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ANNEXES 1 to 5

ANNEXES

to the

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

**laying down for certain road vehicles circulating within the Union the maximum
authorised dimensions in national and international traffic and the maximum
authorised weights in international traffic (codification)**

↓ 96/53 (adapted)
 →₁ 2002/7 Art. 1.7(a)
 →₂ 2015/719 Art. 1.9(a)
 →₃ 2015/719 Art. 1.9(b)
 →₄ 2002/7 Art. 1.7(b)
 →₅ 2002/7 Art. 1.7(c)
 →₆ 2019/1242 Art. 20.3(a)
 →₇ 2015/719 Art. 1.9(c)
 →₈ 2015/719 Art. 1.9(d)
 →₉ 2015/719 Art. 1.9(e)
 →₁₀ 2019/1242 Art. 20.3(b)
 →₁₁ 2015/719 Art. 1.9(f)
 →₁₂ 2019/1242 Art. 20.3(c)
 →₁₃ 2015/719 Art. 1.9(g)
 →₁₄ 2019/1242 Art. 20.3(d)

ANNEX I

MAXIMUM WEIGHTS AND DIMENSIONS AND RELATED CHARACTERISTICS OF VEHICLES

1.	<i>Maximum authorised dimensions for the vehicles referred to in Article 1(1), point (a)</i>	
→ ₁ 1.1 ←	→ ₁ maximum length: ←	
	→ ₁ — motor vehicle other than a bus ←	→ ₁ 12,00 m ←
	→ ₁ — trailer ←	→ ₁ 12,00 m ←
	→ ₁ — articulated vehicle ←	→ ₁ 16,50 m ←
	→ ₁ — road train ←	→ ₁ 18,75 m ←
	→ ₁ — articulated bus ←	→ ₁ 18,75 m ←
	→ ₁ — bus with two axles ←	→ ₁ 13,50 m ←
	→ ₁ — bus with more than two axles ←	→ ₁ 15,00 m ←
	→ ₁ — bus + trailer ←	→ ₁ 18,75 m ←
1.2	<i>Maximum width:</i>	
	→ ₂ (a) all vehicles except the ☒ items ☒ referred to in point (b) ←	→ ₂ 2,55 m ←
	→ ₃ (b) superstructures of conditioned vehicles or conditioned containers or swap bodies transported by vehicles ←	→ ₃ 2,60 m ←

1.3	<i>Maximum height (any vehicle)</i>	4,00 m
1.4	Removable superstructures and standardised freight items such as containers are included in the dimensions specified in points 1.1, 1.2, 1.3, 1.8, 1.9, 1.10 and 4.4.	
→ ₄ 1.5 ←	→ ₄ If any removable attachments such as ski-boxes are fitted to a bus, its length, including the attachments, must not exceed the maximum length laid down in point 1.1. ←	
1.6	Any motor vehicle or vehicle combination which is in motion must be able to turn within a swept circle having an outer radius of 12,50 m and an inner radius of 5,30 m.	
→ ₅ 1.7 ←	→ ₅ <i>Additional requirements for buses</i> With the vehicle stationary, a vertical plane tangential to the side of the vehicle and facing outwards from the circle shall be established by marking a line on the ground. In the case of an articulated vehicle, the two rigid portions shall be aligned with the plane. When the vehicle moves from a straight line approach into the circular area described in point 1.6, no part of it shall move outside of that vertical plane by more than 0,60 m. ←	
1.8	Maximum distance between the axis of the fifth-wheel king pin and the rear of a semi-trailer.	12,00 m
1.9	Maximum distance measured parallel to the longitudinal axis of the road train from the foremost external point of the loading area behind the cabin to the rearmost external point of the trailer of the combination, minus the distance between the rear of the drawing vehicle and the front of the trailer.	15,65 m
1.10	Maximum distance measured parallel to the longitudinal axis of the road train from the foremost external point of the loading area behind the cabin to the rearmost external point of the trailer of the combination.	16,40 m
2.	<i>Maximum authorised vehicle weight (in tonnes)</i>	
2.1	<i>Vehicles forming part of a vehicle combination</i>	
2.1.1	Two-axle trailer	18 tonnes

