, United State
Source			Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Commercial Vehicle C	BE		hicle OBE	special vehicle type alert		
Emergency Vehicle OI	3E	Ve	hicle OBE	special vehicle type alert		
Maint and Constr Veh	icle OBE	Ve	hicle OBE	special vehicle type alert		
Transit Vehicle OBE		Ve	hicle OBE	special vehicle type alert		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erformance not lly defined nedium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Environmental data sharing	Develop an internationally acceptable ITS application specification for sharing environmental data from vehicles to other local entities. The effort should consider efforts to date under both J2735 and DENM.	Urgent	Australia, European Union, United State
Courses				by this Issue that would be addressed by the Proposed Resolution		
Source Other Vehicle OBEs		Des	stination	Flow Name		
Source Other Vehicle OBEs		Des				
		Des	stination	Flow Name		
	Issue Description	Des	stination	Flow Name	Timeframe	Applicability
Other Vehicle OBEs	Issue Description The performance rules are not fully defined for this information flow.	De: Ve	stination hicle OBE	Flow Name vehicle environmental data	Timeframe Urgent	Applicability Australia, European Union, United State
Other Vehicle OBEs sue informance not lly defined hedium)	The performance rules are not fully defined	Des Ve Issue Severity Medium	stination hicle OBE Proposed Resolution V-L: Special vehicle alert Triples using this solution and affected b	Flow Name vehicle environmental data Resolution Description Develop an internationally acceptable ITS application specification for sending special vehicle alerts. ov this Issue that would be addressed by the Proposed Resolution		Australia, European
Other Vehicle OBEs ue rformance not ly defined	The performance rules are not fully defined for this information flow.	Des Ve Issue Severity Medium Information Des	hicle OBE Proposed Resolution V-L: Special vehicle alert	Flow Name vehicle environmental data Resolution Description Develop an internationally acceptable ITS application specification for sending special vehicle alerts.		Australia, European
Other Vehicle OBEs sue rformance not lly defined hedium) Source	The performance rules are not fully defined for this information flow.	Des Ve Issue Severity Medium Information Des Ve	stination hicle OBE Proposed Resolution V-L: Special vehicle alert Triples using this solution and affected b stination	Flow Name vehicle environmental data Resolution Description Develop an internationally acceptable ITS application specification for sending special vehicle alerts. ov this Issue that would be addressed by the Proposed Resolution Flow Name		Australia, European
Other Vehicle OBEs sue erformance not lly defined nedium) Source Commercial Vehicle C	The performance rules are not fully defined for this information flow.	Des Ve Issue Severity Medium Information Des Ve	stination hicle OBE Proposed Resolution V-L: Special vehicle alert Triples using this solution and affected b stination hicle OBE	Flow Name vehicle environmental data Resolution Description Develop an internationally acceptable ITS application specification for sending special vehicle alerts. ov this Issue that would be addressed by the Proposed Resolution Flow Name Special vehicle type alert		Australia, European
Other Vehicle OBEs sue rformance not lly defined nedium) Source Commercial Vehicle OBE Transit Vehicle OBE	The performance rules are not fully defined for this information flow.	Des Ve Issue Severity Medium Information Des Ve	stination hicle OBE Proposed Resolution V-L: Special vehicle alert Triples using this solution and affected b stination hicle OBE hicle OBE	Flow Name vehicle environmental data Resolution Description Develop an internationally acceptable ITS application specification for sending special vehicle alerts. by this Issue that would be addressed by the Proposed Resolution Flow Name special vehicle type alert special vehicle type alert		Australia, European
Other Vehicle OBEs sue erformance not lly defined nedium) Source Commercial Vehicle C Maint and Constr Veh	The performance rules are not fully defined for this information flow.	Des Ve Issue Severity Medium Information Des Ve Ve Ve	stination hicle OBE Proposed Resolution V-L: Special vehicle alert Triples using this solution and affected b stination hicle OBE hicle OBE	Flow Name vehicle environmental data Resolution Description Develop an internationally acceptable ITS application specification for sending special vehicle alerts. Dy this Issue that would be addressed by the Proposed Resolution Flow Name Special vehicle type alert special vehicle type alert special vehicle type alert special vehicle type alert	Timeframe	Australia, European Union, United State
Other Vehicle OBEs Sue rformance not ly defined redium) Source Commercial Vehicle C Maint and Constr Veh Transit Vehicle OBE sue rformance not ly defined redium)	The performance rules are not fully defined for this information flow.	Des Ve Issue Severity Medium Unformation Ve Ve Ve Issue Severity Medium	stination hicle OBE Proposed Resolution V-L: Special vehicle alert Triples using this solution and affected b stination hicle OBE hicle OBE hicle OBE Triposed Resolution V-L: Intersection infringement Triples using this solution and affected b	Flow Name vehicle environmental data Resolution Description Develop an internationally acceptable ITS application specification for sending special vehicle alerts. op this Issue that would be addressed by the Proposed Resolution Flow Name special vehicle type alert special vehicle type alert special vehicle type alert special vehicle type alert provelop an internationally acceptable ITS application specification that defines the rules for providing intersection infringment information within a local environment.	Timeframe	Australia, European Union, United State
Other Vehicle OBEs ue rformance not ly defined edium) Source Commercial Vehicle OBE ue rformance not ly defined edium) Source Source	The performance rules are not fully defined for this information flow. BE icle OBE Issue Description The performance rules are not fully defined for this information flow.	Des Ve Issue Severity Medium Unformation Des Ve Ve Ve Ve Ussue Severity Medium	stination hicle OBE Proposed Resolution V-L: Special vehicle alert Triples using this solution and affected b stination hicle OBE hicle OBE Proposed Resolution V-L: Intersection infringement Triples using this solution and affected b stination	Flow Name vehicle environmental data Resolution Description Develop an internationally acceptable ITS application specification for sending special vehicle alerts. ov this Issue that would be addressed by the Proposed Resolution Flow Name special vehicle type alert special vehicle type alert <	Timeframe	Australia, European Union, United State
Other Vehicle OBEs ue rformance not ly defined edium) Source Commercial Vehicle OBE ue rformance not ly defined edium) Source Connected Vehicle Ro	The performance rules are not fully defined for this information flow. BE icle OBE Issue Description The performance rules are not fully defined for this information flow.	Ve Ve Issue Severity Medium Information Ve Ve Ve Ve Ve Ve Ve Ve Ve Ve	stination hicle OBE Proposed Resolution V-L: Special vehicle alert Triples using this solution and affected b stination hicle OBE hicle OBE Proposed Resolution V-L: Intersection infringement Triples using this solution and affected b stination hicle OBE	Flow Name vehicle environmental data Resolution Description Develop an internationally acceptable ITS application specification for sending special vehicle alerts. or this Issue that would be addressed by the Proposed Resolution Flow Name special vehicle type alert special vehicle type alert <	Timeframe	Australia, European Union, United State
Other Vehicle OBEs sue erformance not lly defined hedium) Source Commercial Vehicle OBE sue erformance not lly defined hedium) Source	The performance rules are not fully defined for this information flow. BE icle OBE Issue Description The performance rules are not fully defined for this information flow.	Des Ve Issue Severity Medium Information Ve Ve Issue Severity Medium Ve Ve	stination hicle OBE Proposed Resolution V-L: Special vehicle alert Triples using this solution and affected b stination hicle OBE hicle OBE Proposed Resolution V-L: Intersection infringement Triples using this solution and affected b stination	Flow Name vehicle environmental data Resolution Description Develop an internationally acceptable ITS application specification for sending special vehicle alerts. ov this Issue that would be addressed by the Proposed Resolution Flow Name special vehicle type alert special vehicle type alert <	Timeframe	Australia, European Union, United State

Solution Name:	EU: DEN Service - FNTP/M5				Number of Issues:
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Intersection infringement	Develop an internationally acceptable ITS for providing intersection infringment info	
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed R	Resolution Flow Name
Connected Vehicle Roa	adside Equipment		hicle OBE		intersection safety warning
Other Vehicle OBEs		Ve	hicle OBE		intersection infringement info
Vehicle OBE		Со	nnected Vehicle Roadside Equipment		intersection infringement info
Vehicle OBE		Ot	her Vehicle OBEs		intersection infringement info
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: DENM	Develop an internationally acceptable ITS case where it applies and when the DENM condition.	
Course				\prime this Issue that would be addressed by the Proposed R	
Source Connected Vehicle Roa	adside Equipment		stination hicle OBE		Flow Name wrong way vehicle detected
Other Vehicle OBEs		Ve	hicle OBE		vehicle collision warning
Other Vehicle OBEs		Ve	hicle OBE		vehicle control event
Other Vehicle OBEs		Ve	hicle OBE		vehicle hazard event
Other Vehicle OBEs		Ve	hicle OBE		wrong way vehicle detected
Vehicle OBE		Со	nnected Vehicle Roadside Equipment		vehicle control event
Vehicle OBE		Co	nnected Vehicle Roadside Equipment		wrong way vehicle detected
Vehicle OBE		Ot	her Vehicle OBEs		vehicle collision warning
Vehicle OBE		Ot	her Vehicle OBEs		vehicle control event
Vehicle OBE		Ot	her Vehicle OBEs		vehicle hazard event
Vehicle OBE		Ot	her Vehicle OBEs		wrong way vehicle detected
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Environmental data sharing	Develop an internationally acceptable ITS environmental data from vehicles to other efforts to date under both J2735 and DENI	local entities. The effort should
Source			Triples using this solution and affected by stination	/ this Issue that would be addressed by the Proposed R	Resolution Flow Name
Other Vehicle OBEs		Ve	hicle OBE		vehicle environmental data

6 1	Total Issue Severity:	28	
	Timeframe	Applicability	
fines the rules ent.	Urgent	United States	
	Timeframe	Applicability	
IM for each use or each	Urgent	Australia, Eur Union	opean
	Timeframe	Applicability	
ring I consider	Urgent	Australia, Eur Union, United	

Solution Name:	EU: DEN Service - FNTP/M5				Number of Issues:	6	Total Issue Severity:	28
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Vehicle collision warning	Standardise the complete ITS application specification vehicles are about to collide.	n for exchanging alerts I	ocally that	Urgent	European Union
		Information T	riples using this solution and affected by	this Issue that would be addressed by the Proposed Resolution				
Source		Des	tination	Flow Name	2			
Connected Vehicle Ro	adside Equipment	Vel	nicle OBE	vehicle col	llision warning			

sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
curity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, Europea Union
Source			Friples using this solution and affected t stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	padside Equipment		hicle OBE	lane closure information		
Connected Vehicle Ro	padside Equipment	Ve	hicle OBE	queue warning information		
Connected Vehicle Ro	padside Equipment	Ve	hicle OBE	reduced speed notification		
Connected Vehicle Ro	padside Equipment	Ve	hicle OBE	road closure information		
Connected Vehicle Ro	padside Equipment	Ve	hicle OBE	road weather advisories		
Connected Vehicle Ro	padside Equipment	Ve	hicle OBE	vehicle signage data		
Connected Vehicle Ro	padside Equipment	Ve	hicle OBE	work zone information		
Emergency Vehicle Of	BE	Ve	hicle OBE	vehicle signage data		
Maint and Constr Veh	icle OBE	Ve	hicle OBE	vehicle signage data		
Maint and Constr Veh	icle OBE	Ve	hicle OBE	work zone information		
Other Vehicle OBEs		Ve	hicle OBE	vehicle environmental data		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	vehicle environmental data		
Vehicle OBE		Otl	her Vehicle OBEs	vehicle environmental data		

olution Name:	EU: DEN Service - Local Broadcast Wire	ess (AU/EU)		Number of Issues: 6	Total Issue Severi	ty: 23
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erformance not efined (high)	The performance rules are not defined for this information flow.	High	V-L: CAM and DENM	Standardise on a single solution for providing vehicle event information; currently this information can be transmitted using CAM or DENM.	Urgent	Australia, European Union
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Other Vehicle OBEs			hicle OBE	vehicle environmental data		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	vehicle environmental data		
Vehicle OBE		Ot	her Vehicle OBEs	vehicle environmental data		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ncertainty about rust revocation nechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United State
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle R	oadside Equipment		hicle OBE	lane closure information		
Connected Vehicle R	oadside Equipment	Ve	hicle OBE	queue warning information		
Connected Vehicle R	oadside Equipment	Ve	hicle OBE	reduced speed notification		
Connected Vehicle R	oadside Equipment	Ve	hicle OBE	road closure information		
Connected Vehicle R	oadside Equipment	Ve	hicle OBE	road weather advisories		
Connected Vehicle R	oadside Equipment	Ve	hicle OBE	vehicle signage data		
Connected Vehicle R	oadside Equipment	Ve	hicle OBE	work zone information		
Emergency Vehicle C	BE	Ve	hicle OBE	vehicle signage data		
Maint and Constr Ve	hicle OBE	Ve	hicle OBE	vehicle signage data		
Maint and Constr Ve	hicle OBE	Ve	hicle OBE	work zone information		
Other Vehicle OBEs		Ve	hicle OBE	vehicle environmental data		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	vehicle environmental data		
Vehicle OBE		Ot	her Vehicle OBEs	vehicle environmental data		

