



SIRIM QAS International Sdn.Bhd. (410334-X)
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TEST REPORT

REPORT NO.: 2019EA1170	PAGE : 1 OF 8
This Test Report refers only to samples submitted by the applicant to SIRIM QAS International Sdn. Bhd. and tested by SIRIM QAS International Sdn. Bhd. This report shall not be reproduced, except in full and shall not be used for advertising purposes by any means or forms (including but not limited to advertising purposes) without written approval from Managing Director, SIRIM QAS International Sdn. Bhd. Please refer the last page for Conditions Relating To The Use of Test Report shall apply.	

Applicant : JIANGSU JIAMENG ELECTRICAL EQUIPMENT CO., LTD.
NO. 5, ZHONGLI ROAD
BINHAI INDUSTRIAL ZONE, QIDONG CITY
JIANGSU PROVINCE 226236, CHINA

Manufacturer : JIANGSU JIAMENG ELECTRICAL EQUIPMENT CO., LTD.
NO. 5, ZHONGLI ROAD
BINHAI INDUSTRIAL ZONE, QIDONG CITY
JIANGSU PROVINCE 226236, CHINA


Product : IPC (Insulation Piercing Connectors)-End Cap

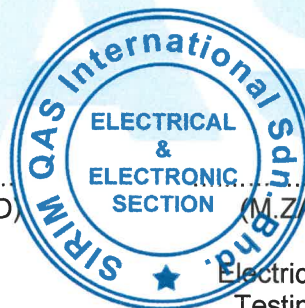
Reference Standard / Test Method : NFC 33 020:2013
BS EN 50483-4: 2009

Description of sample : Brand : MELEC
Model : PC16-150
Rating : 16mm²-150mm²

Date received : 19 JUL. 2019
Job No./Ref. No : J20191421035
Overall test result : **COMPLIED(See page 2 & 3 for details)**
Issue date : 31 JUL. 2019

Approved Signatories:


.....
(MOHAMAD ASNAN BIN AHMAD)
Testing Executive




.....
(M. ZAMRI BIN MUSTAFFA)
Head
Electrical & Electronic 1 Section
Testing Services Department

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SUMMARY OF TESTS:

1. This is a type test report as requested by the applicant.
2. The tests were carried out based on the requirement of NFC 33 020:2013 and BS EN 50483-4: 2009.
3. All the tests were conducted on the samples as submitted by the applicant.

Test		Correspondence with NF EN 50483-4	No. of samples tested	
6.4	Dielectric test and water tightness test			
6.4.1	Voltage test	8.1.3.1	2+2	F ₁
6.6	Climatic ageing test	8.1.5.2	2+2	F ₂
		8.1.3.1.3.2.1	2+2	F ₃
		8.1.3.1.3.1	2+2	F ₄
		8.1.3.2	-	-
7.2	Test for permanent marking	9.2 NF EN 50483-1	2	

4. The abbreviation used in this test report denotes as follows:-

Pass – Complied with the requirement
 NA – Not applicable with requirement
 Fail – Fail to complied with the requirement



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SUMMARY OF RESULTS:

1. The tested samples deemed to comply to the requirement of NFC 33 020:2013 and BS EN 50483-4: 2009 of the tests that were conducted.

ADDITIONAL INFORMATION:

1. Tested by : Mr. Mohd Ishar Bin Abdul Hamed
Mr. Nazrul Shafiq Bin Ruslan
2. Checked by: Mr. Mohamad Asnan bin Ahmad
3. Date of test sample(s) received;
 - a) 1st submission : 19 JUL. 2019
 - b) 2nd submission : __NIL__



