2 The requirement of specification for motor vehicle

2.1 The requirement of specification for motor vehicle shall according to suitable types and range of principle are as below：

2.1.1 The same vehicle category symbol.

2.1.2 The same type of vehicle body.

2.1.3 The same axle set type.

2.1.4 The same axle weight, gross vehicle weight and gross combination weight.

2.1.5 The same brand and vehicle type series.

2.1.6 The chassis vehicle have had same axle set type.

2.1.7 The same chassis brand.

2.1.8 Chassis manufacturers announced that the same chassis vehicle type series.

2.2 The tolerations of the dimension and weight about this requirements of specification for vehicle is defined as below:

2.2.1 Tolerations of dimension: The sum of toleration of measurement and manufacturing

500 cm below: +/- 2%

500 cm above: +/- 10 cm

Total toleration is not enough +/- 1 cm: as +/- 1 cm

2.2.2 Tolerations of weight: The sum of toleration of measurement and manufacturing

10 tonnes below: +/- 2%

10 tonnes above: +/- 0.2 tonnes

Total toleration is not enough +/- 0.01 tonnes: as +/- 0.01 tonnes

2.2.3 The actual measured value of category M2, M3 height will be used as the judgmental and certified specification since 2007/7/1.

2.3 Dimension limits of vehicle:

2.3.1 Maximum length

2.3.1.1 The vehicle of category M2, M3 shall not exceed 12.2m；The articulated buses of category M3 shall not exceed 18.75 m.

2.3.1.2 The vehicle of category N2, N3 shall not exceed 12m.

2.3.1.3 The firefighting vehicle approved by Ministry of the Interior (MOI) shall not exceed 15m.

2.3.1.4 The vehicle of category O1, O2 towed by M1, N1 shall not exceed 7m.

2.3.1.5 The motorcycle with engine displacement above 550cm³ shall not exceed 4m, and the motorcycle with engine displacement under 550cm³ shall not exceed 2.5m.

2.3.2 Maximum width

2.3.2.1 The maximum width of vehicle of category M, N shall not exceed 2.5m.

2.3.2.2 The firefighting vehicle approved by MOI shall not exceed 2.6m.

2.3.2.3 The small-light moped shouldn't exceed 1m, and handlebar stem is forbids using elastic and adjustable, three-wheeled vehicle with engine displacement not exceeding 250 cm^3 or other motorcycle/moped shall not exceed 1.3m. Three-wheeled vehicle with engine displacement more than 250 cm^3 shall not exceed 2m.

2.3.3 Maximum height

2.3.3.1 The double decker city bus of category M3 shall not exceed 4.4m, however for double decker city bus of category M3 without a roof over its deck shall not exceed 4m.

2.3.3.2 The single axle (front & rear wheels) of vehicle of category M2, M3 shall not exceed 3.6m, if vehicle of category M2, M3 that is front single axle, rear double axle vehicle, the maximum height shall not exceed 3.8m. From 2007.07.01, the new types of M2 and M3 vehicles and from 2008.01.01，each types of M2 and M3 vehicles the maximum height shall not exceed 3.5m.

2.3.3.3 The concrete pump truck shall not exceed 4m.

2.3.3.4 The others vehicle of category N2 , N3 and category O which other than those referred to in paragraph 2.3.3.5 shall not exceed 3.8m.

2.3.3.5 The firefighting vehicle approved by MOI shall not exceed 4.2m.

2.3.3.6 The vehicle of category M1, N1 and vehicle of category O1, O2 towed by them shall not exceed 1.5 times of the maximum width, shall not exceed 2.85m as the upper limit.

2.3.3.7 The motorcycle shall not exceed 2m.

2.3.4 Dimensions between the outer edge of rear wheels and the inner edge of vehicle body

2.3.4.1 The M2, M3, N2, N3 vehicles and category O which other than those referred to in paragraph 2.3.4.2 shall not exceed 15cm.

2.3.4.2 The vehicle of category M1, N1 and vehicle of category O1, O2 towed by them shall not exceed 10cm.

2.3.5 Rear overhang

2.3.5.1 The vehicle of category M shall not exceed 60% of its wheelbase.

2.3.5.2 The vehicle of category N and passenger-cargo vehicle shall not exceed 50% of its wheelbase.

2.3.5.3 The special vehicle with special device and the firefighting vehicle approved by MOI shall not exceed 66.6% of its wheelbase, however, the portion of carrying passengers or cargo shall not exceed 50%.

2.4 The body specifications of motor vehicle:

2.4.1 The body specifications of M2,M3 vehicles:

Articulated buses of category M3 shall comply with paragraphs 2.4.4, double decker city buses of category M3 shall comply with paragraphs 2.4.5, the class II low floor electric vehicle with maximum length not exceed 5500mm, maximum width not exceed 2100mm and number of passengers not exceed 14, may comply with paragraph 2.4.6 as an alternative to paragraph 2.4.1.

Effective date from 2019/1/1, the new vehicle types of M2, M3 vehicles and from 2022/1/1, the all vehicle types of large passenger vehicle, the items of body specification shall comply with the additional requirements as below:

The body specification for motor vehicle	Additional corresponding paragraphs need to be conformed
Minimum number of emergency exits	2.4.1.2.2.1
Exits markings	2.4.1.3.2.2
Safety signs	2.4.1.3.3
Additional technical requirements for power-operated service doors	2.4.1.4.3.2 and 2.4.1.19
Overnight locking system	2.4.1.4.4
Escape hatch aperture area	2.4.1.11.1.1
Prams and pushchairs areas	2.4.1.18
Communication devices	2.4.1.20
Priority seat	2.4.1.21 to 2.4.1.23
Artificial interior lighting	2.4.1.24

Effective date from 2018/1/1, the new vehicle types of M2, M3 vehicles and from 2019/1/1, the all vehicle types of M2, M3 vehicles, the

items of body specification shall comply with the additional requirements as below:

The body specification for motor vehicle	Additional corresponding paragraphs need to be conformed
The requirements for equipment on the access passages	2.4.1.5.4 to 2.4.1.5.7
Height of seat cushion	2.4.1.14.5
Seat spacing	2.4.1.14.6
Guarding of open area	2.4.1.26
Baggage racks and occupant protection	2.4.1.27
Trap doors	2.4.1.28
Visual entertainment	2.4.1.29

2.4.1.1 The M2, M3 vehicles in this attachment are classified into：

2.4.1.1.1 Class I: M3 vehicles with wheelbase more than 4m.

2.4.1.1.2 Class II: M2, M3 vehicles with wheelbase less than 4m, and gross vehicle weight more than 4.5MT.

2.4.1.1.3 Class III: M2 vehicles with wheelbase less than 4m, and gross vehicle weight more than 3.5MT but less than 4.5MT.

2.4.1.1.4 Class IV: M2 vehicles with wheelbase less than 4m, and gross vehicle weight less than 3.5MT.

2.4.1.2 Exit means service door and emergency exit. The number and sitting of exits shall comply with the following requirements:

2.4.1.2.1 Service door means a door used by passengers in normal circumstances, except the door right to the left of driver's seat. The service doors shall be situated on the right side and the minimum number of service door is one. (For city bus whose approved number of passengers exceeds 47, the minimum number of service door shall be two.)

2.4.1.2.2 Except for stipulated in paragraph 2.4.1 that it shall comply with paragraph 2.4.1.2.2.1, emergency exit means emergency door, emergency window or escape hatch. At least one emergency door shall be situated either in the rear face or in the left-rear side of the vehicle, and at least one emergency exit situated in the rear face or roof of the vehicle. (For M3 vehicles whose approved number of passengers exceeds 52, the minimum number of emergency exits shall be two.)

2.4.1.2.2.1 According to paragraph 2.4.1 which shall comply with this regulation. Emergency exit means emergency door,

emergency window or escape hatch. At least one emergency door shall be situated either in the rear face or in the left-rear side of the vehicle, and at least one emergency exit situated in the rear face or roof of the vehicle. (For M3 vehicles whose approved number of passengers exceeds 32, the minimum number of emergency exits shall be two.).

2.4.1.2.2.2 Effective date from 2016/1/1, the new vehicle types of class I large passenger vehicle and from 2018/1/1, the all vehicle types of class I large passenger vehicle, whose approved number of passengers not exceeds 52, shall at least have one emergency exits situated on the roof of the vehicle.

2.4.1.2.2.3 Effective date from 2016/1/1, the new vehicle types of class II large passenger vehicle and from 2018/1/1, the all vehicle types of class II large passenger vehicle, if only have one emergency exit and situated in the rear face, it shall be a movable exit and comply with paragraph 2.4.1.2.4 a.

2.4.1.2.3 For large passenger vehicles of classes I, II and III, the number of exits shall comply with the following requirements. A double service door, which can afford two side-by-side vertical rectangular panels (each of which is applicable to a normal access passage), shall count as two doors. And a double window, when divided into two by an imaginary vertical line, exhibits two parts each of which complies as to dimensions and access with the requirements applicable to a normal emergency window, shall count as two emergency windows.

2.4.1.2.3.1 For M2, M3 vehicles with approved number of passengers not more than 18, and the M3 vehicles without a roof (all or part) over its deck (Abbreviation: single deck buses without a roof), the minimum number of exits shall be 3.

2.4.1.2.3.2 For M3 vehicles with approved number of passengers more than 18 but not more than 32, the minimum number of exits shall be 4.

2.4.1.2.3.3 For M3 vehicles with approved number of passengers more than 32 but not more than 47, the minimum number of exits shall be 5.

2.4.1.2.3.4 For M3 vehicles with approved number of passengers more than 47 but not more than 62, the minimum number of exits shall be 6.

2.4.1.2.3.5 For M3 vehicles with approved number of passengers more than 62, the minimum number of exits shall be 7.

2.4.1.2.4 Effective date from 2016/1/1, the new vehicle types of class I, II large passenger vehicle and from 2017/1/1, the all

vehicle types of class I, II large passenger vehicle , the quantity of movable exits of the both sides of the vehicle shall comply with the following requirements；and a movable exit means service door , emergency door, inside or outside operated movable emergency window or inside operated emergency window：

2.4.1.2.4.1 Class I large passenger vehicle: both left and right sides of vehicle shall assemble 2 movable exits. At least 1 inside or outside operated movable emergency window or 1 inside operated emergency window in the right side, and at least 2 inside or outside operated movable emergency windows or inside operated emergency windows in the left side.

2.4.1.2.4.2 Class II large passenger vehicle: both left and right sides of vehicle shall assemble 1 inside or outside operated movable emergency window or 1 inside operated emergency window.

2.4.1.2.5 Class I vehicles shall also comply with the following requirements:

2.4.1.2.5.1 The exits shall be placed in such a way that their number on each of the two sides of the vehicle is substantially the same. The exits on the same side of the vehicle shall be suitably spaced out along the length of the vehicle. However, single deck buses without a roof could exempt from “The exits shall be placed in such a way that their number on each of the two sides of the vehicle is substantially the same” of this regulation.

2.4.1.2.5.2 Two of the doors (Service door or emergency door) on the same side of the vehicle shall be separated such that the distance between transverse vertical planes through their centers of area is not less than 40 percent of the overall length of the passenger compartment measured parallel to the longitudinal axis of the vehicle. If one of these doors forms part of a double door this distance shall be measured between the doors which are furthest apart. The overall length of the passenger compartment is the distance between the front face of seat cushion of the most front seat and the back face of seat-back of the rearmost seat, measured parallel to the longitudinal axis of the vehicle.

2.4.1.2.5.3 If there is only one escape hatch, it shall be situated in the middle third of the vehicle; if there are two hatches, they shall be separated by a distance of at least 2m measured between the nearest edges of the apertures in a line parallel with the longitudinal axis of the vehicle.

2.4.1.2.6 For M2,M3 vehicles having a capacity not exceeding 22 passengers shall meet the following requirements:

2.4.1.2.6.1 The service door(s) shall be situated on the right side of the vehicle and at least one of them shall be in the forward half of the vehicle.

2.4.1.2.6.2 The exits shall be placed in such a way that there is at least one exit on each side of the vehicle.

2.4.1.2.6.3 The forward half and the rearward half of the passenger compartment shall each contain at least one exit.

2.4.1.3 Exits markings

2.4.1.3.1 For vehicles of class I, there shall be a green marking light placed on, or within 30cm of each exit. For vehicles of class II, there shall be a green marking light placed on, or within 30cm of each service door, emergency door and escape hatch; and since 2006/1/1, there shall be a green marking light placed on, or within 30cm of each emergency window.

2.4.1.3.2 Each emergency exit shall be marked by the characters in Chinese language “緊急出口” and “Emergency exit” at easily seen location inside and outside the vehicle, or close to the exit. Each emergency exit and any other exit or close to the exit that meets the prescriptions for an emergency exit shall be marked, shall be marked by one of the relevant pictograms described in Table 3 of ISO Standard 7010:2011; pictograms shall be legible from both the inside and the outside of the vehicle.

2.4.1.3.2.1 Each character size of “緊急出口” shall be at least 10 square cm when marked in the emergency doors; and shall be at least 4 square cm when marked in the emergency windows or escape hatches.

2.4.1.3.2.1.1 Clear instructions concerning the method of operation shall be placed on or close to the control of every emergency exit

2.4.1.3.2.2 All safety signs that are visible from the inside of the vehicle shall be of photo-luminescent material having luminance decay characteristics conforming, as a minimum, to sub-classification C in Table 2 of ISO Standard 17398:2004（according to paragraph 7.11 of standard to test）. All safety signs shall comply with requirements contained in paragraph 6.5. of ISO standard 3864-1:2011.

2.4.1.3.3 Safety signs: according to paragraph 2.4.1.3.3.5 ,the locations of emergency controls of service doors and all emergency exits/ Emergency window breakers, it shall be provided safety signs as follow:

2.4.1.3.3.1 All safety signs shall comply with requirements contained in paragraph 2.6.5. of ISO standard 3864-1:2011.

2.4.1.3.3.2 Each safety sign required by this Regulation shall be used to communicate only one safety message. The information provided shall be in the form of pictograms, however, words, letters and numbers may supplement the

pictogram in combination on the same sign. It shall be located and orientated so as to be easily understood.

2.4.1.3.3.2.1 Safety signs shall follow the principles shown in the example layouts below, i.e. a header section depicting the safety message, a second section containing instructional information and a third, optional, footer section for non-critical text.





2.4.1.3.3.2.2 Pictograms indicating required actions by the user shall show a person, or the relevant part of a person, operating the equipment or device.

2.4.1.3.3.2.3 Pictograms indicating a required movement shall, where appropriate, show an arrow pointing in the direction of motion. Where a rotational movement is required, a arrow shall be used.

2.4.1.3.3.2.4 Where devices are to be operated, panels removed or doors opened, the pictogram shall indicate the action in progress.

2.4.1.3.3.2.5 The lower case letter(s) of supplementary words, single letters and numbers shall have a minimum height of 8 mm. Words shall not be in upper case letters only.

2.4.1.3.3.3 All safety signs that are visible from the inside of the vehicle shall be of photo-luminescent material having luminance decay characteristics conforming, as a minimum, to sub-classification C in Table 2 of ISO Standard 17398:2004, when measured in accordance with paragraph 7.11. of that standard.

2.4.1.3.3.4 Safety signs shall not be located in positions where they may be obscured during operation of the vehicle. However, a curtain or blind may be positioned over an emergency window provided an additional safety sign indicates that the emergency window is located behind the curtain or blind.

2.4.1.3.3.5 Safety signs shall be positioned adjacent to, or surround, or be on, all internal and external emergency controls and device(s) for breaking emergency window(s).

2.4.1.3.3.6 No part of a safety sign shall obscure any misuse protection that may be present, e.g. a cover.

2.4.1.4 Service doors

2.4.1.4.1 Door aperture height:

2.4.1.4.1.1 For vehicles of class I: At least 185cm.

2.4.1.4.1.2 For vehicles of class II and III: At least 150cm. But, for vehicles of class III before 2005/12/31, at least 110cm.

2.4.1.4.1.3 For vehicles of class IV: At least 110cm.

2.4.1.4.1.4 This provision does not apply to the area of single deck buses which do not have a roof.

2.4.1.4.2 Door aperture width:

2.4.1.4.2.1 For vehicles of class I and II: At least 76cm.

2.4.1.4.2.2 For vehicles of class III and IV: At least 65cm.

2.4.1.4.3 In the event of emergency every power-operated service door shall be capable, when the vehicle is stationary, by means of conform to control device of paragraph as below, otherwise it couldn't count in the number of doors.

2.4.1.4.3.1 Except for stipulated in paragraph 2.4.1 that it shall comply with 2.4.1.4.3.2, it shall comply with the following requirements:

2.4.1.4.3.1.1 override all other controls;

2.4.1.4.3.1.2 in the case of interior controls, are placed on, or within 30cm of, the door;

2.4.1.4.3.1.3 have clear instructions concerning the method of operation placed on or close to the emergency control;

2.4.1.4.3.1.4 can be operated by one person to open the door;

2.4.1.4.3.1.5 may be protected by a device which can be easily broken (with indication to the driver both audibly and visually) to gain access to the emergency control, otherwise it cannot count as service door.

2.4.1.4.3.2 shall comply with provisions of 2.4.1.19.1and 2.4.1.19.2.

2.4.1.4.4 "Overnight locking system" means a system designed to provide the possibility to secure the service and emergency doors of the vehicle against opening.

2.4.1.4.4.1 If an overnight locking system is provided, the following shall apply:

2.4.1.4.4.1.1 The locking system shall have been automatically deactivated when the ignition is in the "ON" position, or

2.4.1.4.4.1.2 A warning shall be provided to the driver indicating that the overnight locking system remains in operation at one or more door(s) when the ignition is in the "ON" position. One signal may be used for more than one door.

2.4.1.5 Access passage to service door means the space extending inwards into the vehicle from the service door up to the outermost edge of the upper step (edge of the gangway. When there is no step at the door, the space to be considered as access passage shall be that which is measured up to a distance of 30cm from the starting position of the inner face of the service door). The access passage to service door of M2,M3 vehicles shall comply with the following requirements:

2.4.1.5.1 For vehicles of class I: It shall permit the free passage of a vertical rectangular panel 2cm thick, 55cm wide and 185cm in height above the floor. The panel shall be parallel with the door aperture and kept at right angles to the probable direction of motion of a person using the entrance, as it is moved from the edge of gangway through the service door to the outer edge of the vehicle.

2.4.1.5.2 For vehicles of class II: It shall permit the free passage of a vertical rectangular panel 2cm thick, 55cm wide and 150cm in height above the floor. The panel shall be parallel with the door aperture and kept at right angles to the probable direction of motion of a person using the entrance, as it is moved from the edge of gangway through the service door to the outer edge of the vehicle.

2.4.1.5.3 The gauging device shall comply with the following requirements:

2.4.1.5.3.1 The gauging device according to gangway mannequin shall not come into contact with any monitor or display device mounted from the ceiling above the gangway of the following categories:

(1) In vehicles of Classes I(for vehicles having a capacity exceeding 22 passengers, vehicles constructed with areas for standing , to allow frequent passenger movement).

(2) In vehicles of Classes A(for vehicles having a capacity not exceeding 22 passengers, vehicles designed to carry standing passengers; a vehicle of this class has seats and shall have provision for standing passengers).

2.4.1.5.3.2 The gauging device may come into contact with any monitor or display device mounted from the ceiling above the gangway provided the maximum force necessary to move any such monitor or display device out of the way, shall not exceed 35 Newton. This maximum force shall be applied normal to the middle of the lower edge of the monitor or display device in both directions in turn until the monitor or display device has reached a position which allows

clear passage of the gauging device.

After being moved out of the way, the monitor or display device shall maintain its position and not automatically redeploy.

(1) In vehicles of Classes II (for vehicles having a capacity exceeding 22 passengers, vehicles constructed principally for the carriage of seated passengers, and designed to allow the carriage of standing passengers in the gangway and/or in an area which does not exceed the space provided for two double seats).

(2) In vehicles of Classes III (for vehicles having a capacity exceeding 22 passengers, vehicles constructed exclusively for the carriage of seated passengers).

(3) In vehicles of Classes B (for vehicles having a capacity not exceeding 22 passengers, vehicles not designed to carry standing passengers; a vehicle of this class has no provision for standing passengers).

If a vehicle is fitted with a barrier, the gauging device according to gangway mannequin, may come into contact with the barrier provided that the maximum force necessary to move such barrier out of the way does not exceed 50 Newton measured at the point of contact between the gauging device according to gangway mannequin and the barrier and applied perpendicular to the barrier.

The maximum force shall apply to both directions of movement of the gauging device.

If the vehicle is equipped with a lift adjacent to the barrier, the barrier may be temporarily blocked during the operation of the lift.

2.4.1.5.4 In the case of folding seats, this space shall be determined with the seat in the position of use.

2.4.1.5.5 However, one or more folding seat(s) for use by the crew may obstruct the access passage to a service door when in the position of use provided that:

2.4.1.5.5.1 it is clearly indicated, both in the vehicle itself and on the communication from, that the seat is for the use of crew only,

2.4.1.5.5.2 when the seat is not in use it folds automatically as necessary to enable the requirements of paragraphs 2.4.1.5, 2.4.1.5.1 and 2.4.1.5.2 to be met ;

2.4.1.5.5.3 the door is not considered to be a mandatory exit for the purpose of paragraph 2.4.1.2,

2.4.1.5.5.4 When the seat is in the position of use, and when it is in the folded position, no part of it shall be:

(a) Forward of a vertical plane passing through the centre of the seating surface of the driver's seat in its rearmost and lowest position and through the centre of the exterior rear-view mirror mounted on the opposite side of the vehicle or through the centre of any monitor used as device for indirect vision, whatever applicable, and

(b) Above a horizontal plane which is located 300 mm above the centre of the seating surface of the driver's seat in its rearmost and lowest position.

2.4.1.5.6 The maximum slope of the floor in the access passage shall not exceed 5 per cent.

2.4.1.5.7 The surface of access passages shall be slip-resistant.

2.4.1.6 Emergency doors

2.4.1.6.1 Effective height:

2.4.1.6.1.1 For vehicles of class I: At least 160cm.

2.4.1.6.1.2 For vehicles of class II and III: At least 125cm.

2.4.1.6.1.3 For vehicles of class III and IV: At least 110cm.

2.4.1.6.1.4 This provision does not apply to the area of single deck buses which do not have a roof.

2.4.1.6.2 Effective width shall be at least 55cm.

2.4.1.6.3 The height of the lowest edge of emergency doors from the ground（means the height of lower edge of emergency door or stair to ground ）:

2.4.1.6.3.1 For vehicles of class I and II: It shall not exceed 70cm. But before 2005/12/31, for city buses of class I, and vehicles of class II, it shall not exceed 100cm.

2.4.1.6.3.2 For vehicles of class III and IV: It shall not exceed 100cm.

2.4.1.6.4 Emergency doors shall be equipped with “safety locks” incorporated with an audible device to warn the driver when the locks are removed. Emergency doors shall not be of the power-operated or of the sliding type. Emergency doors shall be capable of being easily opened from inside and from outside when the vehicle is stationary, and it cannot be closed automatically without external force acting on it.

2.4.1.6.5 The outside control devices of emergency doors shall be not more than 180cm above the ground.

2.4.1.6.6 "Overnight locking system" means a system designed to provide the possibility to secure the service and emergency doors of the vehicle against opening.

Except for M2, M3 vehicles do not need to be secured against theft, all vehicle types of large passenger vehicles whose emergency doors shall be equipped with an overnight locking system.

2.4.1.6.6.1 If an overnight locking system is provided, the following shall apply:

2.4.1.6.6.1.1 The locking system shall have been automatically deactivated when the ignition is in the "ON" position, or

2.4.1.6.6.1.2 A warning shall be provided to the driver indicating that the overnight locking system remains in operation at one or more door(s) when the ignition is in the "ON" position. One signal may be used for more than one door.

2.4.1.7 Access passage to emergency doors means the free space between the gangway and the emergency doors aperture. The access passage to emergency doors of M2, M3 vehicles shall comply with the following requirements:

2.4.1.7.1 No movable seat or cover plate is allowed, and the access passage shall be kept clear. (If there is a movable device(s) near the access passage, all possible positions of the device(s) shall comply with this requirement.)

2.4.1.7.2 For vehicles of class I: It shall permit the free passage of a rectangular panel 2cm thick, 55cm wide and 160cm in height above the floor. The panel shall be parallel with the door aperture and kept at right angles to the probable direction of motion of a person using the exit, as it is moved from the edge of gangway through the emergency door to the outer edge of the vehicle.

2.4.1.7.3 For vehicles of class II: It shall permit the free passage of a rectangular panel 2cm thick, 55cm wide and 125cm in height above the floor. The panel shall be parallel with the door aperture and kept at right angles to the probable direction of motion of a person using the exit, as it is moved from the edge of gangway through the emergency door to the outer edge of the vehicle.

2.4.1.7.4 If the access passage to emergency door regulated in 7.2 and 7.3 is parallel with the gangway, the free space of this access passage to emergency door shall be at least 55cm wide and 55cm in length.

2.4.1.8 Emergency windows:

2.4.1.8.1 Every emergency window shall be among three of the following types:

2.4.1.8.1.1 Inside and outside operated movable emergency window: It shall be easily operated by hands from inside and from outside the vehicle. Every hinged emergency window shall be opened outwards, and can be opened to more than 90 degrees. Every emergency windows which is hinged at the top shall be provided with an appropriate

mechanism to hold it open, and shall be fitted with an audible warning device to warn the driver. The movement of window lock, but not the movement of the window itself, shall actuate this device. This provision includes the possibility of using e.g. panes of laminated glass or plastic material.

2.4.1.8.1.2 Inside operated emergency windows：It shall be easily operated by hands from inside of vehicle, every hinged emergency window shall be opened outwards, and can be opened to more than 90 degrees. Every emergency windows which is hinged at the top shall be provided with an appropriate mechanism to hold it open, and shall be fitted with an audible warning device to warn the driver. The movement of window lock, but not the movement of the window itself, shall actuate this device. The glazing materials shall comply with toughened glass of ”Safety glass” of VSTD.

2.4.1.8.1.3 Disintegrated emergency windows : From 2006/07/01 who use the new type of disintegrated emergency windows of M2, M3 vehicles, and from 2008/07/01 who use each types of disintegrated emergency windows of M2, M3 vehicles, all of them, the glazing materials of this disintegrated emergency windows shall comply with the Testing standard of Vehicle Safety’s ”Safety glass” requirements about toughened glass and shall be readily breakable. The applicant shall prepare the document of proof.

2.4.1.8.2 The area of emergency window shall be at least 4000cm^2, and it shall be possible to inscribe in this area a rectangle of 50cm high and 70cm wide. For emergency window(s) situated in the rear face of the vehicle, if the manufacturer does not provide an emergency window of the minimum dimensions prescribed above, it shall be possible to inscribe in the emergency window aperture a rectangle of 35cm high and 155cm wide. The corners of the rectangle may be rounded to a radius of curvature not exceeding 25cm.

2.4.1.8.3 The height of the lower edge of an emergency window fitted in the side of the vehicle from the level of the floor immediately below it shall be not more than 100cm nor less than 65cm in the case of a hinged emergency window, or 50cm in the case of a window made of breakable glass. However, in the case of a hinged emergency window the height of the lower edge may be reduced to a minimum of 50cm provided that the window aperture is equipped with a guard up to a height of 65cm to prevent the possibility of passengers falling out of the vehicle. Where the window aperture is

equipped with a guard, the size of the window aperture above the guard shall not be less than the minimum size prescribed for an emergency window.

2.4.1.9 Access to emergency windows

2.4.1.9.1 It shall be possible to move a test gauge from the gangway to the exterior of the vehicle through every emergency window.

2.4.1.9.2 The direction of motion of the test gauge shall be in the direction in which a passenger evacuating the vehicle would be expected to move. The test gauge shall be kept perpendicular to that direction of motion and shall not meet any obstacle.

2.4.1.9.3 The test gauge shall be in the form of a thin plate having a size of 600 mm x 400 mm with corners radiused by 200 mm. However, in the case of an emergency window in the rear face of the vehicle, the test gauge may alternatively have a size of 1400 mm x 350 mm with corners radiused by 175 mm.

2.4.1.10 Window breaking devices:

2.4.1.10.1 The minimum number of window breaking devices shall be 3. (For double-deck city buses, each deck shall have at least 3 window breaking devices)

2.4.1.10.2 It shall be placed in the position where passengers can easily reach, and comply with the following requirements:

2.4.1.10.2.1 There shall be at least one window breaking device placed near the driver’s seat.

2.4.1.10.2.2 There shall be at least one window breaking device placed in the front section of the vehicle, and at least one in the rear section of the vehicle.

2.4.1.10.2.3 There shall be at least one window breaking device placed in the each side of the vehicle.

2.4.1.10.3 Clear instructions concerning the method of operation and a marking reading “Emergency window breakers” shall be placed on or close to the device. The character size of “Emergency window breakers” shall be at least 4 square cm. Safety operation signs shall be met paragraph 2.4.1.3.3; materials of signs shall be met paragraph 2.4.1.3.2.2.

2.4.1.10.4 For vehicles which emergency windows not use toughened glass could exempt from this provision.

2.4.1.11 Escape hatches:

2.4.1.11.1 Except for paragraph 2.4.1 stipulated that it could instead by paragraph 2.4.1.11.1.1, Every escape hatch shall be

operated manually from inside or outside the vehicle. The aperture area shall be at least 4000 cm^2 , and it shall be possible to inscribe in this area a rectangle measuring 50x70 cm.

2.4.1.11.1.1 According to paragraph 2.4.1 which shall comply with this regulation. Every escape hatch shall be operated manually from inside or outside the vehicle. The aperture area shall be at least 4500 cm^2 , and it shall be possible to inscribe in this area a rectangle measuring 60x70cm.

2.4.1.11.2 It shall be possible to put a triangle having a side angle of 20 degrees and a height of 160cm, to touch the inner face of the escape hatch by the top point of the triangle, and touch part of a seat or equivalent support by the bottom of the triangle. If the support is folding-type or movable, it shall be possible to be locked when in action.

2.4.1.12 Steps:

2.4.1.12.1 Depth:

2.4.1.12.1.1 For vehicles of class I, the width and shape of every step shall be such that a rectangle of 40x30cm in the case of a first step from ground, and 40x20cm in the case of any other steps, can be placed on it. The gradient of the rectangular area shall not exceed 3 degrees.

2.4.1.12.1.2 For vehicles of class II: The minimum depth of each step of emergency doors shall be at least 25cm; but for vehicles after 2006/1/1, the minimum depth shall be 23cm in the case of the first step from ground, and 20cm in the case of any other steps. The area of each step shall be not less than 800 cm2, and the gradient of the surface of each step shall not exceed 3 degrees.

2.4.1.12.1.3 For vehicles of class III and IV: emergency door's stair needs to be above 25cm in depth.

2.4.1.12.1.4 Each step may extend into the area of the vertical projection of the next step by up to 10cm and the projection over the tread below shall leave a free surface of at least 20cm in depth.

2.4.1.12.2 Height:

2.4.1.12.2.1 First step from ground: The height of the first step in relation to the ground shall be measured with the vehicle unladen, and measured the vertical distance between the step surface and the ground.

2.4.1.12.2.1.1 For vehicles of class I and II: it shall not exceed 40cm in the case of a service door, and not exceed 70cm in the case of a emergency door (For city buses of class I, and vehicles of class II, which are before 2005/12/31, shall not exceed 100cm.)

2.4.1.12.2.1.2 For vehicles of class III and IV: it shall not exceed 40cm in the case of a service door, and not exceed 100 cm in the case of a emergency door.

2.4.1.12.2.2 Other steps: It shall not be less than 12cm and not exceed 35cm.

2.4.1.12.3 Retractable steps if fitted shall comply with the following requirements:

2.4.1.12.3.1 When the door is closed no part of the retractable step shall project more than 1cm beyond the adjacent line of the bodywork.

2.4.1.12.3.2 When the door is open and the retractable step is in the extended position, the depth of the step shall conform to the above requirements.

2.4.1.12.3.3 It shall not be possible for the vehicle to move from rest, under its own power, when the step is in the extended position. The step shall not be capable to extend when the vehicle is in motion.

2.4.1.13 Gangway means the space parallel to the longitudinal axis of the vehicle, and measured from the rear face of seat-back of the foremost seat to the 30cm in front of the front face of seat cushion of the rearmost seat; and it can extend to the access of service doors and emergency doors. But gangway does not include the access space in front of the back face of seat-back of the seats which are near the prominent part of the front-mounted engine, and the access space which is behind 30cm in front of the front face of seat cushion of the last second row of seats of M2, M3 vehicles with rear-mounted engine. The gangway of M2, M3 vehicles shall comply with the following requirements:

2.4.1.13.1 No movable seat is allowed.

2.4.1.13.2 For vehicles of class III and IV, which do not apply for standing passenger: The effective width of the gangway shall be at least 25cm, and at least 120cm for the inner height, and shall permit the free passage of a cylinder with 25cm in diameter and 120cm in height.

2.4.1.13.3 For vehicles of class II, which do not apply for standing passenger: The effective width of the gangway shall be at least 32cm, and at least 150cm for the inner height, and shall permit the free passage of a cylinder with 32cm in diameter and 150cm in height.

2.4.1.13.4 For vehicles of class I, and vehicles of class II after 2006/1/1 applying for standing passengers: The effective width of the gangway shall be at least 32cm, and at least 185cm for the inner height, and shall permit the free passage of a cylinder with 32cm in diameter and 185cm in height. If the cylinder may come into contact with strap hangers used by standing passengers, strap hangers can be moved away under the test.

2.4.1.13.5 Applying for standing passengers vehicles of class III and IV and vehicles of class II before 2005/12/31 applying for standing passengers: The effective width of the gangway shall at least 32cm, and at least 185cm for the inner height, and it shall be determined in the shortest height on the central line of the gangway.

2.4.1.14 Passenger seats (Not including the seat of crew member, which is situated in the right side of the driver's seat; side-facing seats need to comply with 2.4.1.14.4 and 2.4.1.14.6., and the setting of side-facing seats shall comply with the requirements of "seats" regulated in VSTD.

2.4.1.14.1 If any access to the step wells in front of the passenger seats or to the emergency doors or service doors exists in front of the passenger seats, and the height between the floor under passenger's feet and the access exceeds 12cm, there shall be protection rails or panels. The height between the upper edge of the protection rails or panels and the floor under passenger's feet shall be at least 80cm. The width of rails or protection panels shall be enough to cover the width of the seat-back of seats.

2.4.1.14.2 The distance between the front of a seat-back and the rear of the seat-back of the seat (protection rails or panels) preceding it, shall, when measured horizontally and at all heights above the floor between the level of the top surface of the seat cushion and a point 62cm above the floor, shall be:

2.4.1.14.2.1 For vehicles of class I (not including the city buses): at least 68cm.

2.4.1.14.2.2 Other M2, M3 vehicles: at least 65cm.

2.4.1.14.3 For vehicles of class I, and vehicles of class II after 2006/1/1, the distance between the front of a seat cushion and the rear of the seat-back of the seat (protection rails or panels) preceding it, shall be at least 28cm, when measured horizontally.

2.4.1.14.4 Minimum depth of seat cushion:

2.4.1.14.4.1 For vehicles of class I (not including the city buses): at least 40cm.

2.4.1.14.4.2 Other M2, M3 vehicles: at least 35cm.

2.4.1.14.5 Height of seat cushion

The height of the uncompressed seat cushion relative to the floor shall be such that the distance from the floor to a horizontal plane tangential to the front upper surface of the seat cushion is between 400 mm and 500 mm: this height may however be reduced to not less than 350 mm at the wheel arches (taking into account the allowances permitted in paragraph 2.4.1.21.7 below*) and* at the engine/transmission compartment.

2.4.1.14.6 Seat spacing (see Figure 16-1,Figure 16-2)

2.4.1.14.6.1 In the case of seats facing in the same direction, the distance between the front of a seat squab and the back of the squab of the seat preceding it (dimension H), shall, when measured horizontally parallel to the longitudinal plane of the vehicle (showed in Figure 16-1) and at all heights above the floor between the level of the top surface of the seat cushion and a point 620 mm above the floor, not be less than the value shown in Figure 16-1.

2.4.1.14.6.2 All measurements shall be taken, with the seat cushion and squab uncompressed, using the testing gauge shown in Figure 16-2.

2.4.1.14.6.3 Where transverse seats face one another the minimum distance between the front faces of the seat squabs of facing seats, as measured across the highest points of the seat cushions, shall be not less than 1300 mm.

2.4.1.14.6.4 Measurements shall be taken with reclining passenger seats and adjustable driving seats with their seat backs and other seat adjustments in the normal position of use specified by the manufacturer.

2.4.1.14.6.5 Measurements shall be taken with any folding table fitted to a seat back in the folded (stowed) position.

2.4.1.14.6.6 Seats which are mounted on a track or other system which permits the operator or the user to easily vary the interior configuration of the vehicle shall be measured in the normal position of use specified by the manufacturer in the application for approval.

2.4.1.14.7 The foremost seats above the driver‘s compartment shall be equipped with protection rails or panels to separate from the windscreen, the distance between the rear face of the upper edge of protection rails or panels and the windscreen shall be at least 70cm. The height between the upper edge of protection rails or panels and the floor shall be at least 80cm, and the width of rails or protection panels shall be enough to cover the width of the seat-back of seats.

2.4.1.14.8 Requirements for the safeguarding of the foremost side-facing seat of passengers in side-facing seats

2.4.1.14.8.1 As for the category symbols M2 and M3, the new vehicle types from 2017/1/1 and all vehicle types from 2019/1/1,

the parts of foremost side-facing seat (e.g. partition, wall or seat back of a forward facing seat) shall comply with this regulation.

2.4.1.14.8.2 The distance between the foremost side-facing seat and the vehicle parts (e.g. partition, wall or seat back of a forward facing seat)forward of this foremost side-facing seat shall not exceed 450 mm. All measurements are to be taken 1000 mm above the reference plane of the foremost side-facing seat (see Figure 1).

2.4.1.14.8.3 The vehicle part (e.g. partition, wall or seat back of a forward facing seat) in front of the foremost side-facing seat shall fulfil the following requirements in order to safeguard the passenger in that foremost side-facing seat (see Figure 2):

2.4.1.14.8.3.1 The height of the vehicle part, based on the reference plane of the foremost side-facing seat, must not be less than 1,020 mm; and

2.4.1.14.8.3.2 The effective impact surface of the vehicle part has a width of 200 mm and a height of 580 mm. This surface shall be positioned so that the vertical centre-line is located 50 mm behind the H-point of the foremost side-facing seat; and

2.4.1.14.8.3.3 The corresponding surface of the vehicle part in place projected onto a vertical plane through this H-point shall cover at least 95 per cent of the effective impact surface. This vehicle part shall fulfil the energy absorption requirement (Static test 2) from regulation of “seats” and shall remain its protective function during the test process.

2.4.1.14.8.3.3.1 If there is a gap in the corresponding surface (typically two forward-facing seats with a gap in between) a distance shall be determined for each gap by means of a sphere having a diameter of 165 mm. The sphere shall be put into contact with the gap in a point of the gap area which allows the maximum sphere intrusion, considering no load is to be applied. The distance between the two points of contact of the sphere must be less than 60 mm;

2.4.1.14.8.3.4 "Reference plane" means the plane passing through the points of contact of the heels of the manikin, used for the determination of the H point and the actual angle of torso for the seating position of motor vehicles.

2.4.1.14.8.3.5 "Reference height" means the height of the top of the seat above the reference plane;

2.4.1.14.8.3.6 over each seating position and its associated foot space, there shall be measured a free space with a

height of not less than 900 mm measured from the highest point of the uncompressed seat cushion.

2.4.1.15 Luggage cabinet means the space intended for passengers to place luggage, but not including the passenger compartment and toilet. As for the vehicles of class I except city vehicles for carrying passenger, scheduled bus for general highway carrying passenger routes, school bus, special purpose vehicles after the 2006/1/1, shall be equipped with the luggage cabinet complying with this regulation as below, and for other M2,M3 vehicles which are equipped with the luggage cabinet shall comply with the following requirements:

2.4.1.15.1 No seat, berth or connection with passenger compartment is allowed.

2.4.1.15.2 No side window is allowed. The material of the outside wall of the luggage cabinets shall be the same as the material used on the outside wall of the vehicle, and no glass or other transparent materials is allowed.

2.4.1.15.3 There shall be at least one luggage cabinet door, which is opened upward and activated by hydraulic or pneumatic power, placed on each side of the vehicle. Each of the luggage cabinet doors on the same side shall be separated by a distance not exceeding 10cm and measured between the nearest edges of the apertures. The sum of the door aperture width of all luggage cabinet doors shall be at least 150cm.

2.4.1.15.4 The luggage cabinets shall be made of metal panels, welded or equivalently fixed. The luggage cabinets on the same side shall be integral and no wall in between, and the inside space of the luggage cabinet shall be larger than the space which is correspondent with the apertures. The luggage cabinet shall allow a cube of 50cm width, moved from outside of the vehicle into the luggage cabinet and the luggage cabinet door can close effectively.

2.4.1.15.5 For vehicles of class I, the effective height inside the luggage cabinet shall not exceed 100cm, but for vehicles with vehicle height under 3.5m, or vehicles passing the tilt stability test to an angle of 35 degrees with vehicle laden, the effective height inside the luggage cabinet can exceed 100cm.

2.4.1.16 Passenger protection in the area of single deck vehicle which does not have a roof:

2.4.1.16.1 A continuous front panel over the full width of that part of the vehicle that does not have a roof, with a height of not less than 1,400 mm from the general level of the floor adjacent to the front panel. If use glass material as panel, it shall comply with the requirement about windshield of “Safety Glass” of VSTD.

2.4.1.16.2 A continuous side and rear panel, with a height of not less than 1,100 mm at the sides and 1,200 mm at the rear of the vehicle, measured from the general level of the floor adjacent to the panels. If use glass material as panel, it shall comply

with the requirement about toughened-glass of " Safety Glass" of VSTD. The protection panel shall be continuous in the above range of height. If it is not continuous in the above range of height, the protection device shall consist of continuous side and rear panels with a height of not less than 700 mm from the general level of the floor adjacent to the panels, combined with one or more continuous guard rail(s) that fulfils the following characteristics:

2.4.1.16.2.1 no dimension of its section must be less than 20 mm, or more than 45 mm.

2.4.1.16.2.2 the size of any aperture between a guard rail and any adjacent guard rail or panel shall not exceed 200 mm.

2.4.1.16.3 it shall be firmly attached to the structure of the vehicle.

2.4.1.16.4 doors at exits shall be considered to form part of this protection device.

2.4.1.16.5 it shall install facility to prevent impact between windshield and first seat.

2.4.1.17 Single deck buses without a roof shall install vision and communication aid

2.4.1.17.1 The driver shall be provided with a visual means, such as a mirror, periscope or video camera/monitor, to enable the behaviour of passengers in the area without a roof to be observed.

2.4.1.17.2 In the case of a vehicle without a roof, In addition, an intercommunication system shall be provided to enable the driver to communicate with these passengers.

2.4.1.18 Provisions for the accommodation of unfolded prams and pushchairs

2.4.1.18.1 If there is an unfolded pram or pushchair area, then it should provide for the accommodation of at least one unfolded pram or pushchair. In such a case, the area shall have signs fixed on or adjacent to the area with the following show in Figure15.

2.4.1.18.2 If there is fitted, then it should provide for the accommodation of at least one unfolded pram or pushchair.

2.4.1.18.3 The dimensions of the unfolded pram or pushchair area shall not be less than 750 mm wide and 1,300 mm long. Its longitudinal plane shall be parallel to the longitudinal plane of the vehicle and the floor surface shall be slip resistant.

2.4.1.18.4 Accessibility to prams and pushchairs areas shall be provided in accordance with the following provisions:

2.4.1.18.4.1 It shall be possible for an unfolded pram or pushchair to be moved freely and easily from the outside of the vehicle through at least one of the service doors into the special area(s)

2.4.1.18.4.1.1 By "moving freely and easily", it is meant that:

(1) There is sufficient space available for the pram or pushchair to be manoeuvred;

(2) There are no steps, gaps or stanchions which could be an obstacle to the free movement of the pram or pushchair.

2.4.1.18.5 The area shall be fitted with the pictogram shown in Figure15.

2.4.1.18.5.1 As paragraph 2.4.18.1 ,the same pictogram shall be placed both on the front nearside of the vehicle and adjacent to the service door that gives access to the pram or pushchair area.

