**Technical Proposal**

**Title: Updating the conformance test specifications for ITS Security and ITS PKI management**

**Organisation: ETSI/2020-03**

**Date**: **30 January 2020**

**Part I – Policy relevance and expected market impact**

# Policy relevance

Cooperative Intelligent Transport Systems (C-ITS) services and applications create a clear benefit in terms of transport efficiency, sustainability, safety and security. C-ITS contributes to the EU’s single market and competitiveness objectives. This proposal action is in response to the ACTION 1, ACTION 2, ACTION 7, ACTION 18, ACTION 19 and ACTION 20 of the Rolling Plan for ICT standardisation 2019[[1]](#footnote-1) part Intelligent Transport Systems (ITS)

ACTION 1: *“To complete the minimum set of standards required to deploy C-ITS systems and applications, completing the activities foreseen in the M/453 and building in the results of the mandate, in particular by achieving the Release 2 for C-ITS (including V2V, V2I/I2V and I2I communications)”.*

ACTION 2: “*Plugtest activities for conformity and interoperability testing, including guidelines with methods for assessing the conformity of the identified minimum set of standards”.*

ACTION 7: *“SDOs to standardise of data and communication aspects to ensure interoperable implementation and data sharing system for increased location accuracy”.*

ACTION 18: *“SDOs to assess the standardisation needs of connected automated mobility and develop a work programme, based on the expected convergence of developments in C-ITS and in automated vehicles in all automation levels”.*

ACTION 19: *“SDOs are invited to develop and perform a gap analysis with respect to the broad range of services for Cooperative, Connected and Automated Mobility taking into account the existing C-ITS architecture, standards and technical specifications, in particular those developed within the framework of M/453. The analysis should identify missing complementary standards and identify possibly conflicting standards with the overarching objective of full C-ITS service interoperability. The analysis should be based on currently implemented technologies (recognised by Member States within the C-Roads platform and subject to automotive deployment in line with COM (2016) 766) while also considering newly emerging technologies (in line with the 5G Action Plan) and build upon the principles and results of the RSCOM Mandate to CEPT (RSCOM17-26 rev.3) with the aim to enable interoperability between all C-ITS end user service”.*

*ACTION 20: “SDOs to investigate security aspects of Connected and Automated Mobility (CAM) and intelligent transportation systems. SDOs are invited to analyse the evolution of C-ITS ‘Day1’ standards from a security angle to support automated vehicles design and deployment. In particular, SDOs are invited to expand standards based on the already defined C-ITS security mechanisms to achieve appropriate levels of authenticity and integrity of messages being exchanged between fixed and mobile C-ITS stations for higher levels of automation use cases. Standards shall provide suitable mechanism to support C-ITS services going beyond information services, building upon the C-ITS certificate & security policy and the implementation of the EU C-ITS security credential management system according to COM (2016) 766.”*

# 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 emissions 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)). The European Parliament supports the European Commission strategy on C-ITS, driven by DG MOVE. In its report (A8-0036/2018)[[2]](#footnote-2) the Parliament Transport Committee defines that the deployment of C-ITS is essential to realize the safety and CO2 emission reduction objectives.

According to the key EU policy document COM(2018) 283 final[[3]](#footnote-3) “On the road to automated mobility: An EU strategy for mobility of the future”, the Commission is proposing to regulate the protection of vehicles against cyber-attacks as part of the revision of the General Safety Regulation for motor vehicles. They propose to implement a pilot on common EU-wide cybersecurity infrastructures and processes needed for secure and trustful communication between vehicles and infrastructure for road safety and traffic management related messages, according to the published guidance on the certificate and security policy i.e. the setup of European Union C-ITS Security Credential Management System (EU CCMS).

In 2010, TC ITS with the support from ETSI CTI started a STF project funded by the EC/EFTA to produce conformance test specifications for the Release 1 of TC ITS Cooperative Awareness (CAM), Decentralized Environmental Notification (DENM), Basic Transport Protocol (BTP), GeoNetworking (GN) and IPv6 over GeoNetworking (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 security layer test suite containing ITS-S data communication was built and validated at the end of 2016.

