EUROPEAN UNION AGENCY FOR RAILWAYS

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RECOMMENDATION ERA-REC-128-2
OF
THE EUROPEAN UNION AGENCY FOR RAILWAYS

on

the adoption of the revision of Commission Regulation (EU) No 1300/2014 on the technical specifications for interoperability relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility

120 Rue Marc Lefrancq | BP 20392 | FR-59307 Valenciennes Cedex
Tel. +33 (0)327 09 65 00 | era.europa.eu

THE EXECUTIVE DIRECTOR

HAVING REGARD TO 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, hereafter referred to as the 'Agency Regulation', in particular Articles 4 and 5 thereof,

HAVING REGARD TO Directive (EU) 2016/797 of the European Parliament and of the Council of 11 May 2016 on the interoperability of the rail system (Recast), hereafter referred to as the 'Interoperability Directive', in particular Articles 4 and 5 thereof,

HAVING REGARD TO 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 specifications for interoperability, hereafter referred to as the 'Delegated Decision on TSIs', in particular Articles 3 and 10 thereof,

Whereas

1. In accordance with Article 5 of the Agency Regulation, a working party has been established for making a proposal for a recommendation as regards the revision of the TSI relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility (PRM TSI) according to the lnteroperability Directive and Delegated Decision on TSIs.

2. This working party has completed its work in December 2019, and as a result, the Agency has finalized the corresponding proposed amendments to the PRM TSI.

3. A consultation of the social partners and rail customers, as provided for in Articles 6 and 7 of the Agency Regulation, has been carried out.

4. An impact assessment in accordance with Article 5 of the Interoperability Directive has been carried out during the revision of the PRM TSI. The proposed amendments are covered by that impact assessment.

HAS ADOPTED the following recommendation:

1. The TSl relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility should be revised as set out in Annex of this recommendation.

2. The following considerations should be taken into account when adopting the revised TSI:

    a. Due to the difficulty to have them assessed at constituent level, the dynamic displays are no longer interoperability constituents in the proposal. However, there are displays on the market that have a valid 'EC' declaration of conformity. The Agency recommends to include in the enacting part of the revised TSI a statement that those displays can be used until the end of validity of their certificate and that, in such case, they should not be assessed at subsystem level.

    b. Given that no specific new competence is required for the assessment of conformityof interoperability constituents or the verification of subsystems, the Agency recommends to

include in the enacting part of the revised TSI a statement that notified bodies notified for Commission Regulation (EU) 1300/2014 remain notified for the current revision.

3. The revised TSI as set out in Annex of this recommendation is an intermediate evolution that should be adopted as soon as the common priorities and criteria mentioned in Article 8(7) of Commission Regulation (EU) 1300/2014 have been included.

4. The Agency recommends to launch an analysis of possible improvements for a more ambitious future revision at a 5 to 7 years horizon, in particular regarding the following points:

   a. Platform/train interface: passengers express the need for more harmonisation in platform heights as being the only solution to provide level access to the rolling stock on a large scale.

   b. Modular approach to the design and the assessment of the passengers areas: possibility for wheelchair users and other persons with disabilities to travel in groups, improved 'universal toilet', possibility of choice between 1st and 2nd class, foot rest for persons of short stature, space for guide dogs, guiding of passengers inside the train, etc.

   c. Design for all approach to accessibility to benefit wider diversity of passengers (e.g. persons with disabilities, persons with (temporary) reduced mobility, older persons, etc.).

This recommendation is addressed to the European Commission.

Valenciennes, 14/04/2020

Josef DOPPELBAUER
Executive Director

Annex: Proposal for the revision of the Annex to Regulation (EU) 1300/2014

ANNEX

The Annex to Regulation (EU) 1300/2014 is modified as follows:

(1) In section 2.1.2, the following note is inserted:

Note: Persons accompanying a transport of freight may not be considered as passengers; in such case, the railway undertaking shall indicate the conditions of use of the transport at least on its official website. This TSI does not apply to rolling stock intended to carry such persons.

(2) In section 2.3, the following definition is inserted:

"Interoperable wheelchair transportable by train

An interoperable wheelchair transportable by train is a wheelchair the characteristics of which permit the full usage of all features of a rolling stock designed for wheelchair users. The characteristics of an interoperable wheelchair transportable by train are within the limits specified in appendix M".