2.4.1.18.6 The following requirements shall apply to the stability of the unfolded pram or pushchair:

2.4.1.18.6.1 One of the longitudinal sides of the space for a pram or pushchair shall rest against a side or wall of the vehicle or a partition;

2.4.1.18.6.2 A support or backrest perpendicular to the longitudinal axis of the vehicle shall be provided in the forward end of the pram or pushchair space;

2.4.1.18.6.3 The support or backrest shall be designed to avoid the pram or pushchair from tipping over and shall comply with Backrest and support requirements of "Low floor vehicle" of “VSTD”;

2.4.1.18.6.4 A handrail or handhold shall be fitted to the side or wall of the vehicle or a partition in such a way to allow the accompanying person to grasp it easily. This handrail shall not extend over the vertical projection of the pram or pushchair space, except by not more than 90 mm and only at a height not less than 850 mm above the floor of the pram or pushchair space;

2.4.1.18.6.5 A retractable handrail or any equivalent rigid device shall be fitted on the opposite side of the pram or pushchair space in order to restrict any lateral shift of the pram or pushchair. They shall be so designed and installed as to present no risk of injury to passengers.

2.4.1.18.7 The area shall be provided with a specific control, e.g. a push-button, to enable the passenger with an unfolded pram or pushchair to request that the vehicle be stopped at the next bus stop. The general requirements of paragraph 2.4.1.20 shall apply.

2.4.1.18.8 The control shall be fitted with the pictogram described in Figure 15 The dimensions of the pictogram may be reduced as needed.

2.4.1.19 Additional technical requirements for power-operated service doors

2.4.1.19.1 In the event of an emergency, every power-operated service door shall be capable, when the vehicle is stationary or driving at a speed less than or equal to 3 km/h, of being opened from inside and, when not locked, from outside by

controls which, whether or not the power supply is operating:

2.4.1.19.1.1 override all other door controls;

2.4.1.19.1.2 in the case of interior controls, are placed on, or within 300 mm of, the door, at a height of not less than 1,000 mm above the first step;

2.4.1.19.1.3 can be easily seen and clearly identified when approaching the door and when standing in front of the door and, if additional to the normal opening controls, be clearly marked for emergency use;

2.4.1.19.1.4 can be operated by one person when standing immediately in front of the door;

2.4.1.19.1.5 cause the door to open to a width that the gauge as defined in paragraph 2.4.4.14.1.1 can pass through within 8 seconds after the operation of the control, or enable the door to be easily opened by hand to a width that the gauge as defined in paragraph 2.4.4.14.1.1 can pass through within 8 seconds after the operation of the control;

2.4.1.19.1.6 may be protected by a device which can be easily removed or broken to gain access to the emergency control; the operation of the emergency control, or the removal of a protective cover over the control, shall be indicated to the driver both audibly and visually.

2.4.1.19.1.7 in the case of a driver-operated door which does not comply with the requirements of paragraph 2.4.1.19.6.2 shall be such that after they have been operated to open the door and returned to their normal position, the door will not close again until the driver subsequently operates a closing control.

2.4.1.19.1.8 In the case of interior controls, shall be deactivated if the vehicle moves at a speed higher than 3 km/h. This requirement may be applied to exterior controls.

2.4.1.19.2 A device may be provided which is operated by the driver from the driving seat to deactivate the outside emergency controls in order to lock the service doors from outside. In this case, the outside emergency controls shall be reactivated automatically either by the starting of the engine or before the vehicle reaches a speed of 20km/h. Subsequently, deactivation of the outside emergency controls shall not occur automatically, but shall require a further action by the driver.

2.4.1.19.3 Every driver-operated service door shall be capable of operation by the driver when in the driving seat using controls which, except in the case of a foot control, are clearly and distinctively marked.

2.4.1.19.4 Every power-operated service door shall activate a visual tell-tale, which shall be plainly visible to the driver when seated

in the normal driving position in any normal ambient lighting condition, to warn that a door is not fully closed. This tell-tale shall signal whenever the rigid structure of the door is between the fully open position and a point 3 cm from the fully closed position. One tell-tale may serve for one or more doors. However, no such tell-tale shall be fitted in respect of a front service door which does not comply with the requirements of paragraphs 2.4.1.19.6.1.1 and 2.4.1.19.6.1.2.

2.4.1.19.5 Where controls are provided for the driver to open and close a power-operated service door, they shall be such that the driver is able to reverse the movement of the door at any time during the closing or opening process.

2.4.1.19.6 The construction and control system of every power-operated service door shall be such that a passenger is unlikely to be injured by the door or trapped in the door as it closes.

2.4.1.19.6.1 This requirement shall be considered satisfied if the following two requirements are met:

2.4.1.19.6.1.1 The first requirement is that when the closing of the door at any measuring point described in paragraph 2.4.4.23 is resisted by a clamping force not exceeding 150 N, the door shall reopen automatically to its fullest extent and, except in the case of an automatically-operated service door, remain open until a closing control is operated. The clamping force may be measured by any method to the satisfaction of the Competent Authority. Guidelines are given in paragraph 2.4.4.23. The peak force may be higher than 150 N for a short time provided that it does not exceed 300 N. The reopening system may be checked by means of a test bar having a section of height 60 mm, width 30 mm with corners radiused to 5 mm.

2.4.1.19.6.1.2 The second requirement is that whenever the doors are closed onto the wrist or fingers of a passenger:

2.4.1.19.6.1.2.1 the door reopens automatically to its fullest extent and, except in the case of an automatically-operated service door, remains open until a closing control is operated, or

2.4.1.19.6.1.2.2 the wrist or fingers can be readily extracted from the doors without risk of injury to the passenger. This requirement may be checked by hand, or by means of the test bar mentioned in paragraph 2.4.1.19.6.1.1, tapered at one end over a length of 30 cm from a thickness of 3 cm to a thickness of 0.5 cm. It shall not be treated with polish nor lubricated. If the door traps the bar it shall be capable of being easily removed, or

2.4.1.19.6.1.2.3 the door is maintained at a position allowing the free passage of a test bar having a section of height 6 cm, width 2 cm, with corners radiused to 0.5 cm. This position shall not be more than 3 cm distant from

the fully closed position.

2.4.1.19.6.2 In the case of a front service door the requirement of paragraph 2.4.1.19.6 shall be considered satisfied if the door:

2.4.1.19.6.2.1 fulfils the requirements of paragraphs 2.4.1.19.6.1.1 and 2.4.1.19.6.1.2, or

2.4.1.19.6.2.2 is fitted with soft edges; these shall not, however be so soft that if the doors are closed on the test bar mentioned in paragraph 2.4.1.19.6.1.1 ,the rigid structure of the doors will reach the fully closed position.

2.4.1.20 Communication devices

2.4.1.20.1 On M2, M3 vehicles of the following paragraph 2.4.1.20.1.1 to 2.4.1.20.1.3 are met, a means shall be provided to enable passengers to signal that the driver should stop the vehicle. The controls for all such communication devices shall be capable of being operated with the palm of the hand. There shall be appropriate communication devices distributed adequately and evenly throughout the vehicle and no more than 1,500 mm from the floor; this does not exclude the possibility of installing higher additional communication devices. Controls shall contrast visually with their immediate surroundings. Activation of the control shall also be indicated to the passengers by means of one or more illuminated signs. The sign shall display the words "bus stopping" or equivalent, and/or a suitable pictogram and shall remain illuminated until the service door(s) open. The provisions of paragraph 2.4.1.3.3.4. apply to any textual markings used.

2.4.1.20.1.1 For low floor vehicles having a capacity exceeding 22 passengers, vehicles constructed with areas for standing passengers, to allow frequent passenger movement.

2.4.1.20.1.2 For low floor vehicles having a capacity exceeding 22 passengers, vehicles constructed principally for the carriage of seated passengers, and designed to allow the carriage of standing passengers in the gangway and/or in an area which does not exceed the space provided for two double seats.

2.4.1.20.1.3 For low floor vehicles having a capacity not exceeding 22 passengers; a vehicle of this class may has seats and shall have provision for standing passengers

2.4.1.20.2 Communication with the crew compartment：If a crew compartment is fitted without access to the driver or passenger compartments, a means of communication between the driver and this crew compartment shall be provided.

2.4.1.20.3 Communication with the toilet compartment: Toilet compartments shall be fitted with a means of summoning assistance in an emergency.

2.4.1.20.4 Communication devices shall be placed adjacent to any priority seat and within any wheelchair area and shall be at a

height between 700 mm and 1,200 mm above the floor.

2.4.1.20.5 Communication devices situated in the low floor area shall be at a height between 800 mm and 1,500 mm where there are no seats.

2.4.1.20.6 If a vehicle is fitted with a ramp or lift, a means of communication with the driver shall be fitted outside, adjacent to the door, and at a height between 850 mm and 1,300 mm from the ground. This requirement shall not apply to a door situated in the direct field of vision of the driver.

2.4.1.21 Priority seats and space for passengers with reduced mobility

2.4.1.21.1 The minimum number of priority seats shall be four in vehicles having a capacity exceeding 22 passengers constructed with areas for standing passengers, to allow frequent passenger movement, vehicles having a capacity exceeding 22 passengers constructed principally for the carriage of seated passengers, and designed to allow the carriage of standing passengers in the gangway and/or in an area which does not exceed the space provided for two double seats, and the minimum number of priority seats shall be one in vehicles having a capacity not exceeding 22 passengers which have seats and shall have provision for standing passengers. In the case of vehicles having a capacity exceeding 22 passengers constructed exclusively for the carriage of seated passengers shall be two; or vehicles having a capacity not exceeding 22 passengers and not designed to carry standing passengers and has no provision for standing passengers, shall be one. A seat that folds out of the way when not in use shall not be designated as a priority seat.

2.4.1.21.2 There shall be adequate space for a guide dog under, or adjacent to, at least one of the priority seats. This space shall not form a part of the gangway.

2.4.1.21.3 Armrests shall be fitted on seats between the seating position and the gangway and shall be capable of being moved easily out of the way to permit clear access to the seat.

2.4.1.21.4 The minimum width of a priority seat cushion, measured from a vertical plane passing through the centre of that seating position, shall be 220 mm on each side.

2.4.1.21.5 The height of the uncompressed seat cushion relative to the floor shall be such that the distance from the floor to a horizontal plane tangent to the front upper surface of the seat cushion is between 400 mm and 500 mm.

2.4.1.21.6 The foot space at priority seating positions shall extend forward of the seat from a vertical plane through the forward edge of the seat cushion. The foot space shall not have a slope in any direction of more than 8 percent.

2.4.1.21.6.1 For vehicles of Classes I (For low floor vehicles having a capacity exceeding 22 passengers, vehicles constructed principally for the carriage of seated passengers, and designed to allow the carriage of standing passengers in the gangway and/or in an area which does not exceed the space provided for two double seats) and Classes Ⅲ (For low floor vehicles having a capacity not exceeding 22 passengers; a vehicle of this class may has seats and shall have provision for standing passengers), the vertical distance between the floor of the seating area and the adjacent gangway shall be not more than 250 mm.

2.4.1.21.7 . Each priority seating position shall have a free height of not less than 1,300 mm for vehicles of the following paragraph 2.4.1.21.6.1 and 900 mm for vehicles of following paragraph 2.4.1.20.1.2, measured from the highest point of the uncompressed seat cushion. This free height shall extend over the vertical projection of the minimum required seat width of 440 mm and the associated foot space.

2.4.1.21.8 Intrusion of a seat back or other object or the edge of gangway（if the seat is face toward gangway） into this space shall be permitted provided that a minimum clear vertical space extending 230 mm in front of the seat cushion is maintained. Where the priority seat is positioned facing a bulkhead more than 1,200 mm in height this space shall be 300 mm. Intrusions of handholds or handrails as mentioned in paragraph 2.4.1.22.2 may protrude by a maximum of 100 mm from the sidewall into the clear space over the vertical projection of the foot space.

2.4.1.21.9 Vehicles fitted with a priority seat shall have pictogram(s), figure 3 visible from the outside, both on the front nearside of the vehicle and adjacent to the relevant service door(s). A pictogram shall be placed internally adjacent to the priority seat（at least 1 figure that it could recognize a passengers with reduced mobility other than wheelchair users of pictogram）

2.4.1.22 Handrails to priority seating

2.4.1.22.1 A handrail at a height of between 80 cm and 90 cm above the floor level shall be provided between the priority seats and at least one service door suitable for boarding and alighting. A break is permitted where it is necessary to gain access to a wheelchair space, a seat located at a wheel arch, a staircase, an access passage or a gangway. Any break in the handrail shall not exceed 1,05 cm and a vertical handrail shall be provided on at least one side of the break.

2.4.1.22.2 Handrails or handholds shall be placed adjacent to priority seating positions to facilitate entry and exit of the seat, and shall be designed in such a way as to allow the passenger to grasp them easily.

2.4.1.23 Floor slope: The slope of any gangway, access passage or floor area between any priority seat or wheelchair space and at least one entrance and one exit or a combined entrance and exit shall not exceed 8 per cent. Such sloping areas shall be provided with a slip-resistant surface.

2.4.1.24 Artificial interior lighting

2.4.1.24.1 Internal electrical lighting shall be provided for the illumination of:

2.4.1.24.1.1 All passenger compartments, crew compartments, toilet compartments;

2.4.1.24.1.2 Any step or steps;

2.4.1.24.1.3 The access to any exits and the area immediately around the service door(s) including, when in use, any boarding device fitted;

2.4.1.24.1.4 The internal markings and internal controls of all exits;

2.4.1.24.1.5 All places where there are obstacles;

2.4.1.24.2 There shall be at least two internal lighting circuits such that failure of one will not affect the other. A circuit serving only permanent entry and exit lighting can be considered as one of these circuits

2.4.1.24.3 Emergency lighting system

The following M2, M3 vehicles shall be equipped with this system：

（1） For low floor vehicles having a capacity exceeding 22 passengers, vehicles constructed with areas for standing passengers, to allow frequent passenger movement.

（2） For low floor vehicles having a capacity exceeding 22 passengers, vehicles constructed principally for the carriage of seated passengers, and designed to allow the carriage of standing passengers in the gangway and/or in an area which does not exceed the space provided for two double seats.

（3） For low floor vehicles having a capacity not exceeding 22 passengers; a vehicle of this class may has seats and shall have provision for standing passengers

2.4.1.24.3.1 It shall be possible for the driver to activate the emergency lighting system from the driver's seating position.

2.4.1.24.3.2 The operation of the emergency control of any service or emergency door shall activate the emergency lighting

system.

2.4.1.24.3.3 The emergency lighting system, once activated, shall remain active for at least 30 minutes unless de-activated by the driver.

2.4.1.24.3.4 The power supply for the emergency lighting shall be suitably located within the vehicle to minimise the risk of its continued operation being prejudiced as the result of an accident.

2.4.1.24.3.5 All units providing the emergency lighting shall produce a white light.

2.4.1.24.3.6 The uniformity of illuminance of the lighting shall be assessed in accordance with the following measures:

$$\text{Maximum uniformity of illuminance} = \frac{\text{Maximum lighting level recorded}}{\text{Average lighting level recorded}}$$

$$\text{Minimum uniformity of illuminance} = \frac{\text{Minimum lighting level recorded}}{\text{Average lighting level recorded}}$$

2.4.1.24.3.7 The emergency lighting system shall provide a minimum illuminance of 10 lux directly under each light unit in the passenger compartment at a height of 750 mm above the of all access passages and gangways.

2.4.1.24.3.8 The uniformity of the illuminance over the length of the passenger compartment at a height of 750 mm above all access passages and gangways shall be between 0.15 and 2.

2.4.1.24.3.9 The emergency lighting system shall provide a minimum illuminance of 1 lux at floor level in the centreline of all access passages and gangways and at the centre of any step, at step level.

2.4.1.24.3.10 Conformity with the uniformity requirements shall be demonstrated over a period of at least 30 minutes from initiation of the emergency lighting by measurements taken at distances not exceeding 2 metres.

2.4.1.24.4 Provisions shall be made to protect the driver from the effects of glare and reflections caused by artificial interior lighting. Any lighting likely to affect adversely and significantly the driver's vision shall be capable of being operated only while the vehicle is at rest.

2.4.1.24.5 Individual lights for each of the items in paragraph 2.4.1.25.1 are not required providing adequate illumination can be maintained during normal use.

2.4.1.24.6 Control of the mandatory interior lighting shall be by manual switches under the control of the driver or automatically controlled.

2.4.1.25 Other requirements:

2.4.1.25.1 For M2, M3 vehicles applying for standing passengers, they shall be equipped with handrails or strap hangers, and rails in the rear of driver’s seat. Handrails or strap hangers shall be so designed and installed as to present no risk of injury to passengers.

2.4.1.25.2 For coaches of class I, they shall be equipped with luggage racks unless having luggage cabinets, and there shall be handrails on each side of the service door access to help passengers get in and out of the vehicles.

2.4.1.25.3 As for the vehicles of class I, shall not have mezzanine spaces between front and rear axles，except passenger compartment, luggage cabinet, toilet, tool box, body structure and other necessary component.

2.4.1.25.4 If the driver's compartment is without a roof, the driver should have some special protection against strong wind, sudden dust, heavy rain, etc.

2.4.1.25.5 All seats of the single deck buses shall have the symbols to remind passengers to fasten safety belt when seated.

2.4.1.26 Guarding of open area

2.4.1.26.1 Where any seated passenger is likely to be thrown forward into a designated wheelchair space, pram space or open area for standing passengers as a result of heavy braking, either a guard or, a safety-belt shall be fitted. Where fitted, the guard shall have a minimum height from the floor on which the passenger's feet rest of 800 mm and shall extend inwards from the wall of the vehicle at least as far as 100 mm beyond the longitudinal centre line of any seating position where the passenger is at risk.

2.4.1.26.2 Paragraph 2.4.1.26.1 the rule is not eligible for the following situations:

(a)any sideways facing seat,

(b)a seat which has its centreline within the longitudinal projection of a gangway,

(c)a seat in front of which is existing vehicle structure (e.g. fixed table or luggage pen) offering comparable levels of protection as a guard meeting the requirements of paragraph 2.4.1.26.1 or

(d)transverse facing seats where the maximum distance between the front faces of the seat squabs of facing seats does not exceed 1,800 mm when measured in accordance with paragraph 2.4.1.14.6.3.

2.4.1.27 Baggage racks and occupant protection: The occupants of the vehicle shall be protected from objects liable to fall from baggageracks under braking or cornering forces. If baggage compartments are fitted, they must be designed in such a way that baggage is prevented from falling in the event of sudden braking.

2.4.1.28 Trap doors, if fitted

Every trap door, that is not an escape hatch, on the floor of a vehicle shall be so fitted and secured that it cannot be dislodged or opened without the use of tools or keys and no lifting or securing device shall project by more than 8 mm above floor level.

Edges of projections shall be rounded.

2.4.1.29 Visual Entertainment

2.4.1.29.1 Forms of visual entertainment for passengers, for example television monitors or videos, shall be located out of the driver's view when the driver is seated in his normal driving position. This shall not preclude any television monitor or similar device used as part of the driver's control or guidance of the vehicle, for example to monitor service doors.

2.4.2 The body specifications for child-only vehicle:

2.4.2.1 Access openings:

2.4.2.1.1 The first step of child-only vehicle access opening shall be under 30cm above ground. The height of other stairs shall be under 20 cm. The effective width of stair shall be more than 50cm.

2.4.2.1.2 The child-only vehicle shall install stair and handrail on the access opening(s), which can provide a proper use for the children.

2.4.2.1.3 The access openings of large child-only vehicle shall conform to the requirements of M2, M3 vehicles. The access opening(s) of small child-only vehicle shall be above 60 cm in doorframe and 120 cm in height.

2.4.2.1.4 From 2008.10.1, the step depth for first step or additional step at exterior body of child-only vehicle access opening shall be at least 20cm and shall not protrude both side of body.

2.4.2.2 Gangway width and inner height:

2.4.2.2.1 The gangway width and inner height of large child-only vehicle shall conform to the requirements of M2, M3 vehicles

2.4.2.2.2 The effective gangway width of small child-only vehicle shall be above 30 cm; the inner height shall be above 130 cm. The access passage shall allow the smooth pass of a cylinder of 30 cm-diameter, 100 cm-in height vertically.

2.4.2.3 Allocation and dimension of children seats:

2.4.2.3.1 The seat width shall be above 30cm each, yet, the effective width of seat cushion shall exceed 25cm, the effective depth shall be within 23~25cm; the upper edge of seat cushion shall be 23~25 cm above ground. However, the locations of wheel arc are excluded. The seat cushion shall not lean forward. The horizontal distance between the rear edge of seat cushion and the front seat back shall be within 42 to 45 cm.

2.4.2.3.2 The children seat shall install seat back. The seat back height shall be within 40~45 cm, and its lean backward angle shall be within 5~10 degrees by fixed type. The seats shall be allocated to face forward(according to the requirements of “seats” regulated in VSTD, its prohibit to set side-facing seats ）except for the children attendant seat. No standing passenger or auxiliary seat allowed

2.4.2.3.3 No hard article allowed on the upper edge of children seat back.

2.4.2.3.4 Protection plate made of soft material on surface shall be equipped in front of first children seat. The upper edge of protection plate shall be at least 60 cm above floor; its width shall cover the corresponding width of children seats.

2.4.2.3.5 The children seat can be equipped with seat armrest parallel to cushion surface on the gangway. The distance from the upper edge of armrest to upper edge of seat cushion shall be within 14~15 cm. The inner edge of armrest shall be at least 12.5 cm away from the centerline of the seats. The armrest width shall be 2 cm at least.

2.4.2.4 Emergency door:

2.4.2.4.1 Except that all children seats are adjacent to the access opening, there shall be emergency door(s) installed in the different side of the ordinary access opening(s). The emergency door can be opened both from inside and outside of the vehicle. After the emergency door is opened, it cannot be closed automatically without external force acting on it.

2.4.2.4.2 The emergency door shall be marked by “Emergency door” and the relevant operating method by red color; the character size of “Emergency door ” shall be at least 10 cm square each.

2.4.2.4.3 The specification of emergency door for large child-only vehicle shall conform to the one specified in M2, M3 vehicles. The emergency doorframe width of small child-only vehicle shall be at least 55cm, its effective height shall be at least 120 cm, and the lower edge of emergency door shall be 62 cm at most to ground.

2.4.2.4.4 The emergency door(s) shall allow a 30 cm- diameter, 120 cm-high vertical cylinder to pass smoothly. No movable seat is allowed between the emergency door and gangway.

2.4.2.4.5 The emergency door shall be equipped with “child-safety locks ”, When activating the “child-safety locks ” it shall display

a sound alarm to warn the driver and children attendant.

2.4.2.5 Others: The child-only vehicle cannot be equipped with luggage rack. The floor of the access and stair stepping plates shall be slip-proof. The front end of stepping plate shall be clearly marked. The vehicle windows shall not be adhered with opaque color or heat-isolating sheet. The windows in both sides shall not be installed with horizontal bars or safety net. The rear to the driver seat shall be equipped with a rail.

2.4.3 Body specifications of the vehicle of category O1, O2 towed by M1, N1:

2.4.3.1 Front/rear corners: All corners under 1.8 m (above ground) shall be rounded.

2.4.3.2 Side sharp-tip: All tips on the sides under 1.8 m (above ground) shall be under 5 cm and rounded.

2.4.3.3 Connecting device:

2.4.3.3.1 The vertical load of trailer, under disconnected condition, shall be less than 15% of the gross vehicle weight of trailer. And it cannot be a negative value as well.

2.4.3.3.2 There shall be safety chain or cable installed therewith in the connecting device.

2.4.3.4 Tire loading: The tire loading on both sides of trailer shall be within 45%-55% of the axle weight engaged thereunder.

2.4.4 The body specifications of articulated buses :

Effective date from 2019/1/1, the new vehicle types of articulated buses and from 2022/1/1, the all vehicle types of articulated buses, the items of body specification shall comply with the additional requirements as below:

The body specification for articulated buses	Comply with the provisions of the corresponding paragraphs
Minimum number of hatches	2.4.4.2.10.1
Emergency doors	2.4.4.4.2.1
Escape hatch aperture area	2.4.4.4.4.1
Overnight locking system	2.4.4.5.10
Safety signs	2.4.4.12.2
Emergency lighting system	2.4.4.15.3
Prams and pushchairs areas	2.4.4.24

2.4.4.1 Definitions

2.4.4.1.1 Articulated Buses: means a vehicle which consists of two or more rigid sections which articulate relative to one another;

the passenger compartments of each section intercommunicate so that passengers can move freely between them; the rigid sections are permanently connected so that they can only be separated by an operation involving facilities which are normally only found in a workshop;

2.4.4.1.2 Overnight locking system: means a system designed to provide the possibility to secure the service and emergency doors of the vehicle against opening.

2.4.4.1.3 Emergency lighting system: means a system that provides a minimum level of lighting necessary to enable occupants to safely egress from the vehicle, including the emergency exits.

2.4.4.1.4 Safety sign: means a configuration of visual elements intended to convey a safety related message.

2.4.4.1.5 “Separate compartment” means a space in the vehicle which may be occupied by passengers or crew when the vehicle is in use and which is separated from any other passenger or crew space, except where any partition allows passengers to see into the next passenger space, and is connected by a gangway without doors.

2.4.4.2 Exit means service door and emergency exit. The number and sitting of exits shall comply with the following requirements:

2.4.4.2.1 Service door means a door used by passengers in normal circumstances, except the door right to the left of driver’s seat. The service doors shall be situated on the right side and the minimum number of service doors in each rigid section of the vehicle is one. (For articulated buses whose approved number of passengers exceeds 70, the minimum number of services doors in the first rigid section of the vehicle shall be two.)

2.4.4.2.2 For the purpose of this requirement, service doors equipped with a power-operated control system shall not be deemed to be emergency doors unless they can be readily opened by hand, once the control prescribed in paragraph 2.4.4.6.1 has been actuated, if necessary.

2.4.4.2.3 The minimum number of exits shall be such that the total number of exits in each separate compartment is as follows:

Number of passengers and crew to be accommodated in each separate compartment	Minimum total number of exits
1~8	2
9~16	3
17~30	4

31~45	5
46~60	6
61~75	7
76~90	8
91~110	9
111~130	10
>130	11

2.4.4.2.4 Each rigid section of an articulated vehicle shall be treated as a separate vehicle for the purpose of determining the minimum number and the position of exits. The connecting passage between them shall not be considered as an exit. Toilet compartments or galleys are not considered to be separate compartments for the purposes of defining the number of emergency exits. The number of passengers shall be determined for each rigid section. The plane, which contains the horizontal axis of the hinge between conjoined rigid sections of the vehicle, and perpendicular to the longitudinal axis of a vehicle, when it moves straight, shall be considered as the border between sections.

2.4.4.2.5 A double service door shall count as two doors and a double or multiple window as two emergency windows.

2.4.4.2.6 If the driver's compartment does not provide access to a passenger compartment by means of a passageway that permits ,and shall comply with requirements in the paragraph 2.4.4.2.6.1 to 2.4.4.2.6.5:

(1) The front edge of the cylindrical gauge referred to in figure 5 to reach at least the transverse vertical plane tangential to the foremost point of the driver's seat back in its rearmost longitudinal position, and

(2) From this plane, to move the panel shown in figure 2.4.4.14.5.1.1.1, forwards from the contact position, with the cylindrical gauge until it reaches at least the vertical plane tangential to the foremost point of the driver's seat cushion.

2.4.4.2.6.1 The driver's compartment shall have two exits, which shall not both be in the same lateral wall; when one of the exits is a window, this window it shall have a minimum area of 400,000 mm^2, it shall be possible to inscribe in this area a rectangle measuring 500 mm x 700 mm and it shall comply with the requirements set out in paragraphs 2.4.4.9 for emergency windows.

2.4.4.2.6.2 One or two seats are permitted alongside the driver for additional people, in which case both of the exits referred to in paragraph 2.4.4.2.6.1 shall be doors.

The driver's door shall be accepted as the emergency door for the occupants of those seats, provided that it is possible to move a test gauge from the occupants' seats to the exterior of the vehicle through the driver's door.

Verification of the access to the driver's door shall be subject to the requirements of paragraph 2.4.4.14.3.2, by using the test gauge having a dimension of 600 x 400 mm, as described in paragraph 2.4.4.14.3.3.

The door provided for the passengers shall be in the side of the vehicle opposite to that containing the driver's door and shall be accepted as the emergency door for the driver.

Up to five additional seats may be fitted in a compartment incorporating the driver's compartment, provided that the additional seats and the space for these seats comply with all requirements of this Regulation and at least one door giving access to the passenger compartment complies with the requirements of paragraph 2.4.4.4 for emergency doors.

2.4.4.2.6.3 Paragraphs 2.4.4.4 to 2.4.4.8., 2.4.4.14.1., 2.4.4.14.2. and 2.4.4.14.7. shall not apply to the exits provided for the driver's compartment as referred to in paragraphs 2.4.4.2.6.1. and 2.4.4.2.6.2..

2.4.4.2.6.4 In the circumstances described in paragraphs 2.4.4.2.6.1 and 2.4.4.2.6.2, the exits provided for in the driver's compartment, and for the occupants of any seats alongside the driver shall not count as one of the doors required by paragraphs 2.4.4.2.1, nor as one of the emergency exits required by paragraph 2.4.4.2.3., for any other passenger compartment except in the case mentioned in paragraphs 2.4.4.2.6.1 and 2.4.4.2.6.2 Paragraphs

2.4.4.2.6.5 Up to five additional seats may be fitted in a compartment incorporating the driver's compartment and any seats alongside the driver, provided that the additional seats and the space for these seats comply with all requirements of this Regulation and at least one of the emergency exits required by paragraph 2.4.4.2.3 is a door giving access to the passenger compartment complying with the requirements of paragraph 2.4.4.4.2 for emergency doors.

2.4.4.2.7 If the driver's compartment is accessible from a passenger compartment by means of a passageway complying with parts (a) and (b) of paragraph 2.4.4.2.6., and any seats adjacent to this driver's compartment, are accessible from that same passenger compartment by means of a passageway complying with one of the conditions described in paragraph2.4.4.14.5.1.1., no external exit is required from the driver's compartment.

2.4.4.2.8 If, under the circumstances described in paragraph 2.4.4.2.7., a driver's door is provided in vehicles of having a capacity exceeding 22 passengers , it may count as an emergency door for passengers provided:

2.4.4.2.8.1 the driver's door satisfies the requirements relating to the dimensions of emergency door indicated in paragraph 2.4.4.4.2;

2.4.4.2.8.2 the driver's door fulfils the requirements of paragraph 2.4.4.2.6.2;

2.4.4.2.8.3 the space reserved for the driver's seat shall communicate with the main passengers' compartment through an appropriate passage; such requirement shall be deemed to be fulfilled if the test gauge described in paragraph 2.4.4.14.5.1 is able to be moved unobstructed from the gangway, until the front end of the gauge reaches the vertical plane tangential to the foremost point of the driver's seat back (this seat being situated in its rearmost longitudinal position) and, from this plane, the test gauge described in paragraph 2.4.4.14.3.3 is able to be could be moved to the emergency door in the direction established by such paragraph with seat and steering wheel adjustment in their mid-position.

2.4.4.2.8.4 In the case of vehicles of having a capacity exceeding 22 passengers, if there is a door opposite the driver's door it may count as one of the required exits for passengers provided:

2.4.4.2.8.4.1 There is not more than one passenger's seat beside the driver's compartment, and

2.4.4.2.8.4.2 It complies with the provisions of paragraph 2.4.4.2.8.

2.4.4.2.9 Paragraphs 2.4.4.2.7 and 2.4.4.2.8 do not preclude there being a door or other barrier between the driver's seat and the passenger compartment provided that this barrier can be released quickly by the driver in an emergency. A driver's door in a compartment protected by such a barrier shall not be counted as an exit for passengers.

2.4.4.2.10 Escape hatches, additional to the emergency doors and windows, they may also be fitted in the case of hatches. Except as provided in paragraph 2.4.4.2.11（Except for stipulated in paragraph 2.4.4 that it shall comply with paragraph 2.4.4.2.10.1), the minimum number of hatches shall be:

Number of passengers (in the upper deck in the case of double-deck vehicles)	Number of hatches
not exceeding 50	1
exceeding 50	2

2.4.4.2.10.1 According to paragraph 2.4.4. shall be comply with this provisions, escape hatches, additional to the emergency doors and windows, they may also be fitted in the case of hatches. Except as provided in paragraph 2.4.4.2.11,the minimum number of hatches shall be:

Number of passengers (in the upper deck in the case of double-deck vehicles)	Minimum number of hatches
Not exceeding 30	1
Exceeding 30	2

2.4.4.2.11 Vehicles shall not have escape hatches fitted where technical components are installed which present possible dangers to passengers using the escape hatches (e.g. high voltage systems, systems containing dangerous liquids and/or gas, etc.).

2.4.4.3 Sitting of exits: location of exits of vehicles having a capacity exceeding 22 passenger seats shall meet the requirements shown below.

2.4.4.3.1 The service door(s) shall be situated on the side of the vehicle that is nearer to the side of the road corresponding to the direction of traffic in the country in which the vehicle is to be licensed for operation and at least one of them shall be in the forward half of the vehicle. This does not preclude:

2.4.4.3.1.1 The provision of a specially designed door in the rear or side faces of a vehicle for use in place of a service door by wheelchair passengers, or

2.4.4.3.1.2 The provision of an additional service door in the rear face of a vehicle principally for loading/unloading of goods or

luggage, but which could be used by passengers where circumstances so require.

2.4.4.3.1.3 The provision of one or more additional service door(s) on the opposite side of the vehicle in the case of vehicles designed for use in circumstances which require boarding / alighting of passengers on both sides of the vehicle. Vehicles so equipped shall be provided with control(s) that allow the driver to inhibit normal operation of the doors that are not currently in use.

2.4.4.3.2 In the case of a double-deck vehicle, if the passenger's compartment has an area S_0 equal or greater than 10 m^2, two of the doors referred to in paragraph 2.4.4.2.1 shall be separated such that the distance between transverse vertical planes through their centres of area is not less than 40 per cent of the overall length of the passenger compartment on the lower deck; this shall not apply if the two doors are on different sides of the vehicle. If one of these two doors forms part of a double door, this distance shall be measured between the two doors which are furthest apart.

2.4.4.3.3 The exits (on each deck in the case of a double-deck vehicle) shall be placed in such a way that their number on each of the two sides of the vehicle is substantially the same. (This shall not imply the need to provide additional exits over and above the number specified in paragraph 2.4.4.2). Any exits in excess of the required minimum number need not be substantially balanced on each of the two sides.

2.4.4.3.4 At least one exit shall be situated either in the rear face or in the front face of the vehicle respectively, this provision is fulfilled if an escape hatch is fitted, or, if paragraph 2.4.4.2.11 applies, an additional exit to those specified in paragraph 2.4.4.2 is fitted on each side of the vehicle.

2.4.4.3.5 The exits on the same side of the vehicle shall be suitably separated along the length of the passenger compartment.

2.4.4.3.6 A door shall, provided that it is not a service door, be permitted in the rear face of the vehicle.

2.4.4.3.7 If escape hatches are fitted, they shall be positioned as follows: if there is only one hatch, it shall be situated in the middle third of the passenger compartment, if there are two hatches, they shall be separated by a distance of at least 2 m measured between the nearest edges of the apertures in a line parallel to the longitudinal axis of the vehicle.

2.4.4.4 Minimum dimensions of exits

2.4.4.4.1 A service door shall have an aperture creating an access in accordance with the requirements shown in paragraph 2.4.4.14.1.

2.4.4.4.2 Except for paragraph 2.4.4 stipulated that it could instead by paragraph 2.4.4.4.2.1, An emergency door shall have a door

aperture with a minimum height of 1,250 mm and a minimum width of 550 mm.

2.4.4.4.2.1 According to the provisions of 2.4.4; shall comply with this paragraphs .Emergency doors shall have an aperture with a minimum height of 1,450 mm and a minimum width of 600 mm.

2.4.4.4.3 An emergency window shall have a minimum area of 400,000 mm2. It shall be possible to inscribe in this area a rectangle measuring 500 mm x 700 mm. In the case of an emergency window situated in the rear face of the vehicle, either it shall meet the former requirements, or it shall be possible to inscribe in the aperture of this emergency window a rectangle 350 mm high and 1,550 mm wide, the corners of which may be rounded to a radius of curvature not exceeding 250 mm.

2.4.4.4.4 Except for stipulated in paragraph 2.4.4 that it shall comply with paragraph 2.4.4.4.4.1, An escape hatch shall have a hatch aperture with a minimum area of 400,000 mm^2. It shall be possible to inscribe in this area a rectangle measuring 500 mm x 700 mm.

2.4.4.4.4.1 According to the provisions of 2.4.4; shall comply with this paragraphs ,Escape hatches shall have an aperture with a minimum area of 450,000 mm^2. It shall be possible to inscribe in this area a rectangle measuring 600 mm x 700 mm.

2.4.4.5 Technical requirements for all service doors

2.4.4.5.1 Every service door shall be capable of being easily opened from inside and from outside the vehicle when the vehicle is stationary (but not necessarily when the vehicle is moving). However, this requirement shall not be construed as precluding the possibility of locking the door from the outside, provided that the door can always be opened from the inside.

2.4.4.5.2 Every control or device for opening a door from the outside shall be between 1000 mm and 1500 mm from the ground and not more than 500 mm from the door. In vehicles of every control or device for opening a door from the inside shall be between 1000 mm and 1500 mm from the upper surface of the floor or step nearest the control and be not more than 500 mm from the door. This shall not apply to controls located within the driver's area.

2.4.4.5.3 Every one-piece manually-operated service door which is hinged or pivoted shall be so hinged or pivoted that if the open door comes into contact with a stationary object while the vehicle is moving forwards it tends to close.

2.4.4.5.4 If a manually-operated service door is fitted with a slam lock it shall be of the two-stage type.

2.4.4.5.5 On the inside of a service door there shall not be any device intended to cover the inside steps when the door is closed. This does not exclude the presence in the step well, when the door is closed, of the door operating mechanism and other equipment attached to the inside of the door which does not form an extension of the floor on which passengers may stand. This mechanism and equipment should not be dangerous for the passengers.

2.4.4.5.6 If the direct view is not adequate, optical or other devices shall be installed to enable the driver to detect from his seat the presence of a passenger in the immediate interior and exterior vicinity of every side service door which is not an automatically-operated service door.

Driving mirrors may be used to meet the requirements of this paragraph provided that the field of view required for driving is still met.

In the case of doors situated behind the articulated section of an articulated vehicle, mirrors shall not be deemed to be a sufficient optical device.

2.4.4.5.7 Every door which opens towards the interior of the vehicle and its mechanism shall be so constructed that its movement is not likely to cause injury to passengers in normal conditions of use. Where necessary, appropriate protection devices shall be fitted.

2.4.4.5.8 If a service door is located adjacent to a door to a toilet or other internal compartment the service door shall be proofed against unintentional operation. However, this requirement shall not apply if the door is locked automatically when the vehicle is moving at a speed exceeding 5 km/h.

2.4.4.5.9 The service door in any open position shall not obstruct the use of, or required access to, any mandatory exit.

2.4.4.5.10 Overnight locking system

2.4.4.5.10.1 If an overnight locking system is provided, the following shall apply:

2.4.4.5.10.1.1 The locking system shall have been automatically deactivated when the ignition is in the "ON" position, or

2.4.4.5.10.1.2 A warning shall be provided to the driver indicating that the overnight locking system remains in operation at one or more door(s) when the ignition is in the "ON" position. One signal may be used for more than one door.

2.4.4.6 Additional technical requirements for power-operated service doors

2.4.4.6.1 In the event of an emergency, every power-operated service door shall be capable, when the vehicle is stationary or

driving at a speed less than or equal to 3 km/h, of being opened from inside and, when not locked, from outside by controls which, whether or not the power supply is operating:

2.4.4.6.1.1 override all other door controls;

2.4.4.6.1.2 in the case of interior controls, are placed on, or within 300 mm of, the door, at a height of not less than 1,000 mm above the first step;

2.4.4.6.1.3 can be easily seen and clearly identified when approaching the door and when standing in front of the door and, if additional to the normal opening controls, be clearly marked for emergency use;

2.4.4.6.1.4 can be operated by one person when standing immediately in front of the door;

2.4.4.6.1.5 May activate a starting prevention device;

2.4.4.6.1.6 cause the door to open to a width that the gauge as defined in paragraph 2.4.4.14.1.1 can pass through within 8 seconds after the operation of the control, or enable the door to be easily opened by hand to a width that the gauge as defined in paragraph 2.4.4.14.1.1 can pass through within 8 seconds after the operation of the control;

2.4.4.6.1.7 may be protected by a device which can be easily removed or broken to gain access to the emergency control; the operation of the emergency control, or the removal of a protective cover over the control, shall be indicated to the driver both audibly and visually.

2.4.4.6.1.8 in the case of a driver-operated door which does not comply with the requirements of paragraph 2.4.4.6.6.2, shall be such that after they have been operated to open the door and returned to their normal position, the door will not close again until the driver subsequently operates a closing control.

2.4.4.6.1.9 In the case of interior controls, shall be deactivated if the vehicle moves at a speed higher than 3 km/h. This requirement may be applied to exterior controls.

2.4.4.6.2 A device may be provided which is operated by the driver from the driving seat to deactivate the outside emergency controls in order to lock the service doors from outside. In this case, the outside emergency controls shall be reactivated automatically either by the starting of the engine or before the vehicle reaches a speed of 20km/h. Subsequently, deactivation of the outside emergency controls shall not occur automatically, but shall require a further action by the driver.

2.4.4.6.3 Every driver-operated service door shall be capable of operation by the driver when in the driving seat using controls

which, except in the case of a foot control, are clearly and distinctively marked.

2.4.4.6.4 Every power-operated service door shall activate a visual tell-tale, which shall be plainly visible to the driver when seated in the normal driving position in any normal ambient lighting condition, to warn that a door is not fully closed. This tell-tale shall signal whenever the rigid structure of the door is between the fully open position and a point 30 mm from the fully closed position. One tell-tale may serve for one or more doors. However, no such tell-tale shall be fitted in respect of a front service door which does not comply with the requirements of paragraphs 2.4.4.6.6.1.1 and 2.4.4.6.6.1.2.

2.4.4.6.5 Where controls are provided for the driver to open and close a power-operated service door, they shall be such that the driver is able to reverse the movement of the door at any time during the closing or opening process.

2.4.4.6.6 The construction and control system of every power-operated service door shall be such that a passenger is unlikely to be injured by the door or trapped in the door as it closes.

2.4.4.6.6.1 This requirement shall be considered satisfied if the following two requirements are met:

2.4.4.6.6.1.1 The first requirement is that when the closing of the door at any measuring point described in paragraph 2.4.4.23 is resisted by a clamping force not exceeding 150 N, the door shall reopen automatically to its fullest extent and, except in the case of an automatically-operated service door, remain open until a closing control is operated. The clamping force may be measured by any method to the satisfaction of the Competent Authority. Guidelines are given in paragraph 2.4.4.23. The peak force may be higher than 150 N for a short time provided that it does not exceed 300 N. The reopening system may be checked by means of a test bar having a section of height 60 mm, width 30 mm with corners radiused to 5 mm.

2.4.4.6.6.1.2 The second requirement is that whenever the doors are closed onto the wrist or fingers of a passenger:

2.4.4.6.6.1.2.1 the door reopens automatically to its fullest extent and, except in the case of an automatically-operated service door, remains open until a closing control is operated, or

2.4.4.6.6.1.2.2 the wrist or fingers can be readily extracted from the doors without risk of injury to the passenger. This requirement may be checked by hand, or by means of the test bar mentioned in paragraph 2.4.4.6.6.1.1, tapered at one end over a length of 300 mm from a thickness of 30 mm to a thickness of 5 mm. It shall not be treated with polish nor lubricated. If the door traps the bar it shall be capable of being easily removed, or

2.4.4.6.6.1.2.3 the door is maintained at a position allowing the free passage of a test bar having a section of height 60 mm, width 20 mm, with corners radiused to 5 mm. This position shall not be more than 30 mm distant from the fully closed position.

2.4.4.6.6.2 In the case of a front service door the requirement of paragraph 2.4.4.6.6. shall be considered satisfied if the door:

2.4.4.6.6.2.1 fulfils the requirements of paragraphs 2.4.4.6.6.1.1 and 2.4.4.6.6.1.2, or

2.4.4.6.6.2.2 is fitted with soft edges; these shall not, however be so soft that if the doors are closed on the test bar mentioned in paragraph 2.4.4.6.6.1.1 the rigid structure of the doors will reach the fully closed position.

2.4.4.6.7 Where a power-operated service door is held closed only by the continued application of the power supply there shall be provided a visual warning device to inform the driver of any failure in the power supply to the doors.

2.4.4.6.8 A starting prevention device, if fitted, shall be effective only at speeds of less than 5 km/h and shall be incapable of operation above that speed.

2.4.4.6.9 If the vehicle is not fitted with a starting prevention device, an audible warning to the driver shall be activated if the vehicle is driven away from rest when any power-operated service door is not fully closed. This audible warning shall be activated at a speed exceeding 5 km/h for doors complying with the requirements of paragraph 2.4.4.6.6.1.2.3.

