



Brussels, **XXX**  
PRM  
[...] (2022) **XXX** draft

ANNEX 3

**ANNEX**

**to the**

**Commission Implementing Regulation**

**amending Commission Regulations: (EU) No 321/2013, No 1299/2014, No 1300/2014,  
No 1301/2014, No 1302/2014, No 1304/2014 and Commission Implementing  
Regulation (EU) 2019/777**

## ANNEX III

The Annex to Regulation (EU) No 1300/2014 is amended as follows:

- (1) point 2.1.2 is replaced by the following:

“2.1.2. Scope related to rolling stock subsystem

This TSI applies to rolling stock which is in the scope of the Annex to Regulation (EU) No 1302/2014 (LOC&PAS TSI) and which is intended to carry passengers.

This TSI does not apply to rolling stock intended for other purposes than the carriage of persons. Persons accompanying a freight train or riding on other rail vehicles than those intended for passengers shall be subject to conditions set up by the railway undertaking and published on its website.”;

- (2) in point 2.3, the following definition is added:

“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 rolling stock designed for wheelchair users. The characteristics of an interoperable wheelchair transportable by train are within the limits specified in Appendix M.”;

- (3) Chapter 3 is amended as follows:

- (a) the first paragraph is replaced by the following:

“The following tables indicate the essential requirements, as set out in Annex III to Directive (EU) 2016/797 of the European Parliament and of the Council\*, that are met by the specifications set out in Chapter 4 of this TSI for the scope of this TSI.

---

\* Directive (EU) 2016/797 of the European Parliament and of the Council of 11 May 2016 on the interoperability of the rail system within the European Union (OJ L 138, 26.5.2016, p. 44).”;

- (b) in Table 1, in the first row of the heading, “Directive 2008/57/EC” is replaced by “Directive (EU) 2016/797”;

- (c) in Table 2, in the first row of the heading, “Directive 2008/57/EC” is replaced by “Directive (EU) 2016/797”;

- (4) in point 4.1(1), “Directive 2008/57/EC” is replaced by “Directive (EU) 2016/797”;

- (5) in point 4.1(3), the second sentence is replaced by the following:

“The operational requirements and responsibilities are set out in Commission Implementing Regulation (EU) 2019/773\* (OPE TSI) and in point 4.4 of this TSI.

---

\* Commission Implementing Regulation (EU) 2019/773 of 16 May 2019 on the technical specification for interoperability relating to the operation and traffic management subsystem of the rail system within the European Union and repealing Decision 2012/757/EU (OJ L 139I 27.5.2019, p. 5).”;

(6) in point 4.2.1, Table 3 is replaced by the following:

*“Table 3*

**Categories of basic parameters**

<b>Basic Parameter</b>	<b>Technical details provided</b>	<b>Functional requirement only</b>
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) to (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	

”;

(7) in point 4.2.1.2, point (2) is replaced by the following:

“(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).”;

(8) in point 4.2.1.2.1, point (1) is deleted;

(9) point 4.2.1.2.2. is replaced by the following:

“4.2.1.2.2. Vertical circulation

(1) Where an obstacle-free route includes a change in level, there shall be a step-free route providing an alternative to stairs for mobility impaired people.

(2) Steps and stairs on the obstacle-free routes shall have a minimum width of 160 cm measured between the handrails

(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.

(3) Ramps shall be installed for persons with disabilities and persons with reduced mobility unable to use stairs where lifts are not provided. They shall have a moderate gradient. A steep gradient is allowed for ramps on short distances only.

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

(4) Stairs of three steps or more and ramps shall be provided with handrails on both sides and at two levels.

(5) Lifts shall be provided where ramps are not available and shall be at least of type 2 in accordance with the specification referenced in Appendix A, Index [1]. Type 1 lifts are allowed in the case of stations being renewed or upgraded only.

(6) Escalators and moving walks shall be designed in accordance with the specification referenced in Appendix A, Index [2].

(7) Level track crossings can form part of an obstacle-free route when they comply with the requirements of point 4.2.1.15.”;

- (10) point 4.2.1.2.3 is replaced by the following:  
“4.2.1.2.3. Route identification
- (1) Obstacle-free routes shall be clearly identified by visual information as detailed in point 4.2.1.10.
- (2) Information on the obstacle-free route shall be given to visually impaired people by a walking surface that has tactile and contrasting indicators as a minimum. This point does not apply to obstacle free routes to and from car parks.
- (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.
- (3) Technical solutions using remotely controlled audible devices or telephone applications are permitted to be used in addition or as an alternative. When they are intended to be used as an alternative, they shall be treated as innovative solutions.
- (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.”;
- (11) in point 4.2.1.6, point (2) is replaced by the following:  
“(2) If baby nappy changing facilities are provided at a station, then a minimum of one baby nappy changing facility shall be accessible to both men and women wheelchair users.”;
- (12) point 4.2.1.8 is amended as follows:
- (a) point (1) is replaced by the following:  
“(1) Where manual ticket sales counters, information desks and customer assistance points are provided, a minimum of one desk shall be accessible to a wheelchair user and to people of small stature and a minimum of one desk shall be fitted with an induction loop system for hearing assistance.”;
- (b) point (4) is replaced by the following:  
“(4) Where ticket vending machines are provided at a station, a minimum of one of those machines shall have an interface that is reachable by a wheelchair user and people of small stature. This requirement applies to each ticket vendor providing vending machines in the station.”;
- (13) in point 4.2.1.9, point (3) is replaced by the following:  
“(3) The platforms shall be illuminated in accordance with the specification referenced in Appendix A, Index [3] and Index [4].”;
- (14) point 4.2.1.10 is replaced by the following:  
“4.2.1.10. Visual information: signposting, pictograms, printed or dynamic information
- (1) The following information shall be provided:
- Safety Information and Safety Instructions.

- Warning, prohibition and mandatory actions signs.
- Information concerning the departure of trains.
- Identification of station facilities, where provided, and access routes to those facilities.

(2) The fonts, symbols and pictograms used for visual information shall contrast with their background.

(3) Signposting shall be provided at all points where passengers need to make a route taking decision and at intervals on the route. Signage, symbols and pictograms shall be applied consistently over the whole route.

(4) The information concerning the departure of trains (including destination, intermediate stops, platform number and time) shall be available suitable for reading from a height of 160 cm at least in one location in the station.

(5) The typeface used for texts shall be easily readable.

(6) All safety, warning, mandatory action and prohibition signs shall include pictograms.

(7) Tactile information signage shall be fitted in:

- toilets, for functional information and call for aid if appropriate,
- lifts in accordance with the specification referenced in Appendix A, Index [1].

(8) Time information presented in digits shall be in the 24 h system.

(9) The following specific graphic symbols and pictograms shall be fitted with the wheelchair symbol in accordance with Appendix N:

- directional information for wheelchair specific routes;
- indication of the wheelchair accessible toilets and other amenities if provided;
- if there is train configuration information on the platform, indication of the wheelchair boarding location.

The symbols are permitted to be combined with other symbols (for example: lift, toilet, etc.).

(10) Where inductive loops are fitted, those shall be indicated by a sign as described in Appendix N.

(11) In wheelchair accessible toilets, where hinged handrails are provided, a graphic symbol showing the rail in both the stowed and deployed position shall be provided.

(12) There shall be no more than five pictograms, in addition to a directional arrow, indicating a single direction placed adjacent to each other at a single location.

(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.

