Schedule of Accreditation

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HORIBA MIRA Limited

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Testing performed at the above address only

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Motor Vehicles Motor Vehicle Accessories and Components Bicycles (powered) Construction Plant and Equipment Electrical/Electronic Components Electrical/Electronic Products Electro-mechanical Devices Electronic Products, Digital Generators: Power Industrial Trucks Lawnmowers Rescue Appliances Vehicle Security Devices Military Vehicles and Devices	1 EMC Tests 1.1 Automotive EMC Tests 1.1.1 Conducted Emissions 9 kHz to 200 MHz	 CISPR 25:Section 3:1995 CISPR 25:2002 CISPR 25:2008 BS EN 55025:2003 (CISPR 25:2002) Section 6 BS EN 55025:2017 BS EN IEC 55025:2022 GBT 18387:2008 ECE Regulation 10.04:2012 Annex 13 & 14 ECE Regulation 10.05: 2014 Annex 19 & 20 ECE Regulation 10.06: 2019 Annex 13, 14, 19 & 20
	1.1.2 Magnetic Emissions 9 kHz to 30 MHz Whole Vehicle	GBT 18387:2008 GBT 18387:2017 BS EN IEC 55036:2020 BS EN 55036:2020 +A1:2023
	1.1.3 Radiated Emissions 9 kHz to 26.5 GHz Whole vehicle and components	CISPR 12:2001 CISPR12:2007 including A1:2009 CAN/CSA-CISPR12-10 ICES-002:2016 ICES-002:2020 GB 14023-2011 CISPR 25:Section 2:1995 CISPR 25:2002 CISPR 25:2008 BS EN 55025:2003 BS EN 55025:2017 BS EN IEC 55025:2022

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on Page 1	1 EMC Tests (cont'd) 1.1 Automotive EMC Tests (cont'd) 1.1.3 Radiated Emissions (cont'd) 9 kHz to 26.5 GHz Whole vehicle and Components (cont'd)	GBT 18387:2008 GBT 18387:2017 ECE Regulation 10.01 ECE Regulation 10.02:1997 ECE Regulation 10.03:2010 ECE Regulation 10.04:2012 ECE Regulation 10.05:2014 Annexes 4, 5, 7 and 8 ECE Regulation 10.06:2019 Annexes 4, 5, 7 and 8 2000/2/EC 95/54/EC, Annexes IV, V, VII and VIII 2004/104/EC, Annexes IV, V, VII and VIII 97/24/EC, Chapter 8 Annexes II, III, V, VI SAE J551/2:1994 SAE J551/4:1994 SAE J1113-41:1995
	1.1.4 Transient Testing DC and AC supply construction and coupling Exported Transients	ISO 7637-1:1990 ISO 7637-2:1990 ISO 7637-1:2002 ISO 7637-1: 2015 ISO 7637-1: 2023 ISO 7637-2:2004 ISO 7637-2:2011 2004/104/EC Annex X ISO 7637-3:1995 ISO 7637-3:2007 ISO 7637-3:2016 ECE Regulation 10.04:2012 ECE Regulation 10.05:2014 Annexes 10 ECE Regulation 10.06:2019 Annexes 10

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on Page 1	1 EMC Tests (cont'd) 1.1 Automotive EMC Tests (cont'd) 1.1.5 Radiated Immunity Whole vehicle: 10 kHz to 30 MHz: 150 V/m 30 MHz to 40 MHz: 100 V/m 40 MHz to 1 GHz: 200 V/m 1 GHz to 18 GHz: 250 V/m (with 1.2 GHz to 1.4 GHz, 2.7 GHz to 3.1 GHz and 4 GHz to 10 GHz: 600 V/m) Component: 10 kHz to 1 GHz: 300 V/m 1 GHz to 18 GHz: 250 V/m (with 1.2 GHz to 1.4 GHz, 2.7 GHz to 3.1 GHz and	 ISO 11451-1:2005 ISO 11451-1:2015 ISO 11451-2:1995 ISO 11451-2:2005 ISO 11451-2:2015 ISO DIS 11451-3:2003 ISO 11451-3:2007 ISO 11451-3:2015 ISO 11452-1:2005 ISO 11452-1:2015 ISO 11452-2:1995 ISO 11452-2:2004 ISO 11452-2:2019 ISO 11452-3:1995 ISO 11452-3:2001 ISO 11452-3:2016 ISO 11452-5:1995 ISO 11452-5:2002 ISO 11452-9:2012 ISO 11452-9:2021 SAE J1113-21:1998 95/54/EC, Annexes VI, IX 2004/104/EC Annexes VI, IX 2000/2/EC ECE Regulation 10.02:1997 ECE Regulation 10.03:2010 ECE Regulation 10.04:2012 ECE Regulation 10.05:2014 Annexes 6 and 9 ECE Regulation 10.06:2019 Annexes 6 and 9 ECE Regulation 13.08 97/24/EC, Chapter 8, Annexes IV, VII SAE J551/11:1994 SAE J551/13:1994