2.4.4.7 Additional technical requirements for automatically-operated service doors

2.4.4.7.1 Activation of the opening controls

2.4.4.7.1.1 Except as provided in paragraph 2.4.4.6.1, the opening controls of every automatically operated service door shall be capable of being activated and deactivated only by the driver from his seat.

2.4.4.7.1.2 Activation and deactivation may be either direct, by means of a switch, or indirect, for example by opening and closing the front service door.

2.4.4.7.1.3 Activation of the opening controls by the driver shall be indicated inside and, where a door is to be opened from outside, also on the outside of the vehicle; the indicator (e.g. illuminated push-button, illuminated sign) shall be on or adjacent to the door to which it relates.

2.4.4.7.1.4 In the case of direct actuation by means of a switch the functional state of the system shall be clearly indicated to the driver, by, for example, the position of the switch or an indicator lamp or an illuminated switch. The switch shall be specially marked and arranged in such a way that it cannot be confused with other controls.

2.4.4.7.2 Opening of automatically-operated service doors.

2.4.4.7.2.1 After activation of the opening controls by the driver it shall be possible for passengers to open the door as follows:

2.4.4.7.2.1.1 from inside, for example by pressing a push-button or passing a light barrier, and

2.4.4.7.2.1.2 from outside, except in the case of a door intended only as an exit and marked as such, by, for example, pressing an illuminated push-button, a push-button beneath an illuminated sign, or a similar device marked with a suitable instruction.

2.4.4.7.2.2 The pressing of the push-buttons mentioned in paragraph 2.4.4.7.2.1.1, and the use of the means of communication with the driver mentioned in paragraph 2.4.4.14.9.1, may send a signal which is stored and which, after the activation of the opening controls by the driver, effects the opening of the door.

2.4.4.7.3 Closing of automatically-operated service doors

2.4.4.7.3.1 When an automatically-operated service door has opened it shall close again automatically after a time interval has elapsed. If a passenger enters or leaves the vehicle during this time interval, a safety device (e.g. a footboard contact, light barrier, one-way gate) shall ensure that the time until the door closes is sufficiently extended.

2.4.4.7.3.2 If the passenger enters or leaves the vehicle while the door is closing, the closing process shall be interrupted automatically and the door shall return to the open position. The reversal may be actuated by one of the safety devices referred to in paragraph 2.4.4.7.3.1 or by any other device.

2.4.4.7.3.3 A door that has closed automatically in accordance with paragraph 2.4.4.7.3.1 shall be capable of being opened again by a passenger in accordance with paragraph 2.4.4.7.2; this shall not apply if the driver has deactivated the opening controls.

2.4.4.7.3.4 After deactivation of the opening controls of the automatically-operated service doors by the driver, open doors shall close in accordance with paragraphs 2.4.4.7.3.1 and 2.4.4.7.3.2.

2.4.4.7.4 Inhibition of the automatic closing process on doors marked for special service, e.g. for passengers with prams, passengers with reduced mobility, etc.

2.4.4.7.4.1 The driver shall be able to inhibit the automatic closing process by actuation of a special control. A passenger shall also be able to inhibit the automatic closing process directly by pressing a special push-button.

2.4.4.7.4.2 The inhibition of the automatic closing process shall be indicated to the driver, e.g. by a visual tell-tale.

2.4.4.7.4.3 Re-establishment of the automatic closing process shall in any case be capable of being done by the driver.

2.4.4.7.4.4 Paragraph 2.4.4.7.3 shall apply to the subsequent closing of the door.

2.4.4.8 Technical requirements for emergency doors

2.4.4.8.1 Emergency doors shall be capable of being easily opened from inside and from outside when the vehicle is stationary. However, this requirement shall not be construed as precluding the possibility of locking the door from the outside, provided that the door can always be opened from the inside by the use of the normal opening mechanism.

2.4.4.8.2 Emergency doors, during their use as such, shall not be of the power-operated type unless, once either a service door prescribed in paragraph 2.4.4.6.1 has been actuated and returned to its normal position, the doors do not close again until the driver subsequently operates a closing control or a control for a dedicated emergency door complying with the provisions of paragraph 2.4.4.6.1 shall cause the door to open to a width that the gauge as defined in paragraph 2.4.4.14.2.1 can pass through within a maximum of 8 seconds after the operation of the control, or enable the door to be easily opened by hand to a width that the gauge can pass through within a maximum of 8 seconds after the operation of the control.

2.4.4.8.3 Every control or device for opening an emergency door from the outside shall be between 1,000 mm and 1,500 mm from the ground and not more than 500 mm from the door. In vehicles of every control or device for opening an emergency door from the inside shall be between 1,000 mm and 1,500 mm from the upper surface of the floor or step nearest to the control and be not more than 500 mm from the door. This shall not apply to controls located within the driver's area. Alternatively, the control referred to in paragraph 2.4.4.8.2 for opening a power-operated door may be placed according to paragraph 2.4.4.6.1.2.

2.4.4.8.4 Hinged emergency doors fitted to the side of the vehicle shall be hinged at their forward edge and shall open outwards. Check straps, chains or other restraining devices shall be permitted, provided that they do not prevent the door from opening to, and remaining open at, an angle of at least 100 degrees. If a means is provided sufficient to give free passage to the emergency door access gauge, the 100 degrees minimum angle requirement shall not apply.

2.4.4.8.5 Emergency doors shall be proofed against unintentional operation. However, this requirement shall not apply if the emergency door is locked automatically when the vehicle is moving at a speed exceeding 5 km/h.

2.4.4.8.6 All emergency doors shall be provided with an audible device to warn the driver when they are not securely closed. The

warning device shall be operated by movement of the door catch or handle and not by movement of the door itself.

2.4.4.8.7 Overnight locking system

Except vehicles do not need to be secured against theft, all vehicle types of articulated buses, its emergency doors shall be equipped with an overnight locking system.

2.4.4.8.7.1 If an overnight locking system is provided, the following shall apply:

2.4.4.8.7.1.1 The locking system shall have been automatically deactivated when the ignition is in the "ON" position, or

2.4.4.8.7.1.2 A warning shall be provided to the driver indicating that the overnight locking system remains in operation at one or more door(s) when the ignition is in the "ON" position. One signal may be used for more than one door.

2.4.4.9 Technical requirements for emergency windows.

2.4.4.9.1 Every hinged or ejectable emergency window shall open outwards. Ejectable types shall not become totally detached from the vehicle when operated. The operation of ejectable windows shall be such that inadvertent ejection is effectively prevented.

2.4.4.9.2 Every emergency window shall:

2.4.4.9.2.1 either be capable of being easily and instantaneously operated from inside and from outside the vehicle by means of a device recognised as satisfactory, This provision includes the possibility of using e.g. panes of laminated glass or plastic material; or

2.4.4.9.2.2 be made of readily-breakable safety glass. This latter provision precludes the possibility of using panes of laminated glass or of plastic material. A device shall be provided adjacent to each emergency window, readily available to persons inside the vehicle, to ensure that each window can be broken. There shall be at least one window breaking device placed near the driver’s seat, and clear instructions concerning the method of operation and a marking reading “Emergency window breakers” shall be placed on or close to the device. The character size of “Emergency window breakers” shall be at least 4 square cm. The device for breaking the glass for the emergency windows at the rear of the vehicle shall be positioned either centrally above or below the emergency window or, alternatively, a device shall be positioned adjacent to each end of the window. Safety signs shall be met 2.4.4.12.2 ; All safety signs materials hall be met 2.4.4.12.1.2.

2.4.4.9.3 Every emergency window which can be locked from the outside shall be so constructed as to be capable of being opened at all times from inside the vehicle.

2.4.4.9.4 If the emergency window is of a type horizontally hinged at the top edge, an appropriate device shall be provided to hold it fully open. Every hinged emergency window shall operate so as not to obstruct clear passage from inside or outside the vehicle.

2.4.4.9.5 The height of the lower edge of an emergency window fitted in the side of the vehicle from the general level of the floor immediately below it (excluding any local variations such as the presence of a wheel or transmission housing) shall be not more than 1200 mm nor less than 650 mm in the case of a hinged emergency window, or 500 mm in the case of a window made of breakable glass.

However, in the case of a hinged emergency window, the height of the lower edge may be reduced to a minimum of 500 mm provided that the window aperture is equipped with a guard up to a height of 650 mm to prevent the possibility of passengers falling out of the vehicle. Where the window aperture is equipped with a guard, the size of the window aperture above the guard shall not be less than the minimum size prescribed for an emergency window.

2.4.4.9.6 Every hinged emergency window which is not clearly visible from the driver's seat shall be fitted with an audible warning device to warn the driver when it is not completely closed. The window lock, and not the movement of the window itself, shall actuate this device.

2.4.4.10 Technical requirements for escape hatches.

2.4.4.10.1.1 Every escape hatch shall operate so as not to obstruct the clear passage from inside or outside the vehicle.

2.4.4.10.1.2 Roof escape hatches shall be ejectable, hinged or made of readily-breakable safety glass. Floor hatches shall be either hinged or ejectable and shall be fitted with an audible warning device to warn the driver when it is not securely closed. The floor escape hatch lock, and not the movement of the hatch itself, shall actuate this device. Floor escape hatches shall be proofed against unintentional operation. However this requirement shall not apply if the floor hatch is locked automatically when the vehicle is moving at a speed exceeding 5 km/h.

2.4.4.10.1.3 Ejectable types shall not become totally detached from the vehicle when operated such that the hatch is not a danger to other road users. The operation of ejectable escape hatches shall be such that inadvertent operation is effectively prevented. Floor ejectable hatches shall eject only into the passenger compartment.

2.4.4.10.1.4 Hinged escape hatches shall hinge along the edge towards the front or rear of the vehicle and shall hinge through an angle of at least 100 degrees. Hinged floor escape hatches shall hinge into the passenger compartment.

2.4.4.10.1.5 Escape hatches shall be capable of being easily opened or removed from the inside and from the outside. However, this requirement shall not be construed as precluding the possibility of locking the escape hatch for the purpose of securing the vehicle when unattended, provided that the escape hatch can always be opened or removed from the inside by the use of the normal opening or removal mechanism. In the case of a readily breakable hatch, a device shall be provided adjacent to the hatch, readily available to persons inside the vehicle, to ensure that the hatch can be broken.

2.4.4.11 Technical requirements for retractable steps ; Retractable steps if fitted shall comply with the following requirements:

2.4.4.11.1 the operation of retractable steps may be synchronised with that of the corresponding service or emergency door;

2.4.4.11.2 when the door is closed no part of the retractable step shall project more than 10 mm beyond the adjacent line of the body work;

2.4.4.11.3 when the door is open and the retractable step is in the extended position, the surface area shall conform to the requirements of paragraph 2.4.4.14.7.

2.4.4.11.4 in the case of a power-operated step, it shall not be possible for the vehicle to move from rest, under its own power, when the step is in the extended position. In the case of a manually operated step, an audible indication shall alert the driver when the step is not fully retracted.

2.4.4.11.5 a power-operated step shall not be capable of being extended when the vehicle is in motion. If the device to operate the step fails, the step shall retract and remain in the retracted position. However, the operation of the corresponding door shall not be hindered in the event of such a failure or by the step being damaged or obstructed.

2.4.4.11.6 when a passenger is standing on a power-operated retractable step, the corresponding door shall be incapable of being closed. Compliance with this requirement shall be checked by placing a mass of 15 kg, representing a small child, at the centre of the step. This requirement shall not apply to any door within the driver's direct field of view.

2.4.4.11.7 the corners of retractable steps facing forwards or rearwards shall be rounded to a radius of not less than 5 mm; the edges shall be rounded to a radius of not less than 2.5 mm;

2.4.4.11.8 when the passenger door is open, the retractable step shall be securely held in the extended position. When a mass of

136 kg is placed in the centre of a single step or a mass of 272 kg is placed in the centre of a double step the deflection at any point on the step, measured relative to the body of vehicle, shall not exceed 10 mm.

2.4.4.12 Exits markings

2.4.4.12.1 . Each emergency exit and any other exit or close to the exit that meets the prescriptions for an emergency exit shall be marked, shall be marked by one of the relevant pictograms described in Table 3 of ISO Standard 7010:2011; pictograms shall be legible from both the inside and the outside of the vehicle.

2.4.4.12.1.1 Each character size of “緊急出口” shall be at least 10 square cm when marked in the emergency doors; and shall be at least 4 square cm when marked in the emergency windows or escape hatches.

2.4.4.12.1.2 All safety signs that are visible from the inside of the vehicle shall be of photo-luminescent material having luminance decay characteristics conforming, as a minimum, to sub-classification C in Table 2 of ISO Standard 17398:2004, when measured in accordance with paragraph 2.7.11 of that standard.

2.4.4.12.2 Safety signs：in accordance with paragraph 2.4.4.12.2.5. The emergency controls of service doors and of all emergency exits/ Emergency window breakers, the following provisions shall be provided signs.

2.4.4.12.2.1 All safety signs shall comply with requirements contained in paragraph 6.5. of ISO standard 3864-1:2011.

2.4.4.12.2.2 Each safety sign required by this Regulation shall be used to communicate only one safety message. The information provided shall be in the form of pictograms, however, words, letters and numbers may supplement the pictogram in combination on the same sign. It shall be located and orientated so as to be easily understood.

2.4.4.12.2.2.1 Safety signs shall follow the principles shown in the example layouts below, i.e. a header section depicting the safety message, a second section containing instructional information and a third, optional, footer section for non-critical text.





2.4.4.12.2.2.2 Pictograms indicating required actions by the user shall show a person, or the relevant part of a person, operating the equipment or device.

2.4.4.12.2.2.3 Pictograms indicating a required movement shall, where appropriate, show an arrow pointing in the

direction of motion. Where a rotational movement is required, a curved arrow shall be used.

2.4.4.12.2.2.4 Where devices are to be operated, panels removed or doors opened, the pictogram shall indicate the action in progress.

2.4.4.12.2.2.5 The lower case letter(s) of supplementary words, single letters and numbers shall have a minimum height of 8 mm. Words shall not be in upper case letters only.

2.4.4.12.2.3 All safety signs that are visible from the inside of the vehicle shall be of photo-luminescent material having luminance decay characteristics conforming, as a minimum, to sub-classification C in Table 2 of ISO Standard 17398:2004, when measured in accordance with paragraph 7.11. of that standard.

2.4.4.12.2.4 Safety signs shall not be located in positions where they may be obscured during operation of the vehicle. However, a curtain or blind may be positioned over an emergency window provided an additional safety sign indicates that the emergency window is located behind the curtain or blind.

2.4.4.12.2.5 Safety signs shall be positioned adjacent to, or surround, or be on, all internal and external emergency controls and device(s) for breaking emergency window(s).

2.4.4.12.2.6 No part of a safety sign shall obscure any misuse protection that may be present, e.g. a cover.

2.4.4.13 Service-door lighting

2.4.4.13.1 Service-door lighting may be provided to illuminate the flat, horizontal portion of the ground defined in paragraph 2.4.4.13.2.2 so as to aid passengers boarding and alighting the vehicle and to enable the presence of a passenger within this portion of the ground to be detected by the driver from his seat.

2.4.4.13.2 Service-door lighting, if fitted, shall:

2.4.4.13.2.1 be of white colour;

2.4.4.13.2.2 illuminate a flat, horizontal portion of the ground having a width of 2 m measured from a plane parallel to the median longitudinal vertical plane of the vehicle which passes through the outermost point of the closed service door and over a length extending from a transverse plane which passes through the foremost edge of the closed service door to a transverse plane passing through the centre line of the foremost wheels situated to the rear of the service door, or, in the case where there are no such wheels, to a transverse plane passing through the rear of the vehicle;

2.4.4.13.2.3 have limited dazzle outside a zone on the ground having a maximum width of 5 m measured from the side of the

vehicle and a maximum length limited by a transverse plane passing through the front of the vehicle and a transverse plane passing through the rear of the vehicle;

2.4.4.13.2.4 if the lower edge of the lighting device is less than 2 m from the ground, not project more than 50 mm beyond the overall width of the vehicle measured without this device and have radii of curvature of not less than 2.5 mm;

2.4.4.13.2.5 be activated and deactivated manually by a separate switch, and

2.4.4.13.2.6 be installed so that the device can only be switched on when a service door is operated and the vehicle speed does not exceed 5 km/h and is switched off automatically before the vehicle reaches a speed exceeding 5 km/h.

2.4.4.14 Interior arrangements

2.4.4.14.1 Access to service doors

2.4.4.14.1.1 The free space extending inwards into the vehicle from the side wall in which the door is mounted shall permit the free passage of one test gauge having the dimensions of either test gauge 1 or test gauge 2 specified in figure 4. The test gauge shall be maintained parallel with the door aperture as it is moved from the starting position, where the plane of the face nearest to the interior of the vehicle is tangential to the outermost edge of the aperture, to the position where it touches the first step, after which it shall be kept at right angles to the probable direction of motion of a person using the entrance.

2.4.4.14.1.2 When the centre line of this test gauge has traversed a distance of 300 mm from its starting position and the test gauge is touching the surface of the step or floor, it shall be retained in that position.

2.4.4.14.1.3 The cylindrical figure (see figure 5) used for testing the gangway clearance shall then be moved starting from the gangway, in the probable direction of motion of a person leaving the vehicle, until its centre line has reached the vertical plane which contains the top edge of the uppermost step, or until a plane tangential to the upper cylinder touches the dual panel, whichever occurs first, and retained in that position.

2.4.4.14.1.4 Between the cylindrical figure, at the position set out in paragraph 2.4.4.14.1.2, and the dual panel, at the position set out in paragraph 2.4.4.14.1.3, there shall be a free space whose upper and lower limits are shown in figure 4. This free space shall permit the free passage of a vertical panel whose form and dimensions are the same as the cylindrical form (paragraph 2.4.4.14.5.1.), central section and a thickness of no more than 20 mm. This panel shall be moved, from the cylindrical form tangential position, until its external side is in contact with the dual panel interior

side, touching the plane or planes defined by the step upper edges, in the probable direction of motion of a person using the entrance.

2.4.4.14.1.5 The free passage clearance for this figure shall not include any space extending to 300 mm in front of any uncompressed seat cushion of a forward or rearward facing seat, or 225 mm in the case of sideways-facing seats, and to the height of the top of the seat cushion.

2.4.4.14.1.6 In the case of folding seats, this space shall be determined with the seat in the position of use.

2.4.4.14.1.7 However, one or more folding seat(s) for use by the crew may obstruct the access passage to a service door when in the position of use provided that:

2.4.4.14.1.7.1 it is clearly indicated, both in the vehicle itself and on the communication from, that the seat is for the use of crew only,

2.4.4.14.1.7.2 when the seat is not in use it folds automatically as necessary to enable the requirements of paragraphs 2.4.4.14.1.1, 2.4.4.14.1.2, 2.4.4.14.1.3 and 2.4.4.14.1.4 to be met;

2.4.4.14.1.7.3 the door is not considered to be a mandatory exit for the purpose of paragraph 2.4.4.2.3,

2.4.4.14.1.7.4 When the seat is in the position of use, and when it is in the folded position, no part of it shall be: the maximum slope of the floor in the access passage shall not exceed 5 per cent.

(a) Forward of a vertical plane passing through the centre of the seating surface of the driver's seat in its rearmost and lowest position and through the centre of the exterior rear-view mirror mounted on the opposite side of the vehicle or through the centre of any monitor used as device for indirect vision, whatever applicable, and

(b) Above a horizontal plane which is located 300 mm above the centre of the seating surface of the driver's seat in its rearmost and lowest position.

2.4.4.14.1.8 The maximum slope of the floor in the access passage shall not exceed 5 per cent.

2.4.4.14.1.9 The surface of access passages shall be slip-resistant.

2.4.4.14.2 Access to emergency doors

2.4.4.14.2.1 Except as provided for in paragraph 2.4.4.14.2.4, the free space between the gangway and the emergency door

aperture shall permit the free passage of a vertical cylinder 300 mm in diameter and 700 mm high from the floor and supporting a second vertical cylinder 550 mm in diameter, the aggregate height of the assembly being 1400 mm.

The diameter of the upper cylinder may be reduced at the top to 400 mm when a chamfer not exceeding 30 degrees from the horizontal is included.

2.4.4.14.2.2 The base of the first cylinder shall be within the projection of the second cylinder.

2.4.4.14.2.3 Where folding seats are installed alongside this passage, the free space for the cylinder shall be required to be determined when the seat is in the position for use.

2.4.4.14.2.4 As an alternative to the dual cylinder, the gauging device described in paragraph 2.4.4.14.5.1 may be used (see figure 5).

2.4.4.14.3 Access to emergency windows

2.4.4.14.3.1 It shall be possible to move a test gauge from the gangway to the exterior of the vehicle through every emergency window.

2.4.4.14.3.2 The direction of motion of the test gauge shall be in the direction in which a passenger evacuating the vehicle would be expected to move. The test gauge shall be kept perpendicular to that direction of motion and shall not meet any obstacle.

2.4.4.14.3.3 The test gauge shall be in the form of a thin plate having a size of 600 mm x 400 mm with corners radiused by 200 mm. However, in the case of an emergency window in the rear face of the vehicle, the test gauge may alternatively have a size of 1400 mm x 350 mm with corners radiused by 175 mm.

2.4.4.14.4 Access to escape hatches

2.4.4.14.4.1 Escape hatches in the roof

2.4.4.14.4.1.1 Except in the case of Class I and A vehicles, at least one escape hatch shall be located such that a four-sided truncated pyramid having a side angle of 20 degrees and a height of 1,600 mm touches part of a seat or equivalent support. The axis of the pyramid shall be vertical and its smaller section shall contact the aperture area of the escape hatch. Supports may be foldable or movable provided they can be locked in their position of use. This position shall be taken for verification.

2.4.4.14.4.1.2 When the structural thickness of the roof is more than 150 mm, the smaller section of the pyramid shall contact the aperture area of the escape hatch at the level of the outside surface of the roof.

2.4.4.14.4.2 Escape hatches in the floor.

in the case of an escape hatch fitted in the floor, the hatch shall give direct and free access to the exterior of the vehicle and be fitted where there is a clear space above the hatch equivalent to the height of the gangway. Any heat source or moving components shall be at least 500 mm from any part of the hatch aperture.

It shall be possible to move a test gauge in the form of a thin plate having dimensions 600 mm x 400 mm with corners radiused by 200 mm in a horizontal position from a height above the floor of the vehicle of 1 m to the ground.

2.4.4.14.5 Gangways

2.4.4.14.5.1 The gangway(s) of a vehicle shall be so designed and constructed as to permit the free passage of a gauging device consisting of two co-axial cylinders with an inverted truncated cone interposed between them, the gauging device having the dimensions shown in figure 5.

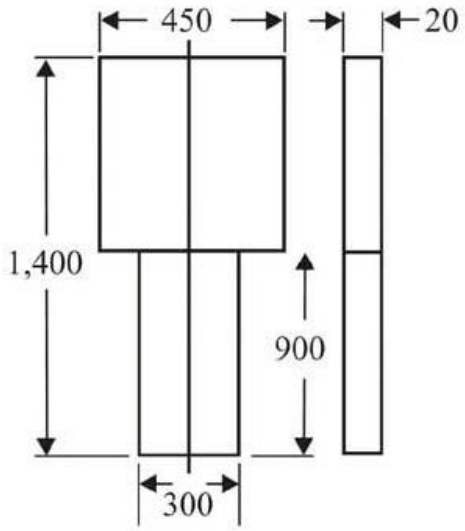
The gauging device may come into contact with strap hangers, if fitted, or other flexible objects such as seat belt components and move them away. The gauging device shall not come into contact with any monitor or display device mounted from the ceiling above the gangway.

If a vehicle is fitted with a barrier, the gauging device according to figure 5, may come into contact with the barrier provided that the maximum force necessary to move such barrier out of the way does not exceed 50 Newton measured at the point of contact between the gauging device according to gangway mannequi and the barrier and applied perpendicular to the barrier. The maximum force shall apply to both directions of movement of the gauging device. If the vehicle is equipped with a lift adjacent to the barrier, the barrier may be temporarily blocked during the operation of the lift.

2.4.4.14.5.1.1 If there is no exit forward of a seat or row of seats

2.4.4.14.5.1.1.1 In the case of forward-facing seats, the front edge of the cylindrical gauge defined in paragraph 2.4.4.14.5.1 shall reach at least until the transverse vertical plane tangential to the foremost point of the foremost front row seat back and be retained in that position. From this plane, it must be possible

to move the panel ,in such a way that starting from the contact position with the cylindrical gauge, the panel side facing the exterior of the vehicle is displaced forwards a distance of 660 mm. Figure as below.



Panel

2.4.4.14.5.1.1.2 In the case of sideways facing seats, the forward part of the cylindrical gauge must reach at least the transversal plane which coincides with a vertical plane passing through the centre of the forward seat.

2.4.4.14.5.1.1.3 In the case of rearward facing seats, the forward part of the cylindrical gauge shall reach at least the transverse vertical plane tangential to the face of the seat cushions of the forward row or seat

2.4.4.14.5.2 On articulated vehicles, the gauging device defined in paragraph 2.4.4.14.5.1 shall be able to pass unobstructed through the articulated section on any deck where the two sections permit through passage by passengers. No part of the soft covering of that section, including parts of bellows, shall project into the gangway.

2.4.4.14.5.3 Steps may be fitted in the gangways. The width of such steps shall not be less than the width of the gangway at the top of the steps.

2.4.4.14.5.4 Folding seats allowing passengers to sit in the gangway shall not be permitted. Folding seats shall, however, be

permitted in other areas of the vehicle so long as they do not obstruct the passage down the gangway of the gangway test gauge when in the open (seating) position.

2.4.4.14.5.5 Laterally-sliding seats which in one position encroach on the gangway shall not be permitted.

2.4.4.14.5.6 2.4.4.14.5.6 The surface of gangways shall be slip-resistant.

2.4.4.14.6 Slope of gangway

The slope of the gangway shall not exceed:

2.4.4.14.6.1 in the longitudinal direction: 8 per cent

2.4.4.14.6.2 In the transversal direction: 5 per cent

2.4.4.14.7 Steps

2.4.4.14.7.1 The maximum and minimum height, and the minimum depth, of steps for passengers at service and emergency doors, and within the vehicle, are specified in Figure 6.

2.4.4.14.7.1.1 Any transition from a sunken gangway to a seating area shall not be considered to be a step. However, the vertical distance between the gangway surface and the floor of the seating area shall not exceed 350 mm.

2.4.4.14.7.2 The height of a step shall be measured at the centre of its width at the outer edge, the tyre equipment and pressure being as specified by the manufacturer for the technically permissible maximum laden mass (M).

2.4.4.14.7.3 The height of the first step in relation to the ground shall be measured with the vehicle on level ground, at its mass in running order, and the tyre equipment and pressure being as specified by the manufacturer for the technically permissible maximum laden mass (M).

2.4.4.14.7.4 Where there is more than one step, each step may extend into the area of the vertical projection of the next step by up to 100 mm and the projection over the tread below shall leave a free surface of at least 200 mm (see figure 6) with all step nosings being designed such as to minimize the risk of tripping. All step nosings shall contrast visually with their immediate surroundings.

2.4.4.14.7.5 The width and shape of every step shall be such that a rectangle as indicated in the table below can be placed on that step with not more that 5 percent of the area of the appropriate rectangle overhanging the step. At a double doorway each half of the doorway shall fulfil this requirement.

Number of passengers		> 22	≤ 22
Area	First step (mm)	400 x 300	400 x 200
	Other steps (mm)	400 x 200	400 x 200

2.4.4.14.7.6 All steps shall have a slip-resistant surface.

2.4.4.14.7.7 The maximum slope of the step in any direction shall not exceed 5 percent.

2.4.4.14.8 Passenger seats (including folding seats. The setting of side-facing seats shall comply with the requirements of “seats” regulated in VSTD.) and space for seated passengers

2.4.4.14.8.1 Minimum seat width

2.4.4.14.8.1.1 The minimum width of the seat cushion, dimension "F", measured from a vertical plane passing through the centre of that seating position, shall be: 200 mm

2.4.4.14.8.1.2 The minimum width of the available space for each seating position, dimension "G", measured from a vertical plane passing through the centre of that seating position at height between 270 mm and 650 mm above the uncompressed seat cushion, shall be not less than:

2.4.4.14.8.1.2.1 250 mm in the case of individual seats; or

2.4.4.14.8.1.2.2 225 mm in the case of continuous rows of seats for two or more passengers.

2.4.4.14.8.1.3 For vehicles not exceeding a width of 2.35 m, the width of the available space for each seating position, measured from a vertical plane passing through the centre of that seating position at heights between 270 mm and 650 mm above the uncompressed seat cushion shall be 200 mm. In case of compliance with this paragraph the requirements of paragraph 2.4.4.14.8.1.2 shall not apply.

2.4.4.14.8.1.4 In measuring the gangway width, no account shall be taken of whether or not the available space defined above protrudes into the gangway.

2.4.4.14.8.2 The minimum depth of a seat cushion shall be: 350 mm

2.4.4.14.8.3 Height of seat cushion

The height of the uncompressed seat cushion relative to the floor shall be such that the distance from the floor to a

horizontal plane tangential to the front upper surface of the seat cushion is between 400 mm and 500 mm: this height may however be reduced to not less than 350 mm at the wheel arches (taking into account the allowances permitted in paragraph 2.4.4.14.8.5.2 below) and at the engine/transmission compartment.

2.4.4.14.8.4 Seat spacing(see figure 16-1, figure 16-2)

2.4.4.14.8.4.1 In the case of seats facing in the same direction, the distance between the front of a seat squab and the back of the squab of the seat preceding it (dimension H), shall, when measured horizontally, parallel to the longitudinal plane of the vehicle (showed in Figure 16-1) and at all heights above the floor between the level of the top surface of the seat cushion and a point 620 mm above the floor, not be less than the value shown in Figure 16-1.

2.4.4.14.8.4.2 All measurements shall be taken, with the seat cushion and squab uncompressed, using the testing gauge shown in Figure 16-2.

2.4.4.14.8.4.3 Where transverse seats face one another the minimum distance between the front faces of the seat squabs of facing seats, as measured across the highest points of the seat cushions, shall be not less than 1300 mm.

2.4.4.14.8.4.4 Measurements shall be taken with reclining passenger seats and adjustable driving seats with their seat backs and other seat adjustments in the normal position of use specified by the manufacturer.

2.4.4.14.8.4.5 Measurements shall be taken with any folding table fitted to a seat back in the folded (stowed) position.

2.4.4.14.8.4.6 Seats which are mounted on a track or other system which permits the operator or the user to easily vary the interior configuration of the vehicle shall be measured in the normal position of use specified by the manufacturer in the application for approval.

2.4.4.14.8.5 Space for seated passengers

2.4.4.14.8.5.1 For a seat behind a partition or other rigid structure other than a seat, a minimum clear space in front of each required passenger seating space (as defined in paragraph 2.4.4.14.8.6) shall be provided as figure 7. A partition whose contour corresponds approximately to that of the inclined seat back may intrude into this space.

2.4.4.14.8.5.2 For a seat behind a seat and/or a seat facing the gangway, a minimum clear foot space of at least 300 mm

depth and a width according to paragraph 2.4.4.14.8.1.1, shall be provided as shown. The local presence in this space of seat legs, passenger footrests and of intrusions as provided shall be permitted provided that adequate space remains for the passengers' feet. This foot space may partly be situated in and/or above the gangway but shall not create any obstruction when measuring the minimum gangway-width in accordance with paragraph 2.4.4.14.5.

2.4.4.14.8.5.3 Priority seats and space for passengers with reduced mobility

2.4.4.14.8.5.3.1 The minimum number of priority seats shall be four. A seat that folds out of the way when not in use shall not be designated as a priority seat.

2.4.4.14.8.5.3.2 There shall be adequate space for a guide dog under, or adjacent to, at least one of the priority seats. This space shall not form a part of the gangway.

2.4.4.14.8.5.3.3 Armrests shall be fitted on seats between the seating position and the gangway and shall be capable of being moved easily out of the way to permit clear access to the seat.

2.4.4.14.8.5.3.4 The minimum width of a priority seat cushion, measured from a vertical plane passing through the centre of that seating position, shall be 220 mm on each side.

2.4.4.14.8.5.3.5 The height of the uncompressed seat cushion relative to the floor shall be such that the distance from the floor to a horizontal plane tangent to the front upper surface of the seat cushion is between 400 mm and 500 mm.

2.4.4.14.8.5.3.6 The foot space at priority seating positions shall extend forward of the seat from a vertical plane through the forward edge of the seat cushion. The foot space shall not have a slope in any direction of more than 8 percent.

2.4.4.14.8.5.3.6.1 For vehicles of the following paragraph 2.4.1.20.1.1, the vertical distance between the floor of the seating area and the adjacent gangway shall be not more than 250 mm.

2.4.4.14.8.5.3.7 Each priority seating position shall have a free height of not less than 1,300 mm for vehicles of the following paragraph 2.4.1.20.1.1 ,measured from the highest point of the uncompressed seat cushion. This free height shall extend over the vertical projection of the minimum required seat width of 440 mm and the associated foot space.

2.4.4.14.8.5.3.8 Intrusion of a seat back or other object or the edge of gangway（if the seat is face toward gangway） into this space shall be permitted provided that a minimum clear vertical space extending 230 mm in front of the seat cushion is maintained. Where the priority seat is positioned facing a bulkhead more than 1,200 mm in height this space shall be 300 mm. Intrusions of handholds or handrails as mentioned in paragraph 2.4.4.14.8.5.4.2 may protrude by a maximum of 100 mm from the sidewall into the clear space over the vertical projection of the foot space.

2.4.4.14.8.5.3.9 Vehicles fitted with a priority seat shall have pictogram(s), figure 3 visible from the outside, both on the front nearside of the vehicle and adjacent to the relevant service door(s). A pictogram shall be placed internally adjacent to the priority seat（at least 1 figure that it could recognize a passengers with reduced mobility other than wheelchair users of pictogram）.

2.4.4.14.8.5.4 Handrails to priority seating

2.4.4.14.8.5.4.1 A handrail at a height of between 800 mm and 900 mm above the floor level shall be provided between the priority seats and at least one service door suitable for boarding and alighting. A break is permitted where it is necessary to gain access to a wheelchair space, a seat located at a wheel arch, a staircase, an access passage or a gangway. Any break in the handrail shall not exceed 1,050 mm and a vertical handrail shall be provided on at least one side of the break.

2.4.4.14.8.5.4.2 Handrails or handholds shall be placed adjacent to priority seating positions to facilitate entry and exit of the seat, and shall be designed in such a way as to allow the passenger to grasp them easily.

2.4.4.14.8.5.5 Floor slope: The slope of any gangway, access passage or floor area between any priority seat or wheelchair space and at least one entrance and one exit or a combined entrance and exit shall not exceed 8 per cent. Such sloping areas shall be provided with a slip-resistant surface.

2.4.4.14.8.6 Free height over seating positions

2.4.4.14.8.6.1 over each seating position and its associated foot space, there shall be measured a free space with a height of not less than 900 mm measured from the highest point of the uncompressed seat cushion and at least 1,350 mm from the mean level of the floor in the foot space.

2.4.4.14.8.6.2 This free space shall be extended over the zone defined:

2.4.4.14.8.6.2.1 by longitudinal vertical planes 200 mm either side of the median vertical plane of the seating position, and

2.4.4.14.8.6.2.2 by a transverse vertical plane through the rearmost upper point of the seat back and by a transverse vertical plane 280 mm in front of the foremost point of the uncompressed seat cushion, measured in each case at the median vertical plane of the seating position.

2.4.4.14.8.6.3 From the edges of the free space defined by paragraphs 2.4.4.14.8.6.1 and 2.4.4.14.8.6.2, the following zones may be excluded:

2.4.4.14.8.6.3.1 in the case of the upper part of the outboard seats, adjacent to the inner wall of the vehicle, a zone with a rectangular cross-section 150 mm in height and 100 mm in width.

2.4.4.14.8.6.3.2 in the case of the upper part of the outboard seating position, a zone with triangular cross-section whose apex is situated 700 mm from the top and whose base is 100 mm in width. The space needed for safety belts and their anchorages and for the sun visor is also excluded;

2.4.4.14.8.6.3.3 in the case of the foot well of an outboard seating position, a zone of a cross-sectional area not exceeding, 0.02 m2 and having a maximum width not exceeding 100 mm.

2.4.4.14.8.6.4 In the free space defined by paragraphs 2.4.4.14.8.6.1, 2.4.4.14.8.6.2 and 2.4.4.14.8.6.3, the following additional intrusions shall be permitted:

2.4.4.14.8.6.4.1 intrusion of the back of another seat, its supports and its attachments (e.g. folding table);

2.4.4.14.8.6.4.2 Intrusion of hopper type windows when open and their fittings.

2.4.4.14.8.7 Requirements for the safeguarding of the foremost side-facing seat of passengers in side-facing seats

2.4.4.14.8.7.1 As for the category symbols M2 and M3, the new vehicle types from 2017/1/1 and all vehicle types from 2019/1/1, the parts of foremost side-facing seat (e.g. partition, wall or seat back of a forward facing seat) shall comply with this regulation.

2.4.4.14.8.7.2 The distance between the foremost side-facing seat and the vehicle parts (e.g. partition, wall or seat back of a forward facing seat) forward of this foremost side-facing seat shall not exceed 450 mm. All measurements are to be taken 1000 mm above the reference plane of the foremost side-facing seat (see Figure 1).

2.4.4.14.8.7.3 The vehicle part (e.g. partition, wall or seat back of a forward facing seat) in front of the foremost side-facing

seat shall fulfil the following requirements in order to safeguard the passenger in that foremost side-facing seat (see Figure 2):

2.4.4.14.8.7.3.1 The height of the vehicle part, based on the reference plane of the foremost side-facing seat, must not be less than 1,020 mm; and

2.4.4.14.8.7.3.2 The effective impact surface of the vehicle part has a width of 200 mm and a height of 580 mm. This surface shall be positioned so that the vertical centre-line is located 50 mm behind the H-point of the foremost side-facing seat; and

2.4.4.14.8.7.3.3 The corresponding surface of the vehicle part in place projected onto a vertical plane through this H-point shall cover at least 95 per cent of the effective impact surface. This vehicle part shall fulfil the energy absorption requirement (Static test 2) from regulation of “seats”, and shall remain its protective function during the test process.

2.4.4.14.8.7.3.3.1 If there is a gap in the corresponding surface (typically two forward-facing seats with a gap in between) a distance shall be determined for each gap by means of a sphere having a diameter of 165 mm. The sphere shall be put into contact with the gap in a point of the gap area which allows the maximum sphere intrusion, considering no load is to be applied. The distance between the two points of contact of the sphere must be less than 60 mm.

2.4.4.14.8.7.3.4 "Reference plane" means the plane passing through the points of contact of the heels of the manikin, used for the determination of the H point and the actual angle of torso for the seating position of motor vehicles.

2.4.4.14.8.7.3.5 "Reference height" means the height of the top of the seat above the reference plane;

2.4.4.14.9 Communication with the driver

2.4.4.14.9.1 A means shall be provided to enable passengers to signal that the driver should stop the vehicle. The controls for all such communication devices shall be capable of being operated with the palm of the hand. There shall be appropriate communication devices distributed adequately and evenly throughout the vehicle and no more than 1,500 mm from the floor; this does not exclude the possibility of installing higher additional communication devices. Controls shall contrast visually with their immediate surroundings. Activation of the control shall also be indicated to

the passengers by means of one or more illuminated signs. The sign shall display the words "bus stopping" or equivalent, and/or a suitable pictogram and shall remain illuminated until the service door(s) open. Articulated vehicles shall have such signs in each rigid section of the vehicle. The provisions of paragraph 2.4.4.12.2.4 apply to any textual markings used.

2.4.4.14.9.2 Communication with the crew compartment: If a crew compartment is fitted without access to the driver or passenger compartments, a means of communication between the driver and this crew compartment shall be provided.

2.4.4.14.9.3 Communication with the toilet compartment: Toilet compartments shall be fitted with a means of summoning assistance in an emergency.

2.4.4.14.10 Hot drink machines and cooking equipment

2.4.4.14.10.1 Hot drink machines and cooking equipment shall be so installed or guarded that no hot food or drink is likely to be spilled on any passenger due to emergency braking or cornering forces.

2.4.4.14.10.2 On vehicles fitted with hot-drink machines or cooking equipment, all passenger seats shall have adequate provision for setting down hot food or drink whilst the vehicle is in motion.

2.4.4.14.11 Doors to interior compartments

Every door to a toilet or other interior compartment:

2.4.4.14.11.1 shall be self-closing, and shall not be fitted with any device to hold it open if, when open, it could obstruct passengers in an emergency,

2.4.4.14.11.2 shall, when open, not conceal any handle, control device for opening or obligatory marking associated with any service door, emergency door, emergency exit, fire extinguisher or first aid kit;

2.4.4.14.11.3 shall be provided with a means to enable the door to be opened from outside the compartment in an emergency,

2.4.4.14.11.4 shall not be capable of being locked from the outside unless it can always be opened from the inside.

2.4.4.14.12 Driver's compartment

2.4.4.14.12.1 The driver shall be protected from standing passengers and from passengers seated immediately behind the driver's compartment who may be projected into the driver's compartment in the event of braking or cornering. This requirement shall be deemed to be satisfied if:

2.4.4.14.12.1.1 The rear of the driver's compartment is enclosed by a partition; or

2.4.4.14.12.1.2 In the case of passenger seats located immediately behind the driver's compartment either a guard. For vehicles having an area available for standing passengers immediately behind the driver's compartment. A guard shall comply with the requirements specified in paragraphs 2.4.4.14.12.1.2.1 to 2.4.4.14.12.1.2.3. (see figure 8)

2.4.4.14.12.1.2.1 The minimum height of the guard measured from the floor on which the passenger's feet rest shall be 800 mm.

2.4.4.14.12.1.2.2 The width of the guard shall extend inwards from the wall of the vehicle at least as far as 100 mm beyond the longitudinal centre line of the innermost relevant passenger seat, but in any case shall extend at least as far as the innermost point of the driver's seat.

2.4.4.14.12.1.2.3 The distance between the uppermost edge of an area destined to hold any object (e.g. a table) and the uppermost edge of a guard shall be at least 90 mm.

2.4.4.14.12.2 The driver's compartment shall be protected from objects liable to roll into it from the passenger area immediately behind the compartment in the case of heavy braking. This requirement shall be deemed to be satisfied when a ball of 50 mm diameter cannot roll into the driver's compartment from the passenger area immediately behind the compartment.

2.4.4.14.12.3 The driver shall be protected from the sun and from the effects of glare and reflections caused by artificial interior lighting. Any lighting likely to affect adversely and significantly the driver's vision shall be capable of being operated only while the vehicle is at rest.

2.4.4.14.12.4 The vehicle shall be provided with devices allowing defrosting and demisting of the windscreen.

2.4.4.14.13 Driver's seat

2.4.4.14.13.1 The driver's seat shall be independent of other seats.

2.4.4.14.13.2 The seat back shall either be curved or the driver's area shall be provided with armrests positioned in such a way that the driver is neither constrained during vehicle manoeuvring operations, nor becomes unbalanced by transverse accelerations which can occur in service.

2.4.4.14.13.3 The minimum width of the seat cushion measured from a vertical plane passing through the centre of the seat, shall

be 225 mm.

2.4.4.14.13.4 The minimum depth of the seat cushion measured from a vertical plane passing through the centre of the seat, shall be 400 mm.

2.4.4.14.13.5 The minimum overall width of the seat back measured up to a height of 250 mm above the horizontal plane tangential to the uppermost surface of the uncompressed seat cushion shall be 450 mm.

2.4.4.14.13.6 The distance between armrests shall ensure a free space for the driver, as defined in paragraph 2.4.4.14.13.2, of not less than 450 mm.

2.4.4.14.13.7 The seat shall be adjustable in its longitudinal and vertical positions and in its seat back inclination. It shall lock automatically in the selected position and, if fitted with a swivelling mechanism, it shall lock automatically when in the driving position. The seat shall be equipped with a suspension system.

2.4.4.15 Artificial interior lighting

2.4.4.15.1 Internal electrical lighting shall be provided for the illumination of:

2.4.4.15.1.1 all passenger compartments, crew compartments, toilet compartments and the articulated section of an articulated vehicle;

2.4.4.15.1.2 any step or steps;

2.4.4.15.1.3 the access to any exits and the area immediately around the service door(s) including, when in use, any boarding device fitted;

2.4.4.15.1.4 the internal markings and internal controls of all exits;

2.4.4.15.1.5 all places where there are obstacles.

2.4.4.15.2 There shall be at least two internal lighting circuits such that failure of one will not affect the other. A circuit serving only permanent entry and exit lighting can be considered as one of these circuits.

