Laboratory	**International Centre for Automotive Technology, Plot No. 26, Sec-3, HSIDC, IMT Manesar, Gurgaon, Haryana** **Location 1: Plot No. 26, Sec-3, HSIDC, IMT Manesar, Gurgaon, Haryana** **Location 2: Plot No. 01, Sec-11, IMT Manesar, Gurgaon, Haryana**
Accreditation Standard	**ISO/IEC 17025: 2005**
Certificate Number	**TC-5360 (*in lieu of T-2664, T-1943 & T-1944)*** **Page 1 of 60**
Validity	**29.10.2015 to 28.10.2017** **Last Amended on 17.03.2017**

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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		ELECTRICAL TESTING		
	LOCATION 1			
I.	**DOMESTIC ELECTRICAL APPLIANCES**			
1.	**Frost Free Refrigerator**	Testing the Air Tightness of door or lid seal(s)	IS 15750:2006 , Cl no:8	Qualitative
		Testing the opening force of door(s) or lid(s)	IS 15750:2006 Cl no:9	Qualitative
		Testing the durability of hinges and handles of door(s) and lid(s)	IS 15750:2006 Cl no: 10	Qualitative
		Testing the mechanical strength of shelves and similar components	IS 15750:2006 Cl no: 11	Qualitative
		Storage temperatures testing	IS 15750:2006 Cl no: 12	Qualitative
		Water Vapour condensation test	IS 15750:2006 Cl no: 13	Qualitative
		Energy Consumption test	IS 15750:2006 Cl no: 14	0 to 3 kWh/24Hrs
		Temperature Rise Test	IS 15750:2006 Cl no: 15	-20 deg C to 140 deg C

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Pull Down Test	IS 15750:2006, Cl no: 16	Qualitative
		Ice-making Test	IS 15750:2006 Cl no: 17	Qualitative
		High voltage test	IS 15750:2006 Cl.no. : 19	Qualitative
		Determination of Volume	IS 15750:2006 Cl.no. : 6.2.1& 6.2.2	50 – 800 L
		Insulation resistance test	IS 15750:2006 Cl.no. : 20	Qualitative
2.	**Direct Cool Refrigerator**	Door Seal Test	IS 1476.1.2000 Cl no:14.1	Qualitative
		Mechanical strength of shelf and similar components	IS 1476.1.2000 Cl no:14.2	Qualitative
		Door and fittings tests	IS 1476.1.2000 Cl no:14.3	Qualitative
		No-load adjustment test	IS 1476.1.2000 Cl no: 14.4	Qualitative
		No-load performance test	IS 1476.1.2000 Cl no: 14.5	Qualitative
		Ice-making test	IS 1476.1.2000 Cl no: 14.6	Qualitative
		Thermal insulation test	IS 1476.1.2000 Cl no: 14.7	Qualitative
		High voltage test	IS 1476.1.2000 Cl no: 14.8	Qualitative
		Rated energy consumption test	IS 1476.1.2000 Cl.no. : 14.9	0.1 kWh to 2.5 kWh/24 hrs
		Thermostat test	IS 1476.1.2000 Cl.no. : 15.1	Qualitative
		Determination of volume	IS 1476.1.2000 Cl.no. :8.2.1 & 8.2.2	50 – 800 L

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		Insulation Resistance Test	IS 1476.1.2000 Cl.no. : 15.2	Qualitative
3.	**Electric Geyser**	Standing Loss	IS 2082(Part 1) :1993 Cl. No: 16	100 – 2000 Wh
		Capacity measurement	IS 2082(Part 1) :1993 Cl. No: 15	5-200 ltrs.
4.	**3-phase Squirrel Cage Induction Motor**	Dimensions	IS 1231	0.1 mm to 600 mm
		Resistance measurement of stator windings	IS/IEC 60034-1, Cl no:8.6 IS 15999 Cl. No. 5.7	0.01 Ω to 50 Ω
		No load Test at rated voltage	IS/IEC 60034-1 Cl no:9.1 IS 15999 Part-2/sec-1	0.1 to 10A Up to 420V
		Reduced voltage running up test at no load	IS 15999 Part-2/sec-1	0.1V to 420V Up to 3.7kW (Qualitative)
		Locked rotor readings at suitable reduced voltage (V, I, T, PI)	IS 15999 Part-2/sec-1	0.1-100Nm Up to 3.7kW 0 - 420 V AC 0 - 10 A AC
		Full load performance test	IS 15999 Part-2/sec-1	0.1-100Nm Up to 3.7kW 0 - 420 V AC 0 - 10 A AC
		Temperature Rise test	IS/IEC 60034-1 Cl no: 8	0.1 to 200°C
		Momentary overload test	IS 15999 Part-2/sec-1	Qualitative
		High voltage test	IS/IEC 60034-1 Cl no: 9.2	0 to 3.0 kVAC
		Insulation resistance test	IS 7816	0.1 M ohm to 10 G ohm.
5.	**Ceiling Fan**	Temperature rise test	IS : 374-1979 Cl. No.10.4	0-100°C

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		Leakage current test	IS : 374-1979 Cl. No.10.5	Upto500mA
		High voltage test	IS : 374-1979 Cl. No.10.6	0.1 to 3 kV AC
		Insulation Resistance test	IS : 374-1979 Cl. No.10.7	0.1 M ohm to 10 G ohm.
		Starting Test	IS : 374-1979 Cl. No.10.8	Qualitative
		Fan speed and input test	IS : 374-1979 Cl. No.10.9	0 to 1500 RPM 0.1 to 500 W
		Earthing connections test	IS : 374-1979 Cl. No.10.10	0.1 V – 12V AC 0 – 25 Amp Qualitative
		Protection against electric shock	IS : 374-1979 Cl. No.10.11	Qualitative
		Moisture Resistance test	IS : 374-1979 Cl. No.10.12	RH upto 95%
		Mechanical strength test	IS : 374-1979 Cl. No.10.13	0.5 joule Impact energy
		Suspension system test	IS : 374-1979 Cl. No.10.14	0.1 to 100 kN
		Creepage distance and clearances test	IS : 374-1979 Cl. No.10.15	0.5 to 100mm
		Mechanical endurance Test for regulator	IS : 374-1979 Cl. No.10.16	Qualitative
6.	**Washing Machine**	Finish	IS 14155, Cl no: 18	Qualitative
		Protection Against Electric Shock	IS 302-2-7 &IS 302-1 Cl no:8	Qualitative
		Input power and current	IS 302-2-7 &IS 302-1 Cl no:10	0 to 2 kW 0.1 - 600 V AC 0.1 - 10 A AC

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Insulation resistance and leakage current at operating temperature	IS 302-2-7 &IS 302-1 Cl no:13	0.1 M ohm to 10 G ohm.
		Moisture Resistance	IS 302-2-7 &IS 302-1 Cl no:15	Qualitative
		Insulation Resistance and Electric Strength(After Humidity Treatment)	IS 302-2-7 &IS 302-1 Cl no:16	0.1 M ohm to 10 G ohm.
		Construction	IS 302-2-7 &IS 302-1 Cl no:22	Qualitative
		Provision for Earthing	IS 302-2-7 &IS 302-1 Cl no:27	0.1 V – 12V AC 0 – 25 Amp
7.	**Color TV**	Power Consumption In Standby mode	IEC 62301, Ed 2.0	0.1-300W
		Power Consumption in ON mode	IEC 62087, Ed 3.0	0.1-300W
8.	**Computers**	Sleep Mode Testing	IEC 62301, Ed.2.0 Cl. No. 5	0.1-300W
		Idle Mode Testing	IEC 62301, Ed 2.0 Cl. No: 5	0.1-300W
		Off Mode Testing	IEC 62301, Ed 2.0 Cl. No: 5	0.1-300W
II.	**LAMPS AND LUMINIARES**			
1.	**Lamps And Luminiares**	Marking	IS16102 – Cl. No. 5.0	Qualitative
		Cap Interchangeability	IS16102 – Cl. No. 6.1	B22, E14, E27 Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Bending Moment, Axial Pull and Mass	IS16102 – Cl. No. 6.2	0-10N-m / 0.01 Nm
		Protection against electric shock	IS16102 – Cl. No. 7.0	Qualitative
		Insulation Resistance	IS16102 – Cl. No. 8.1	0.01 MΩ to 10 GΩ 50V-1000 V
		Electric Strength	IS16102 –cl. No. 8.2	Qualitative
		Torsion Resistance	IS16102 – cl No. 9.1 & 9.2	0-10N-m / 0.01 Nm (Qualitative)
		Cap Temperature Rise	IS16102 – cl No. 10.0	0-600°C /0.1°C
		Resistance To Heat	IS16102 – Cl. No. 11.0	25°C to 180^{0}C / 0.1°C 0.01 to 300 mm /0.01 mm 2N to 20N
		Resistance To Flame And Ignition	IS16102 – Cl. No. 12.0	0 - 1200°C / 1°C (Qualitative Test)
		Fault Conditions	IS16102 – Cl. No. 13.0	21 - 300°C / 1°C 0.01V to 300V 50/60Hz (Qualitative Test)
		Creepage Distances and Clearances	IS16102 – Cl. No. 14.0	150 m / 0.01 mm
III.	**POWER STABILISERS AND UPS**			
1.	**Uninterruptible Power Systems (Upto 1.5 kW)**	Power Interface	IS 16242 (Part 1): 2014 IEC 60950-1: 2005, Cl. No. 1.6	Upto 10 A
		SELV, TNV, Limited Current Circuits and	IEC 60950-1: 2005 Cl. No. 2.2, 2.3, 2.4, 2.5	Upto 20 V