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on Page 1	1 EMC Tests (cont'd) 1.1 Automotive EMC Tests (cont'd) 1.1.6 Electrostatic Discharge Up to 25 kV	ISO TR 10605/E:1994 (Component and whole vehicle) ISO 10605:2001 ISO 10605:2008 + Corr 1:2010 BS ISO 10605:2008 including Amendment A1:2014 ISO 10605: 2023 Ford L-410, Section 4.3:12/96 SAE J551/15:1994 SAE J1113-13:1997
	1.1.7 Conducted Immunity 150 kHz to 400 MHz, 10 V	ISO 11451-4:1995 ISO 11451-4:2013 ISO 11451-4:2022 (excluding TWC) ISO 11452-4:1995 ISO 11452-4:2005 ISO 11452-4:2011 excluding TWC test method ISO 11452-4:2020 excluding TWC test method SAE J1113-4:1998
	1.1.8 Magnetic Field Immunity Up to 900 A/m	ISO 11452-8:2007 ISO 11452-8:2015
	1.1.9 Harmonics & Flicker	ECE Regulation 10.04:2012 ECE Regulation 10.05: 2014 Annex 11, 12, 17 & 18 ECE Regulation 10.06: 2019 Annex 11, 12, 17 & 18
	1.1.10 Burst & Surge	ECE Regulation 10.04:2012 ECE Regulation 10.05:2014 Annex 15, 16, 21 & 22 ECE Regulation 10.06:2019 Annex 15, 16, 21 & 22

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on Page 1	1 EMC Tests (cont'd) 1.2 Sub System Military EMC Tests 1.2.1 Conducted Emissions 20 Hz to 200 MHz	DEF STAN 59-41:Part 3:1995 DCE01 and DCE02 DEF STAN 59-41:Part 3: 2003 DCE01.3 and DCE02.3 DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 DCE01 and DCE02 DEF STAN 59-411: Part 3 Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 DCE01.B, DCE02.A, DCE02.B and DCE03.B MIL STD 461F:2007 CE101 and CE102 MIL STD 461G:2015 CE101 and CE102
	1.2.2 Radiated Emissions 9 kHz to 40 GHz	DEF STAN 59-41:Part 3:1995 DRE01 and DRE03 DEF STAN 59-41:Part 3: 2003 DRE01.3 and DRE03.3 DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 DRE01 DRE03 and DRE04 DEF STAN 59-411: Part 3 Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 DRE01.A, DRE01.B, DRE03.A and DRE03.B MIL STD 461E:1999, RE102 MIL STD 461F:2007, RE102 MIL STD 461G:2015 RE102