Issue Issue Description Issue Severity Proposed Resolution Resolution Resolution Overlap of standards Multiples standards have been developed to address this information and its unclear which standards should be used to address this specific information for. Viii: DEM, NJ, TPEG2, TMG, Information and its unclear which standards should be used to address this specific information for. Multiple standards the standards have been developed to address this depend information and its unclear which standards should be used to address this specific information Viii: DEM, NJ, TPEG2, TMG, or Contextual Speci Information for providing traveler information only. Up to consider the various entrimometic (e.g., CERT, Vihice, Rest). Secand Information information and its unclear which standards found be used to address this signific Result & Spaper and standards and Description Secandards the standards have their world be address the standards found be used to address this standards found be used to address this information and its unclear which standards found be used to address this information and its unclear which standards found be used to address this information and its unclear which standards found be used to address this information and its unclear which standards found be used to address this information and its unclear which standards found be used to address this information and its unclear which standards found be used to address this information and its unclear which standards found be used to address this information and its unclear which standards found be used to address this information and its unclear which standards found be used to address this information and its unclear which standards found be used to address this information	Solution Name:	EU: DEN Service - Local Broadcast Wirele	ss (AU/EU)			Number of Issues:		
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address this information and it is unclear which standard should be used to address this is specific information flow. and FNTP/M5 Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing s are not interoperable at the Subnet or Transnet layers. Source Information flow. Information and affected by this issue that would be addressed by the Proposed Resolution Destination Connected Vehicle Roadside Equipment Vehicle OBE Ine closure information Connected Vehicle Roadside Equipment Vehicle OBE reduced speed notification Connected Vehicle Roadside Equipment Vehicle OBE reduced speed notification Connected Vehicle Roadside Equipment Vehicle OBE reduced speed notification Connected Vehicle Roadside Equipment Vehicle OBE road weather advisories Connected Vehicle Roadside Equipment Vehicle OBE road weather advisories Connected Vehicle Roadside Equipment Vehicle OBE work zone information Connected Vehicle Roadside Equipment Vehicle OBE work zone information Connected Vehicle Roadside Equipment Vehicle OBE work zone information Connected Vehicle Roadside Equipment Vehicle OBE work zone information Mint and Constr Vehicle OBE Vehicle OBE work zone information Mint a	Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			
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Connected Vehicle Roadside Equipment Vehicle OBE queue warning information Connected Vehicle Roadside Equipment Vehicle OBE reduced speed notification Connected Vehicle Roadside Equipment Vehicle OBE road closure information Connected Vehicle Roadside Equipment Vehicle OBE road weather advisories Connected Vehicle Roadside Equipment Vehicle OBE work zone information Connected Vehicle Roadside Equipment Vehicle OBE work zone information Connected Vehicle Roadside Equipment Vehicle OBE work zone information Connected Vehicle Roadside Equipment Vehicle OBE work zone information Maint and Constr Vehicle OBE Vehicle OBE work zone information Maint and Constr Vehicle OBEs Vehicle OBE work zone information Other Vehicle OBEs Vehicle OBE vehicle Roadside Equipment work zone information Vehicle OBE Vehicle OBE vehicle OBE work zone information	Source				y this Issue that would be addressed by the Proposed Re			
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Connected Vehicle Roadside Equipment Vehicle OBE vehicle GBE Connected Vehicle Roadside Equipment Vehicle OBE vehicle OBE Emergency Vehicle OBE Vehicle OBE vehicle OBE Maint and Constr Vehicle OBE Vehicle OBE vehicle OBE Other Vehicle OBEs Vehicle OBE vehicle OBE Vehicle OBE Vehicle Roadside Equipment vehicle Roadside Equipment Vehicle OBEs Vehicle OBE vehicle Roadside Equipment Vehicle OBE Vehicle Roadside Equipment vehicle Roadside Equipment	Connected Vehicle R	oadside Equipment	Ve	hicle OBE	road closure information			
Connected Vehicle Roadside Equipment Vehicle OBE work zone information Emergency Vehicle OBE Vehicle OBE vehicle OBE Maint and Constr Vehicle OBE Vehicle OBE vehicle OBE Other Vehicle OBEs Vehicle OBE work zone information Vehicle OBE Vehicle OBE work zone information Vehicle OBEs Vehicle OBE work zone information Vehicle OBE Connected Vehicle Roadside Equipment vehicle environmental data	Connected Vehicle R	oadside Equipment	Ve	hicle OBE	road weather advisories			
Emergency Vehicle OBEVehicle OBEvehicle signage dataMaint and Constr Vehicle OBEVehicle OBEvehicle oBEOther Vehicle OBEsVehicle OBEvehicle oBEVehicle OBEConnected Vehicle Roadside Equipmentvehicle environmental data	Connected Vehicle R	oadside Equipment	Ve	hicle OBE		vehicle signage data		
Maint and Constr Vehicle OBE Vehicle OBE vehicle signage data Maint and Constr Vehicle OBE Vehicle OBE work zone information Other Vehicle OBEs Vehicle OBE vehicle environmental data Vehicle OBE Connected Vehicle Roadside Equipment vehicle environmental data	Connected Vehicle R	oadside Equipment	Ve	hicle OBE		work zone information		
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Vehicle OBE Connected Vehicle Roadside Equipment vehicle environmental data	Maint and Constr Ve	hicle OBE	Ve	hicle OBE		work zone information		
	Other Vehicle OBEs		Ve	hicle OBE		vehicle environmental data		
Vehicle OBE Other Vehicle OBEs vehicle environmental data	Vehicle OBE		Co	nnected Vehicle Roadside Equipment		vehicle environmental data		
	Vehicle OBE		Ot	her Vehicle OBEs		vehicle environmental data		

6	Total Issue Severity:	23	
	Timeframe	Applicability	
osure t via DENM, IVI, Jse cases need cle, Special	Urgent	Australia, Eur Union	opean
	Timeframe	Applicability	
n Europe and solutions that	Urgent	Australia, Eur Union	opean

Solution Name:	EU: DEN Service - Local Broadcast Wirele	ess (AU/EU)		Number of Issues: 6 T	otal Issue Severit	y: 23
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
rformance not lly defined nedium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Environmental data sharing	Develop an internationally acceptable ITS application specification for sharing environmental data from vehicles to other local entities. The effort should consider efforts to date under both J2735 and DENM.	Urgent	Australia, European Union, United States
Source			Friples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Other Vehicle OBEs		Ve	hicle OBE	vehicle environmental data		
Vehicle OBE		Со	nnected Vehicle Roadside Equipment	vehicle environmental data		
Vehicle OBE		Ot	ner Vehicle OBEs	vehicle environmental data		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erformance not Illy defined nedium)	The performance rules are not fully defined for this information flow.	Medium	V-L: US traveler information	Develop an ITS application specification for providing in-vehicle signage and other traveler information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these messages.	Urgent	United States
Source			- Friples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	lane closure information		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	road closure information		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
se case not onsidered in design nedium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: DENM	Develop an internationally acceptable ITS application specification for DENM for each use case where it applies and when the DENM should include optional fields for each condition.	Urgent	Australia, European Union
Source			Friples using this solution and affected b	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	reduced speed notification		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	road closure information		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
se case not onsidered in design nedium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Environmental data sharing	Develop an internationally acceptable ITS application specification for sharing environmental data from vehicles to other local entities. The effort should consider efforts to date under both J2735 and DENM.	Urgent	Australia, European Union, United State
			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Source		Des				
Source Other Vehicle OBEs			hicle OBE	vehicle environmental data		
		Ve				

Solution Name:	Iution Name:EU: DEN Service - Local Broadcast Wireless (AU/EU)Number of Issues:6To					Total Issue Severity:	23
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: EU vehicle signage data	Develop an ITS application specification for providin DSRC.	g vehicle signage data to vehicles ove	er Urgent	Australia, European Union
		Information 1	Triples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution			
Source		Des	tination	Flow Name			
Connected Vehicle Roa	adside Equipment	Vel	hicle OBE	vehicle si	gnage data		
Emergency Vehicle OB	E	Vel	hicle OBE	vehicle si	gnage data		
Maint and Constr Vehi	icle OBE	Vel	hicle OBE	vehicle si	gnage data		

EU: DEN Service - Mobile Internet (X.509)

This solution is used within the E.U., and Australia. It combines standards associated with EU: DEN Service with those for I-M: Mobile Internet (X.509). The EU: DEN Service standards include upper-layer standards required to implement V2x decentralized environmental notification information flows. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Interet connection method.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data/comm profile pairing	There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated lower-layer standards.	High	C-V: Work zone status	Develop an ITS application specification for a maintenance and construction vehicle to report and update the status of a work zone to a centre.	Near-term	Australia, European Union
		Information T	riples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Maint and Constr Ma	nagement Center	Vel	nicle OBE	work zone information		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability		
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.	Urgent	Australia, European Union		
Source	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Destination Flow Name							
Traffic Management (Center	Veł	icle OBE	vehicle signage data				

Je	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
formance not ined (high)	The performance rules are not defined for this information flow.	High	V-L: CAM and DENM	1 and DENM Standardise on a single solution for providing vehicle event information; currently this information can be transmitted using CAM or DENM.		Australia, European Union
		Information ⁻	Triples using this solution and affected I	by this Issue that would be addressed by the Proposed Resolution		
Source		Des	stination	Flow Name		
Vehicle OBE		Tra	ansportation Information Center	vehicle environmental data		

5		Total Is	ssue	Sev	verity	/:	25	
			1.					

Solution Name:	EU: DEN Service - Mobile Internet (X.509)		Number of Issues: 5 To	otal Issue Severit	y: 25
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
verlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).	Urgent	Australia, European Union
Source			Friples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Traffic Management C	enter		hicle OBE	lane closure information		
Traffic Management C	enter	Vel	hicle OBE	vehicle signage data		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata/comm profile airing	There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated lower-layer standards.	High	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).	Urgent	Australia, European Union
Source			Friples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Maint and Constr Management Center Veh			hicle OBE	work zone information		
Traffic Management Center Vehicle OBE			hicle OBE	lane closure information		
Traffic Management Center			hicle OBE	vehicle signage data		
Vehicle OBE		Tra	nsportation Information Center	vehicle environmental data		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erformance not Ily defined nedium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Situation data	Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMs/CAMs, sensors, probe data, etc.) between vehicles and remote interested parties (e.g., centres).	Urgent	Australia, European Union, United States
Sourco			- Friples using this solution and affected by tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Source Vehicle OBE			Insportation Information Center	vehicle environmental data		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
rformance not ly defined ledium)	The performance rules are not fully defined for this information flow.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.	Urgent	Australia, European Union
Source			Friples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Traffic Management C	center		hicle OBE	lane closure information		
	Dage 08 of 137					

Solution Name:	olution Name: EU: DEN Service - Mobile Internet (X.509) Number of Issues:							25
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Environmental data sharing	Develop an internationally acceptable ITS applicatio environmental data from vehicles to other local ent efforts to date under both J2735 and DENM.			Ũ	Australia, European Union, United States
		Information T	riples using this solution and affected by	this Issue that would be addressed by the Proposed Resolution				
Source		Des	tination	Flow Nan				
Vehicle OBE		Tra	nsportation Information Center	vehicle e	nvironmental data			

Solution Name: EU: Electric Charging Hot Spot - EU-ICIP-C2F

This solution is used within the European Union. It combines standards associated with EU: Electric Charging Hot Spot with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Hot Spot standards include upper-layer standards required to advertise the existance of a electric vehicle charging station. The I-F: EU-ICIP-C2F standards include lower-layer placeholder for a European solution currently under development. It is planned that the EU-ICIP will provide guidance as to what lower-layer standards should be used in various environments, but it is not expected to directly specify these layers.

ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
urity not vided	The solution does not provide any significant security and a communications link using this solution is easily hacked.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United State
Source			Triples using this solution and affected <code>b</code> stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Roadside Equipment		Ele	ectric Charging Station	vehicle charging profile		
Electric Charging Station		Со	nnected Vehicle Roadside Equipment	current charging status		
Transportation Info	Transportation Information Center		nnected Vehicle Roadside Equipment	electric charging services inventory		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
aft not available ritical) The standards development organization has established a work item for the subject standard but a draft is not available for this critical feature to enable the interface. The draft may be missing due to the work item being new or simply a lack of activity on the work item.		High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.		Australia, European Union, United State
Source			Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
	Roadside Equipment		ectric Charging Station	vehicle charging profile		
Electric Charging Station		Connected Vehicle Roadside Equipment		current charging status		
Electric Charging Sta						

This solution is used within the E.U., and Australia. It combines standards associated with EU: Electric Charging Hot Spot with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Electric Charging Hot Spot standards include upper-layer standards required to advertise the existance of a electric vehicle charging station. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.

2	Total Issue Severity:	16
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	Timeframe	Applicability	
ommunication Ild include ation, as	Urgent	Australia, Eur Union, United	-
2	tal Issue Soverity:	0]

olution Name:	EU: Electric Charging Hot Spot - Local Bro	adcast Wireless	(AU/EU)	Number of Issues: 3 Test	otal Issue Severity	: 9
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ecurity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
Source			Friples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Roa	adside Equipment		nicle OBE	current charging status		
Connected Vehicle Roa	adside Equipment	Vel	hicle OBE	electric charging services inventory		
Vehicle OBE		Сог	nnected Vehicle Roadside Equipment	vehicle charging profile		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ncertainty about ust revocation echanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
Source			riples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Roa	adside Equipment	Vel	nicle OBE	current charging status		
Connected Vehicle Roa	adside Equipment	Vel	nicle OBE	electric charging services inventory		
Vehicle OBE		Сог	nnected Vehicle Roadside Equipment	vehicle charging profile		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
verlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union
Source			riples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Roa	adside Equipment		hicle OBE	current charging status		
Connected Vehicle Roa	adside Equipment	Vel	nicle OBE	electric charging services inventory		
Vehicle OBE		Сог	nnected Vehicle Roadside Equipment	vehicle charging profile		
lution Name:	EU: Electric Charging Management - EU-I	CIP-C2F		Number of Issues: 2 To	otal Issue Severity	: 16

EU: Electric Charging Management - EU-ICIP-C2F Solution Name:

This solution is used within the European Union. It combines standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards associated with EU: Electric Charging Management standards associated with EU: Electric Charging Management standards associated with EU: Electric Charging Management st support the management of electric vehicle charging. The I-F: EU-ICIP-C2F standards include lower-layer placeholder for a European solution currently under development. It is planned that the EUstandards should be used in various environments, but it is not expected to directly specify these layers.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security not provided	The solution does not provide any significant security and a communications link using this solution is easily hacked.	Ŭ	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States

2	Total Issue Severity:	16	
andards include	upper-layer standards	required to	
-ICIP will provid	e guidance as to what lo	ower-layer	

Solution Name:	EU: Electric Charging Management - EU-	ICIP-C2F	Number of Issues: 2	Total Issue Severity:	16
Source		Information Triples using this solution and affected Destination	d by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle	Roadside Equipment	Electric Charging Station	vehicle charging profile		
Electric Charging Sta	ation	Connected Vehicle Roadside Equipment	current charging status		
Issue	Issue Description	Issue Severity Proposed Resolution	Resolution Description	Timeframe	Applicability
Draft not available (Critical)	The standards development organization has established a work item for the subject standard but a draft is not available for this critical feature to enable the interface. The draft may be missing due to the work item being new or simply a lack of activity on the work item.	High I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	n Urgent	Australia, Europea Union, United Stat
		Information Triples using this solution and affected	d by this Issue that would be addressed by the Proposed Resolution		
Source		Destination	Flow Name		
Connected Vehicle	Roadside Equipment	Electric Charging Station	vehicle charging profile		
Electric Charging Sta	ation	Connected Vehicle Roadside Equipment	current charging status		
Solution Name:	EU: Electric Charging Management - Loca	al Broadcast Wireless (AU/EU)	Number of Issues: 3	Total Issue Severity:	9
This solution is used v	within the E.U., and Australia. It combines standar	ds associated with EU: Electric Charging Manag	ement with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Electric Charging Man	agement standards inclu	ide upper-

This solution is used within the E.U., and Australia. It combines standards associated with EU: Electric Charging Management with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Electric Charging Management standards include upperlayer standards required to support the management of electric vehicle charging. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
Source			Friples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	oadside Equipment	Vel	hicle OBE	current charging status		
Vehicle OBE		Co	nnected Vehicle Roadside Equipment	vehicle charging profile		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Uncertainty about	The mechanisms used to prevent bad actors from sending authorized messages is	Medium	Misbehavior detection and security revocation	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer	Urgent	Australia, European Union, United State
	unproven.		mechanism	recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).		
		Information 1	mechanism	recognized within a region) and of an ITS station (e.g., in case an ITS station starts to		
nechanism Source	unproven.	Des	mechanism Triples using this solution and affected b tination	recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave). y this Issue that would be addressed by the Proposed Resolution Flow Name		
trust revocation mechanism Source Connected Vehicle Ro	unproven.	Des	mechanism Friples using this solution and affected b	recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave). y this Issue that would be addressed by the Proposed Resolution		

Solution Name:	EU: Electric Charging Management - Loc	al Broadcast Wire	eless (AU/EU)		Number of Issues:
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Overlap of standard	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC Australia; currently BTP/GeoNetworking/G5 and FN are not interoperable at the Subnet or Transnet lay	ITP/M5 are competing so
				y this Issue that would be addressed by the Proposed Resolution	
Source		Des	stination	Flow Nar	ne
Connected Vehicle F	Roadside Equipment	Ve	hicle OBE	current o	charging status
Vehicle OBE		Со	nnected Vehicle Roadside Equipment	vehicle c	harging profile

EU: In-Vehicle Information - Local Broadcast Wireless (AU/EU)

This solution is used within the E.U., and Australia. It combines standards associated with EU: In-Vehicle Information with those for V-X: Local Broadcast Wireless (AU/EU). The EU: In-Vehicle Information standards include upper-layer standards required to provide a visualisation of static and/or dynamic traffic sign information inside a vehicle. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.