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Limited Power Sources		
		Provisions for Earthing and Bonding	IEC 60950-1: 2005 Cl. No. 2.6	Upto 10 mm Upto 40 mm^2
		Over Current and Earth Fault Protection in Primary Circuits	IEC 60950-1: 2005 Cl. No. 2.7	Qualitative
		Safety Interlocks	IEC 60950-1: 2005 Cl. No. 2.8	Qualitative
		Connection to a Mains Supply	IEC 60950-1: 2005 Cl. No. 3.2	Upto 50 mm) Upto 200 °C
		Disconnection from the mains Supply	IEC 60950-1: 2005 Cl. No. 3.4	Qualitative
		Stability	IEC 60950-1: 2005 Cl. No. 4.1	Qualitative
		Mechanical Strength	IEC 60950-1: 2005 Cl. No. 4.2	Qualitative
		Temperature Rise	IEC 60950-1: 2005 Cl. No. 4.5	Upto 200 °C
		Openings in enclosures	IEC 60950-1: 2005 Cl. No. 4.6	Up to 70 mm
		General Provision for Earth leakage	IEC 60950-1: 2005 Cl. No. 5.1.1	Upto 5 mA
		Electric Strength (1 kV)	IEC 60950-1: 2005 Cl. No. 5.2	Qualitative
		Cable and interconnection check	IEC 62040-3: 2011 Cl. No. 6.2.2.2	Qualitative
		Light Load and functional Test	IEC 62040-3: 2011 Cl. No. 6.2.2.3	Qualitative
		No load	IEC 62040-3: 2011 Cl. No. 6.2.2.4	Qualitative
		Full load	IEC 62040-3: 2011	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			Cl. No. 6.2.2.5	
		Synchronization	IEC 62040-3: 2011 Cl. No. 6.2.2.6	Qualitative
		AC input failure	IEC 62040-3: 2011 Cl. No. 6.2.2.7	Qualitative
		AC input return	IEC 62040-3: 2011 Cl. No. 6.2.2.8	Qualitative
		Transfer to bypass	IEC 62040-3: 2011 Cl. No. 6.2.2.9	Qualitative
IV.	**BATTERIES**			
1.	**Stationary Valve Regulated Lead Acid Batteries**	Checking of Dimension	IS 15549: 2005 Cl. No. 10.1.1.b	10 mm to 600 mm
		Test For C_{10} Capacity and Voltage During Discharge	IS 15549: 2005 Cl. No. 12.1	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 5 Ah to 400 Ah
		Test on vent seal operation	IS 15549: 2005 Cl. No. 12.8	Qualitative
		Test For C_1 Capacity and voltage during discharge	IS 15549: 2005 Cl. No. 12.2	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 5 Ah to 400 Ah
		Ampere-Hour and Watt-Hour Efficiency Test	IS 15549: 2005 Cl. No. 12.4 & 12.5	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 40 % to 100 %
		Test for Retention of Charge	IS 15549: 2005 Cl. No. 12.6	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 40 % to 100 %
		Water absorption Test Acid Retention Capability Test on	IS 15549: 2005 Cl. No. 12.7	1 mg to 200 g

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Separators Wicking Test on Separators		
				100 mm to 1000 mm
		Test for Oxygen Recombination	IS 15549: 2005 Cl. No. 12.9	0.1 ml to 50 ml
2.	**Stationary Cells And Batteries, Lead-Acid Type (With Tubular Positive Plates)-Specification**	Verification of Marking	IS 1651: 1991 Cl. No. 12.3	Qualitative
		Verification of Dimensions	IS 1651: 1991 Cl. No. 12.4	10 mm to 600 mm
		Test for Capacity and Test for Voltage During Discharge	IS 1651: 1991 Cl. No. 12.5, Cl. No. 12.10	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 5 Ah to 400 Ah
		Ampere-Hour and Watt-Hour Efficiency Tests	IS 1651: 1991 Cl. No. 12.9	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 40 % to 100 %
		Test for Loss of Capacity on Storage	IS 1651: 1991 Cl. No. 12.7	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 40 % to 100 %
		Endurance Test	IS 1651: 1991 Cl. No. 12.8	Qualitative
3.	**Stationary Cells and Batteries, Lead-Acid Type (With Tubular Positive Plates) in Monoblock Container**	Verification of Constructional Requirements	IS 13369: 1992 Cl. No. 11.2	Qualitative
		Verification of Marking	IS 13369: 1992 Cl. No. 11.3	Qualitative
		Verification of Dimensions	IS 13369: 1992 Cl. No. 11.4	10 mm to 600 mm
		Test of Capacity	IS 13369: 1992 Cl. No. 11.5	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 5 Ah to 400 Ah
		Ampere-Hour and Watt-Hour Efficiency	IS 13369: 1992 Cl. No. 11.8	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Tests		40 % to 100 %
		Test for Loss of Capacity on Storage	IS 13369: 1992 Cl. No. 11.6	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 40 % to 100 %
		Endurance Test	IS 13369: 1992 Cl. No. 11.7	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC
4.	**Lead-Acid Storage Batteries for Motor Vehicles With Light Weight and High Cranking Performance**	Physical Examination	IS 14257: 1995 Cl. No. 9.3.1	Qualitative
		Dimension and Layout	IS 14257: 1995 Cl. No. 9.3.2	10 mm to 600 mm
		Marking	IS 14257: 1995 Cl. No. 9.3.3	Qualitative
		Charge Acceptance	IS 14257: 1995 Cl. No. 9.3.6	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC
		5 Hr Capacity	IS 14257: 1995 Cl. No. 9.3.4	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 5 Ah to 400 Ah
		High Rate at –15 °C	IS 14257: 1995 Cl. No. 9.3.5	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 1 s to 5000 s
		Life Cycle Test	IS 14257: 1995 Cl. No. 9.3.7	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC
		Overcharge Endurance	IS 14257: 1995 Cl. No. 9.3.9	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC
		Strength of Terminal	IS 14257: 1995 Cl. No. 9.3.10	0.4 Nm to 2.8 Nm 25 Nm to 30 Nm
		Robustness to fastening	IS 14257: 1995 Cl. No. 9.3.1	9.8 N to 1470 N
5.	**Lead-Acid Starter Batteries**	Effective reserve Capacity (Cr , e)	JIS D 5301: 2006 Cl. No. 3 c	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 1 s to 5000 s

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		5h Rate Capacity (C5 , n)	JIS D 5301: 2006 Cl. No. 3 d	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 5 Ah to 400 Ah
		Dimensions	JIS D 5301: 2006 Cl. No. 9.5.1	10 mm to 600 mm
		High Rate discharge	JIS D 5301: 2006 Cl. No. 9.5.3 b	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 1 s to 5000 s
		Cold Cranking Ampere (CCA) Test	JIS D 5301: 2006 Cl. No. 9.5.3 a	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 1 s to 5000 s
		Charge Acceptance Test-1	JIS D 5301: 2006 Cl. No. 9.5.4 a	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC (-) 40 °C to 150 °C
		Charge Acceptance Test-2	JIS D 5301: 2006 Cl. No. 9.5.4 a	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC (-)40 °C to 150 °C
		Heavy load Endurance Test	JIS D 5301: 2006 Cl. No. 9.5.5 b	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC (-)40 °C to 150 °C
		Light Load endurance Test	JIS D 5301: 2006 Cl. No. 9.5.5 a	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC (-)40 °C to 150 °C
		Terminal strength Test	JIS D 5301: 2006 Cl. No. 9.5.7	Qualitative
		Fastening Robustness	JIS D 5301: 2006 Cl. No. 9.8	9.8 N to 1470 N
6.	**Battery Operated Vehicles**	Short Circuit Test (Cell Level or Battery Module or Battery Pack)	AIS 048: 2009 Cl. No. 2.1.1	30 Ah to 150 Ah 0.01 V DC to 60 V DC 0.1 A DC to 400 A

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Overcharge Test	AIS 048: 2009 Cl. No. 2.1.2	0.01 V DC to 60 V DC 0.1 A DC to 400 A
		Discharge after Vibration Test	AIS 048: 2009 Cl. No. 2.2.1.2	0.01 V DC to 60 V DC 0.1 A DC to 400 A 5 Ah to 400 Ah
		Discharge after Shock Test	AIS 048: 2009 Cl. No. 2.2.2.2	0.01 V DC to 60 V DC 0.1 A DC to 400 A 5 Ah to 400 Ah
		Roll-Over Test	AIS 048: 2009 Cl. No. 2.2.3	Upto 150 ml
		Penetration Test	AIS 048: 2009 Cl. No. 2.2.4	8 cm/s
7.	**Secondary Cells And Batteries Containing Alkaline or Other Non-Acid Electrolytes**	Visual Examination/ safety marking	IS 16046: 2012 IEC 62133: 2002, Cl. No. 6.1	Qualitative
		Molded case Stress at high Ambient Temperature and temp Cycling	IS 16046: 2012 IEC 62133: 2002, Cl. No. 4.2.3	Upto 180 °C
		External Short Circuit	IS 16046: 2012 IEC 62133: 2002, Cl. No. 4.3.2	1 A to 600 A
		Free Fall	IS 16046: 2012 IEC 62133: 2002, Cl. No. 4.3.3	1 m
		Crushing of Cells	IS 16046: 2012 IEC 62133: 2002, Cl. No. 4.3.6	13 kN
		Low Pressure	IS 16046: 2012 IEC 62133: 2002, Cl. No. 4.3.7	0.116 Bar (Absolute)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Overcharge Test For nickel systems. For Lithium Systems.	IS 16046: 2012 IEC 62133: 2002, Cl. No. 4.3.8, Cl. No. 4.3.9	0.01 V DC to 60 V DC 0.1 A DC to 400 A
		Force Discharge Test	IS 16046: 2012 IEC 62133: 2002, Cl. No. 4.3.10	0.01 V DC to 60 V DC 0.1 A DC to 400 A
		Continuous Low Rate Charging	IS 16046: 2012 IEC 62133: 2002, Cl. No. 4.2.1	0.01 V DC to 60 V DC 0.1 A DC to 400 A
		Temperature Cycling (2 Cycles)	IS 16046: 2012 IEC 62133: 2002, Cl. No. 4.2.4	(-)20 ºC to 75 ºC
		Thermal Abuse	IS 16046: 2012 IEC 62133: 2002, Cl. No. 4.3.5	50 ºC to 180 ºC
		Cell Protection Against High Charge	IS 16046: 2012 IEC 62133: 2002, Cl. No. 4.3.11	0.01 V DC to 60 V DC 0.1 A DC to 400 A
8.	**Lead–Acid Starter Batteries**	Safety Labeling	IEC 60095: 2012 Cl. No. 4.1.5	Qualitative
		Capacity check Ce	IEC 60095: 2012 Ce, Cl. No. 7.1	0.01 V DC to 60 V DC 0.1 A DC to 400 A 5 Ah to 400 Ah
		Reserve Capacity Check Cr, e	IEC 60095: 2012 Cl. No. 7.2	0.01 V DC to 60 V DC 0.1 A DC to 400 A 1 s to 5000 s
		Cranking Performance Test	IEC 60095: 2012 Cl. No. 7.3	0.01 V DC to 60 V DC 0.1 A DC to 400 A 1 s to 5000 s
		Charge Acceptance Test	IEC 60095: 2012 Cl. No. 7.4	(-)40 °C to 2 °C 0.01 V DC to 60 V DC 0.1 A DC to 400 A