(3) In sections 3, 4.1, 5.1, 5.3, 6.1.1, 6.2.1 and 6.2.5, the references to the Directive 2008/57/EC are replaced by references to the Directive (EU) 2016/797.

(4) The Table 3 is replaced by the table as follows:

Table 3

Categories of basic parameters

Basic Parameter	Technical details provided	Functional requirement only
Parking facilities for persons with disabilities and persons with reduced mobility		Complete point 4.2.1.1
Obstacle-free route	Location of the routes Width of the obstacle-free route Threshold Double handrails Type of lift Height of braille signs	Detailed characteristics
Doors and entrances	4.2.1.3 (2): Door width 4.2.1.3 (4): Height of door operating device	4.2.1.3 (1) 4.2.1.3 (3)

Floor surfaces	4.2.1.4 (2): Floor irregularities	4.2.1.4 (1): Slip resistance
Highlighting of transparent obstacles		Complete point 4.2.1.5
Toilets and baby nappy changing facilities		Complete point 4.2.1.6
Furniture and free-standing devices		Complete point 4.2.1.7
Ticketing, Information desks and Customer Assistance points	4.2.1.8 (5): Passageway for ticket control machines	4.2.1.8 (1) — (4) 4.2.1.8 (6)
Lighting	4.2.1.9 (3): Lighting on platforms	4.2.1.9 (1), 4.2.1.9 (2), 4.2.1.9 (4): Lighting in other locations
Visual information: signposting, pictograms, printed or dynamic information	Detail of information to be provided Location of information	Detailed characteristics of visual information
Spoken information	Complete point 4.2.1.11	
Platform width and edge of platform	4.2.1.12 (2) to (5) 4.2.1.12 (6) to (9): Presence of the items	4.2.1.12 (1) 4.2.1.12 (6) to (9): Characteristics of contrast and of visual and tactile markings
End of platform	4.2.1.13: Presence of the items	4.2.1.13: Characteristics of contrast and of visual and tactile markings
Boarding aids stored on platforms	Complete point 4.2.1.14	
Passenger track level crossing at stations	Complete point 4.2.1.15	

(5) In section 4.2.1.2, the point (2) is replaced by

(2) All obstacle-free routes, footbridges and subways, shall have a free width of a minimum of 160 cm except in areas that are specified in points 4.2.1.2.2(3a) (ramps), 4.2.1.3(2) (doors), 4.2.1.12(3) (platforms) and 4.2.1.15(2) (level crossings)).

(6) In section 4.2.1.2.1, the point (1) is replaced by

(1) Not used

(7) Section 4.2.1.2.2 is modified as follows:

a. the point (2) is replaced by “Steps and stairs on the obstacle-free routes shall have a minimum width of 160 cm measured between the handrails”.

b. the following points are inserted:

(2a) As a minimum the first and last steps of a flight of stairs shall be indicated by a contrasting band. This requirement shall apply from a single step.

(2b) As a minimum tactile warning surface indicators shall be installed before the first descending step of staircases of three steps or more.

(3a) When they are used as a complement to stairs, ramps may have a width of 120cm.

c. in the point (4), the term ‘stairs’ is replaced by ‘stairs of three steps or more’.

(8) In section 4.2.1.2.3, the following points are inserted:

(2a) If more than one facility of a certain type of public area are provided, the route to at least one of them shall be indicated by tactile and contrasting walking surface indicators.

(2b) Tactile walking surface indicators can be omitted when the route is indicated unambiguously by built or natural elements, such as edges and surfaces that can be followed tactually and visually.

(9) In section 4.2.1.2.3, the point (4) is modified as follows:

(4) If there are handrails or walls within reach along the obstacle-free route to the platform, they shall have brief information (for example platform-number or direction-information). The information shall be in Braille or prismatic-letters or numbers. The information shall be located on the handrail, or on the wall at a height between 145 cm and 165 cm.

(10) In section 4.2.1.6. point (2) is modified as follows:

(2) If baby nappy changing facilities are provided at a station, then a minimum of one baby nappy changing facility shall be accessible to wheelchair users both men and women.

(11) Section 4.2.1.8 is modified as follows

a. In point (1), the terms “along the obstacle-free route” are deleted

b. In point (4), the terms “on an obstacle free route” are deleted and the following sentence is inserted: “This requirement applies to each ticket vendor providing vending machines in the station.”

