

Council Directive 72/245/EEC of 20 June 1972 relating to the radio interference (electromagnetic compatibility) of vehicles (repealed)

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[^{F1}ANNEX I

REQUIREMENTS TO BE MET BY VEHICLES AND ELECTRICAL/ ELECTRONIC SUB-ASSEMBLIES FITTED TO A VEHICLE

Textual Amendments

F1 Substituted by [Commission Directive 95/54/EC](#) of 31 October 1995 adapting to technical progress [Council Directive 72/245/EEC](#) on the approximation of the laws of the Member States relating to the suppression of radio interference produced by spark-ignition engines fitted to motor vehicles and amending [Directive 70/156/EEC](#) on the approximation of the laws of the Member States relating to the type-approval of motor vehicles and their trailers.

1. Scope
 - 1.1. This Directive applies to the electromagnetic compatibility of vehicles covered in Article 1, being vehicles or trailers (hereinafter referred to as vehicle(s)) as supplied by the vehicle manufacturer and to components or separate technical units intended for fitment in vehicles.
2. Definitions
 - 2.1. For the purposes of this Directive:
 - 2.1.1. ‘Electromagnetic compatibility’ means the ability of a vehicle or component(s) or separate technical unit(s) to function satisfactorily in its electromagnetic environment without introducing intolerable electromagnetic disturbances to anything in that environment.
 - 2.1.2. ‘Electromagnetic disturbance’ means any electromagnetic phenomenon which may degrade the performance of a vehicle or component(s) or separate technical unit(s). An electromagnetic disturbance may be electromagnetic noise, an unwanted signal or a change in the propagation medium itself.
 - 2.1.3. ‘Electromagnetic immunity’ means the ability of a vehicle or component(s) or separate technical unit(s) to perform without degradation of performance in the presence of specified electromagnetic disturbances.
 - 2.1.4. ‘Electromagnetic environment’ means the totality of electromagnetic phenomena existing at a given location.
 - 2.1.5. ‘Reference limit’ means the nominal level to which type approval and conformity of production limit values are referenced.
 - 2.1.6. ‘Reference antenna’ for the frequency range 20 to 80 MHz: means a shortened balanced dipole being a half wave resonant dipole at 80 MHz, and for the frequency range above 80 MHz: means a balanced half wave resonant dipole tuned to the measurement frequency.
 - 2.1.7. ‘Broadband emission’ means an emission which has a bandwidth greater than that of a particular measuring apparatus or receiver.
 - 2.1.8. ‘Narrowband emission’ means an emission which has a bandwidth less than that of a particular measuring apparatus or receiver.

- 2.1.9. 'Electrical/electronic system' means (an) electrical and/or electronic device(s) or set(s) of devices together with any associated electrical connections which form part of a vehicle but which are not intended to be type approved separately from the vehicle.
- 2.1.10. 'Electrical/electronic sub-assembly' (ESA) means an electrical and/or electronic device or set(s) of devices intended to be part of a vehicle, together with any associated electrical connections and wiring, which performs one or more specialized functions. An ESA may be approved at the request of a manufacturer as either a 'component' or a 'separate technical unit (STU)' (see Directive 70/156/EEC, Article 2).
- 2.1.11. 'Vehicle type' in relation to electromagnetic compatibility means vehicles which do not differ essentially in such respects as:
- 2.1.11.1. the overall size and shape of the engine compartment;
- 2.1.11.2. the general arrangement of the electrical and/or electronic components and the general wiring arrangement;
- 2.1.11.3. the primary material of which the body or shell (if applicable) of the vehicle is constructed (for example, a steel, aluminium or fibreglass body shell). The presence of panels of different material does not change the vehicle type provided the primary material of the body is unchanged. However, such variations must be notified.
- 2.1.12. An 'ESA type' in relation to electromagnetic compatibility means ESAs which do not differ in such essential respects as:
- 2.1.12.1. the function performed by the ESA;
- 2.1.12.2. the general arrangement of the electrical and/or electronic components, if applicable.
3. Application for EEC type-approval
- 3.1. Approval of a vehicle type
- 3.1.1. The application for approval of a vehicle type, with regard to its electromagnetic compatibility pursuant to Article 3 (4) of Directive 70/156/EEC shall be submitted by the vehicle manufacturer.
- 3.1.2. A model for the information document is given in Annex IIA.
- 3.1.3. The vehicle manufacturer shall draw up a schedule describing all projected combinations of relevant vehicle electrical/electronic systems or ESAs, body styles⁽¹⁾, variations in body material⁽²⁾, general wiring arrangements, engine variations, left-hand/right-hand drive versions and wheelbase versions. Relevant vehicle electrical/electronic systems or ESAs are those which may emit significant broadband or narrowband radiation and/or those which are involved in the driver's direct control (see paragraph 6.4.2.3 of this Annex) of the vehicle.
- 3.1.4. A representative vehicle shall be selected from this schedule for the purpose of being tested, in mutual agreement between the manufacturer and the competent authority. This vehicle shall represent the vehicle type (see Appendix 1 to Annex IIA). The choice of vehicle, shall be based on the electrical/electronic systems offered by the manufacturer. One more vehicle may be selected from this schedule for the purpose of being tested if it is considered by mutual agreement between the manufacturer and the competent authority that different electrical/electronic systems are included which are likely to have a significant effect on the vehicle's electromagnetic compatibility compared with the first representative vehicle.

