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| --- | --- |
| ETSI_logo_Office_Colour_Small | *ToR STF CP (TC ITS / WG 1)* |
| Version: 0.4 |
| Authors: Ing Paul Spaanderman – Date: 11.01.2018  |
|  Ing Paul Spaanderman – Date: 19.01.2018 |
| Last updated: Youssouf Sakho – Date: 25.07.2018 |
| page 1 of 15 |

**Terms of Reference - Specialist Task Force**

**STF CP (TC ITS)**

**Intelligent Transportations Systems (ITS); Position and Time – Standardisation– [Release 2]**

Summary information

|  |  |
| --- | --- |
| Approval status | Approved by TC ITS#29Approved by Board#118 |
| Funding | **Maximum budget: 98 600 € ETSI FWP**Manpower cost: **91 800** €. Travel cost: 6 800€. |
| Time scale | September 2018 to August 2020 |
| Work Items  | REN/ITS-00182: EN 302 890-2 |
| Board priority  | [ETSI STF funding criteria](https://portal.etsi.org/STF/STFs/Funding.aspx) Emerging domains for ETSI  |

Part I – Reason for proposing the STF

# Rationale

Under the European Commission standardisation mandate M453 [6] the initial set of C-ITS standards have been developed by ETSI TC ITS and CEN278. In 2013 a first set of ETSI C-ITS standards have been released and captured in the ETSI TR 101 607 [7] to support the initial set of applications (BSA) as identified in the ETSI TR 102 638 [8], which is currently being updated. This set of standards enable the deployment of the initial C-ITS safety related services as defined in the BSA.

While this deployment is ongoing the BSA is getting extended with new C-ITS and Automation services such as C-ACC, ETSI TR 103 299 [9] , Platooning, ETSI TR 102 298 [10], Vulnerable Road Users (VRU), ETSI TS 103 300-parts [11], and further new services as identified in the EU Commission C-ITS Platform Reports Phase-1 [2] 2016 and Phase-2 [3] 2017 as well as by the CODECS [4] EU H2020 project (GA no. 653339) roadmap reports and the C-ROADS platform [5] for which currently several additional standards are being developed by TB, ETSI TC ITS as further listed in the base document list in 6.1.

Besides for functional reasons, General Data Protection Directive 95/46/EC [33] (GDPR) have impact on the realisation of C-ITS information exchange and therefore privacy requirements need to be incorporated in the standards.

Among other project, the EU Horizon 2020 project HIGHTS[1] (GA no. 636537) identified that these new C-ITS and Automated services require and higher accuracy of the geolocation and time references in the C-ITS station and the overall C-ITS system. To realize the required improvement of the location and time accuracy awareness of the C-ITS station in an interoperable way C-ITS system requirements must be specified and to enable the possibility to come to high geolocation referencing accuracy within the C-ITS station information needs to be exchanged with other C-ITS stations in an interoperable way.

The existing location and time requirement identified in the current set of ITS standards as collected in the TR 101 607, do support the basic set of applications as defined in TR 102 638 however current analyses shows that new services require additional location and time specifications to facilitate these services as well as system operational aspects are not standardized yet.

In order to guarantee the availability of the required experts, TC ITS proposes to create this STF with the goal of developing a TS and an EN covering the needed specifications to enable the realisation of these new services.

# Objective

This STF intends to develop a European Norm of the position & time ITS station functions according to functional and operational requirements of the supported ITS applications. It evaluates the outcome of relevant European projects and information provided by ITS stakeholders. It analyses and evaluates the Geolocation improvements as well as the location and time system requirements. It identifies the POTI architecture and defines the syntax and semantics while considering the system scenarios and security and privacy requirements.

