LIST OF ANNEXES

ANNEX I

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

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

4.3.2.1. . . . . .

4.3.2.2. . . . . .

4.3.2.3. . . . . .

5. MARKING

5.1. . . . . .

5.2. . . . . .

. . . . . .

. . . . . .

5.3. . . . . .

5.4. . . . . .

5.5. . . . . .

5.6. . . . . .

6. SPECIFICATIONS

6.1. General specification

6.1.1. . . . . .

6.2. Specifications concerning broadband electromagnetic radiation from vehicles fitted with spark ignition

6.2.1. Method of measurement

. . . . . .

6.2.2. Vehicle broadband reference limits

6.2.2.1. . . . . .

6.2.2.2. . . . . .

6.2.2.3. . . . . .

6.3. Specifications concerning narrowband electromagnetic radiation from vehicles

6.3.1. Method of measurement

. . . . . .

6.3.2. Vehicle narrowband reference limits

6.3.2.1. . . . . .

6.3.2.2. . . . . .

6.3.2.3. . . . . .

6.3.2.4. . . . . .

6.4. Specifications concerning immunity of vehicles to electromagnetic radiation

6.4.1. Method of testing

. . . . . .

6.4.2. Vehicle immunity reference limits

6.4.2.1. . . . . .

6.4.2.2. . . . . .

6.4.2.3. . . . . .

6.5. Specification concerning broadband electromagnetic interference generated by ESAs

6.5.1. Method of measurement

. . . . . .

6.5.2. ESA broadband reference limits

6.5.2.1. . . . . .

6.5.2.2. . . . . .

6.6. Specifications concerning narrowband electromagnetic interference generated by ESAs

6.6.1. Method of measurement

. . . . . .

6.6.2. ESA narrowband reference limits

6.6.2.1. . . . . .

6.6.2.2. . . . . .

6.7. Specifications concerning immunity of ESAs to electromagnetic radiation

6.7.1. Method(s) of testing

. . . . . .

6.7.2. ESA immunity reference limits

6.7.2.1. . . . . .

6.7.2.2. . . . . .

7. CONFORMITY OF PRODUCTION

7.1. . . . . .

7.2. . . . . .

7.3. . . . . .

8. EXCEPTIONS

8.1. . . . . .

8.2. . . . . .

8.3. . . . . .

8.4. Electrostatic discharge

. . . . . .

8.5. Conducted transients

. . . . . .

Appendix 1

Vehicle broadband reference limits

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Appendix 2

Vehicle broadband reference limits

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Appendix 3

Vehicle narrowband reference limits

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Appendix 4

Vehicle narrowband reference limits

. . . . . .

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Appendix 5

Broadband reference limits of electrical/electronic sub-assembly

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Appendix 6

Narrowband reference limits of electrical/electronic sub-assembly

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Appendix 7

Example of the EC type-approval mark

. . . . . .

. . . . . .

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ANNEX II

Information document No … pursuant to Annex I to Directive 2003/37/EC relating to EC type-approval of an agricultural or forestry tractor concerning electromagnetic compatibility (Directive 2009/64/EC)

. . . . . .

. . . . . .

0. General

0.1. . . . . .

0.2. . . . . .

0.3. . . . . .

0.3.1. . . . . .

0.4. . . . . .

0.5. . . . . .

0.8. . . . . .

1. General construction characteristics of the vehicle

. . . . . .

1.2. . . . . .

3. Engine

3.1.2. . . . . .

3.1.4. . . . . .

3.1.6. . . . . .

. . . . . .

3.2.1.6. . . . . .

3.2.1.9. . . . . .

3.2.3. . . . . .

3.2.3.1. . . . . .

. . . . . .

3.2.3.2. . . . . .

3.2.4.2.1. . . . . .

3.2.5. . . . . .

. . . . . .

3.11. . . . . .

3.11.1. . . . . .

3.11.2. . . . . .

3.11.2.1. . . . . .

3.11.2.2. . . . . .

4. Transmission

4.2. . . . . .

4.2.1. . . . . .

6. Suspension (where appropriate)

6.2.2. . . . . .

7. Steering

7.2.2.1. . . . . .

7.2.6. . . . . .