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on Page 1	1 EMC Tests (cont'd) 1.2 Military EMC Tests (cont'd) 1.2.3 Radiated Immunity Component: 10 kHz to 10 MHz: 356V/m 10MHz to 1GHz: 200 V/m 1 GHz to 18 GHz: 200 V/m (with 1.2 GHz to 1.4 GHz, 2.7 GHz to 3.1 GHz and 4 GHz to 10 GHz: 600 V/m)	DEF STAN 59-41:Part 3:1995 DRS02 DEF STAN 59-41:Part 3: 2003 DRS02.3 DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 DRS02 DEF STAN 59-411: Part 3 Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 DRS02.A and DRS02.B MIL STD 461E:1999, RS103 MIL STD 461F:2007, RS103 MIL STD 461G:2015 RS103
	1.2.4 Electrostatic Discharge Up to 25 kV	DEF STAN 59-41:1995 & 2003 DCS10 DEF STAN 59-41:Part 3:2003 DCS10.3 DEF STAN 59-411: Part 3 Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 DCS10.A and DCS10.B MIL STD 461G:2015, CS118
	1.2.5 Conducted Immunity 20 Hz to 400 MHz and 10 V	DEF STAN 59-41:Part 3:1995 DCS02 & DCS03 DEF STAN 59-41:Part 3: 2003 DCS02.3 & DCS03.3 DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 High level bulk current injection DEF STAN 59-411: Part 3 Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 DCS01, DCS02.A, DCS02.B, DCS03, -DCS05 & DCS06 MIL STD 461F:2007 CS101, CS114, CS115 & CS116 MIL STD 461G: 2015 CS101, CS114, CS115 & CS116

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on Page 1	1 EMC Tests (cont'd) 1.2 Military EMC Tests (cont'd) 1.2.6 Power Frequency Magnetic Field Immunity Frequency: 20 Hz to 100 kHz	DEF STAN 59-41:Part 3:1995 DRS01 DEF STAN 59-41:Part 3:2003 DRS01.3 DEF STAN 59-411: Part 3 Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 DRS01.A, DRS01.B & DRS03 MIL STD 461F: 2007 RS101 MIL STD 461G:2015 RS101
	1.2.7 H-Field Emissions: 20 Hz to 100 kHz	DEF STAN 59-41:Part 3:1995 DRE02 DEF STAN 59-41:Part 3:2003 DRE02.3 DEF STAN 59-411: Part 3 Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 DRE02.A and DRE02.B MIL STD 461F:2007RE101 MIL STD 461G:2015 RE101
	1.2.8 Electrical Transients Frequency: 20 Hz to 150 Hz	DEF STAN 59-411: Part 3 Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 DCE03
	1.3 Platform Military EMC Tests 1.3.1 Conducted Emissions 20 Hz to 150 MHz	DEF STAN 59-41:Part 3:1995 DCE01 and DCE02 DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 Section B2.2 DCE01 and DCE02

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on Page 1	1 EMC Tests (cont'd) 1.3 Platform Military EMC Tests (cont'd) 1.3.2 Radiated Emissions 9 kHz to 40 GHz	 MIL STD 461E:1999 RE102 MIL STD 461F:2007 RE102 MIL STD 461G:2015 RE102 DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 Section B2.3 DRE01, DRE03 and DRE04
	1.3.3 Radiated Immunity Whole vehicle: 10 kHz to 30 MHz: 150 V/m 30 MHz to 40 MHz: 100 V/m 40 MHz to 1 GHz: 200 V/m 1 GHz to 18 GHz: 250 V/m (with 1.2 GHz to 1.4 GHz, 2.7 GHz to 3.1 GHz and 4 GHz to 10 GHz: 600 V/m)	MIL STD 461E:1999 RS103 MIL STD 461F:2007 RS103 MIL STD 461G:2015 RS103 DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 Section B2.6.2 Low Level Swept Current DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 Section B2.6.5 Radiated Immunity DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 Section B2.8 Mutual Interference
	1.3.4 Electrostatic Discharge Up to 25 kV	DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 DCS10 MIL STD 461G:2015 CS118

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on Page 1	1 EMC Tests (cont'd) 1.3 Platform Military EMC Tests (cont'd) 1.3.5 Conducted Immunity 20 Hz to 400 MHz	 DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 Section B2.6.3 High Level Bulk Current Injection DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 Section B2.5 DCS01, DCS02, DCS03, DCS05 & DCS06 MIL STD 461F:2007 CS114 MIL STD 461G:2015 CS114
	1.3.6 Power Frequency Magnetic Field Immunity 20 Hz to 100 kHz H-Field Emissions: 20 Hz to 100 kHz	DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 Section B2.7 DRS01 DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 Section B2.4 DRE02 MIL STD 461F:2007 RE101 MIL STD 461G:2015 RE101
	1.3.7 Electrical Transients 20 Hz to 150 Hz	DEF STAN 61-5: Part 6: Issue 6:February 2009 Annexes A and B (All Sections)
	1.3.8 Earth Bonding	DEF STAN 59-411:Part 4: Issue 1: 2007, A1:2008 & Issue 2:2014 & Issue 3:2019 Section B.3 Earth Bonding

