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ACCOMPANYING REPORT ERA-114-IPED TO THE RECOMMENDATION OF THE EUROPEAN UNION AGENCY FOR RAILWAYS

on

*closure of open point related to interface protocols between EMS
and DCS and transferred data format and editorial changes
amending the Annex to Commission Regulation (EU) No 1301/2014*

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1. Executive summary

This document is the accompanying report to the recommendation concerning amendments to the TSI ENE, issued by the Agency with the aim to close the open points in the two TSIs: ENE (Commission Regulation (EU) No 1301/2014) and LOC&PAS (Commission Regulation (EU) No 1302/2014). The open points relate to interface protocols between an on-board energy measurement system (EMS) and an on-ground energy data collecting system (DCS) and transferred data format, collecting together information in the previously published: intermediate and final reports. The separate recommendation has been issued by the Agency concerning relevant amendments to the TSI LOC&PAS.

The development of the TSIs text has been strictly correlated with the progress of the CENELEC work on the revision of the EN 50463 series of standards (undertaken in response to the Requirement for a Standard 048 issued by the Agency). Furthermore, the amendments also include other small editorial amendments to the ENE TSI with the aim to improve the text. The amendments to the TSI Energy have been presented to the RISC in 2016 together with the final report.

Due to the changes of legal framework in relation to 4RP, the Agency recommendation has been issued after publication of the Commission Delegated Decision (EU) 2017/1474 of 8 June 2017 supplementing Directive (EU) 2016/797 of the European Parliament and of the Council with regard to specific objectives for the drafting, adoption and review of technical specification for interoperability.

This report is assisted by the Light impact assessment assessing economic consequences on the sector of the closure of open point (see Annex 4).

2. Introduction

This report complements the recommendation on closure of open point related to interface protocols between EMS and DCS and transferred data format, amending the Annex to Commission Regulation (EU) No 1301/2014 issued by the Agency and former reports (intermediate and final) on this topic. The point 4.2.17 (3) of Annex sets the obligation on the Agency to close the open point within 2 years after the entry into force of the Regulation. To fulfil this obligation the Agency prepared the amendment to the Annex closing the open point, but due to the changed legal framework after publication of 4RP on 15 June 2016, the text has been presented to the Commission and RISC in November 2016 in the form of final report.

Additionally, the recommendation also addresses editorial amendments, considered by the Agency ENE Working Party, in the aim to improve the implementation of the abovementioned Commission Regulation.

This recommendation has been issued after publication of the Commission Delegated Decision (EU) 2017/1474 of 8 June 2017 supplementing Directive (EU) 2016/797 of the European Parliament and of the Council with regard to specific objectives for the drafting, adoption and review of technical specification for interoperability.

3. Project overview

3.1. Project definition

The Annexes to both Commission Regulations (TSI ENE and TSI LOC&PAS) have been elaborated under the mandate given in 2010 by the Commission “to the European Railway Agency to develop and review Technical Specifications for Interoperability with a view to extending their scope to the whole rail system in the European Union”.

The base for this mandate and following activities have been the Directive 2008/57/EC [1] of the European Parliament and of the Council of 17 June 2008 on the interoperability of the rail system within the Community.

During the development of the TSIs the publication on 2 March 2011 of the Directive 2011/18/EU [2] (amending Annexes II, V and VI to Directive 2008/57/EC) caused important changes in the description of the subsystems. 'On-board parts of the electric consumptions measuring equipment' have been moved from energy to rolling stock subsystem. Instead, in the energy subsystem 'the trackside of the electricity consumption measuring system' has been introduced. As a consequence, this decision created a clear interface between on-ground and on-board installations, led to define additional interfaces between two subsystems and had significant impact on ENE and LOC&PAS TSIs being drafted.

However, due to the strictly limited schedule and lack of availability of relevant standards and approved solutions at that time, requirements related to interface protocols between EMS and DCS and transferred data format (respectively – in the point 4.2.17 of ENE TSI [5] and 4.2.8.2.8 of LOC & PAS TSI [6]) remained as open points.

