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Title: Request for input on ITU-T Recommendations related to driver distraction

LIAISON STATEMENT

For action to:
-Intelligent Transport Systems America (ITS America)
-Intelligent Transport Systems Japan (ITS Japan)
-Intelligent Transport Systems Europe (ERTICO)
-Intelligent Transport Systems Canada (ITS Canada)
-Federal Communications Commission (FCC)
-National Transportation Safety Board (NTSB)
-Transportation Research Board (TRB)
-European Automobile Manufacturers Association (ACEA)
-American Trucking Association (ATA)
-Consumer Electronics Association (CEA)
-The Wireless Association (CTIA)
-United Nations Economic Commission for Europe (UNECE)
-World Wide Web Consortium (W3C)
-Internet Engineering Task Force (IETF)
-European Telecommunications Standards Institute Technical Committee on Human Factors (ETSI TC HF)
-Bluetooth Automotive Business Ecosystem Team (BT AutoBET)
-GSMA
-Internet ITS Consortium
-Information Technology Industry Council (ITI)

Approval: **ITU-T FG Distraction Munich 28 June 2012**

Deadline: **15 August 2012**

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Summary

This liaison statement describes currently planned ITU-T Recommendations related to driver distraction and requests input on existing standards and research that should be considered in this work.

Introduction

The standardization sector of the International Telecommunications Union (ITU-T) is currently developing Recommendations for Information and Communications Technologies (ICTs) that interact with drivers. These Recommendations will apply to ICT installed, connected, and nomadic devices, networks, and applications accessed by drivers of any road vehicle. These devices, networks, and applications are often provided by mobile phone manufactures, service providers, application authors, automotive OEMs, and automotive aftermarket suppliers.

The ITU-T is the United Nations (UN) agency dealing with telecommunications. It is where governments come together to agree on international standards that govern ICTs. Strictly speaking, these standards are voluntary; which is why they are referred to as "Recommendations". However, they can become binding if mandated by regional government agencies or customers. Many people from the automotive industry have not heard of the ITU-T because ICTs have not traditionally been part of the automotive environment.

There are several reasons why ITU-T Recommendations are needed:

1) **ICTs are moving into the automotive cockpit**—ICT systems under the scope of the ITU-T are increasingly finding their way into the automotive cockpit and interacting with drivers. Technology-related driver distraction has been recognized as a global problem that needs to be addressed. Internationally agreed guidance on the design and performance of these telecommunications systems is needed to increase safety.
2) **Easy to find guidance for ICT community**—ICT designers, developers, and application authors need to be able to easily find guidance on design and performance requirements for ICT systems that interact with drivers. The ICT community consults ITU-T Recommendations for guidance and requirements on ICT systems. Therefore, there is real value in having ITU-T Recommendations that can serve as a reference to existing driver distraction related standards and fill any standardization gaps.
3) **Internationally agreed standards**—The ITU-T is where governments come together to agree on international telecommunications standards. This is what makes them unique. It also gives them more weight with regional Standards Development Organizations (SDOs) and regulatory authorities. There is even value in an ITU-T Recommendation that simply references existing standards since it will have gone through the ITU-T approval process.

The ITU-T Focus Group on Driver Distraction (FG Distraction) was created to pull expertise from the automotive industry and human factors experts into the ITU-T standardization process. The purpose of this Liaison Statement (LS) is to seek input on currently planned ITU-T Recommendations from other SDOs, government/industry forums, companies, academic institutions, and subject matter experts. More specifically, we are seeking help on identifying existing standards and research that should be considered during the development of 3 planned ITU-

T Recommendations which are described in the following section. It is worth noting that FG Distraction intends to reference existing work where possible.

Currently planned ITU-T Recommendations

There are currently 3 planned ITU-T Recommendations related to Driver Distraction:

1) **P.UIA**—ITU-T Recommendation on automotive user interface requirements. Annex 1 contains a FG Distraction contribution which provides a more detailed description of P.UIA. Annex 4 contains a list of existing standards and works being considered in the development of P.UIA.
2) **G.SAM**—ITU-T Recommendation on mechanisms for managing the situational awareness of drivers. Annex 2 contains a FG Distraction contribution which provides a more detailed description of G.SAM.
3) **G.V2A**—ITU-T Recommendation on an automotive interface (e.g., APIs) for applications external to the vehicle gateway. Annex 3 contains a FG Distraction contribution which provides a more detailed description of G.V2A.

The FG Distraction work plan that will support the development of these ITU-T Recommendations can be found in Annex 5.

Request for input

We kindly request any input you may have on existing standards and research that should be considered during the development of these ITU-T Recommendations.

We also strongly encourage your participation in future meetings of FG Distraction. Participation is open to any individual from a country which is a member of ITU and who is willing to contribute to the work. This includes individuals who are also members or representatives of interested SDOs. There is no cost for participating. More information about FG Distraction and upcoming meetings can be found at: http://www.itu.int/en/ITU-T/focusgroups/distraction/Pages/default.aspx . Our next meeting will take place on 22-23 August 2012 in Tokyo, Japan.