(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 in accordance with the following formula:

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

(15) in point 4.2.1.12, point (5) is deleted;

(16) in point 4.2.1.15, point (1) is replaced by the following:

“(1) Level track crossings are permitted to be used as part of a step-free route or of an obstacle-free route.”;

- (17) in point 4.2.2.1.1.(1), the first and second indents are replaced by the following:  
“— the back of another seat facing in the opposite direction which is fitted at its aisle side with a handhold or a vertical handrail or other items that can be used for personal stability,  
— a handrail or a partition provided at the aisle side of the seat.”;
- (18) point 4.2.2.1.2.1 is amended as follows:
- (a) point (2) is replaced by the following:  
“(2) The priority seats and vehicles containing them shall be identified by signs complying with Appendix N. It shall be stated that other passengers shall make such seats available to those who are eligible to use them when required. That identification is not required for units intended to be operated exclusively within a seat reservation system: that shall be reported in the technical documentation referred to in point 4.2.12 of the LOC&PAS TSI.”;
- (b) points (7) and (8) are replaced by the following:  
“(7) Each priority seat and the space available to its user shall comply with the specification referenced in Appendix A, Index [16].  
(8) The whole useful sitting surface of the priority seat shall be a minimum of 450 mm wide (see specification referenced in Appendix A, Index [16]).”;
- (19) in point 4.2.2.1.2.2, point (1) is replaced by the following:  
“(1) Where uni-directional priority seats are provided, the clearance in front of each seat shall comply with the specification referenced in Appendix A, Index [16]”;
- (20) point 4.2.2.1.2.3. is replaced by the following:  
“4.2.2.1.2.3. Facing seats arrangement  
(1) Where facing priority seats are provided, the distance between the front edges of the seat cushions shall be a minimum of 600 mm (See the specification referenced in Appendix A, Index [16]). Such distance shall be maintained even if one of the facing seats is not a priority seat.  
(2) Where facing priority seats are equipped with a table, there shall be a minimum clear horizontal distance between the front edge of the seat cushion and the leading edge of the table of at least 230 mm (See the specification referenced in Appendix A, Index [16]). When one of the facing seats is not a priority seat, its distance to the table can be reduced provided that the distance between the front edges of the seat cushions remains 600 mm. Sidewall mounted tables the length of which does not extend over the centre line of the window seat do not need to be considered for conformity with this point.”;
- (21) point 4.2.2.2 is amended as follows:
- (a) point (4) is replaced by the following:  
“(4) The minimum distance in the longitudinal plane between the back of the wheelchair space and the next surface shall be in accordance with the specification referenced in Appendix A, Index [16].”;
- (b) points (8) and (9) are replaced by the following:  
“(8) There shall be no equipment such as bicycle hooks or ski racks in the wheelchair space or directly in front of it.

(9) At least one seat shall be available either side-by-side with or face-to-face to each of the wheelchair spaces for a companion to travel with the wheelchair user. That seat shall offer the same level of comfort as the other passenger seats and may also be situated on the opposing side of the aisle.”;

(c) point (12) is replaced by the following:

“(12) The call for aid device shall be placed within the comfortable reach range of the person using the wheelchair as shown in the specification referenced in Appendix A, Index [9].”;

(d) point (14) is replaced by the following:

“(14) The interface of the call for aid device shall be as set out in point 5.3.2.6.”;

(22) point 4.2.2.3.2. is replaced by the following:  
“4.2.2.3.2. Exterior doors

- (1) All exterior passenger doorways shall have a minimum clear useable width of 800 mm when open.
- (2) On trains with a design speed lower than 250 km/h, wheelchair access doors offering a level access as defined in point 2.3 shall have a minimum clear useable width of 1000 mm when open.
- (3) All exterior passenger doorways shall be marked on the outside in a way that gives a contrast to the vehicle body-side surrounding them.
- (4) The designated wheelchair exterior accessible doorways shall be the closest doorways to the designated wheelchair spaces.
- (5) The doors to be used for wheelchair access shall be clearly labelled with a sign in accordance with Appendix N.
- (6) From the inside of the vehicle the position of external doorways shall clearly be marked by use of contrasted adjacent flooring.
- (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 the following:
  - (a) 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;
  - (b) 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;
  - (c) 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;
  - (d) 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 signal 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 or available to be opened, or both.
- (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 in accordance with the specification referenced in Appendix A, Index [19].
  - (12) Passenger doors audible signals shall be in accordance with the specification in Appendix G.
  - (13) The method of door activation shall be by train crew, semi-automatic (for instance, passenger pushbutton operation) or automatic.
  - (14) The door control shall be located either next to or on the door leaf.
  - (15) The centre of exterior door opening control, operable from the platform, shall be not less than 800 mm and not more than 1200 mm measured vertically above platforms, for all platforms for which the train is designed. If the train is designed for a single platform height, the centre of exterior door opening control shall be not less than 800 mm and not more than 1100 mm measured vertically above that platform height.
  - (16) The centre of internal door opening control for the exterior door shall be not less than 800 mm and not more than 1100 mm measured vertically above the vehicle floor level.”;
- (23) point 4.2.2.4. is replaced by the following:  
“4.2.2.4. *Lighting*  
Minimum values of average illuminance in the passenger areas shall be in accordance with the specification referenced in Appendix A, Index [6]. Requirements relative to the uniformity of those values are not applicable for conformity with this TSI.”;
  - (24) point 4.2.2.6. is replaced by the following:  
“4.2.2.6. Clearways

- (1) From the vehicle entrance, the following sections of the clearway shall be in accordance with the specification referenced in Appendix A, Index [17]:
  - through the vehicles,
  - between connecting vehicles of a single trainset,
  - to and from wheelchair accessible doors, wheelchair spaces and wheelchair accessible areas including sleeping accommodation and universal toilets if provided.
- (2) The minimum height requirement does not need to be verified in:
  - all areas of double-deck vehicles,
  - gangways and door areas of single deck vehicles.

In those areas, reduced headroom is accepted as a consequence of structural constraints (gauge, physical space).
- (3) A turning space, with a minimum diameter of 1500 mm, shall be provided adjacent to the wheelchair space and in other locations where wheelchairs are supposed to turn 180°. The wheelchair space may be part of the turning circle.
- (4) If a change in direction is required for a wheelchair user, the clearway width of both corridors or corridor and door shall be in accordance with the specification referenced in Appendix A, Index [17].”;
- (25) in point 4.2.2.7.1, points (2) and (3) are replaced by the following:
  - “(2) Visual information referred to in point (1) shall contrast with its background.
  - (3) The typeface used for texts referred to in point (1) shall be easily readable.”;
- (26) in point 4.2.2.7.2., point (2) is replaced by the following:
  - “(2) There shall be no more than five pictograms, in addition to a directional arrow, indicating a single direction placed adjacent to each other at a single location.”;
- (27) point 4.2.2.7.3. is replaced by the following:
  - “4.2.2.7.3. Dynamic visual information
    - (1) The final destination or route shall be displayed on the outside of the train on the platform side adjacent to at least one of the passenger access doors on at least alternate vehicles of the train.
    - (2) Where trains operate in a system in which dynamic visual information is given on the station platform every 50 m or less, and destination or route information is also provided on the front of the train, it is not mandatory to provide information on the sides of vehicles.
    - (3) The final destination or route of the train shall be displayed inside each vehicle.
    - (4) The next stop of the train shall be displayed such that it can be read from at least 51 % of passenger seats inside each vehicle including 51 % of the priority seats, and from all wheelchair spaces.
    - (5) 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.