8. Brakes

8.5. . . . . .

9. Field of vision, glazing, windscreen wipers and rear-view mirrors

9.2. . . . . .

9.2.3.4. . . . . .

9.3. . . . . .

. . . . . .

9.4. . . . . .

9.4.6. . . . . .

9.5. . . . . .

9.5.1. . . . . .

10. Roll-over protective structures, weather protection, seats, load platforms

10.3. . . . . .

10.3.1.4. . . . . .

10.3.1.5. . . . . .

10.3.1.6. . . . . .

10.5. . . . . .

10.5.1. . . . . .

10.5.2. . . . . .

10.5.3. . . . . .

10.5.4. . . . . .

11. Lighting and light-signalling devices

11.3. . . . . .

12. Miscellaneous

12.8. . . . . .

Appendix 1

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. . . . . .

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Appendix 2

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ANNEX III

Information document No … relating to EC type-approval of an electrical/electronic sub-assembly (ESA) with respect to electromagnetic compatibility (Directive 2009/64/EC)

. . . . . .

. . . . . .

0. GENERAL

0.1. . . . . .

0.2. . . . . .

0.5. . . . . .

0.7. . . . . .

0.8. . . . . .

1. THIS ESA SHALL BE APPROVED AS A COMPONENT/STU

2. ANY RESTRICTIONS OF USE AND CONDITIONS FOR FITTING:

Appendix 1

. . . . . .

Appendix 2

. . . . . .

ANNEX IV

MODEL

(maximum format: A4 (210 × 297 mm))

EC TYPE-APPROVAL CERTIFICATE

‘VEHICLE’

. . . . . .

. . . . . .

. . . . . .

. . . . . .

. . . . . .

SECTION I

0.1. . . . . .

0.2. . . . . .

0.3. . . . . .

0.3.1. . . . . .

0.4. . . . . .

0.5. . . . . .

0.8. . . . . .

SECTION II

1. . . . . .

2. . . . . .

3. . . . . .

4. . . . . .

5. . . . . .

6. . . . . .

7. . . . . .

8. . . . . .

9. . . . . .

Appendix to EC type-approval certificate No … concerning the type-approval of a vehicle with regard to Directive 2009/64/EC

1. . . . . .

1.1. . . . . .

1.2. . . . . .

1.3. . . . . .

1.4. . . . . .

1.5. . . . . .

5. . . . . .

. . . . . .

ANNEX V

MODEL

(maximum format: A4 (210 × 297 mm))

EC TYPE-APPROVAL CERTIFICATE

'ESA'

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. . . . . .

. . . . . .

. . . . . .

. . . . . .

SECTION I

0.1. . . . . .

0.2. . . . . .

0.3. . . . . .

0.3.1. . . . . .

0.4. . . . . .

0.5. . . . . .

0.7. . . . . .

0.8. . . . . .

SECTION II

1. . . . . .

2. . . . . .

3. . . . . .

4. . . . . .

5. . . . . .

6. . . . . .

7. . . . . .

8. . . . . .

9. . . . . .

Appendix to EC type-approval certificate No … concerning the type-approval of an electrical/electronic sub-assembly with regard to Directive 2009/64/EC

1. . . . . .

1.1. . . . . .

1.2. . . . . .

1.2.1. . . . . .

1.3. . . . . .

1.3.1. . . . . .

1.4. . . . . .

1.5. . . . . .

5. . . . . .

## ANNEX VI

## METHOD OF MEASUREMENT OF RADIATED BROADBAND ELECTROMAGNETIC EMISSIONS FROM VEHICLES

1. GENERAL

1.1. . . . . .

1.2. Measuring apparatus

. . . . . .

. . . . . .

1.3. Test method

. . . . . .

. . . . . .

2. EXPRESSION OF RESULTS

. . . . . .

3. MEASURING LOCATION

3.1. . . . . .

3.2. . . . . .

. . . . . .

3.3. . . . . .

3.4. Ambient

. . . . . .

4. VEHICLE STATE DURING TESTS

4.1. Engine

. . . . . .

. . . . . .

. . . . . .

4.2. . . . . .

5. ANTENNA TYPE, POSITION AND ORIENTATION

5.1. Antenna type

. . . . . .