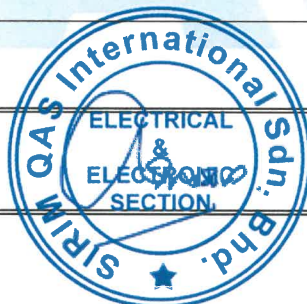
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NFC 33 020:2013			
Clause	Requirement	Remark	Result
6.4	Dielectric voltage test and watertightness test		
6.4.1	Dielectric voltage test		Pass
	For dielectric voltage test, the test of paragraph 8.1.3.1 of the standard NF EN 50483-4 applies with the following specifications:		Pass
	- The connectors belong to Class 1 ; test in water, 60s	Refer table 1	Pass
	- The value of alternate voltage to be applied is 6kV.	Refer table 1	Pass
	This test is applied neither to connectors of type CDR/CNk [network connectors for bare main lines, editor's note] for which test defined in paragraph 6.4.2 is applied nor to PMCC plugs [plugs used for measuring and short circuiting, editor's note] alone.		NA
	The PMCC plugs are associated to CB [branching connector, editor's note] connector.		NA
	For connectors of type CMCC [CMCC = CB + PMCC, editor's note] and PMCC plugs associated to a CB connector, the protective covers of the pin are closed according to the requirements of the constructor.		NA
6.4.2	Watertightness test		NA
	For the watertightness test, the test of paragraph 8.1.3.2 of the standard NF EN 50483-4 applies.		NA
	This test applies only to connectors of type CDR/CNk [network connectors for bare main lines, editor's note].		NA



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NFC 33 020:2013			
Clause	Requirement	Remark	Result
6.6	Climatic ageing Test		
	This test is done on samples that have been subjected to the voltage test and watertightness test of paragraph 6.4.		Pass
	For the climatic ageing test, the test Method 1 of paragraph 8.1.5.2 of the standard NF EN 50483-4 applies.		Pass
	As far as possible, the samples are installed so that the core is in a horizontal plan and the lamp in a vertical plan. These two plans intersect in the middle of the lamp and in the middle of the sample. The core is orthogonal to the described vertical plan		Pass
	The samples are subjected to the climatic ageing test for 6 weekly cycles for phases A & B & C & D.		Pass
	Phase A = 70hrs.; temperature = 70°C, humidity ≤ 30%;		Pass
	Transition between period A and period B : time 1h with exposure to radiation		Pass
	Phase B = 23hrs.; temperature = 55°C, humidity = 60% with 69 cycles of sprinkling for 20min, which consists of 17min without sprinkling followed by 3 min of sprinkling.		Pass
	Transition between period B and period C : time 1h with exposure to radiation		Pass
	Phase C= 23hrs; temperature= 70°C, humidity ≤ 30%; with 69 cycles of sprinkling for 20min, which consists of 17min without sprinkling followed by 3 min of sprinkling.		Pass
	Transition between period C and period D : time 1h with exposure to radiation		Pass
	Phase D= 46 hrs; Highest temperature= 55°C with the humidity≥95% and sprinkling of water; lowest temperature= -25°C		Pass
	The samples shall be exposed to the UV treatment during A & B & C phases.		Pass
	After the climatic ageing for the insulation piercing connectors, the voltage test in the metallic balls is done according to. Method 1 and under an alternate voltage of 6kV.	Refer table 2	Pass



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BS EN 50483-1: 2009			
Clause	Requirement	Remark	Result
7	Markings and indications		
7.1	All products mentioned above shall permanently bear:		
	- The trade mark or the logo of the manufacturer, the batch reference and the code of the manufacturing plant;	MELEC	Pass
	- The designation as per this standard and the commercial reference, if any;		Pass
	- The maximum and minimum cross-section for which this connector is intended.	16-150mm ²	Pass
	Each conditioning unit shall bear:		
	- The designation as per this standard and the commercial reference, if any;	PC16-150	Pass
	- The trade mark or the logo of the manufacturer and the batch reference;		NA
	- The number of connectors;		NA
	- The nominal torque for the tap of reusable connectors (if necessary);		NA
	- The reference to this standard.		NA
7.2	Check for permanent marking		Pass
	For the check for permanent marking, the test defined in paragraph 9.2 of standard NF EN 50483-1 applies		Pass



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Table 1:**Dielectric voltage test (sub clause 8.1.3.1 BS EN 50483-4)**

Sample No.	Conductor Size (mm ²)	6kV Voltage test, 60 s	
		Voltage applied(kV)	Result
F1.1	16	6.008	No breakdown
F1.2	16	6.008	No breakdown
F1.3	150	6.008	No breakdown
F1.4	150	6.008	No breakdown

Table 2:**Voltage test after climatic ageing test (sub clause 8.1.3.1.3.2.1 & 8.1.3.1.3.1, BS EN 50483-4)**