The project has been focused on the development of amendments to both - ENE and LOC&PAS TSIs to close those open points.

This activity has been foreseen in the Agency Work Programmes: 2014, 2015 and 2016.

3.2. Purpose and Scope

The purpose of the project has been to draft the proposed text for closing open points for both TSIs in the defined period of time. The task has been strictly coordinated with the development of the two standards:

- Revision of EN 50463 done by CENELEC on the Requirement for a Standard (RfS 048) issued by the Agency.
- IEC/EN 61375-2-6, being the part of the series of 61375 standards (train communication network), covering the whole complexity of vehicle on-board - to ground communication.

The scope of the project included:

- In case of LOC&PAS TSI [6]:
 - o Definition of requirements covering the on-board to ground communication, constituting the open point in the point 5 of Appendix D.
 - o Revision of requirements set out in the point 4.2.8.2.8 (accompanied with the Appendix D) referring to on-board energy measurement system (EMS).
- In case of ENE TSI [5]:
 - o Revision of all concerning sections where there were references to the open point, notably:
 - Article 3 – *Open points*,
 - Article 9 – *Implementation*,
 - point 4.2.17 – *On-ground energy data collecting system* of the Annex,
 - point 7.2.4 – *Implementation of the on-ground energy data collecting system* of the Annex,
 - Appendix E *Table E.1 List of referenced standards* of the Annex,
 - Appendix F- *List of open points* of the Annex.
- Relevant adaptations of both application guides.

3.3. Objectives

Apart from the main goal to develop requirements, which close the open point in both TSIs other objectives comprised:

- revision of current requirements referring EMS and DCS,
- coordination of modifications of EN 50463-series and IEC/EN 61375-2-6 to adjust them to the new needs of LOC&PAS and ENE TSIs,
- Update of the application guide to be aligned with the new requirements.

3.4. Risks related to IEC/EN 61375-2-6

Both ENE and LOC&PAS TSIs referred to the standard EN 50463. This standard has general references to the IEC/EN 61375-2-6. This standard, developed by IEC, is a global standard covering all communication and exchange of data between vehicle and ground except data related to control command and signalling.

At the moment of sending this Recommendation, the standard was still under development and scheduled publication is foreseen in 2018. This may create a lack of precision in the reference between the two standards (not directly in the TSI) due to the new date of publication of IEC/EN 61375-2-6.

In any case, the EN 50463-4, besides the option referring to the IEC/EN 61375-2-6, also provides another possibility based on dedicated wireless solution that can be applied to close the open point.

4. Workgroups

4.1. Introduction

Due to the complexity of the problem, the dedicated group – a Task Force - has been created.

To the Task Force selected experts have been invited representing:

- UNIFE, CER, EIM and additionally - CENELEC with specific experience and competencies in:
 - o Energy subsystem and on-board energy measuring equipment;
 - o Traction current measurement and billing;
 - o Data processing and vehicle/ground communication,

The project has been taking into account the activities performed in parallel by the standardization bodies related to necessary amendments to EN 50463.

According to an agreement with CENELEC, the Agency representative took part – as an observer – in meetings of CENELEC WG11 revising the EN 50463, to monitor these activities.

4.2. Composition of the Task Force and Project Team

The Task Force has been created by representatives of CER, EIM, UNIFE and CENELEC – each of them selected two experts who permanently attended the meetings.

From the Agency staff the project has been conducted by the team:

- o Stanisław Lis (acting as Project Manager) and Ignacio Ballester Aliaga from Fixed Installations Sector, Interoperability Unit.

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who were responsible for the development of the ENE TSI,

with the contribution and membership of Rodrigo Gutiérrez Domínguez, from Operational Sector, Interoperability Unit, who shared his expertise in the communication field and took part – apart from Task Force – in CENELEC WG11 meetings.