2.1.2	Three-axle trailer	24 tonnes
2.2	<i>Vehicle combinations</i>	
2.2.1	Road trains with five or six axles	
	(a) two-axle motor vehicle with three-axle trailer	40 tonnes
	(b) three-axle motor vehicle with two or three-axle trailer	40 tonnes
	➔₆ In the case of vehicle combinations including alternatively fuelled or zero-emission vehicles, the maximum authorised weights provided for in this Section shall be increased by the additional weight of the alternative fuel or zero-emission technology with a maximum of 1 tonne and 2 tonnes respectively. ⬅	
2.2.2	Articulated vehicles with five or six axles	
	(a) two-axle motor vehicle with three-axle semi-trailer	40 tonnes
	(b) three-axle motor vehicle with two or three-axle semi-trailer	40 tonnes
	➔₇ (c) two-axle motor vehicle with three-axle semi-trailer carrying, in intermodal transport operations, one or more containers or swap bodies, up to a total maximum length of 45 feet ⬅	➔ ₇ 42 tonnes ⬅
	➔₈ (d) three-axle motor vehicle with two- or three-axle semi-trailer carrying, in intermodal transport operations, one or more containers or swap bodies, up to a total maximum length of 45 feet ⬅	➔ ₈ 44 tonnes ⬅
	➔₆ In the case of vehicle combinations including alternatively fuelled or zero-emission vehicles, the maximum authorised weights provided for in this Section shall be increased by the additional weight of the alternative fuel or zero-emission technology with a maximum of 1 tonne and 2 tonnes respectively. ⬅	
2.2.3	Road trains with four axles consisting of a two-axle motor vehicle and a two-axle trailer ➔₆ In the case of vehicle combinations including alternatively fuelled or zero-emission vehicles, the maximum authorised weights provided for in this Section shall be increased by the additional weight of the alternative fuel or zero-emission technology with a maximum of 1 tonne and 2 tonnes respectively. ⬅	36 tonnes

2.2.4	Articulated vehicles with four axles consisting of a two-axle motor vehicle and a two-axle semi-trailer, if the distance between the axles of the semi-trailer:	
2.2.4.1	is 1,3 m or greater but not more than 1,8 m	36 tonnes
2.2.4.2	is greater than 1,8 m	36 tonnes + 2 tonnes margin when the maximum authorised weight (MAW) of the motor vehicle (18 tonnes) and the MAW of the tandem axle of the semi-trailer (20 tonnes) are respected and the driving axle is fitted with twin tyres and air suspension or suspension recognised as being equivalent within the ☒ Union ☒ as defined in Annex II
	➔ ₆ In the case of vehicle combinations including alternatively fuelled or zero-emission vehicles, the maximum authorised weights provided for in this Section shall be increased by the additional weight of the alternative fuel or zero-emission technology with a maximum of 1 tonne and 2 tonnes respectively. ⬅	
2.3	<i>Motor vehicles</i>	
➔ ₉ 2.3.1 ⬅	➔ ₉ Two-axle motor vehicles other than buses: two-axle alternatively fuelled motor vehicles other than buses: the maximum authorised weight of 18 tonnes ☒ shall be ☒ increased by the additional weight required for the alternative fuel technology with a maximum of 1 tonne. Zero-emission vehicles: the maximum authorised weight of 18 tonnes ☒ shall be ☒ increased by the additional weight of the zero-emission technology with a maximum of 2 tonnes.	➔ ₉ 18 tonnes ⬅