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- 3.1.5. The choice of the vehicle(s) in conformity with paragraph 3.1.4 is limited to vehicle/electrical/electronic system combinations intended for actual production.
- 3.1.6. The manufacturer may supplement the application with a report from tests which have been carried out. Any such data provided may be used by the approval authority for the purpose of drawing up the type-approval certificate.
- 3.1.7. If the technical service responsible for the type-approval test carries out the test itself, then a vehicle representative of the type to be approved, according to paragraph 3.1.4 shall be provided.
- 3.2. Approval of a type of ESA
 - 3.2.1. The application for approval of a type of ESA with regard to its electromagnetic compatibility pursuant to Article 3 (4) of Directive 70/156/EEC shall be submitted by the vehicle manufacturer or by the manufacturer of the ESA.
 - 3.2.2. A model for the information document is given in Annex IIB.
 - 3.2.3. The manufacturer may supplement the application with a report from tests which have been carried out. Any such data provided may be used by the approval authority for the purpose of drawing up the type-approval certificate.
 - 3.2.4. If the technical service responsible for the type-approval test carries out the test itself, then a sample of the ESA system representative of the type to be approved shall be provided, if necessary, after discussion with the manufacturer on, for example, possible variations in the layout, number of components, number of sensors. If the technical service deems it necessary, it may select a further sample.
 - 3.2.5. The sample(s) must be clearly and indelibly marked with the manufacturer's trade name or mark and the type designation.
 - 3.2.6. Where applicable, any restrictions on use should be identified. Any such restrictions should be included in Annexes IIB and/or IIIB.
- 4. Type-approval
 - 4.1. Routes to type-approval
 - 4.1.1. Type-approval of a vehicle

The following alternative routes to type-approval of a vehicle may be used at the discretion of the vehicle manufacturer.

4.1.1.1. Approval of a vehicle installation

A vehicle installation may achieve type-approval directly by following the provisions laid down in paragraph 6 of this Annex. If this route is chosen by a vehicle manufacturer, no separate testing of electrical/electronic systems or ESAs is required.

4.1.1.2. Approval of vehicle type by testing of individual ESAs

A vehicle manufacturer may obtain approval for the vehicle by demonstrating to the approval authority that all the relevant (see paragraph 3.1.3 of this Annex) electrical/electronic systems or ESAs have individually been approved in accordance with this Directive and have been installed in accordance with any conditions attached thereto.

4.1.1.3. A manufacturer, if he wishes, may obtain approval to this Directive if the vehicle has no equipment of the type which is subject to immunity or emission tests. The vehicle shall have no systems as specified in paragraph 3.1.3 (immunity) and no spark ignition equipment. Such approvals do not require testing.

4.1.2. Type-approval of an ESA

Type-approval may be granted to an ESA to be fitted either to any vehicle type or to a specific vehicle type or types requested by the manufacturer. ESAs involved in the direct control of vehicles will normally receive type-approval in conjunction with a vehicle manufacturer.

4.2. Granting of type-approval

4.2.1. Vehicle

4.2.1.1. If the representative vehicle fulfils the requirements of this Directive, EEC type-approval pursuant to Article 4 (3), and if applicable, Article 4 (4) of Directive 70/156/EEC shall be granted.

4.2.1.2. A model for the EEC type-approval certificate is given in Annex IIIA.

4.2.2. ESA

4.2.2.1. If the representative ESA system(s) fulfil(s) the requirements of this Directive, EEC type-approval pursuant to Article 4 (3), and if applicable, Article 4 (4) of Directive 70/156/EEC shall be granted.

4.2.2.2. A model for the EEC type-approval certificates is given in Annex IIIB.

4.2.3. In order to draw up the certificates referred to in paragraph 4.2.1.2 or 4.2.2.2, the competent authority of the Member State granting the approval may use a report prepared by an approved or recognized laboratory or in accordance with the provisions of this Directive.

4.3. Amendments to approvals

4.3.1. In the case of amendments to approvals granted pursuant to this Directive, the provisions of Article 5 of Directive 70/156/EEC shall apply.

4.3.2. Amendment of a vehicle type-approval by ESA addition or substitution.

4.3.2.1. Where a vehicle manufacturer has obtained approval for a vehicle installation and wishes to fit an additional or substitutional electrical/electronic system or ESA which has already received approval pursuant to this Directive, and which will be installed in accordance with any conditions attached thereto, the vehicle approval may be amended without further testing. The additional or substitutional electrical/electronic system or ESA shall be considered as part of the vehicle for conformity of production purposes.

4.3.2.2. Where the additional or substitutional part(s) has (have) not received approval pursuant to this Directive, and if testing is considered necessary, the whole vehicle shall be deemed to comply if the new or revised part(s) can be shown to comply with the relevant requirements of paragraph 6 or if, in a comparative test, the new part can be shown not to be likely to adversely affect compliance of the vehicle type.

4.3.2.3. The addition by a vehicle manufacturer to an approved vehicle of standard domestic or business equipment, other than mobile communication equipment⁽³⁾ which complies with Directive 89/336/EEC, and is installed according to the recommendations of the

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equipment and vehicle manufacturers, or the substitution or removal thereof, shall not invalidate the vehicle approval. This shall not preclude vehicle manufacturers fitting communication equipment with suitable installations guidelines developed by the vehicle manufacturer and/or manufacturer(s) of such communication equipment. The vehicle manufacturer shall provide evidence (if requested by the test authority) that vehicle performance is not adversely affected by such transmitters. This can be a statement that the power levels and installation are such that the immunity levels of this Directive offer sufficient protection when subject to transmission alone, i.e. excluding transmission in conjunction with the tests specified in paragraph 6. This Directive does not authorize the use of a communication transmitter when other requirements on such equipment or its use apply. A vehicle manufacturer may refuse to install in his vehicle standard domestic or business equipment which complies with Directive 89/336/EEC.

5. Marking

- 5.1. Every ESA conforming to a type approved pursuant to this Directive shall bear an EEC type-approval mark.
- 5.2. This mark shall consist of a rectangle surrounding the letter 'e' followed by the distinguishing number or letters of the Member State which has granted type-approval:

1	Germany
2	France
3	Italy
4	the Netherlands
6	Belgium
[^{F27}	Hungary
8	the Czech Republic]
9	Spain
11	the United Kingdom
13	Luxembourg
18	Denmark
[^{F20}	Poland]
21	Portugal
23	Greece
[^{F26}	Slovenia
27	Slovakia
29	Estonia
32	Latvia
36	Lithuania
CY	Cyprus]
IRL	Ireland

[^{F2}MT

Malta]

Textual Amendments

- F2** Inserted by [Act concerning the conditions of accession of the Czech Republic, the Republic of Estonia, the Republic of Cyprus, the Republic of Latvia, the Republic of Lithuania, the Republic of Hungary, the Republic of Malta, the Republic of Poland, the Republic of Slovenia and the Slovak Republic and the adjustments to the Treaties on which the European Union is founded.](#)

It must also include in the vicinity of the rectangle the four-digit sequential number (with leading zeros as applicable) — hereinafter referred to as ‘base approval number’ — contained in Section 4 of the type-approval number shown on the EEC type-approval certificate issued for the type of device in question (see Annex IIIB), preceded by the two figures indicating the sequence number assigned to the most recent major technical amendment to Directive 72/245/EEC on the date EEC component type-approval was granted. In this Directive the sequence number is 02.