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on Page 1	1 EMC Tests (cont'd) 1.4 Civil EMC Tests 1.4.1 Conducted Emissions 9 kHz to 30 MHz	 EN 55011:1998 EN 55014-1:1997 BS EN 55016-2-1:2009 + A2 2013 BS EN 55016-2-1:2014 + A1:2017 Excluding telecom ports according to Clause 9.5 EN 55022:1998 EN 55022:2010 BS EN 55032: 2012 BS EN 55032: 2015 + A1:2020 FCC CFR 47:Part 15B:2008 ANSI C63.4:2003
	1.4.2 Radiated Emissions 30 MHz to 6 GHz 30 MHz to 40 GHz	 BS EN 55016-2-3:2010 + A2 2014 BS EN 55016-2-3:2017 + A1:2019 BS EN 55016-2-3: 2017 + A1:2019 + A2:2023 EN 55022:1998 EN 55022:2010 BS EN 55032:2012 BS EN 55032:2015 + A1:2020 FCC CFR 47:Part 15B:2008 ANSI C63.4:2003
	1.4.3 Transient Testing DC and AC supply EFT/Burst, Surge & Voltage Dips, Interuptions and Variations	EN 61000-4-4:1995 BS EN 61000-4-4:2004 BS EN 61000-4-4:2012 BS EN 61000-4-5:2006 BS EN 61000-4-5:2014 including Amendment A1:2017 BS EN 61000-4-11:2004 + A1 2017 IEC 61000-3-12: 2011 + A1:2021

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on Page 1	1 EMC Tests (cont'd) 1.4 Civil EMC Tests (cont'd) 1.4.4 Harmonics & Flicker	BS EN 61000-3-2: 2006 + A2 2009 BS EN 61000-3-2: 2014 BS EN 61000-3-2: 2019 (Excluding Class C) BS EN 61000-3-2: 2019 + A1:2021 BS EN 61000-3-3: 2008 BS EN 61000-3-3: 2013 BS EN 61000-3-3: 2013 + A1: 2019 + A2:2021 BS EN 61000-3-11: 2001 BS EN 61000-3-11: 2019 BS EN 61000-3-12: 2005 BS EN 61000-3-12: 2011
	1.4.5 Radiated Immunity 80 MHz to 6 GHz	BS EN 61000-4-3:1997 BS EN 61000-4-3:2006 including Amendment A1:2008 & A2:2010 BS EN IEC 61000-4-3:2020
	1.4.6 Electrostatic Discharge Up to 25 kV	BS EN 61000-4-2:1995 including Amendments A1:1998 and A2:2001 BS EN 61000-4-2:2009
	1.4.7 Conducted Immunity 150 kHz to 400 MHz and 10 V	BS EN 61000-4-6:1996 including Amendments A1, A2, & A3:2005 BS EN 61000-4-6:2009 BS EN 61000-4-6:2014
	1.4.8 Power Frequency Magnetic Field Immunity Frequency: 50 Hz Field Strength: Up to 100 A/m	IEC 1000-4-8:1993 BS EN 61000-4-8:1994 BS EN 61000-4-8:2010