	two-axle buses: →₁₀ Zero-emission vehicles: the maximum authorised weight of 18-tonnes ☒ shall be ☒ increased by the additional weight of the zero-emission technology with a maximum of 2-tonnes. ← ←	→₉ 19,5 tonnes ←
→ ₁₁ 2.3.2 ←	→₁₁ Three-axle motor vehicles: ← ☒ Three-axle alternatively fuelled motor vehicles: the maximum authorised weight of 25 tonnes, or 26 tonnes where the driving axle is fitted with twin tyres and air suspension or suspension recognised as being equivalent within the Union as defined in Annex II, or where each driving axle is fitted with twin tyres and the maximum weight of each axle does not exceed 9,5 tonnes, is shall be increased by the additional weight required for the alternative fuel technology with a maximum of 1 tonne. ☒ ☒ Three-axle zero-emission vehicles: the maximum authorised weight of 25 tonnes, or 26 tonnes where the driving axle is fitted with twin tyres and air suspension or suspension recognised as being equivalent within the Union as defined in Annex II or where each driving axle is fitted with twin tyres and the maximum weight of each axle does not exceed 9,5 tonnes, shall be-increased by the additional weight of the zero-emission technology with a maximum of 2 tonnes. ☒	→₁₁ 25 tonnes, or 26 tonnes where the driving axle is fitted with twin tyres and air suspension or suspension recognised as being equivalent within the Union as defined in Annex II, or where each driving axle is fitted with twin tyres and the maximum weight of each axle does not exceed 9,5 tonnes. →₁₂ ← ←
2.3.3	Four-axle motor vehicles with two steering axles	—32 tonnes, where the driving axle is fitted with twin tyres and air suspension or suspension recognised as being equivalent within the ☒ Union ☒ as defined in Annex II, or where each driving axle is fitted with twin tyres and the maximum weight of each axle does not exceed 9,5 tonnes

→ ₁₃ 2.4 ←	→₁₃ Three-axle articulated buses: ← Three-axle articulated buses alternatively fuelled: the maximum authorised weight of 28 tonnes ☒ shall be <☒ increased by the additional weight required for the alternative fuel technology with a maximum of 1 tonne. ☒ Three-axle articulated buses that are zero-emission vehicles: the maximum authorised weight of 28 tonnes shall be increased by the additional weight of the zero-emission technology with a maximum of 2 tonnes. <☒	→₁₃ 28 tonnes →₁₄ ← ←
3.	<i>Maximum authorised axle weight of the vehicles referred to in Article 1(1), point (b) (in tonnes)</i>	
3.1	<i>Single axles</i> Single non-driving axle	10 tonnes
3.2	<i>Tandem axles of trailers and semi-trailers</i> The sum of the axle weights per tandem axle must not exceed, if the distance (d) between the axles is:	
3.2.1	less than 1 m ($d < 1,0$)	11 tonnes
3.2.2	between 1,0 m and less than 1,3 m ($1,0 \leq d < 1,3$)	16 tonnes
3.2.3	between 1,3 m and less than 1,8 m ($1,3 \leq d < 1,8$)	18 tonnes
3.2.4	1,8 m or more ($1,8 \leq d$)	20 tonnes
3.3	<i>Tri-axes of trailers and semi-trailers</i> The sum of the axle weights per tri-axle must not exceed, if the distance (d) between the axles is:	
3.3.1	1,3 m or less ($d \leq 1,3$)	21 tonnes
3.3.2	over 1,3 m and up to 1,4 m ($1,3 < d \leq 1,4$)	24 tonnes
3.4	<i>Driving axle</i>	
3.4.1	Driving axle of the vehicles referred to in 2.2.1 and 2.2.2	11,5 tonnes
3.4.2	Driving axle of the vehicles referred to in points 2.2.3, 2.2.4, 2.3 and 2.4	11,5 tonnes
3.5	<i>Tandem axles of motor vehicles</i> The sum of the axle weights per tandem axle must not exceed, if the distance (d) between the axles is:	

3.5.1	less than 1 m ($d < 1,0$)	11,5 tonnes
3.5.2	1,0 m or greater but less than 1,3 m ($1,0 \leq d < 1,3$)	16 tonnes
3.5.3	1,3 m or greater but less than 1,8 m ($1,3 \leq d < 1,8$)	—18 tonnes —19 tonnes, where the driving axle is fitted with twin tyres and air suspension or suspension recognised as being equivalent within the $\boxtimes$ Union $\boxtimes$ as defined in Annex II, or where each driving axle is fitted with twin tyres and where the maximum weight for each axle does not exceed 9,5 tonnes
4.	<i>Related characteristics of the vehicles referred to in Article 1(1), point (b)</i>	
4.1	<i>All vehicles</i> The weight borne by the driving axle or driving axles of a vehicle or vehicle combination must not be less than 25 % of the total laden weight of the vehicle or vehicle combination, when used in international traffic.	
4.2	<i>Road trains</i> The distance between the rear axle of a motor vehicle and the front axle of a trailer must not be less than 3,00 m.	
4.3	<i>Maximum authorised weight depending on the wheelbase</i> The maximum authorised weight in tonnes of a four-axle motor vehicle $\boxtimes$ must $\boxtimes$ not exceed five times the distance in metres between the axes of the foremost and rearmost axles of the vehicle.	
4.4	<i>Semi-trailers</i> The distance measured horizontally between the axis of the fifth-wheel king pin and any point at the front of the semi-trailer must not exceed 2,04 m.	