- (6) The requirement in point (4) does not apply to compartment carriages where the compartments have a maximum of 8 seats and are served by an adjacent corridor. However, that information shall be visible to a person standing in a corridor outside a compartment and to a passenger occupying a wheelchair space.
- (7) The dynamic visual information system may display information about the next stop on the same support as the final destination.
- (8) If the system is automated, it shall be possible to suppress or correct incorrect or misleading information.
- (9) Internal and external displays shall comply with the requirements of points (10) to (13). In those points, the term ‘display’ shall be understood as any support of dynamic information.
- (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 in accordance with the formula in Table 5a.

*Table 5a*

**Maximum viewing distance of the internal displays for rolling stock**

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

”;

(28) point 4.2.2.8 is amended as follows:

- (a) point (2) is replaced by the following:
 

“(2) As a minimum, the first and the last steps shall be indicated by a contrasting band extending the full width of the steps on both the front and the top surfaces of the step nosing with a depth of:

  - 45 mm to 55 mm on the front surface,
  - 45 mm to 75 mm on the top surface.”;
- (b) in point (7), Table 6, the text in the second row is replaced by the following:
 

“Paths between a wheelchair accessible exterior door, the wheelchair space, a wheelchair accessible sleeping accommodation and the universal toilet.”;

- (29) in point 4.2.2.9, point (5) is replaced by the following:  
“(5) The handrails referred to in point (4) shall be:
- vertical handrails that shall extend from 700 mm to 1200 mm above the threshold of the first step for all external doorways;
  - additional handrails at a height of between 800 mm and 900 mm above the first useable step and parallel with the line of the step nosing for doorways with more than two entrance steps.”;
- (30) in point 4.2.2.10, point (9) is replaced by the following:  
“(9) The call for aid devices described in points (7) and (8) shall be located on different vertical surfaces of the sleeping accommodation.”;
- (31) in point 4.2.2.11.1, point (3) is replaced by the following:  
“(3) The technical documentation referred to 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 ( $\delta_{v+}$ ) of 230 mm and in a horizontal gap ( $\delta_h$ ) 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 ( $\delta_{v-}$ ) of 160 mm and in a horizontal gap ( $\delta_h$ ) 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.”;
- (32) in point 4.2.2.11.2, point (7) is replaced by the following:  
“(7) Access to the vestibule shall be achieved with a maximum of 4 steps of which one may be external.”;
- (33) in point 4.2.2.12.1, the point (3) is replaced by “Not used.”;
- (34) point 4.2.2.12.3 is replaced by the following:  
“4.2.2.12.3. On-board lift
- (1) An on-board lift is a device integrated in the doorway area of a vehicle that shall be able to overcome the maximum height difference between the vehicle floor and the station platform where operated.
  - (2) When the lift is in the stowed position, the doorway shall have a minimum useable width in accordance with point 4.2.2.3.2.
  - (3) On-board lifts shall comply with the requirements of point 5.3.2.10.”;

- (35) in point 4.3.2, Table 11 is replaced by the following:

<i>“Table 11</i>			
<i>Interface with the rolling stock subsystem</i>			
Interface with the rolling stock subsystem			
This 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

”;

- (36) in point 4.4, second paragraph, the following sentence is added:

“The following operating rules apply to the operation of the whole infrastructure and rolling stock subsystems.”;

- (37) in point 4.4.1, the first indent is replaced by the following:

“– General

The infrastructure manager, station manager or railway undertaking shall have a written policy to ensure that all persons with disabilities and persons with reduced mobility can access the passenger infrastructure at all operational times in accordance with the technical requirements of this TSI. Furthermore, the policy shall be compatible with a policy of any railway undertaking that may wish to use the facilities, (refer to point 4.4.2) as appropriate. The policy shall be implemented through the provision of adequate information to staff, procedures and training. The infrastructure policy shall include, but not be limited to, operating rules for the following situations:”;

- (38) point 4.4.2. is replaced by the following:

“4.4.2 Rolling Stock subsystem

In light of the essential requirements in Chapter 3, the operating rules specific to the rolling stock subsystem related to accessibility for persons with disabilities and persons with reduced mobility are as follows:

4.4.2.1. General

The railway undertaking shall have a written policy to ensure accessibility to passenger rolling stock at all operational times in accordance with the technical

requirements of this TSI. Furthermore, the policy shall be compatible with the infrastructure manager or station manager policy (refer to point 4.4.1) as appropriate. The policy shall be implemented through the provision of adequate information to staff, procedures and training. The rolling stock policy shall include, but not be limited to, operating rules for the following situations:

#### 4.4.2.2. Access and Reservation of Priority Seats

Two possible conditions exist in connection with seats classified as ‘priority’: (i) unreserved and (ii) reserved (refer to point 4.2.2.1.2.1(2)). In case (i), the operating rules will be directed to other passengers (i.e. provision of signage) requesting them to ensure that priority is given to all persons with disabilities and persons with reduced mobility that are defined as being eligible to use such seats and that occupied priority seats are given-up as appropriate. In case (ii), operating rules shall be implemented by the railway undertaking to ensure that the ticketing reservation system is equitable with regards to persons with disabilities and persons with reduced mobility. Such rules will ensure that priority seating is initially only available for reservation by persons with disabilities and persons with reduced mobility until a given cut-off period prior to departure. After that point in time, priority seats will be made available to the entire passenger population, including persons with disabilities and persons with reduced mobility.

#### 4.4.2.3. Carriage of Assistance Dogs

Operating rules shall be made to ensure that persons with disabilities and persons with reduced mobility with an assistance dog shall not be charged extra.

#### 4.4.2.4. Access and Reservation of Wheelchair Spaces

The priority seating access and reservation rules also apply to wheelchair spaces, with only wheelchair users having priority. Additionally, operating rules shall provide for (i) unreserved or (ii) reserved accompanying persons (non-PRM) seating adjacent or facing the wheelchair space.

#### 4.4.2.5. Access and Reservation of Universal Sleeping Compartments

The priority seating reservation rules also apply to universal sleeping compartments (refer to point 4.2.2.10). However, operational rules shall prevent non-reserved occupation of universal sleeping compartments (i.e. advanced booking will always be necessary).

#### 4.4.2.6. Train crew — exterior doors activation

Operational rules shall be implemented regarding the procedure for external door activation by train crew to ensure safety of all passengers including persons with disabilities and persons with reduced mobility (refer to point 4.2.2.3.2).

#### 4.4.2.7. Call for aid device in wheelchair space, universal toilets or wheelchair accessible sleeping accommodation

Operational rules shall be implemented to ensure appropriate response and action from the staff in the event of activation of the call for aid device (refer to points 4.2.2.2, 4.2.2.5 and 4.2.2.10). Response and action need not be the same according to the origin of the call for aid.

#### 4.4.2.8. Lighting

Where every passenger seat is equipped with an individual light, it is permitted to

reduce the lighting level in the unit 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.

#### 4.4.2.9. Audible safety instructions in case of emergency

Operational rules shall be implemented regarding the transmission of audible safety instructions to passengers in the event of an emergency (refer to point 4.2.2.7.4). Those rules shall include the nature of the instructions and of their transmission.

#### 4.4.2.10 Visual and audible information — Control of advertisements

Details of the route or network on which the train operates shall be available (the railway undertaking shall decide the manner in which this information is provided). Advertisements shall not be combined with routing information. Note: General information about public transport services shall not be considered as advertisements for the purposes of this point.

#### 4.4.2.11 Automatic Information Systems — Manual Correction of incorrect or misleading information

Operational rules shall be implemented for the validation and ability to correct erroneous automatic information by the train crew (refer to point 4.2.2.7).

#### 4.4.2.12 Rules for announcement of the final destination and the next stop

Operational rules shall be implemented to ensure that the next stop is announced no later than 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).

