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| --- |
| ToR TTF T031 (Ref. Body TC ITS) |
| Version: 0.5 |
| Author: Denis Filatov – Date: 2022-07-22 |
| Last updated by: ETSI Secretariat – Date: 2023-01-06 |
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Terms of Reference –Testing Task Force Proposal

TTF T031 (Ref. Body TC ITS)

**Developing of the interoperability tests specification for ITS VRU and CPS use-cases**

Summary information

|  |  |  |  |
| --- | --- | --- | --- |
| Approval status | Approved by Ref. Body (doc ref: ITS(22)000029r1) | | **YES** |
| Reference Body | Ref. Body TC-ITS | | |
| ETSI Funding | **Maximum budget : 20 000 EUR** | | |
| Minimum of 4 ETSI Members Support | **YES** | | |
| Time scale | **From** | 2023-03-13 | |
| **To** | 2024-07-31 | |
| Work Items |  | | |
| TTF Roadmap reference | TTF Roadmap 2022 | | |

Part I –TTF Technical Proposal

# Rationale & Objectives

## Rationale

On 13 March 2018 the European Parliament adopted its opinion on cooperative intelligent transport systems C-ITS to improve road safety, traffic flow and reduce CO2 emission through instant short-range communication between vehicles, vehicles and the infrastructure and public transport (the report was coordinated by Hungarian MEP, István Ujhelyi and received with broad cross-party support (633 in favour, 43 against, 11 abstention.

Various measures can significantly improve the reliability and interoperability of complex systems such as ITS. The development of test specifications for conformance and interoperability can be coupled with validation activities, such as building prototype test systems. Likewise, the prototype test systems can be used at interoperability events. Consequently, the project contributes to the effort of testing and validation ITS systems with the goal to bring the ITS systems to a stage where end users trust the services provided.

In 2010, TC ITS started together with ETSI CTI a STF project funded by the EC/EFTA to produce conformance test specifications for the Release 1 of TC ITS CAM, DENM, BTP, GN and GN6 protocols. In 2011/2012 a prototype test system (so called Conformance Validation Framework) was designed, built and validated (see <http://portal.etsi.org/stfs/STF_HomePages/STF424/STF424.asp>).The current testing framework is based on the ITS G5 access scheme only.

Investigations have shown that C-ITS improves traffic safety and traffic efficiency. However, safety services do not easily provide the needed business cases. Safety is a social aspect and the improvement of safety a common responsibility. The industry takes this responsibility by exploring research and doing developments but can’t do this alone and through this proposal requests for support by the community.

This present document proposes the creation of a new TTF to develop the ETSI ITS test specification to ensure the interoperability between implementations of the ETSI VRU and CP services. This action will focus on the extension of the ETSI ITS test suite developed in response to European mandates M/453 (C-ITS systems) and M/546 (Urban ITS).

## Objectives of the work to be executed

The objective of this action is to extend the ETSI testing suite with the VRU and CPM interoperability test specification. The validation of the test specification will be ensured by the ETSI Plugtests event.

## Previous funded activities in the same domain

ETSI has been developing ITS standards since 2008 and has produced a full list of standards for Day-1 services and applications under the European mandate M/453 which are listed in the Release-1 standardisation ETSI report TR 101 607 from 2013 and form the bases for the further development of ITS cooperative services and Automation.

In 2010, TC ITS started together with ETSI CTI a STF project funded by the EC/EFTA to produce conformance test specifications for the Release 1 of TC ITS CAM, DENM, BTP, GN and GN6 protocols. In 2011/2012 a prototype test system (so called Conformance Validation Framework) was designed, built and validated (see <http://portal.etsi.org/stfs/STF_HomePages/STF424/STF424.asp>).

ETSI also has developed the general ITS interoperability test specifications validated during the set of ITS Plugtests events.

In 2019 ETSI has also run the STF project to develop the Security Interoperability Test Specification now published as ETSI TS 103 600. This document was used as a main specification for ETSI 6th and 7th ITS Plugtests event.

## 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.

# ETSI Members Support

|  |  |  |
| --- | --- | --- |
| **#** | **ETSI Member** | **Supporting delegate** |
| 1 | Intel Deutschland GmbH | Leonardo Gomes Baltar |
| 2 | Volkswagen | Niklas Puller |
| 3 | Bosch GmbH | Florian Schiegg |
| 4 | FSCOM | Yann Garcia |