Sample No.	Conductor Size (mm ²)	Test Voltage Applied (kV) - metallic ball	Test Voltage Applied (kV) - water	Result
F1	16	6.008	1.008	No breakdown
F2	16	6.008	1.008	No breakdown
F3	150	6.008	1.008	No breakdown
F4	150	6.008	1.008	No breakdown



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PHOTOGRAPHS OF TEST SAMPLE



CONDITIONS RELATING TO THE USE OF SIRIM QAS INTERNATIONAL TEST REPORT

1. A Test Report will be issued in respect of Testing Services conducted and shall relate only to the Sample actually tested. SIRIM QAS International makes no warranty whatsoever and the Applicant shall not represent in any manner that any duplication or mass production of the Product is same as the Sample actually tested or that SIRIM QAS International has tested any of the duplicated or mass produced Product.
2. The Test Report shall not be amended, changed, varied or modified in any manner whatsoever by the Applicant or otherwise.
3. If the Test Report is to be furnished to any third party or to the public, each such Test Report shall be furnished in full, legible and in its entirety.
4. The Test Report shall not be reproduced and shall not in any event be used for any advertising purposes or whatsoever without written approval from the Managing Director of SIRIM QAS International of No 1, Persiaran Dato' Menteri, Building 8, Section 2, P.O. Box 7035, 40700 Shah Alam, Selangor Darul Ehsan.
5. Customer (Applicant/Manufacture/Factory, etc.) is not permitted to use any SIRIM QAS International, SIRIM or other SIRIM's subsidiaries logo or words on packaging, sample's manual, technical specification, brochures/flyers or any other means without the prior written approval from the Managing Director of SIRIM QAS International.
6. If such approval is obtained from the Managing Director of SIRIM QAS International, the Applicant may only include the phrase, "A sample of this product has been tested by SIRIM QAS International ... (Test Report No) ... (dated) (for what test) ... (to which standard)" or such similar words which stress that only the Sample was actually tested. This phrase shall only be used for the purpose of product advertisement or product promotion (eg; brochures). For avoidance of doubt, the statement shall not be used on the sample and packaging of the sample.
7. In the event there is an investigation from a Government Regulatory Agency concerning the Applicant's Test Report, SIRIM QAS International may disclose the information pertaining to the Test Report for purposes of such investigation.
8. Further or in the alternative, it is strictly forbidden unless with prior written approval from the Managing Director of SIRIM QAS International, to represent in any manner whatsoever that SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries has endorsed, approved or validated the Product of the Applicant in any manner whatsoever.
9. In the event the Applicant is found in breach of this provision, SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries without prejudice to any other rights and remedies may take whatever action necessary including but not limited to:
 - a) Informing and placing a notice in the media;
 - b) Obtaining an injunction from Court (cost on a solicitor-client basis to be borne by the Applicant);
 - c) Refusing to accept any further Product for Testing Services from the Applicant or whosoever related to the Applicant, whether subsidiary or otherwise;
 - d) Instructing the Applicant to withdraw and recall the advertisement, statement or document in question and advertise a clarification and apology to SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries twice in a national publication of SIRIM QAS International's choice at the Applicant's sole cost; and
 - e) Informing or lodging a report pertaining the Applicant's Test Report with the relevant authorities.
10. Certified true copies of the Test Report may be issued upon request by the Applicant upon payment of the relevant fee.
11. Corrections to test report shall only be allowed within 6 months from issuance date of the test report and shall be limited to maximum 3 times, after either case whichever occurs earlier, a new test report shall be issued and replace the previous one (having error(s) or lack of information). Issuance of Supplementary Report to the original Test Report shall be for the followings;
 - a) Misprints and typo errors
 - b) Missing technical information
 - c) Test data not reported
 - d) Mistake in reporting of test data



STANDARDS
MALAYSIA

Certificate of Accreditation

No: SAMM 086

Accredited since: 7 December 1995

This is to certify that

TESTING SERVICES DEPARTMENT
(EEST 1, EEST 2 & RFECMT)
SIRIM QAS INTERNATIONAL SDN. BHD.
SHAH ALAM, SELANGOR
MALAYSIA



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for the current scope of accreditation

has been granted accreditation in respect of the scope of accreditation described in the schedule, subject to the terms and conditions governing the *Skim Akreditasi Makmal Malaysia* (SAMM), the Laboratory Accreditation Scheme of Malaysia.