ETSI Test Specifications cover already ITS Access Layer, Networking Layer and Facility Layer. In view of ITS deployment **it is essential to provide updated standardized test specifications for the Security Layer and thus completing the coverage of test specifications for the ITS layers**.

The Conformance Validation Framework is a reference implementation and available to all ITS stakeholders. The Conformance Validation Framework enables vendors to assess the level of compliance of their equipment and the Conformance Validation Framework can be used in support of certification schemes. In addition, with its high degree of extensibility, it can be used for company internal testing.

This STF proposal is a further action to update the ITS Conformance Validation Framework for ITS security and ITS PKI management with tests covering trust and privacy management based on ETSI TS 102 941 V1.4.1 and ETSI TS 103 601 V1.1.1, and updating security header and certificate formats based on ETSI TS 103 097 V1.4.1 (all well-developed and planned for publication during 2020).

According to the key support study for Impact Assessment of Cooperative Intelligent Transport Systems (Study contract no. MOVE/B4/SER/2016- 239/S12.762019)[[4]](#footnote-4), 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.

ETSI, in partnership with ERTICO, organized sixth and seventh ITS CMS Plugtests™ event which took place from 25 February to 1 March 2019 and from 4 to 8 November 2019 at ETSI HQ. These two Plugtests events were focused on testing ITS Security features in order to support industry in the C-ITS deployment in the common single European trust domain as defined by the European Commission in the Release 1 of the document "Security Policy & Governance Framework for Deployment and Operation of European Cooperative Intelligent Transport Systems (C-ITS)”[[5]](#footnote-5) and EU CCMS policy documents for C-ITS Certificate Policy [[6]](#footnote-6) and C-ITS Security Policy [[7]](#footnote-7).

# Objective

The objective of this STF proposal is to update the ETSI TS 103 096 and ETSI TS 103 525 multi-part test specifications for ITS Security and ITS PKI Management respectively.

The European Union C-ITS Security Credential Management System (EU CCMS) referenced above includes CPOC (C-ITS Point of Contact), which collects the RCAs certificates and provides them to the Trust List Manager (TLM) to create the European Certificate Trust List (ECTL). EU CCMS is going to support the deployment of C-ITS systems and technologies in Europe by implementing the trust model and providing the necessary security functions.

In the scope of set-up of the TLM and CPOC of the EU CCMS, needs to further update the base specifications ETSI TS 103 097 and ETSI TS 102 941 have been identified. Corresponding updates to the test specifications TS 103 096 and TS 103 525 are required to ensure that they are in line with the implementation of the CCMS and the latest versions of the security and certificate policy. Therefore, this action will take into account the work of the sub-group on Cooperative Intelligent Transport Systems of the Commission expert group on intelligent transport systems that is currently being established.

Further, this action will take into account on-going work items on ETSI TS 103 097, ETSI TS 102 941 and ETSI TS 103 601 of WG5 of ETSI TC ITS, in particular regarding updates communicated by the JRC acting in its role as TLM and CPOC, and to include the latest updated secure data structure including header and certificate formats.

The STF will also update ETSI TS 103 096 and ETSI TS 103 525 to add testing for exceptional behaviour use cases. All delivered tests for receiving an exceptional behaviour will be considered as optional.

This action will focus on extensions to the existing ITS testing specifications developed in response to European mandates M/453 (C-ITS systems) and M/546 (Urban ITS), in accordance with ITS Actions 1 2, 7, 18, 19 and 20 of the 2019 Rolling Plan for ICT Standardisation.

Furthermore, the objective of this present STF proposal is to validate the test specification against at least two security implementations.

# Market impact

Interoperability is a key factor that enables the use of new technologies and provides benefits attached to them, such as competitiveness, innovation and reliability. ITS technologies are becoming more and more complex, collaborative and interdependent. Furthermore, ITS systems are specified by multiple standards from different standardization development organisations (SDOs). These factors potentially lead to non-interoperability. The development of products that rely on non-interoperable standards can eventually result in fragmented markets, all of which can impact trust.