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Charge Retention Test	IEC 60095: 2012 Cl. No. 7.5	0.01 V DC to 60 V DC 0.1 A DC to 400 A
		Cyclic Endurance Test for batteries Class a Class b	Cyclic endurance, IEC 60095: 2012 Cl. No. 7.6 Cl. No. 7.7	0.01 V DC to 60 V DC 0.1 A DC to 400 A
		Water Consumption Test	IEC 60095: 2012 Cl. No. 7.9	1 g to 5000 g
		Electrolytic Retention Test	IEC 60095: 2012 Cl. No. 7.11	0 to 100 ml
		Cranking performance for dry Charged	IEC 60095: 2012 Cl. No. 7.12	0.01 V DC to 60 V DC 0.1 A DC to 400 A 1 s to 5000 s
9.	**Lead Acid Starter for Motorcycle Battery**	Dimensions	JIS D 5302: 1991 Cl. No. 7.3.1	10 mm to 600 mm
		Capacity 10 Hr	JIS D 5302: 1991 Cl. No. 7.3.2	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 5 Ah to 400 Ah
		High Rate Discharge Characteristics	JIS D 5302: 1991 Cl. No. 7.3.3	0.01 V DC to 60 V DC 0.1 A DC to 400 A DC 1 s to 5000 s
V.	**ROTATING ELECTRICAL MACHINES**			
1.	**Starter Motor**	Performance: Without Load (Light Run) With Load (lock torque, run Torque)	IS 3141: 2007 ISO/NP 8856: 2014	Upto 9999 RPM Upto 2000 A Upto 99.9 Vdc Upto 50 Nm (-) 40 ºC to 80 ºC

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Solenoid Life Test		
2.	**Alternator**	Current/Rotational Frequency Partial Load Measurement Functional Ability of Regulator Efficiency Determination	ISO 8854: 2012 JIS D1615: 1989 SAE J56: 1999	Upto 9999 RPM Upto 2000 A Upto 99.9 Vdc Upto 50 Nm (-) 20 °C to 80 °C
VI.	**EMC/EMI TESTING FACILITY**			
1.	**Motor Vehicle Electronic and Electrical System/Sub System Operating on Vehicle Battery Supply**	Electro Static Discharge (Air Discharge & Contact Discharge)	IEC 61000-4-2: 2008 ISO 10605: 2008 SAE J1113-13: 2004 JASO D001: 1994	Qualitative (±)30 kV ESD)
		Immunity to Conducted Transient Disturbances	ISO 7637-2: 2004 ISO 7637-2: 2011 ISO 7637-3: 2007 SAE J1113: 2015 SAE J1455: 2012 ECE-R10: 2014 (Revision 3) AIS 004 (Part 3): 2009	Qualitative ((-) 600 Vdc to 200 Vdc)
VII.	**ENVIRONMENTAL TEST FACILITY**			
1.	**Motor Vehicle Electronic and Electrical System/Sub System Operating**	Environmental Tests: Thermal Cycle Test Damp Heat Test Cold Test Dry Heat Test	ISO 16750-4: 2006 JASO D 001: 1994 IEC 60068-2-14: 1984 IEC 60068-2-30: 2005 IEC 60068-2-38:2009	Qualitative ((-) 40 ºC to 180 ºC, RH: 20 % to 95 %)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	on Vehicle Battery Supply	Temperature and Humidity Test Temperature Cycle Test Heat Cycle Test	IS 9000-3: 1977	
		Electrical Tests: Supply Voltage Ripple Test Over Voltage Test Micro-Interruption Test Reverse Polarity	ISO 16750-2: 2010 ISO 16750-2: 2012 JASO D 001: 1994	Qualitative (32 Vdc)
		IPXX Testing	IEC 60529: 2013 DIN40050-9: 1993	Qualitative (Upto IP69)
		Impact Testing	JIS D 5500: 1995	Qualitative (3.2 mm, 750 cycles/min)

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection

ELECTRICAL TESTING

	LOCATION 2			
I.	**EMC/EMI TST FACILITY**			
1.	**EMI /EMC testing for Electrical/ Electronic automotive components**	Off – Board Radiated Emissions (RE)	AIS 004 (Part 3): 2009+Amd. 1: April 2015 ECE R10-05: 2014, CISPR 25 (Ed. 3.0): 2008+Corr. 1: 2009	9 kHz – 8 GHz
		Conducted RF Emissions (CE) by voltage method	CISPR 25 (Ed. 3.0): 2008+Corr. 1: 2009, CISPR 16-2-1 (Ed. 3.0): 2014, ECE R10-05: 2014,	100kHz – 150MHz
		Conducted RF Emissions (CE) by current probe method	CISPR 25 (Ed. 3.0): 2008+Corr. 1: 2009, CISPR 16-2-1 (Ed. 3.0): 2014, ECE R10-05: 2014	100kHz – 150MHz
		Off – Board Radiated Immunity (RI), ALSE Method	ISO 11452-2 (Ed. 2): 2004, AIS 004 (Part 3): 2009+Amd. 1: April 2015, ECE R10-05: 2014	25 V/m – 200 V/m: 20 MHz – 18 GHz 600 V/m (radar pulses): 1.2 – 1.4 GHz, 2.7 – 3.2 GHz
		Bulk Current Injection	ISO 11452-4 (Ed. 4): 2011,	10 kHz – 1.3 GHz

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		(BCI)	SAE J1113-4: 2014, AIS 004 (Part 3): 2009+Amd. 1: April 2015, ECE R10-05: 2014	(Upto 200 mA)
2.	**EMI /EMC testing for 2/3/4 wheeler Passenger Vehicles, Commericial and Agricultural Vehicles**	Off – Board Radiated Emissions (RE)	AIS 004 (Part 3): 2009+Amd. 1: 2015, ECE R10-05: 2014, CISPR 12 (Ed. 6.1): 2009	20 MHz – 20 GHz
		Off – Board Radiated Immunity (RI), ALSE Method	ISO 11451-2 (Ed. 4): 2015, AIS 004 (Part 3): 2009+Amd. 1: 2015, ECE R10-05: 2014	25 V/m – 200 V/m: 100 kHz – 18 GHz 600 V/m (radar pulses): 1.2 – 1.4 GHz, 2.7 – 3.2 GHz

Laboratory	**International Centre for Automotive Technology, Plot No. 26, Sec-3, HSIDC, IMT Manesar, Gurgaon, Haryana** **Location 1: Plot No. 26, Sec-3, HSIDC, IMT Manesar, Gurgaon, Haryana** **Location 2: Plot No. 01, Sec-11, IMT Manesar, Gurgaon, Haryana**
Accreditation Standard	**ISO/IEC 17025: 2005**
Certificate Number	**TC-5360 (*in lieu of T-2664, T-1943 & T-1944)*** **Page 19 of 60**
Validity	**29.10.2015 to 28.10.2017** **Last Amended on 17.03.2017**

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	LOCATION 1			
I.	**AUTOMOTIVE COMPONENTS**			
1.	**Mechanical Automotive Components - Safety Glass (Laminated & Toughened)**		IS 2553 (Part 1): 1995 IS 2553 (Part 2): 2000 Amd. P1 Amd. 1,2,3 & 4, P2 Amd. 1 & 2: 2008 ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008	
		Dimension Check Thickness Test (Laminated safety glass)	IS 2553 (Part 1): 1995 Amd. P1 Amd. 1,2,3 & 4 IS 2553 (Part 2): 2000 Amd. 1 & 2: 2008 Cl. No.5.2.1	Upto 25 mm
		Dimension Check Thickness Test (Toughened safety glass)	IS 2553 (Part 1): 1995 Amd. P1 Amd. 1,2,3 & 4 IS 2553 (Part 2): 2000 Amd. 1 & 2: 2008 Cl. No. 5.2.1	Upto 25 mm
		Edge Matching Test (Laminated safety glass)	IS 2553 (Part 1): 1995 Amd. P1 Amd. 1,2,3 & 4 IS 2553 (Part 2): 2000 Amd. 1 & 2: 2008, Cl. No.	Upto 200 mm