(12) Section 4.2.1.10 is modified as follows:

a. In point (4), the terms '"maximum" and "this requirement applies to printed and dynamic information whatever is provided" are deleted

b. Point (13) is modified as follows:

(13) Displays shall be sized to show individual station names (which may be abbreviated) or words of messages. Each station name, or words of messages, shall be displayed for a minimum of 2 seconds. The term 'display' shall be understood as any support of dynamic information.

c. The following points are inserted:

(14) If a scrolling display is used (either horizontal or vertical), each complete word shall be displayed for a minimum of 2 seconds and the horizontal scrolling speed shall not exceed 6 characters per second.

(15) Displays shall be designed for a maximum viewing distance according to the following formula:

Reading distance in mm divided by 250 = character height (for example: 10 000 mm/250 = 40 mm).

(13) In section 4.2.1.12, the point (5) is replaced by "Not used".

(14) In section 4.2.1.15, in point (1) the terms "in stations" are deleted.

(15) In section 4.2.2.1.1, the following terms are inserted at the end of the point:

These items shall be provided at the aisle side of the seat.

(16) In all section 4.2.2.1.2, references to figures H1 to H4 from Appendix H are replaced by references to "the specification referenced in Appendix A, index 15".

(17) In section 4.2.2.1.2.1 the following sentence is inserted in point (2):

This identification is not required for units intended to be operated exclusively within a seat reservation system: this shall be reported in the technical documentation requested in point 4.2.12 of the LOC&PAS TSI.

(18) Section 4.2.2.2 is modified as follows:

a. In point (4), references to figures I1 to I3 from Appendix I are replaced by references to “the specification referenced in Appendix A, index 15”.

b. In point (8), the terms “It is not allowed to install any permanent” are replaced by “There shall be no” and the term “into” is replaced by “in”.

c. In point (9), the terms “adjacent to or facing” are replaced by “side-by-side with or face-to-face”

d. In point (12) the reference to figures L1 from Appendix I is replaced by a reference to “the specification referenced in Appendix A, index 15”

(19) In section 4.2.2.3.2, the points (7) to (12) are replaced by:

(7) Audible and visible signals shall be given to persons inside and outside the train when doors are operated or about to operate.

(8) The door operating signals are:

- When a door is released for opening, a door opening signal shall be given; it shall last a minimum of 5 seconds unless the door is operated, in which case it may cease after 3 seconds;
- When a door is automatically or remotely opened by the driver or other member of the train crew, a door opening signal shall be given; it shall last a minimum of 3 seconds from the moment that the door starts to open;
- When a door, that is automatically or remotely closed, is about to operate, a door closing signal shall be given; it shall start a minimum of 2 seconds before the door starts to close and shall continue until the door is closed;
- When a door is closed locally (by a passenger or crew), a door closing signal shall be given; it shall start following the operation of the control device and shall continue until the door is closed;
- The audible and visible door closing signals can be omitted when a door is closing for reasons other than departure if alternative means are in place to mitigate the risk of injury to the passengers and the train crew. The provision of audible and visible door closing signals or of the alternative means shall be equally accepted in all Member States.

(9) The audible door opening signal for persons outside the train can be omitted when a door finding signal is provided. A door finding signal shall sound continuously whilst the door is released and/or available to be opened.

(10) The sound source for door signals:

- Shall be in the area local to the control device.
- If there is no control device, the sound source for door signals shall be located adjacent to the doorway.
- If a separate sound source is used for the door closing signal, it can be either local to the control device or adjacent to the doorway.

- If an external door finding signal is provided, its sound source shall be located in the area local to the control device, and the sound source for the door closing signal shall be located in the area adjacent to the doorway.

(11) The visible signals shall be visible from inside and outside the train and shall be located such that they minimise the opportunity for them to be obscured by passengers located in the vestibule. Visible signals shall be according to the specification referenced in appendix A, index 11.

(12) Passenger doors audible signals shall be according to the specification in appendix G.

(20) In section 4.2.2.4, the terms “point 4.1.2 of” are deleted

(21) Section 4.2.2.6 is modified as follows:

a. In point (1), the terms “as follows” are replaced by “according to the specification referenced in Appendix A, index 16” and the terms “according to figure J1 of Appendix J”, “according to figure J2 of Appendix J” and “according to figure J3 of Appendix J” are deleted.

b. In point (4), the terms “or a corridor and a door” are inserted after “both corridors” and the reference to table K1 of Appendix K is replaced by a reference to “the specification referenced in Appendix A, index 16

(22) In section 4.2.2.7.1, the terms “according to (1)” are inserted in point (2) after information and in point (3) after texts.

