

Annex to ISO/IEC 17025 declaration of accreditation
for registration number: L 279

of **D.A.R.E!! Consultancy**
Woerden

This annex is valid from: **01-12-2011** to **01-11-2013**

Replaces annex dated: **27-10-2010**

| No. | Material or product | Type of activity | Internal reference number |
|---|-------------------------------------|--|---|
| Automotive emission measurements | | | |
| 1 | Electrical/ electronic sub-assembly | Conducted Emissions, Voltage method (AN)150 kHz to 108 MHz | document 877 According to CISPR 25 |
| 2 | | Conducted Emissions, Current method (Current Probe) 150 kHz to 108 MHz | document 879 According to CISPR 25 |
| 3 | | Radiated Emissions, Anechoic Chamber method 150 kHz to 1000 MHz | document 887 According to CISPR 25 97/24/EC, chapter 8, Annex V and VI Regulation No. 10, Annex 7 and 8 2004/104/EC, Annex VII and VIII |
| 4 | Motor vehicles | Radiated Emissions, Semi Anechoic Chamber method 30 MHz to 1000 MHz | document 885 According to CISPR 12 97/24/EC, chapter 8, Annex II and III Regulation No. 10, Annex 4 and 5 2004/104/EC, Annex IV and V |
| Automotive immunity tests | | | |
| 5 | Electrical/ electronic sub-assembly | Radiated Immunity, Anechoic Chamber method 200 MHz to 4 GHz up to 200 V/m | document 891 According to ISO 11452-2 97/24/EC, chapter 8, Annex VII Regulation No. 10, Annex 9 2004/104/EC, Annex IX |
| 6 | | Bulk Current Injection method 100 kHz to 1 MHz, up to 150 mA 1 to 400 MHz, up to 300 mA | document 875 According to ISO 11452-4 97/24/EC, chapter 8, Annex VII Regulation No. 10, Annex 9 2004/104/EC, Annex IX |

This annex has been approved by:

Ir. J.C. van der Poel
Chief Executive

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|-----|-------------------------------------|---|--|
| 7 | Electrical/ electronic sub-assembly | Electrical transient conduction along supply lines only, 12V supply voltage | document 882 According to ISO 7637-1 |
| 8 | | Electrical transient conduction along supply lines only, 12V and 24V supply voltage | document 883 According to ISO 7637-2 2004/104/EC, Annex X |
| 9 | | Electrical transient transmission, lines other than supply lines | document 884 According to ISO 7637-3 |
| 10 | Motor vehicles | Radiated Immunity, Semi Anechoic Chamber method 20 MHz to 80 MHz up to 30 V/m 80 MHz to 4 GHz up to 50 V/m | document 889 According to ISO 11451-2 97/24/EC, Chapter 8, Annex IV Regulation No. 10, Annex 6 2004/104/EC, Annex VI |

AEMCLRP Emission Measurements *

| | | | |
|----|-------------------------------------|---|--|
| 11 | Electrical/ electronic sub-assembly | Conducted Emissions, Voltage method (AN) 150 kHz to 108 MHz | document 877 According to CISPR 25 Ford ES-XW7T-1A278-AC, section CE420 Ford EMC-CS-2009, section CE420 GMW3097, GMW3100 |
| 12 | | Conducted Emissions, Current method (Current Probe) 150 kHz to 108 MHz | document 879 According to CISPR 25 |
| 13 | | Radiated Emissions, Anechoic Chamber method 150 kHz to 2,5 GHz | document 887 According to CISPR 25 Ford ES-XW7T-1A278-AC, section RE310 Ford EMC-CS-2009, section RE310 GMW3097, GMW3100 |