Annex 1

(Contribution describing P.UIA work item)

Abstract

This contribution describes a FG Distraction work item which is intended to provide input to a new ITU-T Recommendation (P.UIA) that will specify requirements for communications between applications and the driver. These requirements will capture what is currently known to be good design practice and performance. They will address all modalities (visual, auditory, tactile, manual input, speech input) and apply regardless of device type (e.g., vehicle, nomadic-paired, nomadic-not paired). However, device-specific guidance will also be given to optimize the design and performance of each device type. The intent of this contribution is to facilitate discussions at the current meeting to: further define the work item, identify associated tasks, and develop target timing.

1.0 Introduction

Information and Communications Technologies (ICTs) under the scope of the ITU-T are finding their way into road vehicles and drivers are increasing interacting with these vehicle-installed, nomadic, and cloud-based ICT systems. This is causing a significant increase in technology-related driver distraction and workload—which can increase crash risk.

Designers and developers of ICTs systems and applications need to know the requirements for safely interacting with drivers.

The current work item will provide input to a planned ITU-T Recommendation that gives design and performance requirements for ICT systems that need to interact with drivers. They will address all modalities (visual, auditory, tactile, manual input, speech input) and apply to all device types (e.g., vehicle, nomadic-paired, nomadic-not paired). However, device-specific guidance will also be given to optimize performance of each device type.

2.0 Description of the work item

The work item being described here will be provisionally referred to as "P.UIA" because it will potentially become a P-series Recommendation on User Interface requirements for Automotive applications. However, a more careful review of the ITU-T series will be required to find the most appropriate series for this Recommendation.

The main purpose of this work item is to provide input for a new ITU-T Recommendation on this topic. A potential home for this work is ITU-T Q4/12.

P.UIA will define design and performance requirements for ICT systems that interact with drivers. The scope of this recommendation will include the end-to-end system (i.e., application-to-user). This is illustrated in Figure 1. Some requirements will be at the system level (e.g., application response to driver's speech input) while other will be at the subsystem level (e.g., network QoS).