(23) Section 4.2.2.7.3 is modified as follows:

a. Point (5) is replaced by: “The dynamic visual information system shall have the capability to display the next stop of the train at least two minutes before arrival at the station concerned. If the next station is less than two minutes planned journey time away, the system shall have the capability to display the next station immediately following departure from the previous station”.

b. Point (7) is replaced by: “The dynamic visual information system may display information about the next stop on the same support as the final destination”.

c. Point (9) is replaced by “Internal and external displays shall comply with the requirements of points (10) to (13). In these points, the term ‘display’ shall be understood as any support of dynamic information”.

d. The following points are inserted:

(10) Each station name (which may be abbreviated), or words of messages, shall be displayed for a minimum of 2 seconds.

(11) If a scrolling display is used (either horizontal or vertical), each complete word shall be displayed for a minimum of 2 seconds and the horizontal scrolling speed shall not exceed an average of 6 characters per second.

(12) On external displays the minimum character height shall be 70 mm on front displays and 35 mm on side displays.

(13) Internal displays shall be designed for a maximum viewing distance according to the following formula:

Table 5a

Maximum viewing distance of the internal displays for rolling stock

Reading distance	Character height
< 8 750 mm	(reading distance/250) mm
8 750 to 10 000 mm	35 mm
> 10 000 mm	(reading distance/285) mm

(24) In section 4.2.2.11. the point (3) is replaced by:

(3) The technical documentation requested in point 4.2.12 of the LOC&PAS TSI shall include information about:

- the height and offset of the theoretical platform resulting in a vertical gap (δv+) of 230 mm and in a horizontal gap (δh) of 200 mm from the point situated in the central position of the nose of the rolling stock's lowest step on a straight level track.
- the height and offset of the theoretical platform resulting in a vertical gap (δv-) of 160 mm and in a horizontal gap (δh) of 200 mm from the point situated in the central position of the nose of the rolling stock's lowest step on a straight level track.

(25) In section 4.2.2.11.2, point (7), the terms “of the vehicle” are deleted.

(26) In section 4.2.2.12.1, the point (3) is replaced by “Not used”.

(27) In section 4.2.2.12.3, point (1), the terms “into the doorway of a vehicle” are replaced by “in the doorway area of a vehicle”.

(28) The table 11 is replaced as follows:

Interface with the rolling stock subsystem

Interface with the rolling stock subsystem			
PRM TSI		**LOC&PAS TSI**	
Parameter	**Point**	**Parameter**	**Point**
Rolling Stock subsystem	4.2.2	Passenger related items	4.2.5

Rolling Stock intended to be operated exclusively within a seat reservation system	4.2.2.1.2.1	General documentation	4.2.12.2
Height and offset of theoretical platforms	4.2.2.11.1	General documentation	4.2.12.2
Movable step and bridging plate	4.2.2.12.1	Door-traction interlock	4.2.5.5.7

(29) In section 4.4, the following sentence is inserted:" The following operating rules apply to the operation of the whole infrastructure and rolling stock subsystems".

(30) Section 4.4.1 is modified as follows:

a. The terms "The infrastructure manager or station manager" are replaced by "The infrastructure manager, station manager or railway undertaking"

b. The terms "- Station Accessibility
Operating rules shall be made to ensure that information regarding the level of accessibility of all stations is available" are deleted.

(31) Section 4.4.2 is modified as follows:

a. The reference to point 4.2.2.1.2 is replaced by a reference to point 4.2.2.1.2.1(2).

b. The following text is inserted before the section entitled "Audible safety instructions in case of emergency":

Lighting

When every passenger seat is equipped with an individual light, it is permitted to reduce the lighting level in the vehicle according to the type of operation (e.g. night service, passenger comfort). The requirements of the specification referenced in appendix A, index 6, shall be met.

c. In the section "Rules for announcement of the final destination and the next stop", the text "2 minutes prior to the event (refer to point 4.2.2.7)" is replaced by "2 minutes prior to the event and that the dynamic information displays revert to show the final destination as soon as the train has stopped (refer to point 4.2.2.7)".

d. The following text is inserted at the end of the section:

Providing services on-board trains

When a service is provided to passengers in a specific area of a train that can't be accessed by wheelchair users, operational means shall be in place to ensure that:

- free of charge assistance is available to assist wheelchair users reach the service or

- the service is delivered free of charge to wheelchair users at the wheelchair spaces unless the nature of the service makes it impossible to provide it remotely.