ANNEX II

CONDITIONS RELATING TO EQUIVALENCE BETWEEN CERTAIN NON-AIR SUSPENSION SYSTEMS AND AIR SUSPENSION FOR VEHICLE DRIVING AXLE(S)

1. DEFINITION OF AIR SUSPENSION

A suspension system ☒ shall be ☒ considered to be air suspended if at least 75 % of the spring effect is caused by the air spring.

2. EQUIVALENCE TO AIR SUSPENSION

A suspension recognised as being equivalent to air suspension ☒ shall ☒ conform to the following:

- 2.1. during free transient low frequency vertical oscillation of the sprung mass above a driving axle or bogie, the measured frequency and damping with the suspension carrying its maximum load must fall within the limits defined in points 2.2 to 2.5;
- 2.2. each axle must be fitted with hydraulic dampers. On tandem axle bogies, the dampers must be positioned to minimise the oscillation of the bogies;
- 2.3. the mean damping ratio D must be more than 20 % of critical damping for the suspension in its normal conditions with hydraulic dampers in place and operating;
- 2.4. the damping ratio D of the suspension with all hydraulic dampers removed or incapacitated must be not more than 50 % of D ;
- 2.5. the frequency of the sprung mass above the driving axle or bogie in a free transient vertical oscillation must not be higher than 2,0 Hz;
- 2.6. the frequency and damping of the suspension are given in point 3. The test procedures for measuring the frequency and damping are laid down in point 4.

3. DEFINITION OF FREQUENCY AND DAMPING

In this definition a sprung mass M (kg) above a driving axle or bogie is considered. The axle or bogie has a total vertical stiffness between the road surface and the sprung mass of K Newtons/metre (N/m) and a total damping coefficient of C Newtons per metre per second (N.s/m). The vertical displacement of the sprung mass is Z . The equation of motion for free

oscillation of the sprung mass is: $M \frac{d^2 Z}{dt^2} + C \frac{dZ}{dt} + kZ = 0$

The frequency of oscillation of the sprung mass F (rad/sec) is: $F = \sqrt{\frac{K}{M} - \frac{C^2}{4M^2}}$

The damping is critical when $C = C_o$,

where

$$C_o = 2\sqrt{KM}$$

The damping ratio as a fraction of critical damping is $\frac{C}{C_o}$.

During free transient oscillation of the sprung mass the vertical motion of the mass will follow a damped sinusoidal path (Figure 2). The frequency can be estimated by measuring the time for as many cycles of oscillation as can be observed. The damping can be estimated by

measuring the heights of successive peaks of the oscillation in the same direction. If the peak amplitudes of the first and second cycles of the oscillation are A_1 and A_2 , then the damping ratio D is;

$$D = \frac{C}{C_0} = \frac{1}{2\pi} \cdot \ln \frac{A_1}{A_2} \text{ 'ln' being the natural logarithm of the amplitude ratio.}$$

4. TEST PROCEDURE

To establish by test the damping ratio D , the damping ratio with hydraulic dampers removed, and the frequency F of the suspension, the loaded vehicle $\boxtimes$ shall $\boxtimes$ either:

- (a) be driven at low speed (5 km/hr + 1 km/hr) over an 80 mm step with the profile shown in Figure 1. The transient oscillation to be analysed for frequency and damping occurs after the wheels on the driving axle have left the step;
or
- (b) be pulled down by its chassis so that the driving axle load is 1,5 times its maximum static value. The vehicle held down is suddenly released and the subsequent oscillation analysed;
or
- (c) be pulled up by its chassis so that the sprung mass is lifted by 80 mm above the driving axle. The vehicle held up is suddenly dropped and the subsequent oscillation analysed;
or
- (d) be subjected to other procedures insofar as it has been proved by the manufacturer, to the satisfaction of the technical department, that they are equivalent.

