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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-090**

Issue 04  
Date 05/03/2025

#### TITLE

AUDIBLE INFORMATION IN CAB

#### ORIGINATOR

LLOYD'S REGISTER

#### SUBJECT RELATED TO

- TSI LOC&PAS 1302/2014, AMENDED BY (EU) 2016/919, (EU) 2018/868, (EU) 2019/776, (EU) 2020/387 AND (EU) 2023/1694;
- TSI NOI 1304/2014, AMENDED BY (EU) 2019/774 AND (EU) 2023/1694;
- Guide for the application of the LOC&PAS TSI, version 4.0 of 16/02/2024

#### AMENDMENT RECORD:

05-03-2025: ISSUE 04: ADAPTED TO TSI LOC&PAS AND TSI NOI AMENDMENT 2023/1694

#### DESCRIPTION AND BACKGROUND EXPLANATION

To prevent information (acoustic signals) to be missed by the train driver, audible information (beeps, bells, gongs etc.) in the cab of a locomotive or multiple units needs to be louder than the ambient noise level. For that reason, the TSI LOC&PAS states:

- *TSI LOC&PAS 1302/2014 section 4.2.9.3.4: Audible information generated by onboard equipment inside the cab for the driver shall be at least 6 dB(A) above the noise level in the cab (this noise level taken as reference being measured under conditions specified in the TSI Noise).*

Railway operating companies are reluctant to accept an audible information sound level fixed at 6 dB(A) above the ambient noise level at maximum speed, because in general, this level generates very annoying noise inside the cab at lower speeds.

Railway operating companies prefer instead an audible information sound level which is dependent on the ambient noise level.

This approach is also supported by UIC 612-01 chapter 7:

*The volume chosen by the driver shall alter in correspondence with the ambient noise level. In case of automatic adjustment of the audible information, 6 dB(A) above the actual ambient noise in the cab shall be sufficient.*

The TSI text gives rise to several questions:

1. What is 'audible information'?
2. What is meant by 'noise level'?
3. How should audible information be measured?



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### RFU PROPOSAL

#### Answer to question 1:

This question has been answered in version 4.0 of the Guide for the application of the LOC&PAS TSI, namely:

*'Audible information' is all acoustical information generated by on-board equipment (e.g. a loudspeaker) intended to be handled by the driver. The LOC&PAS TSI requires information to be given to the driver in some situations, as example:*

- *seize of an axle by the wheel rotation monitoring system (point 4.2.4.6.2);*
- *one or more passenger alarms have been activated (point 4.2.5.3.2);*
- *not functioning of the passenger alarm system (point 4.2.5.3.6);*
- *emergency opening of one or more doors (point 4.2.5.5.5);*
- *warning to the driver before triggering a lack of driver's activity (point 4.2.9.3.1);*
- *notification by the fire detection system (point 4.2.10.3.2).*

*Not all these information are required to be acoustic; when they are, the requirement is:  $L_{pAFmax,signal} - L_{pAeq,T} \geq 6 \text{ dB(A)}$ .*

It is assumed that the requirement relates to acoustic information within the scope of the rolling stock subsystem.

#### Answer to question 2:

'Noise level' is interpreted as the ambient noise level ( $L_{pAeq,T}$ , with T being  $\geq 20$  seconds. It is permissible to assemble a 20 s sample from a set of shorter samples of at least 5 s duration, see EN ISO 3381:2021 section 8.6.3), the method to be used is defined in the TSI NOI. There is no relation between method and speed.

#### Answer to question 3:

The TSI NOI, point 6.2.2.4, refers to points 7 and 8 of EN ISO 3381:2021 for driver's cab interior noise. The measurement positions are defined in point 5.3.4 of this standard, namely:

- *In a driver's cab area, the seated measurement position height shall be set at  $H=0,80 \text{ m} \pm 0,05 \text{ m}$  vertically above the centroid of the unloaded seat surface and offset  $0,25 \text{ m} \pm 0,05 \text{ m}$  laterally (see Figure 7).*
- *For the warning horn test (see Figure 8 and Clause 7), the measurement shall be carried out at eight evenly spaced microphone positions in a horizontal plane at the height of a seated measurement position ( $H=0,80 \text{ m} \pm 0,05 \text{ m}$ ), at a radius of  $0,25 \text{ m} \pm 0,05 \text{ m}$ , while the external warning horn is sounding.*



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#### Proposed Method of Measurement

It is considered that the TSI requires the ambient noise (as reference point for the additional 6 dB) to be measured according to the first method at various speeds defined by the Applicant. Recommended are at top speed and 20 km/h intervals below.

The measuring method for the audible information shall be proposed by the Applicant to the satisfaction of the NoBo. This method must fulfil the TSI. It is highly recommended to take the same method as indicated for the measurement of the horn's impact ( $L_{pAFmax,signal}$  is the arithmetic mean of the 8 values measured during the individual signal duration).

#### THIS RFU WAS AGREED ON

PLENARY MEETING 073

#### THIS RFU ENTERS INTO FORCE ON

17/03/2025 (DATE OF PUBLICATION)

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

#### RFU APPLICATION IS MANDATORY STARTING FROM

05/03/2025

AT THIS DATE ANY PREVIOUS VERSIONS OF THIS RFU WILL BE WITHDRAWN.

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

PM 073 – 05/03/2025: NO COMMENTS