The proposed STF should develop an EN:

Evaluate the Location and Time requirements analyses of the relevant European projects;

Evaluate the current C-ITS Architecture and relevant elements;

Evaluate the impact of the GDPR on the Position and Time information exchange;

Definition of the position and time architecture;

Definition of the inter ITS requirements;

Definition of the position and time validity and availability requirements;

Definition of the location reference position requirements for each of the Station types;

Analyses and Evaluate the available different geolocation referencing improvement methods;

Identify and Evaluate the information exchange required to realize geolocation referencing improvements based on the methods found;

Identify the geolocation referencing improvement services which can be included in the POTI entity;

Definition of the syntax and semantics of the message exchange required to support each of the improvement services;

Evaluate the security risks and privacy requirements of the information exchange for each of the geolocation improvement services;

Definition of the security and privacy requirements;

Definition of the interface specifications to other facilities and layers;

Definition of the Facility layer protocol(s) to support each of the geolocation improvement services;

Release the EN for acceptance by ETSI TC ITS;

Support ETSI TC ITS in the ENAP process. Resolve all issues returned from ENAP and resolve all issues, support TC ITS to get to the publication if the EN 302 890-2 and

Realize Final STF report and STF closure.

It can be envisaged that required changes will affect some of the Application, Facility and Networking layer standards. In case it does change requests for those standards will be proposed and followed.

More complex changes identified by the STF will be evaluate and documented by the STF. These results will be used after the finalization of the STF to realize more significant changes to standards or to develop new standards to support the implementation of advanced C-ITS and Traffic safety and Traffic Automated services.

The STF will be handled by TC ITS and should start as soon as possible.

# Relation with ETSI strategy and priorities

The proposed STF supports the EC Mandates M/453 as accepted by ETSI.

The proposed STF supports the EC Mandates M/546 (Urban-ITS).

The proposed STF supports the GDPR European Directive.

The proposed STF supports the ETSI Long term strategy by:

* creating high quality standards for global use and with low time-to-market.
* engaging in other industry sectors besides telecoms, (cross-sector ICT)
* environment and sustainable future

# Context of the proposal

## ETSI Members support

|  |  |  |
| --- | --- | --- |
| **ETSI Member** | **Supporting delegate** | **Motivation** |
| Volkswagen AG | Teodor Buburuzan | Main interest from Volkswagen AG will be the clear definition of these related functions and features to support the realisation of C-ITS safety services in Volkswagen AG products. |
| Toyota | John Kenney | Main interest from Toyota will be the clear definition of these related functions and features to support the realisation of C-ITS safety services in Toyota AG products. |
| Renault SAS | Stefania Sesia | Main interest from Renault SAS will be the clear definition of these related functions and features to support the realisation of C-ITS safety services in Renault SAS products. |
| Daimler AG | Achim Brackemeier | Main interest from Daimler AG will be the clear definition of these related functions and features to support the realisation of C-ITS safety services in Daimler AG products. |
| LG Electronics UK | Seung Yang | Main interest from LG will be the establishment of base for the further enhanced functionalities which can support the further development of C-ITS operation. |
| FBConsulting Sarl | Paul Spaanderman | Main interest from FBConsulting will be the possible reusability of the STF results for the development of standards in TC ITS and to support the further development of C-ITS functions and features. |
| Kapsch TrafficCom AB | Jasja Tijink | We consider the availability and accuracy of time and position data of utmost importance for the performance of road safety applications.  |
| Denso | Tim Leimmuller | Main interest from DENSO is the clear definition of position and time related requirements as well as corresponding specification of requirements and interoperability requirements. This is seen as a requirement for C-ITS related DENSO products. |
| Volvo Technology | Katrin Sjöberg | Main interest from Volvo Group will be the clear definition of these related functions and features to support the realisation of C-ITS safety services in Volvo Group products |
| Siemens AG | Fritz Kasslatter | Main interest from Siemens AG will be the clear definition of these related functions and features to support the realisation of C-ITS safety services in Siemens AG products. |

## Market impact

The development of essential for the deployment of new C-ITS Release 2 services such as Vulnerable Road users, Motorcycle Awareness, C-ACC and Platooning, addressing increase of safety on the road and traffic efficiency. The development of these specification will boost the development of new Release 2 related C-ITS and Automated services. It will ensure proper operation of these services requiring higher accuracy requirements related to position and time. It will enable the support of more stakeholders, such as Urban Rail and Agriculture Automation making use of the interoperable technology and broaden the deployment of the developed system.

## Tasks for which the STF support is necessary

The support of STF experts is required to reach the time schedule. The mainly involved ETSI TC is TC ITS.