Laboratories accredited under SAMM meet the requirements of MS ISO/IEC 17025. This Malaysian Standard is identical with ISO/IEC 17025 published by the International Organization for Standardization (ISO).



(DATUK FADILAH BAHARIN)
Director General
Department of Standards Malaysia

Date of issue: 8 December 2017

NO: SAMM 086

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LABORATORY LOCATION:
(PERMANENT LABORATORY)

**TESTING SERVICES DEPARTMENT
(EEST1, EEST2 & RFEMCT)
SIRIM QAS INTERNATIONAL SDN BHD
BUILDING 8, SIRIM COMPLEX
1, PERSIARAN DATO' MENTERI
SECTION 2, P. O. BOX 7035
40700 SHAH ALAM
SELANGOR, MALAYSIA**

FIELDS OF TESTING:

**ELECTRICAL, ELECTROMAGNETIC COMPATIBILITY
(EMC) & RADIO FREQUENCY (RF)**

This laboratory has demonstrated its technical competence to operate in accordance with MS ISO/IEC 17025:2017 (ISO/IEC 17025:2017).

This laboratory's fulfillment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001 (see Joint ISO-ILAC-IAF Communiqué dated April 2017).

ELECTRICAL & ELECTRONICS 1 SECTION (EEST1)

WIRING ACCESSORIES I LABORATORY

SCOPE OF TESTING: ELECTRICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. Rewirable and Non-rewirable 13A Plug	Full Type Test Except sub-clause 24.1 (for all standards)	MS 589-1:2011 MS 589:Part 1:1997 BS 1363-1:1995+A4:2012 BS 1363 Part 1:1995 +A1:1997 +A2:2003 +A3:2007 SS 145:Part 1:2010 SS 145:Part 1:1997
	Full Type Test Except sub-clause Annex G2 & Annex G3	MS 589-1:2018 BS 1363-1:2016+A1:2018

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WIRING ACCESSORIES I LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
2. Switches for household and similar fixed electrical installation	Full Type Test	MS IEC 60669-1:2012 MS IEC 60669-1:2004 IEC 60669-1 (ed4.0): 2017 IEC 60669-1 (ed3.2):2007 IEC 60669-1 (ed3.1):2000 IEC 60669-1 (ed2.0):1993 +A1:1994 +A2:1995 BS EN 60669-1: 2018 BS EN 60669-1:1999 +A2:2008 SS 227 Part 1:2010 SASO GSO IEC 60669-1:2014
3. 13A switched and unswitched socket outlet	Full Type Test Except sub-clause 24.1 (for all standards)	MS 589-2:2011 MS 589:Part 2:1997 BS 1363-2:1995 +A4:2012 BS 1363 Part 2:1995 +A1:1997 +A2:2003+A3:2007 SS 145-2:2018 SS 145:Part 2:2010 SS 145:Part 2:1997
	Full Type Test Except sub-clause Annex J2, Annex J3 & Annex J4	MS 589-2:2018
	Full Type Test Except sub-clause Annex I2, Annex I3 & Annex I4	BS 1363-2:2016+A1:2018 SS 145-2:2018
4. 13A Adaptors	Full Type Test Except sub-clause 24.1 (for all standards)	MS 589:Part 3:2012 MS 589:Part 3:1998 BS 1363-3:1995 +A4:2012 BS 1363 Part 3:1995
	Full Type Test Except sub-clause Annex H2, Annex H3 & Annex H4	MS 589-3:2018 BS 1363-3:2016+A1:2018
5. Electrical accessories	Full Type Test Except sub-clause 25.1 (for all standards)	MS 1144:1998 MS 1144:2017 BS 5733: 2010 +A1:2014 BS 5733:2010 SS 241:1996 (2008)

