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FOR RAILWAYS

Making the railway system
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Certification: Restrictions and conditions and added functions

Guideline for the European Union Agency for Railways template

Document History

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1.   Executive summary

It is the obligation of the NoBo (see TSI CCS [1]) to indicate directly or by reference in its certificate or accompanied documents which TSI CCS functions, interfaces or performance are not or only partly implemented as well as optional and additional functions implemented and to provide sufficient information to make it possible to identify:

- *the conditions under which the interoperability constituent (IC) or the subsystem can be used,*
- *the for ICs the restriction on the use that will apply to the interoperability of a subsystem incorporating it.*

Concerning the **trackside subsyst**em all TSI CCS functions are optional so the infrastructure manager can choose the functions to be implement. For the not completely implemented functions and all the additional functions implemented the NoBo obligation is applicable as well.

Usually the certificate refer to a chapter in the technical file where further information concerning the restrictions and conditions of use could be found but the way to present the information is not harmonised. In order to overcome this situation, the European Union Agency for Railways (Agency) has defined a template; this document provides the guide for the correct use of the template.

2.   Introduction

Actually, it is difficult to get in a standardised way sufficient information concerning product and/or Subsystem restrictions and conditions of use; certificates usually confirm conformity with the TSI and refer to a chapter in the technical file where further information could be found. Neither the way the information is presented nor its content and level of detail is harmonised. This makes it challenging e.g. for the Agency when providing technical advice to INEA concerning funded projects and for NSAs authorisation. Backed up by TSI CCS [1] chapter 6.4.3.3 and in order to harmonise the presentation of this information, the Agency has elaborated a template (see Annex B) to capture restrictions and conditions of use in a harmonised way. The template shall be filled by the manufacturer/applicant supported by the NoBo. In case the NoBo does not fully agree with the applicant's point of view, both opinions should be given.

This document (as requested by the NB Rail ad hoc WG) has to be seen as guideline how to fill the Agency template.

Note: none of the information required to be filled in the template is in addition to what is already required by the TSI CCS.

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3. Abbreviations

Table 1: Table of abbreviations

Abbreviation	Definition
CCS	Control Command and Signalling
DeBo	Designated Body
Agency	European Union Agency for Railways
IC	Interoperability Constituent
IM	Infrastructure Manager
NoBo	Notified Body
NSA	National Safety Authority
NTR	National Technical Rule
RU	Railway undertaking
RS	Rolling stock
RFC	Rail Freight Corridor
SMS	Safety Management System
SRAC	Safety Related Application Conditions
SS	Subsystem
TSI	Technical Specification for Interoperability

4. Reference documents

Table 2: Table of reference documents.

Ref. N°	Title	Reference	Version
1	TSI CCS	COMMISSION REGULATION (EU) 2016/919	27 May 2016

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5. Definitions

NoBos issue: "EC certificates of conformity/suitability for use" and "Certificates of Verification".

DeBos issue: Note: This is outside the scope of this document and only used as a placeholder not to forget that DeBo certificates for ICs are not foreseen.

Declarations from the applicant are always called "EC" declarations …..

6. What is stated in the TSI CCS [1]

TSI CCS chapter 6 explains how partial fulfilment of the TSI requirements and added functionality for IC and SS have to be handled.

Chapter 6.4.3 put an obligation on NB Rail ad hoc WG and the Agency to agree on the way conditions and limits of use have to be handled in the certificates and technical files.

6.4.3.   Partial fulfilment of the requirements due to limited application of the TSI

6.4.3.1. Interoperability constituents
If an interoperability constituent does not implement all functions, performance and interfaces specified in this TSI, an EC certificate of conformity may only be issued if the unimplemented functions, interfaces or performance are not required to integrate the interoperability constituent into a subsystem for the use indicated by the applicant, for example:
(1) the on-board ETCS interface to STM if the interoperability constituent is intended for installation on vehicles in which no external STM is needed;
(2) the RBC interface to other RBCs, if the RBC is intended for use in an application for which no neighbouring RBCs are planned.
The EC certificate of conformity (or accompanying documents) for the interoperability constituent shall fulfil all the following requirements:
*(1) it **indicates which functions, interfaces or performance are not implemented**;*
*(2) it **provides enough information to make it possible to identify the conditions under which the interoperability constituent can be used;***
*(3) it **provides enough information to make it possible to identify the conditions of and restriction on the use that will apply to the interoperability of a subsystem incorporating it.***

6.4.3.2. Subsystems
*If a control-command and signalling subsystem does not implement all functions, performance and interfaces of this TSI (e.g. because they are not implemented by an interoperability constituent integrated into it**), the certificate of verification shall indicate which requirements have been assessed and the corresponding conditions and restrictions on the use of the subsystem and its compatibility with other subsystems.***

6.4.3.3. Content of Certificates
*In any event, **notified bodies shall coordinate with the Agency the way in which conditions and limits of use of interoperability constituents and subsystems are managed in the relevant certificates and technical files in the working group set up under Article 21a(5) of Regulation (EC) No 881/2004 of the European Parliament and of the Council**.*

7. The template from the European Union Agency for Railways

The template has to be filled for each IC and/or SS part. The Agency will take care to synchronise the template with each TSI update.

