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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-314

Issue 01

Date 17/06/2021

TITLE

PASSENGER ALARM SYSTEM

ORIGINATOR

Dekra Rail

SUBJECT RELATED TO

LOC&PAS TSI (EU) No 1302/2014 as amended by (EU) 2016/919, (EU) 2018/868, (EU) 2019/776, (EU) 2020/387

AMENDMENT RECORD:

17/06/2021 First issue

DESCRIPTION AND BACKGROUND EXPLANATION

The aim of this RFU is to clarify the interpretation of the requirement in clause 4.2.5.3.6 (2) of the LOC&PAS TSI (EU) Nr. 1302/2014 regarding the degraded mode of the passenger alarm system.

Description of the situation

“4.2.5.3.6 Degraded mode

(2) If the passenger alarm system is not functioning, either after intentional isolation by staff, due to a technical failure, or by coupling the unit with a non-compatible unit, this shall be permanently indicated to the driver in the active driver’s cab, and application of the passenger alarm shall result in a direct application of brakes.”

Application Guide TSI Loc&Pas

“Clause 2.4.40: The application of brakes when the passenger alarm is degraded as explained in 4.2.5.3.6(2) should not prevent the driver from overriding the brake application.”

During the RST-044 meeting, the RST SG commented the above clause as follows:

1. The request to apply the brakes if the passenger alarm system is not working doesn’t seem coherent.
2. The requirement is unclear in the way that the handle (activating the emergency brakes) should be discriminated by the passenger alarm button (activating the passenger alarm brakes that can be isolated by the driver).
3. The safety level of the passenger alarm system (handle and button –no SIL?) should be clearly specified as this impacts the assessment.

Background explanation

Refer to TSI LOC&PAS clause 4.2.5.3.1 (2) for the definition of the function of the passenger alarm system:

“The passenger alarm function gives to anyone in the train the opportunity to

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(1) advise the driver of a potential danger and

(2) has consequences at operating level when activated (e.g. braking initiation in absence of reaction from the driver); it is a safety related function, for which the requirements, including safety aspects, are set out in this clause.”

Clause 4.2.5.3.1 (2) describes the normal operational mode of the passenger alarm system with functions as described in the clauses 4.2.5.3.1 to 4.2.5.3.4 and safety in accordance with clause 4.2.5.3.5.

The passenger alarm system primary is a means for passengers and/or staff to inform the driver of a potential danger. The application of the passenger alarm system eventually may result in the application of the service brake or the emergency brake. (The TSI allows either of the two brakings to be applied.)

In accordance with the TSI requirement the application of the passenger alarm may lead to a direct service or emergency braking when stopped or departing from a platform (event occurring within the station area). In case of other events occurring away from the platform, 10+/-1 seconds after activation of the (first) passenger alarm, at least an automatic service brake shall be initiated unless the passenger alarm is acknowledged by the driver within this time (TSI clause 4.2.5.3.3).

The passenger alarm system comprises (usually) several passenger alarm devices, through which a passenger (or train staff) can demand for an emergency brake command. Refer to LOC&PAS TSI clause 4.2.5.3.2 (1) for the locations where the devices are mandatory. (At least each compartment and all entrance vestibules.)

The passenger alarm device is part of the passenger alarm interface to the passengers or train staff, which also comprises of a means of communication with the driver (TSI clause 4.2.5.3.2). It shall be clearly visible and indicated.

Note: The passenger alarm interface should not be confused with the “communication device for passengers” (LOC&PAS TSI clause 4.2.5.4) and the “call for aid device” (PRM TSI 1300/2014 clause 5.3.2.6), although the communication interface for these functions could be integrated in one interface.

The TSI LOC&PAS clause 4.2.5.3.6 describes the degraded mode of the passenger alarm system in which it has been either intentionally been isolated or is faulty (because of technical failure or coupling with non-compatible unit).

RFU PROPOSAL

Solution to comment 1:

One has to discriminate between the *passenger alarm system* on the one hand and the *brake system* on the other hand. In the degraded mode of the passenger alarm system, as described in clause 4.2.5.3.6, it is not the (passenger) emergency brakes which will be

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isolated, but the passenger alarm system. In this situation that the passenger alarm system is not functioning, because it has been deliberately taken out of service or is faulty, it is in the “passenger emergency brake mode” (like in the past). Activation of the alarm will lead to immediate braking.

Solution to comment 2:

No separate emergency brake handles and passenger alarm buttons are required. This even contradicts the intention of the passenger alarm system as specified in the TSI LOC&PAS clause 4.2.5.3. Nowhere in the TSI it is specified that the interface for the activation of the passenger alarm system shall have the form of a button. Still it is possible for this interface to have the form of a traditional emergency brake handle. On the other hand, a push button is another possibility (which may be more suited for PRM). It should be noted that the passenger alarm system may initiate (*give a command for*) a service braking or an emergency braking. The passenger alarm system IS NOT the emergency brake system.

Solution to comment 3:

The safety level for the passenger alarm system has been specified in clause 4.2.5.3.5 of LOC&PAS TSI. For two scenarios it specifies the safety requirements for the passenger alarm system. The conformity assessment procedure is described in clause 6.2.3.5 of the TSI. The procedure gives two possibilities for demonstrating compliance. First option is the use of a harmonised risk acceptance criterion. In the amendment (EU) 2015/1136 to the CSM-RA (EU) No 402/2013 ‘harmonised design targets’ have been given. In the scenarios of clause 4.2.3.5 where a failure has a credible potential to lead directly to a ‘single fatality and/or severe injury’ (critical accident), the associated risk does not have to be reduced further if the frequency of the failure of the function has been demonstrated to be improbable (occurrence of failure at a frequency less than or equal to 10^{-7} per operating hour). This gives the safety level for the passenger alarm system. Second option for demonstrating compliance is the application of a risk evaluation and assessment in accordance with the CSM on RA.

THIS RFU WAS AGREED ON

PLENARY MEETING 62

THIS RFU ENTERS INTO FORCE ON

DATE OF PUBLICATION: 21/06/2021

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

RFU APPLICATION IS MANDATORY STARTING FROM

21/09/2021

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AT THIS DATE ANY PREVIOUS VERSIONS (*OR, ALTERNATIVELY, VERSION XX*) OF THIS RFU WILL BE WITHDRAWN.

ERA COMMENTS

PLE 62 – 17/06/2021: NO COMMENTS - OR SPECIFY IF ANY
ERA DISCLAIMER WILL BE INCLUDED