AEMCLRP immunity tests *

| | | | |
|----|-------------------------------------|--|---|
| 14 | Electrical/ electronic sub-assembly | Radiated Immunity, Anechoic Chamber method 200 MHz to 4 GHz, up to 200 V/m 1,2 to 1,4 GHz and 2,7 to 3,1 GHz up to 300 V/m | document 891 According to ISO 11452-2 Ford ES-XW7T-1A278-AC, section RI114 Ford EMC-CS-2009, section RI114 (radar limited to 300 V/m) GMW3097, GMW3100 (radar limited to 300 V/m) |
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|----------------------------------|-------------------------------------|--|---|
| 15 | Electrical/ electronic sub-assembly | Bulk Current Injection method 1 to 400 MHz, up to 300 mA | document 875 According to ISO 11452-4/11452_4/W04_05_uk Ford ES-XW7T-1A278-AC, section RI112 Ford EMC-CS-2009, section RI112 GMW3097, GMW3100 |
| 16 | | Electro Static Discharge immunity (ESD) Contact discharge: 0 ± 8 kV Air discharge: 0 ± 25 kV | document 881 According to ISO 10605 Ford ES-XW7T-1A278-AC, section CI280 Ford EMC-CS-2009, section CI280 GMW3097, GMW3100 |
| EMC emission measurements | | | |
| 17 | Electric- and electronic equipment | Conducted Emissions, Voltage method (LISN) 9 kHz to 30 MHz | document 850 According to EN 55016-2-1 EN 55011, EN 55014-1, EN 55015, EN 55022 |
| 18 | | Conducted Emissions, Voltage method (Voltage probe) 150 kHz to 30 MHz | document 852 According to EN 55016-2-1 EN 55011, EN 55014-1, EN 55015 |
| 19 | | Conducted Emissions, Current method (Current probe) 150 kHz to 30 MHz | document 848 According to EN 55016-2-1, EN 55022 |
| 20 | | Conducted Emissions, Disturbance power method (Absorber clamp) 30 MHz to 300 MHz | document 854 According to EN 55016-2-2 EN 55014-1 |
| 21 | | Radiated Emissions, OATS/Semi Anechoic Chamber method, 9 KHz to 1GHz | document 841/868 According to EN 55016-2-3 EN 55011, EN 55022 |
| 22 | | Radiated Emissions, Full Anechoic Chamber method 30 MHz to 8GHz | document 864 According to EN 55016-2-3 EN 55011, EN 55022 |
| 23 | | Radiated Emissions, Van Veen Loop method 9 kHz to 30 MHz | document 866 According to EN 55016-2-3 EN 55011, EN 55015 |
| 24 | | Harmonic Current Emissions 0 Hz to 2 kHz | document 862 According to EN 61000-3-2 |

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|---------------------------|--|--|--|
| 25 | Electric- and electronic equipment | Voltage Fluctuations and Flicker | document 860 According to EN 61000-3-3 |
| EMC Immunity tests | | | |
| 26 | Electric- and electronic equipment | Electro Static Discharge immunity (ESD) Contact discharge: 0 ± 8 kV Air discharge: 0 ± 15 kV | document 859 According to EN 61000-4-2 |
| 27 | | Radiated electromagnetic field immunity, Anechoic Chamber method 26 MHz to 80 MHz: 3 V/m 80 MHz to 4 GHz: 30 V/m | document 872 According to EN 61000-4-3 |
| 28 | | Electrical Fast Transient/burst (EFT) immunity | document 858 According to EN 61000-4-4 |
| 29 | | Surge immunity | document 874 According to EN 61000-4-5 |
| 30 | | Immunity to conducted disturbances 150 kHz to 230 MHz 30 Vrms | document 856 According to EN 61000-4-6 |
| Radio measurements | | | |
| 31 | Electric- and electronic wide band radio equipment | Range of modulation bandwidth | document 922 According to EN 300 220-1 |
| 32 | Electric- and electronic radio equipment | Effective radiated power and spurious emissions, Anechoic Chamber method, 30 MHz to 18 GHz | document 918 According to ETR 027, EN 300 220-1 |
| 33 | | Frequency error, 10 Hz to 18 GHz | document 920 According to ETR 027, EN 300 220-1 |

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| Safety tests and measurements | | | |
| 34 | Information technology equipment including office equipment | Input power measurement | document 1039 According to EN 60950-1, EN 61010-1, EN 60601-1, EN 60335-1, EN 60598-1 |
| 35 | -Electrical equipment for measurement, control and laboratory use - Medical electrical equipment | Humidity test | document 1051 According to EN 60950-1, EN 61010-1, EN 60601-1, EN 60335-1, EN 60598-1 |
| 36 | -Household and similar electrical appliances -Luminaries | Creepage and clearance measurement | document 1029 According to EN 60950-1, EN 61010-1, EN 60601-1, EN 60335-1, EN 60598-1 |
| 37 | | Distance trough insulation measurement | document 1022 According to EN 60950-1, EN 61010-1, EN 60601-1, EN 60335-1, EN 60598-1 |
| 38 | | Stability measurement | document 1047 According to EN 60950-1, EN 61010-1, EN 60601-1, EN 60335-1, EN 60598-1 |
| 39 | | Mechanical strength of housing test | document 1031 According to EN 60950-1, EN 61010-1, EN 60601-1, EN 60335-1, EN 60598-1 |
| 40 | | (Earth) Leakage current measurement | document 1035 According to EN 60950-1, EN 61010-1, EN 60601-1, EN 60335-1, EN 60598-1 |
| 41 | -Information technology equipment including office equipment | Abnormal operation and single fault conditions | document 1020 According to EN 60950-1, EN 61010-1, EN 60601-1, EN 60335-1, EN 60598-1 |
| 42 | -Electrical equipment for measurement, control and laboratory use -Electrical equipment of machines | Capacitance discharge measurement | document 1043 According to EN 60950-1, EN 61010-1, EN 60204-1, EN 60601-1, EN 60335-1, EN 60598-1 |
| 43 | -Medical electrical equipment -Household and similar electrical appliances -Luminaries | Earth resistance measurement | document 1033 According to EN 60950-1, EN 61010-1, EN 60204-1, EN 60601-1, EN 60335-1, EN 60598-1 |