(32) Section 4.4.3 is modified as follows:

a. The text “Such agreements shall take into consideration the area of use of boarding aids defined in points 5.3.1.2, 5.3.1.3, 5.3.2.9 and 5.3.2.10” is inserted before “Such agreements shall define”

b. The bullet point “for boarding aids located on the platforms, the location where they are most likely to be used, taking into account that a free space (no obstacles) of 150 cm is available from the edge of the boarding aid towards the direction where the wheelchair boards/lands at/to the platform level” is inserted before the bullet point “the conditions for the provision of alternative transport”

(33) Section 4.8 is deleted

(34) In section 5.1, the text “The concept of a ‘constituent’ covers both tangible objects and intangible objects such as software” is replaced by “including both tangible objects and intangible objects”

(35) Section 5.3.1.1 is replaced by“Not used”

(36) In section 5.3.1.2, the term “18 %” is replaced by “18.% (10.2°)” and the terms “shall have an effective clear width of” are replaced by “shall have a stable position with an effective clear width of”.

(37) In section 5.3.1.3, the terms “shall have a minimum width of” are replaced by “shall have a stable position with a minimum width of”.

(38) In section 5.3.2.2, the following text is inserted:

(7) Door controls shall comply with the specifications of point 5.3.2.1.

(8) If both open and closed door control devices are fitted one above the other, the top device shall always be the open control.

(9) Automatic and semi-automatic doors shall incorporate devices that prevent passengers becoming trapped during operation of the doors.

(10) The force required to open or close a manual door shall not exceed 60 N.

(39) In section 5.3.2.6, the point (1) is replaced by:

(1) be indicated by a sign having a yellow background contrasting with a black symbol (according to the specification referenced in appendix A, index 10). The symbol shall

represent a bell or a telephone. The sign can be on the button or bezel or on a separate pictogram;

(40) Section 5.3.2.7 is replaced by “Not used”

(41) In section 5.3.2.9, the term “18 %” is replaced by “18.% (10.2°)”

(42) In Table 15, the lines “5.3.1.1 Displays” and “5.3.2.7 Internal and external displays” are deleted

(43) In section 6.2.1, the following text is inserted before the last paragraph:

For the infrastructure subsystem, the objective of inspection by a notified body is to ensure that the requirements of the TSI are fulfilled. The inspection is performed as a visual examination; in case of doubt, for the values verification, the notified body can ask the applicant to perform measurements. In case different methods are possible (e.g. for contrast), the measurement method shall be the one used by the applicant.

(44) The following section is inserted

6.2.3.3. Assessment of contrast for the rolling stock subsystem

Assessment of contrast for the rolling stock subsystem shall be performed according to the specification referenced in Appendix A, index 18.

(45) In section 6.2.6, the reference to the Directive 2004/49/EC are replaced by references to the Directive (EU) 2016/798.

(46) In section 6.2.7, the terms “authorisation to be placed in service” are replaced by “authorisation to be placed on the market”.

(47) In section 7.1.2, the terms “authorisation to be placed in service” are replaced by “authorisation to be placed on the market” and the following paragraph is inserted:

For those rolling stock projects, where an earlier version of the TSI will have to be applied, it is permissible (but not mandatory) to use the revised version, either totally or for particular sections; in case of application limited to particular sections, the applicant has to justify and document that applicable requirements remain consistent, and this has to be assessed by the notified body.

(48) In section 7.2.3, the terms “the conformity with this TSI, for those parts that are renewed or upgraded, shall be as described in appendix F” are replaced by “conformity with this TSI is required for those parts that are renewed or upgraded and shall be as described in appendix F”.

(49) Section 7.3.2.6 is modified as follows:

a. The section “Specific Case Spain ‘P’ for the 1 668 mm gauge network” is replaced by:

Specific Case Spain ‘P’

For rolling stock intended to run on 1 435 mm track gauge, the values of bq_0, δ_h, δ_{v+} and δ_{v-} shall be the ones defined in point 4.2.2.11.1, Table 7 and Table 8.