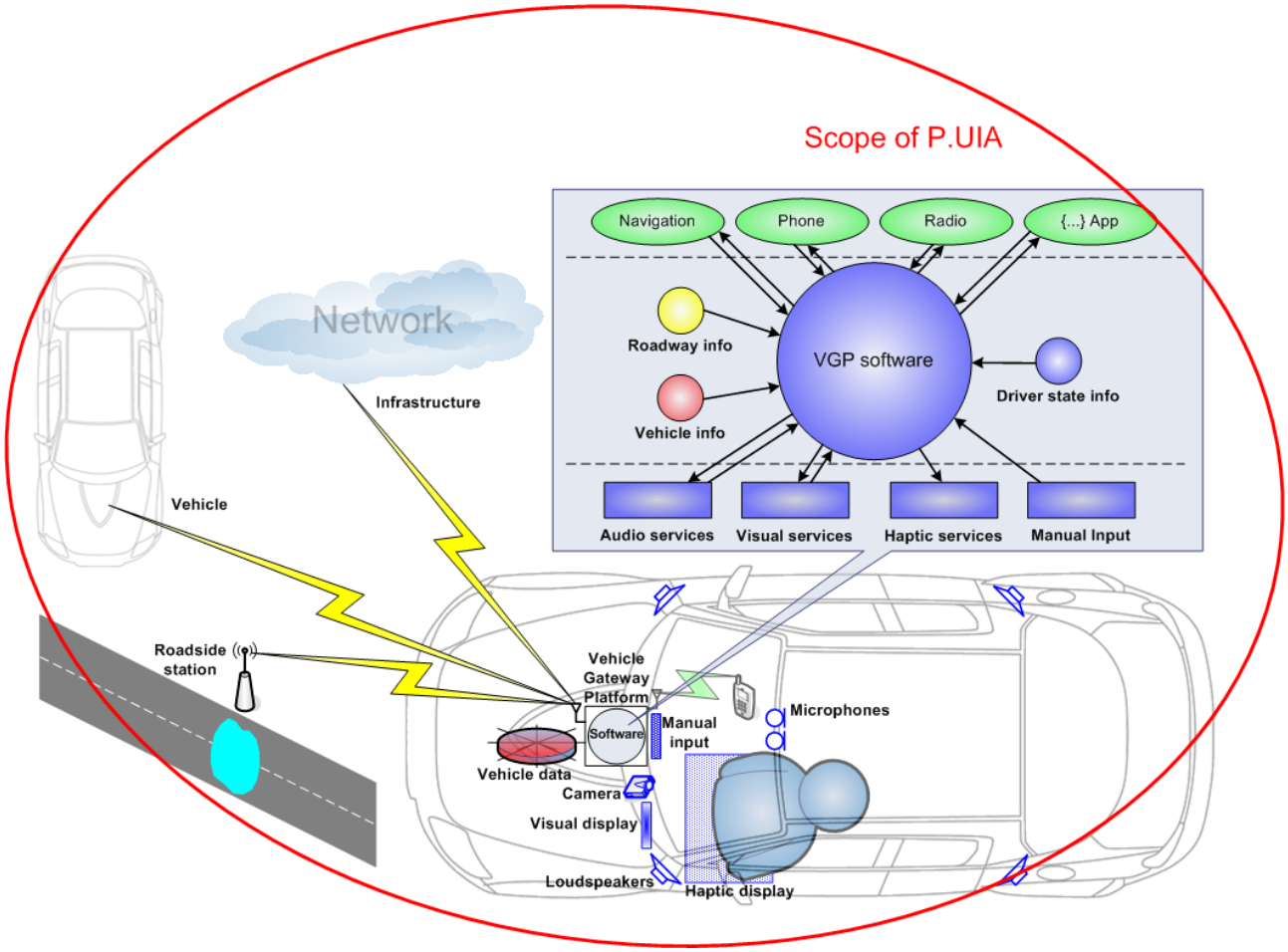

Figure 1. Mapping of proposed new Recommendation (P.UIA) into high-level system architecture.

There was agreement at the last meeting to use the Alliance of Automobile Manufacturers (AAM) visual-manual guidelines as the starting point for this recommendation. However, these guidelines will need to be turned into requirements where possible, expanded to include other modalities, address other aspects of the end-to-end system, and provide device-specific guidance.

3.0 Goals for the current meeting

Goals for the current meeting are to further define this work item, identify associated tasks, and develop target timing.

Further discussion needs to happen on the details of this work item. How should the Recommendation be structured? What are the key subsystems for which requirements should be developed? What are the existing standards and work in this area that should be reviewed? It may not be possible to fully define the work item without more input, but there should be a plan to get any missing information by the end of the meeting.

It will also be important to identify the key tasks and milestones associated with this work item to progress the work. Some possible tasks include:

- Review existing work on this topic (e.g., ISO, SAE, etc.)

- Form subgroup to develop this work item
- Draft outline structure of proposed Recommendation
- First draft of input to Recommendation
- Stable draft of input to Recommendation
- FG Distraction consensus on input to Recommendation

After key tasks and milestones have been identified, target timing should be developed. Progress should be co-ordinated with the ITU-T Question that will continuing development of the ITU-T Recommendation related to this work item (which will probably be ITU-T Q4/12).

Annex 2

(Contribution describing G.SAM work item)

Abstract

This contribution describes a FG Distraction work item which will provide input to a new ITU-T Recommendation (G.SAM) that defines mechanisms in a Vehicle Gateway Platform (VGP) that can be used to manage Situational Awareness of drivers. Such mechanisms could be used to handle message arbitration, control timing of messages, and optimize multi-modal format of messages. The intent of this contribution is to facilitate discussions at the current meeting to: further define the work item, identify associated tasks, and develop target timing.

1.0 Introduction

The automotive cockpit is fundamentally changing. ICTs are finding their way into road vehicles and drivers are increasing interacting with these vehicle-installed, nomadic, and cloud-based ICT systems. This is causing a significant increase in technology-related driver distraction and workload—which can increase crash risk.

There is a growing need to define mechanisms that can be used to manage the information flow between the driver and applications; which compete for the driver's attention. Of course, a pre-requisite for managing all applications is to have a centralized point of intelligence and control—such as a Vehicle Gateway Platform (VGP). Such integration of all applications is beyond the scope of this work item, but is dealt with in another work item of FG Distraction referred to as "G.V2A".

The current work item will define mechanisms in a VGP that can be used to improve Situational Awareness (SA). SA refers to the perception of objects/events, comprehension of their meaning, and projection of their status in the near future. The so-called "driver-distraction" problem is really a break-down in SA. In other words, driver distractions interfere with the development of SA; which is what directly affects crash-risk.

The mechanisms to be defined will improve SA in a couple of ways. First, they will reduce technology-related driver distraction and workload. Second, they will increase the effectiveness of safety-related applications such as Advanced Driver Assistance Systems (ADAS). Effectiveness is improved by making safety-related communications more salient while simultaneously reducing the distraction and workload created by other applications.

The, yet to be defined, mechanisms will handle message arbitration, control timing of messages, and optimize multi-modal format of messages. They will also be used to address accessibility issues (e.g., deaf drivers that can't make use of auditory modality).

2.0 Description of the work item

The work item being described here will be provisionally referred to as "G.SAM" because it may potentially become a G-series Recommendation on Situational Awareness Management. However,

a more careful review of the ITU-T series will be required to find the most appropriate series for this Recommendation.

The main purpose of this work item is to provide input to ITU-T Q27/16 which has started developing a new ITU-T Recommendation on this topic.

G.SAM will define the mechanisms in a VGP needed for handling the prioritization, arbitration, timing, and multi-modal formats of messages between the driver and automotive cockpit. The scope of this recommendation is illustrated in Figure 1.

