European Railway Agency

TSI Application Guide

Workshop on
ETCS and GSM-R certification challenges
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The Framework Mandate to the European Railway Agency, in Section 2.3.1, states that: "With respect to the time schedule of drafting or revising each TSI, the Agency shall regularly submit and publish on its website a general revision of the Implementation Guide published by the Commission in 2004 and intended to help the stakeholders in the application of the TSIs. The chapter related to the applicable standards in the Implementation Guide shall be updated and published at least annually".

TSI Application Guide – the structure

The Agency published the first revision of the Guide in April 2011.The structure of the Guide is as follows:

- General part (explains TSI-related provisions of the Interoperability Directive and general principles applicable to all TSIs)

- Annexes:

   Specific guides for each TSI (explain some clauses of the TSIs, include lists of standards that may be used for conformity assessment). The specific guide will be published as soon as the corresponding TSIs has been adopted.

The European framework (gives an overview of the New Approach principles, how they are applied in the Interoperability Directive, standardisation process, etc.)

Conformity assessment and 'EC' verification (explains the modules of conformity assessment, indicates the tasks of the applicant and the NoBo for different modules and compares the modules).

Examples of application of TSIs at different stages (practical examples of projects: what TSIs are applicable, who does what and when)

TSI Application Guide - links

The Guide and its annexes will be regularly updated. In addition a list of FAQ will be maintained.

General Part:

http://www.era.europa.eu/Document-Register/Pages/TSI-Application-Guide-general-part.aspx

Polish version of the General Part:

http://www.era.europa.eu/Document-Register/Documents/IU-TSI-Guide_PL.pdf

CCS TSI part:

http://www.era.europa.eu/Document-Register/Pages/TSI-Application-Guide.-CCS-TSI.aspx

CCS TSI part of the Application Guide

The document is an annex to the "Guide for the Application of TSIs". It provides information on the application of Technical Specification for Interoperability for "Control-Command and Signalling" adopted by Commission Decision 2012/88/EU.

The document needs to be read and used only in conjunction with the "Control-Command and Signalling" TSI. It is intended to facilitate its application but it does not substitute for it. The general part of the "Guide for the Application of TSIs" has also to be considered.

Guidance is of voluntary application. It does not mandate any requirement in addition to those set out in the "Control-Command and Signalling" TSI.

The TSI Control-Command and Signalling gives harmonised solutions for the functions, performance and interfaces that are relevant for interoperability and

<u>makes their implementation mandatory for the on-board</u>

(to ensure that vehicles may move uninterrupted throughout the EU) but

<u>allows flexibility for their implementation trackside</u>.

As a consequence, it is the responsibility of each trackside implementation to define, for example, if shunting operations are allowed/supervised, if in-fill is required, etc.

The CCS part of the Application Guide includes a list of supporting informative specifications.

The application of the specifications and standards listed in this Application Guide remains voluntary, as they refer to aspects of the Subsystems where the adoption of solutions that are not harmonised does not prejudice interoperability (provided the solution respects functional and performance requirements specified in the relevant basic parameters).

These specifications and standards shall not be confused with the specifications listed in the Annex A of the CCS TSI, which are essential part of the definition of the basic parameters and are therefore mandatory.

Safety Management System - High level guidance document for the design and implementation of railway safety management systems (SMS), to be implemented by infrastructure managers and railway undertakings in conformity with Directive 2004/49/EC.

It provides additional explanation on some terms selected from the Railway Safety Directive and from the document 'A system approach'.

http://www.era.europa.eu/Document-Register/Pages/application-guide-for-SMS.aspx

Application guide for the design and implementation of a Railway Safety Management System

INTEGRATING HUMAN FACTORS IN SMS

Guidance document to support the design and implementation of railway safety management systems (SMS) by infrastructure managers and railway undertakings in conformity with Directive 2004/49/EC

http://www.era.europa.eu/Document-Register/Pages/Integrating-Human-Factors-in-SMS.aspx

Cross Acceptance – Reference Document

The Cross-Acceptance Unit makes available the Reference Document for the authorisation for placing in service of railway vehicles.

The Reference Document is composed of 3 parts:

Part 1: Application guide. This part refers to the elements included in the Commission Decision 2011/155/EU, and any other information relevant for the management, understanding and use of the reference document. It is available also in Polish.

http://www.era.europa.eu/Document-Register/Pages/Application_Guide_PL.aspx

Part 2: National Reference Document. This includes all national reference documents listing and classifying the equivalence of national rules, one for each Member State, as referred to in Article 3 of Decision 2011/155/EU.

For PL: http://www.era.europa.eu/Document-Register/Pages/National-Reference-Document-PL.aspx

Part 3: National Legal Framework. In accordance with Article 1 of Decision 2009/965/EC, it includes information on the national legal framework applicable to the authorisation of placing in service of vehicles.