For rolling stock intended to run on 1 668 mm track gauge, the position of the first useable access step will fit to the dimensions given in Table 23 and Table 24, depending on the platform height and line structure gauge, as defined in chapter 7.7.15.1 of Infrastructure TSI (Regulation 1299/2014):

Table 23

Specific case for Spain — values of δ_h, δ_{v+} and δ_{v-} and bq_0 on a straight level track with 1 668 mm track gauge

On a straight level track					
Step position		Line structure gauge			
		Gauge GEC16 or GEB16	Gauge GHE16		Three-rails track (1)
			Platform height 760 or 680 mm	Platform height 550 mm	
δ_h mm	1435/1668 mm variable track gauge vehicles	275	275	255	316,5
	1668 mm track gauge vehicles	200	200	200	241,5
δ_{v+} mm		230			
δ_{v-} mm		160			
b_{q0} mm		1 725	1 725	1 705	1 766,5

Table 24

Specific case for Spain — values of δ_h, δ_{v+} and δ_{v-} and b^q_0 on a track with a curve radius of 300 m with 1 668 mm track gauge

On a track with a curve radius of 300 m					
Step position		Line structure gauge			
		Gauge GEC16 or GEB16	Gauge GHE16		Three-rails track (note 1)
			Platform height 760 or 680 mm	Platform height 550 mm	
δ_h mm	1435/1668 mm variable	365	365	345	406,5

	track gauge vehicles				
	1668 mm track gauge vehicles	290	290	290	331,5
δ_{v+} mm		230			
δ_{v-} mm		160			
b_{q0} mm		1 737,5	1 737,5	1 717,5	1 779

Note 1: these values shall be applied where the shared rail is located in the closest position to the platform. If the shared rail is in the farthest position from the platform, the position of the first useable step will fit to the appropriate dimensions depending on the line structure gauge and the platform height, as defined in the lines corresponding to the 1 668 mm track gauge case with two rails.

b. The text is the section “Specific Case United Kingdom ‘P’ for all rolling stock intended to stop, in normal operation at platforms of nominal 915 mm height” is replaced by:

Passenger access steps for the vehicle shall be designed to meet the requirements as set out in the National Technical Rules notified for this purpose.

(50) The following sections are inserted:

7.3.2.7. Provision of boarding aids and provision of assistance (point 4.4.3)

Specific Case Spain ‘P’

In the Spanish network, it is possible to operate trains with a design gauge narrower than the structure gauge considered for the installation of platforms (see Note). This situation might cause a wider horizontal gap between train and platform. Therefore, the Railway Undertaking and the Infrastructure Manager or Station Manager involved shall perform a shared risk management, in the following cases:

- For rolling stock intended to operate on 1 668 mm track gauge lines, when the nose of the access step is located outside the area defined in Table 23 for δ_h = 200 mm and in Table 24 for δ_h = 290 mm.
- For rolling stock intended to operate on 1 435 mm track gauge on three-rails lines, when the shared rail is in the farthest position from the platform.

Note: a vehicle gauge is narrower than a structure gauge if the semi-width of the reference kinematic profile of the vehicle gauge, measured at platform level, is smaller than the semi-width of the reference kinematic profile of the structure gauge.

7.3.2.7. Obstacle free route identification (point 4.2.1.2.3)

Specific Case France ‘T’

Tactile and contrasted walking surface indicators may be omitted in small stations for the provision of information on the obstacle-free route when remotely controlled audible beacons are provided.

(51) Appendix A is updated as follows:

