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| ETSI_logo_Office_Colour_Small | ***ToR STF BB (TC ITS / WG 3)*** |
| Version: 0.5 |
| Author: Sebastian Müller – Date:30 Sep 2016  |
| Last updated by: Gavin CraikDate:16 Nov 2016 |
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Terms of Reference - Specialist Task Force STF BB
(TC ITS / WG 3) “GeoNetworking test specification update on Forwarding Algorithms”

**Summary information**

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| --- | --- |
| Approval status | Approved by TC ITS & Board#109a |
| Funding | **Maximum budget: 20 000 € from ETSI FWP** |
| Time scale | 30 January 2017 to April 2017  |
| Work Items  | See §6.2 (deliverables to be produced) |
| Board priority  | Standards enablers/facilitators (e.g. conformance test/interoperability/methodology) Recommendations: use of TTCN and CTI supervision |

Part I – Reason for proposing the STF

# Rationale

The ongoing STF517 on ‘“Validation of the Conformance Test Specifications for the ITS Protocols” is key to the success of the upcoming ITS Plugtests, 7 to 18 November 2016, Livorno, Italy (see <http://www.etsi.org/news-events/events/1054-plugtests-2016-itscms5> ). More than 40 vendors are expected to attend the interoperability event which manifests the high interest of industry in ITS tests. As a prerequisite, STF517 provides the conformance test suites and the test services to the Plugtests vendors in order to ensure the compliance of devices to the base standards. In addition STF517 prepares the updates of the existing test specifications according to the evolution to the ETSI ITS base standards. STF517 can cover all the topics of CA, DEN and Infrastructure base standards, but does not have the bandwidth to implement all new required changes of the GN base specification (REN/ITS-00349). This present document proposes the creation of a new STF in order to provide the necessary update of the current test specifications.

# Objective

The objective of this present STF proposal is:

* to update the current GN test specifications RTS/ITS-00352 (TS 102 871-1), RTS/ITS-00353 (TS 102 871-2), RTS/ITS-00354 (TS 102 871-3) according to the latest versions of ETSI EN 302 636-4-1 (REN/ITS-00349)
* to make a general review of Test Specs (references, names, abbreviations)
* to make a principal review of ETSI EN 302 636-4-1 (REN/ITS-00349) and to provide feedback to ITSWG3 (revision of the EN is not in the scope of this STF).
* to update the Test Purposes; there are at least 80 tests out of the total of 147 tests which need dedicated work (forwarding algorithms); where applicable, tests will be merged, deleted or added
* to implement the test scripts and to compile on Titan, Elvior and Spirent

# Relation with ETSI strategy and priorities

The STF will contribute to the following ETSI Strategy:

* keep ETSI effective, efficient and recognised as such
* create high quality standards for global use and with low time-to-market.
* establish leadership in key areas impacting members' future activities

This request is in following the priority category:

* Standards enablers/facilitators (conformance testing, interoperability, methodology)

# Context of the proposal

## ETSI Members support

TCITS#24 decided to put forward the present STF proposal, see point 8 at [https://docbox.etsi.org/ITS/ITS/05-CONTRIBUTIONS/2016/ITS(16)000126\_Draft\_Meeting\_Report.docx](https://docbox.etsi.org/ITS/ITS/05-CONTRIBUTIONS/2016/ITS%2816%29000126_Draft_Meeting_Report.docx)

The following members support this proposal:

|  |  |  |
| --- | --- | --- |
| **ETSI Member** | **Supporting delegate** | **Motivation** |
| BNETZA | Stefan Hiensch | The Federal Ministry of Economic Affairs and Energy (BMWi) supports the revision of the test specifications. |
| FBConsulting | Friedbert Berens | FBConsulting supports the revision of the GN conformance test specifications. |
| KAPSCH | Hans Johannson | Testing is vital to the interoperability of different implementations of ITS G5 applications and supports an open market. |
| NEC | Andreas Festag | Testing STFs are essential for successful interoperability testing and deployment. We will continue implementing latest ETSI standards in our products. |
| RENAULT | Brigitte Lonc | Renault supports the revision of the GN conformance test specifications. |
| SPIRENT | Stephan Pietsch | Conformance testing is one of the essential tools in telecommunications for ensuring successful interoperability and credible commercial deployment. |
| VOLKSWAGEN | Teodor Buburuzan | These test standards are important milestones to accompany deployment. |
| VOLVO | Katrin Sjoberg | Volvo supports the revision of the conformance test specifications for GN. |
| PSA Group | Alain Servel | PSA is involved currently in a European Pilot SCOOP@F where we will provide about 1000 V2X vehicles during years 2017 and 2018. We are reaching the end of validation phase of the different OBUs and RSUs of this Pilot. These validations were based generally, on protocols or tools defined by ETSI to test the different SCOOP@F DEN messages and GN or Security mechanisms. Our motivation, for this support, is due to the fact that DEN, GN and Security will evolve during the next years and that it is crucial to associated these evolutions by a new set of dedicated tests. |
| LGE | Woo-Suk | LGE supports the revision of the GN conformance test specifications. |