Iss	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Se	curity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provi transmitter of a message is not the same of the generated by a central system and sent to the generated by one vehicle and rebroadcast by	he generator of the message (e e RSE for transmission or a me
	Source			Triples using this solution and affected by stination	this Issue that would be addressed by the Proposed Reso Fl	lution low Name
	Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	la	ane closure information
	Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	n	educed speed notification
	Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	n	oad closure information
	Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	s	peed management information
	Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	v	vehicle signage data
	Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	V	vork zone information
	Emergency Vehicle OB	3E	Ve	hicle OBE	v	vehicle signage data
	Maint and Constr Vehi	icle OBE	Ve	hicle OBE	v	vehicle signage data
	Maint and Constr Vehi	icle OBE	Ve	hicle OBE	v	vork zone information
lss	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
	rformance not fined (high)	The performance rules are not defined for this information flow.	High	V-L: EU vehicle signage data	Develop an ITS application specification for pr DSRC.	roviding vehicle signage data t
	Source			Triples using this solution and affected by stination	this Issue that would be addressed by the Proposed Reso اتا	lution low Name
	Connected Vehicle Roa	adside Equipment		hicle OBE		vehicle signage data
	Emergency Vehicle OB		Ve	hicle OBE		vehicle signage data

3	Total Issue Severity:	9	
	Timeframe	Applicability	
n Europe and solutions that	Urgent	Australia, Eur Union	opean
6	Total Issue Severity:	23]
0	Total issue Severity:	25	

	Timeframe	Applicability	
ere the (e.g., a message essage	Urgent	Australia, Eur Union	opean
	Timeframe	Applicability	
to vehicles over	Urgent	Australia, Eur Union	opean

olution Name:	EU: In-Vehicle Information - Local Broad	cast Wireless (Al	J/EU)	Number of Issues: 6 T	Total Issue Severit	:y: 23
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ncertainty about rust revocation nechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
Source			- Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	padside Equipment		hicle OBE	lane closure information		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	reduced speed notification		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	road closure information		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	speed management information		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	vehicle signage data		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	work zone information		
Emergency Vehicle O	BE	Ve	hicle OBE	vehicle signage data		
Maint and Constr Vel	icle OBE	Ve	hicle OBE	vehicle signage data		
Maint and Constr Vel	iicle OBE	Ve	hicle OBE	work zone information		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
verlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).	Urgent	Australia, European Union
Source			Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	adeida Fauinmant					
	auside Equipment	Ve	hicle OBE	lane closure information		
Connected Vehicle Ro			hicle OBE hicle OBE	lane closure information road closure information		
Connected Vehicle Ro Connected Vehicle Ro	padside Equipment	Ve				
	badside Equipment badside Equipment	Ve Ve	hicle OBE	road closure information		
Connected Vehicle Ro	badside Equipment badside Equipment badside Equipment	Ve Ve Ve	hicle OBE hicle OBE	road closure information speed management information		

	EU: In-Vehicle Information - Local Broadd	ast wheless (Au	720)	Number of Issues: 6 To	otal Issue Severity	/: 23
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
verlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union
Source			riples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	padside Equipment		nicle OBE	lane closure information		
Connected Vehicle Ro	adside Equipment	Vel	nicle OBE	reduced speed notification		
Connected Vehicle Ro	adside Equipment	Vel	nicle OBE	road closure information		
Connected Vehicle Ro	adside Equipment	Vel	nicle OBE	speed management information		
Connected Vehicle Ro	adside Equipment	Vel	nicle OBE	vehicle signage data		
Connected Vehicle Ro	adside Equipment	Vel	nicle OBE	work zone information		
Emergency Vehicle O	BE	Vel	nicle OBE	vehicle signage data		
Maint and Constr Veh	icle OBE	Vel	nicle OBE	vehicle signage data		
Maint and Constr Veh	icle OBE	Vel	nicle OBE	work zone information		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
rformance not ly defined edium)	The performance rules are not fully defined for this information flow.	Medium	V-L: US traveler information	Develop an ITS application specification for providing in-vehicle signage and other traveler information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these messages.	Urgent	United States
				y this Issue that would be addressed by the Proposed Resolution Flow Name		
Source			tination			
Source Connected Vehicle Ro	adside Equipment		tination nicle OBE	lane closure information		
		Vel				
Connected Vehicle Ro		Vel Vel	nicle OBE	lane closure information	Timeframe	Applicability
Connected Vehicle Ro Connected Vehicle Ro ue e case not nsidered in design	padside Equipment	Vel Vel	nicle OBE nicle OBE	lane closure information road closure information	Timeframe Urgent	Applicability Australia, European Union
Connected Vehicle Ro Connected Vehicle Ro ue e case not nsidered in design redium)	Description While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the	Vel Vel Issue Severity Medium	nicle OBE nicle OBE Proposed Resolution V-L: EU vehicle signage data iriples using this solution and affected b	Iane closure information road closure information Resolution Description Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC. y this Issue that would be addressed by the Proposed Resolution		Australia, European
Connected Vehicle Ro Connected Vehicle Ro ue e case not nsidered in design	Deadside Equipment Issue Description While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Vel Vel Issue Severity Medium	hicle OBE hicle OBE Proposed Resolution V-L: EU vehicle signage data	Iane closure information road closure information Resolution Description Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC.		Australia, European
Connected Vehicle Ro Connected Vehicle Ro ue e case not nsidered in design edium)	Deadside Equipment Issue Description While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort. padside Equipment	Vel Vel Issue Severity Medium Information T Des Vel	nicle OBE Proposed Resolution V-L: EU vehicle signage data Triples using this solution and affected b tination	Iane closure information road closure information Resolution Description Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC. y this Issue that would be addressed by the Proposed Resolution Flow Name		Australia, European
Connected Vehicle Ro Connected Vehicle Ro ue e case not nsidered in design edium) Source Connected Vehicle Ro	Deadside Equipment Issue Description While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort. Deadside Equipment	Vel Vel Issue Severity Medium Medium Information Tops Vel Vel	nicle OBE Proposed Resolution V-L: EU vehicle signage data riples using this solution and affected b tination nicle OBE	Iane closure information road closure information Resolution Description Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC. y this Issue that would be addressed by the Proposed Resolution Flow Name reduced speed notification		Australia, European
Connected Vehicle Ro Connected Vehicle Ro sue se case not onsidered in design nedium) Source Connected Vehicle Ro Connected Vehicle Ro	Deadside Equipment Issue Description While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort. Deadside Equipment Deadside Equipment Deadside Equipment	Vel Vel Issue Severity Medium Information T Des Vel	nicle OBE Proposed Resolution V-L: EU vehicle signage data Triples using this solution and affected b tination nicle OBE nicle OBE	Iane closure information road closure information Resolution Description Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC. y this Issue that would be addressed by the Proposed Resolution Flow Name reduced speed notification speed management information		Australia, Europear

olution Name:	EU: In-Vehicle Information - Local Broade	cast Wireless (Al	J/EU)	Number of Issues: 6 T	otal Issue Severity:	23
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Jse case not onsidered in design medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: IVI	Develop an ITS application specification for in-vehicle information for each applicable use case.	Urgent	Australia, European Union
		Information ⁻	Triples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	stination	Flow Name		
Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	road closure information		

Solution Name: EU: In-Vehicle Information - Mobile Internet (X.509)

This solution is used within the E.U., and Australia. It combines standards associated with EU: In-Vehicle Information with those for I-M: Mobile Internet (X.509). The EU: In-Vehicle Information standards include upper-layer standards required to provide a visualisation of static and/or dynamic traffic sign information inside a vehicle. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Interet connection method.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not defined (high)	The performance rules are not defined for this information flow.	High	V-L: EU vehicle signage data	Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC.	Urgent	Australia, European Union
		Information 1	riples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Traffic Management	Center	Vel	nicle OBE	vehicle signage data		

address this information and it is unclear which standard should be used to address this specific information flow.and Contextual Speed Informationinformation and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, SpecialUnformation Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution	Australia, European Union
Dectination	
Source Destination Flow Name	
Traffic Management Center Vehicle OBE lane closure information	
Traffic Management Center Vehicle OBE speed management information	
Traffic Management Center Vehicle OBE vehicle signage data	

5	Total Issue Severity:	25

Solution Name: EU: In-Vehicle Information - Mobile Internet (X.509				Number of Issues: 5 Total Issue Severity: 25			
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability	
Data/comm profile Dairing	There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated lower-layer standards.	High	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.	Urgent	Australia, European Union	
Source			riples using this solution and affected b tination	by this Issue that would be addressed by the Proposed Resolution Flow Name			
Maint and Constr Mar	nagement Center	Veł	nicle OBE	work zone information			
Traffic Management C	Center	Vel	nicle OBE	lane closure information			
Traffic Management C	Center	Vel	nicle OBE	speed management information			
Traffic Management C	Center	Vel	nicle OBE	vehicle signage data			
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability	
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.	Urgent	Australia, Europear Union	
Source			riples using this solution and affected b tination	by this Issue that would be addressed by the Proposed Resolution Flow Name			
Traffic Management C	Center		nicle OBE	lane closure information			
_							
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability	
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.	Urgent	Australia, European Union	
Course	-			by this Issue that would be addressed by the Proposed Resolution			
Source Traffic Management C	Center		tination nicle OBE	Flow Name speed management information			
Traffic Management C		Vel	nicle OBE	vehicle signage data			
olution Name:	EU: OCIT-O Signal Control - OCIT-O			Number of Issues: 3 To	otal Issue Severity	: 43	
	•		0	hose for I-F: ODG-OCIT-O. The EU: OCIT-O Signal Control standards include upper-layer standar rotocol used within the EU for road traffic data exchange between central stations and field de	•	plement	
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability	
Security not provided	The solution does not provide any significant security and a communications link using this	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include	Urgent	Australia, European Union, United State	

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security not provided	The solution does not provide any significant security and a communications link using this solution is easily hacked.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
Source		Des	tination	Flow Name		
ITS Roadway Equipme	ent	Cor	nnected Vehicle Roadside Equipment	intersection control status		
ITS Roadway Equipme	ent	Cor	nnected Vehicle Roadside Equipment	ITS roadway equipment information		

Solution Name:	EU: OCIT-O Signal Control - OCIT-O		Number of Issues: 3 To	otal Issue Severity:	43	
ITS Roadway Equipme	ent	Other Traffic Signal Controller	local priority request details			
ITS Roadway Equipme	ent	Traffic Management Center	right-of-way request notification			
ITS Roadway Equipme	ent	Traffic Management Center	signal control status			
Other Traffic Signal Co	Controller	ITS Roadway Equipment	local priority request details	local priority request details		
Traffic Management	Center	ITS Roadway Equipment	signal control commands			
Traffic Management	Center	ITS Roadway Equipment	signal control device configuration			
Traffic Management	Center	ITS Roadway Equipment	signal control plans			
Traffic Management	Center	ITS Roadway Equipment	signal system configuration			
Issue	Issue Description	Issue Severity Proposed Resolution	Resolution Description	Timeframe	Applicability	
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra I-F: EU signal operations	Develop an ITS application specification for exchanging configuration, plans, status, and commands for signal control and signal systems using the secure centre-to-field protocol.	Urgent	Australia, European Union	
Source		Information Triples using this solution and affected b Destination	by this Issue that would be addressed by the Proposed Resolution Flow Name			
ITS Roadway Equipme	ent	Traffic Management Center	right-of-way request notification			
ITS Roadway Equipme	ent	Traffic Management Center	signal control status			
Traffic Management Center		ITS Roadway Equipment	signal control commands	signal control commands		
Traffic Management Center		ITS Roadway Equipment	signal control device configuration	signal control device configuration		
Traffic Management Center		ITS Roadway Equipment	signal control plans	signal control plans		
Traffic Management	Center	ITS Roadway Equipment	signal system configuration	signal system configuration		
Issue	Issue Description	Issue Severity Proposed Resolution	Resolution Description	Timeframe	Applicability	
Not an open						
Not an open standard	The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Medium I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States	
tandard	is not a formal standard developed according to open standards development rules and details may change prior to adoption as open	Information Triples using this solution and affected b	standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent		
	is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.		standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent		
tandard	is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Information Triples using this solution and affected b Destination	standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent		
Source ITS Roadway Equipme	is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Information Triples using this solution and affected b Destination Connected Vehicle Roadside Equipment	standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent		
Source ITS Roadway Equipme ITS Roadway Equipme	is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Information Triples using this solution and affected b Destination Connected Vehicle Roadside Equipment Connected Vehicle Roadside Equipment	standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent		
Source ITS Roadway Equipme ITS Roadway Equipme ITS Roadway Equipme	is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Information Triples using this solution and affected b Destination Connected Vehicle Roadside Equipment Connected Vehicle Roadside Equipment Other Traffic Signal Controller	standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent		
Source ITS Roadway Equipme ITS Roadway Equipme ITS Roadway Equipme ITS Roadway Equipme	is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Information Triples using this solution and affected b Destination Connected Vehicle Roadside Equipment Connected Vehicle Roadside Equipment Other Traffic Signal Controller Traffic Management Center	standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. by this Issue that would be addressed by the Proposed Resolution Flow Name intersection control status ITS roadway equipment information local priority request details right-of-way request notification	Urgent		
Source ITS Roadway Equipme ITS Roadway Equipme ITS Roadway Equipme ITS Roadway Equipme ITS Roadway Equipme	is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Information Triples using this solution and affected b Destination Connected Vehicle Roadside Equipment Connected Vehicle Roadside Equipment Other Traffic Signal Controller Traffic Management Center Traffic Management Center	standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. ov this Issue that would be addressed by the Proposed Resolution Flow Name intersection control status ITS roadway equipment information local priority request details right-of-way request notification signal control status	Urgent		
Source ITS Roadway Equipme ITS Roadway Equipme ITS Roadway Equipme ITS Roadway Equipme ITS Roadway Equipme Other Traffic Signal Co	is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard. ent ent ent ent controller Center	Information Triples using this solution and affected b Destination Connected Vehicle Roadside Equipment Connected Vehicle Roadside Equipment Other Traffic Signal Controller Traffic Management Center Traffic Management Center ITS Roadway Equipment	standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. by this Issue that would be addressed by the Proposed Resolution Flow Name intersection control status ITS roadway equipment information local priority request details right-of-way request notification signal control status local priority request details	Urgent		
Source ITS Roadway Equipme ITS Roadway Equipme ITS Roadway Equipme ITS Roadway Equipme ITS Roadway Equipme Other Traffic Signal Co Traffic Management of	is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard. ent ent ent ent controller Center Center	Information Triples using this solution and affected b Destination Connected Vehicle Roadside Equipment Connected Vehicle Roadside Equipment Other Traffic Signal Controller Traffic Management Center Traffic Management Center ITS Roadway Equipment ITS Roadway Equipment	standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. ov this Issue that would be addressed by the Proposed Resolution Flow Name intersection control status ITS roadway equipment information local priority request details right-of-way request notification signal control status local priority request details signal control commands	Urgent		

Solution Name:	EU: Probe Data - Local Broadcast Wireless (AU/EU)	Number of Issues:
Solution Name:	EU: Probe Data - Local Broadcast Wireless (AU/EU)	Number of Issues:

This solution is used within the E.U., and Australia. It combines standards associated with EU: Probe Data with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Probe Data standards include detailed probe data information from a vehicle. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSR

lssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
Source			riples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Vehicle OBE		Cor	nnected Vehicle Roadside Equipment	vehicle situation data		
lssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Jncertainty about rust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
		Information T		y this Issue that would be addressed by the Proposed Resolution		
Source			tination	Flow Name		
Vehicle OBE	Issue Description	Cor	nnected Vehicle Roadside Equipment	vehicle situation data	Timeframe	Applicability
	Issue Description Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.				Timeframe Urgent	Applicability Australia, European Union
Vehicle OBE	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this	Cor Issue Severity Medium	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5	vehicle situation data Resolution Description Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that		Australia, European
Vehicle OBE Issue Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this	Cor Issue Severity Medium Information T Des	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5	vehicle situation data Resolution Description Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers. y this Issue that would be addressed by the Proposed Resolution		Australia, European
Vehicle OBE ssue Dverlap of standards Source Vehicle OBE	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this	Cor Issue Severity Medium Information T Des	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5	vehicle situation data Resolution Description Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers. y this Issue that would be addressed by the Proposed Resolution Flow Name		Australia, European
Vehicle OBE Source Vehicle OBE Vehicle OBE Vehicle OBE Performance not fully defined	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Cor Issue Severity Medium Information T Des Cor	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5 riples using this solution and affected b tination	vehicle situation data Resolution Description Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers. y this Issue that would be addressed by the Proposed Resolution Flow Name vehicle situation data	Urgent	Australia, European Union
Vehicle OBE	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow. Issue Description The performance rules are not fully defined	Cor Issue Severity Medium Information T Des Cor Issue Severity Medium Information T	Proposed Resolution V-L: BTP/GeoNetworking/G5 and FNTP/M5 riples using this solution and affected b tination mected Vehicle Roadside Equipment Proposed Resolution C-V: Situation data	vehicle situation data Resolution Description Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers. y this Issue that would be addressed by the Proposed Resolution Flow Name vehicle situation data Vehicle situation data Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMs/CAMs, sensors, probe data, etc.) between	Urgent	Australia, European Union Applicability Australia, European