	TSI		Normative document	
Index	**Characteristics to be assessed**	**Point of this TSI**	**Document N°**	**Mandatory provisions**
1	Dimensions of the lifts	4.2.1.2.2	EN 81-70:2018	Point 5.3.1, table 3
	Tactile signage	4.2.1.10	EN 16584:2-2017	5.2.5
2	Design of escalators and moving walks	4.2.1.2.2	EN 115-1:2017	5.4.1.2.2, 5.4.1.2.3 5.2.2
3	Lighting on platforms	4.2.1.9	EN 12464-2:2014	Table 5.12, except points 5.12.16 and 5.12.19
4	Lighting on platforms	4.2.1.9	EN 12464-1:2011	Point 5.53.1
5	Speech transmission index, stations and rolling stock	4.2.1.11 4.2.2.7.4	EN 60268-16:2011	Annex B
6	Lighting in rolling stock	4.2.2.4	EN 13272:2012	Point 4.1.2
		4.4.2	Note: prEN 13272-1:201X under approval	Point 4.1.6 & 4.1.7
7	Safety, warning, mandatory action and prohibition signs	4.2.2.7.2	ISO 3864-1:2011	All
8	Calculation of bq_0	4.2.2.11.1	EN 15273-1:2013 Note: prEN 15273-1 revision under approval	Point H.2.2
9	Assessment of the Universal Toilet Module	6.1.3.1	EN 16585-1:2017	Chapter 6
10	Definition of colours	5.3.2.6	ISO 3864-1:2011 ISO 3864-4:2011	Chapter 11
11	Boarding device mechanical strength Obstacle detection	5.3.2.8 5.3.2.8	EN 14752:2015	Point 4.2.2 Point 5.4
	Door visible signals	4.2.2.3.2 (11)	EN 16584-2:2017	5.3.3.2 (g) and (h)

12	Symbol for sign which identify wheelchair accessible areas	Appendix N N.3	ISO 7000:2004 ISO 7001:2007	Symbol 0100 symbol PIPF 006
13	Symbol for sign indicating inductive loops	Appendix N N.3	ETSI EN 301 462 (2000-03)	4.3.1.2
14	Specific case for Finland	7.3.2.6	EN 15273-2:2013 Note: prEN 15273-2 revision under approval	Annex F
15	Diagrams of priority seats	4.2.2.1.2.1	EN 16585-2:2017	Annex A
	Unidirectional seats	4.2.2.1.2.2		Figure A.2
	Diagrams of wheelchair spaces	4.2.2.2		Figures B1, B2, B3
		Appendix F		Figure 4
16	Clearway through the vehicles	4.2.2.6	EN 16585-3:2017	Figure 2
	Clearway between connecting vehicles of a single trainset,			Figure 3
	Clearway to and from wheelchair accessible areas			Figure 5
	Corridor widths for a change of direction			Table 3
17	Comfortable reach range of a person using a wheelchair	4.2.2.2	EN 16585-1:2017	Figure B.2
18	Assessment of contrast for the rolling stock subsystem	6.2.3.3	EN 16584-1:2017	Annex A, paragraph A.1

(52) The text in Appendix B is replaced by “Not used”

(53) The text in Appendix C is replaced by “Not used”

(54) In Table D.1, the lines “5.3.1.1 Displays” and “5.3.2.7 Internal and external displays” are deleted

(55) Table E.1 is replaced as follows:

Table E.1

Assessment of the infrastructure subsystem (constructed and supplied as single entity)

1	2	3

Characteristics to be assessed	Design and development phase	Construction phase
	Design review and/or design examination	Inspection
Parking facilities for persons with disabilities and persons with reduced mobility	X	X
Obstacle-free routes	X	X
Route identification	X	X
Doors and entrances	X	X
Floor surfaces	X	X
Transparent obstacles	X	X
Toilets	X	X
Furniture and free-standing devices	X	X
Ticketing/Counter or vending machine/Information counter/Ticket control machine/Turnstiles/Customer Assistance points	X	X
Lighting	X	X
Visual information: signposting, pictograms, dynamic information	X	X
Spoken information	X	X
Platform width and edge of platform	X	X
End of platform	X	X
Level track crossing at stations	X	X

(56) Appendix F is modified as follows:

a. The terms “Where rolling stock is renewed or upgraded, it shall comply with” are replaced by “Where parts of a rolling stock are renewed or upgraded, they shall comply with”

b. In the section entitled “Wheelchair spaces”, the reference to Appendix I, figure I4 is replaced by a reference to the specification referenced in Appendix A, index 15.

(57) Appendix G is modified as follows:

a. In all occurrences, the terms “audible warnings” are replaced by “audible signals”

b. The terms “G.1. Door opening and closing signals “ are inserted after the title

c. The terms “Door opening— Characteristics” are replaced by “Door opening signal — Characteristics”

d. The terms “Door close — Characteristics” are replaced by “Door closing signal — Characteristics”

e. The following text is inserted at the end of the appendix:

G.2. Door finding signals

The door finding signal can be a single tone signal (according to point G.2.2) or a double tone signal (according to point G.2.3). Both signal types shall be equally accepted in all Member States.

