European Committee for Standardization
Comité Européen de Normalisation
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World Class Standards

Final joint CEN/ETSI-Progress Report to the European Commission on Mandate M/453

Directory

1. Introduction and executive summary

CEN and ETSI formally accepted the Mandate M/453 in January 2010 and provided a joint Response to the Mandate in April 2010. The Response to the Mandate included a list of minimum set of standards for interoperability and the split of responsibility between the two European standards organisations (ESO).

In April 2011 CEN and ETSI provided a status report on the standardisation activities in accordance with the agreed split of responsibilities in the first response to the Mandate M/453.

The 2nd progress report in January 2012 provided a more extensive list of standards that had been finalised and a plan with timelines and milestones for still open issues where standards are not yet finalised.

The final report is a status report as of June 2013 with detailed information about the achievements during the Mandate period and the plans for finalising the standards listed in the April 2010 response to the Mandate M/453.

The ESOs have initiated the standardization activity and a number of standards have been developed and published as European Norms (EN) or Technical Specifications (TS) in the typical process towards EN approval, as requested in the Commission Mandate. The EN approval process requires public enquiry where national standards organisations provide technical comments to the standards and the following comments resolution of the relevant SDO and adoption of a standard for voting within the National Standards Organisations. This process is time consuming both because of the general quality check of the technical specification in connection with its transition to an EN standard but also because of the time consuming public enquiry process and voting procedure. How to speed up this process was analysed by CEN and discussed at the ITS CG meeting 15 September 2011 in Brussels. The ETSI Board had changed the procedure to merge the public enquiry procedure with the voting procedure which has to some extend improved the process now called ENAP.

As requested in the Mandate, CEN and ETSI have taken initiatives to involve stakeholders and relevant external bodies in the standardization process including the European and national R&D projects in order to ensure that the results of the on-going activities are brought into the standardization process. In order to achieve globally harmonised standards on-going coordination and cooperation with global and regional standardization organisations is part of the standardization process. Open ETSI workshops with 140 representatives from stakeholders took place in Venice for 9-11 February 2011, in Doha in 2012 and in Vienna in February 2013. The participation of stakeholders in the ETSI workshops has increased during the mandate period where in particular the infrastructure representatives from Road Authorities, Road Operators and City-authorities as well as mobile operators and mobile industry had been active.

On invitation of CEN two international stakeholder workshops organized by its WG16 (Cooperative ITS) took place in Berlin (8-9 March 2012 and 12-14 December 2012) to discuss the scope, use cases and data elements for message sets to enable safety and sustainability applications. The standardization of additional message sets like Signal Phase and Timing (SPaT) or Probe Data (PVD) is a cross SDO activity with participation of ISO, ETSI and SAE in addition to CEN. Appropriate cooperation and liaison agreements are in the phase of negotiation.

With the deployment planning initiated by the stakeholders within the Amsterdam Group new standards requirements have been presented to the SDOs and more resources have been provided from stakeholders to finalise the standards.

Furthermore the ETSI TC ITS web site (www.etsi.org/m453) includes detailed information about the Mandate activities and similar information is provided by CEN/TC 278 www.itsstandards.eu.

Within the European Commission support Action COMeSafety[2] workshops have been arranged as a webinar with some 25-30 participants. It is also agreed to arrange a similar webinar workshop during summer 2013 based on the results provided in this final report of the Mandate M/453. It is expected that stakeholders including road operators/road authorities, telecom operators and service providers as well as other interested organisations will provide comments and will discuss the status of the standardisation activities within the ESO's.

In April 2013 ETSI TC ITS has adopted a Technical Report for publication (TR 101 067) as Release 1 of TC ITS standards in accordance with the Mandate M/453. Release 1 includes a minimum set of standards for interoperability intended for the initial profiling and deployment preparation by stakeholders. Release 2 is being planned within TC ITS based on features and functionalities required by stakeholders.
In May 2013 CEN/TC278 and ISO/TC204 prepared the draft Release 1 list of the C-ITS standards developed by both SDO, based on resolutions/decisions taken at the ISO/TC204 plenary meeting in Moscow (October 2012) and CEN/TC278 plenary meeting in Brussels (March 2013). The final Release 1 list will be part of ISO TR 17465-3, a TR under development.
When ISO TR 17465-3 is published a joint document will be developed including information from the different SDO Release process but also including other relevant standards from other SDOs such as SAE and IEEE. This joint document will be available end of 2013 beginning 2014.

International harmonisation of standards and coordination of preparation for deployment have been further developed within the EU-US-JP Task Force based on the EU-US joint declaration of Intent on Research Cooperation in Cooperative systems. CEN and ETSI contribute to this process.

2. Status of standardization activities from the list of minimum set of standards in the response to the Mandate

The standardization work for Co-operative Intelligent Transport Systems (C-ITS) is well advanced in both CEN and ETSI but also other standardization organisations have provided standards relevant for C-ITS, falling within the scope of Mandate M/453. Evaluation of the application of existing standards is an on-going activity in the standardization process in the relevant CEN, ISO, SAE, IEEE and ETSI Technical Committees and their Working Groups.

2.1. ETSI TC ITS status report

Annex 1 to this final report includes the list of standards required in the Response to the Mandate M/453 April 2010 with status information about ETSI standards approved and published, or information about expected approval timeframe for the still outstanding standards. The list of standards reflects the agreed responsibility for standardization between CEN and ETSI

The list of standards in the initial response to the Mandate from April 2010 included a requirement for some ETSI standards which are not considered needed in the 1st release of standards for cooperative ITS. The standards may be required at a later stage for development of more complex ITS systems, but are not required at this point in time. The standards are not included in the current list.

In general the planned ETSI standards from the Response to the Mandate in April 2010 have been developed within the expected timeframe and transition from Technical Specifications to European Norms is in good progress. ETSI TC ITS has now approved the essential standards for the CAM and DENM messages for the EN approval process with public enquiry and national voting and the access network standard profiling the IEEE 802.11 has been published as an EN. Furthermore all standards for security and privacy have been developed currently as Technical Specifications. In general the time required for public enquiry and voting procedure of European Norms has lead to a slight delay in presenting the final European Norm's.

The ETSI procedure for deliverable process with public enquiry and voting procedure is available on the ETSI web site and has been provided as a presentation to the 5th ITS CG meeting. ETSI board has changed the procedure in order to merge the public enquiry procedure with the voting procedure. This procedure called EN approval procedure (ENAP) has improved the process for EN standards.

Within ETSI TC ITS essential communication standards in accordance with the Mandate M/453 are developed as EN's as requested. The EN standards will be published by end of 2013.

The application Requirement standards such as the published standard on Road Hazard Signaling (RHS) and the event driven hazard warning V2V standards are deliberately developed as Technical Specifications at this point in time. It will then be possible to test and further develop the hazard warning standards in pilots and initial deployment arrangements prior to development of the final European Norm on these standards.