Solution Name: EU: Probe Data - Mobile Internet (X.509)

Number of Issues:

This solution is used within the U.S., E.U., and Australia. It combines standards associated with EU: Probe Data with those for I-M: Mobile Internet (X.509). The EU: Probe Data standards include uppe probe data information from a vehicle. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which m

4 T	otal Issue Severity:	12	
4 T	otal Issue Severity:	12	
de upper-layer sta RC technologies, 5	ndards required to p G LTE, etc.	provide	
	Timeframe	Applicability	
here the	Urgent	Australia, Europea	n

1	Total Issue Severity:	3
er-layer standa	ards required to provide	e detailed
may be activel	y moving; based on X.50	09

Number of Issues: Solution Name: EU: Probe Data - Mobile Internet (X.509) certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intneret connection method. Issue Severity Proposed Resolution Issue **Issue Description Resolution Description** Performance not The performance rules are not fully defined Medium C-V: Situation data Develop an internationally acceptable ITS application specification for the fully defined for this information flow. distributing collected situation data (e.g., BSMs/CAMs, sensors, probe data (medium) vehicles and remote interested parties (e.g., centres). Transportation Information Center Vehicle OBE vehicle situation data

Solution Name: EU: Signal Control Messages - BTP/GeoNetworking/G5

This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for V-X: BTP/GeoNetworking/G5. The EU: Signal Control Messages standards include upper-layer standards required to implement signal control information flows. The V-X: BTP/GeoNetworking/G5 standards include lower-layer standards that support broadcast, near constant, low latency vehicle-to-vehicle and vehicle-to-infrastructure communications using the ETSI GeoNetworking Bundle over the 5.9GHz spectrum.

lssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	g Update the GeoNetworking standard to provide secure data excha transmitter of a message is not the same of the generator of the m generated by a central system and sent to the RSE for transmission generated by one vehicle and rebroadcast by another vehicle).		
Source			Friples using this solution and affected by stination	y this Issue that would be addressed by the Proposed R	esolution Flow Name	
Connected Vehicle Ro	padside Equipment		mmercial Vehicle OBE		intersection status	
Connected Vehicle Ro	Connected Vehicle Roadside Equipment		ergency Vehicle OBE		intersection status	
Connected Vehicle Ro	adside Equipment	ITS	Roadway Equipment		intersection status monitoring	
Connected Vehicle Ro	badside Equipment	Tra	nsit Vehicle OBE		intersection status	
Connected Vehicle Ro	badside Equipment	Ve	hicle OBE		intersection status	

ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Incertainty about rust revocation nechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revoking the privileges of a certificate auth recognized within a region) and of an ITS so misbehave).	ority (e.g., if an authority is no lo
				y this Issue that would be addressed by the Proposed R	esolution
Source		Des	stination		Flow Name
Connected Vehicle Ro	padside Equipment	Co	mmercial Vehicle OBE		intersection status
Connected Vehicle Ro	padside Equipment	Em	nergency Vehicle OBE		intersection status
Connected Vehicle Ro	padside Equipment	ITS	Roadway Equipment		intersection status monitoring
Connected Vehicle Ro	padside Equipment	Tra	ansit Vehicle OBE		intersection status
Connected Vehicle Ro	padside Equipment	Ve	hicle OBE		intersection status

1	

Number of Issues:

Total Issue Severity:

3

	Timeframe	Applicability	
e use case of ta, etc.) between	Urgent	Australia, Eur Union, United	

6 Total Issue Severity: 14

	Timeframe	Applicability	
nere the e (e.g., a message nessage	Urgent	Australia, Eur Union	opean
	Timeframe	Applicability	
evels, including	Urgent	Australia, Eur	opean
longer on starts to		Union, United	d States
-		Union, United	d States
-		Union, United	d States
-		Union, United	d States
-		Union, United	d States
-		Union, United	d States
-		Union, United	d States

olution Name:	EU: Signal Control Messages - BTP/GeoN	letworking/G5		Number of Issues: 6 To	tal Issue Severit	:y: 14
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
verlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union
Source			- Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	padside Equipment		mmercial Vehicle OBE	intersection status		
Connected Vehicle Ro	padside Equipment	Em	nergency Vehicle OBE	intersection status		
Connected Vehicle Ro	padside Equipment	ITS	Roadway Equipment	intersection status monitoring		
Connected Vehicle Ro	padside Equipment	Tra	ansit Vehicle OBE	intersection status		
Connected Vehicle Ro	padside Equipment	Ve	hicle OBE	intersection status		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
rotocol features artly not applicable a the given context	A feature of the protocol is not fully applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Low	V-L: GeoNetworking	Determine how to implement GeoNetworking without unduly flooding the network and, if feasible, prove out concept.	Urgent	Australia, European Union, United States
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	padside Equipment		mmercial Vehicle OBE	intersection status		
Connected Vehicle Ro	padside Equipment	Em	nergency Vehicle OBE	intersection status		
Connected Vehicle Ro	padside Equipment	ITS	Roadway Equipment	intersection status monitoring		
Connected Vehicle Ro	padside Equipment	Tra	ansit Vehicle OBE	intersection status		
Connected Vehicle Ro	padside Equipment	Ve	hicle OBE	intersection status		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata not defined in andard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts	Near-term	Australia, European Union, United States
			- Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Source			Stillation	How Nume		
Source Connected Vehicle Ro	padside Equipment	Co	mmercial Vehicle OBE	intersection status		
			mmercial Vehicle OBE	intersection status intersection status		
Connected Vehicle Ro	padside Equipment	Em				
Connected Vehicle Ro Connected Vehicle Ro	padside Equipment padside Equipment	Em	nergency Vehicle OBE	intersection status		

Solution Name:	EU: Signal Control Messages - BTP/GeoN	EU: Signal Control Messages - BTP/GeoNetworking/G5				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: EU signal operations	Develop an ITS application specification for vehicles from the roadside.	providing intersection status ir	
Source			riples using this solution and affected by tination	this Issue that would be addressed by the Proposed Re	esolution Flow Name	
Connected Vehicle Ro	adside Equipment	Cor	nmercial Vehicle OBE		intersection status	
Connected Vehicle Ro	adside Equipment	Em	ergency Vehicle OBE		intersection status	
Connected Vehicle Ro	adside Equipment	Tra	nsit Vehicle OBE		intersection status	
Connected Vehicle Ro	adside Equipment	Veł	nicle OBE		intersection status	
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	I-F: Signal conflict prevention	Develop an internationally acceptable ITS a intersection status information to prevent obroadcast information.		
Source			riples using this solution and affected by tination	this Issue that would be addressed by the Proposed Re	solution Flow Name	
Connected Vehicle Ro	adside Equipment	ITS	Roadway Equipment		intersection status monitoring	

Solution Name: EU: Signal Control Messages - CEN 5.8Ghz DSRC

This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for V-X: CEN 5.8Ghz DSRC. The EU: Signal Control Messages standards implement signal control information flows. The V-X: CEN 5.8Ghz DSRC standards include lower-layer standards that are compliant with ISO 21217 with the complication that remote tachographs ar

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and SRM	Standardise on a single solution for requesting signal priority; currently this request can be transmitted using CAM or SRM.	Urgent	Australia, European Union
		Information 1	riples using this solution and affected b	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Commercial Vehicle O	BE	Сог	nnected Vehicle Roadside Equipment	local signal priority request		
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data not defined in tandard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts	Near-term	Australia, European Union, United State

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data not defined in standard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts	Near-term	Australia, European Union, United States
		Information	Triples using this solution and affected b	y this Issue that would be addressed by the Proposed Resolution		
Source		De	stination	Flow Name		
Commercial Vehicle	OBE	Co	nnected Vehicle Roadside Equipment	local signal priority request		
Connected Vehicle F	Roadside Equipment	Co	mmercial Vehicle OBE	intersection status		
Connected Vehicle F	Roadside Equipment	Co	mmercial Vehicle OBE	signal priority status		

6	Total Issue Severity:	14	
	Timeframe	Applicability	
nformation to	Urgent	Australia, Eur Union	opean
	Timeframe	Applicability	
onitoring blays and	Urgent	Australia, Eur Union	opean

3	Total Issue Severity:	7
ls include uppe	r-layer standards require	ed to
re based on th	e CEN-DSRC at 5.8 GHz.	

Solution Name:	EU: Signal Control Messages - CEN 5.8Gh	z DSRC		Number of Issues:
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: EU signal operations	Develop an ITS application specification for providing intersection status inf vehicles from the roadside.
Source			Triples using this solution and affected by stination	this Issue that would be addressed by the Proposed Resolution Flow Name
Connected Vehicle Ro	oadside Equipment	Co	mmercial Vehicle OBE	intersection status
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Issue Performance not fully defined (medium)	Issue DescriptionThe performance rules are not fully defined for this information flow.	Issue Severity Medium	Proposed Resolution V-L: EU signal priority	·
Performance not fully defined	The performance rules are not fully defined	Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre-en
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium Information - Des	V-L: EU signal priority Triples using this solution and affected by	Develop an ITS application specification for a traffic signal to provide pre-enpriority to authorised vehicles.
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium Information Des Co	V-L: EU signal priority Triples using this solution and affected by stination	Develop an ITS application specification for a traffic signal to provide pre-enpriority to authorised vehicles. This Issue that would be addressed by the Proposed Resolution Flow Name

Solution Name: EU: Signal Control Messages - DATEX Messaging TCP

This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for C-C: DATEX Messaging TCP. The EU: Signal Control Messages stand implement signal control information flows. The C-C: DATEX Messaging TCP standards include lower-layer standards that support partially secure communications between two centres as common!

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Security inadequ	uate The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre constandards and define rules on when to use which one. The standard(s) shou support for authentication, authorization, confidentiality, and non-repudiat needed.
				Once the application layer standard(s) are developed, most ITS Information standards will need to be updated to document data in appropriate format(
				y this Issue that would be addressed by the Proposed Resolution
		Deg	stination	Flow Name
Source				
Source Map Update Sy	ystem		nter	intersection geometry
	ystem			intersection geometry
	ystem Issue Description			intersection geometry Resolution Description
Map Update Sy	Issue Description	Cer	nter	Resolution Description Develop an internationally acceptable ITS application specification that defined
Map Update Sy Issue Data profile not defined	Issue Description Performance, functionality, and the upper- layers of the OSI stack have not been defined	Cer Issue Severity Ultra Information 7	nter Proposed Resolution C-C: Distribute maps Triples using this solution and affected b	Resolution Description Develop an internationally acceptable ITS application specification that define for updating maps, roadway geometry, and intersection geometry among celebetween a Map Update System and a centre). y this Issue that would be addressed by the Proposed Resolution
Map Update Sy Issue Data profile not	Issue Description Performance, functionality, and the upper- layers of the OSI stack have not been defined	Cer Issue Severity Ultra Information 7	Proposed Resolution C-C: Distribute maps	Resolution Description Develop an internationally acceptable ITS application specification that defir for updating maps, roadway geometry, and intersection geometry among certification and a centre).
Map Update Sy Issue Data profile not defined	Issue Description Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Cer Issue Severity Ultra Information Toes	nter Proposed Resolution C-C: Distribute maps Triples using this solution and affected b	Resolution Description Develop an internationally acceptable ITS application specification that define for updating maps, roadway geometry, and intersection geometry among centre between a Map Update System and a centre). y this Issue that would be addressed by the Proposed Resolution
Map Update Sy Issue Data profile not defined Source	Issue Description Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Cer Issue Severity Ultra Information Toes	nter Proposed Resolution C-C: Distribute maps Triples using this solution and affected by stination	Resolution Description Develop an internationally acceptable ITS application specification that define for updating maps, roadway geometry, and intersection geometry among celebetween a Map Update System and a centre). y this Issue that would be addressed by the Proposed Resolution Flow Name

3 То	tal Issue Severity:	7	
	Timeframe	Applicability	
nformation to	Urgent	Australia, Eur Union	opean
	Timeframe	Applicability	
emption or	Urgent	Australia, Eur Union	opean
			1
	tal Issue Severity:	39	
ndards include upp nly used in Europe.	er-layer standards	required to	
	Timeframe	Applicability	
communication ould include iation, as	Urgent	Australia, Eur Union, United	-
on Layer at(s).			
		L]
	Timeframe	Applicability	
efines the rules g centres (e.g.,	Urgent	Australia, Eur Union, United	-

Sol	ution Name:	EU: Signal Control Messages - DATEX Me	ssaging TCP		Number of Issues:
lss	ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
	ta not defined in Indard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 can easily be placed in the CIDCR and understood by all ITS experts
	Source			Friples using this solution and affected by stination	this Issue that would be addressed by the Proposed Resolution Flow Name
	Map Update System		Cei	nter	intersection geometry
lss	ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
ful	rformance not ly defined edium)	The performance rules are not fully defined for this information flow.	Medium	C-C: Distribute maps	Develop an internationally acceptable ITS application specification that def for updating maps, roadway geometry, and intersection geometry among between a Map Update System and a centre).
	Source			Friples using this solution and affected by stination	this Issue that would be addressed by the Proposed Resolution Flow Name
	Map Update System		Cer	nter	intersection geometry

This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for I-F: EU-ICIP-C2F. The EU: Signal Control Messages standards include upper-layer standards required to implement signal control information flows. The I-F: EU-ICIP-C2F standards include lower-layer placeholder for a European solution currently under development. It is planned that the EU-ICIP will provide guidance as to what lower-layer standards should be used in various environments, but it is not expected to directly specify these layers.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security not provided	The solution does not provide any significant security and a communications link using this solution is easily hacked.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.		Australia, European Union, United States
		Information 1	riples using this solution and affected by	this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Map Update System		Сог	nnected Vehicle Roadside Equipment	intersection geometry		

ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data/comm profile pairing	There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated lower-layer standards.	High	I-F: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry between a centres (e.g., a Map Update System) and field equipment.	Urgent	Australia, European Union, United States, Japan
		Information 1	riples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Map Update System		Сог	nnected Vehicle Roadside Equipment	intersection geometry		

EU: Signal Control Messages - EU-ICIP-C2F

Solution Name:

4 T o	otal Issue Severity:	39	
	Timeframe	Applicability	
1 so that data	Near-term	Australia, Eur Union, United	•
	Timeframe	Applicability	
efines the rules g centres (e.g.,	Timeframe Urgent	Applicability Australia, Eur Union, United	•
		Australia, Eur	•
		Australia, Eur	•