## Related voluntary activities in the TB

ETSI TC ITS will closely follow the activities of the STF. Members of TC ITS, and other ETSI TC will review the proposals from the STF.

In detail the voluntary activities within the TB will consist of:

* synchronisation of the STF work with other TB work
* support with the approval process of the documents
* the review and approval of the developed technical specification and European Norm themselves
* initiation and development of the standard and specification updates based on the results of the STF

## Previous funded activities in the same domain

None

## Consequences if not agreed

If the STF is not accepted, given the amount of work to be done in such a short time frame, it is very likely that ETSI will not be able to find a solution to be proposed and it may be developed elsewhere.

Part II - Execution of the work

# Technical Bodies and other stakeholders

## Reference TB

ETSI TC ITS, main contact: Niels Peter Skov Andersen

## Other interested ETSI Technical Bodies

None

## Other stakeholders

CEN287/ISO204, SAE, EU commission, EU Projects AutoNet[23], TIMON[24], HIGHTS[1], CODECS[4] and C-ROADS[5], and organisations such as C2C-CC[25], ACEA[28], 5GAA[26], EATA[27], POLIS[32], ASECAP[31], CEDR[30] and CLEPA[29]

# Base documents and deliverables

## Base documents

|  |  |  |  |
| --- | --- | --- | --- |
| **Document** | **Title** | **Current Status** | **Expected date for stable document** |
| ETSI TR 101 607 V1.1.1 [7] | Intelligent Transportation Systems (ITS); Cooperative ITS (C-ITS); Release 1 | published |  |
| ETSI TR 102 638 V1.1.1 [8]  | Intelligent Transportation Systems (ITS); Vehicular Communications; Basic Set of Applications; Definitions | published |  |
| ETSI TR 103 299 V0.1.5 [9] | Intelligent Transportation Systems (ITS); Cooperative Adaptive Cruise Control (CACC); Pre-standardization study | In development |  |
| ETSI TR 103 298 V0.0.2 [10] | Intelligent Transportation Systems (ITS); Platooning; Pre-standardization study | In development |  |
| ETSI TR 103 300-1 V0.0.8 [11]  | Intelligent Transportation Systems (ITS); Vulnerable Road Users (VRU); Study of use cases and standardisation perspectives | In development |  |
| ETSI TS 103 300-2 V-.-.- [12] | Intelligent Transportation Systems (ITS); Vulnerable Road Users (VRU); VRU Architecture | In development |  |
| ETSI TS 103 300-3 V-.-.- [13] | Intelligent Transportation Systems (ITS); Vulnerable Road Users (VRU); VRU Basic Service | In development |  |
| ETSI TS 102 890-2 V0.0.6 [14]  | Intelligent Transportation Systems (ITS); Facilities layer function; Part 2: Facility Position and Time management and Geolocation referencing service | In development |  |
| ETSI TS 103 562 V0.0.10 [17] | Intelligent Transportation Systems (ITS); Basic Set of Applications; Information Report for the Collective Perception Service | In development |  |
| ETSI TS 103 324 V0.0.12 [18] | Intelligent Transportation Systems (ITS); Basic Set of Applications; Specification of the Collective Perception Service | In development |  |
| ETSI TS 103 561 V0.0.1 [20] | Intelligent Transportation Systems (ITS); Basic Set of Applications; Maneuver Coordination Service | In development |  |
| EU Platform report Phase 1 [1] | C-ITS Platform Final Report January 2016 | published |  |
| EU Platform report Phase 2 [3] | C-ITS Platform Final Report Phase II September 2017 | published |  |
| HIGHTS reports [1] | Diverse HIGHTS reports including Geolocation Requirement reports. | published |  |
| CODECS reports [4] | Diverse CODECS reports including Hybrid Communication and C-ITS Roadmap reports. | published |  |
| C-ROADS Release 1.1 [5] | 2 parts: * Infrastructure functions and specifications.
* Infrastructure Technical Profile
 | published |  |

## Deliverables

|  |  |  |
| --- | --- | --- |
| **Deliv.** | **Work Item code****Standard number** | **Working title****Scope** |
| D1 | REN/ITS-00182EN 302 890-2 | Working title: Position and Time (POTI)Scope: European Norm of the position & time function according to functional and operational requirements of supported applications. |