ETSI TC ITS has currently4 active Specialist Task Forces (STF) in support of standards development and testing. For standards development STF 447 on GeoNetworking Media dependent functionalities and Decentralized Congestion Control (DCC) arrangements and STF 448 on Local Dynamic Maps (LDM) are important to the Mandate M/453 and are expected to the expected EN 302895 and the final report by the end of 2013.

Furthermore a proposal for a new STF for development of standards for 5.9 GHz cross layer Decentralized Congestion Control (DCC) in the management entity has been agreed by the European Commission for funding arrangement in accordance with the ICT standardization work program. The STF YG will be established beginning September 2013.

The first ETSI Interoperability Test (Plugtest) for ITS standards took place in Helmond 14-18 November 2011 in close cooperation between ETSI CTI and ERTICO. 16 companies were registered for the Plugtest and successful results were achieved. The interoperability tests covered CAM/DENM messages and GeoNetworking standards. The following interoperability test took place in June 2012 in IFSTTAR, Versailles. The next interoperability test is planned for 25-29 November 2013 hosted by CETECOM in Germany and will include interoperability tests, protocol conformance tests and RF regulatory conformance tests. These test arrangements attract a wide range of suppliers and are very important for the finalization of standards towards compliance assessment and deployment.

ETSI has published TR 101 607 providing a list of standards for Release 1 in response of the Mandate M/453. The release process within ETSI TC ITS has been subject to a wide consultation with stakeholders and discussed at the ETSI TC ITS workshop in Vienna 5-6 February 2013 with more than 140 participants from automobile as well as infrastructure industry and other stakeholders. Release 1 includes a list of standards for interoperability which will form the basis for standards profiling and deployment of cooperative ITS by the stakeholders.

A release process is important to ETSI TC ITS in order to

- Apply an organized process of standardization for ITS
- Agree among members on functionalities and framework for the standards to be developed in the next release
- Identify a maintenance mechanism to introduce corrections in already published release
- Provide information to stakeholders about next steps as part of a consultative process

The Release process is a working tool for ETSI TC ITS. However, a list of Release 1 standards from the published SDO TR's may be developed and published by the relevant SDO's also including SAE and IEEE and national standards organization's invited to contribute to this document.

ETSI TC ITS has also initiated development of a Release 2 process where standards will be based on expected features and functionalities for the next deployment phases of cooperative ITS. This process will be subject to an open consultation process prior to adoption. Release 2 will guide the standardization work of ETSI TC ITS and thus create a more organized process of standardization. In parallel with Release 2 standardization ETSI TC ITS will conduct maintenance of the Release 1 standards.

2.2. CEN/TC278 status report

Annex 2 indicates

- the standards defined in 2010 in the list of minimum set of standards for interoperability with respect to the split of responsibility between ETSI and CEN
- the C-ITS standards provided by ISO with relevance to M/453
- and ITS standards from CEN/TC278 and ISO/TC204 working groups, beside others in the field of Electronic Fee Collection, Integrated Transport Information, Management and Control, Traveler Information Systems, Wide Area Communication, Road Data, ITS Database Technology, supporting the deployment of C-ITS.

To handle the complex cross SDO and cross Working Group involvement and the given shared responsibilities for C-ITS standards development in the scope of the European M/453 some additional organizational actions were introduced in CEN/TC278 and ISO/TC204 to manage the C-ITS standards development activities cross all working groups successfully in both Technical Committees. All resolutions and decisions in both Technical Committees concerning the M/453 work program were taken jointly and most of the projects were staffed by both Technical Committees.

Beside the shared responsibility the major M/453 activities are covered by CEN/TC278/WG16 jointly with ISO/TC204/WG18. Both Working Groups were founded in 2009 with an initial work program of (only) 4 work items, based on the resolution 278/042/06/2009 taken by CEN/TC278 in March 2009 and the resolutions 738, 739, 740, 741, 742 and 743 taken by ISO/TC204 in September 2009. The initial simple structure of WG16 and WG18 was adjusted several times to meet the requirements given by the extension of the work program, the interfaces to other working groups that have been served, to ETSI and SAE, and to Working Groups in connection with the EU-U.S.-JP Task Force.

Project Teams (PTs), in addition to the ETSI STFs, were set up only for some selected new activities in CEN/TC278/WG16 to speed up the standards development process significantly. But most of the standards were developed without any funding from the EC. Currently 4 active PTs support the standards development, and a speed-up of finalizing the Technical Specifications is in evidence. Furthermore proposals for new PTs for development of standards in the C-ITS message sets area are being considered by the European Commission for funding arrangement in accordance with the ICT standardization work program. But the predominant part of CEN and ISO projects are staffed without any kind of dedicated funding.

Nevertheless a good progress was made to finalize the standards as Technical Specifications in 2013 as promised in the first report to M/453 in 2010. Essential standards in accordance with the Mandate M/453 will be developed as EN's or IS as requested. The EN standards will be published in 2014. M/453 was terminated mid-2012 and only few standards were adopted at that time. The standards development procedures in CEN and ISO could not be aligned sufficiently with the short duration of M/453.

CEN and ISO have drafted the Release 1 list of the C-ITS standards developed by both SDO. The Release 1 list contain a comprehensive suite of standards for C-ITS which, when combined with several core standards from ETSI and SAE, form a complete minimum set of standards for Cooperative ITS. They support a comprehensive set of applications that would be present in early deployments and are fully capable of supporting an expanded set of applications as the ITS area further matures. The final Release 1 list will be part of ISO TR 17465-3, a TR under development. Both SDO stresses, that the standards set is completely open and non-proprietary, an important consideration in growing a market and controlling the considerable costs of deploying such systems. It is also important to stress that the proliferation of conflicting standards only leads to market confusion, implementation delays, and potentially life-threatening situations due to non-interoperability.

Further to discussions within the Working Groups of ISO/TC204, CEN/TC278 and ETSI TC ITS regarding a release process for C-ITS standards, and drawing on the experience in other sectors, particularly within 3GPP and ETSI, CEN and ISO is strongly of the opinion that it would be mutually beneficial to all SDOs, and to implementers and users, if the principle SDOs worked together to develop a coordinated and harmonized process for introducing a release mechanism for C-ITS standards, drawing on the contributions from ISO/TC204, CEN/TC278, ETSI TC-ITS, IEEE and SAE in areas where mutual agreement to support specific deliverables is supported. CEN/TC278 and ISO/TC204 resolve to cooperate on a joint C-ITS standards Release 1 with a target date to be jointly agreed.

CEN/TC278 and ISO/TC204 further invites the EU-U.S. ITS Task Force, Standards Harmonization Working Group, to support this harmonized strategy, and invites National Standards Organizations to also affirm their support for this approach.