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on Page 1	1 EMC Tests (cont'd) 1.5 EMC Tests These Generic and Product specific specifications are included in this schedule, but limited to those referred basic standards that are explicitly listed in Sections 1.4.1 to 1.4.8.	EN 55014-2:1997 CISPR 14-2:1997 EN 61000-6-1:2001 BS EN 61000-6-1: 2007 EN 61000-6-1:2019 EN 61000-6-2:2001 BS EN 61000-6-2: 2005 EN 61000-6-2:2019 EN 61000-6-3:2001 BS EN 61000-6-3: 2007 including Amendment A1:2011 BS EN IEC 61000-6-3:2021 EN 61000-6-4:2001 BS EN 61000-6-4: 2007 including Amendment A1:2011 EN 61000-6-4:2019 BS EN IEC 61000-6-8:2020 BS EN 50082-1:1998 BS EN 12895:2015 including Amendment A1:2019 BS EN ISO 14982:1998 BS EN ISO 14982:2009 ISO 13766:2006 BS EN ISO 13766-1: 2018 BS EN ISO 13766-2: 2018 BS EN 61326:1996 IEC 61326:1997 (Immunity only) EN 13309:2000 EN 301 489-1:V1.4.1:2002 EN 301 489-3:V1.4.1:2002 72/245/EEC 75/322/EEC 2009/64/EC EN 50498:2010 ISO 16750-2:2003 ISO 16750-2:2012 ISO 16750-2:2023 ECE Reg 97, Annex 7 Section 1 95/56/EC Annex IV 3.2, 5.2.12 and 8.2 ECE Reg 116, Rev 2, Annex 9, ISO 13309:2010 ECE Reg 161, Annex 7 ECE Reg 162, Annex 7 ECE Reg 163, Annex 7

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As Listed on Page 1	1.6 Electro Magnetic Exposure Magnetic Field 10 Hz to 60 MHz Electric Field 0 Hz to 18 GHz	BS EN 62311:2020 PD IEC TS 62764-1: 2019 BS EN IEC 62764-1: 2022
	Facilities for EMC Testing: **Semi-anechoic Chamber (SAC)** 22 m x 10 m x 7 m high Door size: 3 m x 4.7 m high Max Load: 10 tonne **Anechoic Chamber (RFI)** 9.35 m x 7.35 m x 5.17 m high Door size: 4 m x 3.75 m high Max Floor Loading: 12 tonne **Component Test Laboratory (CTL)** Semi-anechoic Chamber 8 m x 4.5 m x 5 m **Transient Test Laboratory 1 & 2 (TTL)** Capable of performing Vehicle and component transients **Heavy Vehicle Semi-Anechoic Chamber (HVSAC)** 22 m x 11 m x 7 m high Door size: 4 m x 4 m Max Load: 70 tonne	**Screened Room 1** 5 m x 3 m x 4 m high Door size: 1 m x 2 m high **Screened Room 2** 3.6 m x 3.6 m x 2.5 m high Door size: 1 m x 2 m high **Open Area Test Site (OATS)** Range up to 30 metres Max size: 4.5 m high, 4 m wide Max weight: 14 tonnes (uncovered: 100 tonnes) Turntable diameter: 8 m **Vehicle Electrical Test Laboratory (EWS)** Vehicle preparations and Transients **Electric Vehicle Test Laboratory (xEVL)** Commercial and Vehicle Transients 90 kVA AC, 108 kW dc, 600 kW dc

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Vehicle Security Devices	2 Vehicle Security Devices Type Approval Tests	95/56/EC, Annex VI 5.2.2.4, 5.2.2.5, 5.2.5, 5.2.6, 5.2.7, 5.2.9, 5.2.11, 5.2.13, 5.2.14 and 5.2.15 ECE Reg 97, 7.2.2.4, 7.2.2.5, 7.2.5, 7.2.6, 7.2.7, 7.2.9, 7.2.11, 7.2.13, 7.2.14 and 7.2.15 ECE Reg 116, Rev 2, Part II 6.4.2.2.4, 6.4.2.2.5, 6.4.2.5, 6.4.2.6, 6.4.2.7, 6.4.2.9, 6.4.2.11, 6.4.2.13, 6.4.2.14 and 6.4.2.15

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Vehicle Brakes and Braking Systems Vehicles in EEC and ECE Categories M1, M2, M3, N1, N2, N3, O2, O3, O4 Plus Agricultural and Forestry Tractors	3 Straight line and static braking tests Type 0 Straight line braking (Full and part system) Type I, Type II and Type III Hot effectiveness (Fade tests) Park brake static and dynamic tests Static and dynamic system tests ABS efficiency and functional tests Temporary spare wheel tests *The tests listed above would be carried out on cars, trucks, buses, trailers*	71/320 EEC as amended ECE Regulations 13.10, 13.11, and 13H ECE Regulation 139 ECE Regulation 64.00 FMVSS 135
	Straight line and static braking tests Type 0 Straight line braking Type I Hot effectiveness (Fade tests) Park brake static tests *The tests listed above would be carried out on agricultural and forestry tractors* Parameters measured: (All pressures stated are Gauge) Hydraulic pressure 0 to 150 bar Pneumatic pressure 0 to 10 bar Vacuum 0 to -0.9 bar Force 0 to 1000 N Temperature 0 to 300°C Deceleration 0 to 12 m/sec^2 Velocity 0 to 200 km/h Time resolved to 50 ms Displacement +/- 200mm	76/432 EEC as amended