Characteristics

1.1.1. G.2.1 Definition

f_{signal} = frequency of excitation tone

L_S = signal level measured as an energy equivalent level of 30 s (L_{eq30})

L_N = noise level measured as follows:

a.) frequency range: energetic sum of three third octave bands

b.) $$L_N = \sum\left(10^{\frac{L_1}{10}} + 10^{\frac{L_2}{10}} + 10^{\frac{L_3}{10}}\right) L_N = \sum\left(10^{\frac{L_1}{10}} + 10^{\frac{L_2}{10}} + 10^{\frac{L_3}{10}}\right)$$

$L_1 = L_{\text{third oct.500 Hz}}$

$L_2 = L_{\text{third oct.630 Hz}}$

$L_3 = L_{\text{third oct.800 Hz}}$

c.) time weighting: sliding measurement using time constant either

- analogue “S” = “slow” (according to EN 61672) or
- digital, rectangular window shape, min. 500 ms

1.1.2. G.2.2 Single Tone Signal

Interval of tone (rectangle), none fade in and fade out

- signal impulse duration = 5 ms ± 1 ms “on” (pure tone impulse)
- signal repetition frequency = 4 Hz ± 1Hz

Frequency of signal tone:

- f_{signal} = 630 Hz ± 50 Hz

Signal level adaptive device

- $L_S \geq L_N$ - 5 dB
- L_{Smin} = 45 dB
- L_{Smax} = 65 dB

Signal level non adaptive device

- L_S = 60 dB

1.1.3. *G.2.3 Dual Tone Signal*

Frequency of signal tones:

- $f_{signal1}$ = 550 Hz ± 50 Hz
- $f_{signal2}$ = 750 Hz ± 50 Hz

Interval of tones (signal definition)

- 100 ms fade in
- 100 ms sound first tone 550 Hz ± 50 Hz
- 100 ms fade out
- 200 ms off
- 100 ms fade in
- 100 ms sound second tone 750 Hz ± 50 Hz
- 100 ms fade out
- 900 ms off
- signal repetition time = 1 700 ms

Signal level adaptive device

- $L_S \geq L_N + 5$ dB
- L_{Smin} = 55 dB
- L_{Smax} = 75 dB

Signal level non adaptive device

- L_S = 70 dB

1.1.4. *Measuring Positions*

Signal level Ls

- measuring position = 1.5 m in front of the door
- measuring height = 1.5 m above platform level

Background noise level LN

- measuring position = max 1.0 m distance to door opening and outside the door
- microphone characteristics = omnidirectional

(58) The content of Appendix H is replaced by “Not used”

(59) The content of Appendix I is replaced by “Not used”

(60) The content of Appendix J is replaced by “Not used”

(61) The content of Appendix K is replaced by “Not used”

(62) The content of Appendix L is replaced by “Not used”

(63) Appendix M is modified as follows:

a. In the title, the term “Interoperable” is inserted before wheelchair,

b. Section M1 is modified as follows:

This appendix identifies the maximum engineering limits for an interoperable wheelchair transportable by train. These limits are used for designing and assessing the rolling stock (architecture, structure, layout) and its components (access doors, internal doors, seats, toilets etc.). When the characteristics of a wheelchair exceed these limits, the conditions of use of the rolling stock might be degraded for the user (for instance no access to the wheelchair areas). Exceeding some limits may prevent the user to access the rolling stock. Those limits are defined by each railway undertaking as specified in the point 4.2.6.1 of the TAP TSI.

c. In section M2, the terms “minimum technical requirements” are replaced by “values considered as engineering limits”,

d. The height “1 375 mm max” is replaced by “1 450mm”

e. The term “10°” is replaced by “10° (17%)”, the term “6 degrees” is replaced by “6° (10%)” and the term “9 degrees” is replaced by “9° (16%)”

(64) Appendix N is modified as follows:

a. In section N.3, the following sentences are deleted: “The signs provided for in point 4.2.1.10 shall have a dark blue background and a white symbol. Dark blue shall have a contrast of 0,6 relatively to white. Where thoseThe following text is inserted:

“N.4 COLOR OF SIGNS

The specific signage referred to in this appendix shall be white on a dark blue background. Where signs are placed on a dark blue panel, it is allowed to invert the colours of the symbol and the background (i.e. dark blue symbol on a white background).”