2.4.4.15.3 Emergency lighting system

The following bus shall be equipped with this system：

（1）For low floor vehicles having a capacity exceeding 22 passengers, vehicles constructed with areas for standing passengers, to allow frequent passenger movement.

（2）For low floor vehicles having a capacity exceeding 22 passengers, vehicles constructed principally for the

carriage of seated passengers, and designed to allow the carriage of standing passengers in the gangway and/or in an area which does not exceed the space provided for two double seats.

（3）For low floor vehicles having a capacity not exceeding 22 passengers; a vehicle of this class may has seats and shall have provision for standing passengers

2.4.4.15.3.1 It shall be possible for the driver to activate the emergency lighting system from the driver's seating position.

2.4.4.15.3.2 The operation of the emergency control of any service or emergency door shall activate the emergency lighting system.

2.4.4.15.3.3 The emergency lighting system, once activated, shall remain active for at least 30 minutes unless de-activated by the driver.

2.4.4.15.3.4 The power supply for the emergency lighting shall be suitably located within the vehicle to minimise the risk of its continued operation being prejudiced as the result of an accident.

2.4.4.15.3.5 All units providing the emergency lighting shall produce a white light.

2.4.4.15.3.6 The uniformity of illuminance of the lighting shall be assessed in accordance with the following measures:

$$\text{Maximum uniformity of illuminance} = \frac{\text{Maximum lighting level recorded}}{\text{Average lighting level recorded}}$$

$$\text{Minimum uniformity of illuminance} = \frac{\text{Minimum lighting level recorded}}{\text{Average lighting level recorded}}$$

2.4.4.15.3.7 The emergency lighting system shall provide a minimum illuminance of 10 lux directly under each light unit in the passenger compartment at a height of 750 mm above the of all access passages and gangways.

2.4.4.15.3.8 The uniformity of the illuminance over the length of the passenger compartment at a height of 750 mm above all access passages and gangways shall be between 0.15 and 2.

2.4.4.15.3.9 The emergency lighting system shall provide a minimum illuminance of 1 lux at floor level in the centreline of all access passages and gangways and at the centre of any step, at step level.

2.4.4.15.3.10 Conformity with the uniformity requirements shall be demonstrated over a period of at least 30 minutes from

initiation of the emergency lighting by measurements taken at distances not exceeding 2 metres.

2.4.4.15.4 Provisions shall be made to protect the driver from the effects of glare and reflections caused by artificial interior lighting. Any lighting likely to affect adversely and significantly the driver's vision shall be capable of being operated only while the vehicle is at rest.

2.4.4.15.5 Individual lights for each of the items in paragraph 2.4.4.15.1 are not required providing adequate illumination can be maintained during normal use.

2.4.4.15.6 Control of the mandatory interior lighting shall be by manual switches under the control of the driver or automatically controlled.

2.4.4.16 Articulated section of articulated vehicles

2.4.4.16.1 The articulated section that interconnects rigid portions of the vehicle shall be so designed and constructed as to allow at least one rotary movement about at least one horizontal axis, and at least one vertical axis.

2.4.4.16.2 When the articulated vehicle at its mass in running order is stationary on a horizontal level surface, there shall not be between the floor of either of the rigid sections and the floor of the rotating base or of the element replacing that base an uncovered gap of a width exceeding:

2.4.4.16.2.1 10 mm when all the wheels of the vehicle are on the same plane.

2.4.4.16.2.2 20 mm when the wheels of the axle adjacent to the articulated section are resting on a surface which is 150 mm higher than the surface on which the wheels of the other axles are resting.

2.4.4.16.3 The difference in level between the floor of the rigid portions and the floor of the rotating base, measured at the joint, shall not exceed:

2.4.4.16.3.1 20 mm in the conditions described in paragraph 2.4.4.16.2.1.

2.4.4.16.3.2 30 mm in the conditions described in paragraph 2.4.4.16.2.2.

2.4.4.16.4 On articulated vehicles means shall be provided to physically prevent access by passengers to any part of the articulated section where:

2.4.4.16.4.1 the floor has an uncovered gap not complying with the requirements of paragraph 2.4.4.16.2;

2.4.4.16.4.2 the floor cannot carry the mass of the passengers;

2.4.4.16.4.3 the movements of the walls constitute a danger to passengers.

2.4.4.17 Direction-holding of articulated vehicles

When an articulated vehicle is moving in a straight line, the longitudinal median planes of its rigid portion shall coincide and form a continuous plane without any deflection.

2.4.4.18 Handrails and handholds

2.4.4.18.1 General requirements

2.4.4.18.1.1 Handrails and handholds shall be of adequate strength.

2.4.4.18.1.2 They shall be so designed and installed as to present no risk of injury to passengers.

2.4.4.18.1.3 Handrails and handholds shall be of a section enabling passengers to grasp them easily and firmly. Every handrail shall provide a length of at least 100 mm to accommodate a hand. No dimension of the section shall be smaller than 20 mm or greater than 45 mm except in the case of handrails on doors and seats and, in access passages. In these cases handrails having a minimum dimension of 15 mm shall be permitted provided that one other dimension is of at least 25 mm. Handrails shall not have sharp bends.

2.4.4.18.1.4 The clearance between a hand-rail or hand-hold, along the majority of its length, and the adjacent part of the vehicle body or walls shall be at least 40 mm. However, in the case of a handrail on a door or a seat, or in the access passage of a minimum clearance of 35 mm shall be permitted.

2.4.4.18.1.5 The surface of every handrail, handhold or stanchion shall contrast visually with their immediate surroundings and be slip-resistant.

2.4.4.18.2 Additional requirements for handrails and handholds for vehicles designed to carry standing passengers

2.4.4.18.2.1 Handrails and/or handholds shall be provided in sufficient number for each point of the floor area intended for standing passengers. For this purpose, strap hangers, if fitted, may be counted as handholds, provided that they are held in their position by suitable means. This requirement shall be deemed to be fulfilled if, for all possible sites of the testing device shown in figure 9 hereto, at least two handrails or handholds can be reached by the device's moveable arm. The testing device may be freely turned about its vertical axis.

2.4.4.18.2.2 When applying the procedure described in paragraph 2.4.4.18.2.1, only such hand-rails and handholds shall be considered which are not less than 800 mm and not more than 1,950 mm above the floor.

2.4.4.18.2.3 For every position that can be occupied by a standing passenger, at least one of the two required handrails or

handholds shall be not more than 1,500 mm above the level of the floor at that position. This does not apply to an area adjacent to a door where the door or its mechanism in open position would prevent the use of this handhold. Also, exception may be given in the middle of large platforms, but the sum of these exceptions shall not exceed 20 per cent of the total standing area.

2.4.4.18.2.4 Areas which can be occupied by standing passengers and are not separated by seats from the side walls or rear wall of the vehicle shall be provided with horizontal handrails parallel to the walls and installed at a height of between 800 mm and 1500 mm above the floor.

2.4.4.18.3 Handrails and handholds for service doors

2.4.4.18.3.1 Door apertures shall be fitted with handrails and/or handholds on each side. In the case of double doors this requirement can be fulfilled by fitting one central stanchion or one central handrail.

2.4.4.18.3.2 Handrails and/or handholds to be provided for service doors shall be such that they include a grasping point available to a person standing on the ground adjacent to the service door or on any of the successive steps. Such points shall be situated, vertically, between 800 mm and 1100 mm above the ground or above the surface of each step, and horizontally:

2.4.4.18.3.2.1 for the position appropriate to a person standing on the ground, not more than 400 mm inwards from the outer edge of the first step;

2.4.4.18.3.2.2 for the position appropriate to a particular step, not outwards from the outer edge of the step considered, and not more than 600 mm inwards from that same edge.

2.4.4.19 Guarding of open area

2.4.4.19.1 Where any seated passenger is likely to be thrown forward into a designated wheelchair space, pram space or open area for standing passengers as a result of heavy braking, either a guard or, in the case of a vehicle of a safety-belt shall be fitted. Where fitted, the guard shall have a minimum height from the floor on which the passenger's feet rest of 800 mm and shall extend inwards from the wall of the vehicle at least as far as 100 mm beyond the longitudinal centre line of any seating position where the passenger is at risk.

2.4.4.19.2 Paragraph 2.4.4.19.1 the rule is not eligible for the following situations :

(a) any sideways facing seat,

(b) a seat which has its centreline within the longitudinal projection of a gangway,

(c) a seat in front of which is existing vehicle structure (e.g. fixed table or luggage pen) offering comparable levels of protection as a guard meeting the requirements of paragraph 2.4.4.19.1 or

(d) transverse facing seats where the maximum distance between the front faces of the seat squabs of facing seats does not exceed 1,800 mm when measured in accordance with paragraph 2.4.4.14.8.4.3.

2.4.4.20 Baggage racks and occupant protection : The occupants of the vehicle shall be protected from objects liable to fall from baggage racks under braking or cornering forces. If baggage compartments are fitted, they must be designed in such a way that baggage is prevented from falling in the event of sudden braking.

2.4.4.21 Trap doors, if fitted

Every trap door, that is not an escape hatch, on the floor of a vehicle shall be so fitted and secured that it cannot be dislodged or opened without the use of tools or keys and no lifting or securing device shall project by more than 8 mm above floor level. Edges of projections shall be rounded.

2.4.4.22 Visual Entertainment

2.4.4.22.1 Forms of visual entertainment for passengers, for example television monitors or videos, shall be located out of the driver's view when the driver is seated in his normal driving position. This shall not preclude any television monitor or similar device used as part of the driver's control or guidance of the vehicle, for example to monitor service doors.

2.4.4.23 Guidelines for measuring the closing forces of power-operated doors

The closing of a power-operated door and the operation of a power-operated ramp are dynamic processes. When a moving door or ramp hits an obstacle, the result is a dynamic reaction force, the history of which (in time) depends on several factors (for example, mass of the door or ramp, acceleration, dimensions).

2.4.4.23.1 Definitions

2.4.4.23.1.1 Closing or reactive force F(t) is a time function, measured at the outer edge of the door or ramp (see paragraph 2.4.4.23.2.2 below).

2.4.4.23.1.2 Peak force FS is the maximum value of the closing or reactive force.

2.4.4.23.1.3 Effective force FE is the average value of the closing or reactive force related to the pulse duration:

$$F_E = \frac{1}{T}\int_{t_1}^{t_2} F(t)dt$$

2.4.4.23.1.4 Pulse duration T is the time between the t1 and t2:

$T = t_2 - t_1$

where,

t_1 = threshold of sensitivity, where the closing or reactive force exceeds 50 N;

t_2 = fade-away threshold, where the closing or reactive force becomes less than 50 N.

2.4.4.23.1.5 The relation between the above parameters is shown in figure 10 below (as an example).

2.4.4.23.1.6 Clamping or mean reactive force Fc is the arithmetical mean value of the effective forces, measured at the same measuring point subsequently more times:

$$Fc = \frac{\sum_{i=1}^{i=n} (F_E)i}{n}$$

2.4.4.23.2 Measurements

2.4.4.23.2.1 Conditions of measurement:

2.4.4.23.2.1.1 Temperature range: 10 degrees to 30 degrees C

2.4.4.23.2.1.2 The vehicle shall be standing on a horizontal surface.

2.4.4.23.2.2 Measurement points shall be:

2.4.4.23.2.2.1 at the main closing edges of the door: one in the middle of the door; one 150 mm above the lower edge of the door.

2.4.4.23.2.2.2 if equipped with clamping prevention devices for the opening process: at the secondary closing edges of the door at that point which is considered to be the most dangerous place of clamping.

2.4.4.23.2.3 At least three measurements shall be taken at each of the measuring points to determine the clamping or mean

reactive force according to paragraph 2.4.4.23.1.6.

2.4.4.23.2.4 The signal of the closing or reactive force shall be recorded by means of a low-pass filter with a limiting frequency of 100 Hz. Both the threshold of sensitivity and the fade-away threshold to limit the pulse duration shall be set at 50 N.

2.4.4.23.2.5 The deviation of the reading from the rated value shall not be more than +/- 3 per cent.

2.4.4.23.3 Measuring device

2.4.4.23.3.1 The measuring device shall consist of two parts: one handle and one measuring part which is a load cell (see figure 11).

2.4.4.23.3.2 The load cell shall have the following characteristics:

2.4.4.23.3.2.1 It shall consist of two sliding housings with the outer dimension of 100 mm in diameter and 115 mm in width. Inside the load cell a compression spring shall be fitted between the two housings such that the load cell can be pressed together if an appropriate force is applied.

2.4.4.23.3.2.2 The stiffness of the load cell shall be 10 +/- 0.2 N/mm. The maximum spring deflection shall be limited to 30 mm so that a maximum peak force of 300 N is achieved.

2.4.4.24 Provisions for the accommodation of unfolded prams and pushchairs

2.4.4.24.1 For articulated buses, shall be provided for the accommodation of at least one unfolded pram or pushchair, and one wheelchair space. In such a case, the area shall have signs fixed on or adjacent to the area with the following have signs fixed on or adjacent to the area with the following show in Figure15.

2.4.4.24.2 A dedicated area shall be provided for the accommodation of at least one unfolded pram or pushchair.

2.4.4.24.3 The dimensions of the unfolded pram or pushchair area shall not be less than 750 mm wide and 1,300 mm long. Its longitudinal plane shall be parallel to the longitudinal plane of the vehicle and the floor surface shall be slip resistant.

2.4.4.24.4 Accessibility to prams and pushchairs areas shall be provided in accordance with the following provisions:

2.4.4.24.4.1 It shall be possible for an unfolded pram or pushchair to be moved freely and easily from the outside of the vehicle through at least one of the service doors into the special area(s).

2.4.4.24.4.1.1 By "moving freely and easily", it is meant that:

(1) There is sufficient space available for the pram or pushchair to be manoeuvred;

(2) There are no steps, gaps or stanchions which could be an obstacle to the free movement of the pram or

pushchair.

2.4.4.24.5 The area shall be fitted with the pictogram shown in Figure15.

2.4.4.24.5.1 As paragraph 2.4.4.24.4,the same pictogram shall be placed both on the front nearside of the vehicle and adjacent to the service door that gives access to the pram or pushchair area.

2.4.4.24.6 The following requirements shall apply to the stability of the unfolded pram or pushchair:

2.4.4.24.6.1 One of the longitudinal sides of the space for a pram or pushchair shall rest against a side or wall of the vehicle or a partition;

2.4.4.24.6.2 A support or backrest perpendicular to the longitudinal axis of the vehicle shall be provided in the forward end of the pram or pushchair space;

2.4.4.24.6.3 The support or backrest shall be designed to avoid the pram or pushchair from tipping over and shall comply with Backrest and support requirements of "Low floor vehicle" ;

2.4.4.24.6.4 A handrail or handhold shall be fitted to the side or wall of the vehicle or a partition in such a way to allow the accompanying person to grasp it easily. This handrail shall not extend over the vertical projection of the pram or pushchair space, except by not more than 90 mm and only at a height not less than 850 mm above the floor of the pram or pushchair space;

2.4.4.24.6.5 A retractable handrail or any equivalent rigid device shall be fitted on the opposite side of the pram or pushchair space in order to restrict any lateral shift of the pram or pushchair.

2.4.4.24.7 The area shall be provided with a specific control, e.g. a push-button, to enable the passenger with an unfolded pram or pushchair to request that the vehicle be stopped at the next bus stop. The general requirements of paragraph 2.4.14.9 shall apply.

2.4.4.24.8 The control shall be fitted with the pictogram described in Figure 15. The dimensions of the pictogram may be reduced as needed.

2.4.4.25 If any access to the step wells in front of the passenger seats or to the emergency doors or service doors exists in front of the passenger seats, and the height between the floor under passenger's feet and the access exceeds 12cm, there shall be protection rails or panels. The height between the upper edge of the protection rails or panels and the floor under passenger's feet shall be at least 80cm. The width of rails or protection panels shall be enough to cover the width of the seat-back of seats.

2.4.5 The body specifications of double decker city buses

Effective date from 2018/1/1, the new vehicle types of double decker city buses and from 2019/1/1, the all vehicle types of double decker city buses, the items of body specification shall comply with the additional requirements as below:

The body specification for motor vehicle	Additional corresponding paragraphs need to be conformed
Prams and pushchairs areas	2.4.5.23

2.4.5.1 The double decker city buses: Passenger vehicles with two levels of seats and respective aisles, used as public transportation in metropolitan areas.

2.4.5.2 Exit means service door and emergency exit. Placement and number of exits shall comply with the following requirements:

2.4.5.2.1 The minimum number of doors in a vehicle shall be two, either two service doors or one service door and one emergency door. A double decker city bus shall have two doors on the lower deck.

2.4.5.2.2 In order to meet this requirement, service doors equipped with a power-operated control system shall not be deemed to be emergency doors unless they can be readily opened by hand, once the control prescribed in 2.4.5.6.1.as been actuated, if necessary.

2.4.5.2.3 The minimum number of emergency exits shall be such that the total number of exits in a separate compartment is as follows:

Number of passengers and crew to be accommodated in each separate compartment	Minimum total number of exits
1～8	2
9～16	3
17～30	4
31～45	5
46～60	6
61～75	7
76～90	8
91～110	9

111～130	10
＞130	11

2.4.5.2.3.1 Separate compartment” means a space in the vehicle which may be occupied by passengers or crew when the vehicle is in use and which is separated from any other passenger or crew space, except where any partition allows passengers to see into the next passenger space, and is connected by a gangway without doors.

2.4.5.2.4 The number of exits for each separate deck (in the case of a double decker city buses) and each separate compartment must be determined separately. Toilet compartments or galleys are not considered to be separate compartments for the purposes of defining the number of emergency exits. Escape hatches can only count as one of the abovementioned number of emergency exits.

2.4.5.2.5 A double service door shall count as two doors and a double or multiple window as two emergency windows.

2.4.5.2.6 If the driver's compartment does not provide access to the passenger compartment by means of a passageway complying with one of the conditions described in paragraph 2.4.5.14.5.1.1., the following conditions shall be met:

2.4.5.2.6.1 The driver's compartment shall have two exits, which shall not both be in the same lateral wall; when one of the exits is a window, it shall comply with the requirements set out in paragraphs 2.4.5.4. and 2.4.5.9. for emergency windows.

2.4.5.2.6.2 One or two seats are permitted alongside the driver for additional people, in which case both of the exits referred to in paragraph 2.4.5.2.6.1 shall be doors.

The driver's door shall be accepted as the emergency door for the occupants of those seats, provided that it is possible to move a test gauge from the occupants' seats to the exterior of the vehicle through the driver's door.

Verification of the access to the driver's door shall be subject to the requirements of paragraph 2.4.5.14.3.2., by using the test gauge having a dimension of 600 x 400 mm, as described in paragraph 2.4.5.14.3.3.

The door provided for the passengers shall be in the side of the vehicle opposite to that containing the driver's door and shall be accepted as the emergency door for the driver.

Up to five additional seats may be fitted in a compartment incorporating the driver's compartment, provided that the additional seats and the space for these seats comply with all requirements of this Regulation and at least one door

giving access to the passenger compartment complies with the requirements of paragraph 2.4.5.4. for emergency doors.

2.4.5.2.6.3 In the circumstances described in paragraphs 2.4.5.2.6.1. and 2.4.5.2.6.2., the exits provided for the driver's compartment shall not count as one of the doors required by 2.4.5.2.1, nor as one of the exits required by paragraph 2.4.5.2.3., except in the case mentioned in paragraphs 2.4.5.2.6.1. and 2.4.5.2.6.2. Paragraphs from 2.4.5.4. to 2.4.5.8., 2.4.5.14.1., 2.4.5.14.2. and 2.4.5.14.7. shall not apply to such exits.

2.4.5.2.7 If the driver's seat and any seats adjacent to it are accessible from the main passenger compartment by means of a passageway complying with one of the conditions described in paragraph 2.4.5.14.5.1.1., no external exit is required from the driver's compartment.

2.4.5.2.8 If a driver's door or other exit from the compartment is provided in the circumstances described in paragraph 2.4.5.2.7. it may only count as an exit for passengers provided:

2.4.5.2.8.1 It satisfies the requirements relating to the dimensions of emergency door indicated in paragraph 2.4.5.4.1;

2.4.5.2.8.2 It fulfils the requirements indicated in paragraph 2.4.5.2.6.2;

2.4.5.2.8.3 The space reserved for the driver's seat shall communicate with the main passengers' compartment through an appropriate passage; such requirement shall be deemed to be fulfilled if the test gauge described in paragraph 2.4.5.14.5.1 can move unobstructed from the gangway, until the front end of the gauge reaches the vertical plane tangential to the foremost point of the driver's seat back (this seat being situated in its rearmost longitudinal position) and, from this plane, the panel described in paragraph 2.4.5.2.6.2. could be moved to the emergency door in the direction established by such paragraph with seat and steering wheel adjustment in their mid position.

2.4.5.2.9 Paragraphs 2.4.5.2.7. and 2.4.5.2.8. do not preclude there being a door or other barrier between the driver's seat and the passenger compartment provided that this barrier can be released quickly by the driver in an emergency. A driver's door in a compartment protected by such a barrier shall not be counted as an exit for passengers.

2.4.5.2.10 Escape hatches, additional to the emergency doors and windows, in the upper deck roof in the case of double-deck vehicles may also be fitted in the case of hatches.. Except as provided in paragraph 2.4.5.2.11., the minimum number of hatches shall be:

Number of passengers	Number of hatches

not exceeding 50	1
exceeding 50	2

2.4.5.2.11 Each intercommunication gangway shall be considered to be an exit from the upper deck of a double-deck vehicle.

2.4.5.2.12 All persons accommodated in the lower deck of a double-deck vehicle must in an emergency situation, have access to the exterior of the vehicle without having to enter the upper deck.

2.4.5.2.13 The upper deck gangway of a double-deck vehicle shall be connected by one or more intercommunication staircases to the access passageway of a service door or to the lower deck gangway within 3 m of a service door:

2.4.5.2.14 If more than 50 passengers are carried on the upper deck of double-deck vehicles, that upper and lower deck shall have at least two gangway,

2.4.5.2.15 In the case of a vehicle without a roof, the exits on the deck without a roof shall be such as to fulfil those prescriptions that are not incompatible with the absence of the roof.

2.4.5.3 Sitting of exits : Vehicles having a capacity exceeding 22 passenger seats shall meet the requirements shown below.

2.4.5.3.1 The service door(s) shall be situated on the side of the vehicle that is nearer to the side of the road corresponding to the direction of traffic in the country in which the vehicle is to be licensed for operation and at least one of them shall be in the forward half of the vehicle. This does not preclude:

2.4.5.3.1.1 The provision of a specially designed door in the rear or side faces of a vehicle for use in place of a service door by wheelchair passengers, or

2.4.5.3.1.2 The provision of an additional service door in the rear face of a vehicle principally for loading/unloading of goods or luggage, but which could be used by passengers where circumstances so require.

2.4.5.3.2 If the passenger's compartment has an area equal or greater than 10 m^2, two of the doors referred to in paragraph 2.4.5.2.1 shall be separated such that the distance between transverse vertical planes through their centres of area is not less than 40 per cent of the overall length of the passenger compartment on the lower deck; this shall not apply if the two doors are on different sides of the vehicle. If one of these two doors forms part of a double door, this distance shall be measured between the two doors which are furthest apart.

In the case of a double-deck vehicle, two of the doors referred to in paragraph 2.4.5.2.1. shall be separated such that the

distance between transverse vertical planes through their centres of area is not less than either 25 per cent of the overall length of the vehicle or 40 per cent of the overall length of the passenger compartment on the lower deck; this shall not apply if the two doors are on different sides of the vehicle. If one of these two doors forms part of a double door, this distance shall be measured between the two doors which are furthest apart.

2.4.5.3.3 The exits (exempt from upper deck of double decker city buses without a roof) shall be placed in such a way that their number on each of the two sides of the vehicle is substantially the same. (This shall not imply the need to provide additional exits over and above the number specified in paragraph 2.4.5.2.). Any exists in excess of the required minimum number need not be substantially on each of the two sides.

2.4.5.3.4 At least one exit shall be situated either in the rear face or in the front face of the vehicle respectively, this provision is fulfilled if an escape hatch is fitted, or, if paragraph 2.4.5.2.11 applies, an additional exit to those specified in paragraph 2.4.5.2 is fitted on each side of the vehicle.

2.4.5.3.5 The exits on the same side of the vehicle shall be suitably spaced out along the length of the vehicle.

2.4.5.3.6 A door shall, provided that it is not a service door, be permitted in the rear face of the vehicle.

2.4.5.3.7 If escape hatches are fitted, they shall be positioned as follows: if there is only one hatch, it shall be situated in the middle third of the passenger compartment, if there are two hatches, they shall be separated by a distance of at least 2 m measured between the nearest edges of the apertures in a line parallel to the longitudinal axis of the vehicle.

2.4.5.4 Minimum dimensions of exits

2.4.5.4.1 A service door shall have an aperture creating an access in accordance with the requirements shown in paragraph 2.4.5.14.1.

2.4.5.4.2 An emergency door shall have a door aperture with a minimum height of 1,250 mm and a minimum width of 550 mm.

2.4.5.4.3 An emergency window shall have a minimum area of 400,000 mm^2. It shall be possible to inscribe in this area a rectangle measuring 500 mm x 700 mm. In the case of an emergency window situated in the rear face of the vehicle, either it shall meet the former requirements, or it shall be possible to inscribe in the aperture of this emergency window a rectangle 350 mm high and 1,550 mm wide, the corners of which may be rounded to a radius of curvature not exceeding 250 mm.

2.4.5.4.4 An escape hatch shall have a hatch aperture with a minimum area of 400,000 mm^2. It shall be possible to inscribe in this

area a rectangle measuring 500 mm x 700 mm.

2.4.5.5 Technical requirements for all service doors

2.4.5.5.1 every service door shall be capable of being easily opened from inside and from outside the vehicle when the vehicle is stationary (but not necessarily when the vehicle is moving). However, this requirement shall not be construed as precluding the possibility of locking the door from the outside, provided that the door can always be opened from the inside.

2.4.5.5.2 every control or device for opening a door from the outside shall be between 1000 mm and 1500 mm from the ground and not more than 500 mm from the door. In vehicles of every control or device for opening a door from the inside shall be between 1000 mm and 1500 mm from the upper surface of the floor or step nearest the control and be not more than 500 mm from the door. This shall not apply to controls located within the driver's area.

2.4.5.5.3 every one-piece manually-operated service door which is hinged or pivoted shall be so hinged or pivoted that if the open door comes into contact with a stationary object while the vehicle is moving forwards it tends to close.

2.4.5.5.4 if a manually-operated service door is fitted with a slam lock it shall be of the two-stage type.

2.4.5.5.5 on the inside of a service door there shall not be any device intended to cover the inside steps when the door is closed. This does not exclude the presence in the step well, when the door is closed, of the door operating mechanism and other equipment attached to the inside of the door which does not form an extension of the floor on which passengers may stand. This mechanism and equipment should not be dangerous for the passengers.

2.4.5.5.6 if the direct view is not adequate, optical or other devices shall be installed to enable the driver to detect from his seat the presence of a passenger in the immediate interior and exterior vicinity of every side service door which is not an automatically-operated service door. This requirement also applies to the interior of all service doors and to the immediate vicinity of each intercommunication staircase on the upper deck. Driving mirrors may be used to meet the requirements of this paragraph provided that the field of view required for driving is still met.

2.4.5.5.7 every door which opens towards the interior of the vehicle and its mechanism shall be so constructed that its movement is not likely to cause injury to passengers in normal conditions of use. Where necessary, appropriate protection devices shall be fitted.

2.4.5.5.8 if a service door is located adjacent to a door to a toilet or other internal compartment the service door shall be proofed

against unintentional operation. However, this requirement shall not apply if the door is locked automatically when the vehicle is moving at a speed exceeding 5 km/h.

2.4.5.5.9 the service door in any open position shall not obstruct the use of, or required access to, any mandatory exit.

2.4.5.5.10 Overnight locking system

2.4.5.5.10.1 If an overnight locking system is provided, the following shall apply:

2.4.5.5.10.1.1 The locking system shall have been automatically deactivated when the ignition is in the "ON" position, or

2.4.5.5.10.1.2 A warning shall be provided to the driver indicating that the overnight locking system remains in operation at one or more door(s) when the ignition is in the "ON" position. One signal may be used for more than one door.

2.4.5.6 Additional technical requirements for power-operated service doors

2.4.5.6.1 In the event of an emergency, every power-operated service door shall be capable, when the vehicle is stationary or driving at a speed less than or equal to 3 km/h, of being opened from inside and, when not locked, from outside by controls which, whether or not the power supply is operating:

2.4.5.6.1.1 Override all other door controls;

2.4.5.6.1.2 In the case of interior controls, are placed on, or within 300 mm of, the door, at a height of not less than 1,000 mm above the first step;

2.4.5.6.1.3 Can be easily seen and clearly identified when approaching the door and when standing in front of the door and, if additional to the normal opening controls, be clearly marked for emergency use;

2.4.5.6.1.4 Can be operated by one person when standing immediately in front of the door;

2.4.5.6.1.5 May activate a starting prevention device;

2.4.5.6.1.6 Cause the door to open to a width that the gauge as defined in paragraph 2.4.5.14.1.1 can pass through within 8 seconds after the operation of the control, or enable the door to be easily opened by hand to a width that the gauge as defined in paragraph 2.4.5.14.1.1 can pass through within 8 seconds after the operation of the control;

2.4.5.6.1.7 May be protected by a device which can be easily removed or broken to gain access to the emergency control; the operation of the emergency control, or the removal of a protective cover over the control, shall be indicated to the driver both audibly and visually.

2.4.5.6.1.8 In the case of a driver-operated door which does not comply with the requirements of paragraph 2.4.5.6.6.2, shall be such that after they have been operated to open the door and returned to their normal position, the door will not close again until the driver subsequently operates a closing control.

2.4.5.6.1.9 In the case of interior controls, shall be deactivated if the vehicle moves at a speed higher than 3 km/h. This requirement may be applied to exterior controls.

2.4.5.6.2 A device may be provided which is operated by the driver from the driving seat to deactivate the outside emergency controls in order to lock the service doors from outside. In this case, the outside emergency controls shall be reactivated automatically either by the starting of the engine or before the vehicle reaches a speed of 20km/h. Subsequently, deactivation of the outside emergency controls shall not occur automatically, but shall require a further action by the driver.

2.4.5.6.3 Every driver-operated service door shall be capable of operation by the driver when in the driving seat using controls which, except in the case of a foot control, are clearly and distinctively marked.

2.4.5.6.4 Every power-operated service door shall activate a visual tell-tale, which shall be plainly visible to the driver when seated in the normal driving position in any normal ambient lighting condition, to warn that a door is not fully closed. This tell-tale shall signal whenever the rigid structure of the door is between the fully open position and a point 30 mm from the fully closed position. One tell-tale may serve for one or more doors. However, no such tell-tale shall be fitted in respect of a front service door which does not comply with the requirements of paragraphs 2.4.5.6.6.1.1 and 2.4.5.6.6.1.2.

2.4.5.6.5 Where controls are provided for the driver to open and close a power-operated service door, they shall be such that the driver is able to reverse the movement of the door at any time during the closing or opening process.

2.4.5.6.6 The construction and control system of every power-operated service door shall be such that a passenger is unlikely to be injured by the door or trapped in the door as it closes.

2.4.5.6.6.1 This requirement shall be considered satisfied if the following two requirements are met:

2.4.5.6.6.1.1 The first requirement is that when the closing of the door at any measuring point described in paragraph 2.4.4.23 is resisted by a clamping force not exceeding 150 N, the door shall reopen automatically to its fullest extent and, except in the case of an automatically-operated service door, remain open until a closing

control is operated. The clamping force may be measured by any method to the satisfaction of the Competent Authority. Guidelines are given in paragraph 2.4.4.23. The peak force may be higher than 150 N for a short time provided that it does not exceed 300 N. The reopening system may be checked by means of a test bar having a section of height 60 mm, width 30 mm with corners radiused to 5 mm.

2.4.5.6.6.1.2 The second requirement is that whenever the doors are closed onto the wrist or fingers of a passenger:

2.4.5.6.6.1.2.1 The door reopens automatically to its fullest extent and, except in the case of an automatically-operated service door, remains open until a closing control is operated, or

2.4.5.6.6.1.2.2 The wrist or fingers can be readily extracted from the doors without risk of injury to the passenger. This requirement may be checked by hand, or by means of the test bar mentioned in paragraph 2.4.4.6.6.1.1, tapered at one end over a length of 300 mm from a thickness of 30 mm to a thickness of 5 mm. It shall not be treated with polish nor lubricated. If the door traps the bar it shall be capable of being easily removed, or

2.4.5.6.6.1.2.3 The door is maintained at a position allowing the free passage of a test bar having a section of height 60 mm, width 20 mm, with corners radiused to 5 mm. This position shall not be more than 30 mm distant from the fully closed position.

2.4.5.6.6.2 In the case of a front service door the requirement of paragraph 2.4.5.6.6. shall be considered satisfied if the door:

2.4.5.6.6.2.1 Fulfils the requirements of paragraphs 2.4.5.6.6.1.1 and 2.4.5.6.6.1.2, or

2.4.5.6.6.2.2 Is fitted with soft edges; these shall not, however be so soft that if the doors are closed on the test bar mentioned in paragraph 2.4.5.6.6.1.1 the rigid structure of the doors will reach the fully closed position.

2.4.5.6.7 Where a power-operated service door is held closed only by the continued application of the power supply there shall be provided a visual warning device to inform the driver of any failure in the power supply to the doors.

2.4.5.6.8 A starting prevention device, if fitted, shall be effective only at speeds of less than 5 km/h and shall be incapable of operation above that speed.

2.4.5.6.9 If the vehicle is not fitted with a starting prevention device, an audible warning to the driver shall be activated if the vehicle is driven away from rest when any power-operated service door is not fully closed. This audible warning shall be activated at a speed exceeding 5 km/h for doors complying with the requirements of paragraph 2.4.5.6.6.1.2.3.

2.4.5.7 Additional technical requirements for automatically-operated service doors

2.4.5.7.1 Activation of the opening controls

2.4.5.7.1.1 Except as provided in paragraph 2.4.5.6.1, the opening controls of every automatically operated service door shall be capable of being activated and deactivated only by the driver from his seat.

2.4.5.7.1.2 Activation and deactivation may be either direct, by means of a switch, or indirect, for example by opening and closing the front service door.

2.4.5.7.1.3 Activation of the opening controls by the driver shall be indicated inside and, where a door is to be opened from outside, also on the outside of the vehicle; the indicator (e.g. illuminated push-button, illuminated sign) shall be on or adjacent to the door to which it relates.

2.4.5.7.1.4 In the case of direct actuation by means of a switch the functional state of the system shall be clearly indicated to the driver, by, for example, the position of the switch or an indicator lamp or an illuminated switch. The switch shall be specially marked and arranged in such a way that it cannot be confused with other controls.

2.4.5.7.2 Opening of automatically-operated service doors.

2.4.5.7.2.1 After activation of the opening controls by the driver it shall be possible for passengers to open the door as follows:

2.4.5.7.2.1.1 from inside, for example by pressing a push-button or passing a light barrier, and

2.4.5.7.2.1.2 from outside, except in the case of a door intended only as an exit and marked as such, by, for example, pressing an illuminated push-button, a push-button beneath an illuminated sign, or a similar device marked with a suitable instruction.

2.4.5.7.2.2 The pressing of the push-buttons mentioned in paragraph 2.4.5.7.2.1.1, and the use of the means of communication with the driver mentioned in paragraph 2.4.5.14.9.1, may send a signal which is stored and which, after the activation of the opening controls by the driver, effects the opening of the door.

2.4.5.7.3 Closing of automatically-operated service doors

2.4.5.7.3.1 When an automatically-operated service door has opened it shall close again automatically after a time interval has elapsed. If a passenger enters or leaves the vehicle during this time interval, a safety device (e.g. a footboard contact, light barrier, one-way gate) shall ensure that the time until the door closes is sufficiently extended.

2.4.5.7.3.2 If the passenger enters or leaves the vehicle while the door is closing, the closing process shall be interrupted

automatically and the door shall return to the open position. The reversal may be actuated by one of the safety devices referred to in paragraph 2.4.5.7.3.1 or by any other device.

2.4.5.7.3.3 A door that has closed automatically in accordance with paragraph 2.4.5.7.3.1 shall be capable of being opened again by a passenger in accordance with paragraph 2.4.5.7.2; this shall not apply if the driver has deactivated the opening controls.

2.4.5.7.3.4 After deactivation of the opening controls of the automatically-operated service doors by the driver, open doors shall close in accordance with paragraphs 2.4.5.7.3.1 and 2.4.5.7.3.2.

2.4.5.7.4 Inhibition of the automatic closing process on doors marked for special service, e.g. for passengers with prams, passengers with reduced mobility, etc.

2.4.5.7.4.1 The driver shall be able to inhibit the automatic closing process by actuation of a special control. A passenger shall also be able to inhibit the automatic closing process directly by pressing a special push-button.

2.4.5.7.4.2 The inhibition of the automatic closing process shall be indicated to the driver, e.g. by a visual tell-tale.

2.4.5.7.4.3 Re-establishment of the automatic closing process shall in any case be capable of being done by the driver.

2.4.5.7.4.4 Paragraph 2.4.5.7.3 shall apply to the subsequent closing of the door.

2.4.5.8 Technical requirements for emergency doors

2.4.5.8.1 Emergency doors shall be capable of being easily opened from inside and from outside when the vehicle is stationary. However, this requirement shall not be construed as precluding the possibility of locking the door from the outside, provided that the door can always be opened from the inside by the use of the normal opening mechanism.

2.4.5.8.2 Emergency doors, during their use as such, shall not be of the power-operated type unless, once one of the controls prescribed in paragraph 2.4.5.6.1 has been actuated and returned to its normal position, the doors do not close again until the driver subsequently operates a closing control. Activation of one of the controls prescribed in paragraph 2.4.5.6.1 shall cause the door to open to a width that the gauge as defined in paragraph 2.4.5.14.2.1 can pass through within a maximum of 8 seconds after the operation of the control, or enable the door to be easily opened by hand to a width that the gauge can pass through within a maximum of 8 seconds after the operation of the control.

2.4.5.8.3 Every control or device for opening an emergency door from the outside shall be between 1,000 mm and 1,500 mm from the ground and not more than 500 mm from the door. In vehicles of every control or device for opening an

emergency door from the inside shall be between 1,000 mm and 1,500 mm from the upper surface of the floor or step nearest to the control and be not more than 500 mm from the door. This shall not apply to controls located within the driver's area. Alternatively, the control referred to in paragraph 2.4.5.8.2 for opening a power-operated door may be placed according to paragraph 2.4.5.6.1.2.

2.4.5.8.4 Hinged emergency doors fitted to the side of the vehicle shall be hinged at their forward edge and shall open outwards. Check straps, chains or other restraining devices shall be permitted, provided that they do not prevent the door from opening to, and remaining open at, an angle of at least 100 degrees. If a means is provided sufficient to give free passage to the emergency door access gauge, the 100 degrees minimum angle requirement shall not apply.

2.4.5.8.5 Emergency doors shall be proofed against unintentional operation. However, this requirement shall not apply if the emergency door is locked automatically when the vehicle is moving at a speed exceeding 5 km/h.

2.4.5.8.6 All emergency doors shall be provided with an audible device to warn the driver when they are not securely closed. The warning device shall be operated by movement of the door catch or handle and not by movement of the door itself.

2.4.5.8.7 Overnight locking system

Except in the case of vehicles not need to be secured against theft, all vehicle types of double decker city buses, its emergency doors shall be provided with an overnight locking system.

2.4.5.8.7.1 If an overnight locking system is provided, the following shall apply:

2.4.5.8.7.1.1 The locking system shall have been automatically deactivated when the ignition is in the "ON" position, or

2.4.5.8.7.1.2 A warning shall be provided to the driver indicating that the overnight locking system remains in operation at one or more door(s) when the ignition is in the "ON" position. One signal may be used for more than one door.

2.4.5.9 Technical requirements for emergency windows.

2.4.5.9.1 Every hinged or ejectable emergency window shall open outwards. Ejectable types shall not become totally detached from the vehicle when operated. The operation of ejectable windows shall be such that inadvertent ejection is effectively prevented.

2.4.5.9.2 Every emergency window shall:

2.4.5.9.2.1 Either be capable of being easily and instantaneously operated from inside and from outside the vehicle by means

of a device recognised as satisfactory, This provision includes the possibility of using e.g. panes of laminated glass or plastic material; or

2.4.5.9.2.2 Be made of readily-breakable safety glass. This latter provision precludes the possibility of using panes of laminated glass or of plastic material. A device shall be provided adjacent to each emergency window, readily available to persons inside the vehicle, to ensure that each window can be broken. There shall be at least one window breaking device placed near the driver's seat, and clear instructions concerning the method of operation and a marking reading "Emergency window breakers" shall be placed on or close to the device. The character size of "Emergency window breakers" shall be at least 4 square cm. The device for breaking the glass for the emergency windows at the rear of the vehicle shall be positioned either centrally above or below the emergency window or, alternatively, a device shall be positioned adjacent to each end of the window.

2.4.5.9.3 Every emergency window which can be locked from the outside shall be so constructed as to be capable of being opened at all times from inside the vehicle.

2.4.5.9.4 If the emergency window is of a type horizontally hinged at the top edge, an appropriate device shall be provided to hold it fully open. Every hinged emergency window shall operate so as not to obstruct clear passage from inside or outside the vehicle.

2.4.5.9.5 The height of the lower edge of an emergency window fitted in the side of the vehicle from the general level of the floor immediately below it (excluding any local variations such as the presence of a wheel or transmission housing) shall be not more than 1200 mm nor less than 650 mm in the case of a hinged emergency window, or 500 mm in the case of a window made of breakable glass. However, in the case of a hinged emergency window, the height of the lower edge may be reduced to a minimum of 500 mm provided that the window aperture is equipped with a guard up to a height of 650 mm to prevent the possibility of passengers falling out of the vehicle. Where the window aperture is equipped with a guard, the size of the window aperture above the guard shall not be less than the minimum size prescribed for an emergency window.

Every hinged emergency window which is not clearly visible from the driver's seat shall be fitted with an audible warning device to warn the driver when it is not completely closed. The window lock, and not the movement of the window itself, shall actuate this device.

2.4.5.10 Technical requirements for escape hatches.

2.4.5.10.1 Every escape hatch shall operate so as not to obstruct the clear passage from inside or outside the vehicle.

2.4.5.10.2 Roof escape hatches shall be ejectable, hinged or made of readily-breakable safety glass. Floor hatches shall be either hinged or ejectable and shall be fitted with an audible warning device to warn the driver when it is not securely closed. The floor escape hatch lock, and not the movement of the hatch itself, shall actuate this device. Floor escape hatches shall be proofed against unintentional operation. However this requirement shall not apply if the floor hatch is locked automatically when the vehicle is moving at a speed exceeding 5 km/h.

2.4.5.10.3 Ejectable types shall not become totally detached from the vehicle when operated such that the hatch is not a danger to other road users. The operation of ejectable escape hatches shall be such that inadvertent operation is effectively prevented. Floor ejectable hatches shall eject only into the passenger compartment.

2.4.5.10.4 Hinged escape hatches shall hinge along the edge towards the front or rear of the vehicle and shall hinge through an angle of at least 100 degrees. Hinged floor escape hatches shall hinge into the passenger compartment.

2.4.5.10.5 Escape hatches shall be capable of being easily opened or removed from the inside and from the outside. However, this requirement shall not be construed as precluding the possibility of locking the escape hatch for the purpose of securing the vehicle when unattended, provided that the escape hatch can always be opened or removed from the inside by the use of the normal opening or removal mechanism. In the case of a readily breakable hatch, a device shall be provided adjacent to the hatch, readily available to persons inside the vehicle, to ensure that the hatch can be broken.

2.4.5.11 Technical requirements for retractable steps ; Retractable steps if fitted shall comply with the following requirements:

2.4.5.11.1 The operation of retractable steps may be synchronised with that of the corresponding service or emergency door;

2.4.5.11.2 When the door is closed no part of the retractable step shall project more than 10 mm beyond the adjacent line of the body work;

2.4.5.11.3 When the door is open and the retractable step is in the extended position, the surface area shall conform to the requirements of paragraph 2.4.5.14.7.

2.4.5.11.4 In the case of a power-operated step, it shall not be possible for the vehicle to move from rest, under its own power, when the step is in the extended position. In the case of a manually operated step, an audible indication shall alert the driver when the step is not fully retracted.

2.4.5.11.5 A power-operated step shall not be capable of being extended when the vehicle is in motion. If the device to operate the step fails, the step shall retract and remain in the retracted position. However, the operation of the corresponding door shall not be hindered in the event of such a failure or by the step being damaged or obstructed.