## Market impact

With more than 200 million vehicles on the roads in Europe today and some 13 million jobs at stake across the continent, it is essential for Europe’s automotive industry to be at the forefront when it comes to introducing new technologies. However, the next generation of 'connected cars' will not work without common technical specifications, for example regarding radio frequencies and messaging formats. The TTCN-3 test specifications must be available in 2017 for product validation in order to support the product market entry.

## Tasks for which the STF support is necessary

Experience with the development of other standards has shown that involvement of experts on conformance and interoperability testing of protocols requires highly specialised knowledge in testing methodology. The generation of test specifications requires significant concentrated effort that can only be done by service contractors’ experts on a funded basis. Hence, the involvement of testing experts is needed in order to assure timely completion and high quality deliverables. The service contractors’ experts will use dedicated software tools available at ETSI. Test adapter development and test suite validation are expert tasks, which cannot be provided by a TB.

## Related voluntary activities in the TB

* Delegates within the TC will review the deliverables

## Outcome from previous funded activities in the same domain

TC ITS has benefited from STF support in this domain:

* TC ITS WG2: STF398 (2010) 72 000
* TC ITS WG1/3: STF405 (2010-2012) EC/EFTA 354 000 €
* TC ITS WG1/3: STF424 (2010-2012) EC/EFTA 246 900 €
* TC ITS WG1/3: STF449 (2013) ETSI 68 000 €
* TC ITS WG5: STF452 (2013/2014) ETSI 77 400 €
* TC ITS WG1/3: STF462 (2013/2014) ETSI 63 200 €
* TC ITS WG5: STF481 (2014/2015) ETSI 128 000 €
* TC ITS WG1/3: STF484 (2014/2015) ETSI 51 200 €
* TC ITS WG5: STF507 (2015/2016) ETSI 36 000 €
* TC ITS WG5: STF517 (2016/2017) ETSI 100 000 €

## Consequences if not agreed

ITS equipment is currently being deployed in experimental trials with the progression towards fully operational deployment. Thorough conformance testing will increase the level of confidence that equipment from various suppliers will interoperate. This in turn will reduce implementation and rollout times. Not providing timely validated and reliable test specifications, would ultimately delay the deployment of ITS.

Part II - Execution of the work

# Technical Bodies and other stakeholders

## Reference TB

TC ITS

## Other interested ETSI Technical Bodies

ITS WG 3

## Other stakeholders

ERTICO - ITS Europe and ETSI have a MoU in place which defines amongst other activities the cooperation on ‘Testing support and certification initiative’.

The C2C CC has been an observer of the TC ITS test activities since 2010.

European Commission funded pre-deployment pilots such as AutoNet2030, iGAME, SCOOP@F and Cooperative ITS Corridor Rotterdam – Frankfurt/M. – Vienna, will benefit from the available tests.

# Base documents and deliverables

## Base documents

|  |  |  |  |
| --- | --- | --- | --- |
| **Document** | **Title** | **Current Status** | **Expected date for stable document** |
| ETSI EN 302 636-4-1REN/ITS-00349 | Intelligent Transport Systems (ITS); Vehicular Communications; GeoNetworking; Part 4: Geographical addressing and forwarding for point-to-point and point-to-multipoint communications; Sub-part 1: Media-Independent Functionality | Under revision | Jan 2017 |

## Deliverables to be produced

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| --- | --- | --- |
| **Deliv.** | **Work Item code****Standard numb.** | **Working title****Scope** |
| D1 | RTS/ITS-00352TS 102 871-1 | Revision of Intelligent Transport Systems (ITS); Testing; - Conformance test specifications for **GeoNetworking** ITS-G5; Part 1: Test requirements and Protocol Implementation Conformance Statement (PICS) pro forma |
| D2 | RTS/ITS-00353TS 102 871-2 | Revision of Intelligent Transport Systems (ITS); Testing; - Conformance test specifications for **GeoNetworking** ITS-G5; Part 2: Test Suite Structure and Test Purposes (TSS&TP) |
| D3 | RTS/ITS-00354TS 102 871-3 | Revision of Intelligent Transport Systems (ITS); Testing; - Conformance test specifications for **GeoNetworking** ITS-G5; Part 3: Abstract Test Suite (ATS) and Protocol Implementation eXtra Information for Testing (PIXIT) |