# Deliverables

## Base documents

|  |  |  |  |
| --- | --- | --- | --- |
| **Document** | **Title** | **Current Status** | **Expected date for stable document** |
| ETSI TS 103 300-1 v2.2.1 | Intelligent Transport Systems (ITS); Vulnerable Road Users (VRU) awareness; Part 1: Use Cases definition; Release 2 | Published | Available |
| ETSI TS 103 300-2 v2.2.1 | Intelligent Transport Systems (ITS); Vulnerable Road Users (VRU) awareness; Part 2: Functional Architecture and Requirements definition; Release 2 | Published | Available |
| ETSI TS 103 300-3 v2.1.2 | Intelligent Transport Systems (ITS); Vulnerable Road Users (VRU) awareness; Part 3: Specification of VRU awareness basic service; Release 2 | Published | Available |
| ETSI TS 103 324 v2.1.1 | Intelligent Transport Systems (ITS); Cooperative Perception Services; Release 2 | Stable draft | Dec 2022 |
| ETSI TS 103 562 v2.1.1 | Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Analysis of the Collective Perception Service (CPS); Release 2 | Published | Available |

## New deliverables

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Deliv.** | **Work Item code**  **Standard number** | **Working title** | **Publishing version** | **Expected date for publication** |
| D1 | DTS/ITS-234 | Intelligent Transport Systems (ITS); Testing; Vulnerable Road Users (VRU) awareness; Interoperability tests specification | V2.1.1 |  |
| D2 | DTS/ITS-235 | Intelligent Transport Systems (ITS); Testing; Cooperative Perception Services (CPS); Interoperability tests specification | V2.1.1 |  |

# Maximum budget

## Task summary/Manpower Budget

|  |  |  |  |
| --- | --- | --- | --- |
| **Task short description** | CTI effort | Expertise effort | Expertise Budget (EUR) |
| Project Management | 100% |  |  |
| Interoperability technical specifications developing | 25% | 75% | 20 000 |
| Validation of the technical specification, preparing for publication | 100% |  |  |
| **TOTAL** |  |  | **20 000** |

## Travel budget

N/A

## Other budget line

N/A

Part II – Details on TTF Technical Proposal

# Tasks, Technical Bodies and other stakeholders

## Organization of the work

ETSI CTI will plan the work of the TTF members, ensuring that the timescales of the TTF deliverables are met.

Organising TTF meetings to discuss the drafts, recording any major issues and resolutions of the TTF, identifying and progressing the actions of TTF members

Report to TC ITS and TC ITS Working Groups as appropriate on the work of the TTF.

Represent, or arrange for other TTF members to represent the TTF at other external meetings as appropriate.

## Other interested ETSI Technical Bodies

N/A

## Other stakeholders

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

The C-Roads project is going to develop the validation platform using conformance test specifications.

The 5G Automotive Association (5GAA) observes TC ITS test activities.

Part III: Execution of Work

# Work plan, time scale and resources

## Task description

|  |  |
| --- | --- |
| **Task 0** | **Project Management** |
| **Objectives** | Plan the work of the TTF members, ensuring that the timescales of the TTF deliverables are met |
| **Input** | Take TC ITS and TC ITS Working Groups inputs for the work of the TTF |
| **Output** | Report to TC ITS and TC ITS Working Groups as appropriate on the work of the TTF  Progress report and final report as required |
| **Interactions** | Attending Technical Body, WG and TTF meetings, presentation of the TTF activity |
| **Resources required** | * Ability to lead and manage a team * Project management and communication skills |

|  |  |
| --- | --- |
| **Task 1** | **Interoperability technical specifications developing** |
| **Objectives** | Develop use-cases for the ETSI interoperability technical specifications to ensure interoperability of different implementations of ETSI VRU and CP services |
| **Input** | Base specification documents, Testing technical specification |
| **Output** | Stable draft of D1 presented to TC ITS |
| **Interactions** | Report to TC ITS and TC ITS Working Groups as appropriate on the work of the TTF |
| **Resources required** | * knowledge of ETSI EN 303 613, ETSI TC ITS test specifications * expert knowledge of ITS technologies and implementations * expert knowledge of ETSI ITS VRU and CPS standards * expert knowledge in interoperability testing; |

|  |  |
| --- | --- |
| **Task 2** | **Validation of the technical specification, preparing for publication** |
| **Objectives** | Validate the test specification during the ETSI Plugtests event. Update the test specification, resolving found issues and prepare it for publication. |
| **Input** | Base specification documents, Testing technical specification |
| **Output** | Final draft of D1 presented to TC ITS |
| **Interactions** | Report to TC ITS and TC ITS Working Groups as appropriate on the work of the TTF |
| **Resources required** | * expert knowledge in interoperability testing * expert knowledge in ETSI document workflow |

## Milestones

|  |  |  |
| --- | --- | --- |
| **Milestone** | **Description** | **Cut-Off Date** |
| **A** | **Progress Report approved by TC ITS and stable draft of the TS 103 XXX made available** | 2024-01-31 |
| TC ITS | Stable drafts made available to TC ITS |
| ETSI Deliverable | Progress Report approved by TC ITS |