2.4.5.11.6 When a passenger is standing on a power-operated retractable step, the corresponding door shall be incapable of being closed. Compliance with this requirement shall be checked by placing a mass of 15 kg, representing a small child, at the centre of the step. This requirement shall not apply to any door within the driver's direct field of view.

2.4.5.11.7 The corners of retractable steps facing forwards or rearwards shall be rounded to a radius of not less than 5 mm; the edges shall be rounded to a radius of not less than 2.5 mm;

2.4.5.11.8 When the passenger door is open, the retractable step shall be securely held in the extended position. When a mass of 136 kg is placed in the centre of a single step or a mass of 272 kg is placed in the centre of a double step the deflection at any point on the step, measured relative to the body of vehicle, shall not exceed 10 mm.

2.4.5.12 Exits markings

2.4.5.12.1 Each emergency exit and any other exit that meets the prescriptions for an emergency exit shall be marked, inside and outside the vehicle, by an inscription reading "Emergency Exit" and supplemented, where appropriate, by one of the relevant pictograms described in ISO standard 7010:2003.

2.4.5.12.2 The emergency controls of service doors and of all emergency exits shall be marked as such inside and outside the vehicle either by a representative symbol or by a clearly-worded inscription.

2.4.5.12.3 Clear instructions concerning the method of operation shall be placed on or close to every emergency control of an exit.

2.4.5.12.4 The language in which any textual markings intended to comply with paragraphs 2.4.5.12.1 to 2.4.5.12.3 shall be Chinese and English. Each character size of “緊急出口” shall be at least 10 square cm when marked in the emergency doors; and shall be at least 4 square cm when marked in the emergency windows or escape hatches.

2.4.5.13 Service-door lighting

2.4.5.13.1 Service-door lighting may be provided to illuminate the flat, horizontal portion of the ground defined in paragraph 2.4.5.13.2.2 so as to aid passengers boarding and alighting the vehicle and to enable the presence of a passenger within this portion of the ground to be detected by the driver from his seat.

2.4.5.13.2 Service-door lighting, if fitted, shall:

2.4.5.13.2.1 Be of white colour;

2.4.5.13.2.2 Illuminate a flat, horizontal portion of the ground having a width of 2 m measured from a plane parallel to the median longitudinal vertical plane of the vehicle which passes through the outermost point of the closed service door and over a length extending from a transverse plane which passes through the foremost edge of the closed service door to a transverse plane passing through the centre line of the foremost wheels situated to the rear of the service door, or, in the case where there are no such wheels, to a transverse plane passing through the rear of the vehicle;

2.4.5.13.2.3 Have limited dazzle outside a zone on the ground having a maximum width of 5 m measured from the side of the vehicle and a maximum length limited by a transverse plane passing through the front of the vehicle and a transverse plane passing through the rear of the vehicle;

2.4.5.13.2.4 If the lower edge of the lighting device is less than 2 m from the ground, not project more than 50 mm beyond the overall width of the vehicle measured without this device and have radii of curvature of not less than 2.5 mm;

2.4.5.13.2.5 Be activated and deactivated manually by a separate switch, and

2.4.5.13.2.6 Be installed so that the device can only be switched on when a service door is operated and the vehicle speed does not exceed 5 km/h and is switched off automatically before the vehicle reaches a speed exceeding 5 km/h.

2.4.5.14 Interior arrangements

2.4.5.14.1 Access to service doors

2.4.5.14.1.1 The free space extending inwards into the vehicle from the side wall in which the door is mounted shall permit the free passage of one test gauge having the dimensions of either test gauge 1 or test gauge 2 specified in figure 4.

The test gauge shall be maintained parallel with the door aperture as it is moved from the starting position, where the plane of the face nearest to the interior of the vehicle is tangential to the outermost edge of the aperture, to the position where it touches the first step, after which it shall be kept at right angles to the probable direction of motion of a person using the entrance.

2.4.5.14.1.2 When the centre line of this test gauge has traversed a distance of 300 mm from its starting position and the test gauge is touching the surface of the step or floor, it shall be retained in that position.

2.4.5.14.1.3 The cylindrical figure (see figure 5) used for testing the gangway clearance shall then be moved starting from the gangway, in the probable direction of motion of a person leaving the vehicle, until its centre line has reached the

vertical plane which contains the top edge of the uppermost step, or until a plane tangential to the upper cylinder touches the dual panel, whichever occurs first, and retained in that position.

2.4.5.14.1.4 Between the cylindrical figure, at the position set out in paragraph 2.4.5.14.1.2, and the dual panel, at the position set out in paragraph 2.4.5.14.1.3, there shall be a free space whose upper and lower limits are shown in figure 4. This free space shall permit the free passage of a vertical panel whose form and dimensions are the same as the cylindrical form (paragraph 2.4.5.14.5.1.), central section and a thickness of no more than 20 mm. This panel shall be moved, from the cylindrical form tangential position, until its external side is in contact with the dual panel interior side, touching the plane or planes defined by the step upper edges, in the probable direction of motion of a person using the entrance.

2.4.5.14.1.5 The free passage clearance for this figure shall not include any space extending to 300 mm in front of any uncompressed seat cushion of a forward or rearward facing seat, or 225 mm in the case of sideways-facing seats, and to the height of the top of the seat cushion.

2.4.5.14.1.6 In the case of folding seats, this space shall be determined with the seat in the position of use.

2.4.5.14.1.7 However, one or more folding seat(s) for use by the crew may obstruct the access passage to a service door when in the position of use provided that:

2.4.5.14.1.7.1 It is clearly indicated, both in the vehicle itself and on the communication from, that the seat is for the use of crew only,

2.4.5.14.1.7.2 When the seat is not in use it folds automatically as necessary to enable the requirements of paragraphs 2.4.5.14.1.1, 2.4.5.14.1.2, 2.4.5.14.1.3 and 2.4.5.14.1.4 to be met;

2.4.5.14.1.7.3 The door is not considered to be a mandatory exit for the purpose of paragraph 2.4.5.2.3,

2.4.5.14.1.7.4 When the seat is in the position of use, and when it is in the folded position, no part of it shall be:

(a) Forward of a vertical plane passing through the centre of the seating surface of the driver's seat in its rearmost and lowest position and through the centre of the exterior rear-view mirror mounted on the opposite side of the vehicle or through the centre of any monitor used as device for indirect vision, whatever applicable, and

(b) Above a horizontal plane which is located 300 mm above the centre of the seating surface of the driver's seat in its rearmost and lowest position.

2.4.5.14.1.8 The maximum slope of the floor in the access passage shall not exceed 5 per cent.

2.4.5.14.1.9 The surface of access passages shall be slip-resistant.

2.4.5.14.2 Access to emergency doors

2.4.5.14.2.1 Except as provided for in paragraph 2.4.5.14.2.4, the free space between the gangway and the emergency door aperture shall permit the free passage of a vertical cylinder 300 mm in diameter and 700 mm high from the floor and supporting a second vertical cylinder 550 mm in diameter, the aggregate height of the assembly being 1400 mm.

The diameter of the upper cylinder may be reduced at the top to 400 mm when a chamfer not exceeding 30 degrees from the horizontal is included.

2.4.5.14.2.2 The base of the first cylinder shall be within the projection of the second cylinder.

2.4.5.14.2.3 Where folding seats are installed alongside this passage, the free space for the cylinder shall be required to be determined when the seat is in the position for use.

2.4.5.14.2.4 As an alternative to the dual cylinder, the gauging device described in paragraph 2.4.4.14.5.1 may be used (see figure 5).

2.4.5.14.3 Access to emergency windows

2.4.5.14.3.1 It shall be possible to move a test gauge from the gangway to the exterior of the vehicle through every emergency window.

2.4.5.14.3.2 The direction of motion of the test gauge shall be in the direction in which a passenger evacuating the vehicle would be expected to move. The test gauge shall be kept perpendicular to that direction of motion.

2.4.5.14.3.3 The test gauge shall be in the form of a thin plate having a size of 600 mm x 400 mm with corners radiused by 200 mm. However, in the case of an emergency window in the rear face of the vehicle, the test gauge may alternatively have a size of 1400 mm x 350 mm with corners radiused by 175 mm.

2.4.5.14.4 Access to escape hatches

2.4.5.14.4.1 Escape hatches in the roof

2.4.5.14.4.1.1 At least one escape hatch shall be located such that a four-sided truncated pyramid having a side angle of 20 degrees and a height of 1,600 mm touches part of a seat or equivalent support. The axis of the pyramid

shall be vertical and its smaller section shall contact the aperture area of the escape hatch. Supports may be foldable or movable provided they can be locked in their position of use. This position shall be taken for verification.

2.4.5.14.4.1.2 When the structural thickness of the roof is more than 150 mm, the smaller section of the pyramid shall contact the aperture area of the escape hatch at the level of the outside surface of the roof.

2.4.5.14.4.2 Escape hatches in the floor.

in the case of an escape hatch fitted in the floor, the hatch shall give direct and free access to the exterior of the vehicle and be fitted where there is a clear space above the hatch equivalent to the height of the gangway. Any heat source or moving components shall be at least 500 mm from any part of the hatch aperture.

It shall be possible to move a test gauge in the form of a thin plate having dimensions 600 mm x 400 mm with corners radiused by 200 mm in a horizontal position from a height above the floor of the vehicle of 1 m to the ground.

2.4.5.14.5 Gangways

2.4.5.14.5.1 The gangway(s) of a vehicle shall be so designed and constructed as to permit the free passage of a gauging device consisting of two co-axial cylinders with an inverted truncated cone interposed between them, the gauging device having the dimensions shown in figure 5.

The gauging device may come into contact with strap hangers, if fitted, or other flexible objects such as seat belt components and move them away.

The gauging device according to Figure 5 shall not come into contact with any monitor or display device mounted from the ceiling above the gangway.

If a vehicle is fitted with a barrier, may come into contact with the barrier provided that the maximum force necessary to move such barrier out of the way does not exceed 50 Newton measured at the point of contact between the gauging device according to gangway mannequi and the barrier and applied perpendicular to the barrier. The maximum force shall apply to both directions of movement of the gauging device. If the vehicle is equipped with a lift adjacent to the barrier, the barrier may be temporarily blocked during the operation of the lift.

2.4.5.14.5.1.1 If there is no exit forward of a seat or row of seats

2.4.5.14.5.1.1.1 In the case of forward-facing seats, the front edge of the cylindrical gauge defined in paragraph

2.4.5.14.5.1 shall reach at least until the transverse vertical plane tangential to the foremost point of the foremost front row seat back and be retained in that position. From this plane, it must be possible to move the panel ,in such a way that starting from the contact position with the cylindrical gauge, the panel side facing the exterior of the vehicle is displaced forwards a distance of 660 mm.

2.4.5.14.5.1.1.2 In the case of sideways facing seats, the forward part of the cylindrical gauge must reach at least the transversal plane which coincides with a vertical plane passing through the centre of the forward seat.

2.4.5.14.5.1.1.3 In the case of rearward facing seats, the forward part of the cylindrical gauge shall reach at least the transverse vertical plane tangential to the face of the seat cushions of the forward row or seat

2.4.5.14.5.2 Steps may be fitted in the gangways. The width of such steps shall not be less than the width of the gangway at the top of the steps.

2.4.5.14.5.3 Folding seats allowing passengers to sit in the gangway shall not be permitted. Folding seats shall, however, be permitted in other areas of the vehicle so long as they do not obstruct the passage down the gangway of the gangway test gauge when in the open (seating) position.

2.4.5.14.5.4 Laterally-sliding seats which in one position encroach on the gangway shall not be permitted.

2.4.5.14.5.5 The surface of gangways shall be slip-resistant.

2.4.5.14.6 Slope of gangway

The slope of the gangway shall not exceed:

2.4.5.14.6.1 In the longitudinal direction: 8 per cent

2.4.5.14.6.2 In the transversal direction: 5 per cent

2.4.5.14.7 Steps

2.4.5.14.7.1 The maximum and minimum height, and the minimum depth, of steps for passengers at service and emergency doors, and within the vehicle, are specified in figure 6.

2.4.5.14.7.1.1 Any transition from a sunken gangway to a seating area shall not be considered to be a step. However, the vertical distance between the gangway surface and the floor of the seating area shall not exceed 350 mm.

2.4.5.14.7.2 The height of a step shall be measured at the centre of its width at the outer edge, the tyre equipment and pressure being as specified by the manufacturer for the technically permissible maximum laden mass (M).

2.4.5.14.7.3 The height of the first step in relation to the ground shall be measured with the vehicle on level ground, at its mass in running order, and the tyre equipment and pressure being as specified by the manufacturer for the technically permissible maximum laden mass (M).

2.4.5.14.7.4 Where there is more than one step, each step may extend into the area of the vertical projection of the next step by up to 100 mm and the projection over the tread below shall leave a free surface of at least 200 mm (see figure 6) with all step nosings being designed such as to minimize the risk of tripping. All step nosings shall contrast visually with their immediate surroundings.

2.4.5.14.7.5 The width and shape of every step shall be such that a rectangle as indicated in the table below can be placed on that step with not more that 5 percent of the area of the appropriate rectangle overhanging the step. At a double doorway each half of the doorway shall fulfil this requirement.

Number of passengers		> 22	≤ 22
Area	First step (mm)	400 x 300	400 x 200
	Other steps (mm)	400 x 200	400 x 200

2.4.5.14.7.6 All steps shall have a slip-resistant surface.

2.4.5.14.7.7 The maximum slope of the step in any direction shall not exceed 5 percent.

2.4.5.14.8 Passenger seats (including folding seats, and the setting of side-facing seats shall comply with the requirements of “seats” of VSTD) and space for seated passengers

2.4.5.14.8.1 Minimum seat width

2.4.5.14.8.1.1 The minimum width of the seat cushion, dimension "F", measured from a vertical plane passing through the centre of that seating position, shall be: 200 mm

2.4.5.14.8.1.2 The minimum width of the available space for each seating position, dimension "G", measured from a vertical plane passing through the centre of that seating position at height between 270 mm and 650 mm above the uncompressed seat cushion, shall be not less than:

2.4.5.14.8.1.2.1 250 mm in the case of individual seats; or

2.4.5.14.8.1.2.2 225 mm in the case of continuous rows of seats for two or more passengers.

2.4.5.14.8.1.3 For vehicles 2.35 m in width or less, the width of the available space for each seating position, measured from a vertical plane passing through the centre of that seating position at heights between 270 mm and 650 mm above the uncompressed seat cushion shall be 200 mm. In case of compliance with this paragraph the requirements of paragraph 2.4.5.14.8.1.2 shall not apply.

2.4.5.14.8.1.4 In measuring the gangway width, no account shall be taken of whether or not the available space defined above protrudes into the gangway.

2.4.5.14.8.2 The minimum depth of a seat cushion shall be: 350 mm

2.4.5.14.8.3 Height of seat cushion

The height of the uncompressed seat cushion relative to the floor shall be such that the distance from the floor to a horizontal plane tangential to the front upper surface of the seat cushion is between 400 mm and 500 mm: this height may however be reduced to not less than 350 mm at the wheel arches (taking into account the allowances permitted in paragraph 2.4.4.14.8.5.2 below) and at the engine/transmission compartment.

2.4.5.14.8.4 Seat spacing(see figure 16-1, figure 16-2)

2.4.5.14.8.4.1 In the case of seats facing in the same direction, the distance between the front of a seat squab and the back of the squab of the seat preceding it (dimension H), shall, when measured horizontally, parallel to the longitudinal plane of the vehicle (showed in Figure 16-1) and at all heights above the floor between the level of the top surface of the seat cushion and a point 620 mm above the floor, not be less than the value shown in Figure 16-1.

2.4.5.14.8.4.2 All measurements shall be taken, with the seat cushion and squab uncompressed, using the testing gauge shown in Figure 16-2.

2.4.5.14.8.4.3 Where transverse seats face one another the minimum distance between the front faces of the seat squabs of facing seats, as measured across the highest points of the seat cushions, shall be not less than 1300 mm.

2.4.5.14.8.4.4 Measurements shall be taken with reclining passenger seats and adjustable driving seats with their seat backs and other seat adjustments in the normal position of use specified by the manufacturer.

2.4.5.14.8.4.5 Measurements shall be taken with any folding table fitted to a seat back in the folded (stowed) position.

2.4.5.14.8.4.6 Seats which are mounted on a track or other system which permits the operator or the user to easily vary the interior configuration of the vehicle shall be measured in the normal position of use specified by the manufacturer in the application for approval.

2.4.5.14.8.5 Space for seated passengers

2.4.5.14.8.5.1 For a seat behind a partition or other rigid structure other than a seat, a minimum clear space in front of each required passenger seating space (as defined in paragraph 2.4.5.14.8.6) shall be provided as figure 7. A partition whose contour corresponds approximately to that of the inclined seat back may intrude into this space.

2.4.5.14.8.5.2 For a seat behind a seat and/or a seat facing the gangway, a minimum clear foot space of at least 300 mm depth and a width according to paragraph 2.4.5.14.8.1.1, shall be provided as shown. The local presence in this space of seat legs, passenger footrests and of intrusions as provided shall be permitted provided that adequate space remains for the passengers' feet. This foot space may partly be situated in and/or above the gangway but shall not create any obstruction when measuring the minimum gangway-width in accordance with paragraph 2.4.5.14.5.

2.4.5.14.8.5.3 Priority seats and space for passengers with reduced mobility

2.4.5.14.8.5.3.1 The minimum number of priority seats shall be four, If there is an wheelchair area, the number of priority seats should be reduced to two. A seat that folds out of the way when not in use shall not be designated as a priority seat.

2.4.5.14.8.5.3.2 There shall be adequate space for a guide dog under, or adjacent to, at least one of the priority seats. This space shall not form a part of the gangway.

2.4.5.14.8.5.3.3 Armrests shall be fitted on seats between the seating position and the gangway and shall be capable of being moved easily out of the way to permit clear access to the seat.

2.4.5.14.8.5.3.4 The minimum width of a priority seat cushion, measured from a vertical plane passing through the centre of that seating position, shall be 220 mm on each side.

2.4.5.14.8.5.3.5 The height of the uncompressed seat cushion relative to the floor shall be such that the distance from

the floor to a horizontal plane tangent to the front upper surface of the seat cushion is between 400 mm and 500 mm.

2.4.5.14.8.5.3.6 The foot space at priority seating positions shall extend forward of the seat from a vertical plane through the forward edge of the seat cushion. The foot space shall not have a slope in any direction of more than 8 percent.

2.4.5.14.8.5.3.6.1 For vehicles of the following paragraph 2.4.1.20.1.1, the vertical distance between the floor of the seating area and the adjacent gangway shall be not more than 250 mm.

2.4.5.14.8.5.3.7 Each priority seating position shall have a free height of not less than 1,300 mm for vehicles of the following paragraph 2.4.1.20.1.1, measured from the highest point of the uncompressed seat cushion. This free height shall extend over the vertical projection of the minimum required seat width of 440 mm and the associated foot space.

2.4.5.14.8.5.3.8 Intrusion of a seat back or other object or the edge of gangway（if the seat is face toward gangway）into this space shall be permitted provided that a minimum clear vertical space extending 230 mm in front of the seat cushion is maintained. Where the priority seat is positioned facing a bulkhead more than 1,200 mm in height this space shall be 300 mm. Intrusions of handholds or handrails as mentioned in paragraph 2.4.5.14.8.5.4.2 may protrude by a maximum of 100 mm from the sidewall into the clear space over the vertical projection of the foot space.

2.4.5.14.8.5.3.9 Vehicles fitted with a priority seat shall have pictogram(s), figure 3 visible from the outside, both on the front nearside of the vehicle and adjacent to the relevant service door(s). A pictogram shall be placed internally adjacent to the priority seat（at least 1 figure that it could recognize a passengers with reduced mobility other than wheelchair users of pictogram）.

2.4.5.14.8.5.4 Handrails to priority seating

2.4.5.14.8.5.4.1 A handrail at a height of between 800 mm and 900 mm above the floor level shall be provided between the priority seats and at least one service door suitable for boarding and alighting. A break is permitted where it is necessary to gain access to a wheelchair space, a seat located at a wheel arch, a staircase, an access passage or a gangway. Any break in the handrail shall not exceed 1,050 mm and

a vertical handrail shall be provided on at least one side of the break.

2.4.5.14.8.5.4.2 Handrails or handholds shall be placed adjacent to priority seating positions to facilitate entry and exit of the seat, and shall be designed in such a way as to allow the passenger to grasp them easily.

2.4.5.14.8.5.5 Floor slope: The slope of any gangway, access passage or floor area between any priority seat or wheelchair space and at least one entrance and one exit or a combined entrance and exit shall not exceed 8 per cent. Such sloping areas shall be provided with a slip-resistant surface.

2.4.5.14.8.6 Free height over seating positions

2.4.5.14.8.6.1 In the case of double-deck vehicles, each seating position shall have a free height of not less than 900 mm measured from the highest point of the uncompressed seat cushion. In the case of the upper deck, this free height may be reduced to 850 mm.

2.4.5.14.8.6.2 This free space shall be extended over the zone defined:

2.4.5.14.8.6.2.1 By longitudinal vertical planes 200 mm either side of the median vertical plane of the seating position, and

2.4.5.14.8.6.2.2 By a transverse vertical plane through the rearmost upper point of the seat back and by a transverse vertical plane 280 mm in front of the foremost point of the uncompressed seat cushion, measured in each case at the median vertical plane of the seating position.

2.4.5.14.8.6.3 From the edges of the free space defined by paragraphs 2.4.5.14.8.6.1 and 2.4.5.14.8.6.2, the following zones may be excluded:

2.4.5.14.8.6.3.1 In the case of the upper part of the outboard seats, adjacent to the inner wall of the vehicle, a zone with a rectangular cross-section 150 mm in height and 100 mm in width

2.4.5.14.8.6.3.2 In the case of the upper part of the outboard seating position, a zone with triangular cross-section whose apex is situated 700 mm from the top and whose base is 100 mm in width. The space needed for safety belts and their anchorages and for the sun visor is also excluded;

2.4.5.14.8.6.3.3 In the case of the foot well of an outboard seating position, a zone of a cross-sectional area not exceeding, 0.02 m^2 and having a maximum width not exceeding 100 mm.

2.4.5.14.8.6.4 In the free space defined by paragraphs 2.4.5.14.8.6.1, 2.4.5.14.8.6.2 and 2.4.5.14.8.6.3, the following

additional intrusions shall be permitted:

2.4.5.14.8.6.4.1 Intrusion of the back of another seat, its supports and its attachments (e.g. folding table);

2.4.5.14.8.6.4.2 Intrusion of hopper type windows when open and their fittings.

2.4.5.14.8.7 Requirements for the safeguarding of the foremost side-facing seat of passengers in side-facing seats

2.4.5.14.8.7.1 As for the category symbols M2 and M3, the new vehicle types from 2018/1/1 and each vehicle types from 2019/1/1, the parts of foremost side-facing seat (e.g. partition, wall or seat back of a forward facing seat) shall comply with this regulation.

2.4.5.14.8.7.2 The distance between foremost side-facing seat of side-facing seats and the vehicle parts (e.g. partition, wall or seat back of a forward facing seat) forward of it shall not exceed 450 mm. All measurements are to be taken 1000 mm above the reference plane of the foremost side-facing seat (see Figure 1).

2.4.5.14.8.7.3 The vehicle part (e.g. partition, wall or seat back of a forward facing seat) in front of the foremost side-facing seat shall fulfil the following requirements in order to safeguard the passenger in that foremost side-facing seat (see Figure 2):

2.4.5.14.8.7.3.1 The height of the vehicle part, based on the reference plane of the foremost side-facing seat, must not be less than 1,020 mm; and

2.4.5.14.8.7.3.2 The effective impact surface of the vehicle part has a width of 200 mm and a height of 580 mm. This surface shall be positioned so that the vertical centre-line is located 50 mm behind the H-point of the foremost side-facing seat; and

2.4.5.14.8.7.3.3 The corresponding surface of the vehicle part in place projected onto a vertical plane through this H-point shall cover at least 95 per cent of the effective impact surface. This vehicle part shall fulfil the energy absorption requirement (Static test 2) from regulation of “seats”, and shall remain its protective function during the test process.

2.4.5.14.8.7.3.3.1 If there is a gap in the corresponding surface (typically two forward-facing seats with a gap in between) a distance shall be determined for each gap by means of a sphere having a diameter of 165 mm. The sphere shall be put into contact with the gap in a point of the gap area which allows the maximum sphere intrusion, considering no load is to be applied. The distance

between the two points of contact of the sphere must be less than 60 mm.

2.4.5.14.8.7.3.4 "Reference plane" means the plane passing through the points of contact of the heels of the manikin, used for the determination of the H point and the actual angle of torso for the seating position of motor vehicles.

2.4.5.14.8.7.3.5 "Reference height" means the height of the top of the seat above the reference plane.

2.4.5.14.9 Communication with the driver

2.4.5.14.9.1 A means shall be provided to enable passengers to signal that the driver should stop the vehicle. The controls for all such communication devices shall be capable of being operated with the palm of the hand. There shall be appropriate communication devices distributed adequately and evenly throughout the vehicle and no more than 1,500 mm from the floor; this does not exclude the possibility of installing higher additional communication devices. Controls shall contrast visually with their immediate surroundings. Activation of the control shall also be indicated to the passengers by means of one or more illuminated signs. The sign shall display the words "bus stopping" or equivalent, and/or a suitable pictogram and shall remain illuminated until the service door(s) open. Double decker city buses shall have them on each deck. The provisions of paragraph 2.4.5.12.4 apply to any textual markings used.

2.4.5.14.9.2 Communication with the crew compartment: If a crew compartment is fitted without access to the driver or passenger compartments, a means of communication between the driver and this crew compartment shall be provided.

2.4.5.14.9.3 Communication with the toilet compartment: Toilet compartments shall be fitted with a means of summoning assistance in an emergency.

2.4.5.14.10 Hot drink machines and cooking equipment

2.4.5.14.10.1 Hot drink machines and cooking equipment shall be so installed or guarded that no hot food or drink is likely to be spilled on any passenger due to emergency braking or cornering forces.

2.4.5.14.10.2 On vehicles fitted with hot-drink machines or cooking equipment, all passenger seats shall have adequate provision for setting down hot food or drink whilst the vehicle is in motion.

2.4.5.14.11 Doors to interior compartments

Every door to a toilet or other interior compartment:

2.4.5.14.11.1 Shall be self-closing, and shall not be fitted with any device to hold it open if, when open, it could obstruct passengers in an emergency,

2.4.5.14.11.2 Shall, when open, not conceal any handle, control device for opening or obligatory marking associated with any service door, emergency door, emergency exit, fire extinguisher or first aid kit;

2.4.5.14.11.3 Shall be provided with a means to enable the door to be opened from outside the compartment in an emergency,

2.4.5.14.11.4 Shall not be capable of being locked from the outside unless it can always be opened from the inside.

2.4.5.14.12 Intercommunication staircase of a double decker city buses

2.4.5.14.12.1 The minimum width of any intercommunication staircase shall be so designed as to permit the free passage of the single door access template as defined in Figure 4. The panel shall be moved starting from the gangway of the lower deck up to the last step, in the probable direction of motion of a person using the staircase

2.4.5.14.12.2 Intercommunication staircases shall be so designed, that, during heavy braking of the vehicle moving in the forward direction, there is no danger of a passenger being projected downwards.

This requirement is considered to be fulfilled if at least one of the following conditions is met:

2.4.5.14.12.2.1 No part of the staircase is forward descending;

2.4.5.14.12.2.2 The staircase is equipped with guards or a similar provision;

2.4.5.14.12.2.3 There is an automatic device in the upper part of the staircase which prevents the use of the staircase when the vehicle is in motion; this device shall be easily operable in an emergency.

2.4.5.14.12.3 It shall be verified, by use of the cylinder of paragraph 2.4.5.14.5.1(see figure 12), that access conditions from the gangways (upper and lower) to the staircase are adequate.

2.4.5.14.13 Driver's compartment

2.4.5.14.13.1 The driver shall be protected from standing passengers and from passengers seated immediately behind the driver's compartment who may be projected into the driver's compartment in the event of braking or cornering. This requirement shall be deemed to be satisfied if:

2.4.5.14.13.1.1 The rear of the driver's compartment is enclosed by a partition; or

2.4.5.14.13.1.2 In the case of passenger seats located immediately behind the driver's compartment either a guard. For

vehicles having an area available for standing passengers immediately behind the driver's compartment. A guard shall comply with the requirements specified in paragraphs 2.4.5.14.12.1.2.1 to 2.4.5.14.12.1.2.3. (see figure 8)

2.4.5.14.13.1.2.1 The minimum height of the guard measured from the floor on which the passenger's feet rest shall be 800 mm.

2.4.5.14.13.1.2.2 The width of the guard shall extend inwards from the wall of the vehicle at least as far as 100 mm beyond the longitudinal centre line of the innermost relevant passenger seat, but in any case shall extend at least as far as the innermost point of the driver's seat.

2.4.5.14.13.1.2.3 The distance between the uppermost edge of an area destined to hold any object (e.g. a table) and the uppermost edge of a guard shall be at least 90 mm.

2.4.5.14.13.2 The driver's compartment shall be protected from objects liable to roll into it from the passenger area immediately behind the compartment in the case of heavy braking. This requirement shall be deemed to be satisfied when a ball of 50 mm diameter cannot roll into the driver's compartment from the passenger area immediately behind the compartment.

2.4.5.14.13.3 The driver shall be protected from the sun and from the effects of glare and reflections caused by artificial interior lighting. Any lighting likely to affect adversely and significantly the driver's vision shall be capable of being operated only while the vehicle is at rest.

2.4.5.14.13.4 The vehicle shall be provided with devices allowing defrosting and demisting of the windscreen.

2.4.5.14.14 Driver's seat

2.4.5.14.14.1 The driver's seat shall be independent of other seats.

2.4.5.14.14.2 The seat back shall either be curved or the driver's area shall be provided with armrests positioned in such a way that the driver is neither constrained during vehicle manoeuvring operations, nor becomes unbalanced by transverse accelerations which can occur in service.

2.4.5.14.14.3 The minimum width of the seat cushion measured from a vertical plane passing through the centre of the seat, shall be 225 mm.

2.4.5.14.14.4 The minimum depth of the seat cushion measured from a vertical plane passing through the centre of the seat,

shall be 400 mm.

2.4.5.14.14.5 The minimum overall width of the seat back measured up to a height of 250 mm above the horizontal plane tangential to the uppermost surface of the uncompressed seat cushion shall be 450 mm.

2.4.5.14.14.6 The distance between armrests shall ensure a free space for the driver, as defined in paragraph 2.4.5.14.13.2, of not less than 450 mm.

2.4.5.14.14.7 The seat shall be adjustable in its longitudinal and vertical positions and in its seat back inclination. It shall lock automatically in the selected position and, if fitted with a swivelling mechanism, it shall lock automatically when in the driving position. The seat shall be equipped with a suspension system.

2.4.5.15 Artificial interior lighting

2.4.5.15.1 Internal electrical lighting shall be provided for the illumination of:

2.4.5.15.1.1 All passenger compartments, crew compartments, toilet compartments and the articulated section of an articulated vehicle;

2.4.5.15.1.2 Any step or steps;

2.4.5.15.1.3 The access to any exits and the area immediately around the service door(s) including, when in use, any boarding device fitted;

2.4.5.15.1.4 The internal markings and internal controls of all exits;

2.4.5.15.1.5 All places where there are obstacles.

2.4.5.15.2 At least one lighting device shall be provided as near as practicable to the top of every staircase leading to the upper deck.

2.4.5.15.3 There shall be at least two internal lighting circuits such that failure of one will not affect the other. A circuit serving only permanent entry and exit lighting can be considered as one of these circuits.

2.4.5.15.4 Individual lights for each of the items in paragraph 2.4.5.15.1 are not required providing adequate illumination can be maintained during normal use.

2.4.5.15.5 Control of the mandatory interior lighting shall be by manual switches under the control of the driver or automatically controlled.

2.4.5.16 Handrails and handholds

2.4.5.16.1 General requirements

2.4.5.16.1.1 Handrails and handholds shall be of adequate strength.

2.4.5.16.1.2 They shall be so designed and installed as to present no risk of injury to passengers.

2.4.5.16.1.3 Handrails and handholds shall be of a section enabling passengers to grasp them easily and firmly. Every handrail shall provide a length of at least 100 mm to accommodate a hand. No dimension of the section shall be smaller than 20 mm or greater than 45 mm except in the case of handrails on doors and seats and, in access passages. In these cases handrails having a minimum dimension of 15 mm shall be permitted provided that one other dimension is of at least 25 mm. Handrails shall not have sharp bends.

2.4.5.16.1.4 The clearance between a hand-rail or hand-hold, along the majority of its length, and the adjacent part of the vehicle body or walls shall be at least 40 mm. However, in the case of a handrail on a door or a seat, or in the access passage of a minimum clearance of 35 mm shall be permitted.

2.4.5.16.1.5 The surface of every handrail, handhold or stanchion shall contrast visually with their immediate surroundings and be slip-resistant.

2.4.5.16.2 Additional requirements for handrails and handholds for vehicles designed to carry standing passengers

2.4.5.16.2.1 Handrails and/or handholds shall be provided in sufficient number for each point of the floor area intended for standing passengers. For this purpose, strap hangers, if fitted, may be counted as handholds, provided that they are held in their position by suitable means. This requirement shall be deemed to be fulfilled if, for all possible sites of the testing device shown in figure 9 hereto, at least two handrails or handholds can be reached by the device's moveable arm. The testing device may be freely turned about its vertical axis.

2.4.5.16.2.2 When applying the procedure described in paragraph 2.4.5.16.2.1, only such hand-rails and handholds shall be considered which are not less than 800 mm and not more than 1,950 mm above the floor.

2.4.5.16.2.3 For every position that can be occupied by a standing passenger, at least one of the two required handrails or handholds shall be not more than 1,500 mm above the level of the floor at that position. This does not apply to an area adjacent to a door where the door or its mechanism in open position would prevent the use of this handhold. Also, exception may be given in the middle of large platforms, but the sum of these exceptions shall not exceed 20 per cent of the total standing area.

2.4.5.16.2.4 Areas which can be occupied by standing passengers and are not separated by seats from the side walls or rear wall of the vehicle shall be provided with horizontal handrails parallel to the walls and installed at a height of between 800 mm and 1500 mm above the floor.

2.4.5.16.3 Handrails and handholds for service doors

2.4.5.16.3.1 Door apertures shall be fitted with handrails and/or handholds on each side. In the case of double doors this requirement can be fulfilled by fitting one central stanchion or one central handrail.

2.4.5.16.3.2 Handrails and/or handholds to be provided for service doors shall be such that they include a grasping point available to a person standing on the ground adjacent to the service door or on any of the successive steps. Such points shall be situated, vertically, between 800 mm and 1100 mm above the ground or above the surface of each step, and horizontally:

2.4.5.16.3.2.1 For the position appropriate to a person standing on the ground, not more than 400 mm inwards from the outer edge of the first step;

2.4.5.16.3.2.2 For the position appropriate to a particular step, not outwards from the outer edge of the step considered, and not more than 600 mm inwards from that same edge.

2.4.5.16.4 Handrails and handholds for intercommunication staircases in double decker city buses

2.4.5.16.4.1 Suitable handrails or handholds shall be provided at each side of all intercommunication staircases. These shall be positioned between 800 mm and 1,100 mm above the tread edge of each step.

2.4.5.16.4.2 The handrails and/or handholds to be provided shall be such that they include a grasping point available to a person standing on the lower or upper deck adjacent to the intercommunication staircase, and at any of the successive steps. Such points shall be situated vertically between 800 mm and 1,100 mm above the lower deck or each above the surface of each step, and,

2.4.5.16.4.2.1 For the position appropriate to a person standing on the lower deck, not more than 400 mm inwards from the outer edge of the first step, and

2.4.5.16.4.2.2 For the position appropriate to a particular step, not outwards from the outer edge of the step considered, and not more than 600 mm inwards from the same edge.

2.4.5.17 Guarding of open area

2.4.5.17.1 Where any seated passenger is likely to be thrown forward into a designated wheelchair space, pram space or open area for standing passengers as a result of heavy braking, either a guard or, in the case of a vehicle of a safety-belt shall be fitted. Where fitted, the guard shall have a minimum height from the floor on which the passenger's feet rest of 800 mm and shall extend inwards from the wall of the vehicle at least as far as 100 mm beyond the longitudinal centre line of any seating position where the passenger is at risk.

2.4.5.17.2 Paragraph 2.4.5.17.1 the rule is not eligible for the following situations:

(a)any sideways facing seat,

(b)a seat which has its centreline within the longitudinal projection of a gangway,

(c)a seat in front of which is existing vehicle structure (e.g. fixed table or luggage pen) offering comparable levels of protection as a guard meeting the requirements of paragraph 2.4.5.17.1 or

(d)transverse facing seats where the maximum distance between the front faces of the seat squabs of facing seats does not exceed 1,800 mm when measured in accordance with paragraph 2.4.5.14.8.4.3.

2.4.5.17.3 On the upper deck of a double decker city buses, the intercommunication staircase well shall be protected by an enclosed guard having a minimum height of 800 mm measured from the floor. The lower edge of the guard shall not be more than 100 mm from the floor.

2.4.5.17.4 The front windscreen ahead of passengers occupying upper deck front seats of a double decker city buses must be provided with a padded guard. The higher edge of that protection shall be situated vertically between 800 mm and 900 mm above the floor where the passenger's feet rest.

2.4.5.17.5 The riser of each step in an intercommunication staircase of a double decker city buses shall be closed.

2.4.5.18 Baggage racks and occupant protection: The occupants of the vehicle shall be protected from objects liable to fall from baggage racks under braking or cornering forces. If baggage compartments are fitted, they must be designed in such a way that baggage is prevented from falling in the event of sudden braking.

2.4.5.19 Trap doors, if fitted: every trap door, that is not an escape hatch, on the floor of a vehicle shall be so fitted and secured that it cannot be dislodged or opened without the use of tools or keys and no lifting or securing device shall project by more than 8 mm above floor level. Edges of projections shall be rounded.

2.4.5.20 Visual Entertainment

2.4.5.20.1 Forms of visual entertainment for passengers, for example television monitors or videos, shall be located out of the driver's view when the driver is seated in his normal driving position. This shall not preclude any television monitor or similar device used as part of the driver's control or guidance of the vehicle, for example to monitor service doors.

2.4.5.21 Passenger protection in double decker buses without a roof shall have:

2.4.5.21.1 A continuous front panel over the full width of that part of the vehicle that does not have a roof, with a height of not less than 1,400 mm from the general level of the floor adjacent to the front panel. If use glass material as panel, it shall comply with the requirement about windshield of “Safety Glass” of VSTD.

2.4.5.21.2 A continuous side and rear panel, with a height of not less than 1,100 mm at the sides and 1,200 mm at the rear of the vehicle, measured from the general level of the floor adjacent to the panels. If use glass material as panel, it shall comply with the requirement about toughened-glass of “ Safety Glass” of VSTD. The protection panel shall be continuous in the above range of height. If it is not continuous in the above range of height, the protection device shall consist of continuous side and rear panels with a height of not less than 700 mm from the general level of the floor adjacent to the panels, combined with one or more continuous guard rail(s) that fulfils the following characteristics:

(1)No dimension of its section must be less than 20 mm, or more than 45 mm.

(2)The size of any aperture between a guard rail and any adjacent guard rail or panel shall not exceed 200 mm.

2.4.5.21.3 It shall be firmly attached to the structure of the vehicle.

2.4.5.21.4 Doors at exits shall be considered to form part of this protection device.

2.4.5.22 Vision and communication aid

In the case of a double decker city buses without a roof, the driver shall be provided with a visual means, such as a mirror, periscope or video camera/monitor, to enable the behaviour of passengers in the area without a roof to be observed. In addition, an intercommunication system shall be provided to enable the driver to communicate with these passengers.

2.4.5.23 Provisions for the accommodation of unfolded prams and pushchairs

2.4.5.23.1 If there is an unfolded pram or pushchair area, then it should provide for the accommodation of at least one unfolded pram or pushchair. In such a case, the area shall have signs fixed on or adjacent to the area with the following show in Figure15.

2.4.5.23.2 If there is fitted, then it should provide for the accommodation of at least one unfolded pram or pushchair.

2.4.5.23.3 The dimensions of the unfolded pram or pushchair area shall not be less than 750 mm wide and 1,300 mm long. Its longitudinal plane shall be parallel to the longitudinal plane of the vehicle and the floor surface shall be slip resistant.

2.4.5.23.4 Accessibility to prams and pushchairs areas shall be provided in accordance with the following provisions:

2.4.5.23.4.1 It shall be possible for an unfolded pram or pushchair to be moved freely and easily from the outside of the vehicle through at least one of the service doors into the special area(s)

2.4.5.23.4.1.1 By "moving freely and easily", it is meant that:

(1) There is sufficient space available for the pram or pushchair to be manoeuvred;

(2) There are no steps, gaps or stanchions which could be an obstacle to the free movement of the pram or pushchair.

2.4.5.23.5 The area shall be fitted with the pictogram shown in Figure15.

2.4.5.23.5.1 As paragraph 2.4.5.23.4 ,the same pictogram shall be placed both on the front nearside of the vehicle and adjacent to the service door that gives access to the pram or pushchair area.

2.4.5.23.6 The following requirements shall apply to the stability of the unfolded pram or pushchair:

2.4.5.23.6.1 One of the longitudinal sides of the space for a pram or pushchair shall rest against a side or wall of the vehicle or a partition;

2.4.5.23.6.2 A support or backrest perpendicular to the longitudinal axis of the vehicle shall be provided in the forward end of the pram or pushchair space;

2.4.5.23.6.3 The support or backrest shall be designed to avoid the pram or pushchair from tipping over and shall comply with Backrest and support requirements of "Low floor vehicle" of “VSTD”;

2.4.5.23.6.4 A handrail or handhold shall be fitted to the side or wall of the vehicle or a partition in such a way to allow the accompanying person to grasp it easily. This handrail shall not extend over the vertical projection of the pram or pushchair space, except by not more than 90 mm and only at a height not less than 850 mm above the floor of the pram or pushchair space;

2.4.5.23.6.5 A retractable handrail or any equivalent rigid device shall be fitted on the opposite side of the pram or pushchair space in order to restrict any lateral shift of the pram or pushchair.

2.4.5.23.7 The area shall be provided with a specific control, e.g. a push-button, to enable the passenger with an unfolded pram or

pushchair to request that the vehicle be stopped at the next bus stop. The general requirements of paragraph 2.4.5.14.9 shall apply.

2.4.5.23.8 The control shall be fitted with the pictogram described in Figure 15. The dimensions of the pictogram may be reduced as needed.

2.4.5.24 If any access to the step wells in front of the passenger seats or to the emergency doors or service doors exists in front of the passenger seats, and the height between the floor under passenger's feet and the access exceeds 12cm, there shall be protection rails or panels. The height between the upper edge of the protection rails or panels and the floor under passenger's feet shall be at least 80cm. The width of rails or protection panels shall be enough to cover the width of the seat-back of seats.

2.4.5.25 Other requirements:

2.4.5.25.1 For lower deck of city buses applying for standing passengers, they shall be equipped with handrails or strap hangers, and rails in the rear of driver’s seat.

2.4.5.25.2 If the driver's compartment is without a roof, the driver should have some special protection against strong wind, sudden dust, heavy rain, etc.

2.4.5.25.3 All seats of the upper deck of double decker city buses without a roof shall have the symbols to remind passengers to fasten safety belt when seated.

2.4.6 This paragraph applies to the class II low floor electric vehicle with maximum length not exceed 5500mm, maximum width not exceed 2100mm and number of passengers not exceed 14.

2.4.6.1 Definition

2.4.6.1.1 “Gangway” means the space providing access by passengers from any seat or row of seats or each special area for wheelchair users to any other seat or row of seats or each special area for wheelchair users or to any access passage from or to any service door or intercommunication staircase and any area for standing passengers; it does not include:

2.4.6.1.1.1 The space extending 300 mm in front of any seat, except where a sideways-facing seat is situated above a wheel arch, in which case this dimension may be reduced to 225 mm(according to UNR107 05 Annex 4, Figure 25).

2.4.6.1.1.2 Step (except where the surface of the step is contiguous with that of a gangway or access passageway)

2.4.6.1.1.3 Space which affords access solely to one seat or row of seats or a facing pair of transverse seats or row of seats.

2.4.6.1.2 “Access passage” means the space extending inwards into the vehicle from the service door up to the outermost edge of

the upper step (edge of the gangway). Where there is no step at the door, the space to be considered as access passage shall be that which is measured up to a distance of 30cm from the starting position of the inner face of the service door.