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, prototype test systems can be used at interoperability events. Consequently, the project contributes to the effort of testing and validation of ITS systems with the goal to bring the ITS systems to a stage where end users trust the services provided.

**Part II – Execution of the work**

# Working method / approach

## Specialist Task Force (STF)

ETSI will perform this work by the creation of an ETSI STF, reporting the milestones and providing the draft deliverables to ETSI TC ITS, according to the planned meeting agenda agreed by the TC ITS Chairman. TC ITS WG5 will perform an active role in steering and contributing to this work.

Coordination with various other stakeholders will be necessary, under TC ITS supervision, to achieve the best outcome of this work and the widest possible collection of views amongst all parties concerned.

## Other interested actors

The draft deliverables (stable drafts and final drafts for approval) will be distributed for comments not only to relevant ETSI members via mailing lists, but also to relevant ETSI partners to collect inputs from the wider ITS community.

## Expertise required (qualifications, experience, required, mix of skills)

The STF work will be performed by a group of Companies/Organizations (Service Providers) that will collectively ensure the following mix of skills are represented:

* Deep knowledge of C-ITS specific Functional requirements;
* C-ITS System architecture and facilities layer functions;
* Expert knowledge of ITS Security technologies and implementations;
* Expert knowledge of TTCN-3 (ES 201 873);
* Expert knowledge in conformance testing;
* Project management skills are required for the STF leader who will be responsible for Task-1.

In addition, there must be experience in drafting standards and the expert team must include members with international connections such as relations to the EU Commission, European projects, Member-States, business stakeholders and SDO’s.

Based on the interest and variety of skills the expert team may vary in size. For project execution efficiency a maximum of 2-3 experts is expected.

The STF Leader will be responsible for coordinating the execution of the tasks according to the requirements in the Terms of Reference (based on the action grant) and following the technical direction given by TC ITS. The STF Leader also possesses project management experience, report-writing skills, standardisation process, experience of consensus building, presentation skills, experience of working in an international environment especially with the EU Commission, different SDOs, authorities and industry.

The following Tasks are identified:

1. STF Lead including liaison with relevant organisations and other actors in the European and International C-ITS domain as well as the production of one Interim Report (IR) and the Final Report (FR) to the EC/EFTA.
2. Updating conformance test specifications ETSI TS 103 525-1 - Intelligent Transport Systems (ITS); Testing; Conformance test specifications for ITS PKI management; Part 1: Protocol Implementation Conformance Statement (PICS), ETSI TS 103 525-2 - Intelligent Transport Systems (ITS); Testing; Conformance test specifications for ITS PKI management; Part 2: Test Suite Structure and Test Purposes (TSS & TP), ETSI TS 103 525-3 - Intelligent Transport Systems (ITS); Testing; Conformance test specifications for ITS PKI management; Part 3: Abstract Test Suite (ATS) and Protocol Implementation eXtra Information for Testing (PIXIT).
3. Updating conformance test specifications ETSI TS 103 096-1 - Intelligent Transport Systems (ITS); Testing; Conformance test specifications for ITS Security; Part 1: Protocol Implementation Conformance Statement (PICS), ETSI TS 103 096-2 - Intelligent Transport Systems (ITS); Testing; Conformance test specifications for ITS Security; Part 2: Test Suite Structure and Test Purposes (TSS & TP), ETSI TS 103 096-3 - Intelligent Transport Systems (ITS); Testing; Conformance test specifications for ITS Security; Part 3: Abstract Test Suite (ATS) and Protocol Implementation eXtra Information for Testing (PIXIT)

## Previous work

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 basis for the further development of ITS cooperative services and automation.

The STF 545 (<https://portal.etsi.org/STF/STFs/STF-HomePages/STF545>) was setup in 2014 to create a PICS document, a TSS & TP document and an ATS document to include tests of trust and privacy management communications based on ETSI TS 102 941.

# Performance indicators

Information that will act as performance indicators against the contracted activity will be provided by the STF in the following cases:

Effectiveness and efficiency:

Details will be provided, throughout the lifetime of the proposed action, on:

* the number of meetings held in relation to this work:
  + the number of participants;
  + the stakeholder communities represented;
  + the number of presentations and technical contributions made on the activity by the STF;
* an evaluation of feedback received identifying key points that needed to be considered by the STF and any recommended actions;
* project progress in relation to the schedule specified.