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WIRING ACCESSORIES I LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
6. 15A, 250V plugs and socket outlets for domestic and similar purposes	Full Type Test Except sub-clause 25.1	MS 1577:2003
7. Non-Rewirable 2.5A Two-Pole Plug	Full Type Test	MS 1578:2003 BS EN 50075:1991
8. Connecting Devices for Low Voltage Circuits: Screw Type	Full Type Test	MS IEC 60998-1:2005 MS IEC 60998-2-1:2005 IEC 60998-1 (ed2.0):2002 IEC 60998-2-1 (ed2.0):2002
9. Connecting Devices for Low Voltage Circuits: Connecting Box	Full Type Test	IEC 60998-1 (ed2.0):2002 IEC 60998-1 (ed1.0):1990 IEC 60998-2-5 (ed1.1):2000
10. Portable 2-pin Socket-Outlet	Full Type Test	MS 1579:2003 SS 488:2001
11. Appliances Couplers	Full Type Test	MS IEC 60320-1:2003 MS IEC 60320-1:2010 IEC 60320-1:2015 (ed3.0) IEC 60320-1:2015 +A1:2018 (ed3.1) IEC 60320-1 (ed2.0):2001+A1:2007
12. Connecting Devices As Separate Entities With Screwless-Type Clamping Units	Full Type Test	MS IEC 60998-1:2005 MS IEC 60998-2-2:2005 IEC 60998-1 (ed2.0):2002 IEC 60998-2-2 (ed2.0):2002
13. Electronic Switches	Full Type Test	MS IEC 60669-1:2012 MS IEC 60669-1:2004 IEC 60669-1 (ed 3.2):2007 IEC 60669-1 (ed 3.1):2000 IEC 60669-1 (ed2.0):1993+A1:1994+A2:1995 MS IEC 60669-2-1:2012 MS IEC 60669-2-1:2004 IEC 60669-2-1: (ed4.1):2009 IEC 60669-2-1: (ed4.0):2002

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WIRING ACCESSORIES I LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
14. Cooker Control Unit	Full Type Test	BS 4177:1992+A1+A2+A3+A4
15. Portable Cable Reels	Full Type Test	MS 1141:2006
16. 13 A fused connection units switches and un switched	Full Type Test	MS 589: PART 4: 1998 BS 1363-4: 1995 + A4: 2012
17. 15 A plugs and switched socket-outlets for domestic and similar purposes	Full Type Test	SS 472: 1999 (2012)

Signatories:

1. **Sharifah Jusoh**
2. **M. Zamri Mustaffa**
3. **Anita Marzuki**
4. **Nurul Akmal Mohamed Izhar**
5. **Khairul Azmi Mohd Hassan**
6. **Mohamad Asnan Ahmad**

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WIRING ACCESSORIES II LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations (MCB's)	Full Type Test Except; a) sub-clauses 9.12 and 9.16. Product limited to rated current of up to 63A.	MS IEC 60898:1998 MS IEC 60898-1:2007 IEC 60898 (ed2.0):1995 IEC 60898-1 (ed1.2):2003
2. Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCB's).	Full Type Test Except; a) sub-clauses 9.11 and 9.21. Product limited to rated current of up to 63A.	MS IEC 61008-1: 2012 IEC 61008-1: 2003 IEC 61008-2-1 (ed1.0):1990 IEC 61008-2-2 (ed1.0):1990 MS IEC 61008-2-1:2003 MS IEC 61008-2-2:2003
3. Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs)	Full Type Test Except; a) sub-clause 9.12 and 9.21	MS IEC 61009-1:2012 MS IEC 61009-2-1:2003 (CONFIRMED:2015) MS IEC 61009-2-2:2003 (CONFIRMED:2015)
4. Fuse Holder for Low Voltage Cylindrical Fuse Type B	Full Type Test Except clause 8.5	MS IEC 60269-1:2011 MS IEC 60269-3-1:2003 IEC 60269-1 (ed3.0):1998 IEC 60269-3-1 (ed1.2):2001 IEC 60269-3:1997
5. Compression and Mechanical connectors for power cables with copper or Aluminium conductors	Clause 6.3 Heat Cycle Test	IEC 61238-1:2003
6. Primary batteries	Full Type Test	MS IEC 60086-1:2010 IEC 60086-1 (ed11.0):2011 IEC 60086-1 (ed10.0):2006