5	Total Issue Severity:	28
e upper-laver	standards required to in	mplement

olution Name:	EU: Signal Control Messages - EU-ICIP-C2	2F		Number of Issues: 5 T	otal Issue Severit	y: 28
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
raft not available Critical)	The standards development organization has established a work item for the subject standard but a draft is not available for this critical feature to enable the interface. The draft may be missing due to the work item being new or simply a lack of activity on the work item.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States
Source			Triples using this solution and affected I stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Map Update System			nnected Vehicle Roadside Equipment	intersection geometry		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata not defined in andard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts	Near-term	Australia, European Union, United States
Source			- Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Map Update System			nnected Vehicle Roadside Equipment	intersection geometry		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erformance not Ily defined nedium)	The performance rules are not fully defined for this information flow.	Medium	I-F: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry between a centres (e.g., a Map Update System) and field equipment.	Urgent	Australia, European Union, United States, Japan
Source			- Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Map Update System		Со	nnected Vehicle Roadside Equipment	intersection geometry		
				Number of Issues: 4	otal Issue Severit	y: 10
nal control informa	tion flows. The V-X: FNTP/M5 standards include l	ower-layer stand	ards that support connectionles	h those for V-X: FNTP/M5. The EU: Signal Control Messages standards include upper-layer sta s, broadcast and unicast, near constant, ultra-low latency vehicle-to-any communications wit n WAVE WSMP. The M5 radio of this profile can receive ITS G5 frames.	indards required to	o implement
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ncertainty about ust revocation echanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
Source			Triples using this solution and affected I stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
				intersection status		
Connected Vehicle R	padside Equipment	Co	mmercial Vehicle OBE			
Connected Vehicle Re Connected Vehicle Re			nergency Vehicle OBE	intersection status		

Connected Vehicle Ro	EU: Signal Control Messages - FNTP/M5	T	nsit Vehicle OBE		otal Issue Severit	y: 10
				intersection status		
Connected Vehicle Ro			hicle OBE	intersection status		
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union
Source			Friples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	adside Equipment	Col	mmercial Vehicle OBE	intersection status		
Connected Vehicle Ro	adside Equipment	Em	ergency Vehicle OBE	intersection status		
Connected Vehicle Ro	adside Equipment	ITS	Roadway Equipment	intersection status monitoring		
Connected Vehicle Roadside Equipment		Tra	nsit Vehicle OBE	intersection status		
Connected Vehicle Roadside Equipment		Vel	hicle OBE	intersection status		
lssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data not defined in standard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts	Near-term	Australia, Europear Union, United State
Source			- Friples using this solution and affected b :tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	adside Equipment	Commercial Vehicle OBE intersection status				
Connected Vehicle Ro	adside Equipment	Em	ergency Vehicle OBE	intersection status		
Connected Vehicle Ro	adside Equipment	ITS	Roadway Equipment	intersection status monitoring		
Connected Vehicle Ro	adside Equipment	Transit Vehicle OBE		intersection status		
Connected Vehicle Ro	adside Equipment	Vehicle OBE		intersection status		
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: EU signal operations	Develop an ITS application specification for providing intersection status information to vehicles from the roadside.	Urgent	Australia, European Union
Source			Friples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	adside Equipment		mmercial Vehicle OBE	intersection status		
Connected Vehicle Ro	adside Equipment	Em	ergency Vehicle OBE	intersection status		
Connected Vehicle Ro	adside Equipment	Tra	nsit Vehicle OBE	intersection status		
Connected Vehicle Roadside Equipment		Vehicle OBE		intersection status		

So	lution Name:	EU: Signal Control Messages - FNTP/M5				Number of Issues:
ls	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
fu	erformance not Illy defined nedium)	The performance rules are not fully defined for this information flow.	Medium	I-F: Signal conflict prevention	Develop an internationally acceptable ITS application intersection status information to prevent conflicts broadcast information.	
	Source			riples using this solution and affected by tination	this Issue that would be addressed by the Proposed Resolution Flow Nar	ne
	Connected Vehicle Roa	dside Equipment	ITS	Roadway Equipment	intersec	tion status monitoring

EU: Signal Control Messages - Local Broadcast Wireless (AU/EU)

Number of Issues:

This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Signal Control Messages with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Signal Control Messages with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Signal Control Messages with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Signal Control Messages with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Signal Control Messages with those for V-X: Local Broadcast Wireless (AU/EU).

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to pro transmitter of a message is not the same o generated by a central system and sent to generated by one vehicle and rebroadcast	f the generator of the message (e the RSE for transmission or a mes
		Information ⁻	Triples using this solution and affected by	this Issue that would be addressed by the Proposed Ro	esolution
Source		De	stination		Flow Name
Commercial Vehicle C	DBE	Co	nnected Vehicle Roadside Equipment		local signal priority request
Connected Vehicle Ro	padside Equipment	Со	mmercial Vehicle OBE		signal priority status
Connected Vehicle Ro	padside Equipment	Em	nergency Vehicle OBE		signal priority status
Connected Vehicle Ro	padside Equipment	Pe	rsonal Information Device		intersection geometry
Connected Vehicle Ro	oadside Equipment	Tra	ansit Vehicle OBE		signal priority status
Connected Vehicle Ro	oadside Equipment	Ve	hicle OBE		intersection geometry
Emergency Vehicle O	BE	Со	nnected Vehicle Roadside Equipment		local signal preemption request
Transit Vehicle OBE		Co	nnected Vehicle Roadside Equipment		local signal priority request

4	Total Issue Severity:	10	
	Timeframe	Applicability	
nitoring lays and	Urgent	Australia, Eur Union	opean
6	Total Issue Severity:	16	
	ds include upper-layer nologies, 5G LTE, etc.	standards	
	Timeframe	Applicability	
ere the (e.g., a messag essage	ge Urgent	Australia, Eur Union	opean

ution Name:	EU: Signal Control Messages - Local Broa	dcast Wireless (A	AU/EU)	Number of Issues:6To	otal Issue Severit	y: 16
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
certainty about st revocation echanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Commercial Vehicle C	DBE		nnected Vehicle Roadside Equipment	local signal priority request		
Connected Vehicle Ro	padside Equipment	Co	mmercial Vehicle OBE	signal priority status		
Connected Vehicle Ro	padside Equipment	Em	nergency Vehicle OBE	signal priority status		
Connected Vehicle Ro	padside Equipment	Ре	rsonal Information Device	intersection geometry		
Connected Vehicle Ro	padside Equipment	Tra	ansit Vehicle OBE	signal priority status		
Connected Vehicle Ro	padside Equipment	Ve	hicle OBE	intersection geometry		
Emergency Vehicle O	BE	Со	nnected Vehicle Roadside Equipment	local signal preemption request		
Transit Vehicle OBE		Со	nnected Vehicle Roadside Equipment	local signal priority request		
Je	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Commercial Vehicle C	DBE	Co	nnected Vehicle Roadside Equipment	local signal priority request		
Connected Vehicle Ro	padside Equipment	Со	mmercial Vehicle OBE	signal priority status		
Connected Vehicle Ro	padside Equipment	Em	nergency Vehicle OBE	signal priority status		
Connected Vehicle Ro	padside Equipment	Pe	rsonal Information Device	intersection geometry		
Connected Vehicle Ro	padside Equipment	Tra	ansit Vehicle OBE	signal priority status		
Connected Vehicle Ro	padside Equipment	Ve	hicle OBE	intersection geometry		
Emergency Vehicle O	BE	Co	nnected Vehicle Roadside Equipment	local signal preemption request		
Transit Vehicle OBE		Co	nnected Vehicle Roadside Equipment	local signal priority request		
le	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and SRM	Standardise on a single solution for requesting signal priority; currently this request can be transmitted using CAM or SRM.	Urgent	Australia, European Union
			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Source						
Source Commercial Vehicle (DBE	Co	nnected Vehicle Roadside Equipment	local signal priority request		
			nnected Vehicle Roadside Equipment	local signal priority request		

sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta not defined in ndard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts	Near-term	Australia, Europea Union, United Stat
Source			Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		
Commercial Vehicle	OBE	Co	nnected Vehicle Roadside Equipment	local signal priority request		
Connected Vehicle R	oadside Equipment	Co	mmercial Vehicle OBE	signal priority status		
Connected Vehicle R	loadside Equipment	Em	nergency Vehicle OBE	signal priority status		
Connected Vehicle R	loadside Equipment	Pe	rsonal Information Device	intersection geometry		
Connected Vehicle R	loadside Equipment	Tra	ansit Vehicle OBE	signal priority status		
Connected Vehicle R	loadside Equipment	Ve	hicle OBE	intersection geometry		
Emergency Vehicle C	DBE	Co	nnected Vehicle Roadside Equipment	local signal preemption request		
Transit Vehicle OBE		Co	nnected Vehicle Roadside Equipment	local signal priority request		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
formance not y defined	The performance rules are not fully defined for this information flow.	Medium	V-L: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rule for distributing maps, roadway geometry, and intersection geometry to a vehicle from	-	Australia, Europea Union, United Stat
	for this mornation now.			local source.		Japan
edium)				by this Issue that would be addressed by the Proposed Resolution		Japan
•		Des	Triples using this solution and affected b stination rsonal Information Device			Japan
edium) Source	loadside Equipment	De: Pe	stination	by this Issue that would be addressed by the Proposed Resolution Flow Name		Japan
edium) Source Connected Vehicle R Connected Vehicle R	loadside Equipment	Des Per Ve	stination rsonal Information Device hicle OBE	by this Issue that would be addressed by the Proposed Resolution Flow Name intersection geometry	Timeframe	Japan Applicability
edium) Source Connected Vehicle R Connected Vehicle R le formance not y defined	loadside Equipment loadside Equipment	Des Per Ve	stination rsonal Information Device hicle OBE	by this Issue that would be addressed by the Proposed Resolution Flow Name intersection geometry intersection geometry	Timeframe Urgent	
edium) Source Connected Vehicle R Connected Vehicle R Je formance not y defined edium)	toadside Equipment toadside Equipment Issue Description The performance rules are not fully defined	Des Per Ve Issue Severity Medium	stination rsonal Information Device hicle OBE Proposed Resolution V-L: EU signal priority Friples using this solution and affected b	by this Issue that would be addressed by the Proposed Resolution Flow Name intersection geometry intersection geometry Resolution Description Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles. by this Issue that would be addressed by the Proposed Resolution		Applicability Australia, Europea
edium) Source Connected Vehicle R Connected Vehicle R ue formance not y defined edium) Source	toadside Equipment toadside Equipment Issue Description The performance rules are not fully defined for this information flow.	Des Peu Ve Issue Severity Medium Information Des	stination rsonal Information Device hicle OBE Proposed Resolution V-L: EU signal priority Triples using this solution and affected b stination	by this Issue that would be addressed by the Proposed Resolution Flow Name intersection geometry intersection geometry Resolution Description Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles. by this Issue that would be addressed by the Proposed Resolution Flow Name		Applicability Australia, Europea
edium) Source Connected Vehicle R Connected Vehicle R ue formance not y defined edium) Source Commercial Vehicle	toadside Equipment toadside Equipment toadside Equipment Issue Description The performance rules are not fully defined for this information flow. OBE	Des Per Ve Issue Severity Medium Information Des	stination rsonal Information Device hicle OBE Proposed Resolution V-L: EU signal priority Triples using this solution and affected bestination nnected Vehicle Roadside Equipment	by this Issue that would be addressed by the Proposed Resolution Flow Name intersection geometry intersection geometry Resolution Description Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles. by this Issue that would be addressed by the Proposed Resolution Flow Name local signal priority request		Applicability Australia, Europea
edium) Source Connected Vehicle R Connected Vehicle R ue formance not y defined edium) Source Connected Vehicle R	toadside Equipment toadside Equipment toadside Equipment Issue Description The performance rules are not fully defined for this information flow. OBE toadside Equipment	Des Per Ve Issue Severity Medium Information Des Co	stination rsonal Information Device hicle OBE Proposed Resolution V-L: EU signal priority Triples using this solution and affected b stination nnected Vehicle Roadside Equipment mmercial Vehicle OBE	by this Issue that would be addressed by the Proposed Resolution Flow Name intersection geometry intersection geometry Resolution Description Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles. by this Issue that would be addressed by the Proposed Resolution Flow Name Iocal signal priority request signal priority status		Applicability Australia, Europea
edium) Source Connected Vehicle R Connected Vehicle R ue formance not ly defined edium) Source Connected Vehicle R Connected Vehicle R	Ioadside Equipment Ioadside Equipment Ioadside Equipment Issue Description The performance rules are not fully defined for this information flow. OBE Ioadside Equipment Ioadside Equipment Ioadside Equipment	Des Per Ve Issue Severity Medium Information Des Co Co	stination rsonal Information Device hicle OBE Proposed Resolution V-L: EU signal priority Triples using this solution and affected b stination Innected Vehicle Roadside Equipment Immercial Vehicle OBE Dergency Vehicle OBE	by this Issue that would be addressed by the Proposed Resolution Flow Name intersection geometry intersection geometry Resolution Description Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles. Dy this Issue that would be addressed by the Proposed Resolution Flow Name local signal priority request signal priority status signal priority status		Applicability Australia, Europea
edium) Source Connected Vehicle R Connected Vehicle R ue rformance not ly defined edium) Source Connected Vehicle R	Ioadside Equipment Ioadside Equipment Ioadside Equipment Issue Description The performance rules are not fully defined for this information flow. OBE Ioadside Equipment Ioadside Equipm	Des Per Ve Issue Severity Medium Information Des Co Co Em	stination rsonal Information Device hicle OBE Proposed Resolution V-L: EU signal priority Triples using this solution and affected b stination nnected Vehicle Roadside Equipment mmercial Vehicle OBE	by this Issue that would be addressed by the Proposed Resolution Flow Name intersection geometry intersection geometry Resolution Description Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles. by this Issue that would be addressed by the Proposed Resolution Flow Name Iocal signal priority request signal priority status		Applicability Australia, Europea

Solution Name:	EU: Signal Control Messages - Local Broadcast Wireless (AU/EU) 6				Number of Issues: 6 T	otal Issue Severity:	16
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: EU signal priority	Develop an ITS application specification for a tra priority to authorised vehicles.	iffic signal to provide pre-emption or	Urgent	Australia, European Union
		Information 1	Friples using this solution and affected by	y this Issue that would be addressed by the Proposed Resoluti	on		
Source		Des	stination	Flow	Name		
Emergency Vehicle O	BE	Сог	nnected Vehicle Roadside Equipment	local	l signal preemption request		
Transit Vehicle OBE		Сог	nnected Vehicle Roadside Equipment	local	l signal priority request		

EU: Signal Control Messages - Mobile Internet (X.509)

This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for I-M: Mobile Internet (X.509). The EU: Signal Control Messages standards include upper-layer standards required to implement signal control information flows. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Interet connection method.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Signal operations	Develop an ITS application specification for providing intersection status information to vehicles from a centre for environmental benefits.	Urgent	Australia, European Union
Source	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Destination					
Traffic Management	Center	Vel	hicle OBE	intersection status		

onsidered in design address ritical) address	he indicated standards nominally s the information flow, the design may not meet performance or other	High			Timeframe	Applicability
	ements because this particular use case the focus of the design effort.		C-V: Signal operations	Develop an ITS application specification for providing intersection status information to vehicles from a centre for environmental benefits.	Urgent	Australia, European Union
		Information 1	riples using this solution and affected I	by this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Traffic Management Center		Сог	nmercial Vehicle OBE	intersection status		
Traffic Management Center		Em	ergency Vehicle OBE	intersection status		
Traffic Management Center		Tra	nsit Vehicle OBE	intersection status		
Traffic Management Center		Vel	nicle OBE	intersection status		