3. Coordination between CEN/TC278 and ETSI TC ITS

The split of responsibility for standard developments had been agreed between CEN and ETSI as indicated in the Response to the Mandate in April 2010. On-going coordination of the standardization activities is covered both by informal coordination with cross participation of standardization experts and on-going contacts between chairmen/conveners on a number of occasions including several EC projects. An example of good coordination in the standards development is the agreed sharing of activities for development of standards for Local Dynamic Maps between CEN and ETSI. Within ETSI TC ITS an STF and within CEN/TC278 a PT both funded by the Commission had been established. We agreed that ETSI developed the EN standard for the vehicle part of the LDM while CEN/ISO was supposed to cover the infrastructure part of the standardization. On-going coordination had been arranged between the ETSI STF team, the CEN PT, and the relevant working groups with CEN/TC 278 and ISO/TC 204. The final standards are expected by end 2013 (ETSI part) and mid-2014 (CEN part).

Formally the ITS coordination group (ITS-CG) had been formed with the chairmen of CEN/TC278 and ETSI TC ITS as well as the Commission representatives from DG Enterprise and Industry, DG Connect and DG MOVE and invited stakeholders for particular agenda items. During 10 ITS CG meetings so far the parties have discussed coordination issues including in particular shared responsibility for development of particular standards as foreseen in the Response to the Mandate in April 2010. The ITS CG is also used for information sharing about the status of standardization within each of the ESOs and exchange of views about European Commission funding of STFs and PTs in line with the Mandate M/453.

The active participation from the European Commission in this coordination activity is appreciated.

At the last ITS-CG meeting it was agreed that the coordination group should be continued even after the finalization of the Mandate M/453. This forum is of great value for ongoing coordination of a range of ITS activities.

4. Involvement of other standards organizations ISO–IEEE–SAE–IETF-TISA – national SOs

ETSI liaison activities and views

As indicated in the Response to the Mandate ETSI has cooperation and liaison agreements with relevant standards organizations such as IEEE, SAE, ISO, IETF, and standardization supporting industry groups like TISA. Additionally ETSI have liaisons and contacts with regional and national standards organizations such as ARIB (Japan), CCSA (China) and TTA (Korea) as well as the Asian Pacific Telecommunication organization (APT).

Alongside CEN/TC278, ETSI TC ITS has a close cooperation with the ISO/TC204. In particular this liaison focuses on ISO/TC204/WG16 work on communication standards and ISO/TC204/WG18

with cross participation between WG16/WG18and ETSI TC ITS members and active exchange of information about standardization activities. ETSI has also close cooperation on standards developments for ITS applications and message sets with particular working groups of ISO/TC204 including WG14 and WG3. This cooperation includes a coordinated standardization process within the particular working groups in both organizations with exchange of documents and information as well as cross representation in meetings.

As indicated in the Annex 1 to this document reflecting the agreed split of responsibility in the Mandate report ETSI had the sole responsibility for the Network and Transport layer, the Access Layer, the Management layer, the Security layer and the conformance-and interoperability testing in accordance with the Mandate M/453.

Cooperation between ETSI and IETF has been on-going for the last couple of years and the cooperation agreement with IEEE organization has led to active formal participation and on-going liaison with IEEE in the work of ETSI TC ITS. This has resulted in a harmonized approach for a number of ITS standards.

The important cooperation between ETSI and SAE is formalized with signing of a Letter of Intent and MoU. A more extensive cooperation agreement is planned.
On-going coordination takes place between ETSI TC ITS and both the CAMP and VIIC organizations (US automotive manufacturers) and the standards organizations SAE and IEEE in the USA. There is a clear interest from all parties to coordinate the activities and successful arrangements are therefore envisaged. Furthermore workshops and coordination activities are being arranged between key persons from the automotive industry in Europe and USA also including detailed standardization issues.
It is currently considered whether to arrange for a cooperation agreement between ETSI and SAE in order to allow for more direct exchange of documents and participation in the standardization work.

CEN and ISO liaison activities and views
The existing organizational link between CEN and ISO contributes to the close cooperation at all levels– with many of the CEN/TC278 and ISO/TC204 Working Groups operating in a wholly joint manner under the Vienna Agreement. All meetings of the two working groups on cooperative systems CEN/TC278/WG16 and ISO/TC204/WG18 are organized as common meetings. As results of CEN/TC278 and ISO/TC204 cross cutting activities as well as the results achieved in the EU–U.S.-JP Task Force it should be recognized that there is a strong interest from Asia, North America and Europe to run coordination activities. This strong interest and the CEN policy not to neglect necessary coordination activities delaying the M/453 execution of course but ensure that other SDO are fully integrated in the M/453 activities at any time and therefor back all activities and solutions.

TISA activities are also based on the long term partnership between CEN/TC278, ISO/TC204 and TISA. The current CEN-TISA partnership is focused on Traffic and Travel Information. This partnership will be enhanced shortly to the C-ITS area to place the Transport Protocol Experts Group (TPEG) in addition to the other data elements and data protocols developed for C-ITS.

The same situation is given for the DATEX II data exchange specifications for traffic management and information. DATEX II is linked with C-ITS as well.

ISO/TC204 formed in 2011 a liaison with ITU. This cooperation should promote adoption of ISO/TC204 ITS communications standards for global use.

And additionally an ISO/TC204-CEN/TC278-SAE liaison is currently under negotiation concerning the C-ITS message sets standardization and the revision of the SAE J2735 standard.

5. Stakeholder consultation and involvement

Contacts with stakeholder organizations have been on-going as indicated in the Response to Mandate M/453 and further stakeholder organizations have been included in the ETSI TC ITS standardization work such as ERTICO – ITS Europe, the GSM-A organization and the iMobility Forum. To provide detailed information about their standardization activities ETSI and CEN/TC278 have developed open web sites

- www.etsi.org/m453
- www.itsstandards.eu and www.tc278.eu

with information about standardization activities and important events.

Within ETSI TC ITS a range of stakeholders is actively participating in the standardization work including automobile industry, equipment suppliers and public mobile operators and mobile industry. With the increased cooperation with infrastructure organizations towards day one deployment these stakeholders are now represented in the CEN and ETSI standardization work including infrastructure equipment suppliers. This activity is very useful and constructive.

Following every TC meeting ETSI TC ITS provides detailed information on decisions and standard approvals have been distributed in dedicated news mails for which more than 800 stakeholders have subscribed. Feedback from stakeholders indicates that this information is appreciated in the on-going standardization process.

The news and information spread provides contacts to stakeholders in particular the infrastructure organizations, telecom operators and supplier industry has resulted in increased contributions to the standardization work both within CEN and ETSI.

The industry organization Car-2-Car Communication Consortium (C2C-CC) is actively participating in the ETSI TC ITS work providing chairmanship for working groups and the committee itself. The automotive industry is also represented and contributes to the standardization work in CEN in the relevant working groups. Similarly the COMeSafety2 project strongly supports the standardization activities within both CEN/ISO and ETSI. The iCar Support project provides the chairman of ETSI TC ITS WG2 on Architecture issues.