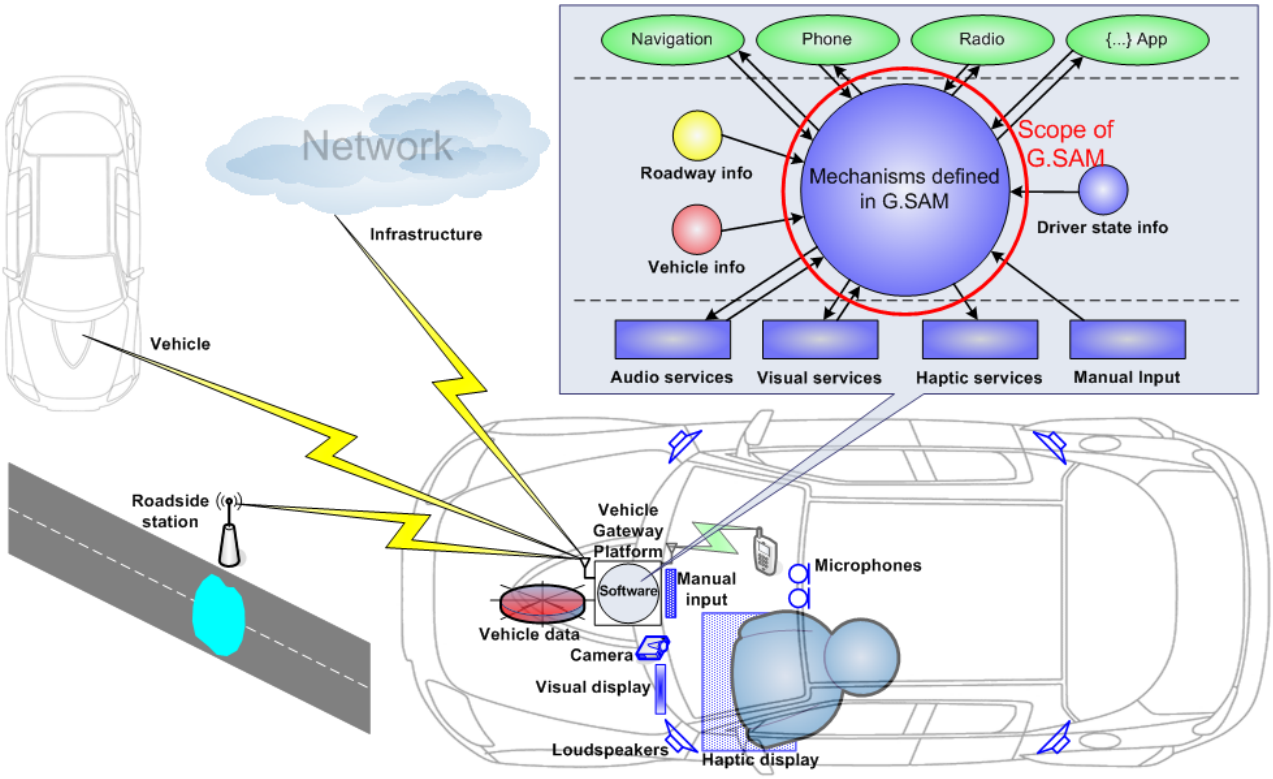

Figure 1. Mapping of proposed new Recommendation (G.SAM) into high-level system architecture.

Figure 1 shows how G.SAM maps into the high-level system architecture of ICT systems in road vehicles. Some of the functions that may be provided by these mechanisms include:

- Prioritize and arbitrate messages to the driver
- Control timing of messages
  - Delay delivery of messages to the driver
  - Temporarily store input from the driver
- Set multi-modal format of messages based on:
  - User interface capabilities (e.g., haptic display, spatial audio display, etc.)

- Type of message (e.g., collision avoidance warning, non-driving application prompt, etc.)
- Message content (e.g., audio, image, etc.)
- Concurrent tasks (e.g., in a call when navigation prompt needs to be played, etc.)
- Driver capabilities (e.g., deaf, limited cognitive resources due to high workload, etc.)

G.SAM may need to define the functions, APIs, and protocols of these mechanisms.

3.0 Goals for the current meeting

Goals for the current meeting are to further define this work item, identify associated tasks, and develop target timing.

Further discussion needs to happen on the details of this work item. What are the use cases that will be addressed? What functions will be provided by these mechanisms? How will these mechanisms be specified (e.g., API syntax, protocols, etc.). It may not be possible to fully define the work item without more input, but there should be a plan to get any missing information by the end of the meeting.

It will also be important to identify the key tasks and milestones associated with this work item to progress the work. Some possible tasks include:

- Review existing work on this topic (e.g., AIDE project)
- Form subgroup to develop this work item
- Draft outline structure of proposed Recommendation
- First draft of input to Recommendation
- Stable draft of input to Recommendation
- FG Distraction consensus on input to Recommendation

After key tasks and milestones have been identified, target timing should be developed. The work plan of G.SAM in ITU-T Q27/16 should be taken into consideration when developing the timing. If conflicts exist, then this should be communicated to ITU-T Q27/16. Below is the work plan for G.SAM in ITU-T Q27/16:

Milestones	**Schedule**	**Status**
G.SAM (Situational Awareness Management)		
ToR	May 2012	
First draft	February 2013	
Stable draft & consent	December 2013	

Annex 3

(Contribution describing G.V2A work item)

Abstract

This contribution describes a FG Distraction work item which will provide input to a new ITU-T Recommendation (G.V2A) that defines a communications interface between external applications and a Vehicle Gateway Platform (VGP). The objective of this Recommendation is to enable applications running on nomadic devices (e.g., mobile phones, portable music players, etc.) and in the cloud (e.g., ITS systems, navigation servers, etc.) to interact with drivers in a safer manner. The communications interface will allow external applications to leverage the user interface of the vehicle platform. It will also enable the vehicle platform to control the timing and format of all application messages to the driver. The intent of this contribution is to facilitate discussions at the current meeting to: further define the work item, identify associated tasks, and develop target timing.