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| --- | --- | --- |
| **Milestone** | **Description** | **Cut-Off Date** |
| **B** | **Final Report and final drafts approved by TC ITS** | 2024-06-28 |
| TC ITS | Final drafts made available and approved by TC ITS |
| ETSI Deliverable | Final Report approved by TC ITS |

|  |  |  |
| --- | --- | --- |
| **Milestone** | **Description** | **Cut-Off Date** |
| **C** | **Deliverables published, TTF closed** | 2024-07-31 |
| TC ITS | Deliverables published, TTF closed |
| ETSI Deliverable | Deliverables published, TTF closed |

## Task summary

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Task / Milestone** | Target Date | | CTI effort | Expertise effort | Estimated Cost (EUR) |
| From | To |
|  | Start of work |  |  |  |  |  |
| T0 | Project Management | 2023-03-13 | 2024-07-31 | 100% |  |  |
| T1 | Interoperability technical specifications developing | 2023-03-13 | 2024-01-31 | 25% | 75% | 20 000 |
| Milestone A | Progress Report approved by TC ITS and stable drafts of D1 made available |  | 2024-01-31 |  |  |  |
| T2 | Validation of the technical specification; Final delivery update and prepare for publication | 2024-01-31 | 2024-06-28 | 100% |  |  |
| Milestone B | Final Report and final drafts approved by TC ITS |  | 2024-06-28 |  |  |  |
| Milestone  *C* | Deliverables published, TTF closed |  | 2024-07-31 |  |  |  |
|  | | | | |  | **20 000** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Task/ Mil.** | **M** | **A** | **M** | **J** | **J** | **A** | **S** | **O** | **N** | **D** |  | **J** | **F** | **M** | **A** | **M** | **J** | **J** |
| T1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MA |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MB |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

# Expertise required

## Team structure

3 participants to ensure the following mix of competences:

|  |  |
| --- | --- |
| **Priority** | **Qualifications and competences** |
| High | Expert knowledge of ETSI ITS specifications |
| High | Expert knowledge of ETSI ITS VRU and CPS use-cases |
| High | Practical experience with ITS interoperability events organisation and running |

ETSI CTI provides resources to cover tasks for 1 participant of the team.

Part IV: TTF performance evaluation criteria

# Performance Indicators

|  |  |
| --- | --- |
| **Quality of deliverables** | |
| Approval of deliverables according to schedule | **X** |
| Respect of time scale, with reference to start/end dates in the approved ToR | **X** |
| Comments from Quality review by Reference Body | **X** |
| Comments from Quality review by ETSI Secretariat | **X** |
| **Contribution from the TTF to ETSI work** |  |
| Contributions to Reference Body meetings (number of documents / meetings / participants) | 2 meetings |

# Document history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Date** | **Author** | **Status** | **Comments** |
| 0.1 | 2022-07-22 | Denis Filatov | Early draft |  |
| 0.4 | 2023-01-03 | ETSI Secretariat | Draft | Updates before IKOM |
| 0.5 | 2023-01-06 | ETSI Secretariat | Final | Updates before CL publication |

Annex I Response to the Request for Proposals  
CfE – TTF T031 (REFERENCE BODY ITS) Deadline: 13/02/2023

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Contractor information \*** | | | | |
|  | | | | |
| **Contractor name \*:**  *Indicate the Company/Organization Name* | |  | | |
|  | | | | |
| **Contact person for the technical aspects** | | **Contact person for Decision on ETSI financial offer to this project (if any)** | | |
| Title |  | Title |  | |
| First name |  | First name |  | |
| Last name |  | Last name |  | |
| Role |  | Role |  | |
| e-mail |  | e-mail |  | |
| Phone |  | Phone |  | |
|  | | | | |
|  | | **Yes** | | **No** |
| Do you or any employee of your Company/Organization hold an elected or appointed position in the Reference Body requesting the TTF T031 creation? | | o  Indicate in which position:  ----------------------------------- | | o |
| **If you are self-employed candidate:**  Do you currently have other contracts in progress with ETSI? | | o | | o |

All fields marked with an asterix (\*) are mandatory

**1.1 Introduction**

A short presentation of the technical structure responsible for this activity, e.g.:

* Business area, number of employees, link to WEB site,
* Department(s)/team(s)/experts in charge of the technical activities related to this Project,
* Reference to products/services of your Company/Organization or supporting Member to which the standards developed by this Project will apply,
* Motivation for your Company/Organization or supporting Member to participate in this Project.