## Deliverables schedule:

**REN/ITS-00182 working title: Position and Time (POTI)**

* Start of work: 17-September-2018
* Early Draft EN 302 890-2 25-January-2019
* Stable draft EN 302 890-2 31-July-2019
* WG approval EN 302 890-2 10-October-2019
* TB approval EN 302 890-2 12-October-2019
* ENAP-proces start EN 302 890-2 09-November-2019
* Publication EN 302 890-2 31-August-2020

# Work plan, time scale and resources

## Organization of the work

The STF should consist of up to 5 experts with experiences in the domain of C-ITS, Traffic Automation systems, geolocation reference systems, and the different ETSI ITS protocol layers. Additional knowledge about the functional realisation and technical implementation limitations are of importance to realize the required interoperability. In addition, security and privacy expertise is required to assess definitions. At least one of the experts should have a good overview over the procedures and developments at EU commission and Member State level. One should have experience of the Vehicular functional requirements and limitations; one should have detailed knowledge about the facility layer functionalities, one needs to have knowledge about implementation consequences, one needs to have knowledge about geolocation referencing systems including GNSS and one should bring relevant security and privacy expertise.

The STF will provide the developed EN 302 890-2 to ETSI TC ITS by October 2019 for acceptance, it will further handle the ENAP and bring the document to publication by August 2020 at the latest (if technical comments are received during the ENAP).

The STF work will directly be steered by the TC ITS and the progress will be reported on a regular basis to TC ITS.

## Task description

## Task 1

**Objective:** To evaluate the outcome of the different relevant European projects and organisations with regards to the location and time requirements in relation to the current C-ITS Architecture and relevant elements. To identify and define related position and time element.

**Input:**

* From ETSI, CEN/ISO, IEEE, SAE and 3GPP standardisation, from EU commission C-ITS deployment Platform report, from key European projects CODECS, Article 29, C-ROADS and from organisations such as EATA, C2C-CC, 5GAA, ACEA, CLEPA and others

**Output:**

* Evaluate the Location and Time requirements analyses of the relevant European projects;
* Evaluate the current C-ITS Architecture and relevant elements;
* Definition of the position and time architecture;
* Definition of the inter ITS requirements;
* Definition of the position and time validity and availability requirements;
* and Definition of the location reference position requirements for each of the Station types.

Resources required

* 19 200 €

## Task 2

**Objective:** To analyse and evaluate the available different geolocation referencing improvement methods, Identify the required information exchange and related required services. To define the syntax, semantics.

**Input:**

* The results from Task 1
* From ETSI, IEEE, standardisation, from European project such as AutoNet, HIGHTS and TIMON and from organisations such as C2C-CC and 5GAA.
* From CEN278WG17 and related stakeholders for Urban ITS and from the not yet accepted EU platooning project ENSEMBLE
* From Technology providers.

**Output:**

* Analyses and Evaluate the available different geolocation referencing improvement methods;
* Identify and Evaluate the information exchange required to realize geolocation referencing improvements based on the methods found;
* Identify the geolocation referencing improvement services which can be included in the POTI entity;
* Definition of the syntax and semantics of the message exchange required to support each of the improvement services;

Resources required

* 30 000 €

## Task 3

**Objective:** To evaluate security and privacy constraints and effect on the information exchange. To define the security, privacy and protocol requirements. Release a stable EN and acceptance by TC ITS.

**Input:**

* The results from Task 1 and Task 2.
* From ETSI, IEEE, European Commission Delegated Act and Article 29.

**Output:**

* Evaluate the security risks requirements of the information exchange for each of the geolocation improvement services;
* Evaluate the impact of the GDPR Decision on the Position and Time information exchange;
* Definition of the security and privacy requirements;
* Definition of the interface specifications to other facilities and layers;
* Definition of the Facility layer protocol(s) to support each of the geolocation improvement services;
* and Release TS including all definitions and support ETSI TC ITS’s publication.

Resources required

* 33 600 €

## Task 4

**Objective:** Resolve all issues returned from the ENAP process, resolve all issues. Publication EN and Final STF report.