5	Total Issue Severity:	47
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olution Name:						
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata not defined in andard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts	Near-term	Australia, European Union, United States
Source			Friples using this solution and affected stination	l by this Issue that would be addressed by the Proposed Resolution Flow Name		
Map Update System			rsonal Information Device	intersection geometry		
Map Update System		Ve	hicle OBE	intersection geometry		
Traffic Management	Center	Co	mmercial Vehicle OBE	intersection status		
Traffic Management	Center	Em	ergency Vehicle OBE	intersection status		
Traffic Management	Center	Tra	ansit Vehicle OBE	intersection status		
Traffic Management	Center	Ve	hicle OBE	intersection status		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erformance not Illy defined nedium)	The performance rules are not fully defined for this information flow.	Medium	C-V: EU signal priority/preemption	Develop an ITS application specification for a centre to exchange requests and status for signal priority/preemption along a route with a vehicle.	Medium-term	Australia, European Union
		Information -	Triples using this solution and affected	by this Issue that would be addressed by the Proposed Resolution		
Source						
Source Traffic Management	Center	Des	stination hergency Vehicle OBE	Flow Name intersection status		
	Center	Des	stination	Flow Name		
	Center Issue Description	Des	stination	Flow Name	Timeframe	Applicability
Traffic Management		De: Em	stination hergency Vehicle OBE	Flow Name intersection status	Timeframe Urgent	Applicability Australia, European Union, United States Japan
Traffic Management sue erformance not lly defined	Issue Description The performance rules are not fully defined	De: Em Issue Severity Medium	ergency Vehicle OBE Proposed Resolution C-V: Distribute maps	Flow Name intersection status Resolution Description Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a		Australia, European Union, United States
Traffic Management sue erformance not lly defined nedium)	Issue Description The performance rules are not fully defined	Des Em Issue Severity Medium	stination hergency Vehicle OBE Proposed Resolution C-V: Distribute maps	Flow Name intersection status Resolution Description Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device). by this Issue that would be addressed by the Proposed Resolution		Australia, European Union, United States
Traffic Management sue erformance not lly defined hedium) Source	Issue Description The performance rules are not fully defined	Des Em Issue Severity Medium Information Des Per	stination hergency Vehicle OBE Proposed Resolution C-V: Distribute maps Triples using this solution and affected stination	Flow Name intersection status Resolution Description Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device). Iby this Issue that would be addressed by the Proposed Resolution Flow Name		Australia, European Union, United States
Traffic Management sue erformance not lly defined nedium) Source Map Update System Map Update System	Issue Description The performance rules are not fully defined	Des Em Issue Severity Medium Information Des Per	stination hergency Vehicle OBE Proposed Resolution C-V: Distribute maps Triples using this solution and affected stination	Flow Name Intersection status Resolution Description Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device). Iby this Issue that would be addressed by the Proposed Resolution Flow Name Intersection geometry		Australia, European Union, United States
Traffic Management sue erformance not lly defined nedium) Source Map Update System	Issue Description The performance rules are not fully defined for this information flow.	Des Em Issue Severity Medium Information Des Per Ve	stination hergency Vehicle OBE Proposed Resolution C-V: Distribute maps Triples using this solution and affected stination rsonal Information Device hicle OBE	Flow Name intersection status Resolution Description Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device). Iby this Issue that would be addressed by the Proposed Resolution Flow Name intersection geometry intersection geometry	Urgent	Australia, European Union, United States Japan
Traffic Management ue rformance not ly defined edium) Source Map Update System Map Update System ue rformance not ly defined edium)	Issue Description The performance rules are not fully defined for this information flow. Issue Description The performance rules are not fully defined	Em Issue Severity Medium Information Per Ve Issue Severity Medium	stination Proposed Resolution C-V: Distribute maps Triples using this solution and affected stination rsonal Information Device hicle OBE Proposed Resolution C-V: Signal operations Triples using this solution and affected	Flow Name intersection status Resolution Description Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device). Iby this Issue that would be addressed by the Proposed Resolution Flow Name intersection geometry intersection geometry intersection geometry Develop an ITS application specification for providing intersection status information to vehicles from a centre for environmental benefits. By this Issue that would be addressed by the Proposed Resolution	Timeframe	Australia, European Union, United States Japan Applicability Australia, European
Traffic Management ue rformance not ly defined edium) Source Map Update System Map Update System ue rformance not ly defined	Issue Description The performance rules are not fully defined for this information flow. Issue Description The performance rules are not fully defined for this information flow.	Em Issue Severity Medium Information Des Per Ve Information Des Per Ve	stination hergency Vehicle OBE Proposed Resolution C-V: Distribute maps C-V: Distribute maps Friples using this solution and affected stination rsonal Information Device hicle OBE Proposed Resolution C-V: Signal operations	Flow Name intersection status Resolution Description Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device). It by this Issue that would be addressed by the Proposed Resolution Flow Name intersection geometry intersection geometry Resolution Description Resolution Description Develop an ITS application specification for providing intersection status information to vehicles from a centre for environmental benefits.	Timeframe	Australia, European Union, United State Japan Applicability Australia, European
Traffic Management sue rformance not lly defined nedium) Source Map Update System Map Update System sue rformance not lly defined nedium) Source	Issue Description The performance rules are not fully defined for this information flow. Issue Description The performance rules are not fully defined for this information flow. Center	Em Em Issue Severity Medium Information Ces Per Ve Issue Severity Medium Information Ces Co	stination hergency Vehicle OBE	Flow Name intersection status Resolution Description Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device). Iby this Issue that would be addressed by the Proposed Resolution Flow Name intersection geometry intersection geometry Resolution Description Resolution Description Develop an ITS application specification for providing intersection status information to vehicles from a centre for environmental benefits. Iby this Issue that would be addressed by the Proposed Resolution Flow Name	Timeframe	Australia, European Union, United State Japan Applicability Australia, European

olution Name:	EU: Signal Control Messages - Mobile Int	ernet (X.509)		Number of Issues: 5 T	otal Issue Severity:	47
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Jse case not considered in design medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-V: Signal operations	Develop an ITS application specification for providing intersection status information to vehicles from a centre for environmental benefits.	Urgent	Australia, European Union
		Information	Triples using this solution and affected b	y this Issue that would be addressed by the Proposed Resolution		
Source		De	stination	Flow Name		
Traffic Management C	Center	Tra	ansit Vehicle OBE	intersection status		

Solution Name: EU: Signal Control Messages - Internet (X.509)

This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for I-M: Internet (X.509). The EU: Signal Control Messages standards implement signal control information flows. The I-M: Internet (X.509) standards include lower-layer standards that support secure communications between two entities based on X.509 certificates.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data not defined in standard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts	Near-term	Australia, European Union, United States
Source			riples using this solution and affected by tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	oadside Equipment	ITS	Roadway Equipment	intersection status monitoring		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	I-F: Signal conflict prevention	Develop an internationally acceptable ITS application specification for monitoring intersection status information to prevent conflicts between physical displays and broadcast information.	Urgent	Australia, European Union
		Information 1	riples using this solution and affected b	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Connected Vehicle R	Roadside Equipment	ITS	Roadway Equipment	intersection status monitoring		

Solution Name:

EU: SIRI - DATEX Messaging TCP

Number of Issues:

Number of Issues:

This solution is used within the European Union. It combines standards associated with EU: SIRI with those for C-C: DATEX Messaging TCP. The EU: SIRI standards include upper-layer standards required to implement transit related real-time information. The C-C: DATEX Messaging TCP standards include lower-layer standards that support partially secure communications between two centres as commonly used in Europe.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).	Urgent	Australia, European Union, United States

2	Total Issue Severity:	4
include upper-	layer standards required	l to

2	Total Issue Severity:

11

So	lution Name:	EU: SIRI - DATEX Messaging TCP			Number of Issues: 2 T	otal Issue Severity:	11
	Source			Triples using this solution and affected by stination	this Issue that would be addressed by the Proposed Resolution Flow Name		
	Alternate Mode Transportation Center			Traffic Management Center alternate mode service demand info			
	Transit Management Center		Transportation Information Center		transit schedule adherence information		
Is	sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
	ata not defined igh)	Required data elements are not defined.	High	C-C: Update SIRI for other transport modes	Revise the SIRI application specification to support the exchange of ferry, airline, and inter- city rail information between centres.		Australia, European Union
	Source			Triples using this solution and affected by stination	this Issue that would be addressed by the Proposed Resolution Flow Name		
	Alternate Mode Transp	portation Center	Traffic Management Center alternate mode service demand info				
So	lution Name:	EU: SIRI - Guaranteed Internet (X.509)			Number of Issues: 1 T	otal Issue Severity:	8

This solution is used within the European Union. It combines standards associated with EU: SIRI with those for I-I: Guaranteed Internet (X.509). The EU: SIRI standards include upper-layer standards required to implement transit related real-time information. The I-I: Guaranteed Internet (X.509) standards include lower-layer standards that support secure communications with guaranteed delivery between ITS equipment using mainstream Internet security standards (X.509).

Issu	sue Issue Description Issue Severity Proposed Resolution Reso		Resolution Description	Timeframe	Applicability		
	Data not defined Required data elements are not defined. High C-C: Update SIRI for other transport modes Revise the SIRI application specification to support the exchange in the support the exchange in the support in		Revise the SIRI application specification to support the exchange of ferry, airline, and inter- city rail information between centres.	Near-term	Australia, European Union		
	Source	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Ource Destination Flow Name					
	Alternate Mode Transportation Center		Tra	ffic Management Center	alternate mode service demand info	alternate mode service demand info	

Solution Name:	EU: SIRI - ODG-OCIT-C	Number of Issues:
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sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ecurity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	 Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s). 	Urgent	Australia, European Union, United States
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Alternate Mode Trans	sportation Center		Traffic Management Center alternate mode service demand info			

Solution Name:	EU: SIRI - ODG-OCIT-C			Number of Issues: 3 Test	otal Issue Severity:	14
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data not defined (high)	Required data elements are not defined.	High	C-C: Update SIRI for other transport modes	Revise the SIRI application specification to support the exchange of ferry, airline, and inter- city rail information between centres.	Near-term	Australia, European Union
Source			Friples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Alternate Mode Trar	nsportation Center	Tra	ffic Management Center	alternate mode service demand info		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Not an open	The document may be publicly available but it					
standard	is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Medium	C-C: Secure communications	 Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s). 	Urgent	Australia, European Union, United States
	is not a formal standard developed according to open standards development rules and details may change prior to adoption as open	Information		standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.Once the application layer standard(s) are developed, most ITS Information Layer	Urgent	

EU: TPEG2 - Internet (X.509) Solution Name:

This solution is used within the E.U., and Australia. It combines standards associated with EU: TPEG2 with those for I-I: Internet (X.509). The EU: TPEG2 standards include upper-layer standards require The I-I: Internet (X.509) standards include lower-layer standards that support secure communications between two entities, based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intneret connection method.

sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ecurity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-V: Secure communications	Develop one or more internationally acceptable, secure, centre-vehicle communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).		Australia, European Union, United States
Information Triples using			Friples using this solution and affected b	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Traffic Management (Center	Me	edia	traffic information for media		
Transportation Inform	nation Center	Me	edia	traffic information for media		
Transportation Inform	nation Center	Me	dia	traveler information for media		
Transportation Information Center		Wi	de Area Information Disseminator	traveler information for media		

Solution Name:

EU: TPEG2 Parking Information - Local Broadcast Wireless (AU/EU)

This solution is used within the E.U., and Australia. It combines standards associated with EU: TPEG2 Parking Information with those for V-X: Local Broadcast Wireless (AU/EU). The EU: TPEG2 Parking Information standards include upper-layer standards required to implement parking information flows. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.

1	Total Issue Severity:	3								
red to support	red to support multi-modal information services.									

ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
curity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
Source			Friples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	parking availability		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
certainty about ist revocation echanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
Source			Friples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	adside Equipment		hicle OBE	parking availability		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union
		Information		y this Issue that would be addressed by the Proposed Resolution		
Sourco						
Source Connected Vehicle Ro	adside Equipment	De	Triples using this solution and affected b stination hicle OBE	Flow Name parking availability		
Source Connected Vehicle Ro	adside Equipment	De	stination	Flow Name		
		De	stination	Flow Name parking availability	otal Issue Severit	v: 35
u tion Name: solution is used w	EU: UTMC Data - UTMC ithin the European Union. It combines standards	De: Ve associated with	stination hicle OBE EU: UTMC Data with those for I-I	Flow Name parking availability		ommunications
u <mark>tion Name:</mark> solution is used w g the UTMC Frame	EU: UTMC Data - UTMC ithin the European Union. It combines standards work. The I-F: UTMC standards include lower-lay pplementations are strongly encouraged to use SI	De Ve associated with ver standards tha	stination hicle OBE EU: UTMC Data with those for I-I t support secure centre-to-field a adeqaute security.	Flow Name parking availability Number of Issues: 2 To F: UTMC. The EU: UTMC Data standards include upper-layer standards required to implement and field-to-field communications using simple network management protocol (SNMPv2); whi	center-to-field co ile this standard c	ommunications offers some
u <mark>tion Name:</mark> solution is used w g the UTMC Frame rity capabilities, in	EU: UTMC Data - UTMC ithin the European Union. It combines standards work. The I-F: UTMC standards include lower-lay	De Ve associated with ver standards tha	stination hicle OBE EU: UTMC Data with those for I-I t support secure centre-to-field a	Flow Name parking availability Number of Issues: 2 To F: UTMC. The EU: UTMC Data standards include upper-layer standards required to implement	center-to-field co	ommunications
u <mark>tion Name:</mark> solution is used w g the UTMC Frame	EU: UTMC Data - UTMC ithin the European Union. It combines standards work. The I-F: UTMC standards include lower-lay pplementations are strongly encouraged to use SI	De Ve associated with ver standards tha NMPv3 to ensure	stination hicle OBE EU: UTMC Data with those for I-I t support secure centre-to-field a adeqaute security.	Flow Name parking availability Number of Issues: 2 To F: UTMC. The EU: UTMC Data standards include upper-layer standards required to implement and field-to-field communications using simple network management protocol (SNMPv2); whi	center-to-field co ile this standard c	ommunications offers some
ution Name: solution is used w g the UTMC Frame urity capabilities, in ue curity inadequate	EU: UTMC Data - UTMC ithin the European Union. It combines standards work. The I-F: UTMC standards include lower-lay pplementations are strongly encouraged to use SI Issue Description The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS	Der Ve associated with ver standards tha MPv3 to ensure Issue Severity Medium	tination hicle OBE EU: UTMC Data with those for I-I t support secure centre-to-field a adeqaute security. Proposed Resolution I-F: Secure communications	Flow Name parking availability Number of Issues: 2 To E: UTMC. The EU: UTMC Data standards include upper-layer standards required to implement and field-to-field communications using simple network management protocol (SNMPv2); whith the second standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. y this Issue that would be addressed by the Proposed Resolution	center-to-field co ile this standard c Timeframe	ommunications offers some Applicability Australia, European
ition Name: solution is used w g the UTMC Frame rity capabilities, in Je surity inadequate	EU: UTMC Data - UTMC ithin the European Union. It combines standards work. The I-F: UTMC standards include lower-lay plementations are strongly encouraged to use SI Issue Description The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Dec Ve associated with ver standards tha VMPv3 to ensure Issue Severity Medium	tination hicle OBE EU: UTMC Data with those for I-I t support secure centre-to-field a adeqaute security. Proposed Resolution I-F: Secure communications	Flow Name parking availability Number of Issues: 2 To F: UTMC. The EU: UTMC Data standards include upper-layer standards required to implement and field-to-field communications using simple network management protocol (SNMPv2); whither the standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	center-to-field co ile this standard c Timeframe	ommunications offers some Applicability Australia, European
ution Name: solution is used w g the UTMC Frame urity capabilities, in ue curity inadequate	EU: UTMC Data - UTMC ithin the European Union. It combines standards work. The I-F: UTMC standards include lower-lay aplementations are strongly encouraged to use SI Issue Description The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	De: Ve associated with ver standards tha NMPv3 to ensure Issue Severity Medium Information Co	Stination hicle OBE EU: UTMC Data with those for I-I t support secure centre-to-field a e adeqaute security. Proposed Resolution I-F: Secure communications Friples using this solution and affected b stination	Flow Name parking availability Number of Issues: 2 7 E: UTMC. The EU: UTMC Data standards include upper-layer standards required to implement and field-to-field communications using simple network management protocol (SNMPv2); whither the standard field communication and field communication are each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. y this Issue that would be addressed by the Proposed Resolution Flow Name	center-to-field co ile this standard c Timeframe	Applicability Australia, European