**1.2 Proposed approach**

**Proposed contribution to tasks & related cost**

Identify the tasks to which your Company/Organization is proposing to contribute by filling-in the table below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tasks\_No** | **Tasks\_Description** | **Max\_Budget\_Allocated\_in\_Euro** | **Amount\_in\_Euro\_(mandatory)** | **%\_of\_whole\_Task\_(mandatory)** |
| 00 | Project Management | .Managed by ETSI/CTI. | | |
| 01 | Interoperability technical specifications developing | 20 000 | . | . |
| 02 | Validation of the technical specification; Final delivery update and prepare for publication | Managed by ETSI/CTI. | | |
|  |  | **20 000** |  |  |

**Amount in Euro (mandatory)**: Indicate the price offered for your contribution to the task(s)

**% of whole task (mandatory)**: Indicate to which percentage of the execution of the whole task your offer corresponds

Provide a description of the proposed approach, competences, reference to related activities:

* Explain which part of the task is corresponding to the requested percentage that your Company/Organization will handle,
* Explain the scope that your Company/Organization will cover,
* Explain your approach to the management of the quality and,
* Explain your approach to the management of the risks and their mitigation,
* Describe and justify the proposed costs to achieve this project objectives.

Annex II Terms and Conditions  
CfE – TTF T031 (REFERENCE BODY ITS) Deadline: 13/02/2023

**2.1 Submission of Proposals**

All proposals in response to this CfE shall be submitted before the deadline indicated in thisCollective Letter, using exclusively the WEB application on the ETSI Portal at the following address: <https://portal.etsi.org/cfe>.

Proposals shall be composed of Curriculum Vitae of the proposed service providers’ personnel and the Annex I of this CfE duly filled-out.

Proposals that will be partial or incomplete at the deadline will not be accepted.

The Terms and Conditions in this Annex will apply.

**2.2 Modification and Withdrawal of Proposals**

Applicants may, without prejudice to themselves, modify or withdraw their proposal by written request, provided that the request is received by ETSI prior to the due date and time, at the address to which their proposal was submitted. The applicant may submit a new proposal provided that such new proposal is received prior to the deadline for responding which is specified in this Collective Letter.

**2.3 Assessment of Proposals**

The ETSI Director-General, in consultation with the Reference Body Chairman, is responsible for the selection of the service providers that will be contracted to perform this Project work. The ETSI Director-General and the Reference Body Chairman may be assisted by a Selection Panel to assess the applications received and make the final decision.

As per article 1.10.4 of the ETSI Directives, the Director-General may discard proposals that could be identified as creating potential conflict of interest.

The ETSI Secretariat will only communicate to the applicants the result of the selection (accepted or not accepted). Should applicants need more information on the rationale for the selection, they must address a formal request to the ETSI Director-General.

The following evaluation criteria will be applied to all proposals, in order of priority:

* Evidence that the applicant has the necessary structure and expertise to ensure delivery
* Reference to current or previous activities in the specific technical domain of this project
* Critical review of the most efficient way to achieve the objectives in this Project ToR
* Effective proposed approach/methodology for the execution of the tasks
* Implementation schedule
* Clear pricing policy

Compliance with the first two (2) criteria is mandatory.

Proposals that are not considered compliant with these criteria will be discarded.

Priority will be given to technical quality of the proposals. Pricing considerations will be taken into account to ensure that the best value for money is achieved. Compatibility with the maximum budget allocated to this Project will be verified before placing a Service Contract.

Following the assessment process, ETSI reserves the right to grant contracts to other than the cheapest proposals, to accept or reject any offer completely or in part, or to reject all proposals, without providing the reasons. If no offer is accepted, ETSI may decide to abandon the work or proceed in any other manner ETSI may select.

**2.4 IPR and confidentiality Agreements**

The information provided in this CfE, as well as the fact that the applicant has received the CfE, is considered confidential and protected under copyright laws. The applicant may not discuss, share, or use the information in this CfE for any purpose other than the response to this CfE.

ETSI will not disclose the content of any proposals to other applicants or any other party, with the exception of the persons involved in the assessment process described in §2.3 above.

However, ETSI reserves the right to make use of the information provided in this proposal to improve this project definition for the purpose of this CfE or any other manner in which ETSI may decide to proceed to select the service providers.

If successful, the applicant will be required to sign a Service Contract, which includes IPR and Confidentiality clauses aligned with the relevant policies in the ETSI Directives.

**2.5 Preparation cost**

ETSI will not be responsible for any costs or expenses that the applicant may incur in preparing and/or submitting the proposal.

**2.6 Service Contract**

A Service Contract will be proposed to the applicants that will be selected to perform the work.

Details on the Terms and Conditions of this contract can be found on the ETSI Portal, at the following address: <https://portal.etsi.org/STF/STFs/Contracts.aspx>