5.2. Height and distance of measurement

5.2.1. Height

5.2.1.1. 10 m test

. . . . . .

5.2.1.2. 3 m test

. . . . . .

5.2.1.3. . . . . .

5.2.2. Distance of measurement

5.2.2.1. 10 m test

. . . . . .

5.2.2.2. 3 m test

. . . . . .

5.2.2.3. . . . . .

5.3. Antenna location relative to vehicle

. . . . . .

5.4. Antenna position

. . . . . .

5.5. Readings

. . . . . .

6. FREQUENCIES

6.1. Measurements

. . . . . .

6.1.1. . . . . .

6.1.2. . . . . .

6.2. Tolerances

. . . . . .

. . . . . .

Appendix 1

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. . . . . .

ANNEX VII

METHOD OF MEASUREMENT OF RADIATED NARROWBAND ELECTROMAGNETIC EMISSIONS FROM VEHICLES

1. GENERAL

1.1. . . . . .

1.2. Measuring apparatus

. . . . . .

. . . . . .

1.3. Test method

1.3.1. . . . . .

1.3.2. . . . . .

1.3.3. . . . . .

2. EXPRESSION OF RESULTS

. . . . . .

3. MEASURING LOCATION

3.1. . . . . .

3.2. . . . . .

. . . . . .

3.3. . . . . .

3.4. Ambient

. . . . . .

4. VEHICLE STATE DURING TESTS

4.1. . . . . .

4.2. . . . . .

4.3. . . . . .

5. ANTENNA TYPE, POSITION AND ORIENTATION

5.1. Antenna type

. . . . . .

5.2. Height and distance of measurement

5.2.1. Height

5.2.1.1. 10 m test

. . . . . .

5.2.1.2. 3 m test

. . . . . .

5.2.1.3. . . . . .

5.2.2. Distance of measurement

5.2.2.1. 10 m test

. . . . . .

5.2.2.2. 3 m test

. . . . . .

5.2.2.3. . . . . .

5.3. Antenna location relative to vehicle

. . . . . .

5.4. Antenna position

. . . . . .

5.5. Readings

. . . . . .

6. FREQUENCIES

6.1. Measurements

. . . . . .

. . . . . .

. . . . . .

## ANNEX VIII

## METHOD OF TESTING FOR IMMUNITY OF VEHICLES TO ELECTROMAGNETIC RADIATION

1. GENERAL

1.1. . . . . .

1.2. Test method

. . . . . .

2. EXPRESSION OF RESULTS

. . . . . .

3. MEASURING LOCATION

. . . . . .

. . . . . .

4. VEHICLE STATE DURING TESTS

4.1. . . . . .

4.1.1. . . . . .

4.1.2. . . . . .

4.1.3. . . . . .

4.1.4. . . . . .

4.1.5. . . . . .

4.2. . . . . .

4.3. . . . . .

4.4. . . . . .

. . . . . .

5. FIELD GENERATING DEVICE TYPE, POSITION AND ORIENTATION

5.1. Field generating device type

5.1.1. . . . . .

5.1.2. . . . . .

5.1.3. . . . . .

5.2. Height and distance of measurement

5.2.1. Height

5.2.1.1. . . . . .

5.2.1.2. . . . . .

5.2.2. Distance of measurement

5.2.2.1. . . . . .

5.2.2.2. . . . . .

5.3. Antenna location relative to vehicle

5.3.1. . . . . .

5.3.2. . . . . .

5.3.3. . . . . .

5.3.4. . . . . .

5.4. Reference point

5.4.1. . . . . .

5.4.1.1. . . . . .

5.4.1.2. . . . . .

5.4.1.3. . . . . .

5.4.1.4. . . . . .

. . . . . .

. . . . . .

5.4.1.5. . . . . .

. . . . . .

. . . . . .

5.5. . . . . .

6. TEST REQUIREMENTS

6.1. Frequency range, dwell times, polarisation

. . . . . .

6.1.1. . . . . .

. . . . . .

. . . . . .

6.1.2. . . . . .

6.1.3. . . . . .

6.1.4. . . . . .

7. GENERATION OF REQUIRED FIELD STRENGTH

7.1. Test methodology

7.1.1. . . . . .