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WIRING ACCESSORIES II LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
7. Primary batteries	Full Type Test Except Clause 6.2.2.2	MS IEC 60086-2:2010 IEC 60086-2 (ed12.0):2011 IEC 60086-2 (ed11.0):2006
8. Primary batteries	Full Type Test	MS IEC 60086-5:2010 IEC 60086-5 (ed3.0):2011 IEC 60086-5 (ed2.0):2005
9. Secondary cells and batteries containing alkaline or other non-acid electrolytes	Full Type Test Except; a) sub-clause 7.2.2, 7.2.4, 7.3.4, 7.3.6, 8.3.5, 8.3.8	MS IEC 62133:2017
10. Lead-acid starter batteries for automobiles	Full Type test Except Clause 7.3.2	MS 45:2009
11. Lead-acid starter batteries	Full Type test Except Clause 7.3.2	IEC 60095-1 (ed7.0):2006
12. Overhead lines – (Requirements and tests for fittings)	Heat Cycle Test	IEC 61284:1997 Clause 13
13. Moulded Case Circuit Breakers (MCCBs)	Clause 8.3.3	IEC 60947-2:2016

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1. **Sharifah Jusoh**
2. **M. Zamri Mustaffa**
3. **Anita Marzuki**
4. **Mohamad Asnan Ahmad**
5. **Danial Naim Mat Rashid**
6. **Nazrul Shafiq Ruslan**
7. **Hasbar Rafeq Abd Rahim**

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CABLE LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. PVC Insulated Cables (Non-Armoured) for Electrical Power & Lighting	Full Type Test	MS 2112-3:2009 BS 6004:2000
2. Power Cables with Extruded Insulation and their accessories for rated voltage of 1kV and 3kV - Insulation : XLPE, PVC - Sheath : PVC, PE	Full Type Test Except clauses 17.4, 18.13, 18.15 & 18.17	IEC 60502-1 (ed2.0):2004 +A1:2009
3. Power Cables with Extruded Insulation and their accessories for rated voltage of 6kV to 30kV - Insulation : XLPE, PVC - Sheath : PVC, PE	Full Type Test Except clauses 18.1.3, 18.1.4, 18.1.5, 18.1.6, 18.1.7, 18.1.8, 19.13, 19.14, 19.15 & 19.22 Full Type Test Except clauses 12.2.4, 18.2.5, 18.2.6, 18.2.7, 18.2.8, 18.2.9, 19.15, 19.16, 19.17 & 19.24	IEC 60502-2 (ed2.0):2005 IEC 60502-2 (ed3.0):2014
4. Aluminium Stranded Conductor	Full Type Test Except 4.3	BS 215 Part 1:1970
5. Aluminium Conductor Steel-cored	Full Type Test Except subclause 4.3.2	BS 215 Part 2:1970
6. Aluminium Alloy Stranded Conductor	Full Type Test Except 4.3.1 & 4.3.2	BS 3242:1970
7. PVC insulated for Flexible Cables	Full Type Test	MS 140:1987 MS 2112-5:2009 IEC60227-5 (ed2.2):2003 BS 6500:2000
8. Sheathed Cables for Fixed Wiring	Full Type Test	MS 2112-4:2009 IEC 60227-4 (ed2.0):1992+A1:1997
9. Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V	Full type test	IEC 60227-3 (ed 2.0):1993 +A1:1997

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CABLE LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
10. Rubber insulated cables – Rated voltages up to and including 450/750V	Full type test	IEC 60245-4:2011
11. Electric cables. Low voltage energy cables of rated voltages up to and including 450/750V (U0/U). Cables for general applications. Flexible cables with thermoplastic PVC insulation	Full type test	BS EN 50525-2-11:2011

Signatories:

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2. **M. Zamri Mustaffa**
3. **Anita Marzuki**
4. **Danial Naim Mat Rashid**
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DOMESTIC II LABORATORY

SCOPE OF TESTING: ELECTRICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. Vacuum Cleaner and water suction cleaning appliances	Full Type Test	<p>MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995</p> <p>MS IEC 60335-2-2:2017 MS IEC 60335-2-2:2006 MS IEC 60335-2-2:1995</p> <p>IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999</p> <p>IEC 60335-2-2 (ed6.0):2009 IEC 60335-2-2 (ed6.0):2009 +A1:2012 IEC 60335-2-2 (ed5.0):2002 +A1:2004 +A2:2006 IEC 60335-2-2 (ed4.0):1993 +A1:1998 +A2:1999</p>
2. Electric Iron	Full Type Test	<p>MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995</p> <p>MS IEC 60335-2-3:2006 MS IEC 60335-2-3:1995</p> <p>IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999</p> <p>IEC 60335-2-3:2012 (ed6.0) IEC 60334-2-3:2012 (ed6.0) +A1: 2015 IEC 60335-2-3 (ed5.0):2002 +A1:2004 +A2:2008 IEC 60335-2-3 (ed4.0):1993 +A1:1999 +A2:1999</p>