1.0 Introduction

Nomadic ICT devices (e.g., mobile phones, portable navigation units, etc.) are currently being used within the automotive cockpit by drivers while operating their vehicle. Their small size, manual interface, unsecured/uncontrolled/arbitrary position within the vehicle, and uncontrolled interaction with the driver has the potential to increase crash risk. It is unlikely that regulation and education alone will prevent usage of these devices within the cockpit. Therefore, technology-based solutions for safer interaction with these devices should also be pursued.

There is also a need to enable safe interaction with cloud-based applications that are hosted outside of the vehicle (e.g., Intelligent Transport Systems). What do cloud-based and nomadic device-based applications have in common? They are both "external" to the vehicle platform which is the best place to safely manage interactions with the driver.

The current work item will define a communications interface for external applications.

2.0 Description of the work item

The work item being described here will be provisionally referred to as "G.V2A" because it is potentially a G-series Recommendation that can be thought of as a communications interface between vehicles and applications. However, a more careful review of the ITU-T series will be required to find the most appropriate series for this Recommendation.

The main purpose of this work item is to provide input to ITU-T Q27/16 which has started developing a new ITU-T Recommendation on this topic.

G.V2A will define the communications interface between external applications and the VGP. The scope of this recommendation is illustrated in Figure 1.

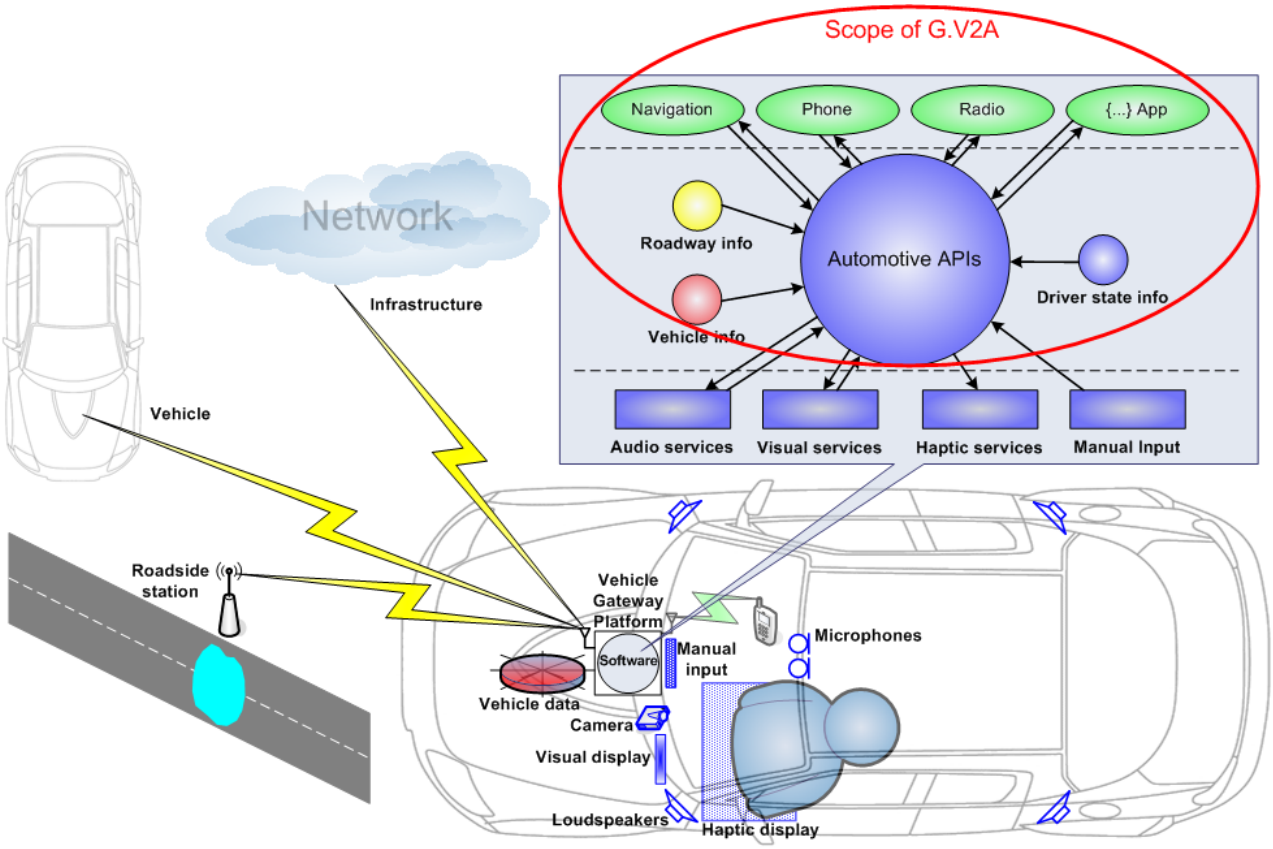

Figure 1. Mapping of proposed new Recommendation (G.V2A) into high-level system architecture.