In the preparation of the impact assessment the Project Team was assisted and supported by Wouter Malfait - Economic Evaluation Officer of Corporate Management and Evaluation Unit

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4.3. Performed meetings

Kick off meeting	13 June 2014
Meeting 1	10 October 2014
Meeting 2	12 February 2015
Meeting 3	23 June 2015
Meeting 4	12 November 2015
Meeting 5	27 January 2016
Meeting 6	28 April 2016
Meeting 7	16 November 2016
Meeting 8	27 April 2017
Meeting 9	14 September 2017

All meetings have been held in the Agency premises in Lille.

5. Working methods

As in all the Agency activities, the working language has been English.

The development of the project, the call for experts and the establishment of the Task Force have been elaborated in line with the QMS rules applied in the Agency.

To respect the transparency principle, a dedicated extranet site for this project, containing all the working documents, has been created.

Finally, 10 meetings of Task Force were organised.

The proposed amendments to the ENE TSI, relating to the closure of the open point is included in the Annex 1 to the Agency Recommendation.

Economic evaluation of the closure of the open point has been done in the form of Light impact assessment constituting the Annex 4 to this report.

6. Other amendments

Together with the proposed text which closes open point, in the Annex 2 to this Agency Recommendation, proposals for editorial amendments have been introduced. The aim of these corrections were to improve the current wording, to avoid misunderstanding and misinterpretation of the TSI. In any cases, those correction did not change any requirements nor introduced new ones.

7. Annex 1: Definitions and abbreviations

7.1. Definitions

Table 1: Table of definitions

<i>Definition</i>	<i>Description</i>
Agency	The European Union Agency for Railways such as established by the Regulation (EU) 2016/796 of the European Parliament and of the Council of 11 May 2016 on the European Union Agency for Railways and repealing Regulation (EC) No 881/2004

7.2. Abbreviations

Table 2: Table of abbreviations

<i>Abbreviation</i>	<i>Description</i>
4RP	Fourth Railway Package
CEBD	Compiled Energy Billing Data
CENELEC	European Committee for Electrotechnical Standardization (Comité Européen de Normalisation Electrotechnique)
CER	Community of European Railway and Infrastructure Companies
DCS	Data Collecting System (on-ground)
EIM	European Rail Infrastructure Managers
EMS	Energy Measurement System (on-board)
EN	European Standard
ENE	Energy (subsystem)
EU	European Union
FRMCS	Future Railway Mobile Communication System
GSM-R	Global System for Mobile Communications – Railway
IA	Impact Assessment
IEC	International Electrotechnical Commission
IM	Infrastructure Manager
LOC&PAS	Locomotives and Passenger Carriages
QMS	Quality Management System
RfS	Requirement for a Standard
RU	Railway Undertaking

<i>Abbreviation</i>	<i>Description</i>
TSI	Technical Specification for Interoperability
UNIFE	Association of European Railway Industries
WG	Working Group

8. Annex 2: Reference documents

Table 1: Table of reference documents

<i>N°</i>	<i>Title</i>	<i>Reference</i>	<i>Version</i>
[1]	Requirement for a Standard	No 48	Ver. 1.0 08.10.2014

9. Annex 3: Reference legislation

Table 2: Table of reference legislation

<i>N°</i>	<i>Title</i>	<i>Reference</i>	<i>Version</i>
[1]	Directive (EU) 2016/797 of the European Parliament and of the Council of 11 May 2016 on the interoperability of the rail system (Recast)	OJ L 138, 26.5.2016, p. 44.	N.A.
[2]	Regulation (EU) 2016/796 of the European Parliament and of the Council of 11 May 2016 on the European Union Agency for Railways and repealing Regulation (EC) No 881/2004	OJ L 138, 26.5.2016, p. 1.	N.A.
[3]	Directive (EU) 2016/798 of the European Parliament and of the Council of 11 May 2016 on railway safety (Recast)	OJ L 138, 26.5.2016, p.102.	N.A.
[4]	Commission Delegated Decision (EU) 2017/1474 of 8 June 2017 supplementing Directive (EU) 2016/797 of the European Parliament and of the Council with regard to specific objectives for the drafting, adoption and review of technical specification for interoperability	OJ L210, 15.08.2017, p.5	