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Road Restraint Systems: Breakaway Device Poles Crash Cushions Longitudinal Barriers Safety Barriers Security Barriers Support Structures Terminals and Transitions Truck Mounted Attenuators Work Zone Traffic Control Devices Road Traffic Signs	4 Safety Performance Testing (Highway Safety and Protection of Infrastructure Facility) Speed range: up to 120 km/hr (for vehicle masses up to 40 tonnes) Angle: 0° to 165° (Roll, pitch, and yaw: up to 45°) System deformations/deflections (and lateral displacement): up to 3.5 m Post impact vehicle movement (including assessment of vehicle trajectory and response): up to 30 m Vehicle Cockpit Deformation Index (VCDI) Assessment of debris produced Computed measurements from onboard instrumentation: Theoretical Head Impact Velocity (THIV): 3 km/hr to 44 km/hr Occupant Impact Velocity (OIV): up to 12 m/s Post impact Head Deflection (PHD): up to 20 g Occupant Ride-down Acceleration (ORA): up to 20 g Acceleration Severity Index (ASI): 0.6 to 1.9	EN 1317-1:2010 EN 1317-2:2010 EN 1317-3:2010 DD ENV 1317-4:2002 BS EN 12767:2019 Documented In-House Procedure NCHRP Report 350 (Excluding Chapter 7) AASHTO MASH:2009 excluding Chapter 7 and Appendices B & D AASHTO MASH 2 : 2016 excluding the testing of cable barriers in the median position PAS 68:2007 (Excluding Para 11) PAS 68:2010 PAS 68:2013 (Excluding concrete cube testing) PAS 170-1 : 2017 excluding concrete cube testing SD-STD-02.01RevA March2003 ASTM F2656\F2656M-20 ASTM F2656\F2656M-23 BS8442:2006 (Part 14) TD49/07 CWA 16221:2010 IWA 14-1:2013 (Excluding concrete cube testing) ISO 22343-1:2023

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Motor Vehicles Automotive Components and Equipment Rigidised Vehicles (Vehicle Bucks) Train Seats Aircraft Seats Rail interior crashworthiness	5 Frontal, Rear, and Side Impact Simulation Tests using a HyGe Gun (HyGe Facility) Temperature range: 19 °C to 23 °C (ambient) Acceleration: 2 g to 200 g (sled) 1 g to 2000 g (airbag firing) Load: up to 100 kN (3 axis) Pressure: 0.007 bar to 15 bar Displacement: up to 500 mm Current: 1 mA to 20 A Voltage: 2.5 mV to 100 V Velocity: up to 20 m/s Time: 0.5 ms to 125 s	ECE 11.03 ECE 17.07 inc Annex 6 ECE R17.08 ECE R17.09 ECE 80.01 74/408/EEC ADR 34/01 2005 ADR 68/00 2006 FIA 8855:1999 EASA 25.562 SAE AS 8049 Rail group standard GM/RT2100 issue 4 appendix E excluding paragraph 6.5