#### 4.4.2.13. Rules on train composition to make wheelchair boarding aid devices usable according to the arrangement of the platforms.

Operational rules shall be implemented to take account of train composition variations such that the safe operational zones for wheelchair boarding aids can be determined with respect to the stopping point of trains.

#### 4.4.2.14. Safety of Manual and Powered Wheelchair Boarding Aids

Operational rules shall be implemented concerning the operation of boarding aids by train and station staff. In the case of manual devices, procedures shall ensure that minimum physical effort is required from staff. In the case of powered devices, procedures shall ensure emergency fail-safe-operation in the event of loss of power. An operational rule shall be implemented concerning the use by train or station staff of the moveable safety barrier fitted to wheelchair lifts.

Operational rules shall be implemented to ensure that train and station staff is able to safely operate boarding ramps, with respect to deployment, securing, raising, lowering and stowing.

#### 4.4.2.15. Assistance to board and alight the train

Operational rules shall be implemented to ensure that staff are aware that disabled persons and persons with reduced mobility may require assistance to board and alight the train, and shall provide such assistance if required.

Conditions on which assistance to persons with disabilities and persons with reduced mobility is provided are defined in Regulation (EC) No 1371/2007.

#### 4.4.2.16. Platform — Wheelchair Boarding Aid Operational Zone

The railway undertaking and the infrastructure manager or station manager shall define together the area on the platform where the facility is likely to be used and shall demonstrate its validity. That area shall be compatible with the existing platforms where the train is likely to stop.

As a consequence, the stopping point of the train shall in some cases be adjusted in order to comply with this requirement.

Operational rules shall be implemented to take account of train composition variations (refer to point 4.2.1.12) so that the stopping point of trains can be determined with respect to the boarding aid operational zones.

#### 4.4.2.17 Emergency method to deploy moveable steps

Operational rules shall be implemented for the emergency stowage or deployment of the bridging plate in the case of power failure.

#### 4.4.2.18 Operating combinations of rolling stock compliant and non-compliant with this TSI:

When forming a train from a mixture of compliant and non-compliant rolling stock, operational procedures shall be implemented to ensure that a minimum of two wheelchair spaces compliant with this TSI are provided on the train. If toilets are available on the train, it shall be ensured that wheelchair users have access to a universal toilet.

Under such rolling stock combinations, procedures shall be in place to ensure that visual and audible route information is available on all vehicles.

It is accepted that dynamic information systems, wheelchair space, universal toilet, wheelchair accessible sleeping accommodation and call for aid devices may not be fully functional when working in such formations.

#### 4.4.2.19. Forming trains from individual vehicles compliant with this TSI

When vehicles that have been individually assessed in accordance with point 6.2.7 are formed into a train, operational procedures shall be in place to ensure that the complete train complies with point 4.2 of this TSI.

#### 4.4.2.20. Providing services on-board trains

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

- (a) free of charge assistance is available to assist wheelchair users reach the service; or
- (b) 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.”;

(39) point 4.4.3. is replaced by the following:

“4.4.3. Provision of boarding aids and provision of assistance

The infrastructure manager or station manager and railway undertaking shall agree the provision and management of the boarding aids as well as the provision of assistance and alternative transport in line with Regulation (EC) No 1371/2007 in order to establish which party is responsible for the operation of boarding aids and



alternative transport. The infrastructure manager (or station manager(s)) and railway undertaking shall ensure that the division of responsibilities they agree is the most viable overall solution.

Such agreements shall take into consideration the area of use of boarding aids referred to in points 5.3.1.2, 5.3.1.3, 5.3.2.9 and 5.3.2.10.

Such agreements shall define:

- (a) the station platforms where a boarding aid has to be operated by the infrastructure manager or the station manager and the rolling stock for which it will be used;
  - (b) the station platforms where a boarding aid has to be operated by the railway undertaking and the rolling stock for which it will be used;
  - (c) the rolling stock where a boarding aid has to be provided and operated by the railway undertaking and the station platform where it will be used;
  - (d) the rolling stock where a boarding aid has to be provided by the railway undertaking and operated by the infrastructure manager or station manager, and the station platforms where it will be used;
  - (e) 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;
  - (f) the conditions for the provision of alternative transport where:
    - the platform cannot be reached through an obstacle-free route, or
    - assistance cannot be provided to deploy a boarding aid between the platform and the rolling stock.”.
- (40) point 4.8 is deleted;
- (41) point 5.1 is deleted;
- (42) in point 5.3, introductory paragraph, “Directive 2008/57/EC” is replaced by “Directive (EU) 2016/797”;
- (43) point 5.3.1.1. is deleted;
- (44) point 5.3.1.2 is amended as follows:
- (a) point (1) is replaced by the following:  
“(1) Ramps shall be designed and assessed for an area of use defined by the maximum vertical gap they can overcome within a maximum slope of 18 % (10.2°).”;
  - (b) point (5) is replaced by the following:  
“(5) The ramp surface shall be slip resistant and shall have a stable position with an effective clear width of a minimum of 760 mm.”;

- (45) in point 5.3.1.3, point (6) is replaced by the following:  
“(6) The bridging plate overriding the gap between the lift platform and the carriage floor shall have a stable position with a minimum width of 760 mm.”;
- (46) in point 5.3.2.2., the following points (7) to (10) are added:  
“(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.”;
- (47) in point 5.3.2.6, point (1) is replaced by the following:  
“(1) be indicated by a sign having a yellow background contrasting with a black symbol (in accordance with 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;”;
- (48) point 5.3.2.7 is deleted;
- (49) point 5.3.2.8 is amended as follows:  
(a) in point (2), “index 11” is replaced by “Index [11]”;  
(b) in point (5), “index 11” is replaced by “Index [11]”;
- (50) in point 5.3.2.9, point (1) is replaced by the following:  
“(1) Ramps shall be designed and assessed for an area of use defined by the maximum vertical gap they can overcome within a maximum slope of 18 % (10.2°).”;
- (51) point 6.1.1 is replaced by the following:  
“6.1.1. Conformity assessment  
An EC declaration of conformity or suitability for use, in accordance with Article 9(2) and Article 10(1) of Directive (EU) 2016/797, shall be drawn up by the manufacturer or his authorised representative established in the Union before placing an interoperability constituent on the market.  
The conformity assessment of an interoperability constituent shall be in accordance with the prescribed module(s) of that particular constituent specified in point 6.1.2 of this TSI.”;

(52) in point 6.1.2, Table 15 is replaced by the following:

<i>“Table 15</i>								
<i>Combination of modules for EC certification of conformity of interoperability constituents</i>								
Point of this Annex	Constituents to be assessed	Module CA	Module CA1 or CA2 <sup>(1)</sup>	Module CB +CC	Module CB +CD	Module CB +CF	Module CH <sup>(1)</sup>	Module CH1
5.3.1.2 and 5.3.1.3	Platform ramps and platform lifts		X		X	X	X	X
5.3.2.1	Interface of door control device	X		X			X	
5.3.2.2, 5.3.2.3 and 5.3.2.4	Toilet modules		X	X	X		X	X
5.3.2.5	Baby nappy changing table	X		X			X	
5.3.2.6	Call for aid devices	X		X			X	
5.3.2.8 to 5.3.2.10	Boarding devices		X		X	X	X	X

<sup>(1)</sup> Modules CA1, CA2 or CH may be used only in the case of products manufactured in accordance with a design developed and already used to place products on the market before the application of relevant TSIs applicable to those products, provided that the manufacturer demonstrates to the notified body that design review and type examination were performed for previous applications under comparable conditions, and are in conformity with the requirements of this TSI; this demonstration shall be documented, and is considered as providing the same level of proof as module CB or design examination in accordance with module CH1.