- 5.3. The EEC type-approval mark must be affixed to the main part of the ESA (e.g. the electronic control unit) in such a way as to be clearly legible and indelible.
- 5.4. An example of the EEC type-approval mark is shown in Appendix 7.
- 5.5. No marking is required for electrical/electronic systems included in vehicle types approved by this Directive.
- 5.6. Markings on ESAs in compliance with paragraph 5.3 need not be visible when the ESA is installed in a vehicle.
6. Specifications
- 6.1. General specification
- 6.1.1. A vehicle (and its electrical/electronic system(s) or ESAs) shall be so designed, constructed and fitted as to enable the vehicle, in normal conditions of use, to comply with the requirements of this Directive.
- 6.2. Specifications concerning broadband electromagnetic radiation from vehicles fitted with spark ignition.
- 6.2.1. Method of measurement

The electromagnetic radiation generated by the vehicle representative of its type shall be measured using the method described in Annex IV at either of the defined antenna distances. The choice shall be made by the vehicle manufacturer.

- 6.2.2. Vehicle broadband reference limits
- 6.2.2.1. If measurements are made using the method described in Annex IV using a vehicle-to-antenna spacing of $10,0 \pm 0,2$ m, the radiation reference limits shall be 34 dB microvolts/m (50 microvolts/m) in the 30 to 75 MHz frequency band and 34 to 45 dB microvolts/m (50 to 180 microvolts/m) in the 75 to 400 MHz frequency band, this limit increasing logarithmically (linearly) with frequencies above 75 MHz as shown in Appendix 1 to this Annex. In the 400 to 1 000 MHz frequency band the limit remains constant at 45 dB microvolts/m (180 microvolts/m).
- 6.2.2.2. If measurements are made using the method described in Annex IV using a vehicle-to-antenna spacing of $3,0 \pm 0,05$ m, the radiation reference limits shall be 44 dB

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microvolts/m (160 microvolts/m) in the 30 to 75 MHz frequency band and 44 to 55 dB microvolts/m (160 to 562 microvolts/m) in the 75 to 400 MHz frequency band, this limit increasing logarithmically (linearly) with frequencies above 75 MHz as shown in Appendix 2 to this Annex. In the 400 to 1 000 MHz frequency band the limit remains constant at 55 dB microvolts/m (562 microvolts/m).

6.2.2.3. On the vehicle representative of its type, the measured values, expressed in dB microvolts/m, (microvolts/m), shall be at least 2,0 dB (20 %) below the reference limits.

6.3. Specifications concerning narrowband electromagnetic radiation from vehicles.

6.3.1. Method of measurement

The electromagnetic radiation generated by the vehicle representative of its type shall be measured using the method described in Annex V at either of the defined antenna distances. The choice shall be made by the vehicle manufacturer.

6.3.2. Vehicle narrowband reference limits

6.3.2.1. If measurements are made using the method described in Annex V using a vehicle-to-antenna spacing of $10,0 \pm 0,2$ m, the radiation-reference limits shall be 24 dB microvolts/m (16 microvolts/m) in the 30 to 75 MHz frequency band and 24 to 35 dB microvolts/m (15 to 56 microvolts/m) in the 75 to 400 MHz frequency band, this limit increasing logarithmically (linearly) with frequencies above 75 MHz as shown in Appendix 3 of this Annex. In the 400 to 1 000 MHz frequency band the limit remains constant at 35 dB microvolts/m (56 microvolts/m).

6.3.2.2. If measurements are made using the method described in Annex V using a vehicle-to-antenna spacing of $3,0 \pm 0,05$ m, the radiation reference limit shall be 34 dB microvolts/m (50 microvolts/m) in the 30 to 75 MHz frequency band and 34 to 45 dB microvolts/m (50 to 180 microvolts/m) in the 75 to 400 MHz frequency band, this limit increasing logarithmically (linearly) with frequencies above 75 MHz as shown in Appendix 4 to this Annex. In the 400 to 1 000 MHz frequency band the limit remains constant at 45 dB microvolts/m (180 microvolts/m).

6.3.2.3. On the vehicle representative of its type, the measured values, expressed in dB microvolts/m (microvolts/m), shall be at least 2,0 dB (20 %) below the reference limit.

6.3.2.4. Notwithstanding the limits defined in paragraphs 6.3.2.1, 6.3.2.2 and 6.3.2.3 of this Annex, if, during the initial step described in Annex V, paragraph 1.3, the signal strength measured at the vehicle broadcast radio antenna is less than 20 dB microvolts (10 microvolts) over the frequency range 88 to 108 MHz, then the vehicle shall be deemed to comply with the limits for narrowband emissions and no further testing will be required.

6.4. Specifications concerning immunity of vehicles to electromagnetic radiation.

6.4.1. Method of testing

The immunity to electromagnetic radiation of the vehicle representative of its type shall be tested by the method described in Annex VI.

6.4.2. Vehicle immunity reference limits.

- 6.4.2.1. If tests are made using the method described in Annex VI, the field strength reference level shall be 24 volts/m rms in over 90 % of the 20 to 1 000 MHz frequency band and 20 volts/m rms over the whole 20 to 1 000 MHz frequency band.
- 6.4.2.2. The vehicle representative of its type shall be considered as complying with immunity requirements if, during the tests performed in accordance with Annex VI, and subjected to a field strength, expressed in volts/m, of 25 % above the reference level, there shall be no abnormal change in the speed of the driven wheels of the vehicle, no degradation of performance which would cause confusion to other road users, and no degradation in the driver's direct control of the vehicle which could be observed by the driver or other road user.
- 6.4.2.3. The driver's direct control of the vehicle is exercised by means of, for example, steering, braking, or engine speed control.

6.5. Specification concerning broadband electromagnetic interference generated by ESAs.

6.5.1. Method of measurement

The electromagnetic radiation generated by the ESA representative of its type shall be measured by the method described in Annex VII.