2.4.6.1.3 “Separate compartment” means a space in the vehicle which may be occupied by passengers or crew when the vehicle is in use and which is separated from any other passenger or crew space, except where any partition allows passengers to see into the next passenger space, and is connected by a gangway without doors.

2.4.6.2 Exit means service door and emergency exit, The number of exits shall comply with the following requirements:

2.4.6.2.1 The minimum number of doors in a vehicle shall be two(service door or emergency door)and at least have one service door.

2.4.6.2.2 Power-operated service doors shall not be deemed to be exits unless they can be readily opened by hand, once the control prescribed in paragraph 2.4.6.5.1 below has been actuated, if necessary.

2.4.6.2.3 The minimum number of emergency doors: at least 3.

Toilet compartments or galleys are not considered to be separate compartments for the purposes of defining the number of emergency exits. Escape hatches can only count as one of the abovementioned number of emergency exits.

2.4.6.2.4 A double service door shall count as two doors and a double or multiple window as two emergency windows.

2.4.6.2.5 If the driver's compartment does not provide access to a passenger compartment by means of a passageway complying with one of the conditions described in paragraph 2.4.6.10.5.1.1, the following conditions shall be met:

2.4.6.2.5.1 The driver's compartment shall have two exits, which shall not both be in the same lateral wall; when one of the exits is a window, it shall comply with the requirements set out in paragraphs 2.4.6.4.1 and 2.4.6.6 for emergency windows.

2.4.6.2.5.2 One or two seats are permitted alongside the driver for additional people, in which case both of the exits referred to in paragraph 2.4.6.2.5.1 shall be doors. The driver's door shall be accepted as the emergency door for the occupants of those seats, provided that it is possible to move a test gauge from the occupants' seats to the exterior of the vehicle through the driver's door (according to UN R107 05 Annex 4, Figure 27). Verification of the access to the driver's door shall be subject to the requirements of paragraph 2.4.6.10.3.2, by using the test gauge having a dimension of 600 x 400 mm, as described in paragraph 2.4.6.10.3.3. The door provided for the passengers shall be

in the side of the vehicle opposite to that containing the driver's door and shall be accepted as the emergency door for the driver. Up to five additional seats may be fitted in a compartment incorporating the driver's compartment, provided that the additional seats and the space for these seats comply with all requirements of this Regulation and at least one door giving access to the passenger compartment complies with the requirements of paragraph 2.4.6.4 for emergency doors.

2.4.6.2.5.3 In the circumstances described in paragraphs 2.4.6.2.5.1 and 2.4.6.2.5.2, the exits provided for the driver's compartment shall not count as one of the doors required by 2.4.6.2.1, nor as one of the exits required by paragraph 2.4.6.2.3, except in the case mentioned in paragraphs 2.4.6.2.5.1 and 2.4.6.2.5.2. Paragraphs 2.4.6.4, 2.4.6.5, 2.4.6.10.1, 2.4.6.10.2 and 2.4.6.10.7 shall not apply to such exits.

2.4.6.2.6 If the driver's seat and any seats adjacent to it are accessible from the main passenger compartment by means of a passageway complying with one of the conditions described in paragraph 2.4.6.10.5.1.1, no external exit is required from the driver's compartment.

2.4.6.2.7 If a driver's door or other exit from the compartment is provided in the circumstances described in paragraph 2.4.6.2.6. it may only count as an exit for passengers provided：

2.4.6.2.7.1 It satisfies the requirements relating to the dimensions of emergency door indicated in paragraph 2.4.6.4.1;

2.4.6.2.7.2 It fulfils the requirements indicated in paragraph 2.4.6.2.5.2;

2.4.6.2.7.3 The space reserved for the driver's seat shall communicate with the main passengers' compartment through an appropriate passage; such requirement shall be deemed to be fulfilled if the test gauge described in paragraph 2.4.6.10.5.1 can move unobstructed from the gangway, until the front end of the gauge reaches the vertical plane tangential to the foremost point of the driver's seat back (this seat being situated in its rearmost longitudinal position) and, from this plane, the panel described in paragraph 2.4.6.2.5.2 could be moved to the emergency door in the direction established by such paragraph with seat and steering wheel adjustment in their mid-position (according to UN R107 05 Annex 4, Figure 28).

2.4.6.2.8 Paragraphs 2.4.6.2.6 and 2.4.6.2.7 do not preclude there being a door or other barrier between the driver's seat and the passenger compartment provided that this barrier can be released quickly by the driver in an emergency. A driver's door in a compartment protected by such a barrier shall not be counted as an exit for passengers.

2.4.6.2.9 Except as provided in paragraph 2.4.6.2.10, escape hatches may also be fitted.

2.4.6.2.10 Vehicles shall not have escape hatches fitted where technical components are installed which present possible dangers to passengers using the escape hatches (e.g. high voltage systems, systems containing dangerous liquids and/or gas, etc.).

2.4.6.3 Sitting of exits: Vehicles shall meet the requirements shown below or they may meet those contained in UN R107 05 Annex 7, paragraph 1.2.

2.4.6.3.1 The service door(s) shall be situated on the right side of the vehicle and at least one of them shall be in the forward half of the vehicle; or

2.4.6.3.1.1 The provision of a specially designed door in the rear or side faces of a vehicle for use in place of a service door by wheelchair passengers, or

2.4.6.3.1.2 The provision of an additional service door in the rear face of a vehicle principally for loading/unloading of goods or luggage, but which could be used by passengers where circumstances so require, or

2.4.6.3.1.3 The provision of one or more additional service door(s) on the opposite side of the vehicle in the case of vehicles designed for use in circumstances which require boarding / alighting of passengers on both sides of the vehicle. Vehicles so equipped shall be provided with control(s) that allow the driver to inhibit normal operation of the doors that are not currently in use.

2.4.6.3.2 If the passenger's compartment has an area equal or greater than 10 m^2, two of the doors referred to in paragraph 2.4.6.2.1 shall be separated such that the distance between transverse vertical planes through their centres of area is not less than:

2.4.6.3.2.1 40 per cent of the overall length of the passenger compartment measured parallel to the longitudinal axis of the vehicle. If one of these two doors forms part of a double door this distance shall be measured between the two doors which are furthest apart.

2.4.6.3.3 The exits (on each deck in the case of a double-deck vehicle) shall be placed in such a way that their number on each of the two sides of the vehicle is substantially the same. (This shall not imply the need to provide additional exits over and above the number specified in paragraph 2.4.6.2.). Any exists in excess of the required minimum number need not be substantially on each of the two sides.

2.4.6.3.4 At least one exit shall be situated either in the rear face or in the front face of the vehicle respectively. This provision is fulfilled if an escape hatch is fitted, or, if paragraph 2.4.6.2.10 applies, an additional exit to those specified in paragraph 2.4.6.2, is fitted on each side of the vehicle.

2.4.6.3.5 The exits on the same side of the vehicle shall be suitably spaced out along the length of the vehicle.

2.4.6.3.6 A door shall, provided that it is not a service door, be permitted in the rear face of the vehicle.

2.4.6.3.7 If escape hatches are fitted, they shall be positioned as follows: if there is only one hatch, it shall be situated in the middle third of the passenger compartment, if there are two hatches specified by vehicle manufacturer, they shall be separated by a distance of at least 2 m measured between the nearest edges of the apertures in a line parallel to the longitudinal axis of the vehicle.

2.4.6.4 Minimum dimensions of exits

2.4.6.4.1 Vehicles shall meet the requirements shown below or they may meet those contained in UN R107 05 Annex 7, paragraph 1.1.

2.4.6.4.1.1 A service door shall have an aperture creating an access in accordance with the requirements shown in paragraph 2.4.6.10.1.

2.4.6.4.1.2 An emergency door shall have a door aperture with a minimum height of 1,250 mm and a minimum width of 550 mm.

2.4.6.4.1.3 An emergency window shall have a minimum area of 400,000 mm^2. It shall be possible to inscribe in this area a rectangle measuring 500 mm x 700 mm.

2.4.6.4.1.4 In the case of an emergency window situated in the rear face of the vehicle, either it shall meet the 2.4.6.4.1.3, or it shall be possible to inscribe in the aperture of this emergency window a rectangle 350 mm high and 1,550 mm wide, the corners of which may be rounded to a radius of curvature not exceeding 250 mm.

2.4.6.4.1.5 An escape hatch shall have a hatch aperture with a minimum area of 400,000 mm^2. It shall be possible to inscribe in this area a rectangle measuring 500 mm x 700 mm.

2.4.6.5 Additional technical requirements for power-operated service doors

2.4.6.5.1 In the event of an emergency, every power-operated service door shall be capable, when the vehicle is stationary or driving at a speed less than or equal to 5 km/h, of being opened from inside and, when not locked, from outside by

controls which, whether or not the power supply is operating:

2.4.6.5.1.1 Override all other door controls;

2.4.6.5.1.2 In the case of interior controls, are placed on, or within 300 mm of, the door, at a height of not less than 1,000 mm above the first step;

2.4.6.5.1.3 Can be easily seen and clearly identified when approaching the door and when standing in front of the door and, if additional to the normal opening controls, be clearly marked for emergency use;

2.4.6.5.1.4 Can be operated by one person when standing immediately in front of the door;

2.4.6.5.1.5 May activate a starting prevention device;

"Starting prevention device" means a device which prevents the vehicle being driven away from rest when a door is not fully closed;

2.4.6.5.1.6 Cause the door to open to a width that the gauge as defined in paragraph 2.4.6.10.1.1 can pass through within 8 seconds after the operation of the control, or enable the door to be easily opened by hand to a width that the gauge as defined in paragraph 2.4.6.10.1.1 can pass through within 8 seconds after the operation of the control;

2.4.6.5.1.7 May be protected by a device which can be easily removed or broken to gain access to the emergency control; the operation of the emergency control, or the removal of a protective cover over the control, shall be indicated to the driver both audibly and visually, and

2.4.6.5.1.8 In the case of a driver-operated door which does not comply with the requirements of paragraph 2.4.6.5.6.2, shall be such that after they have been operated to open the door and returned to their normal position, the door will not close again until the driver subsequently operates a closing control.

2.4.6.5.1.9 The doors shall be prevented from opening if the vehicle moves at a speed higher than 5 km/h.

2.4.6.5.2 A device may be provided which is operated by the driver from the driving seat to deactivate the outside emergency controls in order to lock the service doors from outside. In this case, the outside emergency controls shall be reactivated automatically either by the starting of the engine or before the vehicle reaches a speed of 20 km/h. Subsequently, deactivation of the outside emergency controls shall not occur automatically, but shall require a further action by the driver.

2.4.6.5.3 Every driver-operated service door shall be capable of operation by the driver when in the driving seat using controls

which, except in the case of a foot control, are clearly and distinctively marked.

2.4.6.5.4 Every power-operated service door shall activate a visual tell-tale, which shall be plainly visible to the driver when seated in the normal driving position in any normal ambient lighting condition, to warn that a door is not fully closed. This tell-tale shall signal whenever the rigid structure of the door is between the fully open position and a point 30 mm from the fully closed position. One tell-tale may serve for one or more doors. However, no such tell-tale shall be fitted in respect of a front service door which does not comply with the requirements of paragraphs 2.4.6.5.6.1.1 and 2.4.6.5.6.1.2.

2.4.6.5.5 Where controls are provided for the driver to open and close a power-operated service door, they shall be such that the driver is able to reverse the movement of the door at any time during the closing or opening process.

2.4.6.5.6 The construction and control system of every power-operated service door shall be such that a passenger is unlikely to be injured by the door or trapped in the door as it closes.

2.4.6.5.6.1 This requirement shall be considered satisfied if the following two requirements are met:

2.4.6.5.6.1.1 The first requirement is that when the closing of the door at any measuring point described in paragraph 2.4.4.23 is resisted by a clamping force not exceeding 150 N, the door shall reopen automatically to its fullest extent and, except in the case of an automatically-operated service door, remain open until a closing control is operated. The clamping force may be measured by any method to the satisfaction of the Competent Authority. Guidelines are given in paragraph 2.4.4.23. The peak force may be higher than 150 N for a short time provided that it does not exceed 300 N. The reopening system may be checked by means of a test bar having a section of height 60 mm, width 30 mm with corners radiused to 5 mm.

2.4.6.5.6.1.2 whenever the doors are closed onto the wrist or fingers of a passenger:

2.4.6.5.6.1.2.1 The door reopens automatically to its fullest extent and, except in the case of an automatically-operated service door, remains open until a closing control is operated, or

2.4.6.5.6.1.2.2 The wrist or fingers can be readily extracted from the doors without risk of injury to the passenger. This requirement may be checked by hand, or by means of the test bar mentioned in paragraph 2.4.6.5.6.1.1, tapered at one end over a length of 300 mm from a thickness of 30 mm to a thickness of 5 mm. It shall not be treated with polish nor lubricated. If the door traps the bar it shall be capable of being easily removed, or

2.4.6.5.6.1.2.3 The door is maintained at a position allowing the free passage of a test bar having a section of height 60 mm, width 20 mm, with corners radiused to 5 mm. This position shall not be more than 30 mm distant from the fully closed position.

2.4.6.5.6.2 a front service door the requirement of paragraph 2.4.6.5.6 shall be considered satisfied if the door:

2.4.6.5.6.2.1 Fulfils the requirements of paragraphs 2.4.6.5.6.1.1 and 2.4.6.5.6.1.2, or

2.4.6.5.6.2.2 Is fitted with soft edges; these shall not, however be so soft that if the doors are closed on the test bar mentioned in paragraph 2.4.6.5.6.1.1 the rigid structure of the doors will reach the fully closed position.

2.4.6.5.7 Where a power-operated service door is held closed only by the continued application of the power supply there shall be provided a visual warning device to inform the driver of any failure in the power supply to the doors.

2.4.6.5.8 A starting prevention device, if fitted, shall be effective only at speeds of less than 5 km/h and shall be incapable of operation above that speed.

2.4.6.5.9 If the vehicle is not fitted with a starting prevention device, an audible warning to the driver shall be activated if the vehicle is driven away from rest when any power-operated service door is not fully closed. This audible warning shall be activated at a speed exceeding 5 km/h for doors complying with the requirements of paragraph 2.4.6.5.6.1.2.3.

2.4.6.6 Technical requirements for emergency windows

2.4.6.6.1 Every hinged or ejectable emergency window shall open outwards. Ejectable types shall not become totally detached from the vehicle when operated. The operation of ejectable windows shall be such that inadvertent ejection is effectively prevented.

2.4.6.6.2 Every emergency window shall:

2.4.6.6.2.1 Either be capable of being easily and instantaneously operated from inside and from outside the vehicle by means of a device recognised as satisfactory, or

2.4.6.6.2.2 Be made of readily-breakable safety glass. This latter provision precludes the possibility of using panes of laminated glass or of plastic material. A device shall be provided adjacent to each emergency window, readily available to persons inside the vehicle, to ensure that each window can be broken. There shall be at least one window breaking device placed near the driver's seat, and clear instructions concerning the method of operation and a marking reading "車窗擊破裝置" shall be placed on or close to the device. The character size of "車窗擊破裝置"

shall be at least 4 square cm. The device for breaking the glass for the emergency windows at the rear of the vehicle shall be positioned either centrally above or below the emergency window or, alternatively, a device shall be positioned adjacent to each end of the window. Safety signs shall be met 2.4.6.9.1, 2.4.6.9.2; all safety signs materials shall be met 2.4.6.9.3.

2.4.6.6.3 Every emergency window which can be locked from the outside shall be so constructed as to be capable of being opened at all times from inside the vehicle.

2.4.6.6.4 If the emergency window is of a type horizontally hinged at the top edge, an appropriate device shall be provided to hold it fully open. Every hinged emergency window shall operate so as not to obstruct clear passage from inside or outside the vehicle.

2.4.6.6.5 The height of the lower edge of an emergency window fitted in the side of the vehicle from the general level of the floor immediately below it (excluding any local variations such as the presence of a wheel or transmission housing) shall be not more than 1,200mm nor less than 650 mm in the case of a hinged emergency window, or 500 mm in the case of a window made of breakable glass.

However, in the case of a hinged emergency window, the height of the lower edge may be reduced to a minimum of 500 mm provided that the window aperture is equipped with a guard up to a height of 650 mm to prevent the possibility of passengers falling out of the vehicle. Where the window aperture is equipped with a guard, the size of the window aperture above the guard shall not be less than the minimum size prescribed for an emergency window.

2.4.6.6.6 Every hinged emergency window which is not clearly visible from the driver's seat shall be fitted with an audible warning device to warn the driver when it is not completely closed. The window lock, and not the movement of the window itself, shall actuate this device.

2.4.6.7 Technical requirements for escape hatches

2.4.6.7.1 Every escape hatch shall operate so as not to obstruct the clear passage from inside or outside the vehicle.

2.4.6.7.2 Roof escape hatches shall be ejectable, hinged or made of readily-breakable safety glass. Floor hatches shall be either hinged or ejectable and shall be fitted with an audible warning device to warn the driver when it is not securely closed. The floor escape hatch lock, and not the movement of the hatch itself, shall actuate this device. Floor escape hatches shall be proofed against unintentional operation. However this requirement shall not apply if the floor hatch is locked

automatically when the vehicle is moving at a speed exceeding 5 km/h.

2.4.6.7.3 Ejectable types shall not become totally detached from the vehicle when operated such that the hatch is not a danger to other road users. The operation of ejectable escape hatches shall be such that inadvertent operation is effectively prevented. Floor ejectable hatches shall eject only into the passenger compartment.

2.4.6.7.4 Hinged escape hatches shall hinge along the edge towards the front or rear of the vehicle and shall hinge through an angle of at least 100 degrees. Hinged floor escape hatches shall hinge into the passenger compartment.

2.4.6.7.5 Escape hatches shall be capable of being easily opened or removed from the inside and from the outside. However, this requirement shall not be construed as precluding the possibility of locking the escape hatch for the purpose of securing the vehicle when unattended, provided that the escape hatch can always be opened or removed from the inside by the use of the normal opening or removal mechanism. In the case of a readily breakable hatch, a device shall be provided adjacent to the hatch, readily available to persons inside the vehicle, to ensure that the hatch can be broken.

2.4.6.8 Technical requirements for retractable steps

Retractable steps if fitted shall comply with the following requirements:

2.4.6.8.1 The operation of retractable steps may be synchronised with that of the corresponding service or emergency door;

2.4.6.8.2 When the door is closed no part of the retractable step shall project more than 10 mm beyond the adjacent line of the body work;

2.4.6.8.3 When the door is open and the retractable step is in the extended position, the surface area shall conform to the requirements of 2.4.6.10.7.

2.4.6.8.4 In the case of a power-operated step, it shall not be possible for the vehicle to move from rest, under its own power, when the step is in the extended position. In the case of a manually operated step, an audible indication shall alert the driver when the step is not fully retracted.

2.4.6.8.5 A power-operated step shall not be capable of being extended when the vehicle is in motion. If the device to operate the step fails, the step shall retract and remain in the retracted position. However, the operation of the corresponding door shall not be hindered in the event of such a failure or by the step being damaged or obstructed.

2.4.6.8.6 When a passenger is standing on a power-operated retractable step, the corresponding door shall be incapable of being closed. Compliance with this requirement shall be checked by placing a mass of 15 kg, representing a small child, at the

centre of the step. This requirement shall not apply to any door within the driver's direct field of view.

2.4.6.8.7 The corners of retractable steps facing forwards or rearwards shall be rounded to a radius of not less than 5 mm; the edges shall be rounded to a radius of not less than 2.5 mm;

2.4.6.8.8 When the passenger door is open, the retractable step shall be securely held in the extended position. When a mass of 136 kg is placed in the centre of a single step or a mass of 272 kg is placed in the centre of a double step the deflection at any point on the step, measured relative to the body of vehicle, shall not exceed 10 mm.

2.4.6.9 Exits markings

2.4.6.9.1 Each emergency exit and any other exit that meets the prescriptions for an emergency exit shall be marked, inside and outside the vehicle, by an inscription reading "緊急出口" and supplemented, where appropriate, by one of the relevant pictograms described in ISO standard 7010:2003.

2.4.6.9.2 The emergency controls of service doors and of all emergency exits shall be marked as such inside and outside the vehicle either by a representative symbol or by a clearly-worded inscription.

2.4.6.9.3 Clear instructions concerning the method of operation shall be placed on or close to every emergency control of an exit.

2.4.6.9.4 The language in which any textual markings intended to comply with paragraphs 2.4.6.9.1 to 2.4.6.9.3 shall be Chinese and English.

2.4.6.10 Interior arrangements

2.4.6.10.1 Access to service doors

2.4.6.10.1.1 The free space extending inwards into the vehicle from the side wall in which the door is mounted shall permit the free passage of one test gauge having the dimensions of either test gauge 1 or test gauge 2 specified in A Figure 4.The test gauge shall be maintained parallel with the door aperture as it is moved from the starting position, where the plane of the face nearest to the interior of the vehicle is tangential to the outermost edge of the aperture, to the position where it touches the first step, after which it shall be kept at right angles to the probable direction of motion of a person using the entrance.

2.4.6.10.1.2 When the centre line of this test gauge has traversed a distance of 300 mm from its starting position and the test gauge is touching the surface of the step or floor, it shall be retained in that position.

2.4.6.10.1.3 The cylindrical figure (according to UN R107 05 Annex 4, Figure 6) used for testing the gangway clearance shall

then be moved starting from the gangway, in the probable direction of motion of a person leaving the vehicle, until its centre line has reached the vertical plane which contains the top edge of the uppermost step, or until a plane tangential to the upper cylinder touches the dual panel, whichever occurs first, and retained in that position. (according to UN R107 05 Annex 4, Figure 2)

2.4.6.10.1.4 Between the cylindrical figure, at the position set out in paragraph 2.4.6.10.1.2, and the dual panel, at the position set out in paragraph 2.4.6.10.1.3, there shall be a free space whose upper and lower limits are shown in figure 4. This free space shall permit the free passage of a vertical panel whose form and dimensions are the same as the cylindrical form (paragraph 2.4.6.10.5.1), central section and a thickness of no more than 20 mm.

This panel shall be moved, from the cylindrical form tangential position, until its external side is in contact with the dual panel interior side, touching the plane or planes defined by the step upper edges, in the probable direction of motion of a person using the entrance. (according to UN R107 05 Series Annex 4, Figure 2)

2.4.6.10.1.5 The free passage clearance for this figure shall not include any space extending to 300mm in front of any uncompressed seat cushion of a forward or rearward facing seat, or 225 mm in the case of sideways-facing seats, and to the height of the top of the seat cushion.

2.4.6.10.1.6 In the case of folding seats, this space shall be determined with the seat in the position of use.

2.4.6.10.1.7 However, one or more folding seat(s) for use by the crew may obstruct the access passage to a service door when in the position of use provided that:

2.4.6.10.1.7.1 It is clearly indicated, both in the vehicle itself and on the communication form, that the seat is for the use of crew only,

2.4.6.10.1.7.2 When the seat is not in use it folds automatically as necessary to enable the requirements of 2.4.6.10.1.1 or 2.4.6.10.1.2 and 2.4.6.10.1.3, 2.4.6.10.1.4 to be met;

2.4.6.10.1.7.3 The door is not considered to be a mandatory exit for the purpose of paragraph 2.4.6.2.3,

2.4.6.10.1.7.4 When the seat is in the position of use, and when it is in the folded position, no part of it shall be forward of a vertical plane passing through the centre of the seating surface of the driver's seat in its rearmost position and through the centre of the exterior rearview mirror mounted on the opposite side of the vehicle.

2.4.6.10.1.8 The maximum slope of the floor in the access passage shall not exceed 5 per cent.

2.4.6.10.1.9 The surface of access passages shall be slip-resistant.

2.4.6.10.2 Access to emergency doors

2.4.6.10.2.1 Except as provided for in paragraph 2.4.6.10.2.4., the free space between the gangway and the emergency door aperture shall permit the free passage of a vertical cylinder 300 mm in diameter and 700 mm high from the floor and supporting a second vertical cylinder 550 mm in diameter, the aggregate height of the assembly being 1,400 mm. (according to UN R107 05 Annex 4, Figure 5)

The diameter of the upper cylinder may be reduced at the top to 400 mm when a chamfer not exceeding 30 degrees from the horizontal is included.

2.4.6.10.2.2 The base of the first cylinder shall be within the projection of the second cylinder.

2.4.6.10.2.3 Where folding seats are installed alongside this passage, the free space for the cylinder shall be required to be determined when the seat is in the position for use.

2.4.6.10.2.4 As an alternative to the dual cylinder, the gauging device described in paragraph 2.4.6.10.5.1.may be used (according to UN R107 05 Annex 4, Figure 6)

2.4.6.10.3 Access to emergency windows

2.4.6.10.3.1 It shall be possible to move a test gauge from the gangway to the exterior of the vehicle through every emergency window.

2.4.6.10.3.2 The direction of motion of the test gauge shall be in the direction in which a passenger evacuating the vehicle would be expected to move. The test gauge shall be kept perpendicular to that direction of motion.

2.4.6.10.3.3 The test gauge shall be in the form of a thin plate having a size of 600 mm x 400 mm with corners radiused by 200 mm. However, in the case of an emergency window in the rear face of the vehicle, the test gauge may alternatively have a size of 1400 mm x 350 mm with corners radiused by 175 mm.

2.4.6.10.4 Access to escape hatches

2.4.6.10.4.1 Escape hatches in the floor,

In the case of an escape hatch fitted in the floor, the hatch shall give direct and free access to the exterior of the vehicle and be fitted where there is a clear space above the hatch equivalent to the height of the gangway. Any heat source or moving components shall be at least 500 mm from any part of the hatch aperture.

It shall be possible to move a test gauge in the form of a thin plate having dimensions 600 mm x 400 mm with corners radiused by 200 mm in a horizontal position from a height above the floor of the vehicle of 1 m to the ground.

2.4.6.10.5 Gangways

2.4.6.10.5.1 The gangway(s) of a vehicle shall be so designed and constructed as to permit the free passage of a gauging device consisting of two co-axial cylinders with an inverted truncated cone interposed between them, the gauging device having the dimensions shown in figure 6 of UNR107 05 Annex 4.

The gauging device may come into contact with strap hangers, if fitted, or other flexible objects such as seat belt components and move them away. The gauging device shall not come into contact with any monitor or display device mounted from the ceiling above the gangway.

2.4.6.10.5.1.1 If there is no exit forward of a seat or row of seats

2.4.6.10.5.1.1.1 In the case of forward-facing seats, the front edge of the cylindrical gauge defined in paragraph 2.4.6.10.5.1 shall reach at least until the transverse vertical plane tangential to the foremost point of the foremost front row seat back and be retained in that position. From this plane, it must be possible to move the panel ,in such a way that starting from the contact position with the cylindrical gauge, the panel side facing the exterior of the vehicle is displaced forwards a distance of 660 mm. (according to UN R107 05 Annex 4, Figure 7)

2.4.6.10.5.1.1.2 In the case of sideways facing seats, the forward part of the cylindrical gauge must reach at least the transversal plane which coincides with a vertical plane passing through the centre of the forward seat (according to UN R107 05 Annex 4, Figure 7).

2.4.6.10.5.1.1.3 In the case of rearward facing seats, the forward part of the cylindrical gauge shall reach at least the transverse vertical plane tangential to the face of the seat cushions of the forward row or seat (according to UN R107 05 Annex 4, Figure 7).

2.4.6.10.5.2 Steps may be fitted in the gangways. The width of such steps shall not be less than the width of the gangway at the top of the steps.

2.4.6.10.5.3 Folding seats allowing passengers to sit in the gangway shall not be permitted. Folding seats shall, however, be permitted in other areas of the vehicle so long as they do not obstruct the passage down the gangway of the

gangway test gauge when in the open (seating) position.

2.4.6.10.5.4 Laterally-sliding seats which in one position encroach on the gangway shall not be permitted.

2.4.6.10.5.5 The surface of gangways shall be slip-resistant.

2.4.6.10.6 Slope of gangway

The slope of the gangway shall not exceed:

2.4.6.10.6.1 in the longitudinal direction: 8 per cent

2.4.6.10.6.2 In the transversal direction: 5 per cent

2.4.6.10.7 Steps

2.4.6.10.7.1 The maximum and minimum height, and the minimum depth, of steps for passengers at service and emergency doors, and within the vehicle, are specified in Figure 8 of UN R107 05 Annex 4.

2.4.6.10.7.1.1 Any transition from a sunken gangway to a seating area shall not be considered to be a step. However, the vertical distance between the gangway surface and the floor of the seating area shall not exceed 350 mm.

2.4.6.10.7.2 The height of a step shall be measured at the centre of its width at the outer edge, the tyre equipment and pressure being as specified by the manufacturer for the technically permissible maximum laden mass (M).

2.4.6.10.7.3 The height of the first step in relation to the ground shall be measured with the vehicle on level ground, at its mass in running order, and the tyre equipment and pressure being as specified by the manufacturer for the technically permissible maximum laden mass (M).

2.4.6.10.7.4 Where there is more than one step, each step may extend into the area of the vertical projection of the next step by up to 100 mm and the projection over the tread below shall leave a free surface of at least 200 mm (according to UN R107 05 Annex 4, Figure 8) with all step nosings being designed such as to minimize the risk of tripping. All step nosings shall contrast visually with their immediate surroundings.

2.4.6.10.7.5 The width and shape of steps shall be: a 400mm x 200mm rectangle can be placed on first step and other steps. No more than 5 percent of the area of the appropriate rectangle shall overhang the step. At a double doorway each half of the doorway shall fulfil this requirement.

2.4.6.10.7.6 All steps shall have a slip-resistant surface.

2.4.6.10.7.7 The maximum slope of the step in any direction shall not exceed 5 percent.

2.4.6.10.8 Passenger seats (including folding seats) and space for seated passengers

2.4.6.10.8.1 Minimum seat width

2.4.6.10.8.1.1 The minimum width of the seat cushion, dimension "F", measured from a vertical plane passing through the centre of that seating position, shall be: 200 mm(according to UN R107 05 Annex 4, Figure 9)

2.4.6.10.8.1.2 The minimum width of the available space for each seating position, dimension "G", measured from a vertical plane passing through the centre of that seating position at height between 270 mm and 650 mm above the uncompressed seat cushion, shall be not less than(according to UN R107 05 Annex 4, Figure 9):

2.4.6.10.8.1.2.1 250 mm in the case of individual seats; or

2.4.6.10.8.1.2.2 225 mm in the case of continuous rows of seats for two or more passengers.

2.4.6.10.8.1.3 For vehicles not exceeding a width of 2.35 m：

2.4.6.10.8.1.3.1 The width of the available space for each seating position, measured from a vertical plane passing through the centre of that seating position at heights between 270 mm and 650 mm above the uncompressed seat cushion shall be 200 mm.(according to UN R107 05 Annex 4, Figure 9A)

In case of compliance with this paragraph the requirements of paragraph 2.4.6.10.8.1.2 shall not apply.

2.4.6.10.8.1.4 In the case of seats adjacent to the wall of the vehicle, the available space does not include, in its upper part, a triangular area 20 mm wide by 100 mm high (according to UN R107 05 Annex 4, Figure 10). In addition, the space needed for safety belts and their anchorages and for the sun visor should be considered as exempted.

2.4.6.10.8.1.5 In measuring the gangway width, no account shall be taken of whether or not the available space defined above protrudes into the gangway.

2.4.6.10.8.2 Minimum depth of seat cushion (dimension K, according to UN R107 05 Annex 4, Figure 11)

The minimum depth of a seat cushion shall be 350mm.

2.4.6.10.8.3 Height of seat cushion (dimension H, according to UN R107 05 Annex 4, Figure 11a)

The height of the uncompressed seat cushion relative to the floor shall be such that the distance from the floor to a horizontal plane tangential to the front upper surface of the seat cushion is between 400 mm and 500 mm: this

height may however be reduced to not less than 350 mm at the wheel arches (taking into account the allowances permitted in paragraph 2.4.6.10.8.5.2.) and at the engine/transmission compartment.

2.4.6.10.8.4 Seat spacing (see Figure 16-1)

2.4.6.10.8.4.1 In the case of seats facing in the same direction, the distance between the front of a seat squab and the back of the squab of the seat preceding it (dimension H), shall, when measured horizontally, parallel to the longitudinal plane of the vehicle (showed in Figure 16-1) and at all heights above the floor between the level of the top surface of the seat cushion and a point 620 mm above the floor, not be less than the value shown in Figure 16-1.

2.4.6.10.8.4.2 All measurements shall be taken, with the seat cushion and squab uncompressed, in a vertical plane passing through the centreline of the individual seating place.

2.4.6.10.8.4.3 Where transverse seats face one another the minimum distance between the front faces of the seat squabs of facing seats, as measured across the highest points of the seat cushions, shall be not less than 1,300 mm.

2.4.6.10.8.4.4 Measurements shall be taken with reclining passenger seats and adjustable driving seats with their seat backs and other seat adjustments in the normal position of use specified by the manufacturer.

2.4.6.10.8.4.5 Measurements shall be taken with any folding table fitted to a seat back in the folded (stowed) position.

2.4.6.10.8.4.6 Seats which are mounted on a track or other system which permits the operator or the user to easily vary the interior configuration of the vehicle shall be measured in the normal position of use specified by the manufacturer in the application for approval.

2.4.6.10.8.5 Space for seated passengers

2.4.6.10.8.5.1 For a seat behind a partition or other rigid structure other than a seat, a minimum clear space in front of each required passenger seating space (as defined in paragraph 2.4.6.10.8.6.) shall be provided as shown in Figure 7.

A partition whose contour corresponds approximately to that of the inclined seat back may intrude into this space.

In the case of seats alongside the driver's seat, intrusion of the dashboard, instrument panel, gear change

control, windscreen, sun visor, seat belts and seat belt anchorages shall be allowed.

2.4.6.10.8.5.2 For a seat behind a seat and/or a seat facing the gangway, a minimum clear foot space of at least 300 mm depth and a width according to paragraph 2.4.6.10.8.1.1, shall be provided as shown in UN R107 05 Annex 4, Figure 11b. The local presence in this space of seat legs, passenger footrests and of intrusions as provided by paragraph 2.4.6.10.8.6 shall be permitted provided that adequate space remains for the passengers' feet. This foot space may partly be situated in and/or above the gangway but shall not create any obstruction when measuring the minimum gangway-width in accordance with paragraph 2.4.6.10.5.

In the case of seats alongside the driver's seat, intrusion of the seat belts and seat belt anchorages shall be allowed.

2.4.6.10.8.5.3 One priority seat shall be provided. A seat that folds out of the way when not in use shall not be designated as a priority seat.

2.4.6.10.8.6 Free height over seating positions

2.4.6.10.8.6.1 In the case of vehicles, over each seating position and, except in the case of the seat(s) alongside the driver, its associated foot space, there shall be measured a free space with a height of not less than 900 mm measured from the highest point of the uncompressed seat cushion and at least 1,350 mm from the mean level of the floor in the foot space.

For the seat(s) alongside the driver, these dimensions may be reduced to 1,200 mm measured from the floor and 800 mm measured from the highest point of the uncompressed seat cushion.

2.4.6.10.8.6.2 This free space shall be extended over the zone defined:

2.4.6.10.8.6.2.1 By longitudinal vertical planes 200 mm either side of the median vertical plane of the seating position,

2.4.6.10.8.6.2.2 By a transverse vertical plane through the rearmost upper point of the seat back and by a transverse vertical plane 280 mm in front of the foremost point of the uncompressed seat cushion, measured in each case at the median vertical plane of the seating position.

2.4.6.10.8.6.3 From the edges of the free space defined by paragraphs 2.4.6.10.8.6.1 and 2.4.6.10.8.6.2, the following zones may be excluded:

2.4.6.10.8.6.3.1 In the case of the upper part of the outboard seats, adjacent to the inner wall of the vehicle, a zone

with a rectangular cross-section 150 mm in height and 100 mm in width(according to UNR107 05 Annex 4, Figure 14).

2.4.6.10.8.6.3.2 In the case of the upper part of the outboard seating position, a zone with triangular cross-section whose apex is situated 700 mm from the top and whose base is 100 mm in width (according to UNR107 05 Annex 4, Figure 15). The space needed for safety belts and their anchorages and for the sun visor is also excluded;

2.4.6.10.8.6.3.3 In the case of the foot well of an outboard seating position, a zone of a cross-sectional area not exceeding, 0.02 m^2 and having a maximum width not exceeding 100 mm(according to UNR107 05 Annex 4, Figure 16). Low floor vehicles shall comply with requirements of "Low floor vehicle" of “VSTD”

2.4.6.10.8.6.3.4 In the case of the seating places nearest to the rear corners of the body, the outer rear edge of the free space, viewed in plan, may be rounded to a radius not exceeding 150 mm (according to UNR107 05 Annex 4, Figure 17).

2.4.6.10.8.6.4 In the free space defined by paragraphs 2.4.6.10.8.6.1, 2.4.6.10.8.6.2 and 2.4.6.10.8.6.3, the following additional intrusions shall be permitted:

2.4.6.10.8.6.4.1 Intrusion of the back of another seat, its supports and its attachments (e.g. folding table);

2.4.6.10.8.6.4.2 Intrusion of a wheel arch provided that one of the following two conditions is fulfilled:

2.4.6.10.8.6.4.2.1 The intrusion does not extend beyond the median vertical plane of the seating position (according to UNR107 05 Annex 4, Figure 18), or

2.4.6.10.8.6.4.2.2 The nearest edge of the area 300 mm in depth available for the feet of the seated passenger is advanced no more than 200 mm from the edge of the uncompressed seat cushion and to not more than 600 mm in front of the squab of the seat, these measurements being made in the median vertical plane of the seating position (according to UNR107 05 Annex 4, Figure 19). In the case of two seats facing each other this provision shall apply to only one of the seats and the remaining space for the feet of seated passengers must be at least 400 mm.

2.4.6.10.8.6.4.3 In the case of seats alongside the driver's seat, intrusion of the dashboard / instrument panel,

windscreen, sun visors, seat belts, seat belt anchorages and front dome.

2.4.6.10.8.6.4.4 Intrusion of hopper type windows when open and their fittings.

2.4.6.10.8.7 Requirements for the safeguarding of the foremost side-facing seat of passengers in side-facing seats

2.4.6.10.8.7.1 The parts of foremost side-facing seat (e.g. partition, wall or seat back of a forward facing seat) shall comply with this regulation.

2.4.6.10.8.7.2 The distance between the foremost side-facing seat and the vehicle parts (e.g. partition, wall or seat back of a forward facing seat) forward of this foremost side-facing seat shall not exceed 450 mm. All measurements are to be taken 1000 mm above the reference plane of the foremost side-facing seat (see Figure 1).

2.4.6.10.8.7.3 The vehicle part (e.g. partition, wall or seat back of a forward facing seat) in front of the foremost side-facing seat shall fulfil the following requirements in order to safeguard the passenger in that foremost side-facing seat (see Figure 2):

2.4.6.10.8.7.3.1 The height of the vehicle part, based on the reference plane of the foremost side-facing seat, must not be less than 1,020 mm; and

2.4.6.10.8.7.3.2 The effective impact surface of the vehicle part has a width of 200 mm and a height of 580 mm. This surface shall be positioned so that the vertical centre-line is located 50 mm behind the H-point of the foremost side-facing seat; and

2.4.6.10.8.7.3.3 The corresponding surface of the vehicle part in place projected onto a vertical plane through this H-point shall cover at least 95 per cent of the effective impact surface. This vehicle part shall fulfil the energy absorption requirement (Static test 2) from regulation of “seats”, and shall remain its protective function during the test process.

2.4.6.10.8.7.3.3.1 If there is a gap in the corresponding surface (typically two forward-facing seats with a gap in between) a distance shall be determined for each gap by means of a sphere having a diameter of 165 mm. The sphere shall be put into contact with the gap in a point of the gap area which allows the maximum sphere intrusion, considering no load is to be applied. The distance between the two points of contact of the sphere must be less than 60 mm.

2.4.6.10.8.7.3.4 "Reference plane" means the plane passing through the points of contact of the heels of the manikin,

used for the determination of the H point and the actual angle of torso for the seating position of motor vehicles.

2.4.6.10.8.7.3.5 "Reference height" means the height of the top of the seat above the reference plane ;

2.4.6.10.9 Communication with the driver

2.4.6.10.9.1 A means shall be provided to enable passengers to signal that the driver should stop the vehicle. The controls for all such communication devices shall be capable of being operated with the palm of the hand. There shall be appropriate communication devices distributed adequately and evenly throughout the vehicle and no more than 1,500 mm from the floor; this does not exclude the possibility of installing higher additional communication devices. Controls shall contrast visually with their immediate surroundings. Activation of the control shall also be indicated to the passengers by means of one or more illuminated signs. The sign shall display the words "bus stopping" or equivalent, and/or a suitable pictogram and shall remain illuminated until the service door(s) open. Any textual markings shall be Chinese.

2.4.6.10.9.2 Communication with the crew compartment: If a crew compartment is fitted without access to the driver or passenger compartments, a means of communication between the driver and this crew compartment shall be provided.

2.4.6.10.9.3 Communication with the toilet compartment: Toilet compartments shall be fitted with a means of summoning assistance in an emergency.

2.4.6.10.9.4 Communication devices shall be placed adjacent to any priority seat and within any wheelchair area and shall be at a height between 700 mm and 1,200 mm above the floor.

2.4.6.10.9.5 Communication devices situated in the low floor area shall be at a height between 800mm and 1,500 mm where there are no seats.

2.4.6.10.9.6 If a vehicle is fitted with a ramp or lift, a means of communication with the driver shall be fitted outside, adjacent to the door, and at a height between 850 mm and 1,300 mm from the ground. This requirement shall not apply to a door situated in the direct field of vision of the driver.

2.4.6.10.10 Priority seats and space for passengers with reduced mobility

2.4.6.10.10.1 Seats shall be situated in a position near to a service door(s) suitable for boarding and alighting

2.4.6.10.10.2 There shall be adequate space for a guide dog under, or adjacent to, at least one of the priority seats. This space shall not form a part of the gangway.

2.4.6.10.10.3 Armrests shall be fitted on seats between the seating position and the gangway and shall be capable of being moved easily out of the way to permit clear access to the seat. In the case of seats facing each other one of the gangway seats may alternatively be fitted with a vertical stanchion. This stanchion shall be positioned so that the seat occupant is kept securely on the seat and easy access to the seat is possible.

2.4.6.10.10.4 The minimum width of a priority seat cushion, measured from a vertical plane passing through the centre of that seating position, shall be 220 mm on each side.

2.4.6.10.10.5 The height of the uncompressed seat cushion relative to the floor shall be such that the distance from the floor to a horizontal plane tangent to the front upper surface of the seat cushion is between 400 mm and 500 mm.

2.4.6.10.10.6 The foot space at priority seating positions shall extend forward of the seat from a vertical plane through the forward edge of the seat cushion. The foot space shall not have a slope in any direction of more than 8 per cent. The vertical distance between the floor of the seating area and the adjacent gangway shall be not more than 250 mm.

2.4.6.10.10.7 Each priority seating position shall have a free height of not less than 1,300 mm, measured from the highest point of the uncompressed seat cushion. This free height shall extend over the vertical projection of the minimum required seat width of 440 mm and the associated foot space.

Intrusion of a seat back or other object into this space shall be permitted provided that a minimum clear vertical space extending 230 mm in front of the seat cushion is maintained. Where the priority seat is positioned facing a bulkhead more than 1,200 mm in height this space shall be 300 mm.

Intrusions of handholds or handrails as mentioned in paragraph 2.4.6.10.11.2 may protrude by a maximum of 100 mm from the sidewall into the clear space over the vertical projection of the foot space.

2.4.6.10.10.8 Vehicles fitted with a priority seat shall have pictogram(s) in accordance with Figure 3 visible from the outside, both on the front nearside of the vehicle and adjacent to the relevant service door(s). A pictogram shall be placed internally adjacent to the priority seat.

2.4.6.10.11 Handrails to priority seating

2.4.6.10.11.1 A handrail at a height of between 800 mm and 900 mm above the floor level shall be provided between the priority seats and at least one service door suitable for boarding and alighting. A break is permitted where it is necessary to gain access to a wheelchair space, a seat located at a wheel arch, a staircase, an access passage or a gangway. Any break in the handrail shall not exceed 1,050 mm and a vertical handrail shall be provided on at least one side of the break.

2.4.6.10.11.2 Handrails or handholds shall be placed adjacent to priority seating positions to facilitate entry and exit of the seat, and shall be designed in such a way as to allow the passenger to grasp them easily. Handrails or strap hangers shall be so designed and installed as to present no risk of injury to passengers.

2.4.6.10.12 Floor slope

The slope of any gangway, access passage or floor area between any priority seat or wheelchair space and at least one entrance and one exit or a combined entrance and exit shall not exceed 8 per cent.