”;

- (53) point 6.2.1 is replaced by the following:  
“6.2.1 EC verification (general)  
The EC verification procedures to be applied to the subsystems are described in Article 15 of Directive (EU) 2016/797 and Annex IV to that Directive.

The EC verification procedure shall be performed in accordance with the prescribed modules(s) specified in point 6.2.2 of this TSI.

For the infrastructure subsystem, if the applicant demonstrates that tests or assessments of a subsystem or parts of a subsystem are the same or have been successful for previous applications of a design, the notified body shall consider the results of those tests and assessments for the EC verification.

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.

The approval process and the contents of the assessment shall be agreed between the applicant and a notified body in accordance with the requirements set out in this TSI.”;

- (54) the following point 6.2.3.3. is added:  
“6.2.2.3. Assessment of contrast for the rolling stock subsystem  
Assessment of contrast for the rolling stock subsystem shall be performed in accordance with the specification referenced in Appendix A, Index [18].”;

- (55) points 6.2.5 and 6.2.6 are replaced by the following:

“6.2.5. Assessment of maintenance

In accordance with Article 15(4) of Directive (EU) 2016/797, the applicant shall be responsible for compiling the technical file, containing the documentation requested for operation and maintenance.

The notified body shall verify only that the documentation requested for operation and maintenance, as defined in point 4.5 of this TSI, is provided. The notified body is not required to verify the information contained in the documentation provided.

6.2.6. Assessment of operational rules

In conformity with Articles 10 and 12 of Directive (EU) 2016/798, railway undertakings and infrastructure managers must demonstrate compliance with the operational requirements of this TSI within their safety management system when applying for any new or amended safety certificate or safety authorisation.”;

- (56) in point 6.2.7, the third paragraph is replaced by the following:  
“After such a unit has received the authorisation to be placed on the market, it is the responsibility of the railway undertaking to make sure, when forming the train with other compatible vehicles, that point 4.2 of this TSI is complied with at train level, in accordance with the rules defined in point 4.2.2.5 of the OPE TSI (train composition).”;

- (57) points 7.1.1 and 7.1.2 are replaced by the following:

*“7.1.1. New Infrastructure*

This TSI is applicable to all new stations in its scope.

It is not mandatory to apply this TSI to new stations which have already been granted a building permit or which are subject to a contract for major construction works that is either already signed or in the final phase of a tendering procedure at the date of application of this TSI. However, an earlier version of this TSI must be applied within its defined scope. The consistence of applicable requirements of partial application of different versions of this TSI to particular sections of the station must be justified by the applicant certified by the notified body.

Where stations which were closed for a long time to passenger service are put in service again, this may be treated as renewal or upgrade in accordance with point 7.2.

In all cases of construction of a new station, the station manager or planning entity shall organise a consultation of the entities in charge of the management of the neighbourhood, in order to enable the accessibility requirements to be met not only in the station, but also for the access to the station. In the case of multimodal stations, other transport authorities shall be consulted for access to and from the railway and to and from other modes of transport.

*7.1.2. New Rolling Stock*

- (1) This TSI is applicable to all units of rolling stock in its scope which are placed on the market after [*Publications Office: please insert the date of application of this amending act*], except where point 7.1.1.2 ‘Application to ongoing projects’ of the LOC&PAS TSI applies.
- (2) Compliance with this Annex in its version applicable before [*Publications Office: please insert the date of entry into force of this amending act*] is deemed equivalent to compliance with this TSI, except for the TSI changes listed in Appendix P.
- (3) The rules related to the EC type or design examination certificates for the rolling stock subsystem and the associated interoperability constituents shall be as specified in point 7.1.3 of the Annex to Regulation (EU) No 1302/2014.”;

- (58) in point 7.2.1.1.1, the third paragraph is replaced by the following:

“The specifications referenced in Appendix A, Indexes [21] and [22] shall apply for the formatting and exchange of accessibility data”;

- (59) in point 7.2.1.1.3, the second paragraph is deleted;

- (60) point 7.2.3. is replaced by the following:

“Application of this TSI to rolling stock in operation or to an existing rolling stock type.

- (1) The rules for managing changes to rolling stock in operation or to an existing rolling stock type shall be as specified in point 7.1.2 of the LOC&PAS TSI and in Appendix F to this TSI.

- (2) The rules for the extension of the area of use for existing rolling stock in operation before 19 July 2010 or having an authorisation in accordance with Directive 2008/57/EC shall be as specified in point 7.1.4 of the LOC&PAS TSI.”;

(61) point 7.3.2.6 is amended as follows:

- (a) in the section concerning the “Specific case Finland ‘P’”, second sentence, the expression “index 14” is replaced by “Index [15]”;

- (b) the section concerning the “Specific case Spain ‘P’ for the 1 668 mm gauge network” is replaced by the following:

“Specific Case Spain ‘P’

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

For rolling stock intended to run on 1668 mm track gauge, the position of the first useable access step will fit to the dimensions given in Table 23 and Table 24 of this TSI, depending on the platform height and line structure gauge, as defined in point 7.7.15.1 of the Annex to Commission Regulation (EU) No 1299/2014\*:

<i>Table 23</i>					
<i>Specific case for Spain — values of <math>\delta_h</math>, <math>\delta_{v+}</math> and <math>\delta_{v-}</math> and <math>bq_0</math> on a straight level track with 1 668 mm track gauge</i>					
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		
$\delta_h$ mm	1435/1668 mm variable track gauge vehicles	275	275	255	316,5
	1668 mm track gauge vehicles	200	200	200	241,5
$\delta_{v+}$ mm		230			
$\delta_{v-}$ mm		160			
$bq_0$		1725	1725	1705	1766,5

Table 24

*Specific case for Spain — values of  $\delta_h$ ,  $\delta_{v+}$  and  $\delta_{v-}$  and  $bq_0$  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 (1)
			Platform height 760 or 680 mm	Platform height 550 mm	
$\delta_h$ mm	1435/1668 mm variable track gauge vehicles	365	365	345	406,5
	1668 mm track gauge vehicles	290	290	290	331,5
$\delta_{v+}$ mm		230			
$\delta_{v-}$ mm		160			
$bq_0$		1737,5	1737,5	1717,5	1779

(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 1668 mm track gauge case with two rails.

\* Commission Regulation (EU) No 1299/2014 of 18 November 2014 on the technical specifications for interoperability relating to the ‘infrastructure’ subsystem of the rail system in the European Union (OJ L 356, 12.12.2014, p. 1).”;

(c) the section concerning the “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 the following:  
 “Specific Case United Kingdom ‘P’ for all rolling stock intended to stop, in normal operation at platforms of nominal 915 mm height

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.”;

(62) the following points 7.3.2.7 and 7.3.2.8 are added:  
 “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). That 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:

- (a) 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  $\delta h = 200$  mm and in Table 24 for  $\delta h = 290$  mm;
- (b) 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.