**Proposed effectiveness and efficiency benchmarks**

1. Reports produced by the STF for ETSI TC ITS about the progress of the work. A report will be produced for each TC ITS meeting held during this activity (at least 2 reports a year);
2. Draft versions of the deliverables to be provided to relevant TC ITS Working Groups and TC ITS for circulation within the stakeholder community for commenting, namely: stable draft and final draft for approval;
3. 90% of the tasks and other milestone-related schedule on time (less than 10 days after the planned dates).

Stakeholder engagement and satisfaction:

An analysis will be given of the balance of stakeholder representation in the activity and the number of liaison activities performed.

**Proposed Benchmarks**

Comments provided to the draft versions of the deliverables circulated by the STF (at least 2 comments per deliverable provided to the draft versions from TC ITS and external stakeholders)

Dissemination of results:

Information will be provided on the effectiveness of activities related to the dissemination of project deliverables and efforts made to raise industry awareness of the activity.

# Work plan, milestones and deliverables

## Deliverable

As shown in Table 1, the action will produce two reports to be submitted to the EC/EFTA:

* One interim report (IR)
* One final report (FR)

IR will be submitted 8 months after the signature of the action grant and will detail the work performed to achieve the production of the technical deliverables (D1 to D6) as well as the latest drafts of these specifications.

FR provided at the end of the STF (i.e. not later than 16 months after the signature of the action grant) will provide an overall report of the activity performed along with TSs published (D1 to D6), and details of the resource usage along with an analysis of the performance indicators.

Table 1: Reports

| **Deliv. ID** | Title and Contents |
| --- | --- |
| Interim Report (IR) | **Title**: Interim Report to the EC/EFTA  **Content**: This report to the EC/EFTA will include:   1. The activities performed until month 8, the coordination work of the STF activities and the production of the expected deliverables anticipated in the work-plan. 2. The latest drafts of the deliverables specified in Table 2 as available according to the time plan. 3. Overview of ad-hoc meetings if necessary 4. The plan for the future activities until the next reporting and further expected coordination meetings. |
| Final Report (FR) | **Title**: Final Report to the EC/EFTA.  **Content**: This report will include:   1. The activities performed in STF, the coordination work of the STF activities and the production of the expected deliverables. 2. The published deliverables specified in Table 2 (D1 to D6) 3. Detailed report of the performance indicators outlined in clause 6 of this proposal. 4. Details of specific meetings if necessary. 5. Report on the resources that have been used for performing the work |

The goal of this action is to update the conformance test specifications for ITS PKI management and ITS security based on latest ITS security standards. This action provides the essential specifications as shown in Table 2. Section 7.2 gives more details on the work plan, milestones and due dates.