6.5.2. ESA broadband reference limits

- 6.5.2.1. If measurements are made using the method described in Annex VII, the radiation reference limits shall be 64 to 54 dB microvolts/m (1 600 to 500 microvolts/m) in the 30 to 75 MHz frequency band, this limit decreasing logarithmically (linearly) with frequencies above 30 MHz, and 54 to 65 dB microvolts/m (500 to 1 800 microvolts/m) in the 75 to 400 MHz band, this limit increasing logarithmically (linearly) with frequencies above 75 MHz as shown in Appendix 5 to this Annex. In the 400 to 1 000 MHz frequency band the limit remains constant at 65 dB microvolts/m (1 800 microvolts/m).
- 6.5.2.2. On the ESA representative of its type, the measured values, expressed in dB microvolts/m, (microvolts/m) shall be at least 2,0 dB (20 %) below the reference limits.

6.6. Specifications concerning narrowband electromagnetic interference generated by ESAs.

6.6.1. Method of measurement

The electromagnetic radiation generated by the ESA representative of its type shall be measured by the method described in Annex VIII.

6.6.2. ESA narrowband reference limits.

- 6.6.2.1. If measures are made using the method described in Annex VIII, the radiation reference limits shall be 54 to 44 dB microvolts/m (500 to 160 microvolts/m) in the 30 to 75 MHz frequency band, this limit decreasing logarithmically (linearly) with frequencies above 30 MHz, and 44 to 55 dB microvolts/m (160 to 560 microvolts/m) in the 75 to 400 MHz band, this limit increasing logarithmically (linearly) with frequencies above 75 MHz as shown in Appendix 6 to this Annex. In the 400 to 1 000 MHz frequency band the limit remains constant at 55 dB microvolts/m (560 microvolts/m).
- 6.6.2.2. On the ESA representative of its type, the measured value, expressed in dB microvolts/m (microvolts/m) shall be at least 2,0 dB (20 %) below the reference limits.

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6.7. Specifications concerning immunity of ESAs to electromagnetic radiation.

6.7.1. Method(s) of testing

The immunity to electromagnetic radiation of the ESA representative of its type shall be tested by the method(s) chosen from those described in Annex IX.

6.7.2. ESA immunity reference limits

6.7.2.1. If tests are made using the methods described in Annex IX, the immunity test reference levels shall be 48 volts/m for the 150 mm stripline testing method, 12 volts/m for the 800 mm stripline testing method, 60 volts/m for the TEM cell testing method, 48 mA for the bulk current injection (BCI) testing method and 24 volts/m for the free field testing method.

6.7.2.2. On the ESA representative of its type at a field strength or current expressed in appropriate linear units 25 % above the reference limit, the ESA shall not exhibit any malfunction which would cause any degradation of performance which could cause confusion to other road users or any degradation in the driver's direct control of a vehicle fitted with the system which could be observed by the driver or other road user.

7. Conformity of production

7.1. Measures to ensure the conformity of production shall be taken in accordance with the provisions laid down in Article 10 of Directive 70/156/EEC.

7.2. Conformity of production with regard to the electromagnetic compatibility of the vehicle or component of separate technical unit shall be checked on the basis of the data contained in the type-approval certificate(s) set out in Annex IIIA and/or IIIB of this Directive as appropriate.

7.3. If the authority is not satisfied with the auditing procedure of the manufacturer, then items 2.4.2 and 2.4.3 of Annex X to Directive 70/156/EEC and paragraphs 7.3.1 and 7.3.2 below shall apply.

7.3.1. If the conformity of a vehicle, component or STU taken from the series is being verified, production shall be deemed to conform to the requirements of this Directive in relation to broadband radiated emissions and narrowband radiated emissions if the levels measured do not exceed by more than 2 dB, (25 %) the reference limits prescribed in paragraphs 6.2.2.1, 6.2.2.2, 6.3.2.1 and 6.3.2.2 (as appropriate).

7.3.2. If the conformity of a vehicle, component or STU taken from the series is being verified, production shall be deemed to conform to the requirements of this Directive in relation to immunity to electromagnetic radiation if the vehicle, component or STU does not exhibit any degradation relating to the direct control of the vehicle which could be observed by the driver or other road user when the vehicle, component or STU is in the state defined in Annex VI, paragraph 4, and subjected to a field strength, expressed in volts/m, up to 80 % of the reference limits prescribed in paragraph 6.4.2.1 of this Annex.

8. Exceptions

8.1. Where a vehicle or electrical/electronic system or ESA does not include an electronic oscillator with an operating frequency greater than 9 kHz, it shall be deemed to comply with paragraph 6.3.2 or 6.6.2 of Annex I and with Annexes V and VIII.

8.2. Vehicles which do not have electrical/electronic systems or ESAs involved in the direct control of the vehicle need not be tested for immunity and shall be deemed to comply with paragraph 6.4 of Annex I and with Annex VI to this Directive.

8.3. ESAs whose functions are not involved in the direct control of the vehicle need not be tested for immunity and shall be deemed to comply with paragraph 6.7 of Annex I and with Annex IX to this Directive.

8.4. Electrostatic discharge

For vehicles fitted with tyres, the vehicle body/chassis can be considered to be an electrically isolated structure. Significant electrostatic forces in relation to the vehicle's external environment only occur at the moment of occupant entry into or exit from the vehicle. As the vehicle is stationary at these moments, no type-approval test for electrostatic discharge is deemed necessary.

