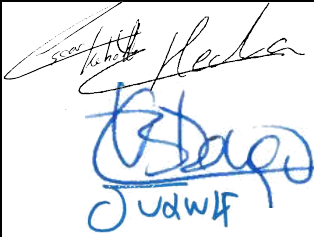



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Clarification note

ETCS System Compatibility and Radio System Compatibility

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1.0	17/06/2021	Initial version

The purpose of this document is to provide applicants and other external stakeholders of the vehicle authorisation business with information in regards to the specific topic referenced in the title. The clarifications contained in this document may be integrated in the next revision of the guidelines for the practical arrangements for the vehicle authorisation process, without prejudice of the formal process foreseen for updating the guideline.

The present document is a non-legally binding guidance of the European Union Agency for Railways. It is without prejudice to the decision-making processes foreseen by the applicable EU legislation. Furthermore, a binding interpretation of EU law is the sole competence of the Court of Justice of the European Union.

1. Description of the issue

The concept of ETCS system compatibility (ESC) and Radio System Compatibility (RSC) was introduced in the Regulation (EU) 2016/919, as amended by Regulation (EU) 2019/776. There is a necessary transition period from the previous national rules defined in some Member States until the proper ESC/RSC values are defined by the Infrastructure Managers and published in the Agency Technical Document . So for each possible authorisation case there may be some doubts about what are the necessary documents to be provided in OSS and the use of the corresponding values in ERA TV.

Also, the Article 13.3 in the CCS TSI Regulation (EU) 2016/919 raised some questions on its application to the vehicle authorisation, in relation with the ESC/RSC principles.

Finally, the integration of the ESC/RSC Statements into the Declaration of Verification of the Subsystem template is also clarified.

2. Line to take

2.1. ESC/RSC statements to be provided per authorisation case

For the networks where the operation with ETCS (Level 1, 2 or 3)/GSM-R (voice and/or data) is requested:

- **First authorisation:** If a vehicle and/or vehicle type is equipped with ETCS or GSM-R, ESC/RSC statements are needed, since they are defined as Basic Design Characteristics, to demonstrate technical compatibility with the networks. At least one ESC/RSC statement shall be provided among the ESC/RSC Types declared by each Infrastructure Manager in the Area of Use. This can be checked in the Agency ESC/RSC Technical Document¹.
- **Renewed vehicle type authorisation:** If ETCS or Radio part of the CCS subsystem is impacted, at least one an ESC/RSC Statement shall be provided among the ESC/RSC Types declared by each Infrastructure Manager in the Area of Use or a justification that previous ESC/RSC statements are not impacted.
- **Extended area of use:** At least one the ESC/RSC statement shall be provided among the ESC/RSC Types declared by each Infrastructure Manager in the Extended Area of Use.
 - If there are previous ESC/RSC statements, they will be inherited from Parent vehicle type.
- **New authorisation:** If ETCS or Radio part of the CCS subsystem is impacted, at least one ESC/RSC Statement shall be provided among the ESC/RSC Types declared by each Infrastructure Manager in the Area of Use or a justification that previous ESC/RSC statements are not impacted.
- **Authorisation in conformity to type:** No additional information on ESC/RSC to be provided on top of the vehicle type.
- **Combined new and extended area of use:** if the change is not related to ETCS/GSM-R, this is equivalent to the Extended Area of use Case. If the change is impacting ETCS or GSM-R, this is equivalent to New authorisation case.
- **Combined First and conformity to type:** equal to First authorisation.

¹ The ESC/RSC Technical Document TD/011REC1028 can be found in the Agency website under the following link: https://www.era.europa.eu/sites/default/files/activities/docs/era_td-011rec1028_esc-rsc_technical_document_en.pdf

The operation in ETCS L0 or LNTC is not considered as an ETCS Class A operation and this should be considered under the “Class B train protection legacy system” operation, out of the scope of this clarification note. However, the transitions from/to Class B and ETCS should be covered in the ESC definitions.

For a vehicle equipped with a certified ETCS on-board which is only authorised with Class B but not authorised with ETCS Class A (Level 1, 2 or 3) (i.e. there is a restriction or CfU preventing the use of ETCS), a new authorisation shall be requested to use ETCS. The relevant ESC Statement shall be provided as described above.