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The template is split in 3 sections:
1. General information
2. Restrictions and conditions
3. Added Functionality

Section 2 and section 3 needs to be filled only when applicable.

Note: All boxes which allow selecting a pre-defined text offers also the possibility to enter free text.

7.1 Section 1: General information to be filled

7.1.1 The entry in the field "**IC identification/Project concerned**" (free text) should correspond to description of the IC or SS from the NoBo certificate.

7.1.2 The "**Type of certificate**" has to be selected; actually, according to TSI CCS [1] there are the following possibilities:

›*IC ETCS on-board*
›*IC odometry*
›*IC grouping of ETCS on-board and odometry*
›*IC Interface of External STM*
›*IC GSM-R voice cab radio*
›*IC GSM-R data only radio*
›*IC GSM-R SIM card*
›*IC RBC*
›*IC Radio in-fill unit*
›*IC Eurobalise*
›*IC Euroloop*
›*IC LEU Eurobalise*
›*IC LEU Euroloop*
›*IC grouping of Eurobalise and LEU*
›*IC grouping of Euroloop and LEU*
›*On-board CCS subsystem radio part*
›*On-board CCS subsystem ETCS part*
›*Full on-board CCS subsystem*
›*Trackside CCS subsystem radio part*
›*Trackside CCS subsystem ETCS part*
›*Trackside CCS subsystems train detection part*
›*Trackside CCS subsystem radio and ETCS parts*
›*Trackside CCS subsystem radio and train detection parts*
›*Trackside CCS subsystem ETCS and train detection part*
›*Full trackside CCS subsystem*

7.1.3 The "**Applicable Decision**" has to be selected, based on this decision the optional and/or additional functionalities have to be handled too. Actually, there are the following possibilities:

›*2002/731/EC*
›*2004/447/EC*
›*2006/679/EC*
›*2006/860/EC*
›*2007/153/EC*
›*2009/561/EC*

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›*2010/79/EC*
›*2012/462/EC*
›*2012/462/EC*
›*2012/88/EU*
›*2012/696/EU - set of specifications #1*
›*2012/696/EU - set of specifications #2*
›*2016/919/EU - set of specifications #1*
›*2016/919/EU - set of specifications #2*
›*2016/919/EU - set of specifications #3*

7.1.4   The "**ETCS Level implemented**" has to be selected

7.1.5   The situation concerning "**Infill implemented**" has to be selected

7.2 Section 2: Restrictions and conditions

This part describes the type and the consequences of operation and the conditions for use concerning the restrictions and conditions listed.

The level of detail to be provided in the free text fields should be sufficient for:

- *an IM/RU to understand the area of use and to define its SMS,*
- *an NSA to judge if an authorisation can be given,*
- *The Agency to provide valuable feedback to INEA and having in mind the 4th RP, to authorise **RS (CCS Subsystem) and to approve CCS trackside projects.***

For each "deviation" the following fields have to be filled; the number (column B) defines the individual "deviation".

7.2.1   The field "**Type of deviation**" was introduced based on a request from RFC 1. It provides a kind of high level information mainly for the NSA. The following cases can be selected (more background information could be found in Annex 1):

›*Deviation with impact on interoperability*
›*Deviation with impact on functionality but not on interoperability*
›*Deviation with no impact on functionality nor interoperability*
›*Conflicting (or unclear) requirements*
›*Free text*

7.2.2   The field "**Type of non-conformity**" should indicate which requirements are not respected and how, the following cases could be selected:

›*full ETCS level not supported*
›*full ETCS mode not supported*
›*interface not implemented*
›*full mandatory function not implemented*
›*low level functional requirement not implemented*
›*mandatory function implemented in a non TSI compliant way*
›*interface requirement implemented in a non TSI compliant way*
›*performance requirement not respected*
›*RAMS requirement not respected*

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> ›*insufficient proof (NoBo is not able to decide if the function is fully implemented (e.g. able to read 8 Balises in a group)*
> ›*conflicting requirements*
> ›*other*
> ›*Free text*

"full mandatory function" can be identified as the text below a title (chapter) in the SRS or a FIS

"low level functional requirement" can be identified as one or more statements in the SRS or a FIS.