A communications interface is needed to allow external applications to leverage the user interface of the vehicle platform; which has been optimized for safe interaction with the driver. This interface will also allow vehicle platforms to control the interactions of all applications with drivers—not just local applications. However, the actual mechanisms for control are dealt with in another FG Distraction work item referred to as "G.SAM".

It is worth noting that there have already been some attempts at defining such an interface (e.g., Terminal Mode/MirrorLink, iPod out, etc.). These approaches will be considered during the development of this work item.

3.0 Goals for the current meeting

Goals for the current meeting are to further define this work item, identify associated tasks, and develop target timing.

Further discussion needs to happen on the details of this work item. To what extent can previous attempts be leveraged (e.g., Terminal Mode/MirrorLink, iPod out, etc.)? What form will this communications interface take? It may not be possible to fully define the work item without more input, but there should be a plan to get any missing information by the end of the meeting.

It will also be important to identify the key tasks and milestones associated with this work item to progress the work. Some possible tasks include:

- Review existing work on this topic (e.g., Terminal Mode/MirrorLink, iPod out, etc.)
- Form subgroup to develop this work item
- Draft outline structure of proposed Recommendation
- First draft of input to Recommendation
- Stable draft of input to Recommendation
- FG Distraction consensus on input to Recommendation

After key tasks and milestones have been identified, target timing should be developed. The work plan of G.V2A in ITU-T Q27/16 should be taken into consideration when developing the timing. If conflicts exist, then this should be communicated to ITU-T Q27/16. Below is the work plan for G.V2A in ITU-T Q27/16:

Milestones	**Schedule**	**Status**
G.V2A (Vehicle-to-Application)		
ToR	May 2012	
First draft	February 2013	
Stable draft & consent	December 2013	

Annex 4

(Existing standards being considered in development of P.UIA)

Compendium of International Standards and Guidelines Governing the Driver Interface for Telematics Devices For Use in the Driving Environment

The importance of a safe human machine interaction (HMI) for in-vehicle information, control, and communication systems has been addressed by the development of safety guidelines, standards, and regulations that have evolved as the complexity of the driver cockpit has increased. With the increased penetration of both integrated and nomadic telematics devices, government and industry have appropriately responded with the generation of applicable guidelines covering the visual-manual driver vehicle interface. With the increasing use of voice interfaces industry standards organizations (e.g., SAE) are currently working to develop guidelines in this area as well. In addition the National Highway Traffic Safety Administration (NHTSA) has announced its intention to issue voluntary guidelines covering vehicle integrated visual/manual, nomadic visual/manual, and voice driver/vehicle interfaces over the next few years[1].

Currently there are three main sets of guidelines applicable to visual-manual driver interfaces that industry has committed to use; JAMA (Japan Automobile Manufacturers Association) Guideline for In-Vehicle Display Systems, Version 3.0[2], Alliance of Automobile Manufacturers Statement of Principles, Criteria and Verification Procedures on Driver Interactions with Advanced In-Vehicle Information and Communication Systems, June 26, 2006[3], Commission of the European Communities (2007) Commission Recommendation on Safe and Efficient In-Vehicle Information and Communication Systems; Update of the European Statement of Principles on Human Machine Interface[4].

While each of these sets of guidelines are substantially similar, there are some differences regarding scope, aspects of performance, and degree at which verifications procedures are provided. These are summarized in table 1. It should also be recognized that where guidelines differ for an aspect of performance the performance guidance provided by the guidelines endorsed by that regional authority (e.g., JMIT, EC, etc) should take preference for vehicles produced for sale in that jurisdiction.

As indicated above, for vehicles sold in the United States the NHTSA is in the process of issuing "voluntary" visual-manual guidelines for vehicle integrated systems. Once this document is completed, it is expected that it will supersede the Alliance guidelines referenced above. Likewise

[1] Cite section of DOT distraction plan that details these activities
[2] Cite Japanese guideline and location where it can be obtained
[3] Cite US guideline and location where it can be obtained
[4] Cite ECE statements of principles

any voice interface guidelines developed by NHTSA would also supersede the SAE guidelines that are currently under development.

There are many additional human factors standards and guidelines that address specific aspects of human interface performance with vehicle controls, displays, and communications devices. However, these do not currently directly impact vehicle design to the level achieved by the three main guidelines detailed above. While not an exhaustive list, we have provided as a reference a listing of some of the more relevant guidelines as an attachment to this document.