With the creation of the Amsterdam Group between Road Operators, Road Authorities and automotive industry towards joint deployment of cooperative ITS an increased activity towards standardization of in particular infrastructure messages and applications have been discovered.

Stakeholders and interest groups are now active participation in the CEN and ETSI work.
Both CEN and ETSI had taken initiatives to inform the stakeholders about the on-going activities this activity had been fruitful.

An important element of stakeholder contacts is the open workshops arranged by CEN and ETSI. The last open workshop took place in Vienna 5-6 February 2013 and was attended by more than 140 participants from a range of stakeholders including infrastructure representatives. A dedicated report from the meeting had been developed and forwarded to the European Commission.

Furthermore both CEN and ETSI are active at conferences and stakeholder meetings including the ITS World Congress in Orlando and Vienna to provide information about the standards developments. The COMeSafety2 project was present at the European ITS Congress in Dublin 4-7 June and a special COMeSafety2 session about standardization achievements was very well attended.

Based on this final report in response of the Mandate M/453 CEN and ETSI will provide information about the overall achievements of the M/453 to all stakeholders via the ETSI TC ITS and CEN TC 278 web pages.

During 2012 the support project COMeSafety2 had arranged a virtual conference by Webinar on standardization developments in accordance with the Mandate M/453. A similar webinar will be arranged during summer 2013 to inform about the results from the final report.

6. European R&D projects and Field Operational Trials (FOTs)

Standardization is based on contributions from and active participation by a range of members with strategic interest in standardization and deployment of cooperative ITS including the automotive industry, major suppliers, public authorities, road operators, public telecom operators, technical experts in standardization and testing.

The results of the European research and development projects as well as the on-going FOTs are currently being included in the standardization process. Many CEN and ETSI TC ITS members have participated actively in the R&D projects such as the previous CVIS, Safespot, COOPERS GEONET, Preserve and FOTSIS projects and are participating in the new projects including the support projects COMeSafety2 and iCar-support as well as in the large scale field operational tests such as SIM-TD, SCORE@F and Drive C2x. CEN and ETSI experts have also been involved in the EasyWay project. CEN and ETSI have on-going liaison with EU Projects, e. g. with eCoMove to cover new

R&D activities concerning Co-operative Systems for sustainability, as the experience and results from this work is very important for the standardization process to ensure high quality standards.

7. International cooperation of standards activities (EU-U.S.-Japan co-operation)

The EU-U.S.-Japan cooperation was initiated beginning 2010 with focus to

- Harmonize standards for ITS to achieve global interoperability
- Harmonize safety applications as well as sustainability applications
- Test tools and methodologies
- Driver distraction
- Technical roadmap for deployment

On harmonization of standards the following activities have been initiated by the task force:

- a high level assessment of existing and draft standards described in the Mandate Report
- develop a detailed level of assessment on ITS standards with creation of 3 Harmonisation task groups
- recommendations from the task groups to achieve harmonisation of standards
- develop gap analyses on the needs for standards for Co-operative ITS

Detailed harmonisation activities had been developed during the last 2 years in addition to the on-going cooperation between SDOs on standards developments. The current focus for these harmonization activities 2012 were presented at the ITS World Congress in Vienna October 2012 covering

- security related issues
- messages and application interfaces
- the 5.9 GHz air interface and the communications protocol stack above

The overall objective of these activities is to achieve harmonisation and coordination of standards developments and interoperability on a national/regional level with a focus on creating a global market for ITS products and services with minimal trade barriers.

The coordination between ETSI TC ITS and SAE resulted in a strong coordination and harmonisation of the Basic Safety Message 1 and 2 (BSM1/BSM2) and the Cooperative Awareness message (CAM) and the Decentralized Environ mental Notification Message (DENM) standards. The European standards have now been finalised and adopted within ETSI TC ITS for the EN approval process (ENAP). A practical showcase of this was successfully provided at the ITS World Congress in Vienna, October 2012.

Both the 5.9 GHz air interface and the security standards have been considered in detail within the EU-US task force and have now been finalised within ETSI TC ITS and IEEE 802.11 and 1609.

8. Lessons learned in the Mandate M/453 process

The Mandate M/453 was discussed between CEN/ETSI and the European Commission DG ENTR and DG Connect in order to provide political guidelines for the standardisation process for cooperative ITS (C-ITS) in Europe and to achieve a minimum set of standards for interoperability for C-ITS. The Mandate was issued in October 2009.
The Mandate requirements included strong coordination between CEN and ETSI in the development of standards but also other SDO's and in particular an on going stakeholder consultation in the process. Furthermore the standardisation was expected to take into account the results of the R&D projects and the national and European wide Field Operational Tests where preliminary implementations and validation of services and ITS communication had take place. It was also underlined that the on going cooperation between EU-US-JP on standardisation should be taken into account. The timeframe for finalising the Mandate was September 2012 and a number of interim reports were provided.

The Mandate process achieved its goal to provide political support to the standardisation process. This political support was also well recognized outside Europe by the North American and Asia-Pacific policy makers, public authorities, and the affected ITS industry and the national SDO's in both regions as mentioned several times not only in ISO/TC204 plenary meetings but also in the EU-U.S.-JP Task Force. The European political support given by M/453 generated the strong motivation by all non-European ISO members to support and to participate in the M/453 activities. A potential decision to extend the duration of M/453 or alternatively to generate a follow up Mandate would strengthen the motivation of non-European SDO's to continue with their on-going support of European driven C-ITS standards development and deployment projects.

The Mandate process achieved also its goal to provide financial support to the standardisation process A total of 16 European Commission funded Specialist Task Force's (STF) and Project Teams (PT) were established within ETSI (12 STF) and CEN (4 PT) and provided valuable contributions to the standardisation and in particular testing and validation of standards.

The Mandate suggested European Norms (EN) to be developed. This process is very time consuming with public enquiry and voting procedure and the time consuming process was not sufficiently taken into account in the agreement on the timeframe for the mandate response.
Within ETSI the EN approval process was discussed during the mandate period in order to speed up the process and the new process is now supporting faster approval (EN-approval process).
Furthermore it had been decided that now all standards should be adopted as EN's at this point in time. In particular the safety related application standards and the security standards has not yet been developed as EN's while the communication standards are typically EN approved.

The coordination between CEN and ETSI was initiated in the first response to the mandate M/453 by providing an agreed joint plan with split of responsibilities for CEN and ETSI. This has basically been followed and the standards are provided or will be finalised by end 2013 – beginning 2014.
The ITS coordination group (ITS-CG) was a helpful activity where the Commission was active and discussions about coordination of the standardisation could take place.

For particular standards such as the Local Dynamic Standard close coordination has taken place between the STF and the PT.