7.1.2. Calibration phase

. . . . . .

7.1.3. Test phase

. . . . . .

7.1.4. . . . . .

7.1.5. . . . . .

7.1.6. Field strength measuring device

. . . . . .

7.1.7. . . . . .

7.1.8. . . . . .

7.1.9. . . . . .

7.2. Field strength contour

7.2.1. . . . . .

. . . . . .

7.3. Chamber resonance

. . . . . .

7.4. Characteristics of the test signal to be generated

7.4.1. Maximum envelope excursion

. . . . . .

7.4.2. Test signal wave form

. . . . . .

7.4.3. Modulation depth

. . . . . .

. . . . . .

Appendix 1

. . . . . .

Appendix 2

. . . . . .

Appendix 3

Characteristics of test signal to be generated

. . . . . .

ANNEX IX

METHOD OF MEASUREMENT OF RADIATED BROADBAND ELECTROMAGNETIC EMISSIONS FROM ELECTRICAL/ELECTRONIC SUB-ASSEMBLIES

1. GENERAL

1.1. . . . . .

1.2. Measuring apparatus

. . . . . .

. . . . . .

1.3. Test method

. . . . . .

2. EXPRESSION OF RESULTS

. . . . . .

3. MEASURING LOCATION

3.1. . . . . .

3.2. . . . . .

3.3. . . . . .

3.4. Ambient

. . . . . .

4. ESA STATE DURING TESTS

4.1. . . . . .

4.2. . . . . .

4.3. Test arrangements

4.3.1. . . . . .

4.3.2. . . . . .

4.3.3. . . . . .

4.3.4. . . . . .

4.4. . . . . .

4.5. . . . . .

. . . . . .

. . . . . .

5. ANTENNA TYPE, POSITION AND ORIENTATION

5.1. Antenna type

. . . . . .

5.2. Height and distance of measurement

5.2.1. Height

. . . . . .

5.2.2. Distance of measurement

. . . . . .

. . . . . .

5.2.3. . . . . .

5.3. Antenna orientation and polarisation

. . . . . .

5.4. Readings

. . . . . .

6. FREQUENCIES

6.1. Measurements

. . . . . .

. . . . . .

6.1.1. . . . . .

6.1.2. . . . . .

6.2. Tolerances

. . . . . .

. . . . . .

Appendix 1

Electrical/electronic sub-assembly test area boundary

. . . . . .

. . . . . .

Appendix 2

. . . . . .

. . . . . .

ANNEX X

METHOD OF MEASUREMENT OF RADIATED NARROWBAND ELECTROMAGNETIC EMISSIONS FROM ELECTRICAL/ELECTRONIC SUB-ASSEMBLIES

1. GENERAL

1.1. . . . . .

1.2. Measuring apparatus

. . . . . .

. . . . . .

1.3. Test method

1.3.1. . . . . .

1.3.2. . . . . .

2. EXPRESSION OF RESULTS

. . . . . .

3. MEASURING LOCATION

3.1. . . . . .

3.2. . . . . .

3.3. . . . . .

3.4. Ambient

. . . . . .

4. ESA STATE DURING TESTS

4.1. . . . . .

4.2. . . . . .

4.3. Test arrangements

4.3.1. . . . . .

. . . . . .

4.3.2. . . . . .

4.3.3. . . . . .

4.3.4. . . . . .

4.4. . . . . .

4.5. . . . . .

5. ANTENNA TYPE, POSITION AND ORIENTATION

5.1. Antenna type

. . . . . .

5.2. Height and distance of measurement

5.2.1. Height

. . . . . .

5.2.2. Distance of measurement

. . . . . .

. . . . . .

5.2.3. . . . . .

5.3. Antenna orientation and polarisation

. . . . . .

5.4. Readings

. . . . . .

6. FREQUENCIES

6.1. Measurements

. . . . . .

. . . . . .

. . . . . .

6.2. . . . . .

## ANNEX XI

## METHOD(S) OF TESTING FOR IMMUNITY OF ELECTRICAL/ ELECTRONIC SUB-ASSEMBLIES TO ELECTROMAGNETIC RADIATION

1. GENERAL

1.1. . . . . .