MECHANICAL TESTING

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			5.2.2	
		Impact Resistance Test (Laminated safety glass)	IS 2553 (Part 1): 1995 Amd. P1 Amd. 1,2,3 & 4 IS 2553 (Part 2): 2000 Amd. 1 & 2: 2008 Cl. No. 5.2.3	Upto 12 m (height of drop Ball Weight : 227 (±) 2 G) At (+) 40 °C At (-) 20 °C At Room Temperature)
		Impact Resistance Test (Laminated safety glass)	ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008 ECE R 34: 2004, Cl. No. 4.3 Annexure 6	Upto 12 m (height of drop Ball Weight : 227 (±) 2 G) At (+) 40 °C At (-) 20 °C At Room Temperature)
		Impact Resistance Test (Toughened safety glass)	IS 2553 (Part 1): 1995 Amd. P1 Amd. 1,2,3 & 4 IS 2553 (Part 2): 2000 Amd. 1 & 2: 2008 Cl. No. 5.3.2	Upto 12 m (height of drop Ball Weight : 227 (±) 2 G) At (+) 40 °C At (-) 20 °C At Room Temperature)
		Penetration Resistance Test (Laminated safety glass)	IS 2553 (Part 1): 1995 Amd. P1 Amd. 1,2,3 & 4 IS 2553 (Part 2): 2000 Amd. 1 & 2: 2008 Cl. No. 5.2.6.1 ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008 ECE R 34: 2004 Cl. No.4.2 Annexure 6	Upto 12 m (height of drop Ball Weight : 2260 (±)20 G)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Boil Test (Laminated safety glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2 Amd. 1 & 2: 2008 Cl. No. 5.2.4 ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008 ECE R 34: 2004 Cl. No. 5 Annexure 3	Qualitative
		Light Stability Test (With Xenon Ac Lamp Weather-O-Meter Ci4000) (Laminated safety glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2 Amd. 1 & 2: 2008 Cl. No. 5.2.5 ECE R 43: 2004 Cl. No. 6.4 Annexure 3 ECE R 34: 2004 Cl. No. 5 Annexure 3	Upto 100 %
		Head Form Test (Laminated safety glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2 Amd. 1 & 2: 2008 Cl. No. 5.2.6.2 ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1	Upto 12 m (height of drop Weight 10 (±) 0.2 kg)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			Amd. 3: 2008 ECE R 34/2004 Cl. No. 3 Annexure 4	
		Head Form Test (Toughened glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2 Amd. 1 & 2: 2008 Cl. No. 5.2.6.2 ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008 ECE R 34: 2004 (Laminated glass) Cl. No. 3 Annexure 6	
		Visual Light Transmission Test (Laminated safety glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2 Amd. 1 & 2: 2008 Cl. No. 5.1.7	Upto 100 % (Light Transmission)
		Visual Light Transmission Test (Toughened glass)	ECE R 34: 2004 Cl. No. 9.1 Annexure 3	Upto 100 % (Light Transmission)
		Secondary Image Test (Laminated safety glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2 Amd. 1 & 2: 2008 Cl. No. 5.5.2	Qualitative
		Secondary Image Test (Toughened glass)	ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			Amd. 3: 2008 ECE R 34: 2004 Cl. No. 9.3 Annexure 3	
		Optical Distortion Test (Laminated safety glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2 Amd. 1 & 2: 2008 Cl. No. 5.5.3	Upto 50 min of Arc
		Optical Distortion Test (Toughened glass)	ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008 ECE R 34: 2004 Cl. No. 9.2 Annexure 3	Upto 50 min of Arc
		Fragmentation Test (Laminated safety glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2 Amd. 1 & 2: 2008 Cl. No. 5.3.3	Qualitative
		Fragmentation Test (Toughened glass)	ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008 ECE R 34: 2004, Cl. No. 2 Annexure 4	Qualitative
2.	**Mechanical Automotive Components- Rear View Mirrors (Class I, II, III, IV, V, VI, VII & L)**	Dimensions of Reflecting Surface	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 6 AIS 001 (Part 1) Rev. 1 Amd: 2011 Cl. No. 6.1.2.1 AIS 001 (Part 2) Rev. 1,	0.5 mm to 530 mm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			Amd: 2011 Cl. No. 7.1	
		Radius of Curvature	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 4.6 AIS 001 (Part 1) Rev. 1 Amd: 2011 Cl. No. 6.1.2.2.2 AIS 001 (Part 2) Rev. 1, Amd: 2011, Cl. No. 6.3	Range of ROC: 55 to ∞ Range of test instrument: 0 to 10 mm Range of Reflectivity : (0 to 99) %
		Normal Co-Efficient of Reflection Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 13.1.4 AIS 001 (Part 1) Rev. 1 Amd: 2011 Cl. No. 6.1.2.2.5 AIS 001 (Part 2) Rev. 1 Amd: 2011 Cl. No. 7.2.4	Range of ROC: 55 to ∞ Range of test instrument: 0 to 10 mm Range of Reflectivity : Upto 99 %
		Impact Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 8.2 AIS 001 (Part 1) Rev. 1 Amd: 2011, Cl. No. 6.1.3.2 AIS 001 (Part 2) Rev. 1 Amd: 2011 Cl. No. 8.2	Range : 0 to 60 º (angle of impact)
		Bending Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 8.3 AIS 001 (Part 1) Rev. 1	Max load : 25 kg

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			Amd: 2011 Cl. No. 6.1.3.2.3 AIS 001 (Part 2) Rev. 1 Amd: 2011 Cl. No. 8.3	
		Distortion Factor Test	AIS 001: 201 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 11.1	Range: 0.01 mm to 100 mm (max) (diameter of con centric Circles)
		Moisture Resistance Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 11.2	Range of Reflectivity : (0 to 99) % (Coefficient of Reflection test)
		Temperature Resistance Test	AIS 001:2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 11.3	Max. temp (As per standard): 79 °C
		Vibration Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 11.4	Range of Reflectivity : (0 to 99) % (Coefficient of Reflection test)
		Salt Spray Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 11.6	Range of Reflectivity : (0 to 99) % (Coefficient of Reflection test)
		Weather Resistance Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 11.7	Qualitative Test
3.	**Mechanical Automotive Components (Wheel Rim Testing)**	Wheel Rims for Passenger Car: Dynamic Cornering Fatigue Test Dynamic Radial Fatigue Test	IS 9436: 1980 (RA 2006) Cl. No. 3.1 Cl. No. 3.2	0 to 50 kNm Max. Load: 75 kN
		Wheel Rims For	IS 9438: 1980 (RA 2000)	0 to 50 kNm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Trucks, Buses & Multi Purpose Passenger Vehicles: Cornering Fatigue Test Dynamic Radial Fatigue Test	Cl. No. 3.1.1 IS 9438: 1980 (RA 2000) Cl. No. 3.2	Max. Load: 75 kN
4.	**Mechanical Automotive Components - Vibration Testing**	Resonance Frequency Detection Test	JIS D 1601: 1995 Cl. No. 5.1	Load Rating : 1000 kgf Frequency Range: 5 Hz to 2500 Hz Max. Acceleration: 70 g (useful range) Max. Displacement: 30 mm (peak to peak)
		Vibration Function Test	JIS D 1601: 1995, Cl. 5.2	
		Vibration Endurance Test (Discrete Mode)	JIS D 1601: 1995 Cl. No. 5.3	
		Sweep Vibration Endurance Test (Sine Sweep Vibration)	JIS D 1601: 1995 Cl. No. 5.4	
5.	**Metal & Metal Products (Ferrous)**	Tensile Strength Elongation	IS 1608: 2005 Cl. No. 4.1.1, 4.1.2, 4.4.2, 11	0.001 kN to 100 kN Upto 100 %
6.	**CNG Regulator**	Hydro-Static Strength Test	ISO 15500 (Part 9): 2012	Qualitative (Downstream 25 bar to 1000 bar Upstream, 1 bar to 10 bar PRV 7 bar to 45 bar)
		Hydro-Static Strength Test	IS 15713: 2006	Qualitative (Downstream 25 bar to 1000 bar Upstream: 1 bar to 10 bar)
		Bending Moment	ISO 15500 (Part 9): 2012	Qualitative (17 N load applied at specified distance for 15 min leakage <20 cm^3/h and hydrostatic till failure)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Bending Moment	ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative (17 N load applied at specified distance for 15 min leakage <20 cm^3/h)
		Leakage	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative (15 bar to 300 bar)
		Excess Torque Resistance	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative (1 Nm to 137.29 Nm)
		Electrical Over Voltages	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative (0.01 V DC to 18 V DC)
		Vibration Resistance	ISO 15500 (Part 9): 2012	Qualitative
			ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative
		Brass Material Compatibility	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative
		Corrosion Resistance	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative
		Insulation Resistance	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001 IS 15713: 2006	Greater than 240 kΩ
		Minimum Opening Voltage	ISO 15500 (Part 9): 2012	≤8 V DC for 12 V DC ≤16 V DC for 24 V DC
			ISO 15500 (Part 9): 2001 IS 15713: 2006	≤8 V DC for 12 V DC ≤16 V DC for 24 V DC
		Water Jacket Freezing	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			IS 15713: 2006	
		Oxygen Ageing	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative
7.	**CNG Solenoid Valve**	Hydro-Static Strength Test	ISO 15500- 6: 2012(E)	Qualitative (1 MPa to 100 MPa (1000 bar)
		Leakage		Qualitative (1 MPa to 30 MPa (300 bar)
		Excess Torque Resistance	ISO 15500- 6: 2012(E)	Qualitative (1 Nm to 137.29 Nm)
		Electrical Over Voltages		Qualitative (9 V DC to 18 V DC for 3 min)
		Bending Moment		Qualitative
		Vibration Resistance		Qualitative
		Corrosion Resistance		Qualitative
		Brass Material Compatibility		Qualitative (Exposure to Ammonia air mixer at 34 °C for 10 days)
		Insulation Resistance		240 k Ω at 1000 V DC
		Minimum Opening Voltage		6 V DC to 16 V DC
		Water Jacket Freezing		Qualitative
		Oxygen Ageing		Qualitative
8.	**CNG Gas/Air Mixer**	Hydro-Static Strength Test	ISO 15500- 11: 2001(E)	Qualitative (1 MPa to 100 MPa (1000 bar)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Leakage		Qualitative (1 MPa to 30 MPa (300 bar)
		Vibration Resistance	ISO 15500- 11: 2001(E)	Qualitative
		Corrosion Resistance		Qualitative
		Brass Material Compatibility.		Qualitative (Exposure to Ammonia air mixer at 34 °C for 10 days)
		Oxygen Ageing		Qualitative
9.	**Automotive Component (Emission Of Gaseous Pollutants From Petrol & Engine Vehicles)**	Evaporative Emissions HCG/ Test	EEC-98/69/EC-R83 (Type 4) MoSRTH/CMVR/TAP/115-116_ Issue 4 (Part 14) (4W)-G.S.R 84 (E) MoSRTH/CMVR/TAP/115-116_ Issue. 4 (Part 17) (2W)-G.S.R. 186 (E). California Evaporative Emission Standards and Test procedures for 2001 and subsequent model motor vehicles, (Part 4): for motorcycles Year of publication: 2010	4 W(Min-Max) 0.001 g to 60.492 g/test 2 W(Min-Max) 0.001 g to 60.492 g/test