2.2. Special values for the ERATV ESC-RSC Parameters

In ERATV, all the ESC and RSC Types for which the vehicle has demonstrated compatibility shall be registered in parameter 4.13.1.8 “ETCS System Compatibility”, in parameter 4.13.2.5 “Radio Voice System Compatibility” and in parameter 4.13.2.8 “Radio Data System compatibility”.

Only the ESC/RSC Types with the status “valid”, as defined in [ESC/RSC technical document TD/011REC1028](#), are available for selection in ERATV.

There are also 3 special values:

1) Not applicable

This value is to be used when there is no ETCS or GSM-R voice radio or GSM-R data radio equipped in the vehicle. When this value is selected, it cannot be combined with any of the others ESC/RSC Type identifiers, for the specific ESC/RSC ERATV parameter.

2) ESC-NP-CCS7.4a / RSC-NP-CCS74.a

This value is to be used when a previous national procedure check equivalent to the ESC/RSC Types has been performed. This may happen in different situations for example (not an exhaustive list):

- The ESC/RSC Type(s) is not in “valid” status in [ESC/RSC technical document TD/011REC1028](#)
- Without prejudice to previous sections of this document, the checks has been performed before ESC/RSC Type(s) identifiers were changed to “valid” status.

This special value can be combined with any other ESC/RSC Type identifier, for a specific ESC/RSC ERATV parameter.

In any case, when the special value **ESC-NP-CCS7.4a / RSC-NP-CCS74.a** is selected, it is mandatory to indicate as a non-coded restriction the specification(s) (either a proprietary document, or a specification defined in a national rule) and the reference to the test report used to perform the check and the lines or section of the network to which the technical compatibility has been demonstrated.

Note: in RINF, special value **ESC-NP-CCS7.4a / RSC-NP-CCS74.a** is not available for selection. In the case of a section in RINF characterised by an ESC/RSC Type value and a vehicle having not the corresponding ESC/RSC Type value in ERATV but using the special value instead, the route compatibility is not automatically assumed; therefore additional checks to verify the technical compatibility based on the document provided in the non-coded restriction may be necessary.

3) ESC-EU-0 / RSC-EU-0

In RINF, the meaning of this value corresponds to the case where Infrastructure manager have declared that no ESC/RSC are needed to demonstrate technical compatibility for any section.

In ERATV this parameter can be selected for all CCS certified subsystems equipped with ETCS and/or GSM-R.

This special value can be combined with any other ESC/RSC Type identifier, for a specific ESC/RSC ERATV parameter.

2.3. Application Article 13.3 of CCS TSI Regulation (EU) 2016/919 in relation to ESC/RSC principles

The CCS TSI allows for projects in advanced stage of development the application of the original version of the Regulation (EU) 2016/919, but with the requirement to consider the ESC/RSC principles.

Applications considering the original version of Regulation (EU) 2016/919 requesting the use of ETCS (Level 1, 2 or 3) or GSM-R (voice and/or data) shall provide the demonstration of the compatibility with the network by means of the ESC/RSC Statements or, in the absence of the definition of the corresponding ESC/RSC Types, in the Agency Technical document, by the previous national procedures (see below the special value ESC-NP-CCS7.4a / RSC-NP-CCS74.a).

2.4. Inclusion of the ESC/RSC Statements into the Declaration of Verification of the Subsystem template.

As indicated in the CCS TSI Application Guide, the ESC/RSC Statement for the Subsystem should be included as part the Declaration of Verification of the Subsystem. The current template in Commission Implementing Regulation (EU) 2019/250 does not foresee a specific section to include them.

The applicant should add the reference to the ESC/RSC Statements under the section for the “accordance with the following certificate(s) and or report(s)” or the applicant may add an additional section for the ESC/RSC Statement.

3. Legal background

Explanation/summary of the main elements of the legal background impacting the issue and the proposed clarifications and lines to take.

a) Directive (EU) 2016/797

- › Article 21 (3) Vehicle authorisation for placing on the market

“The application for a vehicle authorisation for placing on the market shall be accompanied by a file concerning the vehicle or vehicle type and including documentary evidence of:

(a) the placing on the market of the mobile subsystems of which the vehicle is composed in accordance with Article 20, on the basis of the ‘EC’ declaration of verification;

(b) the technical compatibility of the subsystems referred to in point (a) within the vehicle, established on the basis of the relevant TSIs, and where applicable, national rules;

(c) the safe integration of the subsystems referred to in point (a) within the vehicle, established on the basis of the relevant TSIs, and where applicable, national rules, and the CSMs referred to in Article 6 of Directive (EU) 2016/798;