7.3.2.8. 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.”;

- (63) Appendix A is replaced by the following:  
“Appendix A

#### Standards or Normative Documents Referred to in this TSI

Index	Standard name	Standard reference	Standard version
	Parameter	TSI Point	Standard Point
[1]	<b>EN 81-70:2021</b> <b>Safety rules for the construction and installation of lifts - Particular applications for passenger and goods passenger lift - Part 70: Accessibility to lifts for persons including persons with disability</b>		
[1.1]	Dimensions of the lifts	4.2.1.2.2 (5)	5.3.1, table 3
[1.2]	Tactile signage	4.2.1.10 (7)	Table 4 point (c), (h), (j) and (k)
[2]	<b>EN 115-1:2017</b> <b>Safety of escalators and moving walks - Part 1: Construction and installation</b>		
[2.1]	Design of escalators and moving walks	4.2.1.2.2 (6)	5.4.1.2.2, 5.4.1.2.3 5.2.2
[3]	<b>EN 12464-2:2014</b> <b>Light and lighting - Lighting of work places - Part 2: Outdoor work places</b>		
[3.1]	Lighting on platforms	4.2.1.9 (3)	Table 5.12, except points 5.12.16 and 5.12.19



[4]	<b>EN 12464-1:2021</b> <b>Light and lighting - Lighting of work places - Part 1: Indoor work places</b>		
[4.1]	Lighting on platforms	4.2.1.9 (3)	61.1.2
[5]	<b>EN 60268-16:2020</b> <b>Sound system equipment - Part 16: Objective rating of speech intelligibility by speech transmission Index</b>		
[5.1]	Speech transmission Index, stations	4.2.1.11 (1)	Annex B
[5.2]	Speech transmission Index, rolling stock	4.2.2.7.4 (5)	
[6]	<b>EN 13272-1:2019</b> <b>Railway applications -Electrical lighting for rolling stock in public transport systems-Part 1: Heavy rail</b>		
[6.1]	Lighting in rolling stock	4.2.2.4 (1)	4.1.2
[6.2]	Reduction of lighting (operational rule)	4.4.2.7	4.1.6 & 4.1.7
[7]	<b>ISO 3864-1:2011</b> <b>Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs and safety markings</b>		
[7.1]	Safety, warning, mandatory action and prohibition signs	4.2.2.7.2 (1)	6, 7, 8, 9, 10, 11
[8]	<b>EN 15273-1:2013+A1:2016/AC:2017</b> <b>Railway applications - Gauges - Part 1: General - Common rules for infrastructure and rolling stock</b>		
[8.1]	Calculation of $bq_0$	4.2.2.11.1 (2)	H.2.2
[9]	<b>EN 16585-1:2017</b> <b>Railway applications - Design for PRM use - Equipment and components onboard rolling stock - Part 1: Toilets</b>		
[9.1]	Assessment of the Universal Toilet Module	6.1.3.1	Chapter 6
[9.2]	Comfortable reach range of a person using a wheelchair	4.2.2.2 (12)	Figure B.2
[10]	<b>ISO 3864-4:2011</b> <b>Graphical symbols — Safety colours and safety signs — Part 4: Colorimetric and photometric properties of safety sign materials</b>		
[10.1]	Definition of colours	5.3.2.6 (1)	Chapter 4
[11]	<b>EN 14752:2019+A1:2021</b> <b>Railway applications - Bodyside entrance systems for rolling stock</b>		
[11.1]	Boarding device mechanical strength	5.3.2.8 (2)	4.2.2
[11.2]	Obstacle detection	5.3.2.8 (5)	5.4

[12]	<b>ISO 7000:2019</b> <b>Graphical symbols for use on equipment — Registered symbols</b>		
[12.1]	Symbol for sign which identify wheelchair accessible areas	Point N.3 of Appendix N	Symbol 0100
[13]	<b>ISO 7001:2007/Amd 4:2017</b> <b>Graphical symbols — Public information symbols</b>		
[13.1]	Symbol for sign which identify wheelchair accessible areas	Point N.3 of Appendix N	Symbol PIPF 006
[14]	<b>ETSI EN 301 462:2000-03</b> <b>Human Factors (HF);</b> <b>Symbols to identify telecommunications facilities for deaf and hard of hearing people</b>		
[14.1]	Symbol for sign indicating inductive loops	Point N.3 of Appendix N	4.3.1.2
[15]	<b>EN 15273-2:2013+A1:2016</b> <b>Railway applications - Gauges - Part 2: Rolling stock gauge</b>		
[15.1]	Specific case for Finland	7.3.2.6	Annex F
[16]	<b>EN 16585-2:2017</b> <b>Railway applications - Design for PRM use - Equipment and components on board rolling stock - Part 2: Elements for sitting, standing and moving</b>		
[16.1]	Diagrams of priority seats	4.2.2.1.2.1 (7) , (8)	Annex A
[16.2]	Unidirectional seats	4.2.2.1.2.2 (1)	Figure A.2
[16.3]	Facing seats arrangement	4.2.2.1.2.2 (1), (2)	Figures A.3 and A.4
[16.4]	Diagrams of wheelchair spaces	4.2.2.2 (4)	Figures B1, B2, B3
[16.5]	Diagrams of wheelchair spaces	Appendix F	Figure 5
[17]	<b>EN 16585-3:2017</b> <b>Railway applications - Design for PRM use - Equipment and components on board rolling stock - Part 3: Clearways and internal doors</b>		
[17.1]	Clearway through the vehicles	4.2.2.6 (1)	Figure 2
[17.2]	Clearway between connecting vehicles of a single trainset,	4.2.2.6 (1)	Figure 3
[17.3]	Clearway to and from wheelchair accessible areas	4.2.2.6 (1)	Figure 5
[17.4]	Corridor widths for a change of direction	4.2.2.6 (4)	Table 3
[18]	<b>EN 16584-1:2017</b> <b>Railway applications - Design for PRM use - General requirements - Part 1: Contrast</b>		
[18.1]	Assessment of contrast for the rolling stock	6.2.3.3	Annex A, paragraph

	subsystem		A.1
[19]	<b>EN 16584-2:2017 Railway applications - Design for PRM use - General requirements – Part 2: Information</b>		
[19.1]	Door visible signals	4.2.2.3.2 (11)	5.3.3.2 (g) and (h)
[20]	<b>EN 17285:2020 Railway applications - Acoustics - Measuring of door audible warnings</b>		
	Parameter	TSI Point	Standard Point
[20.1]	Measurement of interior door signals	App. G - G.4	6.5.2
[20.2]	Measurement of exterior door signals	App. G - G.4	7.5.2 excluding first paragraph
[20.3]	Measurement of door finding signals	App. G – G.4	7.5.2 excluding first paragraph
[21]	<b>CEN/TS 16614-1:2020 Public transport — Network and Timetable Exchange (NeTEx) — Part 1: Public transport network topology exchange format</b>		
[21.1]	Formatting and exchange of accessibility data	7.2.1.1.1	All
[22]	<b>EN 12896-1:2016 Public transport. Reference data model. Common concepts (Transmodel)</b>		
[22.1]	Formatting and exchange of accessibility data	7.2.1.1.1	All

”;

(64) Appendix C is deleted;

(65) in Appendix D, Table D.1 is amended as follows:

(a) row “5.3.1.1 Displays” is deleted;

(b) row “5.3.2.7 Displays” is deleted;

(66) in Appendix E, Tables E.1 and E.2 are replaced by the following:

<i>“Table E.1</i>		
<i>Assessment of the infrastructure subsystem (constructed and supplied as single entity)</i>		
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

Table E.2

*Assessment of the rolling stock subsystem (constructed and supplied as serial products)*

1	2		3	4
Characteristics to be assessed	Design and development phase			Production phase
	Design review and/or design examination	Type Test		Routine Test
Seats				
General	X	X		
Priority Seats General	X			
Uni-directional seats	X	X		
Facing seats arrangement	X	X		
Wheelchair spaces	X	X		
Doors				
General	X	X		
Exterior doors	X	X		
Interior doors	X	X		
Lighting		X		
Toilets	X			
Clearways	X			
Customer Information				
General	X	X		
Signage, pictogram and tactile information	X	X		
Dynamic visual information	X	X		
Dynamic Audible information	X	X		
Height changes	X			

Handrails	X	X		
Wheelchair accessible sleeping accommodation	X	X		
Step position for vehicle access and egress				
General requirements	X			
Access/egress steps	X		X	
Boarding aids	X	X	X	

”;

(67) Appendix F is replaced by the following:

“Appendix F

### **Renewal or upgrade of rolling stock**

Where parts of a rolling stock are renewed or upgraded, they shall comply with the requirements of this TSI; compliance with the content of this TSI is not mandatory in the following cases:

#### **Structures**

Compliance is not mandatory if the work would require structural alterations to door portals (interior or external), underframes, collision pillars, vehicle bodies, vehicle over-ride protection, or more generally if the work would necessitate re-validation of the vehicle structural integrity.

