

Extract from **COMMISSION DIRECTIVE 2004/104/EC**

Relating to change to E Vehicle Mark requirements from January 2006

Article 2

1. With effect from 1 January 2006, for vehicles, components or separate technical units which comply with the provisions laid down in Annexes I to X to Directive 72/245/EEC as amended by this Directive, no Member State may, on grounds relating to electromagnetic compatibility:

- (a) refuse to grant EC type-approval, or national type-approval
or
- (b) prohibit registration, sale or entry into service.

3.2.9. Components sold as aftermarket equipment and intended for the installation in motor vehicles need no type approval if they are not related to immunity-related functions (Annex I, 2.1.12). In this case a Declaration of Conformity according to the procedures of Directive 89/336/EEC or 1999/5/EC must be issued. Part of this declaration must be that the ESA fulfils the limits defined in paragraphs 6.5, 6.6, 6.8 and 6.9 of Annex I to this Directive.

During a transition period of four years after coming into force of this Directive the responsible for placing on the market of such a product has to submit all relevant information and/or a sample to a technical service which will determine if the equipment is immunity-related or not. The result of the inspection shall be available within three weeks and not require additional testing. A document according to the example given in Annex III C shall be issued by the technical service within the same period. Member States shall report, by a date three years from the entry into force of this Directive, any cases of refusals on safety grounds. Based on the practical experience with this requirement and based on the reports submitted by Member States, it will be decided, according to the procedure referred to in Article 13 of Directive 70/156/EEC, and before the end of the transition period, if this document is still required in addition to the Declaration of Conformity.

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 type-approval limits

6.5.2.1. If measurements are made using the method described in Annex VII, the limits shall be 62 to 52 dB microvolts/m in the 30 to 75 MHz frequency band, this limit decreasing logarithmically with frequencies above 30 MHz, and 52 to 63 dB microvolts/m in the 75 to 400 MHz band, this limit increasing logarithmically 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 63 dB microvolts/m.

6.5.2.2. On the ESA representative of its type, the measured values, expressed in dB microvolts/m, shall be below the type-approval 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 type-approval limits

6.6.2.1. If measurements are made using the method described in Annex VIII, the limits shall be 52 to 42 dB microvolts/m in the 30 to 75 MHz frequency band, this limit decreasing logarithmically with frequencies above 30 MHz, and 42 to 53 dB microvolts/m in the 75 to 400 MHz band, this limit increasing logarithmically with frequencies above 75 MHz as shown in Appendix 7 to this Annex. In the 400 to 1 000 MHz frequency band the limit remains constant at 53 dB microvolts/m.

6.6.2.2. On the ESA representative of its type, the measured value, expressed in dB microvolts/m shall be below the type-approval limits.

6.8. Specifications concerning the immunity to transient disturbances conducted along supply lines

6.8.1. Method of testing

The immunity of ESA representative of its type shall be tested by the method(s) according to ISO 7637-2:DIS2002 as described in Annex X with the test levels given in Table 1.

Table 1: Immunity of ESA

Test pulse number	Immunity test level	Functional status for systems	
		Related to immunity-related functions	Not related to immunity-related functions
1	III	C	D
2a	III	B	D
2b	III	C	D
3a/3b	III	A	D
4	III	B <i>(for ESA which must be operational during engine start phases)</i> C <i>(for other ESAs)</i>	D

6.9. Specifications concerning the emission of conducted disturbances

6.9.1. Method of testing

The emission of ESA representative of its type shall be tested by the method(s) according to ISO 7637-2:DIS2002 as described in Annex X for the levels given in Table 2.

Table 2: Maximum allowed pulse amplitude

Polarity of pulse amplitude	Maximum allowed pulse amplitude for	
	vehicles with 12 V systems	vehicles with 24 V systems
Positive	+ 75	+ 150
Negative	- 100	- 450

The JLT8402, JLT8403 Field Tablet PCs and JLT1002, JLT10021, JLT1204, JLT12041 and JLT 15021 fixed mount PCs have been tested according to 89/336/EEC. (The EMC-directive). All required EMC tests has been independently carried out and approved.