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
10.	**Mechanical Automotive Components (Emission Of Gaseous Pollutants From Petrol & Diesel Engine Vehicles & Crankcase Emission From Petrol Engines)**	Idling CO, HC	MoRTH/CMVR/TAP/115-116_ Issue. 4: 2010 (Type 2 Test) R 83: 1995 (Type 2 Test) 70/220/EEC Ammended Till 2002/80/EC: 2002 (Type 2 Test) MoRTH/CMVR/TAP/115-116_ Issue. 4: 2010 (Type 1 Test) R 83/04: 2004 (Type 1 Test) 70/220/EEC Ammended Till 2002/80/EC: 2002 (Type 1 Test) MoRTH/CMVR/TAP/115-116_ Issue. 4: 2010 (Type 3 Test) R 83/04 , 2004 (Type -3 Test) 70/220/EEC Ammended Till 2002/80/EC: 2002 (Type-3 test)	Co (Min-Max) 0.0001 ppm to 34600 ppm HC (Min-Max) 0.001 ppm to 1990 ppm
		Free Acceleration Smoke Test	MoRTH/CMVR/TAP/115-116_ Issue. 4: 2010 (Type 2 Test) R 83: 1995 (Type 2 Test) 70/220/EEC Ammended Till 2002/80/EC: 2002	0 to 100 % HSU Idle Rpm, Fly up Rpm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			(Type 2 Test) MoRTH/CMVR/TAP/115-116_ Issue. 4: 2010 (Type 1 Test) R 83/04: 2004 (Type 1 Test) 70/220/EEC Ammended Till 2002/80/EC: 2002 (Type 1 Test) MoRTH/CMVR/TAP/115-116_ Issue. 4: 2010 (Type 3 Test) R 83/04 , 2004 (Type -3 Test) 70/220/EEC Ammended Till 2002/80/EC: 2002 (Type-3 test)	
		Tail Pipe Emissions CO HC No_x Co_2		Co (Min-Max) 0.0001 g/km to 161.97 g/km HC (Min-Max) 0.0001 g/km to 642.098 g/km NO_X (Min-Max) 0.0001 g/km to 1119.65 g/km CO_2 (Min-Max) 0.0001 g/km to 20371.698 g/km
		Particulate		PM (Min-Max) 0.0001 g/km to 676.87 g/km
		Crankcase Emission		0 to 500 mm H_2O (Qualitative)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
11.	**Mechanical Automotive Components (Test On Automotive Engines)**	Power Smoke - Free Acceleration & Engine Load Response (ELR) Smoke - Full Load Fuel Consumption CO THC No_x CO_2 Particulate Matter	MoRTH/CMVR/TAP/115-116_ ISSUE-4: 2010 IS 14599: 1999 ECE-R-24 ECE-R-85 80/1269/EEC 77/537/EEC 72/306/EEC ECE-R- 96 88/77/EEC, 91/542 EEC 1999/96/EC 97/68/EC	0.5 kW to 550 kW 0.009 m^{-1} to 10 m^{-1} 0.009 m^{-1} to 10 m^{-1} 0.1 kg/h to 150 kg/h CO: 0.01 g/kWh to 36.22 g/kWh @165 kW THC : 0.01 g/kWh to 189.74 g/kWh @165kW NO_x: 0.02 g/kWh to 120.83 g/kWh @165kW CO_2: 0.02 % to 20 % Particulate : 0.00014 g/kWh to 431.28 g/kWh @165kW
12.	**Mechanical Automotive Components (Test On Agricultural Tractor, Construction Equipments & Power Tiller Engines)**	Power Smoke @80% Load Fuel Consumption Pollutants CO THC No_x CO_2 Particulate Matter	MoRTH/CMVR/TAP/115-116_ ISSUE-4: 2010 ISO 8178: 2008	0.5 kW to 550 kW 0.009 m^{-1} to 10 m^{-1} 0.009 m^{-1} to 10 m^{-1} 0.1 kg/h to 150 kg/h CO: 0.01 g/kWh to 36.22 g/kWh @165 kW THC: 0.01 g/kWh to 189.74 g/kWh @165kW NOx: 0.02 g/kWh to 120.83 g/kWh @165kW CO_2: 0.02 % to 20 % Particulate : 0.00014 g/kWh to 431.28 g/kWh @165kW

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
13.	**Mechanical Automotive Components (Test On Genset Engines Upto 800 Kw)**	Power Full Load Smoke Fuel Consumption Pollutants CO THC Nox CO_2 Particulate Matter	CPCB : PCLS/9/2005-06 ISO 8178: 2008	0.5 kW to 550 kW 0.009 m^{-1} to 10 m^{-1} 0.009 m^{-1} to 10 m^{-1} 0.1 kg/h to 150 kg/h CO: 0.01 g/kWh to 36.22 g/kWh @165 kW THC: 0.01 g/kWh to 189.74 g/kWh @165kW NOx: 0.02 g/kWh to 120.83 g/kWh @165kW CO_2: 0.02 % to 20 % Particulate : 0.00014 g/kWh to 431.28 g/kWh @165kW
14.	**Mechanical Automotive Components (Test On Portable Genset)**	Power Fuel Consumption CO THC No_x CO_2	CPCB : PCLS/5/2005-01 ISO 8178: 2008 SAE J 1088	0.1 kW to 10 kW 0.1 kg/h to 10 kg/h CO: 0.91 g/kWh to 302.68 g/kWh@2.3kW THC: 0.01 g/kWh to 94.08 g/kWh @2.3kW NOx: 0.02 g/kWh to 83.65 g/kWh @2.3 CO_2: 0.02 % to 20 %
15.	**Mechanical Automotive Components (Test On IC Engines For Endurance & Component Wear Assessment)**	Power & Rating Test Fuel Consumption Bore/Internal Dia External Dia Height/Length	IS 10000 (Part 1 to 13): 1980 IS 11170: 1985 IS 7347: 1974	0.5 kW to 550 kW 0.1 kg/h to 150 kg/h 0.1 mm to 150mm 0.1 mm to 150 mm 0.1 mm to 300 mm

Laboratory	**International Centre for Automotive Technology, Plot No. 26, Sec-3, HSIDC, IMT Manesar, Gurgaon, Haryana** **Location 1: Plot No. 26, Sec-3, HSIDC, IMT Manesar, Gurgaon, Haryana** **Location 2: Plot No. 01, Sec-11, IMT Manesar, Gurgaon, Haryana**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
16.	**Automotive Vehicle Testing 2w, 3w, 4w & their Derivatives**	4 Wheelers and their derivatives	IS 11852: 2001	Upto 120 km/h
		2 & 3 Wheelers and their derivatives	IS 14664: 1999	Upto 60 km/h
		Brake for Agricultural Tractors	IS 12061: 1999	Upto 50 km/h
		Gradeability Evaluation	AIS 003: 1999	7°, 10.2° & 15°
		Speedometer Calibration 4 Wheelers and their derivatives	IS 11827: 2008	Upto 120 km/h
		2 & 3 Wheelers and their derivatives	IS 11827: 2008	Upto 120 km/h
		Max. Speed Test 4 Wheelers and their derivatives	IS 11877: 1986	Upto 150 km/h
		2 Wheelers and their derivatives	IS 10278: 2002	Upto 150 km/h
		3 Wheelers and their derivatives	IS 10278: 2002	Upto 150 km/h
		Noise Emitted By Moving vehicle Test 4 Wheelers and their Derivatives	IS 3028: 1998	30 dB(A) to 130 dB(A)
		2 Wheelers and their derivates	IS 3028: 1998	30 dB(A) to 130 dB(A)
		3 Wheelers and their derivatives	IS 3028: 1998	30 dB(A) to 130 dB(A)
		Bystander Noise for Agricultural Tractors	AIS 115: 2009	30 dB(A) to 130 dB(A)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
17.	**Automotive Vehicle Testing for 4W**	Steering Effort Evaluation for 4 Wheeler	IS 11948: 1999	Upto 250 Nm 0° to 1250°
		Steering Equipment for Agricultural tractors	AIS 042: 2004	Upto 250 Nm 0° to 1250°
		Turning Circle Diameter Evaluation for 4 Wheeler	IS 12222: 1987	Upto 70 m
		Coast Down Test for 4 wheeler	IS 14785: 2000	Upto 140 km/h
18.	**Automotive Vehicles Testing For 4w & Their Derivatives**	Interior Sound Level Test for 4 Wheelers and their derivatives	IS 12832: 2010 AIS 020: 2004	30 dB(A) to 130 dB(A)
		Hood Latch Tests – Method of Test for 4 Wheelers and their derivatives	IS 14226: 1995	Upto 120 km/h
19.	**LPG Pressure Regulator, LPG solenoid valve, Gas air mixer**	Over Pressure	ECE R-67-2008 Annexure 15	6750 kPa
		External Leakage		4500 kPa at 120 °C, (-) 20 °C & Room Temp.
		High Temperature		4500 kPa at 120 °C
		Low Temperature		4500 kPa at (-) 20 °C
		LPG compatibility		Weight loss < 5 % Volume change 20 % Max
		Corrosion resistance		Sodium Chloride concentration in distilled or demonized water 50 g/l @ 35 °C test temp. for 144