(d) the technical compatibility of the vehicle with the network in the area of use referred to in paragraph 2, established on the basis of the relevant TSIs and, where applicable, national rules, registers of infrastructure and the CSM on risk assessment referred to in Article 6 of Directive (EU) 2016/798.”

b) Regulation (EU) 2018/545

- › Article 14 Identification of the relevant authorisation

“1. The applicant shall identify and choose the relevant authorisation from the following cases:

(a) first authorisation: the vehicle type authorisation and/or the vehicle authorisation for placing on the market issued by the authorising entity for a new vehicle type, including its variants and/or versions if any, and, where applicable, the first vehicle of a type, pursuant to Article 21(1) of Directive (EU) 2016/797;

(b) renewed vehicle type authorisation: the renewal of a vehicle type authorisation pursuant to Article 24(3) of Directive (EU) 2016/797 which does not require a change in design of the vehicle type;

(c) extended area of use: the vehicle type authorisation and/or the vehicle authorisation for placing on the market issued by the relevant authorising entity for an already authorised vehicle type and/or vehicle in order to extend the area of use without a change of the design, pursuant to Article 21(13) of Directive (EU) 2016/797;

(d) new authorisation: the vehicle type authorisation and/or vehicle authorisation for placing on the market issued by the authorising entity after a change of an already authorised vehicle and/or vehicle type, pursuant to Articles 21(12) or 24(3) of Directive (EU) 2016/797;

(e) authorisation in conformity to type: the vehicle authorisation for placing on the market for a vehicle or a series of vehicles that conform to an already authorised and valid vehicle type on the basis of a declaration of conformity to that type, pursuant to Article 25(1) of Directive (EU) 2016/797. Where applicable, there shall be a clear identification of the vehicle type version and/or the vehicle type variant to which the vehicle or series of vehicles is conform.

2. In cases of vehicle type authorisations pursuant to cases (c) and (d), the applicant, if he is the holder of the existing vehicle type authorisation, shall decide whether the authorisation will result in the creation of:

(a) a new vehicle type; or

(b) a new vehicle type variant within the existing type on which it is based.

If the applicant is not the holder of the existing type the authorisation shall result in the creation of a new type in accordance with Article 15(4).

3. An applicant may combine:

(a) a request for new authorisation with a request for an authorisation for an extended area of use; or

(b) a request for a first authorisation with a request for authorisation in conformity to type.

The time frames set out in Article 34(1) and (2) shall apply to the combined application. Where appropriate, it may result in the issuing of several authorisation decisions by the authorising entity.”

c) Regulation (EU) 2016/919

› Article 13 Transitional provisions

“3. Without prejudice to sections 6.1.2.4 and 6.1.2.5 of the Annex, applicants may continue to apply the provisions of the original version of Regulation (EU) 2016/919 (and relevant Agency opinions) when applying for authorisation of:

a) trackside projects which are at an advanced stage of development at the date of entry into force of this Regulation; and

(b) on-board projects developed in accordance with ERTMS specifications #2 or #3 listed in Table A.2 of Annex A which are at an advanced stage of development at the date of entry into force of this Regulation.”

› Annex A – Section 6.1.2.4 Requirements for ETCS System Compatibility

“The Agency shall set up and manage in a technical document the set of checks to demonstrate the technical compatibility of an on-board subsystem with the trackside subsystem.

Infrastructure Managers, with the support of the ETCS suppliers for their network, shall submit to the Agency the definition of the necessary checks (as defined in 4.2.17) on their network by 16 January 2020 at the latest.

Infrastructure Managers shall classify the ETCS lines according to ESC types in RINF.

Infrastructure Managers shall submit to the Agency any changes on the referred checks for their network. The Agency shall update the technical document within 5 working days.”

› Annex A – Section 6.1.2.5 Requirements for Radio System Compatibility

“The Agency shall set up and manage in a technical document the set of checks to demonstrate the technical compatibility of an on-board subsystem with the trackside subsystem.

Infrastructure Managers, with the support of the GSM-R suppliers for their network, shall submit to the Agency the definition of the necessary checks (as defined in 4.2.17) on their network by 16 January 2020 at the latest.

Infrastructure Managers shall classify their lines according to RSC types for voice and, if applicable, ETCS data in RINF.

Infrastructure Managers shall submit to the Agency any changes on the referred checks for their network. The Agency shall update the technical document within 5 working days.”