The vehicle $\boxtimes$ shall $\boxtimes$ be instrumented with a vertical displacement transducer between driving axle and chassis, directly above the driving axle. From the trace, the time interval between the first and second compression peaks can be measured to obtain the frequency F and the amplitude ratio to obtain the damping. For twin-drive bogies, vertical displacement transducers $\boxtimes$ shall $\boxtimes$ be fitted between each driving axle and the chassis directly above it.

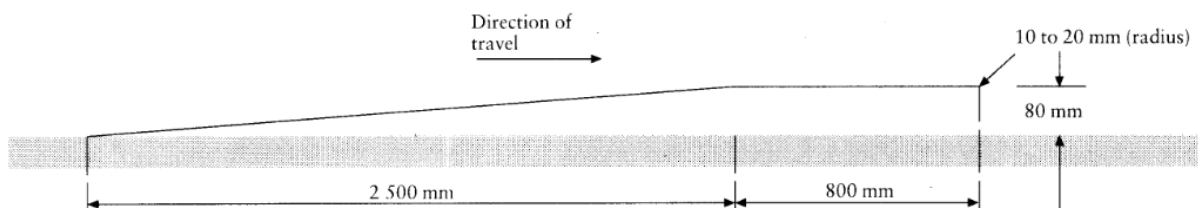


Figure 1
Step for suspension tests

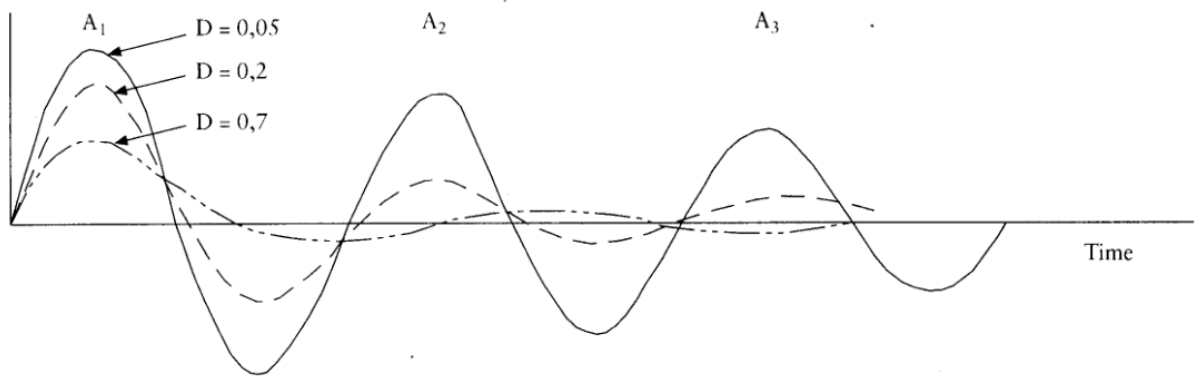


Figure 2
A damped transient response

ANNEX III

PLATE RELATING TO DIMENSIONS REFERRED TO IN ARTICLE 6(1), POINT (a)

- I. The plate relating to dimensions, as far as possible affixed next to the plate referred to in Regulation (EU) No 19/2011, ☒ shall ☐ contain the following data:
1. name of the manufacturer¹;
 2. vehicle identification number²;
 3. length of the motor vehicle, trailer or semi-trailer (L);
 4. width of the motor vehicle, trailer or semi-trailer (W);
 5. data for the measurement of the length of vehicle combinations:
 - the distance (a) between the front of the motor vehicle and the centre of the coupling device (coupling hook or fifth wheel); in the case of a fifth wheel with several coupling points, the minimum and maximum values must be given ($a_{\min}$ and $a_{\max}$);
 - the distance (b) between the centre of the coupling device of the trailer (fifth wheel ring) or of the semi-trailer (kingpin) and the rear of the trailer or of the semi-trailer; in the case of a device with several coupling points, the minimum and maximum values must be given ($b_{\min}$ and $b_{\max}$).
- The length of vehicle combinations ☒ shall be ☐ the length of the motor vehicle and trailer or semi-trailer placed in a straight line behind each other.
- II. The values given on the proof of compliance shall reproduce exactly the measurements carried out directly on the vehicle.
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¹ This information ☒ is not required to ☐ be repeated where the vehicle carries a single plate containing data on both weights and dimensions.