Table 1. - Vehicle Integrated Telematics Visual-Manual Driver Interface Guidelines (Currently in practice either by voluntary commitment or national regulation)

Aspect of Performance	Japan (JAMA)[5]		United States "Alliance"[6]		ECE ESoP	
	Principle/ Requirement	Verification procedure	Principle/ Requirement	Verification Procedure	Principle/ Requirement	Verification Procedure
Correct installation	3.	None provided	1.1	Design to conform and validate by appropriate means	4.3.2.1	Inspection per referenced standards
Driver field of view	3.1(2) 5(2)	None Provided (3.1(2) Annex 3 (5(2))	1.2	Design to conform and validate by appropriate means	4.3.2.2	Inspection or measurement per referenced standards
Obstruction of controls	3.1(1)	None provided	1.3	Design to conform and validate by appropriate means	4.3.2.3 4.3.4.5	Inspection per referenced standards
Ability to maintain normal driving posture to operate display system	3.1(3)	None provided				
Retrofit installation	3.1(4)	None Provided				
Close to the drivers line of sight	3.2	Annex 1	1.4 (A or B)	Detailed procedures provided	4.3.2.4	Judgement by designers and ergonomics specialists
Reflections	3.2	None provided	1.5	Verification should be done by appropriate means	4.3.2.5	Based on appropriate procedures to determine reflections and glare (not specified)
Short glances	4.2(1)(2)	Annex 2	2.1A[7]	Detailed procedures provided	4.3.3.1	Comparison of design alternative to minimize number and duration of glances

[5] Japanese guidelines apply specifically to display systems (whether factory or dealer installed) and include any auditory information provided by the display system.

[6] Alliance principles are not intended to apply to conventional information or communication systems nor to collision warning or vehicle control systems. These principles are not a substitute for regulations and standards that should be respected and used by suppliers and manufacturers of in-vehicle information and communication systems. In the event of any conflict between these principles and applicable regulations, the regulations take precedence.

[7] Guidelines permit systems to be designed to either 2.1A or 2.1B

Total glance time	4.2(1)(2) 5(3)	Annex 2 (4.2(1)(2) Annex 3 (5(3))	2.1A[7]	Detailed procedures provided	4.3.3.1	Comparison of design alternative to minimize number and duration of glances
Visual distraction / driving performance			2.1B[7]	Detailed procedures provided		
Symbole	4.1(2)	None provided	2.2	Design to conform	4.3.3.2	Inspection to referenced standards
Legibility	4.1(2)	None provided	2.2[8]	Design to conform	4.3.3.2	Inspection to referenced standards
- Contrast	4.1(2)	None provided	2.2[8]	Design to conform	4.3.3.2[8]	Detailed measurements are prescribed
- Size of characters	4.1(2)	None provided	2.2[8]	Design to conform	4.3.3.2[8]	Inspection to referenced standards
- Font dimensions	4.1(2)	None provided	2.2[8]	Design to conform	4.3.3.2[8]	Inspection to referenced standards
- Blinking	4.1(2)	None provided	2.2[8]	Design to conform	4.3.3.2[8]	Inspection to referenced standards
Audibility	4.1(2)	None provided			4.3.3.2	Inspection to referenced standards
Luminous Intensity shall not “Dazzle” driver at night	4.1(3)	None provided				
Timeliness and accuracy of information		None provided	2.3	Design to conform and validate by appropriate means	4.3.3.3	Inspection
Prioritization (between vehicle head unit and tethered mobile device)		None provided			4.3.3.4	Inspection
No uncontrollable sound	4.3(1) 4.3(2)	None provided	2.4	Design to conform and validate by appropriate means	4.3.3.5 4.3.4.6	Inspection
At least one hand on the steering wheel	5(1)	None provided	3.1	Analysis of the system design or through other appropriate means	4.3.4.1	Inspection
Chunk-ability	5(4)	Annex 2			4.3.4.2	Criteria provided for judgement by designers and ergonomics specialists
Interrupt-ability / Resume-ability	5(6)	None provided	3.3	Verify by inspection or demonstration	4.3.4.3	Inspection
Hands-free speech		None provided	3.2	Design to conform and validate by appropriate means		
Driver control of pace	5(8)	None provided	3.4	Design to conform and verify by appropriate means	4.3.4.4	Inspection
Timely feedback	5(9)	None provided	3.5	Demonstrate conformity to the	4.3.4.7	Measurement of system response

[8] These aspects of performance are not explicitly detailed in the Alliance guidelines or ECE principles but are captured through reference to ISO 15008

				specified system input response through analytical or empirical means		time
Visual Information can be switched off	5.5	None provided	3.6	Verification should be done through inspection of the system, its states, and the dynamic non-safety-related info that it presents	4.3.4.8	Inspection
Distracting information should not be presented to driver (e.g., No TV or scrolling text)	4.1(1)	None provided	4.1	Demonstrate that when the vehicle is in motion, dynamic visual information listed in the criteria, which is not related to driving, is not visible to the driver	4.3.5.1	Inspection
No functional interference					4.3.5.2	Inspection
Locked during driving	4.2(2) 5(7)	Annex 2 (4.2(2)) None Provided (5(7))	4.2	Design to conform and verify by appropriate means	4.3.5.3	Inspection
Malfunction notification			4.3	Design to conform and verify by appropriate means	4.3.5.4	Inspection
Instructions on system usage			5.1	None provided	4.3.6.1 4.3.6.5	Inspection
Instructions on safety should be correct and simple	6(1) 6(2)		5.2	None provided	4.3.6.5	Assessment and judgement
Instructions provide in relevant language (or understandable form)	6(3)		5.3	None provided	4.3.6.3	Assessment & judgement taking into account the system's functionality and intended user groups
Instructions distinguish between driving and non-driving tasks			5.4	None provided	4.3.6.4	Inspection
Information highlight if special skills are necessary or product/feature in unsuitable for particular users			5.5	None provided	4.3.6.6	Inspection
Representations of system should not create unrealistic expectations, nor encourage unsafe or illegal use			5.6	None provided	4.3.6.7	Assessment & judgement taking into account the system's functionality and intended user groups