**Input:**

* Accepted EN by TC ITS.
* Feedback from ENAP process.

**Output:**

* Include additional Definition as result of the evaluation and release a stable draft EN;
* Final STF Report

Resources required

* 9 000 €

## Milestones

Milestone 0 – Start of work

Start with installation of the STF team and introduction at ETSI TC ITS (September -2018).

Milestone 1 – ETSI EN 302 980-2 Early Draft

Initial chapters as results of Task 1 for requirements by ETSI TC ITS (January-2019).

Milestone 2 – ETSI EN 302 980-2 Stable Draft

Stable chapters including the results of Task 1 and Task 2 reviewed by ETSI TC ITS (July-2019)

Milestone 3 – ETSI EN 302 980-2 Final Draft

Stable draft including all stable chapters including updates, including the results Task 1-2-3 reviewed and developed. Acceptance of the EN, by ETSI TC ITS. (October-2019).

Milestone 4 – ETSI EN 302 980-2 end ENAP, Publication and STF Closure

ENAP Closure resolves issues, Publication of EN and STF Final Report approved by TC ITS (August-2020).

## Task and Milestone summary

Table 1: Task and Milestone summary

|  |  |  |
| --- | --- | --- |
| **N** | **Task / Milestone / Deliverable** | Target date |
| EUR |
| M0 | Start of work | date |  |
| T1 | To evaluate the outcome of the different relevant European projects and organisations with regards to the location and time requirements in relation to the current C-ITS Architecture and relevant elements. To identify and define related position and time element. | from September 2018-to January 2019 | 19 200 |
| M1 | ETSI EN 302 890-2 Early Draft availableProgress report approved by TC ITS | 25-January 2019 |  |
| T2 | To analyse and evaluate the available different geolocation referencing improvement methods, Identify the required information exchange and related required services. To define the syntax, semantics | from January 2019 –to July 2019 | 30 000 |
| M2 | ETSI EN 302 890-2 Stable Draft availableProgress report approved by TC ITS | July 2019 |  |
| T3 | To evaluate security and privacy constraints and effect on the information exchange. To define the security, privacy and protocol requirements. Release a stable EN and acceptance by TC ITS. | from July 2019 –to October 2019 | 33 600 |
| M3 | ETSI EN 302 890-2 Final Draft availableProgress report approved by TC ITS | October 2019 |  |
| T4 | Resolve all issues returned from the ENAP process, resolve all issues. Publication EN and Final STF report. | from October 2019 – to August 2020 | 9 000 |
| M4 | EN 302 890-2 approved by TC ITS after ENAP (if technical comments are received)Final report approved by TC ITSSTF Closure | May 2020 |  |
| **Total** | **91 800** |

Table 2: Task and Milestone Graphics

| **Task Milest.** | **Description** | **S** | **O** | **N** | **D** | **J** | **F** | **M** | **A** | **M** | **J** | **J** | **A** | **S** | **O** | **N** | **D** | **J** | **F** | **M/A** | **M** | **J** | **J** | **A** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| M0 | Start of work |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T1 | To evaluate the outcome of the different relevant European projects and organisations with regards to the location and time requirements in relation to the current C-ITS Architecture and relevant elements. To identify and define related position and time element. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M1 |  ETSI EN 302 890-2 Early Draft availableProgress report approved by TC ITS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T2 | To analyse and evaluate the available different geolocation referencing improvement methods, Identify the required information exchange and related required services. To define the syntax, semantics. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M2 | ETSI EN 302 890-2 Stable Draft availableProgress report approved by TC ITS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T3 | To evaluate security and privacy constraints and effect on the information exchange. To define the security, privacy and protocol requirements. Release a stable EN and acceptance by TC ITS. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M3 |  ETSI EN 302 890-2 Final Draft availableProgress report approved by TC ITS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T4 | Resolve all issues returned from the ENAP process, resolve all issues. Publication EN and Final STF report. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M4 | EN 302 890-2 approved by TC ITS after ENAP (if technical comments are received)Final report approved by TC ITSSTF Closure |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## Working methods

Task 1:

* STF-Expert - preparation meeting 1 day @ ETS
* 1 STF-Expert-Meeting; 2 days F2F @ ETSI
* 2 STF-Expert-Meetings; remotely 2 hrs each
* Participation to TB, TC ITS for Milestone M1

Task 2:

* *2 STF-Expert-Meetings / 2 days @ ETSI*
* 4 STF-Expert-Meetings; remotely 2 hrs each
* Participation to TB, TC ITS for Milestone M2

Task 3:

* *2 STF-Expert-Meetings / 2 days @ ETSI*
* 4 STF-Expert-Meetings; remotely 2 hrs each
* Participation to TB, TC ITS for Milestone M3

Task 4:

* 1 STF-Expert-Meeting F2F; 1 days @ ETSI
* 1 STF-Expert- Meetings; remotely 2 hrs each
* Participation to TB, TC ITS for Milestone M5

# Expertise required

## Team structure

Up to 5 participants to ensure the following mix of competences:

* Expert in ETSI procedures and STF operations
* Expert in GNSS and Location improvement methods
* Expert in Vehicular safety systems
* Expert in Traffic Automation systems
* Expert in Security and GDPR (separate expert only covering this)
* Expert in C-ITS Application and Facilities Layer functionalities and specifications.

Part III: Financial conditions

# Maximum budget

## Manpower

|  |  |
| --- | --- |
| Tasks | Costs |
| Task 1  | 19200 |
| Task 2  | 30000 |
| Task 3  | 33600 |
| Task 4  | 9000 |
| **Total**  | **91800** |

## Travel cost

|  |  |
| --- | --- |
| **Expected travels** | **Cost estimate** |
| 4 TC ITS meeting at Sophia Antipolis (1 person) | 3200 |
| 3 Meetings with stakeholder groups (Authorities, Agriculture...) (2 persons) | 3600 |
| **Total cost**  | **6800** |

Part IV: STF performance evaluation criteria

# Key Performance Indicators

During the activity, the STF Leader will collect the relevant information, as necessary to measure the performance indicators. The result will be regularly presented to the relevant technical body.

Contribution from ETSI Members to STF work

* Voluntary work of experts (free of charge or with partial remuneration)
* Delegates attending meetings/events related to STF (number of participants/duration)
* Direct contribution of delegates (e.g. number of documents/comments/e-mail)
* Development of related standards by delegates.

Contribution from STF experts to ETSI work

* Contributions presented to WG meetings of TC ITS (number, type, comments received)
* Presentations in workshops, conferences, stakeholder meetings, e.g. ITS World Congress or ITS Europe Congress, ETSI ITS work shop
* Contributions/presentations to other ETSI TBs
* Contributions received from other ETSI TBs

Liaison with other stakeholders

* Stakeholder participation in the project (category, business area)
* Liaison to identify requirements and raise awareness on ETSI deliverables

Quality of deliverables

* Approval of deliverables according to schedule presented in the ToR and the corresponding WI schedules
* Respect of time scale, with reference to start/end dates in the approved ToR
* Quality review by TB
* Quality review by ETSI Secretariat

# Document history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Date** | **Author** | **Status** | **Comments** |
| 0.1 | 11-01-2018 | PaulSpaanderman | Initial draft  | Based on discussion in ITS TC WG1, discussions at the EU C-ITS Platform, C-ROADS and C2C-CC meetings. |
| 0.2 | 29-04-2018 | PaulSpaanderman | Initial draft  | Limited the work to only producing an EN, adjusted budget and made editorial changes |
| 0.3 | 28-05-2018 | Andrea Lorelli | Final Draft | A few corrections on dates (to be consistent with the ENAP) |
| 0.4 | 25-07-2018 | Youssouf Sakho | Board Approved | Updates before Call for Expertise publication |