8.5. Conducted transients

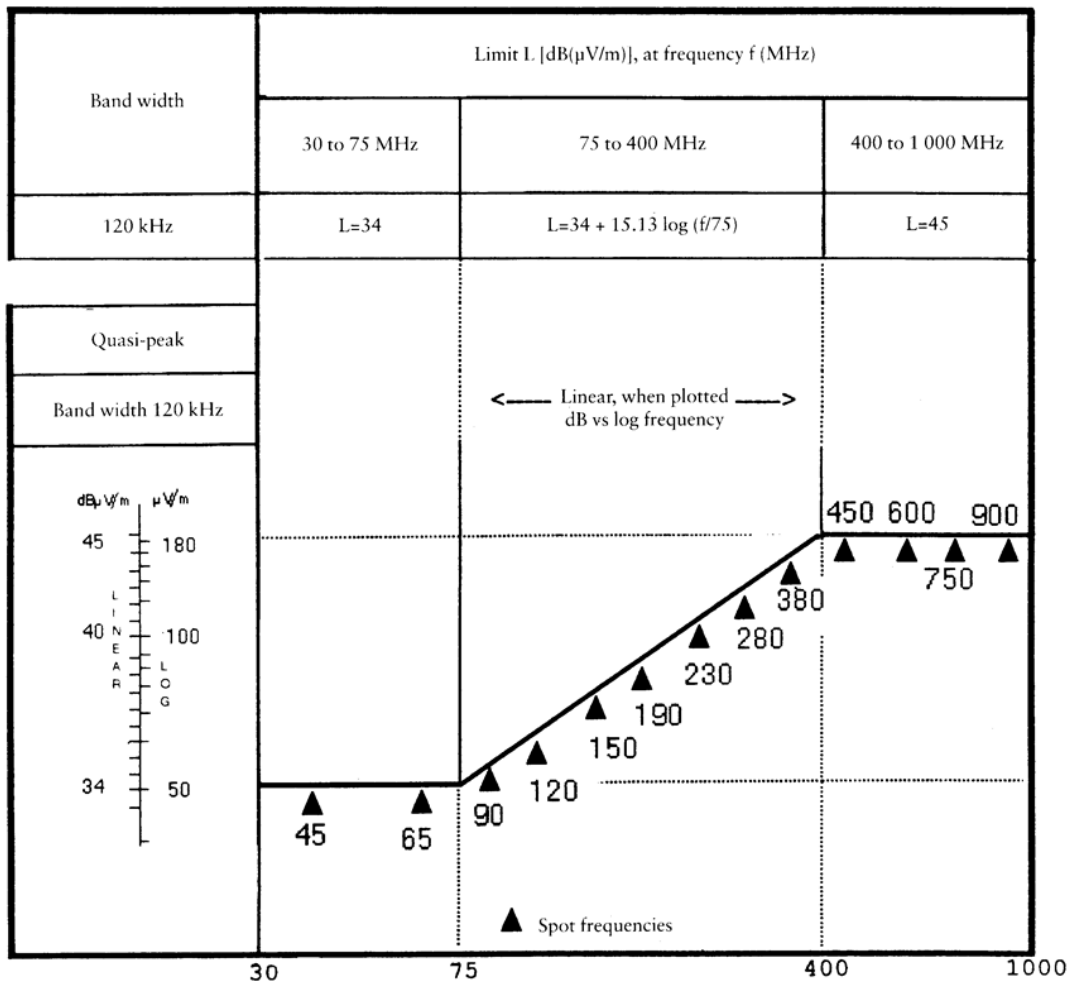
Since during normal driving, no external electrical connections are made to vehicles, no conducted transients are generated in relation to the external environment. The responsibility of ensuring that equipment can tolerate the conducted transients within a vehicle, e.g. due to load switching and interaction between systems, lies with the manufacturer. No type-approval test for conducted transients is deemed necessary.