enter enter	Traff Traff	fic Management Center fic Management Center Roadway Equipment Roadway Equipment	environmental sensor data right-of-way request notification roadway dynamic signage status roadway warning system status signal control status signal control status speed monitoring information traffic detector data traffic images variable speed limit status variable speed limit status roadway dynamic signage data speed monitoring control environmental sensors control roadway dynamic signage data roadway dynamic signage data roadway dynamic signage data signal control commands				
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	Trafi	fic Management Center fic Management Center fic Management Center fic Management Center Roadway Equipment Roadway Equipment Roadway Equipment Roadway Equipment Roadway Equipment Roadway Equipment	traffic detector datatraffic imagesvariable speed limit statusroadway dynamic signage dataspeed monitoring controlenvironmental sensors controlroadway dynamic signage datasodway dynamic signage datasignal control commands				
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	ITS F ITS F ITS F	Roadway Equipment	signal control commands				
	ITS F ITS F						
	ITS F	Roadway Equipment	signal control device configuration		signal control commands		
				signal control device configuration			
		Roadway Equipment	signal control plans	signal control plans			
	ITS F	Roadway Equipment	signal system configuration	signal system configuration			
	ITS F	Roadway Equipment	speed monitoring control				
	ITS F	Roadway Equipment	traffic detector control				
	ITS F	Roadway Equipment	variable speed limit control				
	ITS F	Roadway Equipment	video surveillance control				
escription	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability		
ance, functionality, and the upper- f the OSI stack have not been defined information flow.	Ultra	I-F: Message signs	Develop an internationally acceptable ITS application specification for managing message signs for secure communications with proper access control.	Urgent	Australia, European Union, United State		
		-					
		<i>,</i>	, , ,				
iano f th	ce, functionality, and the upper- e OSI stack have not been defined	ription Issue Severity ce, functionality, and the upper- e OSI stack have not been defined ormation flow. Information Tr Dest	ce, functionality, and the upper- e OSI stack have not been defined prmation flow.	ription Issue Severity Proposed Resolution Resolution Description ce, functionality, and the upper- e OSI stack have not been defined ormation flow. Ultra I-F: Message signs Develop an internationally acceptable ITS application specification for managing message signs for secure communications with proper access control. Left Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution Destination Flow Name Traffic Management Center roadway warning system status	riptionIssue SeverityProposed ResolutionResolution DescriptionTimeframece, functionality, and the upper- e OSI stack have not been defined ormation flow.UltraI-F: Message signsDevelop an internationally acceptable ITS application specification for managing message signs for secure communications with proper access control.UlrgentInformation Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution PostinationUrgentFlow NameTraffic Management Centerroadway warning system status		

olution Name:	EU: UTMC Data - UTMC			Number of Issues: 2 Test	otal Issue Severity:	35
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: EU signal operations	Develop an ITS application specification for exchanging configuration, plans, status, and commands for signal control and signal systems using the secure centre-to-field protocol.	Urgent	Australia, European Union
Source			Friples using this solution and affected b	by this Issue that would be addressed by the Proposed Resolution Flow Name		
ITS Roadway Equipme	ent		ffic Management Center	right-of-way request notification		
ITS Roadway Equipment		Tra	ffic Management Center	signal control status		
Traffic Management Center		ITS	Roadway Equipment	signal control commands		
Traffic Management (Center	ITS	Roadway Equipment	signal control device configuration		
Traffic Management (Center	ITS	Roadway Equipment	signal control plans		
Traffic Management (Center	ITS	Roadway Equipment	signal system configuration		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Speed warning	Develop an internationally acceptable ITS application specification for providing roadway configuration data, current speed limits, warning parameters and thresholds to a speed warning application.	Urgent	Australia, Europear Union, United State
				by this Issue that would be addressed by the Proposed Resolution		
Source ITS Roadway Equipme	ent		tination Iffic Management Center	Flow Name variable speed limit status		
Traffic Management (Roadway Equipment	variable speed limit control		
olution Name:	Location/Time reference - Positioning			Number of Issues: 1 T	otal Issue Severity:	3
			-	with those for Positioning. The Location/Time reference standards include upper-layer standards lower-layer standards that support communications between connected ITS equipment and g		
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ecurity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS	Medium	Secure and accurate location and time standards	Develop/adopt an internationally acceptable standard/solution for synchronising and continuously maintaining location and time information throughout the ITS environment in a secure and reliable manner with sufficient accuracy (including leap seconds) and	Urgent	Australia, Europear Union, United State

Iss	ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		
Se	curity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	or the information and time standards continuously maintaining location and time		e information throughout the ITS e		
	Informa				this Issue that would be addressed by the Proposed R		
	Source		Des	stination		Flow Name	
	Field Location and Tim	ne Data Source	Co	nnected Vehicle Roadside Equipment		location and time	
	Personal Location and	Personal Location and Time Data Source		rsonal Information Device	location and time		
	Vehicle Location and T	Time Data Source	Ve	hicle OBE		location and time	

Solution Name:	TMC - Wide Area Broadcast (Upper)	Number of Issues:
This solution is used within the	e U.S., E.U., and Australia. It combines standards associated with TMC with those for C-X: Wide Area Broadcast (Upper). The TMC standards inclu	de upper-layer standard

rds required to support multi-modal information Т services to the vehicle.. The C-X: Wide Area Broadcast (Upper) standards include lower-layer standards that support one entity broadcasting information to all wireless devices over an area that covers at least a metropolitan area without any expectation of acknowledgement or response; security is provided by the upper-layers.

Total Issue Severity:

7

3

olution Name:	TMC - Wide Area Broadcast (Upper)			Num	nber of Issues:
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-V: Secure communications	Develop one or more internationally acceptable, secure, standards and define rules on when to use each one. The support for authentication, authorization, confidentiality, needed. Once the application layer standard(s) are develo standards will need to be updated to document data in a	e standard(s) shou , and non-repud oped, most ITS Ir
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name	
Transportation Inform	nation Center	Per	rsonal Information Device	broadcast trave	eler information
Transportation Inform	nation Center	Ve	hicle OBE	broadcast trave	eler information
Wide Area Informatio	n Disseminator	Per	rsonal Information Device	wide area broad	dcast traveler inform
Wide Area Informatio	n Disseminator	Ve	hicle OBE	broadcast trave	eler information
Wide Area Informatio	n Disseminator	Ve	hicle OBE	wide area broad	dcast traveler inform
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Jbiquitous proadcast echnology	With the continual enhancement of broadcast technologies and a mixture of free and subscriber-based systems, it is difficult to identify any single technology that can be used to reliably reach the bulk of drivers in a timely manner.	Low	C-V: Wide-area broadcast subnet and hybrid communications	Standardise one or more mechanisms by which wide-area received by a defined minimum percentage of transporta operating within a specified geographic area. The require dependent on the type of information being transmitted by the expert community. Some alerts (e.g., tornado war reception, while other messages (e.g., road works ahead) minimum percentages. The minimum percentage may be technologies using hybrid communications and the ITS sta	ation users that a ed minimum perc and will need to mings) will requir) may require sign e made up with a
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name	
Transportation Inform	nation Center	Per	rsonal Information Device	broadcast trave	eler information
Transportation Inform	nation Center	Ve	hicle OBE	broadcast trave	eler information
Wide Area Informatio	n Disseminator	Per	rsonal Information Device	wide area broad	dcast traveler inform
Wide Area Informatio	n Disseminator	Ve	hicle OBE	broadcast trave	eler information
Wide Area Informatio	n Disseminator	Ve	hicle OBE	wide area broad	dcast traveler inform
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	
Performance not ully defined medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle sign	nage to the vehic
Source			- Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name	
Transportation Inform	nation Center	Ve	hicle OBE	broadcast trave	eler information
Wide Area Informatio	n Disseminator	Ve	hicle OBE	broadcast trave	eler information
olution Name:	TPEG2 - DATEX Messaging TCP			Num	nber of Issues:
		associated with	TREC2 with those for C C: DATEN	Messaging TCP. The TPEG2 standards include upper-layers	

This solution is used within the European Union. It combines standards associated with TPEG2 with those for C-C: DATEX Messaging TCP. The TPEG2 standards include upper-layer standards required The C-C: DATEX Messaging TCP standards include lower-layer standards that support partially secure communications between two centres as commonly used in Europe.

3	Total Issue Severity:	7	
	Timeframe	Applicability	
mmunication Ild include ation, as formation Laye t(s).	Urgent Pr	Australia, Eur Union, United	-
ation			
ation			
	Timeframe	Applicability	
ages can be re currently entage is be determined e near 100% hificantly lower variety of e.	Urgent	Australia, Eur Union, United	
ation			
ation			
	Timeframe	Applicability	
le from a centre	e. Urgent	Australia, Eur Union	opean
2	Total Issue Severity:	11	
ed to support m	ulti-modal informatio	n services	

olution Name:	TPEG2 - DATEX Messaging TCP			Number of Issues: 2 To	otal Issue Severity	/: 11
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ecurity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States
				Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).		
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Traffic Management 0	Center	Me	edia	traffic information for media		
Traffic Management (Center	Wi	ide Area Information Disseminator	traffic information for media		
Transportation Inform	nation Center	Me	edia	traffic information for media		
Transportation Inform	mation Center	Wi	ide Area Information Disseminator	traffic information for media		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ecurity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-V: Secure communications	Develop one or more internationally acceptable, secure, centre-vehicle communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer	Urgent	Australia, European Union, United States
				standards will need to be updated to document data in appropriate format(s).		
Source			Triples using this solution and affected b stination			
Source Traffic Management (De		standards will need to be updated to document data in appropriate format(s). y this Issue that would be addressed by the Proposed Resolution		
	Center	De: Me	stination	standards will need to be updated to document data in appropriate format(s). this Issue that would be addressed by the Proposed Resolution Flow Name		
Traffic Management (Center Center	De: Me Wi	stination edia	standards will need to be updated to document data in appropriate format(s). This Issue that would be addressed by the Proposed Resolution Flow Name traffic information for media		
Traffic Management (Traffic Management (Center Center mation Center	De: Me Wi	stination edia ide Area Information Disseminator	standards will need to be updated to document data in appropriate format(s). this Issue that would be addressed by the Proposed Resolution Flow Name traffic information for media traffic information for media		
Traffic Management (Traffic Management (Transportation Inform Transportation Inform	Center Center mation Center	De: Me Wi Me	stination edia ide Area Information Disseminator edia	standards will need to be updated to document data in appropriate format(s). this Issue that would be addressed by the Proposed Resolution Flow Name traffic information for media traffic information for media traffic information for media	Timeframe	Applicability
Traffic Management (Traffic Management (Transportation Inform	Center Center mation Center mation Center	De: Me Wi Me	stination edia ide Area Information Disseminator edia ide Area Information Disseminator	standards will need to be updated to document data in appropriate format(s). this Issue that would be addressed by the Proposed Resolution Flow Name traffic information for media	Timeframe Urgent	Australia, European
Traffic Management (Traffic Management (Transportation Inform Transportation Inform sue ata/comm profile airing	Center Center mation Center mation Center Issue Description There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated	Des Ma Wi Ma Ussue Severity High	stination edia ide Area Information Disseminator edia ide Area Information Disseminator Proposed Resolution C-C: WAID	standards will need to be updated to document data in appropriate format(s). this Issue that would be addressed by the Proposed Resolution Flow Name traffic information for media this Issue that would be addressed by the Proposed Resolution		
Traffic Management (Traffic Management (Transportation Inform Transportation Inform sue ata/comm profile	Center Center mation Center mation Center Issue Description There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated lower-layer standards.	Des Ma Wi Ma Ussue Severity High	stination edia ide Area Information Disseminator edia ide Area Information Disseminator Proposed Resolution C-C: WAID	standards will need to be updated to document data in appropriate format(s). this Issue that would be addressed by the Proposed Resolution Flow Name traffic information for media		Australia, European
Traffic Management O Traffic Management O Transportation Inform Transportation Inform sue ata/comm profile airing	Center Center mation Center mation Center Issue Description There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated lower-layer standards.	Des Ma Wi Ma Ussue Severity High	stination edia ide Area Information Disseminator edia ide Area Information Disseminator Proposed Resolution C-C: WAID	standards will need to be updated to document data in appropriate format(s). this Issue that would be addressed by the Proposed Resolution Flow Name traffic information for media this Issue that would be addressed by the Proposed Resolution Flow Name		Australia, European
Traffic Management (Traffic Management (Transportation Inform Transportation Inform sue ata/comm profile airing Source Traffic Management (Center Center mation Center mation Center Issue Description There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated lower-layer standards.	Des Ma Wi Ma Ussue Severity High High Ma Wi	stination edia ide Area Information Disseminator edia ide Area Information Disseminator Proposed Resolution C-C: WAID Triples using this solution and affected bistination edia	standards will need to be updated to document data in appropriate format(s). this Issue that would be addressed by the Proposed Resolution Flow Name traffic information for media Resolution Description Develop an internationally acceptable ITS application specification for providing information from a centre to a WAID for wide-area dissemination. vthis Issue that would be addressed by the Proposed Resolution Flow Name traffic information for media		Australia, European

This solution is used within the U.S., E.U., and Australia. It combines standards associated with TPEG2 with those for I-I: Guaranteed Internet (X.509). The TPEG2 standards include upper-layer standards required to support multiservices. The I-I: Guaranteed Internet (X.509) standards include lower-layer standards that support secure communications with guaranteed delivery between ITS equipment using mainstream Internet security standards (X.509).

Solution Name:	TPEG2 - Guaranteed Internet (X.509)			Number of Issues: 2 To	otal Issue Severity	: 6
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-V: Secure communications	Develop one or more internationally acceptable, secure, centre-vehicle communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).	Urgent	Australia, European Union, United States
Source			Triples using this solution and affected by stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Traffic Management	Center	Wide Area Information Disseminator		traffic information for media		
Transportation Inform	nation Center	Wide Area Information Disseminator		broadcast traveler information		
Transportation Inform	nation Center	Wi	de Area Information Disseminator	traffic information for media		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-C: WAID	Develop an internationally acceptable ITS application specification for providing information from a centre to a WAID for wide-area dissemination.	Urgent	Australia, European Union, United States
				y this Issue that would be addressed by the Proposed Resolution		
Source Transportation Inform	nation Center		stination de Area Information Disseminator	Flow Name broadcast traveler information		

Solution Name: TPEG2 - Local Broadcast Wireless (AU/EU)

This solution is used within the E.U., and Australia. It combines standards associated with TPEG2 with those for V-X: Local Broadcast Wireless (AU/EU). The TPEG2 standards include upper-layer standards associated with TPEG2 with those for V-X: Local Broadcast Wireless (AU/EU). The TPEG2 standards include upper-layer standards associated with TPEG2 with those for V-X: Local Broadcast Wireless (AU/EU). information services.. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.

ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ecurity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, Europea Union
				y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	lane closure information		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	road closure information		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	road weather advisories		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	vehicle signage data		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	work zone information		
Emergency Vehicle Of	BE	Ve	hicle OBE	vehicle signage data		
Maint and Constr Veh	icle OBE	Ve	hicle OBE	vehicle signage data		
Maint and Constr Veh	icle OBE	Ve	hicle OBE	work zone information		

6	Total Issue Severity:	23
ndards required	l to support multi-moda	I

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Solution Name:	TPEG2 - Local Broadcast Wireless (AU/E	ר)			Number of Issues:	
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		
Security inadequate Communications security for the information triple, which potentially jeopardizes C-ITS operations.		Medium	C-V: Secure communications	Develop one or more internationally accept standards and define rules on when to use support for authentication, authorization, c needed. Once the application layer standard standards will need to be updated to docum	each one. The standard(s) should confidentiality, and non-repudiat d(s) are developed, most ITS Info	
				y this Issue that would be addressed by the Proposed Re		
Source Connected Vehicle Ro	padside Equipment		stination hicle OBE		Flow Name	
Connected Vehicle R			hicle OBE		road closure information	
Connected Vehicle Ro			hicle OBE		road weather advisories	
Connected Vehicle Ro	badside Equipment	Ve	hicle OBE	vehicle signage data		
Connected Vehicle Ro	padside Equipment	Ve	hicle OBE	work zone information		
Emergency Vehicle O	BE	Ve	hicle OBE		vehicle signage data	
Maint and Constr Veh	icle OBE	Ve	hicle OBE		vehicle signage data	
Maint and Constr Veh	icle OBE	Ve	hicle OBE		work zone information	
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revoking the privileges of a certificate author recognized within a region) and of an ITS stamisbehave).	ority (e.g., if an authority is no lo	

				misbehave).	
Source			Triples using this solution and affected by stination	r this Issue that would be addressed by the Proposed Ro	esolution Flow Name
Connected Vehicle Roa	dside Equipment	Ve	hicle OBE		lane closure information
Connected Vehicle Roa	dside Equipment	Ve	hicle OBE		road closure information
Connected Vehicle Roa	dside Equipment	Ve	hicle OBE		road weather advisories
Connected Vehicle Roa	dside Equipment	Ve	hicle OBE		vehicle signage data
Connected Vehicle Roa	dside Equipment	Ve	hicle OBE		work zone information
Emergency Vehicle OBI	E	Ve	hicle OBE		vehicle signage data
Maint and Constr Vehic	cle OBE	Ve	hicle OBE		vehicle signage data
Maint and Constr Vehic	cle OBE	Ve	ehicle OBE		work zone information

6	Total Issue Severity:	23	
	Timeframe	Applicability	
ommunication uld include iation, as nformation Layer at(s).	Urgent r	Australia, Eur Union, United	-
	Timeframe	Applicability	
evels, including longer on starts to	Urgent	Australia, Eur Union, United	

olution Name:	TPEG2 - Local Broadcast Wireless (AU/EU)		Number of Issues: 6 To	otal Issue Severity:	23
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).	Urgent	Australia, European Union
		Information 1	Friples using this solution and affected b	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	stination	Flow Name		
Connected Vehicle Roa	adside Equipment	Vel	hicle OBE	lane closure information		
Connected Vehicle Roa	adside Equipment	Vel	hicle OBE	road closure information		
Connected Vehicle Roa	adside Equipment	Vehicle OBE		work zone information		
Emergency Vehicle OB	3E	Vehicle OBE		vehicle signage data		
Maint and Constr Vehi	icle OBE	Vel	hicle OBE	vehicle signage data		
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: EU vehicle signage data	Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC.	Urgent	Australia, European Union
		Information 1	- Triples using this solution and affected b	y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		
Connected Vehicle Roa	adside Equipment	Vel	hicle OBE	vehicle signage data		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union
C				y this Issue that would be addressed by the Proposed Resolution		
Source Connected Vehicle Ro	adside Equipment		tination hicle OBE	Flow Name lane closure information		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	road closure information		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	road weather advisories		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	vehicle signage data		
Connected Vehicle Ro	adside Equipment	Ve	hicle OBE	work zone information		
Emergency Vehicle OI	3E	Ve	hicle OBE	vehicle signage data		
Maint and Constr Veh	icle OBE	Ve	hicle OBE	vehicle signage data		
Maint and Constr Veh	icle OBE	Ve	hicle OBE	work zone information		

ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ta/comm profile iring	There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated lower-layer standards.	High	V-L: TPEG2	Develop an ITS application specification for transmission of TPEG2 to a vehicle from a local broadcast source.	Near-term	Australia, European Union
Source	1		Friples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Connected Vehicle Ro	adside Equipment		hicle OBE	lane closure information		
Connected Vehicle Ro		Vel	hicle OBE	road closure information		
Connected Vehicle Ro	adside Equipment	Vel	hicle OBE	road weather advisories		
Connected Vehicle Ro	adside Equipment	Vel	hicle OBE	vehicle signage data		
Connected Vehicle Ro	adside Equipment	Vel	hicle OBE	work zone information		
Emergency Vehicle OE	BE	Vel	hicle OBE	vehicle signage data		
Maint and Constr Veh	icle OBE	Vel	hicle OBE	vehicle signage data		
Maint and Constr Veh	icle OBE	Ve	hicle OBE	work zone information		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
rformance not The performance rules are not fully defined for this information flow.		NA	V I - UC travelar information	Develop an ITS application specification for providing in-vehicle signage and other traveler information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these messages.		United States
y defined		Medium	V-L: US traveler information	information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these	Urgent	United States
ly defined edium)		Information 1		information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these	Urgent	
ly defined	for this information flow.	Information T Des	Friples using this solution and affected b	information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these messages. y this Issue that would be addressed by the Proposed Resolution	Urgent	
ly defined edium) Source	for this information flow.	Information T Des Vel	Friples using this solution and affected b	information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these messages. y this Issue that would be addressed by the Proposed Resolution Flow Name	Urgent	
ly defined edium) Source Connected Vehicle Ro	for this information flow.	Information T Des Vel	Friples using this solution and affected b stination hicle OBE	information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these messages. y this Issue that would be addressed by the Proposed Resolution Flow Name lane closure information	Timeframe	Applicability
ly defined edium) Source Connected Vehicle Ro Connected Vehicle Ro ue e case not nsidered in design	for this information flow. adside Equipment adside Equipment	Information T Des Vel Vel	Friples using this solution and affected b stination hicle OBE hicle OBE	information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these messages. y this Issue that would be addressed by the Proposed Resolution Flow Name lane closure information road closure information		
y defined edium) Source Connected Vehicle Ro Connected Vehicle Ro ue e case not nsidered in design edium)	for this information flow. adside Equipment adside Equipment Issue Description While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the	Information T Des Vel Vel Issue Severity Medium	Triples using this solution and affected bestination hicle OBE hicle OBE V-L: EU vehicle signage data	information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these messages. This Issue that would be addressed by the Proposed Resolution Flow Name Iane closure information Resolution Description Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC. This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution	Timeframe	Applicability Australia, European
ly defined edium) Source Connected Vehicle Ro Connected Vehicle Ro ue e case not nsidered in design edium)	for this information flow. adside Equipment adside Equipment Issue Description While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Information T Des Vel Vel Issue Severity Medium	Triples using this solution and affected bestination hicle OBE hicle OBE V-L: EU vehicle signage data	information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these messages. This Issue that would be addressed by the Proposed Resolution Flow Name lane closure information road closure information Resolution Description Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC.	Timeframe	Applicability Australia, European
ly defined edium) Source Connected Vehicle Ro Connected Vehicle Ro ue e case not nsidered in design edium)	for this information flow. adside Equipment adside Equipment Issue Description While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort. adside Equipment	Information T Des Vel Vel Issue Severity Medium	Triples using this solution and affected bestination hicle OBE hicle OBE V-L: EU vehicle signage data	information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these messages. This Issue that would be addressed by the Proposed Resolution Flow Name Iane closure information Resolution Description Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC. This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution This Issue that would be addressed by the Proposed Resolution	Timeframe	Applicability Australia, European

Solution Name:	TPEG2 - Local Broadcast Wireless (AU/EU	I)			Number of Issues: 6	Tota	al Issue Severity:	23
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: TPEG2	Develop an ITS application specification for transmission of TPEG2 to a vehicle from a local broadcast source.		а		Australia, European Union
		Information 7	Triples using this solution and affected by	y this Issue that would be addressed by the Proposed Resolution				
Source		Des	stination	Flow Nan				
Connected Vehicle Roa	adside Equipment	Ve	hicle OBE	road clos	sure information			

TPEG2 - Mobile Internet (X.509)

This solution is used within the U.S., E.U., and Australia. It combines standards associated with TPEG2 with those for I-M: Mobile Internet (X.509). The TPEG2 standards include upper-layer standards required to support multi-modal information services.. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intreret connection method.

ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ecurity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-V: Secure communications	Develop one or more internationally acceptable, secure, centre-vehicle communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).	Urgent	Australia, European Union, United State
<i>c</i>				y this Issue that would be addressed by the Proposed Resolution		
Source Data Distribution Syst	tem		tination	Flow Name traveler information		
Data Distribution Syst			hicle OBE	traveler information		
Emergency Managem			ergency Vehicle OBE	suggested route		
Maint and Constr Ma			hicle OBE	work zone information		
Traffic Management	•		rsonal Information Device	traffic demand management information		
Traffic Management			hicle OBE	lane closure information		
Traffic Management			hicle OBE	traffic demand management information		
Traffic Management	Center	Ve	hicle OBE	vehicle signage data		
Transportation Inform	nation Center	Ve	hicle OBE	road weather advisories		
sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ata profile not efined	Performance, functionality, and the upper- layers of the OSI stack have not been defined for this information flow.	Ultra	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).	Urgent	Australia, European Union
				y this Issue that would be addressed by the Proposed Resolution		
Source		Des	tination	Flow Name		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description
Data profile not defined			V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane close information and speed information; currently this information can be sent v TPEG2, TMC, or Contextual Speed Information (speed information only). Use to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle Vehicle-Vehicle, etc).
		Information ⁻	Triples using this solution and affected by	this Issue that would be addressed by the Proposed Resolution
Source		De	stination	Flow Name
Transportation Inform	nation Center	Ve	hicle OBE	road weather advisories

5	Total Issue Severity:	44
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sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
		issue severity			Timename	
erlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.	Urgent	Australia, European Union
Source			- Triples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Traffic Management (Center	Ve	nicle OBE	vehicle signage data		
ue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
erlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).	Urgent	Australia, European Union
Source			riples using this solution and affected b tination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Traffic Management (Center	Ve	nicle OBE	lane closure information		
		1	Dronocod Decolution	Resolution Description	Timeframe	
ue	Issue Description	Issue Severity	Proposed Resolution		Timeframe	Applicability
rformance not ly defined	Issue Description The performance rules are not fully defined for this information flow.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.	Urgent	
rformance not ly defined	The performance rules are not fully defined	Medium	C-V: In-vehicle signage			Australia, European
ue rformance not ly defined edium) Source Traffic Management (The performance rules are not fully defined for this information flow.	Medium Information Des	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.		Australia, European
formance not y defined edium) Source	The performance rules are not fully defined for this information flow.	Medium Information Des	C-V: In-vehicle signage riples using this solution and affected b tination	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre. y this Issue that would be addressed by the Proposed Resolution Flow Name		Australia, Europear

Vehicle OBE

Transportation Information Center

	Timeframe	Applicability			
ather advisories.	Urgent	Australia, European Union, United States			

road weather advisories

olution Name:	TPEG2 - Mobile Internet (X.509)				Number of Issues:	5	Total Issue Severity:	44
ssue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Jse case not considered in design medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicl	le signage to the vehi	icle from a centr	-	Australia, European Union
		Information 1	Friples using this solution and affected by	this Issue that would be addressed by the Proposed Resolution				
Source		Des	tination	Flow Nam				
Traffic Management Center		Vel	hicle OBE	vehicle si	ignage data			
						2		

Solution Name:	TPEG2 - ODG-OCIT-C	Number of Issues:	

This solution is used within the European Union. It combines standards associated with TPEG2 with those for C-C: ODG-OCIT-C. The TPEG2 standards include upper-layer standards required to support multi-modal information services. The C-C: ODG-OCIT-C standards include lower-layer obg proprietary protocol used within the EU for road traffic data exchange between central stations

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States
				Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).		
				y this Issue that would be addressed by the Proposed Resolution		
Source		Des	stination	Flow Name		
Traffic Management Center		Me	edia	traffic information for media		
Traffic Management (Center	Wide Area Information Disseminator traffic information for media				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	lution does not provide adequate unications security for the information which potentially jeopardizes C-ITS		Develop one or more internationally acceptable, secure, centre-vehicle communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).	Urgent	Australia, European Union, United States
				y this Issue that would be addressed by the Proposed Resolution		
Source		Des	stination	Flow Name		
Traffic Management (Center	Me	edia	traffic information for media		
Traffic Management Center			de Area Information Disseminator	traffic information for media		

2	Total Issue Severity:	6
ort multi-mode	l information services	The C-C·

Solution Name:	TPEG2 - ODG-OCIT-C				Number of Issues:	2	Total Issue Severity:	6
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Not an open standardThe document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.		Medium	C-C: Secure communications	Develop one or more internationally acceptable, see standards and define rules on when to use which on support for authentication, authorization, confident needed. Once the application layer standard(s) are developed standards will need to be updated to document data	ne. The standard(s) shoul iality, and non-repudiati d, most ITS Information I	d include ion, as Layer	-	Australia, European Union, United States
		Information	Triples using this solution and affected b	by this Issue that would be addressed by the Proposed Resolution				
Source		De	stination	Flow Nam				
Traffic Manageme	ent Center	M	edia	traffic inf	ormation for media			
Traffic Manageme	ent Center	W	ide Area Information Disseminator	traffic inf	ormation for media			
Solution Name:	TPEG2 - Wide Area Broadcast (Upper)				Number of Issues:	3	Total Issue Severity:	7

This solution is used within the U.S., E.U., and Australia. It combines standards associated with TPEG2 with those for C-X: Wide Area Broadcast (Upper). The TPEG2 standards include upper-layer standards required to support multi-modal information services.. The C-X: Wide Area Broadcast (Upper) standards include lower-layer standards that support one entity broadcasting information to all wireless devices over an area that covers at least a metropolitan area without any expectation of acknowledgement or response; security is provided by the upper-layers.

sue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
ecurity inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-V: Secure communications	Develop one or more internationally acceptable, secure, centre-vehicle communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).	Urgent	Australia, Europ Union, United S
				y this Issue that would be addressed by the Proposed Resolution		
Source			tination	Flow Name		
Transportation Inform	nation Center	Pe	rsonal Information Device	broadcast traveler information		
Transportation Inform	nation Center	Ve	hicle OBE	broadcast traveler information		
Wide Area Informatio	on Disseminator	Pe	rsonal Information Device	wide area broadcast traveler information		
Wide Area Informatio	on Disseminator	Ve	hicle OBE	broadcast traveler information		
Wide Area Informatio	on Disseminator	Ve	hicle OBE	wide area broadcast traveler information		

Total Issue Severity: 3 7

Solution Name:	TPEG2 - Wide Area Broadcast (Upper)			Number of Issues: 3 To	otal Issue Severity	7
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Ubiquitous broadcast technology	With the continual enhancement of broadcast technologies and a mixture of free and subscriber-based systems, it is difficult to identify any single technology that can be used to reliably reach the bulk of drivers in a timely manner.	Low	C-V: Wide-area broadcast subnet and hybrid communications	Standardise one or more mechanisms by which wide-area broadcast messages can be received by a defined minimum percentage of transportation users that are currently operating within a specified geographic area. The required minimum percentage is dependent on the type of information being transmitted and will need to be determined by the expert community. Some alerts (e.g., tornado warnings) will require near 100% reception, while other messages (e.g., road works ahead) may require significantly lower minimum percentages. The minimum percentage may be made up with a variety of technologies using hybrid communications and the ITS station architecture.	Urgent	Australia, European Union, United States
Source			Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Transportation Information Center		Personal Information Device		broadcast traveler information		
Transportation Information Center		Vehicle OBE		broadcast traveler information		
Wide Area Information Disseminator		Personal Information Device		wide area broadcast traveler information		
Wide Area Information Disseminator		Vehicle OBE		broadcast traveler information		
Wide Area Information Disseminator		Vehicle OBE		wide area broadcast traveler information		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.	Urgent	Australia, European Union
Source			- Triples using this solution and affected b stination	y this Issue that would be addressed by the Proposed Resolution Flow Name		
Transportation Information Center		Vehicle OBE		broadcast traveler information		
Wide Area Information Disseminator		Vehicle OBE		broadcast traveler information		