Reference Guidelines/Standards (not exhaustive)

- **Design Guidelines for Safety of In-Vehicle Information Systems** (2004), Transportation Research Laboratory (TRL), A. Stevens, A. Quimby, A. Board, T. Kersloot and P. Burns.
- **Human Factors Design Guidelines for Advanced Traveler Information Systems (ATIS) and Commercial Vehicle Operations (CVO)** (1997), Developed by Battelle under contract from the U.S. Department of Transportation, Federal Highway, Technical Report FHWA-RD-98-057, J.L. Campbell, C. Carney, B.H. Kantowitz.
- **HARDIE Design Guidelines Handbook: Human Factors Guidelines for Information Presentation by ATT Systems** (1996), Commission of the European Communities, Luxembourg, T. Ross, K. Midtland, M. Fuchs, A. Pauzie, A. Engert, B. Duncan, G. Vaughan, M. Vernet, H. Peters, G. Burnett, A. May.
- **SAE J2364 - Recommended Practice Navigation and Route Guidance Function Accessibility While Driving** (2004), Society of Automotive Engineers (SAE).
- **SAE J2365 – Recommended Practice Calculation of the Time to Complete In-Vehicle Navigation and Route Guidance Tasks** (2002), Society of Automotive Engineers (SAE).
- **A Safety Checklist for the Assessment of In-Vehicle Information Systems: Scoring Proforma** (1999), Transportation Research Laboratory (TRL), Project Report PA3536-A/99, A. Stevens, P.A. Board, A. Quimby.
- **Preliminary Human Factors Guidelines for Driver Information Systems** (1993), The University of Michigan Transportation Research Institute (UMTRI) under contract from the U.S. Department of Transportation, Federal Highway, Technical Report UMTRI-93-21 (also published as FHWA-RD-94-087, P. Green, W. Levinson, G. Paelke, C. Serafin
- **International Organization for Standardization (ISO)**

  ISO 15005 - Road vehicles -- Ergonomic aspects of transport information and control systems -- Dialogue management principles and compliance procedures

  ISO 15006 - Road vehicles -- Ergonomic aspects of transport information and control systems -- Specifications for in-vehicle auditory presentation

  ISO 15007-1 - Road vehicles -- Measurement of driver visual behaviour with respect to transport information and control systems -- Part 1: Definitions and parameters

  ISO 15007-2 - Road vehicles -- Measurement of driver visual behaviour with respect to transport information and control systems -- Part 2: Equipment and procedures

  ISO 15008 - Road vehicles -- Ergonomic aspects of transport information and control systems -- Specifications and test procedures for in-vehicle visual presentation

  ISO TC 16951 - Road vehicles -- Ergonomic aspects of transport information and control systems (TICS) -- Procedures for determining priority of on-board messages presented to drivers

  ISO 16673 - Road vehicles -- Ergonomic aspects of transport information and control systems -- Occlusion method to assess visual demand due to the use of in-vehicle systems

  ISO 2575 - Road vehicles -- Symbols for controls, indicators and tell-tales

  ISO 4040 - Road vehicles -- Location of hand controls, indicators and tell-tales in motor vehicles

  ISO 4513 - Road vehicles -- Visibility -- Method for establishment of eyellipses for driver's eye location

ISO 17287 - Road vehicles -- Ergonomic aspects of transport information and control systems -- Procedure for assessing suitability for use while driving

Annex 5

(Work plan for FG Distraction deliverables)

Work item	Subtask	Completion date	Status
P.UIA	Form subgroup to develop work item	3rd meeting (12-13 December 2011)	COMPLETE (Scott Schmidt, Scott Pennock, TBD Japanese delegate)
	Review existing work	4th meeting (4-5 April 2012)	
	Draft outline structure	End of January 2012	
	First draft	5th meeting (late May 2012)	
	Stable draft	6th meeting (22-23 August 2012)	
	Consensus	6th meeting (22-23 August 2012)	
G.SAM	Form subgroup to develop work item	3rd meeting (12-13 December 2011)	COMPLETE (John Lee, Scott Pennock)
	Review existing work	4th meeting (4-5 April 2012)	
	Draft outline structure	4th meeting (4-5 April 2012)	
	First draft	5th meeting (late May 2012)	
	Stable draft	6th meeting (22-23 August 2012)	
	Consensus	6th meeting (22-23 August 2012)	
G.V2A	Form subgroup to develop work item	3rd meeting (12-13 December 2011)	COMPLETE (Andy Gryc, Kazuya Takeda)
	Review existing work	4th meeting (4-5 April 2012)	
	Draft outline structure	5th meeting (late May 2012)	
	First draft	6th meeting	

		(22-23 August 2012)	
	Stable draft	7th meeting (December 2012)	
	Consensus	7th meeting (December 2012)	

Table 1. FG Distraction work plan.