## Deliverables schedule:

* Start of work 30-Jan-2017
* ToC and scope 03-Feb-2017
* Early draft 15-Feb-2017
* Stable draft 03-Mar-2017
* Final draft 17-Mar-2017
* WG approval 3-Apr-2017 ITS#26 (3-7 Apr)
* TB approval 3-Apr-2017 ITS#26 (3-7 Apr)
* Publication 02-May-2017

# Work plan, time scale and resources

## Task description

Task T0: Project Management

* Attending Technical Body and WG meetings
* Coordination, communication, reporting and leading of activities

Task T1: General Review

General review of Test Specs (references, names, abbreviations). Principal review of GN draft. Feedback to ITSWG3 on ambiguities of GeoNetworking (ETSI EN 302 636-4-1).

Task T2: TS Updates

Production of the PICS, TSS&TP and ATS documents.

Principal review of the PICS document

There are at least 80 tests out of the total of 147 tests which need a dedicated work (forwarding algorithms); where applicable, tests will be merged, deleted or added.

Furthermore the test scripts will be implemented and compiled on Titan, Elvior and Spirent

Task T3: TC ITS approval

**T3.1 – Review of stable drafts**

Before reaching the status of stable draft, the STF will submit the draft deliverables to editHelp for clean-up. The STF will then present the *stable drafts* in parallel to the WG and TC ITS for comments and to the ETSI Secretariat for pre-processing.

T3.2 - Inclusion of comments from stable draft review

The STF will include the comments received from the *stable draft* review and produce the *final drafts* of the deliverables for WG and TC approval.

**T3.3 - WG approval (RC)**

The STF will submit the *final draft* to the WG3 for approval.

**T3.4 – Preparation of Final Report**

During the WG approval period, the STF Leader will prepare the Final Report.

**T3.5 – TC ITS approval (RC)**

The STF will submit the *final drafts* and the Final Report to TC ITS for approval.

Task 4

Approved deliverables accepted and published by the ETSI Secretariat.

## Milestones

Milestone 1 – Deliverables and STF Final Report approved by TC ITS

All deliverables required by these ToR approved by TC ITS and STF Final Report approved by TC ITS.

Milestone 2 – Deliverables accepted by the ETSI Secretariat and published.

## Task summary

|  |  |  |  |
| --- | --- | --- | --- |
| **N** | **Task / Milestone / Deliverable** | Target date | Estimated cost |
| M0 | Start of work | 30 Jan 2017 |  |
| T0 | Project management, reporting, meeting attendance | 30 Jan– 3 Apr 2017 |  |
| T1 | General Review | 30 Jan – 17 Mar |  |
| T2 | TS Updates | 30 Jan – 17 Mar |  |
| T3 | TC ITS approval  | 3 Mar – 3 Apr 2017 |  |
| M1 | Deliverables and STF Final Report approved by TC ITS  | 3 Apr 2017 |  |
| T4 | Publication  | 2 May 2017 |  |
| M2 | Deliverables accepted by the ETSI Secretariat and published  | 2 May 2017 |  |
| **Total** | **20 000** |

# Expertise required

One contractor to ensure the following mix of skills:

* expert knowledge of ETSI EN 302 636-4-1;
* expert knowledge of TTCN-3 (ES 201 873);
* expert knowledge in conformance testing;
* expert knowledge in codec and adaptation layer development in Java;
* expert knowledge of ITS Security implementations

Part III: Financial conditions

# Maximum budget

## Contractors cost

Maximum budget **20 000 €**

## Travel Costs

N/A

## Other Costs

N/A

# Part IV: STF performance evaluation criteria

# Key Performance Indicators

* Quality of deliverables
	+ Approval of deliverables from the Reference TB according to schedule
	+ Deliverables approved by TC ITS accepted by the ETSI Secretariat for publication
	+ Respect of time scale, with reference to start/end dates in the approved ToR

In the course of the activity, the STF Leader will collect the relevant information, as necessary to measure the performance indicators. The result will be presented in the Final Report.

# Document history

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| --- | --- | --- | --- | --- |
|  | **Date** | **Author** | **Status** | **Comments** |
| 01 | 30-Sep-2016 | Sebastian Müller | First draft |  |
| 0.2 | 12-Oct-2016 | Alberto Berrini | For OCG/Board consultation | Note on feasibility of time scale. |
| 0.3 | 26-Oct-2016 | Alberto BerriniGavin Craik |  | Start date, various comments |
| 0.4 | 07-Nov-2016 | Andrea Lorelli Sebastian Müller | Board approval | List supporting members (confirmed) |
| 0.5 | 16-Nov-2016 | Gavin Craik | CfE | Editorials |