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Motor Vehicles Steering Mechanisms Fuel System Integrity Vehicle Seats Seat Safety Belts Anthropomorphic Test Devices (for Occupant Injury)	6 Frontal, Rear, and Side Impact Tests using the Crash Test Hall and Hydraulic Winch (Crash Facility) Some tests include the use of Anthropomorphic Test Devices	ECE R12.04 (2018) ECE R12.05 (2022) ECE R32.00 (2014) ECE R34.03 (2019) exc. Annex 5 ECE R34.04 (2023) exc. Annex 5 ECE R94.04 (2021) Frontal Offset ECE R95.05 (2021) Side impact ECE R135.01 (2020) ECE R137.02 (2021) ECE R153-00 (2021) excluding Annex 4 EC 661/2009 EC 78/2009 FMVSS 204 FMVSS 208 FMVSS 212 FMVSS 214 Side Pole & Side MDB FMVSS 301 FMVSS 305 ADR 69/00 2007 ADR 72/00 2005 ADR 73/00 2005 ADR 85/00 2015 TRIAS 17(2)-J111 TRIAS 18−J023 Brazilian Contran Resolutions :- 910/22 incorporating testing to: NBR15300-1 NBR15300-2 NBR15300-3 NBR15240 NBR15241 749/18 949/22 incorporating testing to: NBR16187
Motor Vehicles Automotive Components and Equipment	7 Frontal, Rear, and Side Impact Simulation Tests using the Seat Back Moment Rig, the Drop Rig and Pendulum Rig (Structures Facility)	ECE R12.03 ECE R17.07 ECE R17.08 ECE R17.09 ECE R21.01

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Vehicles in category M1 for pedestrian protection	8 Adult and Child Occupent head forms and leg forms	ECE R127.02 Annex 3 General test conditions Annex 4 Test impactor specifications Annex 5 Test procedures
LIGHT DUTY VEHICLES	9. Emissions Testing	
	Chassis Dynamometer based Emissions testing including climatic	EU 2017/1151 amended by 2023/443 Annex XXI Type 1 (WLTP) Annex V Type 3 – Crankcase emissions (if applicable) Annex VIII Type 6 – Cold test Annex IIIA RDE / PEMS
	Real Driving Emissions Testing	UNECE Reg 83 and Reg 101 Annex XXI Type 1 (NEDC) Annex V Type 3 – Crankcase emissions (if applicable) Annex VIII Type 6 – Cold test
	Gaseous and Particulate Emissions Testing	EU 2017/1151 as amended by EU 2023/443
	Electric Energy Consumption Testing	
	In service Conformity Testing	
	Conformity of production Testing	
HEAVY DUTY VEHICLES	Real Driving Emissions Testing	EU 582/2011 Annex III RDE/ PEMS
	Gaseous and Particulate Emissions Testing	
	In service Conformity Testing	
NON ROAD MOBILE MACHINERY	Real Driving Emissions Testing	EU 2017/655 – as amended by 2022/2387
	Gaseous and Particulate Emissions Testing	
	In service Conformity Testing	

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Motor Vehicles	10. Vehicle Electrical Safety Testing	
	Protection Against Direct Contact Protection Against Indirect Contact Isolation Resistance Rechargeable Electrical Energy Storage System (REESS) Functional Safety	UNECE R100.01 Clause 5.1.1, 5.1.2, 5.1.3, 5.2 & 5.3 Annex 3, 4A & 5 UNECE R100.02 Clause 5.1.1, 5.1.2, 5.1.3, 5.2 & 5.3 Annex 3, 4A & 5
	Protection Against Direct Contact. *Protection Against Indirect Contact* *Isolation Resistance* *Rechargeable Electrical Energy Storage System(REESS)* *Preventing Accidental or Unintended Vehicle Movement*	*UNECE R100.03* *Clause 5.1.1, 5.1.2, 5.1.3, 5.2 & 5.3,* *Annex 3, 4, 5A & 6* VSTD 64-1.4.1 to 64-1.4.7
	11. ADAS Testing	
	Blind Spot Information System (BSIS) for detection of bicycles	*UNECE R151* *(BSIS) Supplement 3*
	Advanced Emergency Brake Systems (AEBS)	*UNECE R152* *(AEBS) Supplement 2*
	Moving Off Information Systems (MOIS)	*UNECE R159* *(MOIS) Supplement 1*
	Vehicle rear cameras: *Close proximity rear view field of vision*	*UNECE R158 Annex 9*
	Close proximity rear field of Detection	*UNECE R158 Annex 10*
VEHICLES IN EU / UNECE CATEGORIES M – Passenger Vehicles N – Goods Vehicles	11. Noise Testing Vehicle Exterior Noise Tests (Noise level, vehicle speed)	UNECE R138-01 Annex 3
END		