#### **Seats**

Compliance with point 4.2.2.1 with regard to seat back grab handles is only mandatory if the seat structures are renewed or upgraded within an entire vehicle.

Compliance with point 4.2.2.1.2 with regard to the dimensions of priority seats and their surroundings is only mandatory if the seating layout is altered within an entire train and this can be achieved without reducing the existing capacity of the train. In that case, the maximum number of priority seats shall be provided.

Compliance with requirements regarding headroom above priority seating is not mandatory if the limiting factor is a luggage rack that is not being structurally altered during the renewal or upgrading work.

#### **Wheelchair spaces**

The provision of wheelchair spaces is only required when the seating layout is altered within a complete train formation. However, if the entrance doorway, or

clearways, cannot be modified to enable wheelchair access, a wheelchair space does not need to be provided if the seating layout is altered. Wheelchair spaces created in an existing rolling stock may be arranged in accordance with the specification referenced in Appendix A, Index [16].

The provision of call for aid devices at the wheelchair positions is not mandatory if the vehicle does not have an electrical communications system that can be adapted to include such a device.

The provision of a transfer seat is only mandatory when it does not require modifying the layout of an existing wheelchair space.

### **Exterior doors**

Compliance with requirements to define the interior position of external doorways by contrast at floor level is only mandatory when the floor covering is renewed or upgraded.

Compliance with requirements to provide door opening and closing signals is only mandatory when the door control system is renewed or upgraded.

Full compliance with requirements regarding the position and illumination of door controls is only mandatory when the door control system is renewed or upgraded and when the controls can be re-positioned without alteration to the vehicle structure or door. However, in such an event, the renewed or upgraded controls shall be installed as close as possible to the compliant position.

### **Interior doors**

Compliance with the requirements for door control operation operating forces and positioning is only mandatory if the door and door mechanism and/or control is being upgraded or renewed.

### **Lighting**

Compliance with the requirement is not required if it can be established that there is insufficient capacity in the electrical system to support additional load, or that such lighting cannot locally be accommodated without structural alterations (doorways etc.).

### **Toilets**

Provision of a fully compliant universal toilet is only mandatory when existing toilets are being completely renewed or upgraded and a wheelchair space is provided, and a compliant universal toilet can be accommodated without structural alteration to the vehicle body.

The provision of call for aid devices in the universal toilet is not mandatory if the vehicle does not have an electrical communications system that can be adapted to include such a device.

### **Clearways**

Compliance with the requirements of point 4.2.2.6 is only mandatory if the seating layout is altered within an entire vehicle and a wheelchair space is being provided.

Compliance with the requirements for clearways between connecting vehicles is only

mandatory if the gangway is being renewed or upgraded.

### **Information**

Compliance with the requirements of point 4.2.2.7 in respect of route information is not mandatory at renewal or upgrade. However, where an automated route information system is installed as part of a renewal or upgrade programme, it shall comply with the requirements of that point.

Compliance with the other parts of point 4.2.2.7 shall be mandatory whenever signage or interior finishes are renewed or upgraded.

### **Height Changes**

Compliance with the requirements of point 4.2.2.8 is not mandatory at renewal or upgrade. However, a contrasting warning band on step nosings shall be provided when tread surface materials are renewed or upgraded.

### **Handrails**

Compliance with the requirements of point 4.2.2.9 is only mandatory where existing handrails are being renewed or upgraded.

### **Wheelchair accessible sleeping accommodation**

Compliance with the requirement to provide wheelchair accessible sleeping accommodation is only mandatory when existing sleeping accommodation is being renewed or upgraded.

The provision of call for aid devices in the wheelchair accessible sleeping accommodation is not mandatory if the vehicle does not have an electrical communications system that can be adapted to include such a device.

### **Step positions, steps and boarding aids**

Compliance with the requirements of points 4.2.2.11 and 4.2.2.12 is not mandatory at renewal or upgrade. However, if moveable steps or other integral boarding aids are fitted, they shall comply with the relevant provisions of those points.

However, if a wheelchair space in accordance with point 4.2.2.3 is created at renewal or upgrade, then it shall be mandatory to provide some form of boarding aid in accordance with point 4.4.3.”;

(68) Appendix G is replaced by the following:

“Appendix G

### **Passenger external doors audible signals**

#### **G.1. Definitions**

The following terms are used in this Appendix:

$f_{signal}$  = frequency of excitation tone

$L_S$  = sound pressure level measured as an energy equivalent level of 20 s ( $L_{Aeq20}$ )

$L_{Smax}$  = maximum sound pressure level measured as an energy equivalent level of 20s ( $L_{Aeq20}$ )



$L_{Smin}$  = minimum sound pressure level measured as an energy equivalent level of 20s ( $L_{Aeq20}$ )

$L_N$  = surrounding noise level measured as follows:

a) frequency range

energetic sum of three octave bands

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

where:

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

$$L_2 = L_{oct.1000 \text{ Hz}}$$

$$L_3 = L_{oct.2000 \text{ Hz}}$$

b) Sound Pressure level measured as an energy equivalent level of 20 s ( $L_{Aeq20}$ )

## G.2 Door opening and closing signals

### G.2.1 Door opening signal

Characteristics		A slow pulse multi tone (up to 2 pulses per second) of 2 tones emitted sequential
Frequencies	–	$f_{signal1} = 2200 \text{ Hz} \pm 100 \text{ Hz}$
	–	$f_{signal2} = 1760 \text{ Hz} \pm 100 \text{ Hz}$
Sound pressure level		Adaptive device
	–	$L_S \geq L_N + 5 \text{ dB}$
	–	$L_{Smax} = 70 \text{ dB} (+ 6/- 0)$
		Non adaptive device
	–	$L_S = 70 \text{ dB} (+ 6/- 0)$

### G.2.2 Door closing signal

Characteristics	–	A fast pulsed tone (6-10 pulses per second)
Frequency	–	$f_{signal} = 1900 \text{ Hz} \pm 100 \text{ Hz}$
Sound pressure level		Adaptive device
	–	$L_S \geq L_N + 5 \text{ dB}$
	–	$L_{Smax} = 70 \text{ dB} (+ 6/- 0)$
		Non adaptive device
	–	$L_S = 70 \text{ dB} (+ 6/- 0)$

### G.3. Door finding signals

The door finding signal can be a single tone signal (in accordance with point G.3.1) or a double tone signal (in accordance with point G.3.2). Both signal types shall be equally accepted in all Member States.