ETSI TC ITS is very well attended by different types of stakeholders from automotive industry, global suppliers and mobile industry as well as communication companies with views and requirements for the standardisation for C-ITS. This has been very useful for the standardisation process. ETSI TC ITS also includes members participating in the European R&D projects and results from the projects have been integrated in the standardisation process.
Furthermore ETSI TC ITS has arranged 5 yearly open workshops to discuss the standardisation activities with all stakeholders. These arrangements were very successful. At the last workshop in Vienna the participation exceeded 140 stakeholders including also infrastructure organisations. The comments and suggestions from stakeholders were further considered in the standardisation process. As an example the Release process was discussed and valuable contributions received.

Finally it should be noticed that the current results of all M/453 activities cover the first steps in a process towards deployment of C-ITS. European deployment of C-ITS is in preparation both within the automotive industry in the C2C –CC and within the trilateral corridor project between Austria – Germany and The Netherlands. This is based on the strong cooperation between the European Road Authorities (CEDR), Road operators (ASECAP), City Authorities (POLIS) and the automotive industry (C2C-CC) within the Amsterdam Group. The deployment preparation has created strong need for particular standards and support to CEN for infrastructure standards and V2I message sets has been provided.

It was therefore a natural fact that it has been suggested by CEN and ETSI to continue the coordination process for standards towards Release 2 based on new features and functionalities of cooperative ITS.

9. Continued standardization activities following completion of Mandate M/453

The standards developed in accordance with the Response to Mandate M/453 are expected to be finalized in 2013/2014 and a number of EN's and Technical Specifications will form the basis for a 1st release of standards for C-ITS towards initial deployment of Cooperative ITS with relative simple and non complex services providing end user benefits. The ETSI TC ITS technical report TR 101067 with the Release 1 standards and the development of ISO TR 17465-3 with the CEN/ISO Release 1 list provides the status of the initial standardization for cooperative ITS in Europe. After finalization and publication of ISO TR 17465-3 a joint document listing Release 1 standards will be developed also including other relevant standards from other SDOs such as SAE and IEEE. This will be done end of 2013/beginning 2014.

When finalized a detailed Release 2 based on features and functionalities might form the basis for a new EC Standardization Mandate or as part of the European Commission Rolling Action Plan. ITS is a key priority action of the ICT standardization rolling plan. The activities planned are a continuation of the work started in mandates M/453 for cooperative ITS and M/338 for Electronic Fee Collection.

10. Conclusion

Standardization work in accordance with the Response to Mandate M/453 has been developed and a number of the planned standards have been finalized as EN's and Technical Specifications. Cooperation between the relevant standards organizations has been established. The ESOs have a strong focus on the minimum set of standards required for interoperability in the Mandate M/453. There is, however, also a general requirement for global coordination and harmonization of existing and future standards for cooperative ITS related to the on-going cooperation with other standards organization.

Furthermore contacts with stakeholders have been initiated and stakeholder contributions have increased to the general benefit of the standardization process. The Mandate M/453 have facilitated strong cooperation and a set of standards fro interoperability as envisaged.

This final report on the Mandate M/453 will be distributed widely and may form the basis for further standardization activities within CEN and ETSI TC ITS.

Annex 1

ETSI TC ITS status of standardization activities on the list of minimum set of standards indicated in the Mandate report April 2010.

General standards and Testing	SDO	Standard	WI	Approval - TS	EN	EC funding
Communication Architecture	ETSI	EN 302665			Published	
Com data dictionary (communication)	ETSI	TS 102894-2	0010022	July 2013		
Framework Public Mobile networks in C-ITS	ETSI	TR 102 962		Published		

Standards - Testing	SDO	ETSI Standard	WI	Approval - TS	EN	EC funding
ITS testing framework	ETSI	EG 202798		Published	N/A	STF 398
ITS Conformance Testing						
• Basic Transport Protocol (ATS, TSS&TP, PICS)	ETSI	TS 102870-1 TS 102870-2 TS 102870-3		Published	N/A	STF 405
• Geonetworking ITS G5 (ATS, TSS&TP, PICS)	ETSI	TS 102871-1 TS 102872-2 TS 102873-3		Published	N/A	STF 405
• IP packets over Geonetworking (ATS, TSS&TP, PICS)	ETSI	TS 102859-1 TS 102859-2 TS 102859-3		Published	N/A	STF 405
• CAM (ATS, TSS&TP, PICS)	ETSI	TS 102868-1 TS 102868-2 TS 102868-3		Published	N/A	STF 405
• DNM (ATS, TSS&TP, PICS)	ETSI	TS 102869-1 TS 102869-2 TS 102869-3		Published	N/A	STF 405
• Channel congestion 5.9 (ATS, TSS&TP, PICS)	ETSI	TS 102917-1 TS 102917-2 TS 102917-3		Published	N/A	STF 421
• Coexistence methods DSRC/ITS G5 (ATS, TSS&TP, PICS)	ETSI	TS 102916-1 TS 102916-2 TS 102916-3		Published	N/A	STF 421
• ITS FSAP and IICP	ETSI	TS 102797		Published	N/A	
• ITS FNTP	ETSI	TS 102985		Published	N/A	
• CALM – Ipv6 Networking	ETSI	TS 102981-1 TS 102981-2 TS 102981-3	0020024-1 0020024-2 0020024-3	Dec 2013		
• Security Testing	ETSI	TS 103096-1 TS 103096-2 TS 103096-3		Published		

Interoperability testing						EC funding
• Validation of CAM	ETSI	TS 103061-1		Published	N/A	STF 424
• Validation of DENM	ETSI	TS 103061-2		Published	N/A	STF 424
• GeoNetworking Validation	ETSI	TR 103061-3		Published	N/A	STF 424
• Basic Transport Protocol validation	ETSI	TR 103061-4		Published	N/A	STF 424
• Ipv6 GeoNetworking validation	ETSI	TR 103061-5		Published	N/A	STF 424
• Validation of ITS access technology support FSAP, IICP	ETSI	TR 103101 TR 101611	0020050 0020048	Feb 2014		STF 455

Standards – Application requirements	SDO	ETSI Standard	WI	Approval - TS	EN	EC funding
Road Hazard Signaling (RHS)	ETSI	TS 101539-1		Published	N/A	
Basic Set of Applications – Revision	ETSI	TR 102638	0010023	Dec 2013	N/A	
Event driven hazard warning V2V						
• Longitudinal Collision Risk warn	ETSI	TS 101539-3	0010016	Oct 2013	N/A	
• INTERSECTION Collision Risk Warn	ETSI	TS 101539-2	0010015	Oct 2013	N/A	
Electrical Vehicle charging spot notific.	ETSI	TS 101556-1		Published	N/A	
Reservation of EV Energy supply	ETSI	TS 101556-3	0010031	May 2014		
Tire Pressure Monitoring Systems	ETSI	TS 101556-2	0010030	May 2013		