2.4.6.11 Artificial interior lighting

2.4.6.11.1 Internal electrical lighting shall be provided for the illumination of:

2.4.6.11.1.1 all passenger compartments, crew compartments, toilet compartments and the articulated section of an articulated vehicle;

2.4.6.11.1.2 any step or steps;

2.4.6.11.1.3 the access to any exits and the area immediately around the service door(s) including, when in use, any boarding device fitted;

2.4.6.11.1.4 the internal markings and internal controls of all exits;

2.4.6.11.1.5 all places where there are obstacles.

2.4.6.11.2 There shall be at least two internal lighting circuits such that failure of one will not affect the other. A circuit serving only permanent entry and exit lighting can be considered as one of these circuits.

2.4.6.11.3 Individual lights for each of the items in paragraph 2.4.6.11.1 are not required providing adequate illumination can be maintained during normal use.

2.4.6.11.4 Control of the mandatory interior lighting shall be by manual switches under the control of the driver or automatically controlled.

2.4.6.12 Handrails and handholds

2.4.6.12.1 General requirements

2.4.6.12.1.1 Handrails and handholds shall be of adequate strength.

2.4.6.12.1.2 They shall be so designed and installed as to present no risk of injury to passengers.

2.4.6.12.1.3 Handrails and handholds shall be of a section enabling passengers to grasp them easily and firmly. Every handrail shall provide a length of at least 100 mm to accommodate a hand. No dimension of the section shall be smaller than 20 mm or greater than 45 mm. In these cases handrails having a minimum dimension of 15 mm shall be permitted provided that one other dimension is of at least 25 mm. Handrails shall not have sharp bends.

2.4.6.12.1.4 The clearance between a hand-rail or hand-hold, along the majority of its length, and the adjacent part of the vehicle body or walls shall be at least 40 mm. However, in the case of a handrail on a door or a seat, or in the access passage of a minimum clearance of 35 mm shall be permitted.

2.4.6.12.1.5 The surface of every handrail, handhold or stanchion shall contrast visually with their immediate surroundings and be slip-resistant

2.4.6.12.2 Additional requirements for handrails and handholds for vehicles designed to carry standing passengers

2.4.6.12.2.1 Handrails and/or handholds shall be provided in sufficient number for each point of the floor area intended for standing passengers. For this purpose, strap hangers, if fitted, may be counted as handholds, provided that they are held in their position by suitable means. This requirement shall be deemed to be fulfilled if, for all possible sites of the testing device shown in figure 9 hereto, at least two handrails or handholds can be reached by the device's moveable arm. The testing device may be freely turned about its vertical axis.

2.4.6.12.2.2 When applying the procedure described in paragraph 2.4.6.12.2.1, only such hand-rails and handholds shall be considered which are not less than 800 mm and not more than 1,950 mm above the floor.

2.4.6.12.2.3 For every position that can be occupied by a standing passenger, at least one of the two required handrails or handholds shall be not more than 1,500 mm above the level of the floor at that position. This does not apply to an area adjacent to a door where the door or its mechanism in open position would prevent the use of this handhold. Also, exception may be given in the middle of large platforms, but the sum of these exceptions shall not exceed 20 per cent of the total standing area.

2.4.6.12.2.4 Areas which can be occupied by standing passengers and are not separated by seats from the side walls or rear wall of the vehicle shall be provided with horizontal handrails parallel to the walls and installed at a height of between 800 mm and 1500 mm above the floor.

2.4.6.12.3 Handrails and handholds for service doors

2.4.6.12.3.1 Door apertures shall be fitted with handrails and/or handholds on each side. In the case of double doors this requirement can be fulfilled by fitting one central stanchion or one central handrail.

2.4.6.12.3.2 Handrails and/or handholds to be provided for service doors shall be such that they include a grasping point available to a person standing on the ground adjacent to the service door or on any of the successive steps. Such points shall be situated, vertically, between 800 mm and 1100 mm above the ground or above the surface of each step, and horizontally:

2.4.6.12.3.2.1 For the position appropriate to a person standing on the ground, not more than 400 mm inwards from the outer edge of the first step;

2.4.6.12.3.2.2 For the position appropriate to a particular step, not outwards from the outer edge of the step considered, and not more than 600 mm inwards from that same edge.

2.4.6.13 Guarding of open area

2.4.6.13.1 Where any seated passenger is likely to be thrown forward into step well or open area, either a guard or, in the case of a safety-belt shall be fitted. Where fitted, the guard shall have a minimum height from the floor on which the passenger's feet rest of 800 mm and shall extend inwards from the wall of the vehicle at least as far as 100 mm beyond the longitudinal centre line of any seating position where the passenger is at risk or to the riser of the innermost step; whichever is the lesser dimension.

2.4.6.14 Baggage racks and occupant protection : The occupants of the vehicle shall be protected from objects liable to fall from baggage racks under braking or cornering forces. If baggage compartments are fitted, they must be designed in such a way that baggage is prevented from falling in the event of sudden braking.

2.4.6.15 Trap doors, if fitted

Every trap door, that is not an escape hatch, on the floor of a vehicle shall be so fitted and secured that it cannot be dislodged or opened without the use of tools or keys and no lifting or securing device shall project by more than 8 mm above floor level.

Edges of projections shall be rounded.

2.4.6.16 Visual Entertainment

2.4.6.16.1 Forms of visual entertainment for passengers, for example television monitors or videos shall be located out of the driver's view when the driver is seated in his normal driving position. This shall not preclude any television monitor or similar device used as part of the driver's control or guidance of the vehicle, for example to monitor service doors.

2.4.7 The applicants apply for three-wheeled vehicle shall refer to hook-turn regulation for motorcycle and road traffic engineering design rules to declare the minimum turning radius, and shall be contained in the vehicle specifications table and owner’s manual of the vehicle, also shall be published on Type Approval Certificate by certification institution.

2.5 The standard and specification of vehicle cargo-cabin volume:

2.5.1 The standard of cargo-cabin volume for concrete mixer truck equals to the volume (cubic m) times 2.3 (specific weight), plus whole vehicle curb weight, the sum shall not exceed the respective gross vehicle weight specified.

2.5.2 The standard cargo volume specification and gross vehicle weight limit of the heavy dump truck and dump semi-trailer loading gravel and sand or soil shall comply with the following requirements:

2.5.2.1 Cargo volume standard:

2.5.2.1.1 The cargo volume calculation of heavy dump truck loading gravel and sand or soil shall be calculated by applying gross vehicle weight subtracts the whole vehicle curb weight, then is divided by the nominal specific weight 1.5, and the calculating result would be the cargo volume (cubic m).

2.5.2.1.2 The cargo volume calculation of dump semi-trailer loading gravel and sand or soil shall be calculated by applying the gross combination weight subtracts the semi-trailer gross vehicle weight and 6.5 MT, then is divided by the nominal specific weight 1.5, and the calculating result would be the cargo volume (cubic m).

2.5.2.2 Cargo cabin specification:

2.5.2.2.1 The movable tail-door height at the rear-side of cargo shall not exceed the cargo side height. The hinge of movable tail-door is excluded to this restriction.

2.5.2.2.2 The cargo cabin outside color shall be painted with the “yellow” color specified in the color card No 1-19, made by Taiwan Paint Industrial Association.

2.5.2.2.3 Shall be equipped with a mechanical covering device or prepare the canvas for tight covering.

2.5.2.3 Restriction of GVW

2.5.2.3.1 The heavy dump truck loading gravel and sand or soil, its vehicle curb weight shall not exceed 55% of gross vehicle weight.

2.5.2.3.2 The double axle dump semi-trailer loading gravel and sand or soil, its vehicle curb weight shall not exceed 7.5 MT.

2.5.2.3.3 The triple axles dump semi-trailer loading gravel and sand or soil, its whole vehicle curb weight shall not exceed 8.5 MT.

2.5.3 For the cargo-volume calculation of tank truck, the specific weight of load is declared by the applicant.

2.6 The axle weight limitation and restrictions of gross vehicle weight and gross combination weight for motor vehicle:

2.6.1 The axle weight limitation of vehicle:

Axle set category	Loading limit	Effective date	Remark
1.Single axle load	（1）each unit≦10 MT	Current provision	The minimum value among tire design load, axle -load design value and axle load limit is selected as the approval value of axle load
	（2）The firefighting vehicle approved by MOI: each unit≦12 MT	Current provision	
2.Double axle load	（1）each unit≦17.5 MT	Promulgation date	
	（2）The firefighting vehicle approved by MOI: each unit≦20 MT.	Current provision	
3.Triple axle load	each unit≦22 MT	Promulgation date	

2.6.2 The restrictions of gross vehicle weight and gross combination weight for motor vehicle

2.6.2.1 The restriction of gross vehicle weight for large vehicle, excludes the tractor, semi-trailer, and frame trailer（as table below）

Axle type / Maximum / Wheelbase	Single axle (front & rear) vehicle	Front double axle, rear single axle vehicle	Front single axle, rear double axle vehicle	Double axle (front & rear) vehicle	Full Trailer
2.0 m	16.0 MT	16.0 MT	16.0 MT	16.0 MT	16.0 MT

Axle type / Maximum Wheelbase	Single axle (front & rear) vehicle	Front double axle, rear single axle vehicle	Front single axle, rear double axle vehicle	Double axle (front & rear) vehicle	Full Trailer
2.5 m	17.0 MT	17.0 MT	17.0 MT	17.0 MT	17.0 MT
3.0 m	17.0 MT	18.0 MT	18.0 MT	18.0 MT	18.0 MT
3.5 m	17.0 MT	19.5 MT	19.5 MT	19.5 MT	19.5 MT
4.0 m	17.0 MT	20.0 MT	20.0 MT	20.5 MT	20.0 MT
4.5 m	17.0 MT	20.0 MT	21.5 MT	21.5 MT	20.0 MT
5.0 m	17.0 MT	20.0 MT	22.5 MT	22.5 MT	20.0 MT
5.5 m	17.0 MT	20.0 MT	24.0 MT	24.0 MT	20.0 MT
6.0 m	17.0 MT	20.0 MT	25.0 MT	25.0 MT	20.0 MT
6.5 m	17.0 MT	20.0 MT	26.0 MT	26.0 MT	20.0 MT
7.0 m	17.0 MT	20.0 MT	26.0 MT	27.0 MT	20.0 MT
7.5 m	17.0 MT	20.0 MT	26.0 MT	28.0 MT	20.0 MT
8.0 m	17.0 MT	20.0 MT	26.0 MT	29.5 MT	20.0 MT
8.5 m	17.0 MT	20.0 MT	26.0 MT	30.0 MT	20.0 MT
9.0 m	17.0 MT	20.0 MT	26.0 MT	31.0 MT	20.0 MT
9.5 m or longer	17.0 MT	20.0 MT	26.0 MT	32.0 MT	20.0 MT

Remarks:

1. The above table shows the restriction of gross vehicle weight according to vehicle maximum wheelbase and axle type.
2. The use of the above table is to find the lower limit of the max wheelbase column by omitting the second digital after decimal.
3. For example: If the actual wheelbase of vehicle is 4.53m, its axle set type is single- axle (front & rear) vehicle, then find the intersecting cell of “4.5m” in the maximum wheelbase row and single- axle (front & rear) vehicle column, it can be figure out from

the table by 17 MT thereunder.

2.6.2.2 The GCW limit of tractor and semi-trailer

2.6.2.2.1 The GCW limit of tractor:

2.6.2.2.1.1 Front single axle, rear single axle tractor: 35 MT.

2.6.2.2.1.2 Front single axle, rear double- axle tractor: 43 MT.

2.6.2.2.2 The gross combination weight limit of semi-trailer:

Axle type / Wheelbase	Rear single axle semi-trailer	Rear double axle semi-trailer	Rear triple axle semi-trailer
2.0 m	25.0 MT	25.0 MT	25.0 MT
2.5 m	26.0 MT	26.0 MT	26.0 MT
3.0 m	27.0 MT	27.0 MT	27.0 MT
3.5 m	28.0 MT	28.0 MT	28.0 MT
4.0 m	29.5 MT	29.5 MT	29.5 MT
4.5 m	30.5 MT	30.5 MT	30.5 MT
5.0 m	31.5 MT	31.5 MT	31.5 MT
5.5 m	32.5 MT	32.5 MT	32.5 MT
6.0 m	32.5 MT	34.0 MT	34.0 MT
6.5 m	32.5 MT	35.0 MT	35.0 MT
7.0 m	32.5 MT	36.0 MT	36.0 MT
7.5 m	32.5 MT	37.0 MT	37.0 MT
8.0 m	32.5 MT	38.5 MT	38.5 MT
8.5 m	32.5 MT	39.5 MT	39.5 MT
9.0 m	32.5 MT	40.0 MT	40.5 MT

Axle type / Wheelbase	Rear single axle semi-trailer	Rear double axle semi-trailer	Rear triple axle semi-trailer
9.5 m	32.5 MT	40.0 MT	41.5 MT
≧10.0 m	32.5 MT	40.0 MT	43.0 MT

Note: the table reference method is the same as item 4.1 above.

2.6.2.3 The GCW limit of heavy truck functions as tractor

2.6.2.3.1 Heavy truck, single axle (front & rear): 34.0 MT.

2.6.2.3.2 Heavy truck, front single axle, rear double axle: 46.0 MT.

2.6.2.3.3 Heavy truck, front double axle, rear single axle: 40.0 MT.

2.6.2.3.4 Heavy truck, double axle (front & rear) vehicle: 52.0 MT.

2.6.2.4 The GVW limit of frame trailer

2.6.2.4.1 Single axle frame trailer: 12.0 MT.

2.6.2.4.2 Double axle frame trailer: 20.0 MT.

2.6.2.4.3 Triple axle frame trailer: 22.0 MT.

2.6.2.5 The GCW limit of motorcycle

2.6.2.5.1 From 2007/06/01, the empty weight of the small-light moped's (including batteries) shall be less than 70 kilograms.

2.6.2.5.2 The GCW of heavy electrical three-wheeled motorcycle with closed cargo compartment shall not exceed the technically permissible maximum laden mass designed by manufacturer, and the permissible maximum mass of cargo shall not exceed 200 kg. Also the mass on the front axle shall in no event be less than 30 % of the GCW of the vehicle.

2.6.3 The GVW limit of articulated buses: 28.0 MT.

2.7 Miscellaneous requirement limits of vehicles:

2.7.1 The installed stipulation of safety-belt.:

2.7.1.1 Front outboard seats of M1 category vehicles shall have at least 3- point safety belts, other seats shall have at least 2-point safety-belts. Front seats of categories M2, M3 and N shall have at least 2- point safety belts.

2.7.1.2 From 2007/07/01, the new type of M2, M3 vehicles and from 2008/01/01, all type of M2, M3 vehicles that all seats shall be installed safety-belt.

2.7.1.3 From 2015/01/01, the new type vehicle of category M1, and the new type vehicles of category M2 of gross vehicle weight less than 3.5MT, shall have at least 3-point safety-belts. Front outboard seats and the rear middle seat which is facing aisle of the new type vehicles of category N and M3, and the new type vehicles of category M2 of gross vehicle weight more than 3.5MT, shall have at least 3- point safety-belts, other seats shall have at least 2- point safety-belts.

2.7.1.3.1 Side-facing seats and rearward facing seats shall have at least 2- point safety-belts.

2.7.1.4 From 2019/01/01, all category M1 vehicles, and all category M2 vehicles of gross vehicle weight less than 3.5MT, shall have at least 3- point safety-belts. Front outboard seats and the rear middle seat which is facing aisle of all category N and M3 vehicles, and all category M2 vehicles of gross vehicle weight more than 3.5MT, shall have at least 3- point safety-belts, other seats shall have at least 2- point safety-belts.

2.7.1.4.1 Side-facing seats and rearward facing seats shall have at least 2- point safety-belts.

2.7.1.5 Only vehicles belonging to category M2 or M3 may be fitted with restraint systems comprising a flexible shoulder adjustment device for height.

2.7.1.6 This regulation isn't suitable the vehicle of M and N categories ' seats as below:

2.7.1.6.1 Folding seats (means auxiliary seats intended for occasional use and normally folded).

2.7.1.6.2 The seats, for children, of the child-only vehicles.

2.7.1.7 Installation requirements of safety-belt reminder:

2.7.1.7.1 From 2013/01/01, new variant vehicles of category M1, and from 2015/01/01, all variant vehicles of category M1 shall have safety-belt reminder corresponding to 2.7.1.7.6 .If other category vehicles equipped with safety-belt reminder, it may as apply for approval according to this regulation.

2.7.1.7.2 From 2023/01/01, new variant vehicles of categories M2, M3, N2, N3, and from 2025/01/01, all variant vehicles of categories M2, M3, N2, N3, the seats as below shall have safety-belt reminder corresponding to 2.7.1.7.7.

2.7.1.7.2.1 The driver's seat and the passenger seats which in same seat row of driver's seat.

2.7.1.7.3 From 2023/01/01, new variant vehicles of category M1, N1, and from 2025/01/01, all variant vehicles of categories M1,N1, the seats as below shall have safety-belt reminder corresponding to 2.7.1.7.7.

2.7.1.7.3.1 All seats of vehicles of categories M1, N1.

2.7.1.7.4 This requirements shall not be applied to situation as follow:

2.7.1.7.4.1 A safety-belt reminder is not compulsory on folding seats (i.e. normally folded and designed for occasional use, e.g. foldable crew seats in M2, M3 vehicles) as well as seating positions fitted with an S-type belt (including Harness belt).

2.7.1.7.4.2 Safety belt reminders are also not required for rear seats in ambulance, vehicle for medical treatment, and motor-caravans as well as for seats that adjacent to wheelchair space for taking care of the wheelchair users, vehicles intended for use by the armed services, civil defense, fire services and forces responsible for maintaining public order.

2.7.1.7.5 Definitions

2.7.1.7.5.1 "Safety-belt reminder", means a system dedicated to alert the driver when he/she does not use the safety-belt. The system is constituted by a detection of an unfastened safety belt and by two levels of driver's alert: a first level warning and a second level warning."

The safety belt reminders corresponding to 2.7.1.7.2 and 2.7.1.7.3 means a system dedicated to alert the driver when any of the occupants do not use the safety-belt. The system is constituted by a detection of an unfastened safety belt and by two levels of driver's alert: a first level warning and a second level warning."

2.7.1.7.5.2 "Visual warning" means a warning by visual signal (lighting, blinking or visual display of symbol or message).

2.7.1.7.5.3 "Audible warning" means a warning by sound signal.

2.7.1.7.5.4 "First level warning" means a visual warning activated when the ignition switch is engaged (engine running or not) and the driver's safety-belt is not fastened. An audible warning can be added as an option.

The "First level warning" corresponding to 2.7.1.7.2 and 2.7.1.7.3 means a visual warning activated when the ignition switch or master control switch is activated and any of the occupants' safety-belt is not fastened. An audible warning can be added as an option.

2.7.1.7.5.5 "Second level warning" means a visual and audible warning activated when a driver operates a vehicle without fastening the safety-belt.

The "Second level warning" corresponding to 2.7.1.7.2 and 2.7.1.7.3 means a visual and audible warning

activated when the vehicle is operated in accordance with paragraphs 2.7.1.7.7.2.2.4.1.1 to 2.7.1.7.7.2.2.4.1.3 with the safety-belt for any of the front row occupants being unfastened and the safety-belt for any of the rear row occupants either being or becoming unfastened.

2.7.1.7.5.6 "Safety-belt is not fastened" means, at the option of the manufacturer, either the driver safety-belt buckle is not engaged or the webbing length pulled out of the retractor is 100 mm or less.

The "Safety-belt is not fastened" corresponding to 7.1.7.2 and 7.1.7.3 means, at the option of the manufacturer, either the safety-belt buckle of any occupant is not engaged or the length of the pulled out webbing is less than the length of the webbing which is needed to buckle an un-occupied seat in the rear most seating position.

2.7.1.7.5.7 "Vehicle is in normal operation" means that vehicle is in forward motion at the speed greater than 10 km/h.

2.7.1.7.6 The safety belt reminders corresponding to 2.7.1.7.1.

2.7.1.7.6.1 Installation tests

2.7.1.7.6.1.1 The first level warning shall be tested according to the following conditions:

2.7.1.7.6.1.1.1 Safety-belt is not fastened.

2.7.1.7.6.1.1.2 Engine is stopped or idling and the vehicle is not in forward or reverse motion;

2.7.1.7.6.1.1.3 Transmission is in neutral position;

2.7.1.7.6.1.1.4 Ignition switch is engaged.

2.7.1.7.6.1.2 The second level warning shall be tested according to the following conditions:

2.7.1.7.6.1.2.1 Safety-belt is not fastened.

2.7.1.7.6.1.2.2 Test vehicle driven with one or any combination of the following conditions at the manufacturer's choice.

(1) Accelerate the test vehicle to 25 -0/+10 km/h from a halt and continue on the same speed.

(2) The test vehicle is driven forward at least 500 m from a halt position.

(3) The vehicle is tested when the vehicle is in normal operation for at least 60 seconds.

2.7.1.7.6.1.3 A system that the first level warning stops after a certain period of time, the second level warning shall be tested after the first level warning has been deactivated. A system that the first level warning does not stop after a certain period of time, the second level warning shall be tested while the first level warning is activated.

2.7.1.7.6.2 Safety-belt reminder general requirements.

2.7.1.7.6.2.1 The safety-belt reminder may be designed to allow deactivation.

2.7.1.7.6.2.1.1 In the case a short term deactivation is provided, it shall be more difficult to deactivate the safety-belt reminder than buckling the safety-belt on and off. When the ignition is switched off for more than 30 minutes and switched on again, a short-term deactivated safety-belt reminder must reactivate.

2.7.1.7.6.2.1.2 In the case that a facility for a long term deactivation is provided, it shall require a sequence of operations to deactivate, that are detailed only in the manufacturer's technical manual and/or which requires the use of tools (mechanical, electrical, digital, etc.) that are not provided with the vehicle.

2.7.1.7.6.2.2 Visual warning shall be so located as to be readily visible and recognizable in the daylight by the driver and distinguishable from other alerts. Where the visual signal warning employs the colour red, it shall use one of the symbols as below:

 or 

2.7.1.7.6.2.3 Visual warning shall be by continuous or intermittent signal.

2.7.1.7.6.2.4 Audible warning shall be by continuous or intermittent sound signal or by vocal information. Where vocal information is employed, the manufacturer shall ensure that the alert uses the language(s) of the market into which the vehicle is sold. This audible warning may be constituted by more than one step.

2.7.1.7.6.2.5 Audible warning shall be easily recognized by the driver.

2.7.1.7.6.2.6 First level warning shall be at least a visual warning activated for 4 seconds or longer when the driver safety-belt is not fastened and the ignition switch is engaged.

2.7.1.7.6.2.7 Second level warning shall be a visual and audible signal activated for 30 seconds or longer except for cases in which the warning stops for over 3 seconds when the safety-belt is not fastened, when the vehicle is in normal operation and when at least one of the following conditions (or any combination of these conditions), is fulfilled:

2.7.1.7.6.2.7.1 Distance driven greater than the distance threshold. The threshold shall not exceed 500m. The distance the vehicle is not in normal operation shall be excluded.

2.7.1.7.6.2.7.2 Speed greater than the speed threshold. The threshold shall not exceed 25 km/h.

2.7.1.7.6.2.7.3 Duration time (engine running) greater than the duration time threshold. The threshold shall not exceed 60 seconds. The first level warning duration time and the duration time the vehicle is not in normal operation shall be excluded.

2.7.1.7.7 The safety-belt reminder corresponding to 2.7.1.7.2.

2.7.1.7.7.1 Installation function test

2.7.1.7.7.1.1 The first level warning shall be tested according to the following conditions:

(a) Safety-belt is not fastened.

(b) Engine or propulsion system is stopped or idling and the vehicle is not in forward or reverse motion.

(c) Transmission is in neutral position.

(d) Ignition switch or master control switch is activated.

(e) A load of 40 kg is placed on each seat cushion in the same row as the driver's seat, or the state in which occupants are on board the vehicle is simulated by an alternative method specified by the vehicle manufacturer, provided an occupant's load does not exceed 40 kg. This may also be done for the rear seats at the request of the vehicle manufacturer.

Or at the choice of the manufacturer, an object or human representing a 5th percentile adult female is placed on each seat cushion as specified by the manufacturer in the same row as the driver seat, or the state in which occupants are on board the vehicle is simulated by an alternative method specified by the vehicle manufacturer as agreed by the technical service and the approval authority. This may also be done for the rear seats at the request of the vehicle manufacturer.

(f) The state of the safety-belt reminder is checked for all of the relevant seat(s), in conditions (a) to (e).

2.7.1.7.7.1.2 The second level warning shall be tested according to the conditions set out in paragraphs.2.7.1.7.7.1.2.1 to 2.7.1.7.7.1.2.3.

2.7.1.7.7.1.2.1 Testing the driver's seating position

2.7.1.7.7.1.2.1.1 Testing the driver's seat when the safety-belt is unfastened before the journey

(a) The safety-belt of the driver's seat is not fastened.

(b) The safety-belts of seats other than the driver's seat are fastened.

(c) Test vehicle driven with one or any combination of the conditions of paragraphs 2.7.1.7.7.1.2.1.1.1 to 2.7.1.7.7.1.2.1.1.3 at the manufacturer's choice.

(d) The state of the safety-belt reminder is checked for the driver's seat, in conditions (a) to (c).

2.7.1.7.7.1.2.1.1.1 Accelerate the test vehicle to 25 -0/+10 km/h from a halt and continue on the same speed.

2.7.1.7.7.1.2.1.1.2 The test vehicle is driven forward at least 500m from a halt position.

2.7.1.7.7.1.2.1.1.3 The vehicle is tested when the vehicle is in normal operation for at least 60 seconds.

2.7.1.7.7.1.2.1.2 Testing the driver's seat when the safety-belt becomes unbuckled during the journey.

(a) The safety-belts of the driver's seat and seats other than the driver's seat are fastened.

(b) The test vehicle is driven, at the choice of the manufacturer, under one of the conditions in paragraphs 2.7.1.7.7.1.2.1.1.1 to 2.7.1.7.7.1.2.1.1.3 or a combination thereof;

(c) The safety-belt of the driver's seat is unbuckled.

2.7.1.7.7.1.2.2 Testing the seating position(s) in the same row as the driver's seat

2.7.1.7.7.1.2.2.1 Testing the seat(s) in the same row as the driver's seat when the safety-belt is unfastened before the journey:

(a) The safety-belt(s) of the seat(s) in the same row as the driver's seat is/are not fastened.

(b) The safety-belts of the seats other than the seat(s) in the same row as the driver's seat are fastened.

(c) A load of 40 kg is applied to the seat(s) in the same row as the driver's seat, or the state in which occupants are on board the vehicle is simulated by a method specified by the manufacturer.

Or at the choice of the manufacturer, an object or human representing a 5th percentile adult female is placed on each seat cushion as specified by the manufacturer in the same row as the driver seat, or the state in which occupants are on board the vehicle is simulated

by an alternative method specified by the vehicle manufacturer as agreed by the technical service and the approval authority. This may also be done for the rear seats at the request of the vehicle manufacturer.

(d) The test vehicle is driven, at the choice of the manufacturer, under one of the conditions in paragraphs 2.7.1.7.7.1.2.1.1.1 to 2.7.1.7.7.1.2.1.1.3 or combination thereof;

(e) The state of the safety-belt reminder is checked for all of the seat(s) in the same row as the driver's seat, in conditions (a) to (d).

2.7.1.7.7.1.2.2.2 Testing the seating position in the same row as the driver's seat when the safety-belt becomes unbuckled during the journey.

(a) The safety-belts of the driver's seat and seats other than the driver's seat are fastened.

(b) A load of 40 kg is applied to the seat(s) in the same row as the driver's seat, or the state in which occupants are on board the vehicle is simulated by a method specified by the manufacturer.

Or at the choice of the manufacturer, an object or human representing a 5th percentile adult female is placed on each seat cushion as specified by the manufacturer in the same row as the driver seat, or the state in which occupants are on board the vehicle is simulated by an alternative method specified by the vehicle manufacturer as agreed by the technical service and the approval authority. This may also be done for the rear seats at the request of the vehicle manufacturer.

(c) The test vehicle is driven, at the choice of the manufacturer, under one of the conditions in paragraphs 2.7.1.7.7.1.2.1.1.1 to 2.7.1.7.7.1.2.1.1.3 or combination thereof.

(d) The safety-belt(s) of the seats in the same row as the driver's seat is (are) unbuckled.

(e) The state of the safety-belt reminder is checked for all of the seat(s) in the same row as the driver's seat, for each condition (a) to (d).

2.7.1.7.7.1.2.3 Testing the rear seats

(a) With the test vehicle stationary, the safety-belts of all seats are fastened.

(b) With the test vehicle stationary, the safety-belts of all seats are fastened.

(c) The safety-belt of one of the rear seats is unfastened.

(d) The functioning of the safety-belt reminder is checked for all of the seating positions in all seating rows.

(e) Alternatively, at the request of the vehicle manufacturer, the test procedures specified in paragraphs 2.7.1.7.7.1.2.2 to 2.7.1.7.7.1.2.2.2 for the seating position(s) in the same row as the driver's seat may be used for any rear seating.

2.7.1.7.7.1.3 The first level warning test shall have a duration of at least the minimum required time as specified in paragraph 2.7.1.7.7.2.2.3 of this Regulation for the first level warning. The second level warning test may be initiated after completion of the first level warning test. However, it shall also be ensured that the second level warning supersedes the first level warning when the first level warning is still active.

2.7.1.7.7.2 Installation tests

2.7.1.7.7.2.1 Requirements per specific seating position and exemptions

2.7.1.7.7.2.1.1 The seating position of the driver of M and N categories of vehicles as well as the seating positions of the occupants of seats in the same row as the driver seat of M and N categories of vehicles shall be equipped with a safety-belt reminder satisfying the requirements of paragraph 2.7.1.7.7.2.3

2.7.1.7.7.2.1.2 All seating positions of the rear seat row(s) of M1 and N1 category vehicles shall be equipped with a safety-belt reminder satisfying the requirements of paragraph 2.7.1.7.7.2.4.

Where the vehicle manufacturer provides a safety-belt reminder system on a rear seating position in another category of vehicle, the safety-belt reminder system may be approved according to this Regulation.

2.7.1.7.7.2.2 General requirements

2.7.1.7.7.2.2.1 Visual warning

2.7.1.7.7.2.2.1.1 The visual warning shall be so located as to be readily visible and recognisable in the daylight and at night time by the driver and distinguishable from other alerts.

2.7.1.7.7.2.2.1.2 The visual warning shall be a steady or flashing tell-tale.

2.7.1.7.7.2.2.2 Audible warning

2.7.1.7.7.2.2.2.1 The audible warning shall consist of a continuous or an intermittent (pauses shall not exceed 1 second) sound signal or of continuous vocal information.

Where vocal information is employed, the vehicle manufacturer shall ensure that the alert is able to employ the languages of the market into which the vehicle is intended to be placed.

2.7.1.7.7.2.2.2.2 The audible warning shall be easily recognized by the driver.

2.7.1.7.7.2.2.3 First level warning

2.7.1.7.7.2.2.3.1 The first level warning shall be at least a visual warning activated for 30 seconds or longer for seating positions covered by paragraph 2.7.1.7.7.2.1.1 and for 60 seconds or longer for seating positions covered by paragraph 2.7.1.7.7.2.1.2 when the safety-belt of any of the seats is not fastened and the ignition switch or master control switch is activated.

2.7.1.7.7.2.2.3.2 The first level warning may be discontinued when

(i) None of the safety-belts which triggered the warning are unfastened, or

(ii) The seat or seats which triggered the warning are no longer occupied.

2.7.1.7.7.2.2.4 Second level warning

2.7.1.7.7.2.2.4.1 The second level warning shall be a visual and audible signal activated for at least 30 seconds not counting periods in which the warning may stops for up to 3 seconds when at least one or any combination of the conditions at the choice of manufacturer, set out in paragraphs 2.7.1.7.7.2.2.4.1.1 to 2.7.1.7.7.2.2.4.1.3. is/are fulfilled. The second level warning shall supersede the first level warning when the first level warning is still active.

2.7.1.7.7.2.2.4.1.1 The distance driven greater than the distance threshold. The threshold shall not exceed 500m. The distance driven when the vehicle is not in normal operation shall be excluded.

2.7.1.7.7.2.2.4.1.2 The vehicle speed greater than the speed threshold. The threshold shall not exceed 25 km/h.

2.7.1.7.7.2.2.4.1.3 The duration time (engine running, propulsion system activated, etc.) is greater than the duration time threshold. The threshold shall not exceed 60 seconds. The first level

warning duration time and the duration time when the vehicle is not in normal operation shall be excluded.

2.7.1.7.7.2.2.4.2 The thresholds to trigger safety belt reminder listed in paragraphs 2.7.1.7.7.2.2.4.1.1 to 2.7.1.7.7.2.2.4.1.3., may be reset when:

(i) Any of the doors have been opened while the vehicle is not in normal operation or

(ii) The seat or seats which triggered the warning are no longer occupied.

2.7.1.7.7.2.2.4.3 The second level warning may be discontinued when:

(i) None of the safety-belts which triggered the warning are unfastened,

(ii) The vehicle ceases to be in normal operation, or

(iii) The seat or seats which triggered the warning are no longer occupied

2.7.1.7.7.2.2.4.4 The second level warning shall be resumed for the remainder of the required duration when one or any combination of the conditions, at the choice of the manufacturer, set out in paragraphs 2.7.1.7.7.2.2.4.1.1 to 2.7.1.7.7.2.2.4.1.3. is/are again fulfilled.

2.7.1.7.7.2.2.4.5 For the condition that a safety belt becomes unfastened pursuant to paragraphs 2.7.1.7.7.2.3.3 and 2.7.1.7.7.2.4.5, the thresholds set out in paragraphs 2.7.1.7.7.2.2.4.1.1. to 2.7.1.7.7.2.2.4.1.3 shall be measured from the point in time at which unfastening occurs.

2.7.1.7.7.2.3 Safety-belt reminder for driver and occupants of seats in the same row as the driver

2.7.1.7.7.2.3.1 Safety-belt reminder for driver and occupants of seats in the same row as the driver shall fulfil the requirements set out in paragraphs 2.7.1.7.7.2.2.

2.7.1.7.7.2.3.2 The colour and symbol of the visual warning shall be as defined in item 21 in Table 1 of “75 .The location and identification of hand control, tell-tales and indicators “ of VSTD.

2.7.1.7.7.2.3.3 The second level warning shall be activated when a safety-belt is or becomes unfastened while the vehicle is in normal operation and while, at the same time, any one condition or any combination of the conditions, at the choice of the manufacturer, set out in paragraphs 2.7.1.7.7.2.2.4.1.1 to 2.7.1.7.7.2.2.4.1.3. is satisfied.

2.7.1.7.7.2.4 Safety-belt reminder for occupants of rear seat row(s).

2.7.1.7.7.2.4.1 Safety-belt reminders for occupants of rear row(s) shall fulfil the requirements set out in paragraphs 2.7.1.7.7.2.2.

2.7.1.7.7.2.4.2 The visual warning shall indicate at least all rear seating positions to allow the driver to identify, while facing forward as seated on the driver seat, any seating position in which the safety-belt is unfastened. For vehicles that have information on the occupancy status of the rear seats, the visual warning does not need to indicate unfastened safety-belts for unoccupied seating positions.

2.7.1.7.7.2.4.3 The colour of the visual warning may be other than red and the symbol of the visual warning for safety-belts covered by paragraph 2.7.1.7.7.2.1.2 may contain different symbols other than defined in “75. The location and identification of hand control, tell-tales and indicators “.In addition, the first level warning of seating positions covered by paragraph 2.7.1.7.7.2.1.2 may be cancellable by the driver.

2.7.1.7.7.2.4.4 A common tell-tale may be used for safety-belts covered by paragraphs 2.7.1.7.7.2.1.1 and 2.7.1.7.7.2.1.2.

2.7.1.7.7.2.4.5 The second level warning shall be activated when a safety-belt becomes unfastened while the vehicle is in normal operation and while, at the same time, any one condition or any combination of the conditions, at the choice of the manufacturer, set out in paragraphs 2.7.1.7.7.2.2.4.1.1. to 2.7.1.7.7.2.2.4.1.3. is satisfied.

2.7.1.7.7.2.5 The safety-belt reminder may be designed to allow deactivation.

2.7.1.7.7.2.5.1 In the case that a short term deactivation is provided, it shall be significantly more difficult to deactivate the safety-belt reminder than buckling the safety-belt on and off (i.e. it shall consist of an operation of specific controls that are not integrated in the safety-belt buckle) and this operation shall only be possible when the vehicle is stationary. When the ignition or master control switch is deactivated for more than 30 minutes and activated again, a short-term deactivated safety-belt reminder shall reactivate. It shall not be possible to provide short term deactivation of the relevant visual warning(s).

2.7.1.7.7.2.5.2 In the case that a facility for a long term deactivation is provided, it shall require a sequence of operations to deactivate, that are detailed only in the manufacturer's technical manual and/or which

requires the use of tools (mechanical, electrical, digital, etc.) that are not provided with the vehicle. It shall not be possible to provide long term deactivation of the relevant visual warning(s).

2.7.2 The installed stipulation of tachograph.

2.7.2.1 As for the tachograph of motor vehicles of category M and N, with a gross combination weight and gross vehicle weight less than 20 tons, and with gross vehicle weight more than 8 tons but less than 20 tons as of 2001/1/1, shall install tachograph.

2.7.2.2 From 2007/07/01, the new type of less than 8 tons' M2, M3 vehicles and from 2008/01/01, each type of less than 8 tones' M2, M3 vehicles that shall install tachograph.

2.7.3 The vehicle of M1 category who use automatic transmission, from 1999/1/1, domestic manufacturer use the date of production and importer use onboard date, it shall installed automatic shift lock （ASL）.

2.7.4 If M1, N1 vehicles have rack that shall comply with this Regulation.

2.7.5 Vehicle of category O1, O2 towed by M1, N1 shall comply with this Regulation.

2.7.6 The small-light moped's size of tire, from 2007/06/01, a tire's diameter shall be higher than 300mm and less than 420mm, a tire's width shall be higher than 75mm and less than 100mm.

2.7.7 Installation requirements of in-vehicle image display equipments:

2.7.7.1 Effective date and Scope: Effective date from 2013/1/1, all vehicle types of category symbols L, M and N which equipped with in-vehicle image display equipment shall comply with this regulation.

2.7.7.2 Definitions

2.7.7.2.1 Image display equipment: means an equipment that could transform signal into visual image.

2.7.7.2.2 Driving assistance display equipment: means an equipment that could offer information of vehicle status, information of traffic, meteorology and map etc. to driver, which could improve safety for driver, equipments include computer for driving use, satellite navigation, night vision system and around view monitor and so forth.

2.7.7.2.3 Entertainment display equipment: means an equipment that is not necessary for driving and it could affect driving safety when equipment were in use, equipments include VCD/DVD player, TV, karaoke player, video game console and Internet （except for improving driving safety）and so forth.

2.7.7.3 In the following situations, the entertainment display equipment which used for driver shall be automatically turned off. Driving assistance display equipment can still be used.

2.7.7.3.1 Parking brake is not in use, or

2.7.7.3.2 The transmission is in forward or reverse positions, or

2.7.7.3.3 The speed of vehicle is above 8 km/h.

2.7.8 From 2012/7/1, all vehicle types of category L, the angle of their tailpipe nozzle shall comply with this requirement.

2.7.8.1 When vehicle parked on a level ground with all wheels, the angle of the tailpipe's nozzle shall not tilt above the horizontal level ; if the tailpipe's nozzle is more than 1m above the ground , the angle of tailpipe's nozzle shall be below the horizontal level.

2.7.8.2 For large heavy-weight motorcycles, they can either comply with the requirement of paragraph 2.7.8.1, or their exhaust speed be less than 1.5 m/sec at idle speed. The measurement of the exhaust speed at idle speed shall be tested when vehicle parked on a level ground with all wheels and the vehicle longitudinal plane is perpendicular to the horizontal plane, the measure point is 1m away from the tailpipe's nozzle in horizontal distance but at the extending direction from tailpipe nozzle's angle; the background wind speed shall not be more than 0.5 m / sec when test was performed.

2.7.9 Acoustic vehicle alerting system

2.7.9.1 Effective date and Scope: From 2015/1/1, the new electric vehicle types of category symbols M and N (including hybrid vehicle), and from 2017/1/1 all electric vehicle types of category M and N (including hybrid vehicle) shall comply with this requirement.

2.7.9.1.1 From 2016/1/1, the new electric vehicle types of category symbols L (including hybrid vehicle) and from 2018/1/1 all electric vehicle types of category L (including hybrid vehicle) shall comply with this requirement.

2.7.9.1.2 From 2019/7/1, the new electric vehicle types of category M and N (including hybrid vehicle) and from 2021/7/1 all electric vehicle types of category M and N (including hybrid vehicle) shall comply with "80 Quiet road transport vehicles " instead.

2.7.9.2 Definition

2.7.9.2.1 Acoustic vehicle alerting system (AVAS) is a sound generating device designed to inform pedestrians and vulnerable road users.

2.7.9.3 Declaration of basic performance for design compliance of AVAS

2.7.9.3.1 AVAS is intended to be fitted to a vehicle.

2.7.9.3.2 AVAS shall fulfill the requirements set forth below.

The AVAS shall automatically generate a sound in the minimum range of vehicle speed from start up to approximately 20

km/h and during reversing, if applicable for that vehicle category.

2.7.9.3.2.1 In case the vehicle is equipped with an internal combustion engine that is in operation within the vehicle speed range defined above, the AVAS may not need to generate a sound.

2.7.9.3.2.2 For vehicles having a reversing sound warning device, it is not necessary for the AVAS to generate a sound during backup.

2.7.9.3.3 The AVAS may have a switch to stop its operation temporarily ("pause switch").

2.7.9.3.3.1 If a pause switch is introduced, however, the vehicle should also be equipped with a device for indicating the pause state of the vehicle-approach informing device to the driver in the driver's seat.

2.7.9.3.3.2 The AVAS should remain capable of re-operating after stopped by a pause switch.

2.7.9.3.3.3 If fitted in the vehicle, a pause switch should be located in such a position that the driver will find and manipulate it with ease.

2.7.9.3.4 Attenuation

The AVAS sound level may be attenuated during periods of vehicle operation.

2.7.9.3.5 The sound to be generated by the AVAS should be a continuous sound that provides information to the pedestrians and vulnerable road users of a vehicle in operation.

However, the following and similar types of sounds are not acceptable:

2.7.9.3.5.1 Siren, horn, chime, bell and emergency vehicle sounds

2.7.9.3.5.2 Alarm sounds e.g. fire, theft, smoke alarms

2.7.9.3.5.3 Intermittent sound

2.7.9.3.5.4 Melodious sounds, animal and insect sounds

2.7.9.3.5.5 Sounds that confuse the identification of a vehicle and/or its operation (e.g. acceleration, deceleration etc.)

2.7.9.3.6 The sound to be generated by the AVAS should be easily indicative of vehicle behaviour, for example, through the automatic variation of sound level or characteristics in synchronization with vehicle speed.

2.7.9.3.7 The development of the AVAS shall give consideration to the overall community noise impact.

2.7.9.3.8 If the electric vehicles are in the scope of 2.7.9.3.2 vehicle speed and its the sound level is equal to non-electric vehicle under the same conditions, the AVAS may not need to equip.

2.8 Requirements for carrying safety information

2.8.1 Effective date and Scope:

Effective date from 2015/1/1, the new vehicle types of category M1 of a total permissible mass not exceeding 2.5 tons, and from 2016/1/1, the all types of category M1 of a total permissible mass not exceeding 2.5 tons, shall comply with this regulation.

2.8.1.1 Effective date from 2017/1/1, category M1 of a total permissible mass exceeding 2.5 tons, shall comply with this regulation.

2.8.2 Declaration of design compliance of carrying safety information

2.8.2.1 The vehicle shall carry information to the effect that it is equipped with airbags for seats.

2.8.2.1.1 For a vehicle fitted with an airbag assembly intended to protect the driver, this information shall consist of the inscription "AIRBAG" or consist of airbag meaning text, located in the interior of the circumference of the steering wheel; this inscription shall be durably affixed and easily visible.

2.8.2.1.2 For a vehicle fitted with a passenger airbag intended to protect occupants other than the driver, this information shall consist of the warning label described in paragraph 2.8.2.2.2 and 2.8.2.3 below.

2.8.2.2 Warning information

2.8.2.2.1 In the case of a frontal protection airbag on the front passenger seat, the warning shall be durably affixed to each face of the passenger front sun visor in such a position that at least one warning on the sun visor is visible at all times, irrespective of the position of the sun visor(See figure13). Alternatively, one warning shall be located on the visible face of the stowed sun visor and a second warning shall be located on the roof behind the visor, so, at least one warning is visible all times. The design of warning label shall be clearly visible and it can't be easily removable.