Table 2: list of deliverables

|  |  |  |  |
| --- | --- | --- | --- |
| **Deliverable ID** | **Standard number/version** | **Working title** | **Scope/Remarks** |
| D1 | RTS/ITS-207  ETSI TS 103 525-1 V1.2.1 | Intelligent Transport Systems (ITS); Testing; Conformance test specifications for ITS PKI management; Part 1: Protocol Implementation Conformance Statement (PICS), | Updating the conformance test specifications for ITS PKI Management based on the latest version of ETSI TS 102 941 and ETSI TS 103 601 and including receiving and exceptional behaviour use-cases. |
| D2 | RTS/ITS-208  ETSI TS 103 525-2 V1.2.1 | Intelligent Transport Systems (ITS); Testing; Conformance test specifications for ITS PKI management; Part 2: Test Suite Structure and Test Purposes (TSS & TP), | Updating the conformance test specifications for ITS PKI Management based on the latest version of ETSI TS 102 941 and ETSI TS 103 601 and including receiving and exceptional behaviour use-cases. |
| D3 | RTS/ITS-209  ETSI TS 103 525-3 V1.2.1 | Intelligent Transport Systems (ITS); Testing; Conformance test specifications for ITS PKI management; Part 3: Abstract Test Suite (ATS) and Protocol Implementation eXtra Information for Testing (PIXIT). | Updating the conformance test specifications for ITS PKI Management based on the latest version of ETSI TS 102 941 and ETSI TS 103 601 and including receiving and exceptional behaviour use-cases. |
| D4 | RTS/ITS-210  ETSI TS 103 096-1 V1.5.1 | Intelligent Transport Systems (ITS); Testing; Conformance test specifications for ITS Security; Part 1: Protocol Implementation Conformance Statement (PICS) | Updating the conformance test specifications for ITS security based on the latest version of ETSI TS 103 097 and including receiving and exceptional behaviour use-cases. |
| D5 | RTS/ITS-211  ETSI TS 103 096-2 V1.5.1 | Intelligent Transport Systems (ITS); Testing; Conformance test specifications for ITS Security; Part 2: Test Suite Structure and Test Purposes (TSS & TP) | Updating the conformance test specifications for ITS security based on the latest version of ETSI TS 103 097 and including receiving and exceptional behaviour use-cases. |
| D6 | RTS/ITS-212  ETSI TS 103 096-3 V1.5.1 | Intelligent Transport Systems (ITS); Testing; Conformance test specifications for ITS Security; Part 3: Abstract Test Suite (ATS) and Protocol Implementation eXtra Information for Testing (PIXIT) | Updating the conformance test specifications for ITS security based on the latest version of ETSI TS 103 097 and including receiving and exceptional behaviour use-cases. |

\* Version at publication time.

## Work plan

As some of the tasks are executed somewhat in parallel to realize the specifications efficiently in the Work plan. The work plan consists of 3 Tasks which are organized in an efficient way. Table 3 shows the detailed work plan for this action in terms of tasks. T0 is the date of signature of the contract.

Table 3: Task Description with milestones

| Task | Description and methodology | Deliverables |
| --- | --- | --- |
| T1 | STF Leadership |  |
| T1.1 | STF Setup  ETSI, the TC ITS chairman as well as ITS WG chairmen, including at least the WG5 (Security) chairman, will interview the STF candidates and select those to best meet the work plan.  ETSI will make arrangements for STF members (service contracts, etc.). |  |