1.2. Test methods

1.2.1. . . . . .

. . . . . .

1.2.2. . . . . .

2. EXPRESSION OF RESULTS

. . . . . .

3. MEASURING LOCATION

3.1. . . . . .

3.2. . . . . .

4. STATE OF ESA DURING TESTS

4.1. . . . . .

4.2. . . . . .

4.3. . . . . .

4.4. . . . . .

4.5. . . . . .

5. FREQUENCY RANGE, DWELL TIMES

5.1. . . . . .

5.2. . . . . .

. . . . . .

. . . . . .

6. CHARACTERISTICS OF TEST SIGNAL TO BE GENERATED

6.1. Maximum envelope excursion

. . . . . .

6.2. Test signal wave form

. . . . . .

6.3. Modulation depth

. . . . . .

. . . . . .

7. STRIPLINE TESTING

7.1. Test method

. . . . . .

7.2. Field strength measurement in the stripline

. . . . . .

7.3. Installation of the ESA under test

7.3.1. 150 mm stripline testing

. . . . . .

. . . . . .

. . . . . .

7.3.1.1. . . . . .

7.3.1.2. . . . . .

7.3.2. 800 mm stripline testing

7.3.2.1. Test method

. . . . . .

. . . . . .

7.3.2.2. Positioning of stripline

. . . . . .

7.3.2.3. Calibration of the stripline

. . . . . .

. . . . . .

7.3.2.4. Installation of the ESA under test

. . . . . .

7.3.2.5. Main wiring loom and sensor/actuator cables

. . . . . .

8. FREE FIELD ESA IMMUNITY TEST

8.1. Test method

. . . . . .

8.2. Test bench description

. . . . . .

8.2.1. Ground plane

8.2.1.1. . . . . .

8.2.1.2. . . . . .

8.2.1.3. . . . . .

8.2.1.4. . . . . .

8.2.1.5. . . . . .

8.2.2. Installation of ESA under test

. . . . . .

8.3. Field generating device type, position and orientation

8.3.1. Field generating device type

8.3.1.1. . . . . .

8.3.1.2. . . . . .

8.3.1.3. . . . . .

8.3.2. Height and distance of measurement

8.3.2.1. Height

. . . . . .

8.3.2.2. Distance of measurement

8.3.2.2.1.. . . . . .

8.3.2.2.2.. . . . . .

8.3.3. Antenna location relative to ESA under test

8.3.3.1. . . . . .

8.3.3.2. . . . . .

. . . . . .

. . . . . .

8.3.3.3. . . . . .

8.3.4. Reference point

. . . . . .

8.3.4.1. . . . . .

8.3.4.2. . . . . .

. . . . . .

8.3.4.3. . . . . .

8.4. Generation of required field strength: test methodology

8.4.1. . . . . .

8.4.2. Substitution method

. . . . . .

8.4.3. . . . . .

8.4.4. Field strength measuring device

. . . . . .

8.4.5. . . . . .

8.4.6. . . . . .

8.4.7. . . . . .

8.5. Field strength contour

8.5.1. . . . . .

9. TEM CELL TESTING

9.1. Test method

. . . . . .

9.2. Field strength measurement in a TEM cell

9.2.1. . . . . .

. . . . . .

. . . . . .

9.2.2. . . . . .

9.3. Dimensions of TEM cell

. . . . . .

. . . . . .

9.4. Power, signal and control wires

. . . . . .

. . . . . .

. . . . . .

. . . . . .

10. BULK CURRENT INJECTION TESTING

10.1. Test method

. . . . . .

. . . . . .

10.2. Calibration of bulk current injection probe prior to commencing tests

. . . . . .

10.3. Installation of the ESA under test

. . . . . .

10.4. Power, signal and control wires

. . . . . .

. . . . . .

Appendix 1

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Appendix 2

Example of BCI test configuration

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Appendix 3

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Figure 3

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Appendix 4

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ANNEX XII

PART A

**Repealed Directive with list of its successive amendments**

**(referred to in Article 6)**

. . . . . .

PART B

**List of time-limits for transposition into national law and application**

**(referred to in Article 6)**

. . . . . .

ANNEX XIII

CORRELATION TABLE