² This information ☒ is not required to ☐ be repeated where the vehicle carries a single plate containing data on both weights and dimensions.



ANNEX IV

Part A

Repealed Directive with list of the successive amendments thereto (referred to in Article 20)

Council Directive 96/53/EC
(OJ L 235, 17.9.1996, p. 59)

Directive 2002/7/EC of the European Parliament
and of the Council
(OJ L 67, 9.3.2002, p. 47)

Directive (EU) 2015/719 of the European Parliament
and of the Council
(OJ L 115, 6.5.2015, p. 1)

Decision (EU) 2019/984 of the European Parliament
and of the Council
(OJ L 164, 20.6.2019, p. 30)

Regulation (EU) 2019/1242 of the European Parliament and of the Council only Article 20
(OJ L 198, 25.7.2019, p. 202)

Part B

Time-limits for transposition into national law (referred to in Article 20)

Directive	Time-limit for transposition
96/53/EC	17 September 1997
2002/7/EC	9 March 2004
(EU) 2015/719	7 May 2017

ANNEX V

CORRELATION TABLE

Directive 96/53/EC	This Directive
Article 1	Article 1
Article 2, introductory wording	Article 2, introductory wording
Article 2, first indent	Article 2, point 1
Article 2, second indent	Article 2, point 2
Article 2, third indent	Article 2, point 3
Article 2, fourth indent, introductory wording	Article 2, point 4, introductory wording
Article 2, fourth indent, first sub-indent	Article 2, point 4(a)
Article 2, fourth indent, second sub-indent	Article 2, point 4(b)
Article 2, fifth indent	Article 2, point 5
Article 2, sixth indent	Article 2, point 6
Article 2, seventh indent	Article 2, point 7
Article 2, eighth indent	Article 2, point 8
Article 2, ninth indent	Article 2, point 9
Article 2, tenth indent	Article 2, point 10
Article 2, eleventh indent	Article 2, point 11
Article 2, twelfth indent	Article 2, point 12
Article 2, thirteenth indent	Article 2, point 13
Article 2, fourteenth indent	Article 2, point 14
Article 2, fifteenth indent	Article 2, point 15
Article 2, sixteenth indent	Article 2, point 16
Article 2, seventeenth indent	Article 2, point 17
Article 3	Article 3
Article 4(1) to (5)	Article 4(1) to (5)
Article 4(7)	—

Article 5	Article 5
Article 6(1), (2) and (3)	Article 6(1), (2) and (3)
Article 6(4), introductory wording	Article 6(4), introductory wording
Article 6(4), first indent	Article 6(4)(a)
Article 6(4), second indent	Article 6(4)(b)
Article 6(5) and (6)	Article 6(5) and (6)
Article 7	Article 7
Article 8b(1)	Article 8(1)
Article 8b(2), first subparagraph	Article 8(2)
Article 8b(2), second and third subparagraph	—
Article 8b(3) and (4)	Article 8(3) and (4)
Article 8b(5)	—
Article 9a(1)	Article 9(1)
Article 9a(2), first subparagraph	Article 9(2)
Article 9a(2), second subparagraph	—
Article 9a(3)	—
Article 10	Article 20
Article 10b	Article 10
Article 10c	Article 11
Article 10d	Article 12
Article 10e	Article 13
Article 10f	Article 14
Article 10g	Article 15
Article 10h(1), (2) and (3)	Article 16(1), (2) and (3)
—	Article 16(4)
Article 10h(4)	Article 16(5)
Article 10h(5)	Article 16(6)

Article 10i
Article 10j
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Article 17
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