| T1.2 | STF Leader  The STF leader will:   * Plan the work of the STF members, ensuring that the timescales of the STF deliverables are met * Organise STF meetings to discuss the drafts, recording any major issues and resolutions of the STF, identifying and progressing the actions of STF members * Report to TC ITS and TC ITS Working Groups as appropriate on the work of the STF * Represent, or arrange for other STF members to represent the STF at other external meetings as appropriate. * Provide drafts of the IR and FR to the ETSI secretariat   **Expertise required:**   * Ability to lead and manage a team * Project management and communication skills   **Effort Required: 9 units**  **Milestones:**  **Start**: T0+3  **M1** Interim report (IR): T0+8  **M2** Final report (FR): T0+16 |  |
| T2 | **Updating conformance test specifications for PKI Management** | D1 to D3 [TS 103 525-1]  [TS 103 525-2]  [TS 103 525-3] |
| T2.1 | **Description:** The goal of this task is to produce the deliverable ETSI TS 103 0525-1, ETSI TS 103 525-2, ETSI TS 103 525-3, conformance test specifications for PKI Management. |  |
| T2.2 | **Methodology:** Update the conformance test specifications for PKI management based on latest ETSI TS 103 525 and a part for protocol specific extensions; implement and document the changes.  **The methodology** for the development of the first part of the Technical Report will be the following:   * PICS: Addition of PICS items where necessary. * TSS & TP: Updating test purposes, preparing final document. * ATS & PIXIT: Update of the documentation * Quality Check of Test Standard; * Installation of SUTs and coordination with SUT operators; * General Regulation requirements and constraints; * Definition of the System and Technical requirements;   **Working sessions:**  It is anticipated that the majority of the work will be performed as drafting work remotely and electronically. However, a few face-to-face working sessions might be needed for clarification purposes with regard to terms and definitions and the alignment of the various information sources. All expertise is needed.  **Intermediate and final Milestones:**  **Start**: T0 + 3.  **M2.1**: Early Draft: T0 + 7.  **M2.2**: Stable Draft: T0 + 10.  **M2.3**: Final draft approved by TC ITS: T0 +12.  **M2.4:** TB approval and publication TS 103 0525-1/2/3 V1.1.1: T0 + 14  **Phase 2: Effort required: 62 units** |  |
| **T3** | **Updating conformance test specifications for ITS Security** | D4 to D6 [TS 103 096-1]  [TS 103 096-2]  [TS 103 096-3] |
| T3.1 | **Description:** The goal of this task is to produce the deliverable ETSI TS 103 096-1, ETSI TS 103 096-2, ETSI TS 103 096-3, conformance test specifications for ITS Security. |  |
| T3.2 | **Methodology:** Update the conformance test specifications for ITS Security based on latest ETSI TS 103 096 and a part for protocol specific extensions; implement and document the changes.  **The methodology** for the development of the first part of the Technical Report will be the following:   * PICS: Addition of PICS items where necessary. * TSS & TP: Updating test purposes, preparing final document. * ATS & PIXIT: Update of the documentation * Quality Check of Test Standard; * Installation of SUTs and coordination with SUT operators; * General Regulation requirements and constraints; * Definition of the System and Technical requirements;   **Working sessions:**  It is anticipated that the majority of the work will be performed as drafting work remotely and electronically. However, a few face-to-face working sessions might be needed for clarification purposes with regard to terms and definitions and the alignment of the various information sources. All expertise is needed.  **Intermediate and final Milestones:**  **Start**: T0 + 3.  **M3.1**: Early Draft: T0 + 7.  **M3.2**: Stable Draft: T0 + 10.  **M3.3**: Final draft approved by TC ITS: T0 + 12.  **M3.4:** TB approval and publication TS 103 096-1 V1.5.1, TS 103 096-2 V1.5.1, TS 103 096-3 V1.5.1: T0 + 14  **Effort required: 60 units** |  |