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Appendix 1

Vehicle broadband reference limits

Antenna—vehicle separation: 10 m



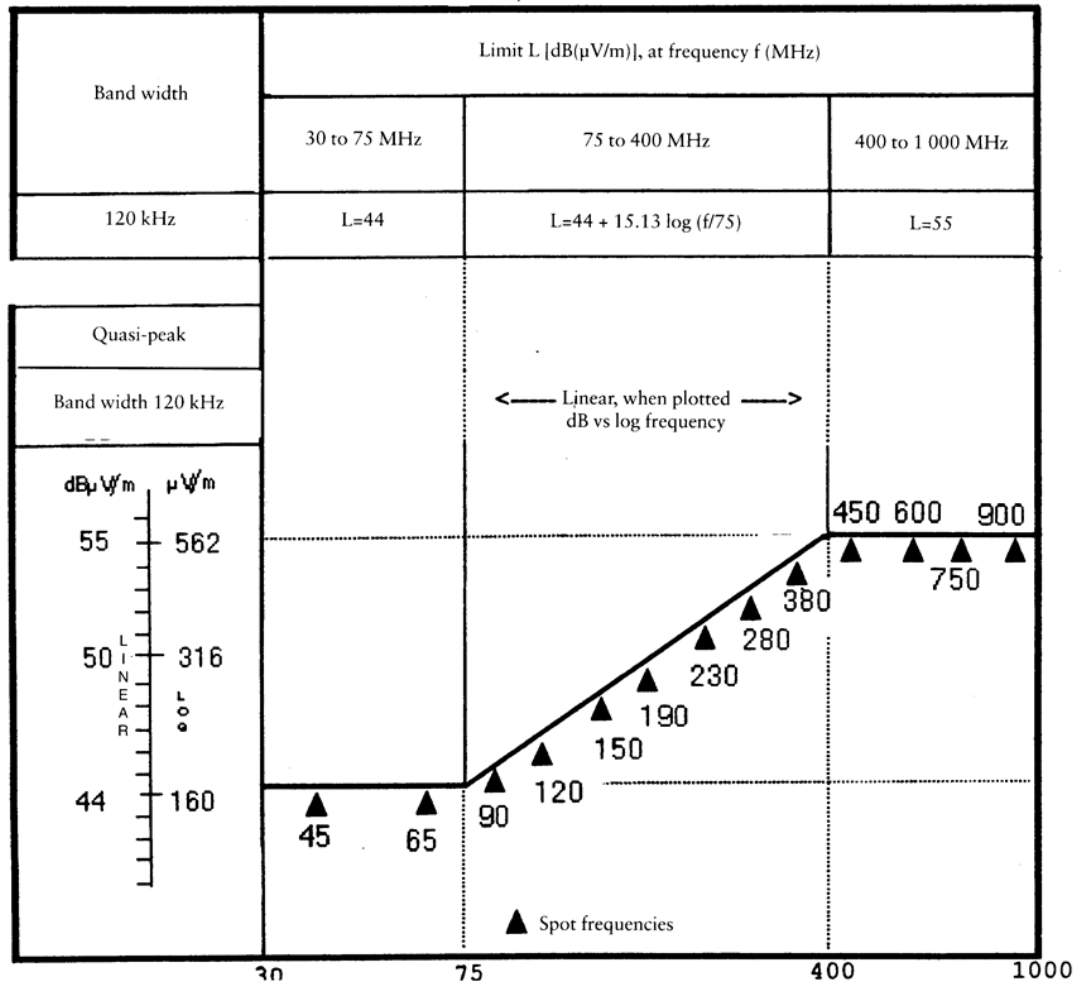
See Annex I, Section 6.2.2.1

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Appendix 2

Vehicle broadband reference limits

Antenna—vehicle separation: 3 m



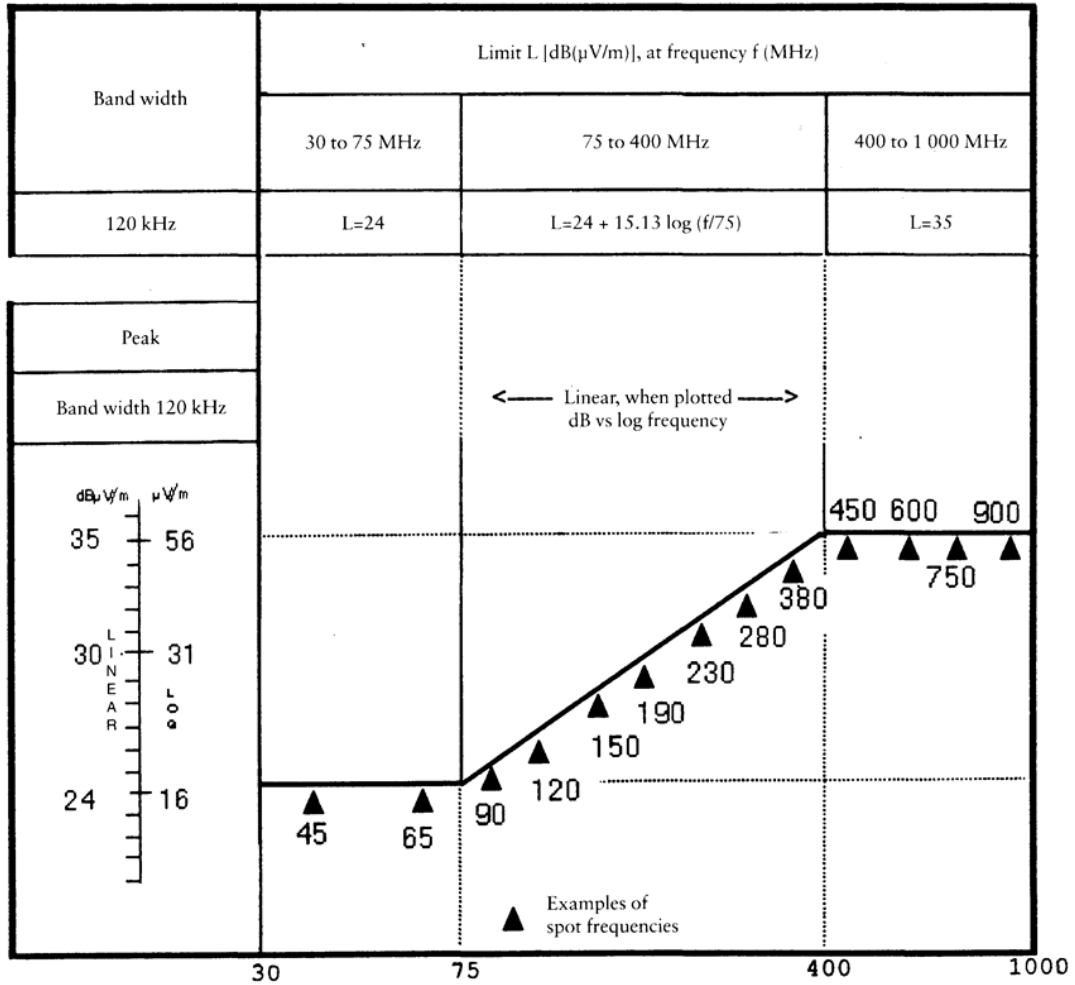
See Annex I, Section 6.2.2.2

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Appendix 3

Vehicle narrowband reference limits

Antenna—vehicle separation: 10 m



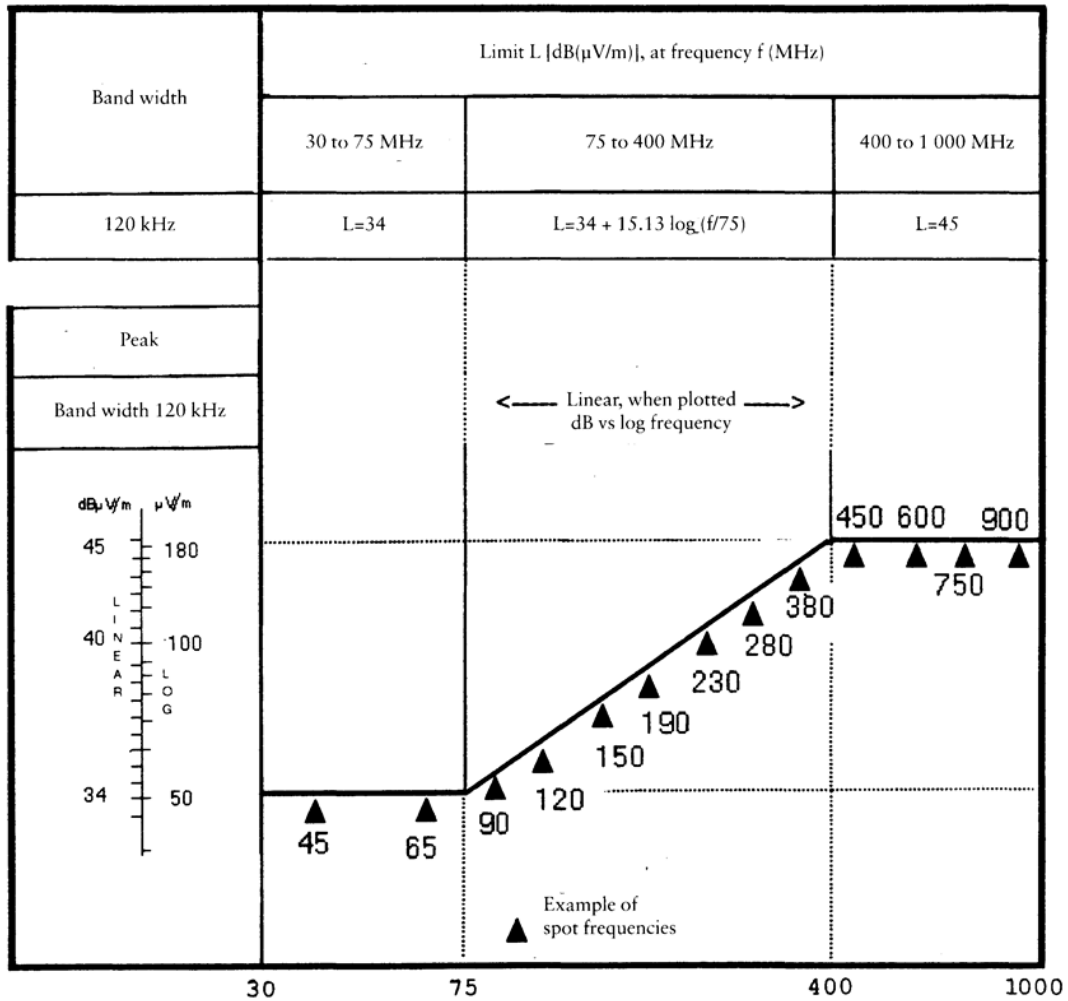
See Annex I, Section 6.3.2.1

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Appendix 4

Vehicle narrowband reference limits

Antenna—vehicle separation: 3 m



