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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-INF-106

Issue 01

Date 02/03/2021

TITLE

PLATFORM OFFSET CALCULATION AND VERIFICATION

ORIGINATOR

RINA

Subject Related to

Commission regulation n°1299/2014
(TSI INF) as amended by Regulation
(EU) 2019/776

AMENDMENT RECORD:

DESCRIPTION AND BACKGROUND EXPLANATION

It seems clear that calculation of the platform offset shall be set on the basis of the installation limit gauge G1 including the reference profile (1620 mm) plus the extra allowances. Nevertheless, while using the EN it seems there are some doubts about the correct definition of the allowances to be added. In the following, the aspects which need some clarification are listed.

1. The minimum value of b_{qlim} at design stage has to be calculated as in clause A.2.2 of EN 15273-3, formulas A.10 and A.13. In these formulas, b_{CR} is the semi-width of the reference profile of the gauge G1, S is the additional overthrows according table C.1 and the third term takes into account the quasi-static effect (qs) and the random phenomena (Σ) as follows:

$$\begin{aligned} & \text{Max} [\Sigma'_{2,i} + K (D-D_0); \Sigma''_2; (\Sigma'_{2,a} - K l_0)] && \text{on the inside of the curve;} \\ & \text{Max} [\Sigma'_{2,a} + K (l-l_0); \Sigma''_2] && \text{on the outside of the curve.} \end{aligned}$$

Then, formulas A.10 and A.13 are equivalent to Formula 15 by taking the formulas A.12 and A.14.

For calculation of $\Sigma'_{2,i/a}$ and Σ''_2 (formulas A.8 and A.9) maintenance rules of the IM (alternatively table B.1) shall be taken into account; $\Sigma'_{2,i/a}$ is different for the inside (subscript i) and the outside (subscript a) of the curve depending on the position of the platform.

K is calculated as in formula A.11 according the section C.1.3.

2. Sometimes it is unclear whether the NoBo shall consider layout transition and the choice of the reference system adopted by the applicant, so leading to inaccurate results in the assessment.
3. It seems there is an inconsistency between the formulas A.10/A.13 (= formula 15) and the formula 48 defined in chapter 13. In formula 48 there is the extra term $\delta_{q,a}$ (calculated as in formulas 45 and 46), which is absent in formulas A.10, A.13 and 15.
4. Some problems seems to rise when calculating the term $\Sigma_{2,cin}$ of formula 48, especially when choosing the maximum value as defined in point 1 of this RFU or as defined in formula A.8 or A.9.

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5. Deviation in the design is allowed from formulas 48 and 15, but sometimes they are not well defined at design stage; this could lead to potential problems when checking the construction tolerances.

6. As built: as defined at point 4.2.9.3 of INF TSI, offset shall be within the range

$$b_{q\lim} \leq b \leq b_{q\lim} + 50 \text{ mm}$$

where b is the as-built offset. Here it seems clear that as built values have a tolerance of 0 / +50 mm relative to the structure installation limit gauge.

7. Point 7.3.2 and A.2.2.1.1 of EN 15273-3:2013 mention point 7.2.1.9 of EN 15273-1:2013 which doesn't exist.

RFU PROPOSAL

The following approach is proposed to be followed by NoBos; please note that proposals listed hereafter are not in conflict with the latest amendment A1:2016 of the standard EN 15273-3:2013 (which still does not solve the issues explained in this RFU).

1. NoBos shall be provided with the structure gauge calculation results (at least for straight section) according to clauses 6.2.4.1.(1), 6.2.4.2.(1 or 3) and 6.2.4.11.(1) of INF TSI, using the methodology of EN 15273-3:2013 as it is clarified in point 1 of this RFU. It shall be noted that the quasi-static effect (qs) could be neglected for platforms according to point 13.3.1.1 of EN 15273-3:2013.

2. Layout transition is an important aspect indeed; NoBos shall consider the layout transition as defined in point 10.2 of the EN 15273-3:2013 (this includes, for example, the sudden change of curvature and the variation of additional overthrows as defined in 10.2.1, also taking into account table F.1).

Moreover, requirements of INF TSI are given in track-based coordinates (b,h), so the NoBo shall check if that dimensions are correct. If Applicant has not provided (b,h) dimensions, assessment could be done either:

a) by re-calculation of design dimensions from (x,y) into (b,h) values and comparison with calculation results given by IM or contracting entity

or

b) by re-calculation of required dimensions from (b,h) into (x,y) values and comparison with design values.

Formulas 51-54 for such recalculation are given in point 13.3.2 of EN 15273-3:2013 (see also fig. 13). It is recommended to adopt a small tolerance in assessment (e.g. 1 mm) for rounding errors. The method used shall be noted in the assessment reports.

If the platform is in curve, the platform offset and height are recommended to be presented with x_q , y_q values, in order to detect any computing mistakes, as installation is usually made in (x,y) coordinates.



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3. This is not an inconsistency; NoBos shall take into account that Formulas A.10, A.13 and 15 are without the extra term $\delta_{q,a}$ because formula 48 put into account platform coping as well, due to structure gauge rotation along the canted track.
4. The subscript 'cin' stands for 'kinematic', so formulas A.8 to A.14 shall be used as described in point 1 of this RFU, because whole section A.2 refers to the kinematic gauge.
5. It is possible in design stage to allow some deviation 'in plus' from exact b_{qlim} values but it shall be noted that such deviation results in another range of the as-built tolerance. Exactly, if $b_{designed} = b_{qlim} + \delta_{q,a} + x$ (where x is the deviation), then as-built tolerance range **relative to the designed offset** will be described as $-x / +(50-x-\delta_{q,a})$ mm. Such deviation is not possible 'in minus' because structure installation limit gauge would be intruded.
6. As stated above, as-build tolerance **relative to the structure installation limit gauge** is $0 / +50$ mm. It shall be noted that value 0 is not enough in case of canted track, due to platform edge thickness (see figures 14 and 15 of EN 15273-3:2013) and then tolerance shall be considered as $+\delta_{q,a} / +50$ mm **relative to the structure installation limit gauge**. Alternatively, as-built offset b could be measured to the bottom edge of platform plate or at height h_{minCR} (see also above mentioned figures).
7. The reference in Point 7.3.2 and A.2.2.1.1 of EN 15273-3:2013 to point 7.2.1.9 of EN 15273-1:2013 remained erroneously from EN 15273-3:2009. The justification and further explanation were then given in point 4.2.1.9 of EN 15273-1:2009. Currently those are given in point 7.3.1.10 of EN 15273-1:2013.

THIS RFU WAS AGREED ON

PLENARY MEETING 61

THIS RFU ENTERS INTO FORCE ON

02/03/2021 (DATE OF PUBLICATION)

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

RFU APPLICATION IS MANDATORY STARTING FROM

02/03/2021

AT THIS DATE ANY PREVIOUS VERSIONS (OR, ALTERNATIVELY, VERSION XX) 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

PLENARY MEETING 61 – 25/02/2021: NO COMMENTS

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