For Poland not available yet

The Application guide to the Reference Document forms Part 1 of the Reference Document as envisaged by Decision 2011/155/EU of 9 March 2011 on the publication and management of the Reference Document referred to in Article 27(4) of the Interoperability Directive and provides information relevant for the management, understanding and use of the Reference Document

The information available in the Application Guide is addressed to two groups of users:

- those putting in place and enforcing rules (eg. Ministries and NSAs) that should be contained within the Reference Document; and

- those wishing to understand which rules apply in which Member States and whether or not their equivalence is recognised. (eg manufacturers, RUs, applicants).

This guide will be regularly updated with the support of the Cross Acceptance Working Party set up under Article 3 of the Agency Regulation 881/2004/EC.

In future revisions consideration will be given, in the light of experience, to the benefits of separation of the elements relating to those putting in place and enforcing national rules and those elements relating to those using the rules in design and application for authorisation to place into service.

The Agency's Advice No. ERA/ADV/2013-6 regarding the clarification of section 6.4 of the CCS TSI:

http://www.era.europa.eu/Document-Register/Pages/ERA-ADV-2013-6.aspx

The clarification was requested because the current text does not prevent different interpretations regarding the use of EC certificates of subsystem verification and of Intermediate Statements of Verification (ISV) in case of partial compliance with the CCS TSI.

Taking into account the present legal framework and the Current practice in the Member States, the Agency advises the Commission to modify the current text of section 6.4 of the CCS TSI in force according to the proposal in Annex 3 of this advice. This proposal:

• clarifies that for parts defined in the CCS TSI the NoBo may issue EC certificates of verification;

• clarifies that a certificate may be issued for a subsystem not assessed for full compliance with the TSIs, in accordance with the provisons of Article 9, 17(3) or 20 of the Interoperability Directive;

• confirms the requirements, already existing in the CCS TSI in force, on the content of the certificates and on the coordination between NoBos and ERA;

• clarifies that ISVs should not be used alone to support authorisation for placing in service. This principle is not specific to the CCS TSI.

Set of specifications # 1 (ETCS baseline 2 and GSM-R baseline 0)

http://www.era.europa.eu/Core-Activities/ERTMS/Pages/Set-of-specifications-1.aspx

Set of specifications # 2 (ETCS baseline 3 and GSM-R baseline 0)

http://www.era.europa.eu/Core-Activities/ERTMS/Pages/Set-of-specifications-2.aspx

Current ERTMS mandatory specifications

<u>Note 1</u>:

Only the functional description of information to be recorded is mandatory, not the technical characteristics of the interface.

<u>Note 2</u>:

The specifications listed in section 2.1 of EN 301 515 are mandatory.

<u>Note 3</u>:

The change requests (CRs) listed in table 1 and 2 of TR 102 281 are mandatory.

Interfaces between Control-Command and Signalling trackside and other subsystems

This document defines the interoperability requirements that are applicable at the interface between the Control-Command and Signalling Track-side and other subsystems (mainly, but not exclusively, rolling stock).

Since different types of trackside equipment originate different compatibility requirements, in this document traceability is provided, by mean of "justifications" explaining the source of each requirement.

The document is referenced as Index 77 on the lists of mandatory specifications (Annex A of the CCS TSI).

The requirements specified in the document have been identified on the basis of compatibility requirements of train detection systems, by reference to the train detection systems intended for use in interoperable lines, i.e.,

1. Axle counters

2. Track circuits

3. Wheel detectors (e.g., for level crossing operations)

4. Vehicle detectors based on inductive loops

Train detection systems, which are part of the Control-Command and Signalling Track-side, shall be designed in such a way that they are able to detect a vehicle or consist under the conditions specified by the parameters in this specification.

The document contains the list of train protection legacy systems required in the Control-Command and Signalling TSI.

Legacy systems allowed in case of renewal or upgrade

http://www.era.europa.eu/Document-Register/Pages/List-of-Class-B-systems.aspx

This is a technical document prepared by the European Railway Agency on the basis of information received from Member States, Norway and Switzerland, and in accordance with the provisions of Commission Decision of 25 January 2012 on the CCS TSI (2012/88/EU).

Assignment of values to ETCS variables

The ETCS system uses its own language to exchange data between the trackside and the on-board assemblies. This language is composed of messages, packets and variables.

Among the whole set of the ETCS variables, some are used to configure the system to allow the proper working of certain functionalities. This configuration is either done on a temporary basis and is subject to changes as for instance when crossing a national border, or is done on a permanent basis.

Reason for permanent configuration comes from the need to identify uniquely an ETCS constituent as e.g. an ETCS on-board or to give a unique identity to an intangible data as e.g. the identity of a country, in order to avoid functional or safety impacts.

Assignment of values to ETCS variables

The ETCS variables concerned by a permanent assignment are listed in SUBSET-054 Responsibilities and rules for the assignment of values to ETCS variables. Giving a permanent value to an ETCS variable is then called *'assignment of values to ETCS variables'*.

Some assignments can be managed locally as explained in SUBSET-054 but others need international coordination and shall be managed at a centralized level.

In its role as system authority for ERTMS, the European Railway Agency is responsible for the assignment of values to ETCS variables that need international coordination.

<u>Assignment of values to ETCS variables is available on ERA website.</u>