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
				hrs.
		Creep		2700 kPa at 120 °C for 96 hrs.
		Temperature Cycle	ECE R-67-2008 Annexure 15	(-) 20 °C to 120 °C for 96 hrs.
		Seat leakage (for solenoid only)		10 kPa to 3000 kPa
		Ozone ageing		1 pphm to 100 pphm
20.	**CNG Rigid piping and connections**	Burst	AIS: 028	10 bar to 700 bar
		Corrosion Resistance		Sodium Chloride concentration in distilled or demonized water 50 g/l @ 35 °C test temp. for 144 hrs.
II.	**AUTOMOTIVE COMPONENTS**			
1.	**Mechanical Automotive Components - Safety Glass (Laminated & Toughened)**		IS 2553 (Part 1): 1995 IS 2553 (Part 2): 2000 Amd. P1 Amd. 1,2,3 & 4, P2 Amd. 1 & 2: 2008 ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008	
		Dimension Check Thickness Test (Laminated safety glass)	IS 2553 (Part 1): 1995 Amd. P1 Amd. 1,2,3 & 4 IS 2553 (Part 2): 2000 Amd. 1 & 2: 2008 Cl. No.5.2.1	Upto 25 mm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Dimension Check Thickness Test (Toughened safety glass)	IS 2553 (Part 1): 1995 Amd. P1 Amd. 1,2,3 & 4 IS 2553 (Part 2): 2000 Amd. 1 & 2: 2008 Cl. No. 5.2.1	Upto 25 mm
		Edge Matching Test (Laminated safety glass)	IS 2553 (Part 1): 1995 Amd. P1 Amd. 1,2,3 & 4 IS 2553 (Part 2): 2000 Amd. 1 & 2: 2008, Cl. No. 5.2.2	Upto 200 mm
		Impact Resistance Test (Laminated safety glass)	IS 2553 (Part 1): 1995 Amd. P1 Amd. 1,2,3 & 4 IS 2553 (Part 2): 2000 Amd. 1 & 2: 2008 Cl. No. 5.2.3	Upto 12 m (height of drop Ball Weight : 227 (±) 2 G) At (+) 40 °C At (-) 20 °C At Room Temperature)
		Impact Resistance Test (Laminated safety glass)	ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008 ECE R 34: 2004, Cl. No. 4.3 Annexure 6	Upto 12 m (height of drop Ball Weight : 227 (±) 2 G) At (+) 40 °C At (-) 20 °C At Room Temperature)
		Impact Resistance Test (Toughened safety glass)	IS 2553 (Part 1): 1995 Amd. P1 Amd. 1,2,3 & 4 IS 2553 (Part 2): 2000 Amd. 1 & 2: 2008 Cl. No. 5.3.2	Upto 12 m (height of drop Ball Weight : 227 (±) 2 G) At (+) 40 °C At (-) 20 °C At Room Temperature)
		Penetration Resistance Test (Laminated safety glass)	IS 2553 (Part 1): 1995 Amd. P1 Amd. 1,2,3 & 4 IS 2553 (Part 2): 2000 Amd. 1 & 2: 2008 Cl. No. 5.2.6.1	Upto 12 m (height of drop Ball Weight : 2260 (±)20 G)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008 ECE R 34: 2004 Cl. No.4.2 Annexure 6	
		Boil Test (Laminated safety glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2 Amd. 1 & 2: 2008 Cl. No. 5.2.4 ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008 ECE R 34: 2004 Cl. No. 5 Annexure 3	Qualitative
		Light Stability Test (With Xenon Ac Lamp Weather-O-Meter Ci4000) (Laminated safety glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2, Amd. 1 & 2: 2008 Cl. No. 5.2.5 ECE R 43: 2004 Cl. No. 6.4, Annexure 3 ECE R 34: 2004 Cl. No. 5 Annexure 3	Upto 100 %
		Head Form Test (Laminated safety glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2, Amd. 1 & 2: 2008 Cl. No. 5.2.6.2 ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008 ECE R 34/2004	Upto 12 m (height of drop Weight 10 (±) 0.2 kg)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			Cl. No. 3 Annexure 4	
		Head Form Test (Toughened glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2 Amd. 1 & 2: 2008 Cl. No. 5.2.6.2 ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008 ECE R 34: 2004 (Laminated glass) Cl. No. 3 Annexure 6	
		Visual Light Transmission Test (Laminated safety glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2 Amd. 1 & 2: 2008 Cl. No. 5.1.7	Upto 100 % (Light Transmission)
		Visual Light Transmission Test (Toughened glass)	ECE R 34: 2004 Cl. No. 9.1 Annexure 3	Upto 100 % (Light Transmission)
		Secondary Image Test (Laminated safety glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2 Amd. 1 & 2: 2008 Cl. No. 5.5.2	Qualitative
		Secondary Image Test (Toughened glass)	ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008 ECE R 34: 2004 Cl. No. 9.3 Annexure 3	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Optical Distortion Test (Laminated safety glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2, Amd. 1 & 2: 2008 Cl. No. 5.5.3	Upto 50 min of Arc
		Optical Distortion Test (Toughened glass)	ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008 ECE R 34: 2004 Cl. No. 9.2 Annexure 3	Upto 50 min of Arc
		Fragmentation Test (Laminated safety glass)	IS 2553 (Part 1): 1995 & IS 2553 (Part 2): 2000 Rev. Amd. P1 Amd. 1,2,3 & 4, P2, Amd. 1 & 2: 2008 Cl. No. 5.3.3	Qualitative
		Fragmentation Test (Toughened glass)	ECE R 43: 2004, Rev. 2 Amd. 3 Corrigendum 1 Amd. 3: 2008 ECE R 34: 2004, Cl. No. 2 Annexure 4	Qualitative
2.	**Mechanical Automotive Components- Rear View Mirrors (Class I, II, III, IV, V, VI, VII & L)**	Dimensions of Reflecting Surface	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 6 AIS 001 (Part 1) Rev. 1 Amd: 2011, Cl. No. 6.1.2.1 AIS 001 (Part 2) Rev. 1, Amd: 2011 Cl. No. 7.1	0.5 mm to 530 mm
		Radius of Curvature	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 4.6 AIS 001 (Part 1) Rev. 1 Amd: 2011, Cl. 6.1.2.2.2 AIS 001 (Part 2) Rev. 1,	Range of ROC: 55 to ∞ Range of test instrument: 0 to 10 mm Range of Reflectivity : (0 to 99) %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			Amd: 2011, Cl. No. 6.3	
		Normal Co-Efficient of Reflection Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 13.1.4 AIS 001 (Part 1) Rev. 1 Amd: 2011 Cl. No. 6.1.2.2.5 AIS 001 (Part 2) Rev. 1 Amd: 2011 Cl. No. 7.2.4	Range of ROC: 55 to ∞ Range of test instrument: 0 to 10 mm Range of Reflectivity : Upto 99 %
		Impact Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 8.2 AIS 001 (Part 1) Rev. 1 Amd: 2011 Cl. No. 6.1.3.2 AIS 001 (Part 2) Rev. 1 Amd: 2011 Cl. No. 8.2	Range : 0 to 60 ° (angle of impact)
		Bending Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 8.3 AIS 001 (Part 1) Rev. 1 Amd: 2011 Cl. No. 6.1.3.2.3 AIS 001 (Part 2) Rev. 1 Amd: 2011 Cl. No. 8.3	Max load : 25 kg
		Distortion Factor Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 11.1	Range: 0.01 mm to 100 mm (max) (diameter of con centric Circles)
		Moisture Resistance Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 11.2	Range of Reflectivity : (0 to 99) % (Coefficient of Reflection

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
				test)
		Temperature Resistance Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 11.3	Max. temp (As per standard): 79 °C
		Vibration Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 11.4	Range of Reflectivity : (0 to 99) % (Coefficient of Reflection test)
		Salt Spray Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 11.6	Range of Reflectivity : (0 to 99) % (Coefficient of Reflection test)
		Weather Resistance Test	AIS 001: 2001 Rev. Amd. 1 & Amd. 2: 2008 Cl. No. 11.7	Qualitative Test
3.	**Mechanical Automotive Components (Wheel Rim Testing)**	Wheel Rims for Passenger Car: Dynamic Cornering Fatigue Test Dynamic Radial Fatigue Test	IS 9436: 1980 (RA 2006) Cl. No. 3.1 Cl. No. 3.2	0 to 50 kNm Max. Load: 75 kN
		Wheel Rims For Trucks, Buses & Multi Purpose Passenger Vehicles: Cornering Fatigue Test Dynamic Radial Fatigue Test	IS 9438: 1980 (RA 2000) Cl. No. 3.1.1 IS 9438: 1980 (RA 2000) Cl. No. 3.2	0 to 50 kNm Max. Load: 75 kN
4.	**Mechanical Automotive Components - Vibration Testing**	Resonance Frequency Detection Test	JIS D 1601: 1995 Cl. No. 5.1	Load Rating : 1000 kgf Frequency Range: 5 Hz to 2500 Hz Max. Acceleration:
		Vibration Function Test	JIS D 1601: 1995 Cl. No. 5.2	

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
				70 g (useful range) Max. Displacement: 30 mm (peak to peak)
		Vibration Endurance Test (Discrete Mode)	JIS D 1601: 1995 Cl. No. 5.3	
		Sweep Vibration Endurance Test (Sine Sweep Vibration)	JIS D 1601: 1995 Cl. No. 5.4	
5.	**Metal & Metal Products (Ferrous)**	Tensile Strength Elongation	IS 1608: 2005 Cl. No. 4.1.1, 4.1.2, 4.4.2, 11	0.001 kN to 100 kN Upto 100 %
6.	**CNG Regulator**	Hydro-Static Strength Test	ISO 15500 (Part 9): 2012	Qualitative (Downstream 25 bar to 1000 bar Upstream 1 bar to 10 bar PRV 7 bar to 45 bar)
		Hydro-Static Strength Test	IS 15713: 2006	Qualitative (Downstream 25 bar to 1000 bar Upstream: 1 bar to 10 bar)
		Bending Moment	ISO 15500 (Part 9): 2012	Qualitative (17 N load applied at specified distance for 15 min leakage <20 cm^3/h and hydrostatic till failure)
		Bending Moment	ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative (17 N load applied at specified distance for 15 min leakage <20 cm^3/h)
		Leakage	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001	Qualitative (15 bar to 300 bar)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			IS 15713: 2006	
		Excess Torque Resistance	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative (1 Nm to 137.29 Nm)
		Electrical Over Voltages	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative (0.01 V DC to 18 V DC)
		Vibration Resistance	ISO 15500 (Part 9): 2012	Qualitative
			ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative
		Brass Material Compatibility	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative
		Corrosion Resistance	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative
		Insulation Resistance	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001 IS 15713: 2006	Greater than 240 kΩ
		Minimum Opening Voltage	ISO 15500 (Part 9): 2012	≤8 V DC for 12 V DC ≤16 V DC for 24 V DC
			ISO 15500 (Part 9): 2001 IS 15713: 2006	≤8 V DC for 12 V DC ≤16 V DC for 24 V DC
		Water Jacket Freezing	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative
		Oxygen Ageing	ISO 15500 (Part 9): 2012 ISO 15500 (Part 9): 2001 IS 15713: 2006	Qualitative
7.	**CNG Solenoid Valve**	Hydro-Static Strength Test	ISO 15500- 6: 2012(E)	Qualitative (1 MPa to 100 MPa (1000 bar)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Leakage		Qualitative (1 MPa to 30 MPa (300 bar)
		Excess Torque Resistance	ISO 15500- 6: 2012(E)	Qualitative (1 Nm to 137.29 Nm)
		Electrical Over Voltages		Qualitative (9 V DC to 18 V DC for 3 min)
		Bending Moment		Qualitative
		Vibration Resistance		Qualitative
		Corrosion Resistance		Qualitative
		Brass Material Compatibility		Qualitative (Exposure to Ammonia air mixer at 34 °C for 10 days)
		Insulation Resistance		240 k Ω at 1000 V DC
		Minimum Opening Voltage		6 V DC to 16 V DC
		Water Jacket Freezing		Qualitative
		Oxygen Ageing		Qualitative
8.	**CNG Gas/Air Mixer**	Hydro-Static Strength Test	ISO 15500- 11: 2001(E)	Qualitative (1 MPa to 100 MPa (1000 bar)
		Leakage		Qualitative (1 MPa to 30 MPa (300 bar)
		Vibration Resistance	ISO 15500- 11: 2001(E)	Qualitative
		Corrosion Resistance		Qualitative
		Brass Material Compatibility.		Qualitative (Exposure to Ammonia air mixer at 34 °C for 10 days)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Oxygen Ageing		Qualitative
9.	**Automotive Component (Emission Of Gaseous Pollutants From Petrol & Engine Vehicles)**	Evaporative Emissions HCG/ Test	EEC-98/69/EC-R83 (Type 4) MoSRTH/CMVR/TAP/115-116_ Issue 4 (Part 14) (4W)-G.S.R 84 (E) MoSRTH/CMVR/TAP/115-116_ Issue. 4 (Part 17) (2W)-G.S.R. 186 (E). California Evaporative Emission Standards and Test procedures for 2001 and subsequent model motor vehicles, (Part 4): for motorcycles Year of publication: 2010	4 W(Min-Max) 0.001 g to 60.492 g/test 2 W(Min-Max) 0.001 g to 60.492 g/test
10.	**Mechanical Automotive Components (Emission Of Gaseous Pollutants From Petrol & Diesel Engine Vehicles & Crankcase Emission From Petrol Engines)**	Idling CO, HC	MoRTH/CMVR/TAP/115-116_ Issue. 4: 2010 (Type 2 Test) R 83: 1995 (Type 2 Test) 70/220/EEC Ammended Till 2002/80/EC: 2002 (Type 2 Test) MoRTH/CMVR/TAP/115-116_ Issue. 4: 2010 (Type 1 Test) R 83/04: 2004 (Type 1 Test) 70/220/EEC Ammended Till 2002/80/EC: 2002 (Type 1 Test) MoRTH/CMVR/TAP/115-116_ Issue. 4: 2010 (Type 3 Test)	Co (Min-Max) 0.0001 ppm to 34600 ppm HC (Min-Max) 0.001 ppm to 1990 ppm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			R 83/04 , 2004 (Type -3 Test) 70/220/EEC Ammended Till 2002/80/EC: 2002 (Type-3 test)	
		Free Acceleration Smoke Test	MoRTH/CMVR/TAP/115-116_ Issue. 4: 2010 (Type 2 Test)	0 to 100 % HSU Idle Rpm, Fly up Rpm
		Tail Pipe Emissions CO HC No_x Co_2	R 83: 1995 (Type 2 Test) 70/220/EEC Ammended Till 2002/80/EC: 2002 (Type 2 Test) MoRTH/CMVR/TAP/115-116_ Issue. 4: 2010 (Type 1 Test) R 83/04: 2004 (Type 1 Test) 70/220/EEC Ammended Till 2002/80/EC: 2002 (Type 1 Test) MoRTH/CMVR/TAP/115-116_ Issue. 4: 2010 (Type 3 Test) R 83/04 , 2004 (Type -3 Test) 70/220/EEC Ammended Till 2002/80/EC: 2002 (Type-3 test)	Co (Min-Max) 0.0001 g/km to 161.97 g/km HC (Min-Max) 0.0001 g/km to 642.098 g/km NO_X (Min-Max) 0.0001 g/km to 1119.65 g/km CO_2 (Min-Max) 0.0001 g/km to 20371.698 g/km
		Particulate		PM (Min-Max) 0.0001 g/km to 676.87 g/km
		Crankcase Emission		0 to 500 mm H_2O (Qualitative)
11.	**Mechanical Automotive Components (Test On Automotive Engines)**	Power Smoke - Free Acceleration & Engine Load Response (ELR) Smoke - Full Load Fuel Consumption	MoRTH/CMVR/TAP/115-116_ ISSUE-4: 2010 IS 14599: 1999 ECE-R-24 ECE-R-85 80/1269/EEC	0.5 kW to 550 kW 0.009 m^{-1} to 10 m^{-1} 0.009 m^{-1} to 10 m^{-1} 0.1 kg/h to 150 kg/h CO: 0.01 g/kWh to 36.22 g/kWh @165 kW