Standards – Facilities	SDO	ETSI Standard	WI	Approval-TS	EN	EC funding
Facility layer structure	ETSI	TS 102894-1	0010004	July 2013		
Application and facility layer common data dictionary	ETSI	TS 102894-2	0010022	July 2013		
Cooperative awareness (CAM)	ETSI	TS 102637		Published		
Revision of TS 102637-2 and conv to EN	ETSI	EN 302637-2			ENAP	
Decentralized Environ Not (DENM)	ETSI	TS 102637		Published		
Revision of TS 102637-3 and conv to EN	ETSI	EN 302637-3			ENAP	
Local Dynamic Maps	ETSI	EN 302895	0010005		End 2013	STF 448
		TR 102863		Published		STF 404
ITS station position and time	ETSI	TS 102890-3	0010013	Dec 2013		
GeoMessaging Enabler	ETSI	TS 103084	0010025	Dec 2013		

Standards – Network and Transport	SDO	ETSI Standard	WI	Approval	EN	EC funding
Network architecture	ETSI	TS 102636		Published		
Network architecture – conversion EN	ETSI	EN 302636-3	0030034	May 2013	End 2013	
GeoNet Requirements and scenarios	ETSI	TS 102636		Published		
GeoNet Requirements and scenarios EN	ETSI	EN 302636-1/2	0030032	May 2013	End 2013	
Definition of GeoAreas	ETSI	EN302931		Published		
SAP (FAC/NET)	ETSI	TS 102723-11	0030008	Dec 2013		
GeoNetworking media independent	ETSI	TS 102636-4-1		Published		
GeoNetworking media independent EN	ETSI	EN 302636-4-1	0030035	July 2013	End 2013	
GeoNetworking media dependent	ETSI	TS 102636-4-2	0030007	Oct 2013	End 2013	STF 447
Transmission Ipv6 over GeoNetworking	ETSI	TS 102636-6-1		Published		
Basic Transport protocols	ETSI	TS 102636-5-1		Published		
Basic Transport protocols	ETSI	EN 302636-5-1	0030036	Aug 2013	End 2013	
Analyses of IPv6 networking for ITS	ETSI	TR 102555	0030031	Oct 2013		
Network layer congestion control	ETSI	TR 103310	0030039	End 2013		

Standards – Access network and media	SDO	ETSI Standard	WI	Approval	EN	EC Funding
SAP (N&T/Access)	ETSI	TS 102723-10		Published	N/A	STF 420
European profile on ITS 5G	ETSI	ES 202663		Published		STF 359
Profile standard on ITS 5G	ETSI	EN 302663		Published		
PHY/MAC Congestion control	ETSI	TS 102687		Published		STF 395
Mitigation DSRC 5.8/5.9 GHz	ETSI	TS 102792		Published	N/A	STF 395
Mitigation methods/technique to avoid interference	ETSI	TR 102960		Published	N/A	
STDMA	ETSI	TR 102861 TR 102862		Published	N/A	STF 395
ITS 5G channel configuration	ETSI	TS 102724		Published	N/A	STF 420

Standards – Management	SDO	ETSI Standard	WI	Approval	EN	EC funding
Cross layer congestion management	ETSI	TS 103175	0020046	2014	N/A	STF approved
Identity Management						
• ITS Object Identifier Tree	ETSI	TR 102707		Published		
• Classification of applications	ETSI	TS 102860		Published		
• Addressing schemes	ETSI	TS 102723-1		Published		
• Management information base	ETSI	TS 102723-2		approved		
SAP (Man – N&T)	ETSI	TS 102723-4		Published		
SAP (Man – FAC)	ETSI	TS 102723-5		Published		
SAP (Man – Access)	ETSI	TS 102723-3		Published		STF 420
SAP (Man – SEC)	ETSI	TS 102723-6	0020020	End 2013		
ETSI ITS Registration list	ETSI	TS 102965	0020042	Sept 2013		
Facility communication management	ETSI	TS 102890-1	0020043	Dec 2013		
Facility Service announcement	ETSI	TS 102890-2	0020044	Dec 2013		

Standards – Security	SDO	ETSI Standard	WI	Approval	EN	EC funding
Security Architecture	ETSI	TS 102731		Published		STF 373
Threat Vulnerability and Risk Analysis	ETIS	TR 102893		Published		STF 373
SAP (SEC – FAC)	ETSI	TS 102723-9	0050009	Dec 2013		
SAP (SEC – N&T)	ETSI	TS 102723-8	0050008	Dec 2013		
SAP (SEC – ACCESS)	ETSI	TS 102723-7	0050007	Dec 2013		
Security mapping for IEEE 1609.2	ETSI	TS 102867		Published		
Confidentiality Services	ETSI	TS 102943		Published		STF 423
Identity, trust and privacy	ETSI	TS 102941		Published		STF 423
Access control, secure and privacy-preserving services	ETSI	TS 102942		Published		STF 423
Security architecture and management	ETSI	TS102940		Published		STF 423
Security header and certificate formats for ITS G5	ETSI	TS 103097		Published		

ETSI STF Activities on Mandate M/453 supported by the European Commission during the period

STF	Description	Status - content	Finalised	Proposal number
359	European profile 5G	Finalised	Jan 2009	ETSI
373	ITS security 5G	Finalised	Dec 2009	ETSI
395	ITS channel – STDMA	Finalised	Dec 2011	SA/ETSI/ENTR/453/2009-08
398	Interop. Testing framew.	Finalised	Oct 2010	ETSI
404	Local Dynamic Maps	Finalised	Feb 2011	SA/ETSI/ENTR/000/2009-13
405	Conformance test specs	Finalised	Feb 2011	SA/ETSI/ENTR/000/2009-17
420	G4 Radio Channel	Finalised	Jun 2012	SA/ETSI/ENTR/453/2010-04
421	Test G5 radio	Finalised	Dec 2012	SA/ETSI/ENTR/453/2010-06
422	Test Euro Toll	Finalised	July 2012	SA/ETSI/ENTR/338/2010-07
423	ITS Security	Finalised	Jun 2012	SA/ETSI/ENTR/453/2010-09
447	GeoNet media dependent	Progress report to TC ITS	Oct 2013	SA/ETSI/ENTR/453/2011-06
448	Local Dynamic Maps	Close cooperation CEN/ISO	Dec 2013	SA/ETSI/ENTR/453/2011-07
452	Security testing	Finalised	Jun 2013	ETSI
455	Test Platform for BSMD	Progress report to TC ITS	Jul 2014	SA/ETSI/ENTR/453/2012-04
YG	Cross layer DCC standard	EC approved - Establishment	2015	SA/ETSI/ENTR/453/2013-04

Annex 2

CEN/TC278 status of C-ITS standardization activities and supporting activities by ISO/TC204 re the list of minimum set of standards indicated in the Mandate report April 2010

The following tables indicate the current status of standards developed by CEN/TC278 and ISO/TC204 in the frame of the minimum set of standards for C-ITS defined in the context of the Standardization Mandate M/453.