7.2.4 "**Scope of non-conformity**" is a free text field, here the documents/titles/clauses/sections (e.g. SUBSET-026 chapter x.x.x; full SUBSET-XXX) of the Annex A documents concerned or the part of them which applies when a CR is implemented, have to be listed.

7.2.5 In the corresponding "**Description**" field (free text) requirements not implemented (e.g. calculation of release speed on board not implemented) should be described. In case they are implemented in a non-compliant way the difference should be explained (e.g. delay in command of emergency brake too long).

7.2.6 In the part "Consequences of non-conformities on operation" the "**Type of consequences**" need to be listed, its pre-defined types of consequences are:

> ›*no reaction receiving an input:*
> ›*non TSI-compliant reaction receiving an input*
> ›*inability to receive an input*
> ›*inability to understand a TSI compliant input*
> ›*inability to send an output*
> ›*generation of non TSI-compliant output*
> ›*non TSI-compliant functionality*
> ›*non TSI compliant delays*
> ›*inability to process input information*
> ›*RAMS requirements not respected*
> ›*other*

7.2.7 The field "**Description**" (free text) should describe possible non-TSI compliant situations and the conditions in which they might occur, e.g.:

> ›*"inability to send an output" refers, for example, to inability to generate a certain message*
> ›*"generation of non TSI-compliant output " refers, for example to the generation of a non TSI compliant message*
> ›*"non TSI-compliant functionality " is, for example, calculation of braking curve in a non TSI compliant way*
> ›*"inability to process input information", if, for example the memory of the equipment is not enough to store received messages before they being processed*

should be described (more in general the behaviour of the IC/SS due to a concrete functionality which is not fulfilled).

In case of "RAMS requirements not respected" the free text should indicate if this is in general or describe the SRAC

Note: This section is more for the manufacturer/applicant to be filled.

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7.2.8   In the part "Conditions for use stated in the certificate" the section "**Type of condition**" to be filled contains the following pre-defined types:

> ›*limits for the use in combination with other TSI compliant equipment*
> ›*exported functional requirements not compliant with TSIs*
> ›*exported performance requirements not compliant with TSIs*
> ›*other*

7.2.9   In the field "**Description**" (free text) the condition for use according to the associated non-conformity depending if it effects (or not) to the operation has to be described.

Note: This section is more for the manufacturer/applicant to be filled.

7.3   Section 3: Added functionality

Added functionality could be "optional' as well as "added" functions (chapter 6 of TSI CCS [1]) and its way to assess them is different.

The NoBo will check that the "optional" functions are implemented and TSI conform. Concerning the "added" functions the NoBo will check that there is no impact on the TSI functionalities, the function itself will be confirmed/checked by the applicant or the DeBo.

7.3.4   The field "**Reasons for added functions**" should note what has triggered the add on, the following cases could be selected:

> ›*Option*
> ›*NTR*
> ›*CR from other baselines*
> ›*Request from the applicant*

7.3.5   In field "**Description of the added functionality**" (free text) a brief description of the add on has to be given; in case of an NTR the link to the corresponding requirement might be sufficient.

7.3.6   Finally in section "Consequences on operation and conditions for use" the field "**Description**" (free text) should contain

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Annex A – Example: NSA Sweden

Note : The cases listed hereafter might not remain after a technical discussion would have taken place, Annex A is only to illustrate examples for the different categories.

➢ **"Deviation with impact on interoperability"**

Requirement: RBC initiated connection establishment

Evaluation summary: Not supported.

NoBo Comment: Depending on the wayside implementation, this may lead to interoperability problems

Classification: Deviation with impact on interoperability

➢ **"Deviation with impact on functionality but not on interoperability"**

Requirement: Train Data

Evaluation summary: Loading gauge and train running number from external device (e.g. USB) not supported. The driver can enter these data manually but not by an external device.

NoBo Comment: Functionality not supported

Classification: Deviation with impact on functionality but not on interoperability

➢ **"Deviation with no impact on functionality nor interoperability"**

Requirement: ETCS is required to be functional to a maximum train speed of 500 km/h.

Evaluation summary: According to the On-board SRS: The limit of V_MAXTRAIN when configured is set to 400 km/h being the max speed defined for the on-board system. There is no other restriction given for this parameter - driver can enter any value up to 400 km/h.

NoBo Comment: Not visible on subsystem level.

Classification: Deviation with no impact on functionality nor interoperability

➢ **"Conflicting requirements**

Requirement: Other sequences of primitives.

Evaluation summary: Other sequences not supported.

This requirement is not possible to fulfil as no references are given to what these "other sequences of primitives" are. This "requirement" should be "re-tagged" to informational.

Connection releases according to section 5.4.1.1-5.4.1.6 of Ss-037 are supported only

NoBo Comment: The TSI is unclear.

Classification: Conflicting requirement

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Annex B – CCS template

CCS template of
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