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		CO THC No_x CO_2 Particulate Matter	77/537/EEC 72/306/EEC ECE-R- 96 88/77/EEC, 91/542 EEC 1999/96/EC 97/68/EC	THC : 0.01 g/kWh to 189.74 g/kWh @165kW NO_x: 0.02 g/kWh to 120.83 g/kWh @165kW CO_2: 0.02 % to 20 % Particulate : 0.00014 g/kWh to 431.28 g/kWh @165kW
12.	**Mechanical Automotive Components (Test On Agricultural Tractor, Construction Equipments & Power Tiller Engines)**	Power Smoke @80% Load Fuel Consumption Pollutants CO THC No_x CO_2 Particulate Matter	MoRTH/CMVR/TAP/115-116_ ISSUE-4: 2010 ISO 8178: 2008	0.5 kW to 550 kW 0.009 m^{-1} to 10 m^{-1} 0.009 m^{-1} to 10 m^{-1} 0.1 kg/h to 150 kg/h CO: 0.01 g/kWh to 36.22 g/kWh @165 kW THC: 0.01 g/kWh to 189.74 g/kWh @165kW NOx: 0.02 g/kWh to 120.83 g/kWh @165kW CO_2: 0.02 % to 20 % Particulate : 0.00014 g/kWh to 431.28 g/kWh @165kW
13.	**Mechanical Automotive Components (Test On Genset Engines Upto 800 Kw)**	Power Full Load Smoke Fuel Consumption Pollutants CO THC Nox CO_2 Particulate Matter	CPCB : PCLS/9/2005-06 ISO 8178: 2008	0.5 kW to 550 kW 0.009 m^{-1} to 10 m^{-1} 0.009 m^{-1} to 10 m^{-1} 0.1 kg/h to 150 kg/h CO: 0.01 g/kWh to 36.22 g/kWh @165 kW THC: 0.01 g/kWh to 189.74 g/kWh @165kW NOx: 0.02 g/kWh to 120.83 g/kWh @165kW CO_2: 0.02 % to 20 % Particulate :

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
				0.00014 g/kWh to 431.28 g/kWh @165kW
14.	**Mechanical Automotive Components (Test On Portable Genset)**	Power Fuel Consumption CO THC No_x CO_2	CPCB : PCLS/5/2005-01 ISO 8178: 2008 SAE J 1088	0.1 kW to 10 kW 0.1 kg/h to 10 kg/h CO: 0.91 g/kWh to 302.68 g/kWh@2.3kW THC: 0.01 g/kWh to 94.08 g/kWh @2.3kW NOx: 0.02 g/kWh to 83.65 g/kWh @2.3 CO_2: 0.02 % to 20 %
15.	**Mechanical Automotive Components (Test On IC Engines For Endurance & Component Wear Assessment)**	Power & Rating Test Fuel Consumption Bore/Internal Dia External Dia Height/Length	IS 10000 (Part 1 to 13): 1980 IS 11170: 1985 IS 7347: 1974	0.5 kW to 550 kW 0.1 kg/h to 150 kg/h 0.1 mm to 150mm 0.1 mm to 150 mm 0.1 mm to 300 mm
16.	**Automotive Vehicle Testing 2w, 3w, 4w & their Derivatives**	4 Wheelers and their derivatives	IS 11852: 2001	Upto 120 km/h
		2 & 3 Wheelers and their derivatives	IS 14664: 1999	Upto 60 km/h
		Brake for Agricultural Tractors	IS 12061: 1999	Upto 50 km/h
		Gradeability Evaluation	AIS 003: 1999	7°, 10.2° & 15°
		Speedometer Calibration 4 Wheelers and their derivatives	IS 11827: 2008	Upto 120 km/h
		2 & 3 Wheelers and their derivatives	IS 11827: 2008	Upto 120 km/h

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Max. Speed Test 4 Wheelers and their derivatives	IS 11877: 1986	Upto 150 km/h
		2 Wheelers and their derivatives	IS 10278: 2002	Upto 150 km/h
		3 Wheelers and their derivatives	IS 10278: 2002	Upto 150 km/h
		Noise Emitted By Moving vehicle Test 4 Wheelers and their Derivatives	IS 3028: 1998	30 dB(A) to 130 dB(A)
		2 Wheelers and their derivates	IS 3028: 1998	30 dB(A) to 130 dB(A)
		3 Wheelers and their derivatives	IS 3028: 1998	30 dB(A) to 130 dB(A)
		Bystander Noise for Agricultural Tractors	AIS 115: 2009	30 dB(A) to 130 dB(A)
17.	**Automotive Vehicle Testing For 4W**	Steering Effort Evaluation for 4 Wheeler	IS 11948: 1999	Upto 250 Nm 0° to 1250°
		Steering Equipment for Agricultural tractors	AIS 042: 2004	Upto 250 Nm 0° to 1250°
		Turning Circle Diameter Evaluation for 4 Wheeler	IS 12222: 1987	Upto 70 m
		Coast Down Test for 4 wheeler	IS 14785: 2000	Upto 140 km/h

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
18.	**Automotive Vehicles Testing For 4w & Their Derivatives**	Interior Sound Level Test for 4 Wheelers and their derivatives	IS 12832: 2010 AIS 020: 2004	30 dB(A) to 130 dB(A)
		Hood Latch Tests – Method of Test for 4 Wheelers and their derivatives	IS 14226: 1995	Upto 120 km/h
19.	**LPG Pressure Regulator, LPG solenoid valve, Gas air mixer**	Over Pressure	ECE R-67-2008 Annexure 15	6750 kPa
		External Leakage		4500 kPa at 120 °C, (-) 20 °C & Room Temp.
		High Temperature		4500 kPa at 120 °C
		Low Temperature		4500 kPa at (-) 20 °C
		LPG compatibility		Weight loss < 5 % Volume change 20 % Max
		Corrosion resistance		Sodium Chloride concentration in distilled or demonized water 50 g/l @ 35 °C test temp. for 144 hrs.
		Creep		2700 kPa at 120 °C for 96 hrs.
		Temperature Cycle	ECE R-67-2008 Annexure 15	(-) 20 °C to 120 °C for 96 hrs.
		Seat leakage (for solenoid only)		10 kPa to 3000 kPa
		Ozone ageing		1 pphm to 100 pphm
20.	**CNG Rigid piping and connections**	Burst	AIS: 028	10 bar to 700 bar
		Corrosion Resistance		Sodium Chloride concentration in distilled or demonized water 50 g/l @ 35 °C test temp. for 144 hrs.