#### G.3.1 Single Tone Signal

Characteristics	<p>Interval of tone (rectangle), none fade in and fade out</p> <ul style="list-style-type: none"> <li>- signal impulse duration = <math>5 \text{ ms} \pm 1 \text{ ms}</math> “on” (pure tone impulse)</li> <li>- signal repetition frequency = <math>4 \text{ Hz} \pm 1 \text{ Hz}</math></li> </ul>
Frequency	<ul style="list-style-type: none"> <li>- <math>f_{\text{signal}} = 630 \text{ Hz} \pm 50 \text{ Hz}</math></li> </ul>
Sound pressure level	<p>Adaptive device</p> <ul style="list-style-type: none"> <li>- <math>L_S \geq L_N - 5 \text{ dB}</math></li> <li>- <math>L_{Smin} = 50 \text{ dB} (+/- 2)</math></li> <li>- <math>L_{Smax} = 65 \text{ dB} (+/- 2)</math></li> </ul> <p>Non adaptive device</p> <ul style="list-style-type: none"> <li>- <math>L_S = 60 \text{ dB} (+6/-0)</math></li> </ul>

#### G.3.2 Dual Tone Signal

Characteristics	<p>Interval of tones (signal definition)</p> <ul style="list-style-type: none"> <li>- 100 ms sound pressure level fade in</li> <li>- 100 ms sound first tone <math>550 \text{ Hz} \pm 50 \text{ Hz}</math></li> <li>- 100 ms sound pressure level fade out</li> <li>- 200 ms off</li> <li>- 100 ms sound pressure level fade in</li> <li>- 100 ms sound second tone <math>750 \text{ Hz} \pm 50 \text{ Hz}</math></li> <li>- 100 ms sound pressure level fade out</li> <li>- 900 ms off</li> <li>- signal repetition time = 1 700 ms</li> </ul>
Frequency	<p><math>f_{\text{signal1}} = 550 \text{ Hz} \pm 50 \text{ Hz}</math></p> <p><math>f_{\text{signal2}} = 750 \text{ Hz} \pm 50 \text{ Hz}</math></p>

Sound pressure level	Adaptive device
	- $L_S \geq L_N + 5$ dB
	- $L_{Smin} = 55$ dB (+/- 2 dB)
	- $L_{Smax} = 75$ dB (+/- 2 dB)
	Non adaptive device
- $L_S = 70$ dB (+6/-0 dB)	

#### G.4. Measuring Positions

The microphone position for the measurements of audible door signals shall be in accordance with the specification referenced in Appendix A, Index [20]. The specification may be for the microphone position of the door finding signal despite the scope of the specification excluding the door finding signal.

Measurements to demonstrate compliance shall be carried out at three door locations on a train. The door shall be fully open for the close test and fully closed for the open test.”;

(69) Appendixes H, I, J, K and L are deleted;

(70) Appendix M is replaced by the following:

“Appendix M

#### **Interoperable wheelchair transportable by train**

##### **M.1 SCOPE**

This Appendix identifies the maximum engineering limits for an interoperable wheelchair transportable by train. Those 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 those 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 Annex to Regulation (EU) No 454/2011.

##### **M.2 CHARACTERISTICS**

The values considered as engineering limits are:

###### **Basic Dimensions**

- Width of 700 mm plus 50 mm min each side for hands when moving.
- Length of 1200 mm plus 50 mm for feet.

###### **Wheels**

The smallest wheel shall accommodate a gap of dimensions 75 mm horizontal and 50 mm vertical.

**Height**

1450 mm max including a 95th percentile male occupant

**Turning circle**

- 1500 mm

**Weight**

- Fully laden weight of 300 kg for wheelchair and occupant (including any baggage) in the case of an electrical wheelchair for which no assistance is required for crossing a boarding aid.

- Fully laden weight of 200 kg for wheelchair and occupant (including any baggage) in the case of a manual wheelchair.

**Obstacle height that can be overcome and ground clearance**

- Obstacle height that can be overcome 50 mm (max)

- Ground clearance 60 mm (min) with a upward slope angle of 10° (17%) on top for going forward (under the foot rest)

**Maximum safe slope on which the wheelchair will remain stable:**

- Shall have dynamic stability in all directions at an angle of 6° (10%)

- Shall have static stability in all directions (including with brake applied) at an angle of 9° (16%).”;

(71) Appendix N is amended as follows:

(a) point N.3 is replaced by the following:

**“N.3 SYMBOLS TO USE ON SIGNS****International wheelchair sign**

The sign which identifies wheelchair accessible areas shall include a symbol in accordance with one of the specifications referenced in Appendix A, Index [12] or Index [13].

**Inductive loop sign**

The sign indicating where inductive loops are fitted shall include a symbol in accordance with the specification referenced in Appendix A, Index [14].

**Priority seating sign**

The sign indicating where there are priority seats shall include symbols in accordance with Figure N1.

**Figure N1****Symbols for priority seats**



”;

(b) the following point N.4 is added:

“N.4 COLOUR 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).”;

(72) the following Appendix P is added:

“Appendix P:

**Changes of requirements and transition regimes**

**Changes with a generic transition regime:**

For TSI points listed in Table 1, conformity with this Regulation, as amended by Commission Implementing Regulation (EU) 2019/772\* (previous TSI) does not lead systematically to conformity with the version of this TSI applicable from *[Publications Office: please insert the date of entry into force of this amending act]*. However, for projects already in design phase on *[Publications Office: please insert the date of entry into force of this amending act]*, the requirement from the previous TSI may still apply until *[Publications Office: please insert the date of entry into force of this amending act + 7 years]*. Projects in production phase and rolling stock in operation are not affected by the TSI requirements listed in Table 1

Table 1 – transition regime of 7 years

TSI point(s)	TSI point(s) in the previous TSI	Explanation of the TSI change
4.2.2.1.1(1a)	No requirement	New requirement precisising the correct position of the handle
4.2.2.2(8)	4.2.2.2(8)	More precise wording of the requirement
4.2.2.3.2(8) 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	No requirement	New requirement
4.2.2.3.2(11)	No requirement	New requirement
4.2.2.11.1(3) The technical documentation referred to 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 ( $\delta v$ -) of 160 mm and in a horizontal gap ( $\delta h$ ) 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.	No requirement	New requirement
5.3.2.6(1)	5.3.2.6(1)	Restriction of the possibilities given
6.2.3.3	No requirement	New requirement referring to a specific standard on contrast
7.3.2.6. Step position for vehicle access and egress) Specific Case Spain 'P'	7.3.2.6. Step position for vehicle access and egress) Specific Case Spain 'P' for the 1 668 mm gauge network	New requirement applicable to 1668 mm track gauge vehicles
Appendix G – door opening and closing signals	Appendix G – door opening and closing signals	Change of measuring method

### Changes with a specific transition regime:

For TSI points listed in Table 2, conformity with the previous TSI does not lead systematically to conformity with the version of this TSI applicable from *[Publications Office: please insert the date of entry into force of this amending act]*. However, for projects already in design phase on *[Publications Office: please insert the date of entry into force of this amending act]*, the requirement from the previous TSI may still apply in accordance with

the specific transition regime set out in Table 2. Projects in production phase and rolling stock in operation are affected by the TSI requirements listed in Table 2 in accordance with the specific transition regime set out in that Table.

Table 2 – Specific transition regime

TSI point(s)	TSI points(s) in previous TSI	Explanation on TSI change	Transition regime			
			Design phase not started	Design phase started	Production phase	RST in operation

---

\* Commission Implementing Regulation (EU) 2019/772 of 16 May 2019 amending Regulation (EU) No 1300/2014 as regards inventory of assets with a view to identifying barriers to accessibility, providing information to users and monitoring and evaluating progress on accessibility (OJ L 139I, 27.5.2019, p. 1).”.