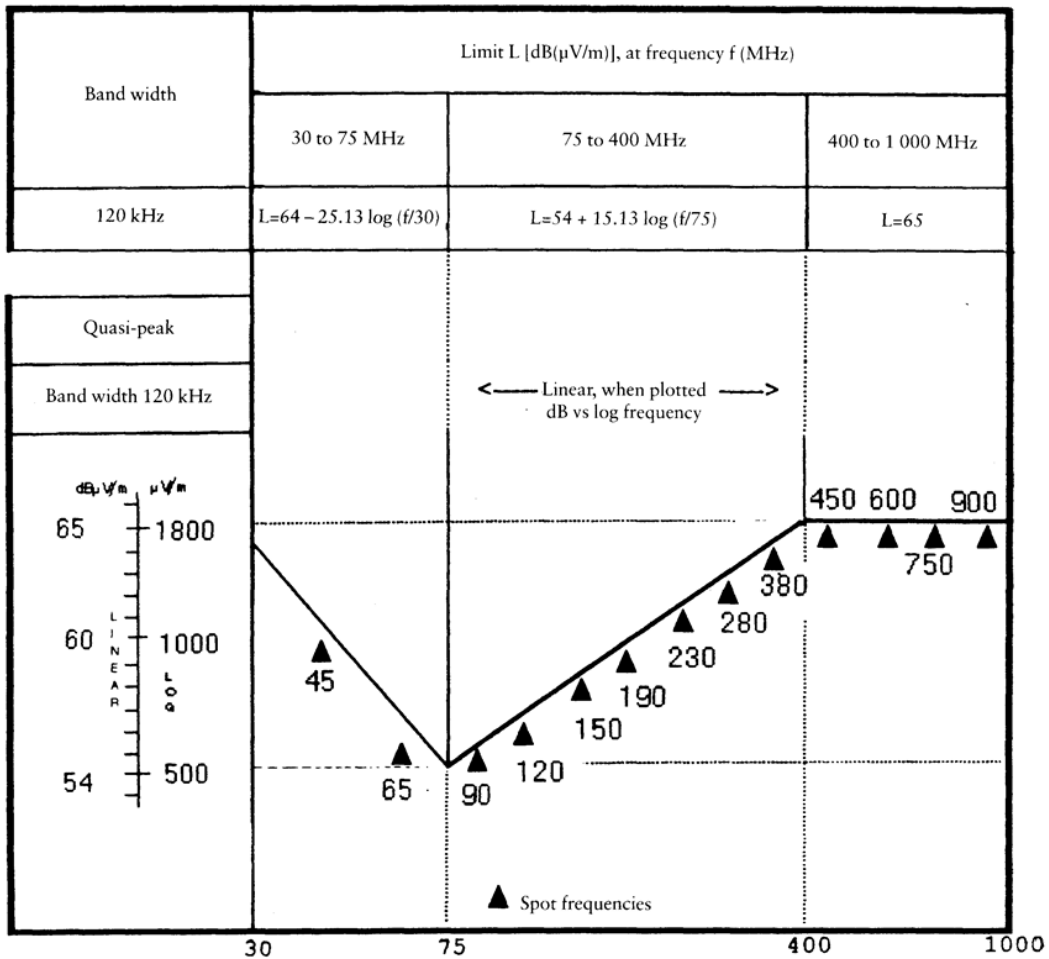
See Annex I, Section 6.8.2.2

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Appendix 5

Electrical/electronic sub-assembly

Broadband reference limits

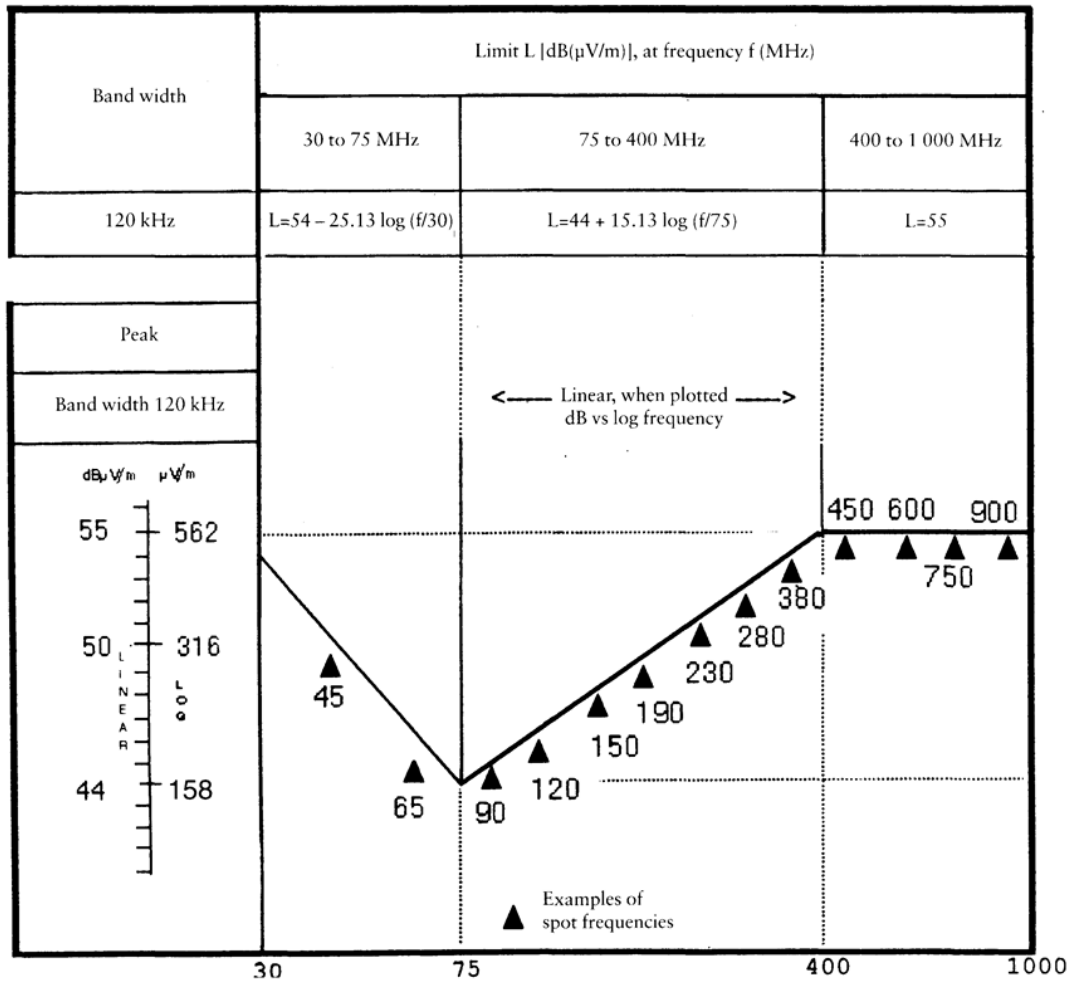


See Annex I, Section 6.5.2.1

Appendix 6

Electrical/electronic sub-assembly

Narrowband reference limits

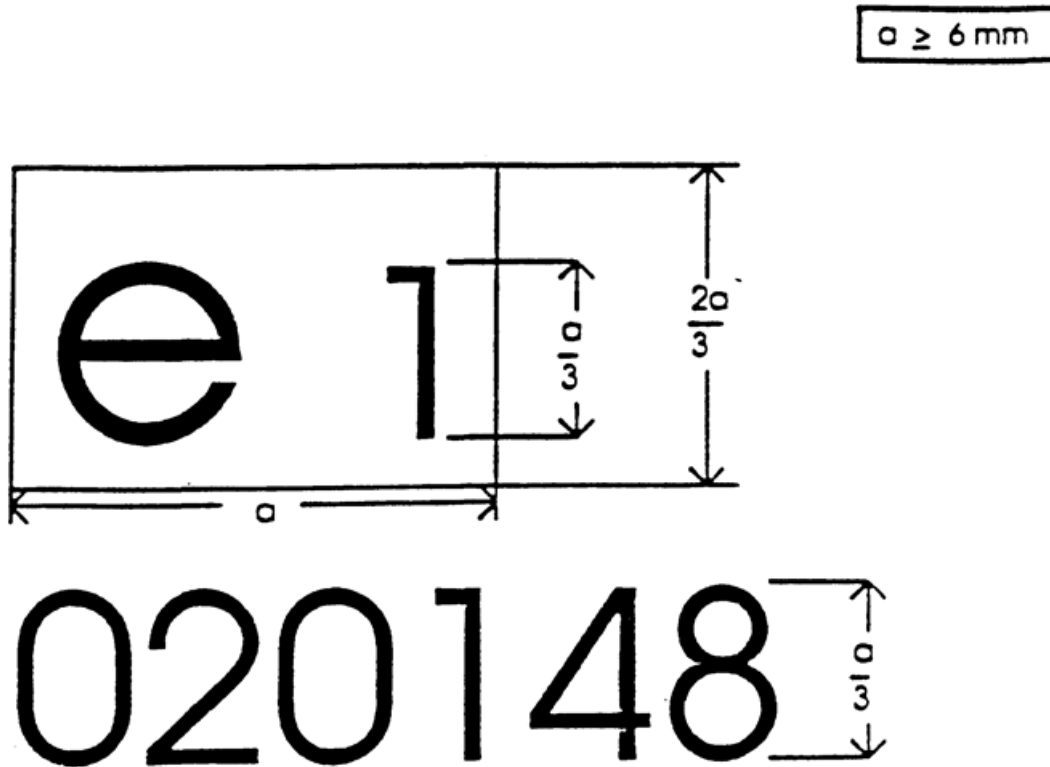


See Annex I, Section 6.6.2.1

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Appendix 7

Model for the EEC type-approval mark



The ESA bearing the above EEC type-approval mark is a device which has been approved in Germany (e1) under the base approval number 0148. The first two digits (02) indicate that the device conforms with the requirements of Directive 72/245/EEC, as amended by this Directive.

The figures used are only indicative.]

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- (1) [^{F1}If applicable.
- (2) If applicable.
- (3) For example: radio telephone and citizens band radio.]

Textual Amendments

- F1** Substituted by Commission Directive 95/54/EC of 31 October 1995 adapting to technical progress Council Directive 72/245/EEC on the approximation of the laws of the Member States relating to the suppression of radio interference produced by spark-ignition engines fitted to motor vehicles and amending Directive 70/156/EEC on the approximation of the laws of the Member States relating to the type-approval of motor vehicles and their trailers.