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
21.	**Vibration Testing for Automotive vehicles (M1 category)**	Resonance Frequency Detection Test Vibration Function Test Vibration Endurance Test (Discrete Mode) Sweep Vibration Endurance Test (Sine Sweep Vibration)	JIS 1601-1995 Clause 5.1 Clause 5.2 Clause 5.3 Clause 5.4	Qualitative (BY using Electro-Dynamic Shakers (in X, Y & Z axis.) Force : 3200 kgf Frequency range : 5 Hz-3000 Hz Max. Displacement range : ±25.5 mm (g=11.228 Dis. : 0.056mm @ 100kg payload) BY using Multi Axial Simulation Table; with 6 Degrees of Freedom.(X,Y,Z Axis and Roll, Yaw and Pitch) [only one axis at a time] Frequency range: 0.1 Hz-100 Hz Displacement range : Z axis: ±127 mm Y axis: ±165 mm X axis: ±152 mm)
		Bumper fitment performance by Simulation of Road profile (Road Load Acquired Data) along 'Z' axis.	IS 15901:2010 (Annexure C: Clause No. 4.1.2)	Qualitative (By using 4- Poster : Actuator Force Rating – 104 kN (Front), 167 kN (Rear) Max Acceleration : 39 g Frequency Range : 0-50 Hz Max Displacement : ±125 mm)

Laboratory	**International Centre for Automotive Technology, Plot No. 26, Sec-3, HSIDC, IMT Manesar, Gurgaon, Haryana** **Location 1: Plot No. 26, Sec-3, HSIDC, IMT Manesar, Gurgaon, Haryana** **Location 2: Plot No. 01, Sec-11, IMT Manesar, Gurgaon, Haryana**	
Accreditation Standard	**ISO/IEC 17025: 2005**	
Certificate Number	**TC-5360 (*in lieu of T-2664, T-1943 & T-1944)***	**Page 53 of 60**
Validity	**29.10.2015 to 28.10.2017**	**Last Amended on 17.03.2017**

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
22.	**Automotive components (Endurance Testing of Leaf Spring assemblies)**	Fatigue Test of Leaf Spring assemblies	IS 1135:1995 (Clause No.16)	Qualitative

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Laboratory	**International Centre for Automotive Technology, Plot No. 26, Sec-3, HSIDC, IMT Manesar, Gurgaon, Haryana** **Location 1: Plot No. 26, Sec-3, HSIDC, IMT Manesar, Gurgaon, Haryana** **Location 2: Plot No. 01, Sec-11, IMT Manesar, Gurgaon, Haryana**	
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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection

MECHANICAL TESTING

	LOCATION 2			
I.	**AUTOMOTIVE COMPONENTS**			
1.	**Tyre Testing**			
a.	**Pneumatic Tyres For 2w/3w**	Tyre Dimensions Test Section Width of Tyre Tyre Outer Diameter	IS 15627: 2005. Rev. 0, Amd. 1: 2011, Amd 2 April 2016 Cl. No. 4.1, Cl. No. 4.1.1.1 Cl. No. 4.1.1.2 ECE R75 Rev. 1 18 March 1997 Cl. No. 6.1, Cl. No. 6.1.1. Cl. No. 6.1.2.	0.01 mm to 450 mm 1.2 mm to 900 mm
		Load Speed Performance Test	IS 15627: 2005. Rev. 0, Amd. 1: 2011, Amd 2 April 2016 Cl. No. 4.2 ECE R75 Rev. 1 18 March 1997 Cl. No. 6.2	1.2 mm to 900 mm
		Dynamic Growth of Tyre Test	IS 15627: 2005. Rev. 0, Amd. 1: 2011, Amd 2 April 2016 Cl. No. 4.3 ECE R75 Rev. 1 18 March 1997 Cl. No. 6.3	Qualitative

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Tyre Strength Test (Plunger Test)	IS 15627: 2005. Rev. 0, Amd. 1: 2011, Amd 2 April 2016 Cl. No. 4.4	Upto 271 J
		Endurance Test	IS 15627: 2005. Rev. 0, Amd. 1: 2011, Amd 2 April 2016 Cl. No. 4.5	Qualitative Max. Speed: 300 km/h
		Tread Wear Indicator Test	IS 15627: 2005. Rev. 0, Amd. 1: 2011, Amd 2 April 2016 Cl. No. 4.6	0.01 mm to 2.2 mm
b.	**Pneumatic Tyres For Passenger Car**	Tyre Dimensions Test: Section Width of Tyre Tyre Outer Diameter	IS 15633: 2005 Amd. 1: August 2009. Amd. 2: April 2011 Amd 3: July 2014 Cl. No. 4.1 Cl. No. 4.1.1, Cl. No. 4.1.1.2, Cl. No. 6.1 ECE R30 Rev. 3 29 March, 2007 Cl. No. 6.1.1, Cl. No. 6.1.2	0.01 mm to 450 mm 1.2 mm to 900 mm
		Load Speed Performance Test	IS 15633: 2005 Amd. 1: August 2009. Amd. 2: April 2011 Amd 3: July 2014 Cl. No. 4.2, ECE R30 Rev. 3 29 March, 2007, Cl. 6.2	1.2 mm to 900 mm
		Endurance Test	IS 15633: 2005 Amd. 1: August 2009. Amd. 2: April 2011 Amd 3: July 2014 Cl. No. 4.3	Qualitative

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Tread Wear Indicator Test	IS 15633: 2005 Amd. 1: August 2009. Amd. 2: April 2011 Amd 3: July 2014 Cl. No. 4.4 ECE R30 Rev. 3 29 March, 2007 Cl. No. 6.3	0.01 mm to 2.2 mm
		Tyre Strength Test (Plunger Test)	IS 15633: 2005 Amd. 1: August 2009. Amd. 2: April 2011 Amd 3: July 2014 Cl. No. 4.5	Upto 5996 kgf-cm
		Bead Unseating Resistance Test	IS 15633: 2005 Amd. 1: August 2009. Amd. 2: April 2011 Amd 3: July 2014 Cl. No. 4.6	Max. Bead Unseating Resistance: Upto50 kN
c.	**Pneumatic Tyres For Commercial Vehicles**	Tyre Dimensions Test Section Width of Tyre Tyre Outer Diameter	IS 15636: 2005 (1st Revision): 2012 Amd July 2014. Cl. No. 4.1, Cl. No. 4.1.1.1 Cl. No. 4.1.1.2 ECE R 54 Rev. 3 March 2013 Cl. No. 6.1, Cl. No. 6.1.1., Cl. No. 6.1.2	0.01 mm to 450 mm 1.2 mm to 1500 mm
		Endurance Test	IS 15636: 2005 1st Revision): 2012 Amd July 2014 Cl. No. 4.2 ECE R 54 Rev. 3 26 March 2013 Cl. No. 2.2.2 Annexure 7	1.2 mm to 1500 mm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Load Speed Performance Test	IS 15636: 2005 (1st Revision): 2012 Amd July 2014 Cl. No. 4.3 ECE R 54 Rev. 3, 26 March 2013, Cl. No. 6.2	Qualitative
		Tread Wear Indicator Test	IS 15636: 2005 (1st Revision): 2012 Amd July 2014 Cl. No. 4.4 ECE R 54 Rev. 3 26 March 2013 Cl. No. 6.3	0.01 mm to 2.2 mm
		Tyre Strength Test (Plunger Test)	IS 15636: 2005 (1st Revision): 2012 Amd July 2014 Cl. No. 4.5	Upto 34560 kgfcm
d.	**Frontal Structure of Vehicle such as Bumper, Bonnet, Windshield**	Lower Legform Test to Bumper (Dynamic knee bending angle Dynamic knee shear displacement Acceleration at the upper end of tibia)	AIS: 100-2010 & Amd 1, 2015 Regulation (EC) 78/2009, Regulation (EC) 631/2009, Commission Regulation (EU) 459/2011; 12 May 2011 GTR-9, Amendment No. 1, 22 Feb, 2011	Upto 22o Upto 7 mm Upto 220 g
		Upper Legform Test to Bumper Sum of the impact forces Bending Moment at the impactor		Upto 20kN Upto 1000Nm
		Child Headform Test to Bonnet		HIC 2000

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Adult Headform Test to Bonnet		HIC 2000
e.	**Steering Control**	Bodyblock Test Headform Test	IS 11939: 1996, Amd1, Jan, 2016 AIS 96-2008, Amd 1, 2015 ECE R12, Rev.4 Amd3, July, 2016	Upto20kN Maximum deceleration on Headform Impactor- 200g
f.	**Interior Fitting (Instrument Panels)**	Testing of Energy Dissipating Materials	IS 15223: 2002, ECE R21, Ammend-2, March, 2003	Maximum deceleration on Impactor- 200g
g.	**Automotive Seats**	Energy Dissipation Test (Test Speed = 24.1 km/h)	IS 15546: 2005, ECE R17 Amd1, Feb, 2016	Maximum deceleration on Impactor- 200g

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PHOTOMETRY TESTING

I.	**LUMINAIRES**			
1.	**Light & signaling luminaires/ Fixtures (Head Lamp / Front Fog Lamp/ Stop Lamp, Position Lamp)**	Illuminance Measurement	AIS (010: 2010, 012: 2011, 062: 2014, 037: 2011, 127: 2014) ECER (5: 2014, 6: 2014, 7: 2012, 19: 2013, 23: 2013, 31: 2014, 38: 2013, 50: 2013, 77: 2013, 87: 2013, 91: 2013, 98: 2012, 112: 2013, 113: 2012,119: 2012, 123: 2013)	0.01 lux to 199.99 lux 1 to 19999
		Luminance Intensity Measurement		0.01 lux to 199.99 lux 1 to 19999
		X-Y Color Measurement		Upto 1
2.	**Light Sources (Incandescent, High Intensity discharge, halogen, LEDs)**	Luminous Flux Measurement	AIS 034: 2010 ECER as amended upto 2015 (37, 99: 2014, 128: 2013) IS 16105: 2012 Clause. 6, IS 16106: 2012 Clause 11, 12, 13 &14	Upto 5 x 10^5 Lumen
		Color Measurement		Upto 1
		Dimension Measurement		X: 0 to 250 mm, Y: 0 to 100 mm 0 to 360 °
3.	**Retro Reflection devices**	Photometric Measurement	AIS (22: 2013, 57: 2010, 88: 2005, 89: 2014, 90: 2005) ECER as amended Upto 2015 (03: 2014, 27: 2014, 69: 2009, 104: 2010)	0.1 ~ 199900 Mcd/lx
		Color Measurement		0 to 1

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4.	**Rear Registration Plate Lamps, LED Display**	Luminance Measurement	AIS (010: 2010, 012: 2011, 062: 2014) ECER 04: 2013	Upto 2 x 10^7 cd/m^2
		Color Measurement		0 to 1
5.	**Glossary Surfaces**	Gloss Measurement	ISO 2813: 1994 /Cor 1: 1997 NIST Pub. SP 250-70: 2006 ASTM D2457 08E1: 2013, ASTM E 430-11: 2013, ASTM D523-08: 2013	At 20 º, 45 º, 60 º

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