General standards	Responsible Committee	Standard	Approval	EN	EC fun-ding
Definition and terminology: Terms, definitions and guidelines for Cooperative ITS standards documents • Part 1: Terms, definitions and outline guidance for standards documents • Part 2: Guidelines for standards documents • Part 3: Release procedures for standards documents	CEN/TC278/WG13	TR 17465-1 TR 17465-2 TR 17465-3	April 2013 Sept 2013 Sept 2013		
Framework architecture: Roles and responsibilities in the context of co-operative ITS based on architecture(s) for co-operative systems	CEN/TC278/WG16	TS 17427	April 2013	2014	PT 1602, PT 1603
Common data dictionary (payload)	CEN/TC278/WG13	A data registry / data dictionary and access mechanisms are currently being developed	October 2013		
ITS communication architecture	ISO/TC204/WG16	ISO 21217 (under revision)	April 2013		

Applications	Responsible Committee	Standard	Approval	EN	EC fun-ding
General:					
Reference model architecture(s) for the ITS sector • Part 1: ITS service domains, service groups and services	ISO/TC204/WG1	IS14813-1	Oct 2013		
Event driven hazard warning V2I-I2I:					
• Forward Vehicle Collision Mitigation Systems	ISO/TC204/WG14	FDIS 22839	April 2013		
• Forward Vehicle Collision Warning Systems	ISO/TC204/WG14	ISO 15623	Published		
• Forward Vehicle Collision Warning Systems (revised)	ISO/TC204/WG14	FDIS 15623	May 2013		
• Intersection Signal Information and Violation Warning Systems	ISO/TC204/WG14	CD 26684	Dec 2013		
• Data interfaces between centres for transport information and control systems ○ Part 1: Message definition requirements ○ Part 2: DATEX-ASN ○ Part 3: Data interfaces between centres for Intelligent Transport Systems (ITS) using XML	ISO/TC204/WG9	ISO 14827-1 ISO 14827-2 NP 14827-3	Published Published end 2014		
• Data exchange involving roadside modules communication ○ Part 1: General principles and documentation framework of application profiles ○ Part 2: Application Profile – SNMP ○ Part 3: Application profile-data exchange (AP-DATEX)	ISO/TC204/WG9	ISO 15784-1 ISO 15784-2 ISO 15784-3	Published Oct 2013 Published		
• Interface Protocol and Message Set Definition between Traffic Signal Controllers and Detectors	ISO/TC204/WG9	IS 10711	Published		

Applications	Responsible Committee	Standard	Approval	EN	EC fun-ding
• The architecture of signal control systems utilizing information collected by vehicle-to-infrastructure communication	ISO/TC204/WG9	PWI	June 2014		
• Using V2I and I2V Communications for Applications Related to Signalized Intersections (SPaT, MAP, SRM, SSM)	CEN/TC278/WG16 (+ ISO/TC204)	TS 19091	April 2014	2014	PT pro-posal under evalua tion
• Using V2I and I2V Communications for applications based on Probe Vehicle Data (PVD, PDM)	CEN/TC278/WG16 (+ ISO/TC204) (+ SAE)	TS under consideration	June 2014	2014	PT pro-posal under evalua tion
• Probe Data	ISO/TC204/WG16	IS 22837	Published		
• Probe Data Management	ISO/TC204/WG16	IS 25114	Published		
• Event Based Probe Data	ISO/TC204/WG16	IS 29284	Published		
• Basic principles for personal data protection in probe vehicle information services	ISO/TC204/WG16	IS 24100	Published		
• Criteria for Privacy and Integrity protection in Probe Vehicle Information Systems	ISO/TC204/WG16	TS 16461	end 2014		
• The Service Architecture of Probe Vehicle Systems	ISO/TC204/WG16	PWI	end 2014		
• Dictionary of In-vehicle Information (IVI) data structures	CEN/TC278/WG16 (+ ISO/TC204) (+ SAE)	PWI	June 2014	2014	PT propo sal under evalua tion
Traffic management V2I – I2I and cooperative traveler assistance					
• DATEX II data exchange specifications for traffic management and information: o Part 1: Context and framework o Part 2: Location referencing	CEN/TC278/WG8	 TS 16157-1 TS 16157-2	 Published Published	2013	

Applications	Responsible Committee	Standard	Approval	EN	EC fun-ding
○ Part 3: Situation Publication ○ Part 4: Variable Message Sign (VMS) Publications ○ Part 5: Measured and Elaborated Data Publications ○ Part 6: Parking Publication		TS 16157-3 TS 16157-4 TS 16157-5 TR 16157-6	Published June 2013 End 2014 End 2014		
• Data interfaces between centres for trans-port information and control systems — Platform independent model specification for data exchange protocols for transport information and control systems (PIM)	CEN/TC278/WG8	NWI	End 2014		
• TTI via Transport Protocol Experts Group (TPEG) Extensible Markup Language (XML)	CEN/TC278/WG4 ISO/TC204/WG10	ISO TS 24530 series	Published		
• TTI via Transport Protocol Experts Group (TPEG) data streams	CEN/TC278/WG4 ISO/TC204/WG10	ISO TS 18234 series	Published		
• Safety and emergency messages using any available wireless media -- Data registry procedures	ISO/TC204/WG16	ISO 24978	Published		
• Contextual speeds	ISO/TC204/WG18	TS 17426	June 2014	2014	
• Data exchange specification for in-vehicle presentation of external road and traffic related data	ISO/TC204/WG18	TS 17425	June 2014	2014	
• Electronic fee collection - Interoperability application profile for DSRC	CEN/TC278/WG1	EN 15509	Published		
• Electronic fee collection - System architecture for vehicle-related tolling	ISO/TC204/WG5	ISO 17573	Published		

Applications	Responsible Committee	Standard	Approval	EN	EC fun-ding
• Application Interface Definition for Electronic Fee Collection (EFC) based on Global Navigation Satellite Systems and Cellular Networks (GNSS/CN)	ISO/TC204/WG5	ISO 17575 series	Published		
• Framework for cooperative telematics applications for regulated commercial freight vehicles (TARV)	ISO/TC204/WG7	ISO TS 15638 series	Published		
• Localized traffic information	CEN/TC278/WG4		Not started		
Value Added Services V2I – I2I	ISO/TC204/WG18	Under consideration			
Value Added Services "V2N" (Nomadic Device), Personal ITS station use					
• Use of nomadic and portable devices to support ITS service and multimedia provision in vehicles	ISO/TC204/WG17	ISO/TR 10992:2011	Published		
• The use of personal ITS station to support ITS service provision for travelers	ISO/TC204/WG17	PWI 13111-1	end 2014		
• Guidance protocol via personal ITS station for advisory safety systems – ○ Part 1: General information and use case definitions ○ Part 2: Protocol requirements and specification	ISO/TC204/WG17	TR 13184-1 PWI 13184-2	Published Oct 2014		
• Vehicle interface for provisioning and support of ITS services – ○ Part 1: General information and use cases definition ○ Part 2: Protocol requirements and specification for vehicle ITS station gateway interface ○ Part 3: Configuration process requirements and specification for vehicle ITS station gateway (V-ITS-SG)	ISO/TC204/WG17	TR 13185-1 NP 13185-2 PWI 13185-3	Published end 2013 Oct 2014		