› Annex A – Section Table 7.1 Basic Design Characteristics

1. TSI Point	2. Related basic design characteristic(s)	3. Changes not impacting the basic design characteristics according to 15(1)(b) of Regulation (EU) 2018/545	4. Changes impacting the basic design characteristic but inside the acceptable range of parameters therefore to be classified as Art 15.1(c) of Regulation (EU) 2018/545	5. Changes impacting the basic design characteristic and outside the acceptable range of parameters therefore to be classified as Art 15.1(d) of Regulation (EU) 2018/545
4.2.2 On-board ETCS functionality	Set of specification of Annex A	Not applicable	Not applicable	Use another Annex A set of specifications
	On-board ETCS implementation	Fulfilling all the conditions in point 7.2.1a.2 (change of realisation)	Not applicable	Not fulfilling all the conditions in point 7.2.1a.2 (Functional change)
	Managing information about the completeness of the train	Not applicable	Adding or removing train integrity supervision	Not applicable
4.2.17.1 ETCS System Compatibility	ETCS System Compatibility	Not applicable	Adding or removing ESC statements, after checking by a NoBo	Not applicable
4.2.4 Mobile communication functions for railways GSM-R	GSM-R Baseline	Use another Baseline fulfilling all the conditions in point 7.2.1a.3.	Not applicable	Use another Baseline not fulfilling all the conditions in point 7.2.1a.3.
4.2.4.2 Voice and operational communication application	Voice and operational communication implementation	Fulfilling all the conditions in point 7.2.1a.3 (change of realisation)	Not applicable	Not fulfilling all the conditions in point 7.2.1a.3 (Functional change)
	SIM Card support of Group ID 555	Not applicable	Change the SIM Card support of Group ID 555	Not applicable

1. TSI Point	2. Related basic design characteristic(s)	3. Changes not impacting the basic design characteristics according to 15(1)(b) of Regulation (EU) 2018/545	4. Changes impacting the basic design characteristic but inside the acceptable range of parameters therefore to be classified as Art 15.1(c) of Regulation (EU) 2018/545	5. Changes impacting the basic design characteristic and outside the acceptable range of parameters therefore to be classified as Art 15.1(d) of Regulation (EU) 2018/545
4.2.17.2 Radio System Compatibility	Radio Voice System Compatibility	Not applicable	Adding or removing RSC statements, after checking by a NoBo	Not applicable
4.2.4 Mobile communication functions for railways GSM-R 4.2.4.3 Data communication applications for ETCS	GSM-R Baseline Data communication for ETCS implementation	Use another Baseline fulfilling all the conditions in point 7.2.1a.3. Fulfilling all the conditions in point 7.2.1a.3 (change of realisation)	Not applicable Not applicable	Use another Baseline not fulfilling all the conditions in point 7.2.1a.3. Not fulfilling all the conditions in point 7.2.1a.3 (Functional change)
4.2.17.2 Radio System Compatibility	Radio Data System Compatibility	Not applicable	Adding or removing RSC statements , after checking by a NoBo	Not applicable
4.2.4 Mobile communication functions for railways GSM-R 4.2.4.1 Basic communication function	SIM Card GSM-R Home Network	Not applicable	Replacement of a TSI compliant GSM-R SIM Card by another TSI compliant GSM-R SIM Card with a different GSM-R Home Network	Not applicable
4.2.6.1 ETCS and Class B train protection	Class B train protection legacy system	The requirements for Class B system are the responsibility of the relevant Member State.	The requirements for Class B system are the responsibility of the relevant Member State.	Add or remove Class B train protection systems. The requirements for Class B system are the responsibility of the relevant Member State.

1. TSI Point	2. Related basic design characteristic(s)	3. Changes not impacting the basic design characteristics according to 15(1)(b) of Regulation (EU) 2018/545	4. Changes impacting the basic design characteristic but inside the acceptable range of parameters therefore to be classified as Art 15.1(c) of Regulation (EU) 2018/545	5. Changes impacting the basic design characteristic and outside the acceptable range of parameters therefore to be classified as Art 15.1(d) of Regulation (EU) 2018/545
4.2.5.1 Radio communication with the train	Class B radio legacy system	The requirements for Class B system are the responsibility of the relevant Member State.	The requirements for Class B system are the responsibility of the relevant Member State.	Add or remove Class B radio legacy systems. The requirements for Class B system are the responsibility of the relevant Member State.