Table 6 shows the overall required effort in Units.

Table 4: Summary of effort required (T1 to T3)

|  |  |  |
| --- | --- | --- |
| **Task** | **Output** | **Required Efforts (Units)** |
| **T1** | IR and FR | **9** |
| **T2** | TS 103 525-1, TS 103 525-2, TS 103 525-3 | **62** |
| **T3** | TS 103 096-1, TS 103 096-2, TS 103 096-3 | **60** |
| **TOTAL** | | **131** |

Table 5 shows the calendar of tasks with the milestones.

Table 5: Calendar of tasks with milestones (T1 to T3)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Month** | | | | | | | | | | | | | | | |
| **Task** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Establish STF team |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T1. STF Leadership |  |  |  |  |  |  |  | **M1** |  |  |  |  |  |  |  | **M2** |
| T2 TS 103.525-1/2/3 for PKI management |  |  | **start** |  |  |  | **M2.1** |  |  | **M2.2** |  | **M2.3** |  | **M2.4** |  |  |
| T3 TS 103.096-1/2/3 for ITS Security |  |  | **start** |  |  |  | **M3.1** |  |  | **M3.2** |  | **M3.3** |  | **M3.4** |  |  |

**Table 6 : Table of Milestones/Tasks & Budget**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Code** | **Task / Milestone** | **Target Date** | | **Estimated Cost (EUR)** |
| **From** | **To** |
| T0 | Establish STF Team | 15/09/2020 | 15/10/2020 |  |
| T1 | STF Leadership | 16/11/2020 | 31/01/2022 | 5 940 |
| T2 | Updating conformance test specifications for PKI Management Production of D1 [TS 103 525-1], D2 [TS 103 525-2] and D3 [TS 103 525-3] | 16/11/2020 | 15/11/2021 | 40 920 |
| T2.1 | Early drafts of: D1 [TS 103 525-1], D2 [TS 103 525-2] and D3 [TS 103 525-3]. | 16/11/2020 | 31/05/2021 |  |
| T3 | Updating conformance test specifications for ITS Security Production of D4 [TS 103 096-1], D5 [TS 103 096-2] and D6 [TS 103 096-3] | 16/11/2020 | 15/11/2021 | 39 600 |
| T3.1 | Early drafts of D4 [TS 103 096-1], D5 [TS 103 096-2] and D6 [TS 103 096-3] | 16/11/2020 | 31/05/2021 |  |
| Milestone A | Progress Report to be made available and approved by ETSI Secretariat |  | 31/05/2021 |  |
| Milestone B | Interim Report 1 to the EC/EFTA to be made available and approved by ETSI Secretariat Early Drafts of  D1 [TS 103 525-1], D2 [TS 103 525-2],  D3 [TS 103 525-3], D4 [TS 103 096-1], D5 [TS 103 096-2] and, D6 [TS 103 096-3] made available to TC ITS |  | 30/06/2021 |  |
| T2.2 | Stable Drafts of D1 [TS 103 525-1], D2 [TS 103 525-2] and D3 [TS 103 525-3]. |  | 31/08/2021 |  |
| T3.2 | Stable Drafts of D4 [TS 103 096-1], D5 [TS 103 096-2] and D6 [TS 103 096-3]. |  | 31/08/2021 |  |
| T2.3 | Final Drafts of D1 [TS 103 525-1], D2 [TS 103 525-2] and D3 [TS 103 525-3]. |  | 15/11/2021 |  |
| T3.3 | Final Drafts of D4 [TS 103 096-1], D5 [TS 103 096-2] and D6 [TS 103 096-3]. |  | 15/11/2021 |  |
| Milestone C | ETSI Progress report approved by TC ITS Final Drafts of: D1 [TS 103 525-1], D2 [TS 103 525-2],  D3 [TS 103 525-3], D4 [TS 103 096-1], D5 [TS 103 096-2] and, D6 [TS 103 096-3] made available to TC ITS |  | 15/11/2021 |  |
| Milestone D | Final report to the EC/EFTA to be made available and approved by ETSI Secretariat Final Drafts of: D1 [TS 103 525-1], D2 [TS 103 525-2],  D3 [TS 103 525-3], D4 [TS 103 096-1], D5 [TS 103 096-2] and, D6 [TS 103 096-3] approved by TB ITS and published |  | 31/01/2022 |  |
|  | | | | **86 460** |

**Part III: Financial part**

# Financial provisions in the EC/EFTA contract

## Total action costs

The total action costs will amount to 131 units x 660,00 EUR = 86 460,00 EUR (lump sum)

## Subcontracting

There are no indirect costs involved.

## Direct (eligible) costs

The direct costs will amount to: 86 460,00 EUR **= lump sum** based on an EC contribution of 95% (82 137 EUR) and co-financed by 5% from EFTA (4 323,00 EUR).

1. https://ec.europa.eu/docsroom/documents/34521 [↑](#footnote-ref-1)
2. <https://www.europarl.europa.eu/doceo/document/A-8-2018-0036_EN.html> [↑](#footnote-ref-2)
3. <https://ec.europa.eu/transport/sites/transport/files/3rd-mobility-pack/com20180283_en.pdf> [↑](#footnote-ref-3)
4. <https://op.europa.eu/en/publication-detail/-/publication/426495e6-81c1-11e9-9f05-01aa75ed71a1> [↑](#footnote-ref-4)
5. <https://ec.europa.eu/transport/sites/transport/files/c-its_security_policy_release_1.pdf> [↑](#footnote-ref-5)
6. [https://cpoc.jrc.ec.europa.eu/data/documents/c-its\_certificate\_policy\_release\_preparatory\_phase\_of\_Delegated\_Regulation\_2019\_1789.pdf](https://op.europa.eu/en/publication-detail/-/publication/426495e6-81c1-11e9-9f05-01aa75ed71a1) [↑](#footnote-ref-6)
7. <https://cpoc.jrc.ec.europa.eu/data/documents/c-its_security_policy_release_preparatory_phase_of_Delegated_Regulation_2019_1789.pdf> [↑](#footnote-ref-7)