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| 44 | -Information technology equipment including office equipment -Electrical equipment for measurement, control and laboratory use | Reverse current of lithium battery measurement | document 1045 According to EN 60950-1, EN 61010-1, EN 60204-1, EN 60601-1, EN 60335-1, EN 60598-1 |
| 45 | -Electrical equipment of machines -Medical electrical equipment -Household and similar electrical appliances -Luminaries | Dielectric and electric strength test | document 1027 According to EN 60950-1, EN 61010-1, EN 60204-1, EN 60601-1, EN 60335-1, EN 60598-1 |
| 46 | - Electrical equipment of machines -Luminaries | Insulation resistance test | document 1037 According to EN 60204-1, EN 60598-1 |
| 47 | - Information technology equipment including office equipment - Electrical equipment for measurement, control and laboratory use -Luminaries | Temperature test | document 1041 According to EN 60950-1, EN 61010-1, EN 60598-1 |
| 48 | Household and similar electrical appliances | Water spillage test | document 1053 According to EN 60335-2-15, clause 15.102 |
| 49 | | Boiling dry protection test | document 1025 According to EN 60335-2-15, clause 19.102 |
| 50 | | Endurance test | document 1026 According to EN 60335-2-15, clause 22.103 |
| 51 | Household and similar electrical appliances | Degree of protection provided by enclosures (IP) IPx3, IPx4, IPx5 | document 1024 According to EN 60529, clauses 14.2.3, 14.2.4 and 14.2.5 EN 60950-1, EN 61010-1, EN 60204-1, EN 60601-1, EN 60335-1, EN 60598-1 |

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| EMC FCC emission measurements | | | |
| 52 | Electric- and electronic equipment, unintentional radiators | Conducted Emissions, Voltage method (LISN) 10 kHz to 30 MHz | document 911 According to ANSI C63.4 According to FCC MP-5, 47 CFR 15, 47 CFR 18 |
| 53 | Electric- and electronic equipment, unintentional radiators | Radiated Emissions, OATS/Semi Anechoic Chamber method 30 MHz to 8 GHz | document 913/1129 According to ANSI C63.4 According to FCC MP-5 47 CFR 15, 47 CFR 18 |
| EMC emission measurements on-site | | | |
| 54 | Electric- and electronic equipment | Conducted Emissions, Voltage method (LISN) 150 kHz to 30 MHz | document 899 According to EN 55016-2-1, EN 55011 |
| 55 | | Conducted Emissions, Voltage method (Voltage probe) 150 kHz to 30 MHz | document 901 According to EN 55016-2-1, EN 55011 |
| 56 | | Radiated Emissions, 30 MHz to 1GHz | document 907 According to EN 55016-2-3, EN 55011 |
| EMC Immunity tests on-site | | | |
| 57 | Electric- and electronic equipment | Electro Static Discharge immunity (ESD) Contact discharge: 0 ± 8 kV Air discharge: 0 ± 15 kV | document 906 According to EN 61000-4-2 |
| 58 | | Radiated electromagnetic field immunity, 80 MHz to 1 GHz: 10 V/m | document 909 Inhouse method |
| 59 | | Electrical Fast Transient/burst (EFT) immunity | document 905 According to EN 61000-4-4 |
| 60 | | Immunity to conducted disturbances 150 kHz to 80 MHz 10 Vrms | document 903 Equivalent to EN 61000-4-6 |

* This laboratory is accredited according the Automotive EMC Recognition Program (AEMCLRP). In addition to the general requirements, specific FORD OEM and General Motors OEM requirements are used.