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NB-Rail Association

RECOMMENDATION FOR USE

NB-RAIL COORDINATION GROUP

Administrative Decision according to Interoperability Directive
(EU) 2016/797 art. 30.6



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RFU-RST-301

Issue 04

Date 05/07/2022

TITLE

Energy Measuring System assessment

ORIGINATOR

SCONRAIL, Arsenal Race

SUBJECT RELATED TO

Commission Regulation (EU) No 1302/2014
(LOC&PAS TSI) amended by Regulation (EU)
2018/868 and Regulation (EU) 2019/776

AMENDMENT RECORD:

Issue 02: Improved drawing in the proposal section

Issue 03: valid (in parallel to issue 02) for new L&P TSI amendments (EU) 2018/868 &
(EU) 2019/776

Issue 04: Last chapter of RFU proposal removed following end of transitional period of
clause 4.2.8.2.8

DESCRIPTION AND BACKGROUND EXPLANATION

The purpose of this RFU is to support a common understanding and approach on the
assessment of EMS.

Background:

Clause 4.2.8.2.8 of TSI LOC&PAS defines requirements for the on-board “energy
measuring system” (EMS) on rolling stock.

ERA-REC-120-1/2017 is taken into account.

Description of the situation:

Discussions among the NoBos assessing on-board energy measuring systems show
that the procedure of the assessment is not completely clear.

Moreover, the requirements in Clause 4.2.8.2.8.1 (2) for the different components
forming an on-board EMS, their integration into a system and the installation on a
specific vehicle are specified by referring to EN 50463:2017 as listed in annex J of TSI
LOC&PAS.

RFU PROPOSAL

EMS assessment procedure

NB-Rail proposes the following approach as a good practice.

For the assessment of the EMS, three different steps on two different stages are
defined in LOC&PAS TSI and EN 50463:2017 respectively and have to be considered.

The three different steps are:

- (1) assessment of the different parts of the EMS at *functional element level*
- (2) assessment of the system made of the functional elements (*integration*)

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(3) assessment of the *installation* of the system on a specific vehicle type

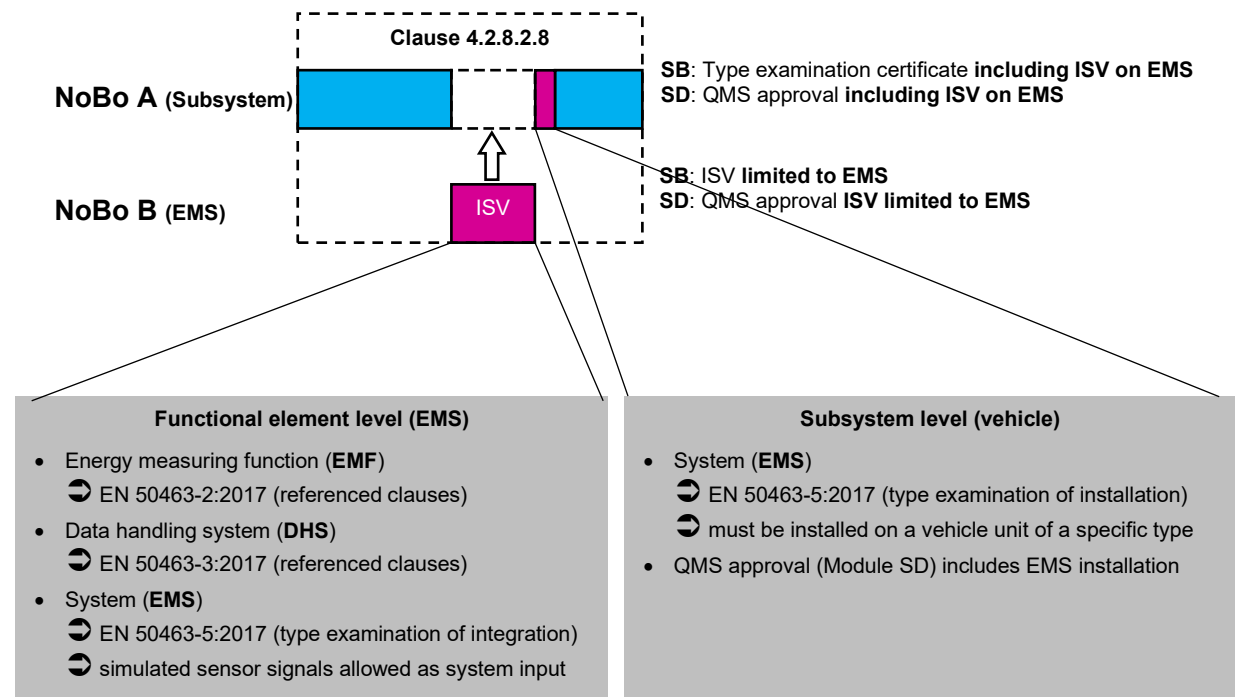
The two different stages are:

- a) functional element level
- b) subsystem level.

In practice it is likely that the two different stages a) and b) are assessed in different procedures. Assessment a) is likely to be commissioned by the manufacturer of the functional elements (sensors, energy meter, data handler) and to be performed by the "EMS NoBo" and assessment b) is likely to be commissioned by the vehicle manufacturer who equips a specific vehicle type with an EMS and to be performed by the "Subsystem NoBo".

With these three steps on two stages the complete EMS and its assessment for installation on a specific vehicle type are covered.

The following illustration shows an overview and the corresponding references between TSI LOC&PAS and EN 50463:2017:



Note: It can be seen that there is no repeated metrological verification of the accuracy required on subsystem level, if the accuracy of the EMF is already verified by testing its functional elements CMF, VMF and ECF on ISV level, and then calculating the resulting overall accuracy.

Section 6.2.3.19a of the TSI LOC&PAS requires on subsystem level (installed on a specific vehicle type) only to verify the "correct functioning of the EMS" via testing by using the following methods as defined in EN 50463-5: 2017:

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5.3.3 EMS integration type test

5.3.3.2 - Visual inspection

5.3.3.3 - Power-up

5.3.3.4 - Power-down

5.3.3.5 - Traction system change

5.3.3.6 - EMS data flow test

5.5.4 Installation type tests

5.5.4.2 Visual inspection

5.5.4.3 EMS data flow test 5.5.4.4 Data transfer through all communication channels

THIS RFU WAS AGREED ON

PLENARY MEETING 065 - 23/06/2022

THIS RFU ENTERS INTO FORCE ON

05/07/2022 (DATE OF PUBLICATION)

FROM THIS DATE ON THIS RFU CAN BE APPLIED INSTEAD OF THE PREVIOUS MANDATORY VERSION.

RFU APPLICATION IS MANDATORY STARTING FROM

05/07/2022

RFUS SHALL BE APPLIED BY ALL NOBOS. PLEASE REFER TO RFU-STR-702, CHAPTER 3 OF THE SECTION "DESCRIPTION AND BACKGROUND EXPLANATION", FOR THE LEGAL BASIS SUPPORTING THIS OBLIGATION.

ERA COMMENTS

PLE 065 – 23/06/2022: NO COMMENTS PROVIDED

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