If the vehicle does not have a sun visor or roof, the warning label shall be positioned in a location where it is clearly visible at all times.

2.8.2.2.2 Other seats

A vehicle fitted with one or more passenger frontal protection airbags shall carry information about the extreme hazard associated with the use of rearward-facing child restraints on seats equipped with airbag assemblies.

2.8.2.2.2.1 As a minimum, this information shall consist of a label containing clear warning pictograms as indicated below(See figure14):

2.8.2.2.2.2 In the case of a frontal protection airbag for other seats in the vehicle, the warning must be directly ahead of the

relevant seat, and clearly visible at all times to someone installing a rear-facing child restraint on that seat. The requirements of paragraphs 2.8.2.2.2.1. and 2.8.2.2.2.2. do not apply to those seating positions equipped with a device which automatically deactivates the frontal protection airbag assembly when any rearward facing child restraint is installed.

2.8.2.3 Detailed information, making reference to the warning, shall be contained in the owner's manual of the vehicle; as a minimum, the following text in all Chinese languages, shall at least include:

"DO NOT carry baby, infant and children on the front passenger seat "; except for the front passenger seat, shall at least include：

"NEVER use a rearward facing child restraint on a seat protected by an ACTIVE AIRBAG in front of it, DEATH or SERIOUS INJURY to the CHILD can occur"

The figure of warning label in the vehicle shall be shown in manual.（The color can be black-and-white contrast, gray or color display; size can be proportion adjusted; font can be adjusted by printed page） The information shall be easily found in the owner's manual (e.g. specific reference to the information printed on the first page, identifying page tab or separate booklet, etc.)

The requirements of above mentioned that do not apply to vehicles of which except for the front passenger seating positions are equipped with a device which automatically deactivates the frontal protection airbag assembly when any rearward facing child restraint is installed.

2.9 Cargo space requirements for small passenger- cargo vehicles：

2.9.1 Effective date and scope:

2.9.1.1 The cargo space of small passenger-cargo vehicles shall comply with the requirements from 2.9.2 to 2.9.7.

2.9.1.2 Effective date from 2019/09/01, the cargo space of all vehicle types of small passenger-cargo vehicle shall not only comply with the requirements from 2.9.2 to 2.9.7, but also the space for spare tire may count into the cargo space measurements.

2.9.2 Passenger compartment and cargo space shall be separated by fixed or removable partitioning devices. The partitioning devices shall comply with the requirements of “partitioning system” of VSTD 49 Seats. The Installation provisions are as following:

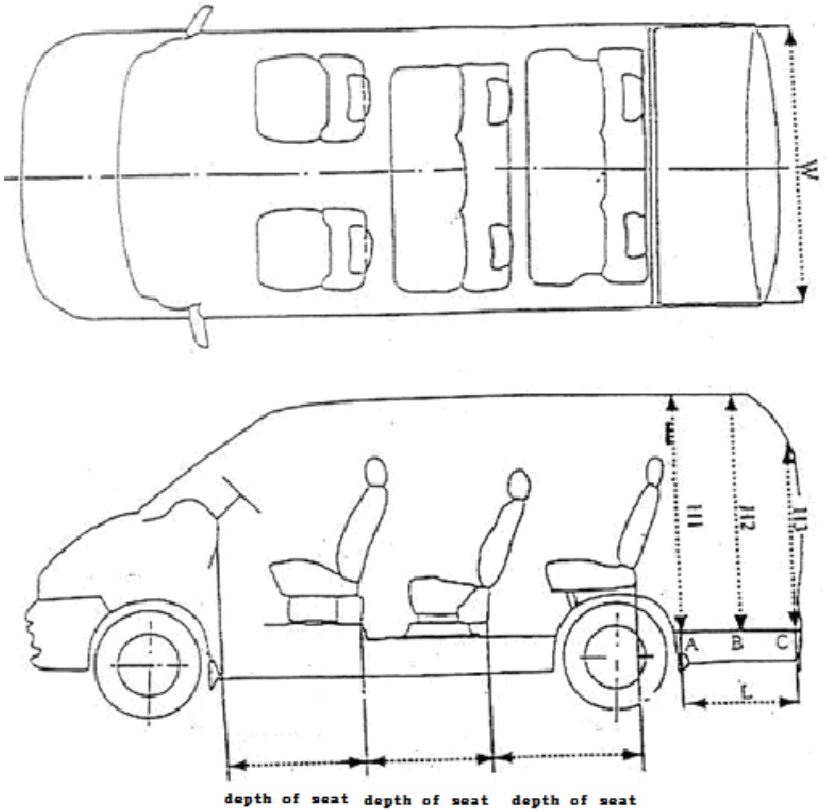
2.9.2.1 The partitioning device shall be installed between top edge of seat and roof, the front edge of the device shall be behind the rear edge of seat back.

2.9.2.2 If the partitioning device is fixed, when the last row of seat is occupied by passengers, the seat back and head restraint shall not

interfere with the partitioning device under normal adjustment range.

2.9.3 The side and rear windows in the cargo space shall be equipped with fixed metallic railings of section height no shorter than 1 cm.

2.9.4 The volume of cargo space shall be at least 1 cubic meter, it could be measured by the following formula, by calculation with computer simulation, or by other methods approved by Certification Institution.



(V)=L×W×(H1＋H2＋H3)÷3

L：The length of the cargo space from point A to point C.

H1：The distance is from point A to the roof.

H2：The distance is from point B to the roof.

H3：The distance is from point C to the roof.

W：The net width in the vehicle at the midpoint of H1 line.

2.9.5 ,When measuring the cargo space according to paragraphs 2.9.4, each mechanism should be adjusted to the following position:

2.9.5.1 The head restraint's position on the last row of seat shall be declared by the manufacturer.

2.9.5.2 The last row of seat shall be adjusted to the last position of movable route or slide.

2.9.5.3 When measuring cargo space, the seat back angle of the last row shall not be less than 15 degrees. If the measured angle is

less than 25 degrees, it shall be the maximum angle of the seat adjuster which is adjusted backward to the most .

2.9.6 When measuring the seat depth, the first row of seats is adjusted at the middle of movable route if for slides, adjusted at the middle or the next position rear to the middle section). The last row of seat should be adjusted to the required position in paragraph 2.9.5.2. If there are seats between the first and the last row of seats, the intermediate position of the seat is set according to the declaration of the applicant. In this case, the 2 adjacent rows of seats shall comply with the provision that the knee space(That means the horizontal distance from the front edge of the seat to the seat back of front seat) shall be at least 20cm..

2.9.7 There should be at least one cargo compartment openning, with both the effective vertical and horizontal length at least 80cm, and the area of the openning larger than 0.64m^2.

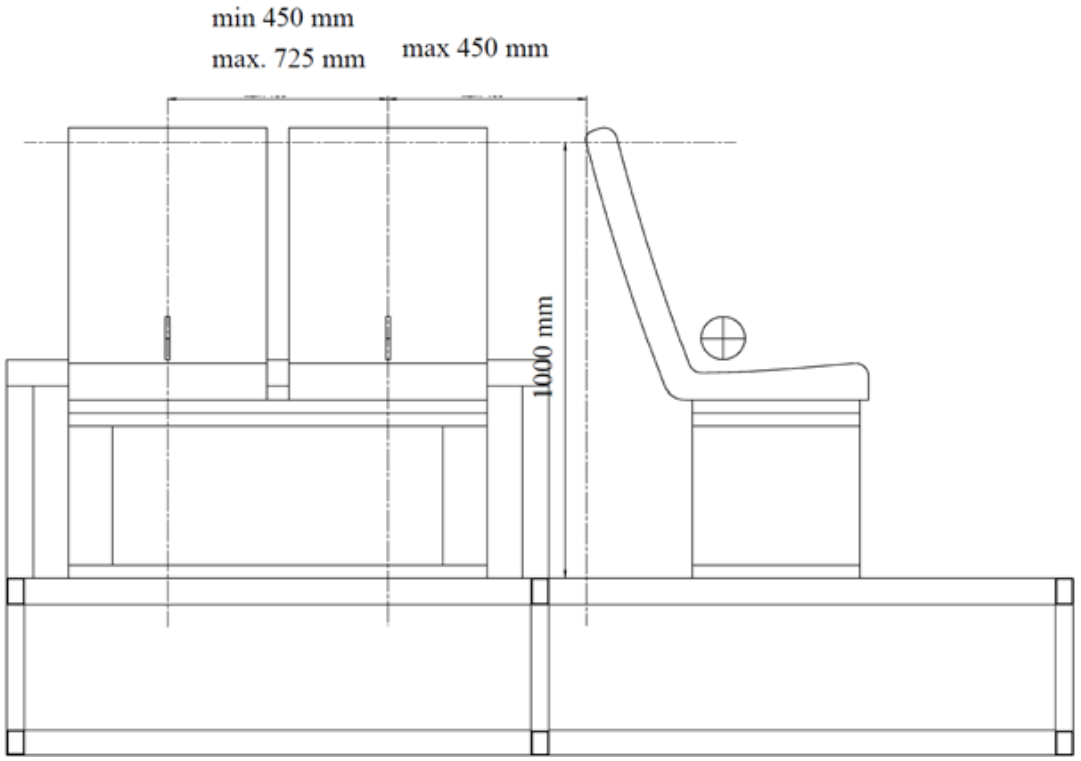


Figure 1: Positioning requirements for side-facing seats

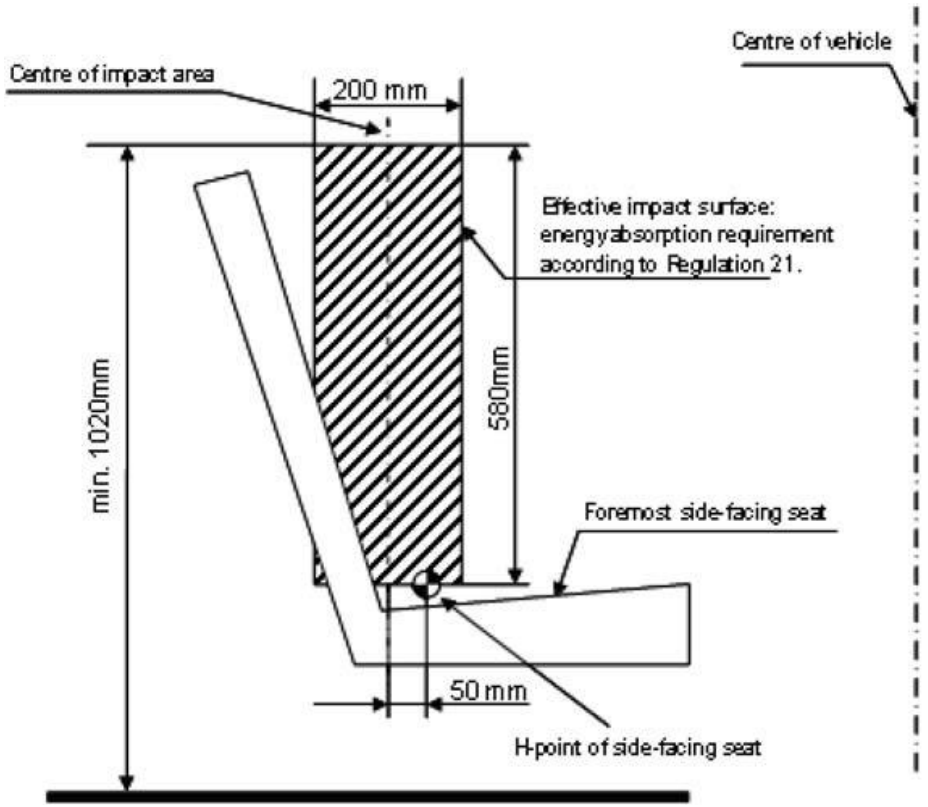


Figure 2: Positioning requirements for the vehicle part forward of the foremost side-facing seat



Size: at least 130 mm diagonal, the ratio of length and width 1:1

Colour: white basis with blue symbol

Figure 3: Pictogram for passengers with reduced mobility other than wheelchair users

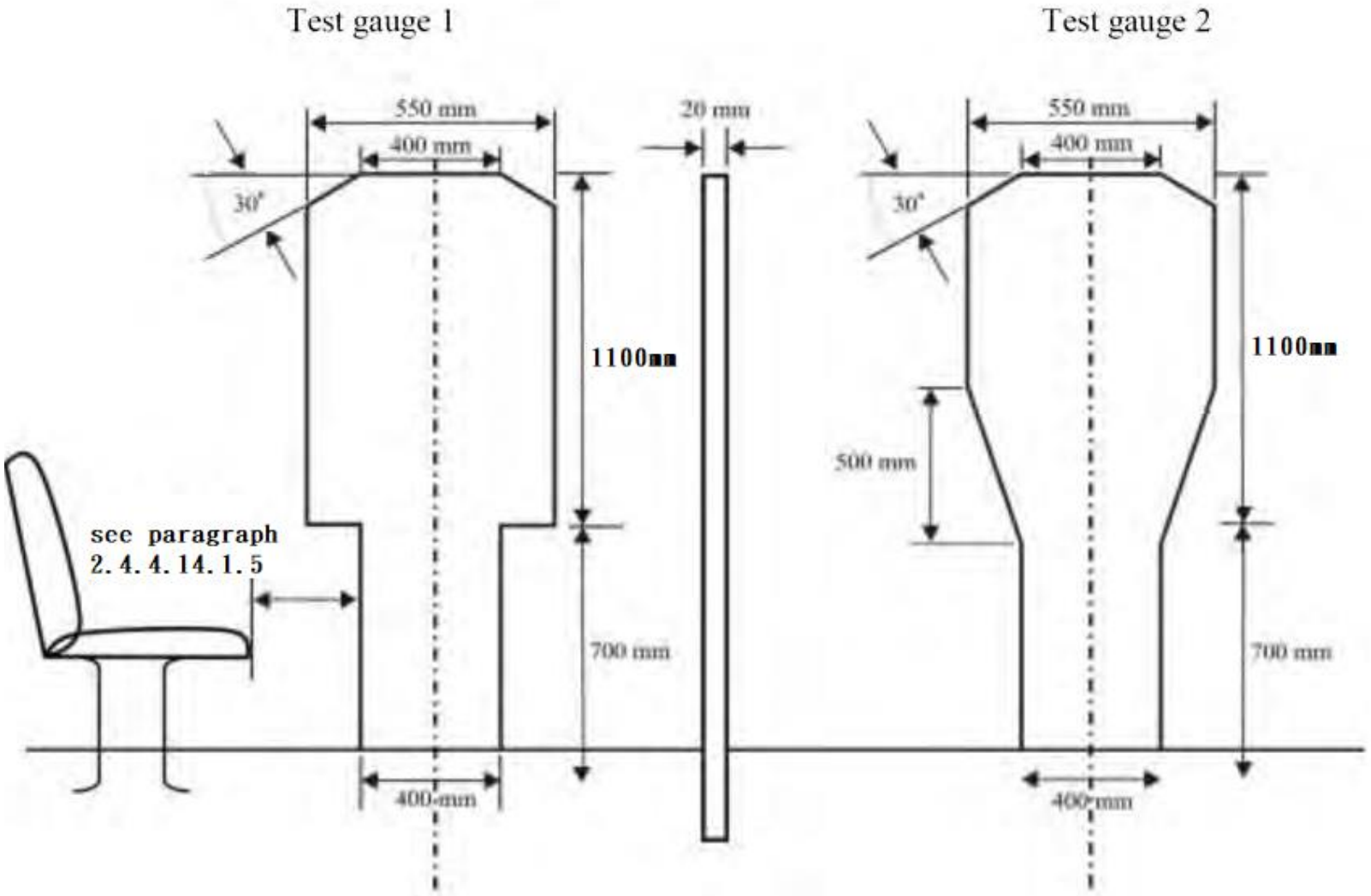
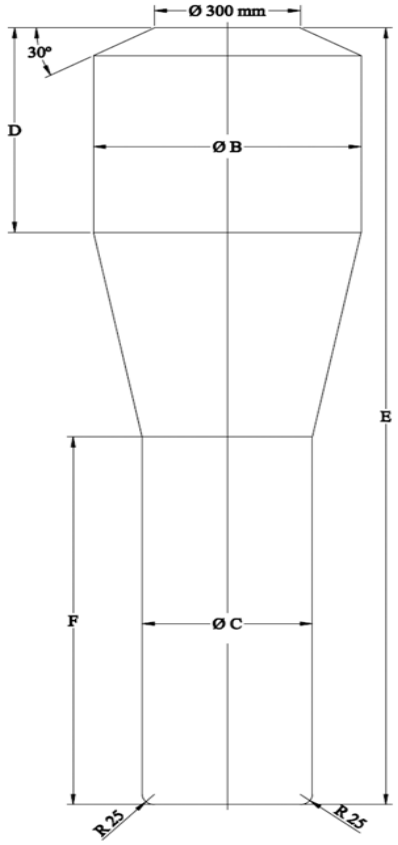


Figure 4 Test gauge



		B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
Articulated Buses	----	550	450[2]	500[1]	1,900[1]	900
Double decker city buses	Upper deck	550	450[2]	500	1,800[3]	1,020[3]
	Lower deck	550	450[2]	500	1,680	900

Notes:

[1] The height of the upper cylinder and herewith the overall height may be reduced by 100 mm in any part of the gangway to the rear of:

(a) A transverse plane situated 1.5 m forward of the centre line of the rear axle (foremost rear axle in the case of vehicles with more than one rear axle), and

(b) A transverse vertical plane situated at the rear edge of the service door or of the rearmost service door if there are more than one service door.

[2] The diameter of the lower cylinder may be reduced from 450 mm to 400 mm in any part of the gangway to the rear of the most forward of the following two planes:

(a) A transverse vertical plane situated 1.5 m forward of the centre line of the rear axle (foremost rear axle in the case of vehicles with more than one rear axle); and

(b) A transverse vertical plane situated at the rear edge of the rearmost service door in between the axles.

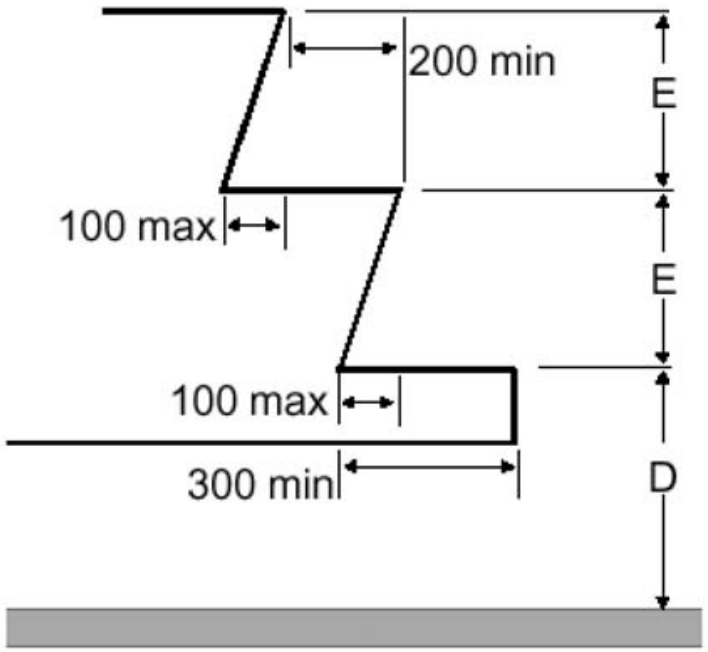
For the purpose of the above, each rigid section of an articulated vehicle shall be considered separately.

[3] The overall height of the gauging device may be reduced (by reducing the height of the lower cylinder):

(a) From 1,800 mm to 1,680 mm in any part of the gangway of the lower deck to the rear of a transverse vertical plane situated 1,500 mm forward to the centre of the rear axle (foremost rear axle in the case of vehicles with more than one rear axle);

(b) From 1,800 mm to 1,770 mm in the case of a service door which is situated forward the front axle in any part of the gangway situated between two transverse vertical planes situated 800 mm forwards and behind the centre line of the front axle.

Figure 5 Gangway mannequin



Classes		Dimension
First step from ground "D"	Max. height (mm)	340[1/]
	Min. depth (mm)	300
Other steps "E"	Max. height (mm)	250[2/]
	Min. height (mm)	120
	Min. depth (mm)	200

[1/] 700 mm in the case of an emergency door.

[2/] 300 mm in the case of steps at a door behind the rearmost axle.

Figure 6 Steps for passengers

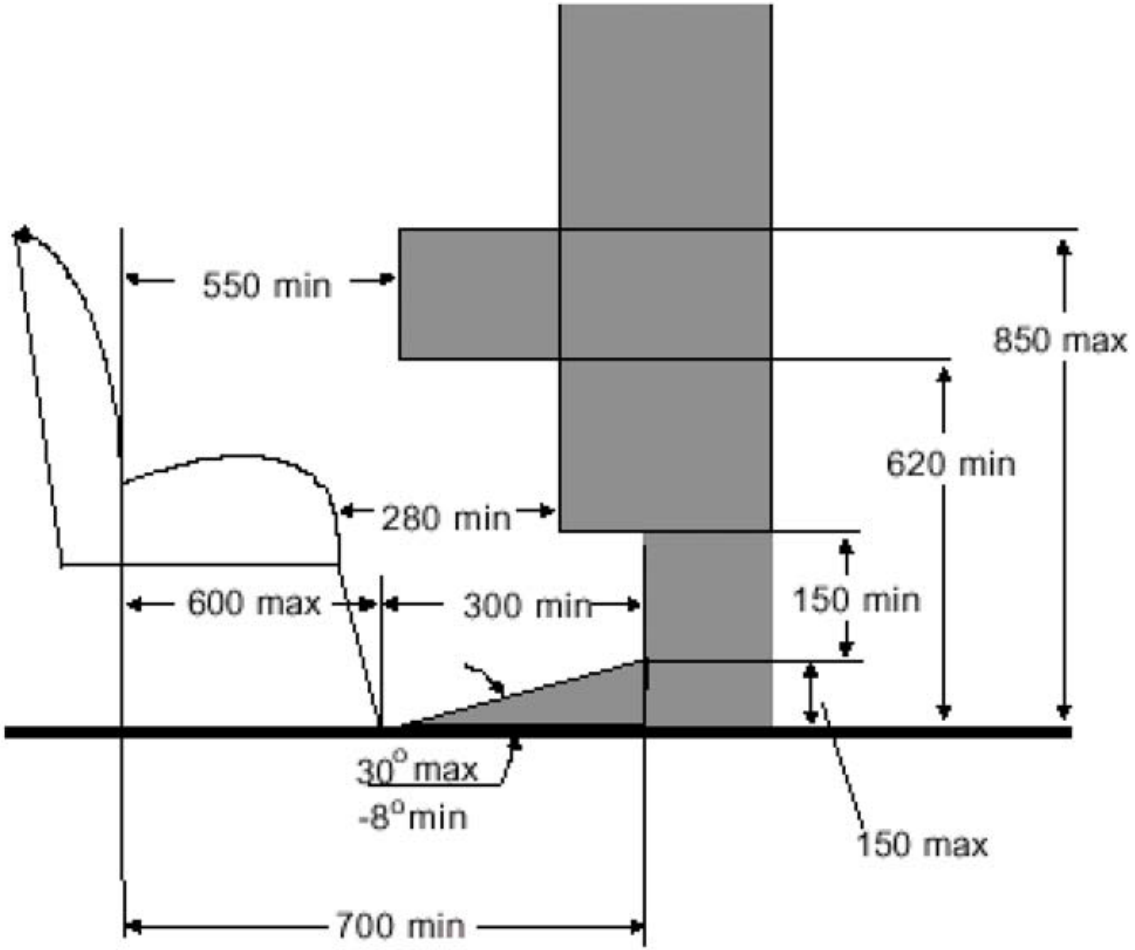


Figure 7: Space for seated passengers behind a partition or other rigid structure other than a seat

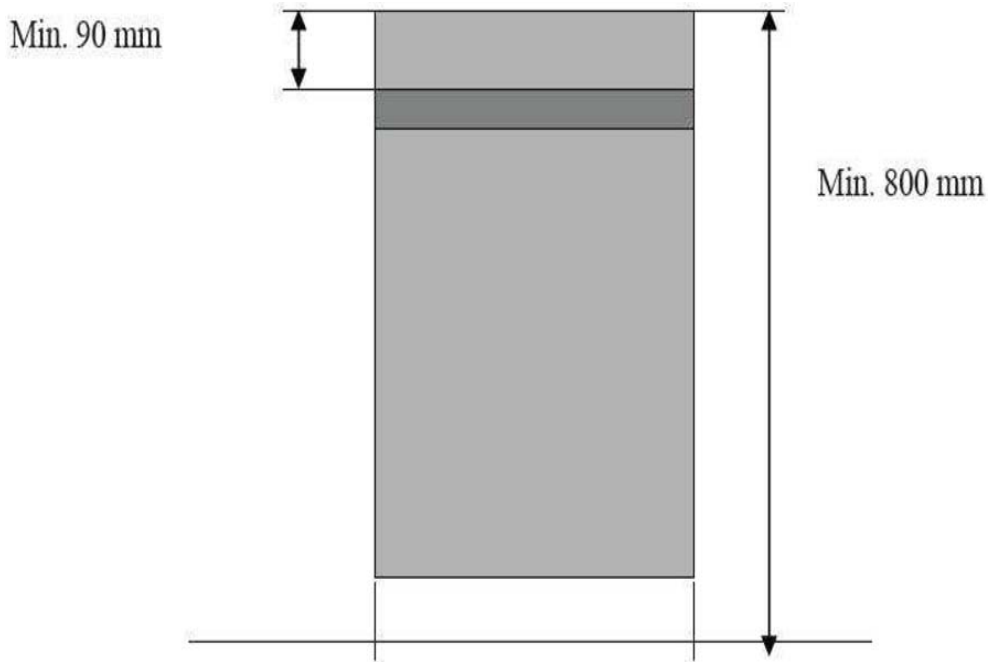


Figure 8：Guard

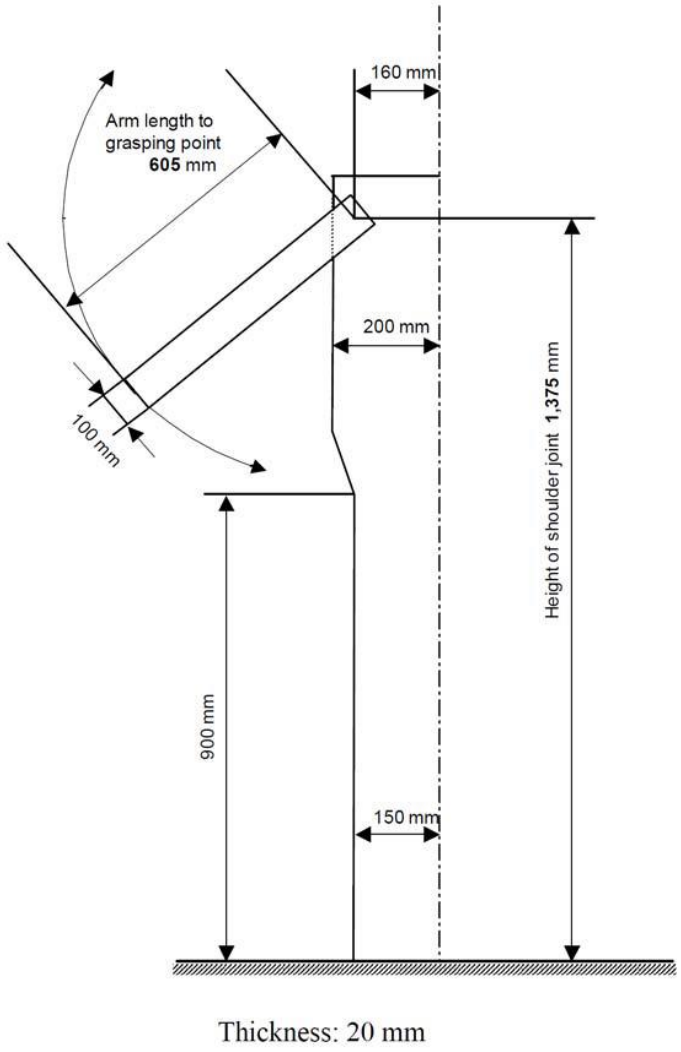


Figure 9: Testing device for siting of handholds

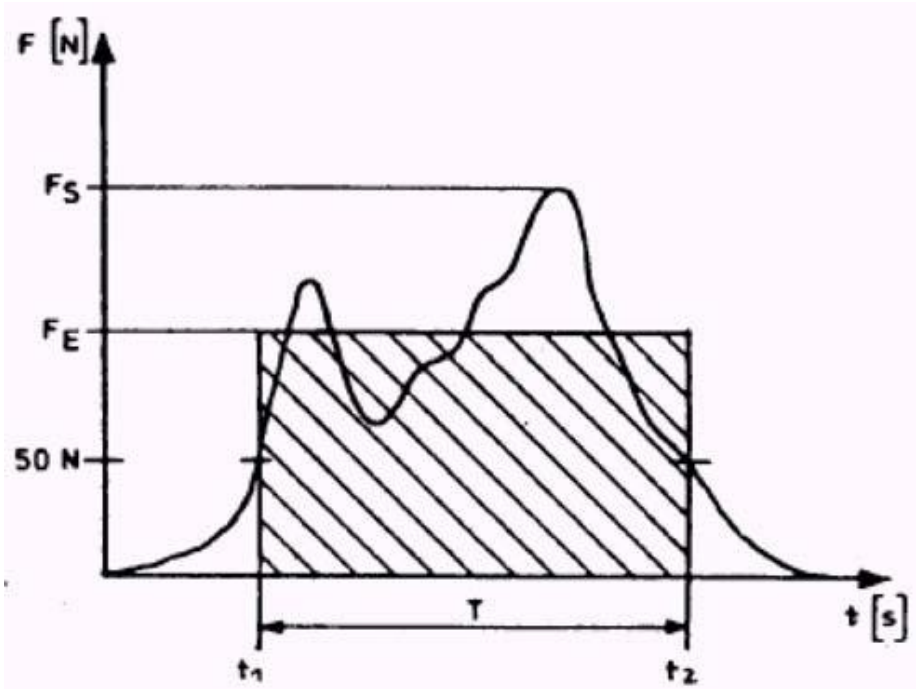


Figure 10

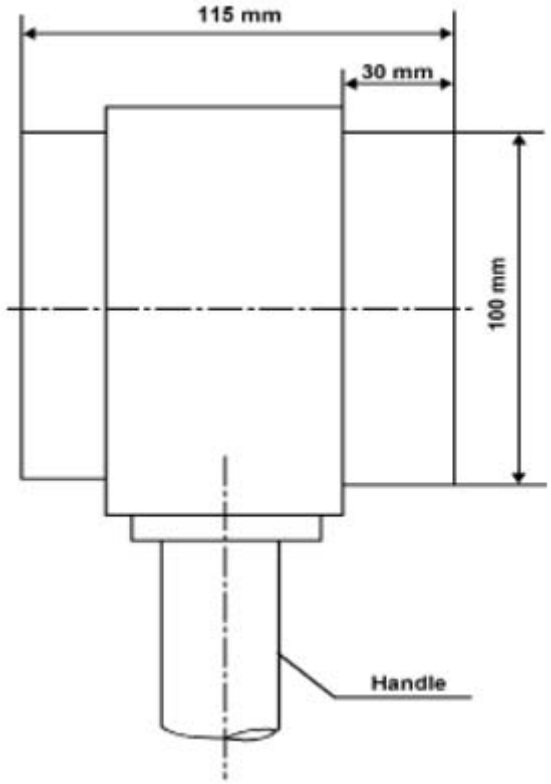


Figure 11

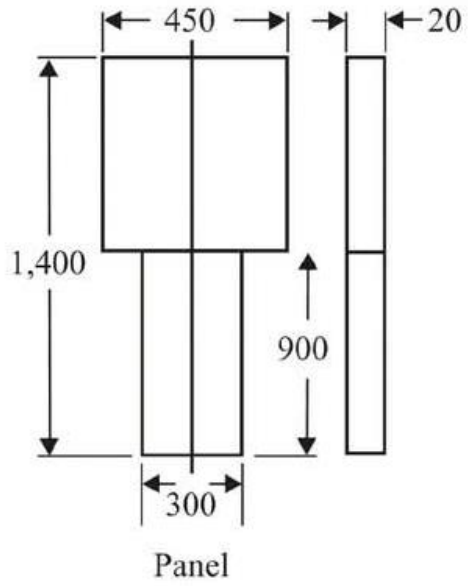
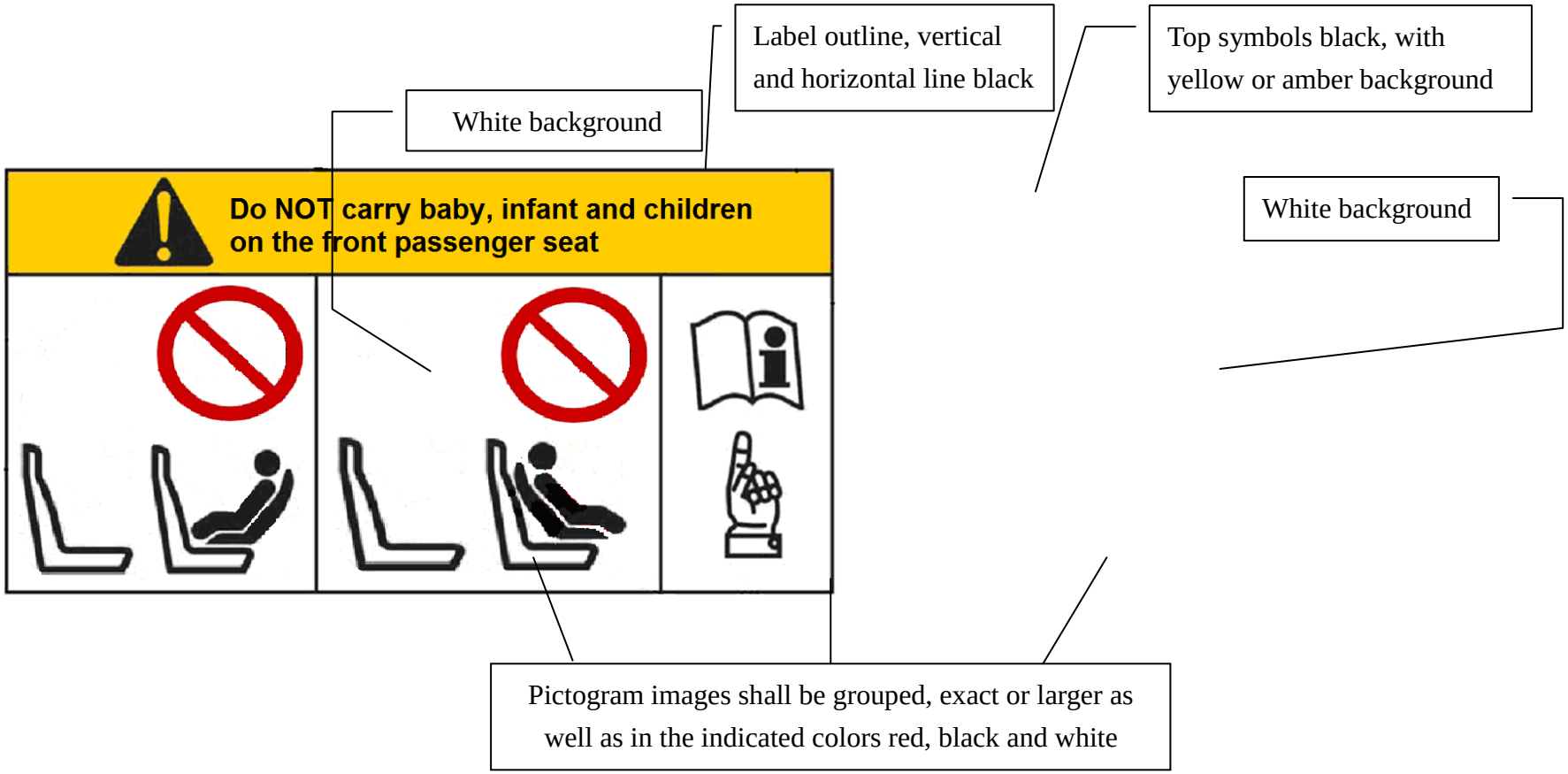


Figure 12



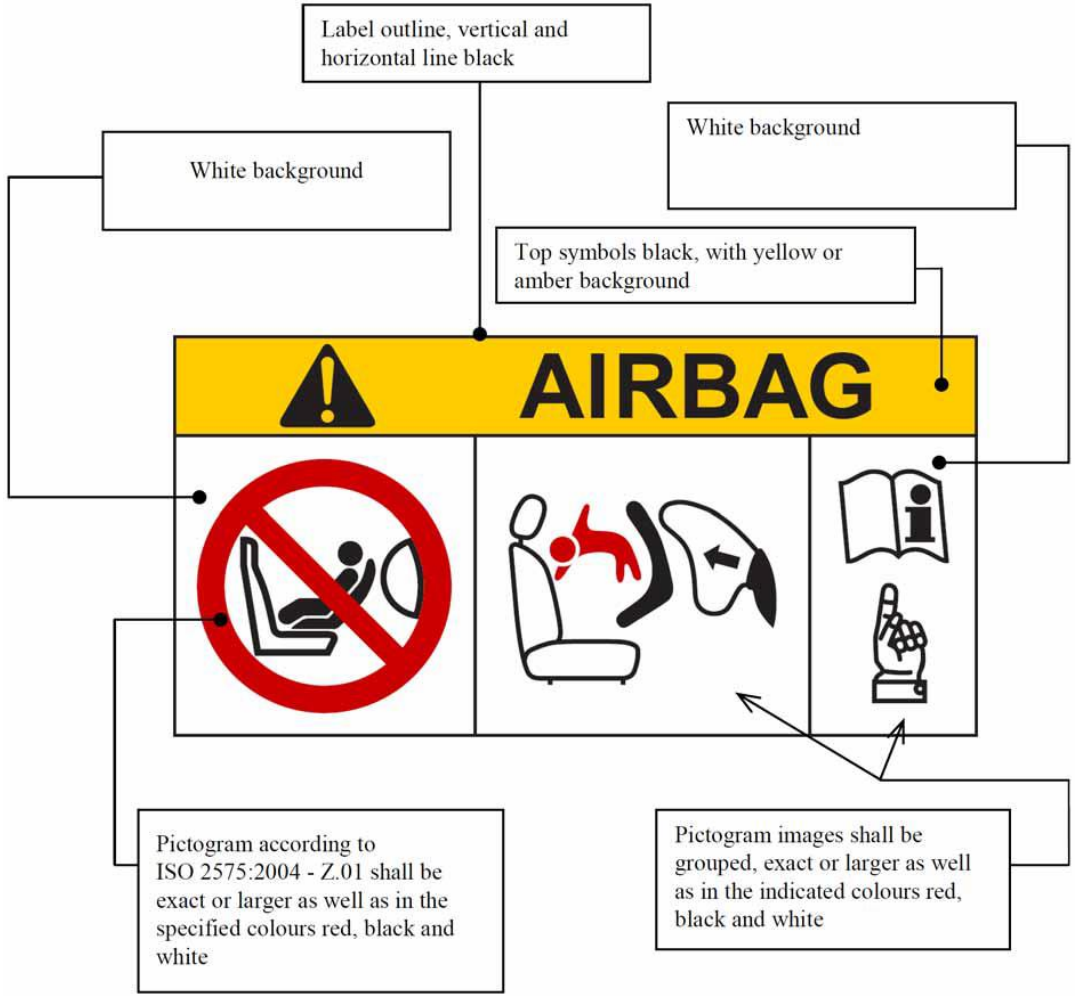
The overall dimensions shall be at least 120 x 60 mm or the equivalent area.

The label shown above may be adapted in such a way that the layout differs from the example above; however, the content shall meet the above prescriptions.

Figure 13

Except for the front passenger seat

The official directions are written in Chinese, this English edition is for your reference only.



The overall dimensions shall be at least 120 x 60 mm or the equivalent area.

The label shown above may be adapted in such a way that the layout differs from the example above; however, the content shall meet the above prescriptions.

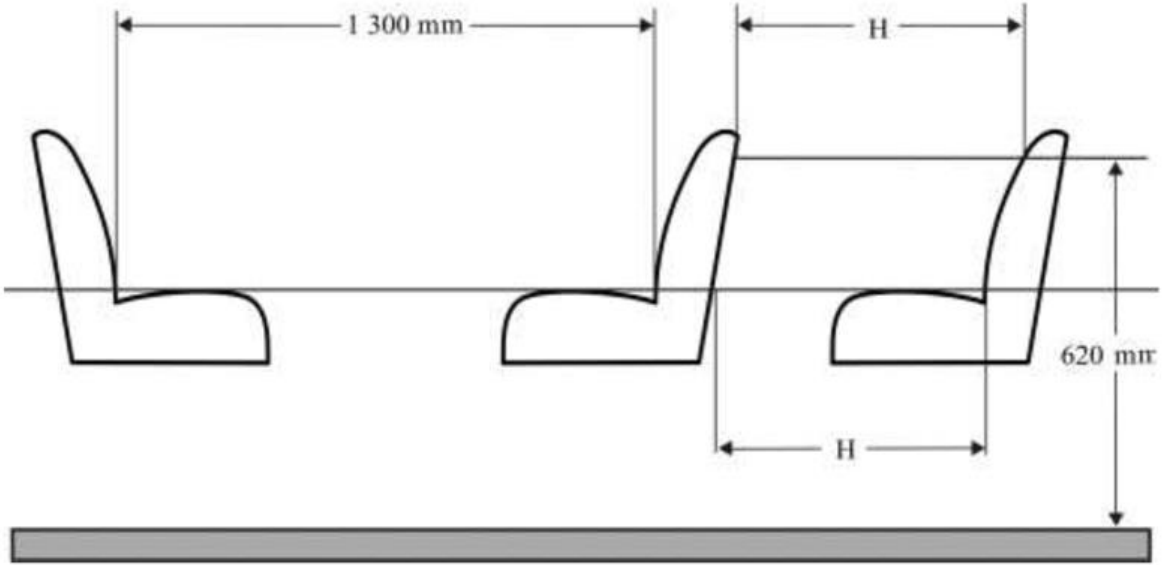
Figure14



Size: at least diameter 130 mm

Colour: blue basis with white symbol

Figure 15: Pictogram for pram and pushchair area



H	
(1) For vehicles having a capacity exceeding 22 passengers in addition to the driver, vehicles constructed with areas for standing passengers, to allow frequent passenger movement; (2) For vehicles having a capacity not exceeding 22 passengers in addition to the driver, vehicles designed to carry standing passengers; a vehicle of this class has seats and shall have provision for standing passengers. (3) For vehicles having a capacity not exceeding 22 passengers in addition to the driver, vehicles not designed to carry standing passengers; a vehicle of this class has no provision for standing passengers.	650mm
(1) For vehicles having a capacity exceeding 22 passengers in addition to the driver, vehicles constructed principally for the carriage of seated passengers, and designed to allow the carriage of standing passengers in the gangway and/or in an area which does not exceed the space provided for two double seats; (2) For vehicles having a capacity exceeding 22 passengers in addition to the driver, vehicles constructed exclusively for the carriage of seated passengers;	680mm

Figure 16-1 Seat spacing

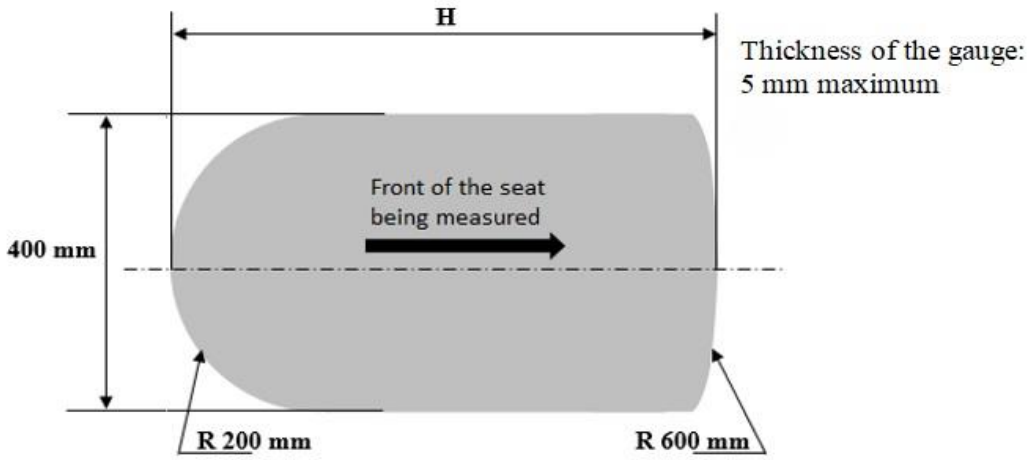


Figure 16-2 Testing gauge for H dimension