# Reference

1. HIGHTS EU Horizon project (GA no. 636537) reference documents:
<http://hights.eu/deliverables/>
2. C-ITS Platform Final Report January 2016: <https://ec.europa.eu/transport/sites/transport/files/themes/its/doc/c-its-platform-final-report-january-2016.pdf>
3. C-ITS Platform Final Report Phase II September 2017:
<https://ec.europa.eu/transport/sites/transport/files/2017-09-c-its-platform-final-report.pdf>
4. CODECS EU Horizon project (GA no. 653339) Public Deliverables and results workshops:
<http://www.codecs-project.eu/index.php?id=5>
5. C-ROADS reference documents:
<https://www.c-roads.eu/platform.html>
6. EU Standardisation Mandate to ETSI, CEN and CENELEC:
<http://ec.europa.eu/growth/tools-databases/mandates/index.cfm?fuseaction=search.detail&id=434>
7. ETSI TR 101 607 V1.1.1 (2013-5): “Intelligent Transportation Systems (ITS); Cooperative ITS (C-ITS); Release 1”.
8. ETSI TR 102 638 V1.1.1 (2009-06): “Intelligent Transportation Systems (ITS); Vehicular Communications; Basic Set of Applications; Definitions”.
9. ETSI TR 103 299 V0.1.5 (Draft): “Intelligent Transportation Systems (ITS); Cooperative Adaptive Cruise Control (CACC); Pre-standardization study [Release 2]”.
10. ETSI TR 103 298 V0.0.2 (Draft): “Intelligent Transportation Systems (ITS); Platooning; Pre-standardization study [Release 2]”.
11. ETSI TR 103 300-1 V0.0.8 (Draft): “Intelligent Transportation Systems (ITS); Vulnerable Road Users (VRU); Study of use cases and standardisation perspectives [Release 2]”.
12. ETSI TS 103 300-2 V-.-.- (To be expected): “Intelligent Transportation Systems (ITS); Vulnerable Road Users (VRU); VRU Architecture [Release 2]”.
13. ETSI TS 103 300-3 V-.-.- (To be expected): “Intelligent Transportation Systems (ITS); Vulnerable Road Users (VRU); VRU Basic Service [Release 2]”.
14. ETSI TS 102 890-2 V0.0.6 (Early Draft): “Intelligent Transportation Systems (ITS); Facilities layer function; Part 2: Facility Position and Time management and Geolocation referencing service”.
15. NONE
16. ETSI TS 103 141 V0.0.9 (Draft): “Intelligent Transportation Systems (ITS); Facilities layer function; Communication Congestion Control”.
17. ETSI TR 103 562 V0.0.10 (Draft): “Intelligent Transportation Systems (ITS); Basic Set of Applications; Information Report for the Collective Perception Service [Release 2]”.
18. ETSI TS 103 324 V0.0.12 (Draft): “Intelligent Transportation Systems (ITS); Basic Set of Applications; Specification of the Collective Perception Service [Release 2]”.
19. ETSI TS 103 301 V1.1.7 (Draft): “Intelligent Transportation Systems (ITS); Basic Set of Applications; Facility layer protocols and communication requirements for infrastructure services”.
20. ETSI TS 103 561 V-.-.- (To be expected): “Intelligent Transportation Systems (ITS); Basic Set of Applications; Maneuver Coordination Service [Release 2]”.
21. ETSI TS 103 175 V1.1.1 (2015-06): “Intelligent Transportation Systems (ITS); Cross Layer DCC Management Entity for operation in the ITS G5A and TS G5B medium”.
22. ETSI EN 302 663 V1.2.1 (2013-07): “Intelligent Transportation Systems (ITS); Access Layer specification for Intelligent Transportation Systems operation in the 5GHz frequency band”.
23. EU Horizon 2020 project AutoNet: <http://www.autonet2030.eu>
24. EU Horizon 2020 project TIMON: <https://www.timon-project.eu>
25. C2C-CC, Car 2 Car Communication Consortium:
<https://www.car-2-car.org/index.php?id=5>
26. 5GAA, the 5G Automotive Association: <http://5gaa.org>
27. EATA: <http://erticonetwork.com/european-automotive-telecom-alliance-presents-automated-driving-roadmap/>
28. ACEA: <http://www.acea.be>
29. CLEPA: <https://clepa.eu>
30. CEDR: <http://www.cedr.eu>
31. ASECAP: <http://www.asecap.com>
32. POLIS: <https://www.polisnetwork.eu/about/about-polis>
33. 1.Directive 95/46/CE on the protection of individuals with regard to the processing of personal data and on the free movement of such data: <http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A31995L0046>