Applications	Responsible Committee	Standard	Approval	EN	EC fun-ding
• Indoor navigation for personal and vehicle ITS stations – ○ Part 1: General information and use case definition	ISO/TC204/WG17	NP 17438-1	Oct 2014		

Facilities	Responsible Committee	Standard	Approval	EN	EC fun-ding
Profiles for processing and transfer of information between ITS stations for applications related to transport infrastructure management, control and guidance	ISO/TC204/WG18	TS 17429	June 2014	2014	
Identities Management: • Registration scheme ITS devices • Electronic Registration Profile • AVI - ERI - Vehicle Data	CEN/TC278/WG12	EN ISO14816 EN 16312 CEN ISO 24534-3	Published Published Published		
Local Dynamic Maps - State of the art of Local Dynamic Maps concepts	ISO/TC204/WG18	TR 17424	June 2013		
Local Dynamic Maps - Definition of a global concept for Local Dynamic Maps	CEN/TC278/WG16	TS 18750	June 2014	2014	PT 1604
Road geometry messages and regulation information processing	CEN/TC278/WG16 (+ ISO/TC204)	TS under consideration: (Part of-MAP)	April 2014	2014	
Location Referencing - Revision for C-ITS	ISO/TC204WG3	ISO 17572	Not started		
Geographic Data Files (GDF 5.0) – Revision for C-ITS	ISO/TC204/WG3	ISO 14825	Not started		
Extension of map database specifications for applications of cooperative ITS	ISO/TC204/WG3	NP 14296	Apr 2016		
Extension of map database specifications for Local Dynamic Map for applications of Cooperative ITS	ISO/TC204/WG3	TS 17931	Published		

Cooperative traveler assistance (V2I): Navigation considering information received about restricted access, etc. Parking information / booking, POI	ISO/TC204/WG18	Under consideration	Not started		
HMI support	CEN/TC278/WG10	ISO 15008 ISO/TS 16951 ISO/TR 16352	Published		
GNSS correction data	ISO/TC204/WG18	Under consideration	Not started		
Dedicated short range communication (DSRC) -- DSRC application layer	CEN/TC278	ISO 15628	Published		

Network and Transport	**Responsible Committee**	**Standard**	**Approval**	**EN**	**EC fun-ding**
Communications access for land mobiles (CALM) -- Non-IP networking – • Part 1: Fast networking & transport layer protocol (FNTP) • Part 2: Legacy system support	ISO/TC204/WG16	ISO 29281-1 ISO 29281-2	Published Published		
Communications access for land mobiles (CALM) -- IPv6 Networking	ISO/TC204/WG16	ISO 21210	Published		
Communications access for land mobiles (CALM) -- IPv4-IPv6 interoperability	ISO/TC204/WG16	ISO 18380	end 2013		
Communications access for land mobiles (CALM) -- ITS IPv6 Networking Optimization	ISO/TC204/WG16	ISO 16789	end 2013		
Communications access for land mobiles (CALM) -- IPv6 multicast	ISO/TC204/WG16	ISO 18378	end 2013		

Testing	Responsible Committee	Standard	Approval	EN	EC fun-ding
Electronic fee collection - Evaluation of equipment for conformity to CEN/ISO TS 17575 series	CEN/TC278/WG1	CEN ISO TS 1640x-y series	Published		
Electronic fee collection - Evaluation of onboard and roadside equipment for conformity to EN 15509	CEN/TC278/WG1	EN 15876 series	Published		

Access and Media	Responsible Committee	Standard	Approval	EN	EC fun-ding
Access technology support	ISO/TC204/WG16	ISO 21218	Published		
Infra-red communications	ISO/TC204/WG16	ISO 21214	Published		
M5 communications	ISO/TC204/WG16	ISO 21215	Published		
2G communications	ISO/TC204/WG16	ISO 21212	Published		
3G communications	ISO/TC204/WG16	ISO 21213	Published		
Broadcast communications	ISO/TC204/WG16	ISO 13183	Published		
Satellite networks	ISO/TC204/WG16	ISO 29282	Published		

Management	Responsible Committee	Standard	Approval	EN	EC fun-ding
ITS station management: ○ Part 1: Local management ○ Part 3: Service access points ○ Part 4: Station-internal management communication (IICP) ○ Part 5: Fast service advertisement protocol (FSAP) ○ Part 6: Flow management	ISO/TC204/WG16	 ISO 24102-1 ISO 24102-3 ISO 24102-4 ISO 24102-5 ISO 24102-6	 Published Published Published Published end 2014		
Application management for co-operative systems in ITS • Classification and management of ITS applications in a global context • ITS application requirements for selection of communication profiles	CEN/TC278/WG16	 TS 17419 TS 17423	 Sept 2013 Sept 2013	 2014 2014	PT 1601

Security	Responsible Committee	Standard	Approval	EN	EC fun-ding
Electronic fee collection - Security framework	CEN/TC278/WG1	TS 16439	Published		
Communications access for land mobiles (CALM) -- ITS IPv6 Networking Security	ISO/TC204/WG16	ISO 16788	Published		

CEN PT Activities on Mandate M/453 supported by the European Commission during the period and ongoing

PT	Status	Figures
PT 1601: Application management for co-operative systems in ITS • Classification and management of ITS applications in a global context • ITS application requirements for selection of communication profiles	Active since July 2012	Duration: 24 months, Deliverable: two TS First milestone: end of March 2013: stable drafts for first ballot
PT 1602: Roles and responsibilities in the context of co-operative ITS based on architecture(s) for cooperative systems	Start: June 2013	Duration: 24 months Deliverable: TS
PT 1603: Coordination with other activities related to roles and responsibilities, such as those in other working groups of CEN/TC 278, of ISO/TC 204 and ETSI	Start: June 2013	Duration: 24 months
PT 1604: Local Dynamic Map (LDM): Definition of a global concept for Local Dynamic Maps	Active since May 2013	Duration: 24 months Deliverable: TS
PT proposal under negotiation: V2I/I2V-Message Sets: Deliverable 1: TS • Signal Phase and Timing (SPaT) • Map Data (MAP) • Signal Request Message (SRM) • Signal Status Message (SSM) Deliverable 2: TS • Probe Vehicle Data (PVD) • Probe Data Management (PDM) Deliverable 3: • In-vehicle information (IVI)	Delivered to the EC in Q4/2012, Under negotiation	Duration: 24 months Deliverable: three TS