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DOMESTIC II LABORATORY

SCOPE OF TESTING: ELECTRICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
3. Electric Oven, Toaster, Grills, Roaster and similar appliances (Appliances such as: - Bread maker - Bread toaster - Portable oven - Induction cooker - Grill, roaster - Sandwich maker - Waffle maker, as specific by standard)	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS IEC 60335-2-9:2014 MS IEC 60335-2-9:2006 MS IEC 60335-2-9:2004 MS IEC 60335-2-9:1995 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-9 (ed6.0):2008 IEC 60335-2-9 (ed5.0):2002 +A1:2004 +A2:2006 IEC 60335-2-9 (ed4.0):1993 +A1:1998 + A2:1999
4. Kitchen Machine (Kitchen machine are appliances such as: - Blender - Chopper - Food Processor - Juice Extractor - Grinder - Mixer, as specified by standard)	Full Type Test (except Clause 20.119)	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS IEC 60335-2-14:2014 MS IEC 60335-2-14:2003 MS IEC 60335-2-14:1996 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-14 (ed6.0):2016 IEC 60335-2-14 (ed5.0):2006 +A1:2008 +A2:2012 IEC 60335-2-14 (ed4.0):2002 IEC 60335-2-14 (ed3.0):1994 +A1:1998 +A2:1999

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DOMESTIC II LABORATORY

SCOPE OF TESTING: ELECTRICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
5. Appliances for Heating Liquid (including cordless) (Appliances for heating liquid such as; -Electric Rice Cooker -Coffee / Tea Maker -Food Steamer, -Egg boiler -Jug, Slow Cooker, - Steam Boat, -Kettle, Airpot, -Bottle warmer, -Sterilizer -Elec. Aroma Vaporiser as specified by standard)	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS IEC 60335-2-15:2004 MS IEC 60335-2-15:1999 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-15:2012 (ed6.0) IEC 60335-2-15:2012 (ed6.0) +A1:2016 IEC 60335-2-15 (ed5.0):2002 +A1:2005 +A2:2008 IEC 60335-2-15 (ed4.0):1995 +A1:1999 +A2:2000 IEC 60335-2-15 (ed3.0):1986 +A1:1988 +A2:1990 +A3:1992
6. Appliances for skin and hair care	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS IEC 60335-2-23:2007 MS IEC 60335-2-23:2003 MS IEC 60335-2-23:1999 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-23: 2016 (ed6.0) IEC 60335-2-23:2003 + A1:2008 + A2:2012 (ed5.0) IEC 60335-2-23 (ed4.0):1996 +A1:2000

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DOMESTIC II LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
7. Vaporizers	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS IEC 60335-2-101:2014 MS IEC 60335-2-101:2003 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-101 (ed1.0): 2002 +A1:2008 + A2:2014
8. Electric Fans (Safety) (Electric Fans such as; - Moving-louvre fan, - Auto fan, - Pedestal fan, - Table fan, - Wall fan, - Exhaust fan - Ventilating fan, - Decorative fan, - Ceiling fan & applies to their separate regulators and with blade)	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS 1219:Part 2:2002 MS 1597:Part 2-80:2010 MS 1597:Part 2-80:2007 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-80 (ed3.0):2015 IEC 60335-2-80 (ed2.0):2002 +A1:2004 +A2:2008 IEC 60335-2-80 (ed1.0):1997

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DOMESTIC II LABORATORY

SCOPE OF TESTING: ELECTRICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
9. Specification for performance and construction of electric fans and regulators (Performance)	Full Type Test Except; a) Clause 6.6 of MS 1220:2001 b) Clause 6.6 of MS 1220:2010	MS 1220:2010 MS 1220:2001 MS 2574:2014 (MEPS ⁽¹⁾) for ST Energy Efficiency Program) IEC 60879 (ed1.0):1986 SS 360:1992
10. Stationary cooking ranges, cooking tables hobs, ovens and similar appliances (Exclude Pyrolitic Self-Cleaning Ovens)	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS IEC 60335-2-6:2014 MS IEC 60335-2-6:2007 MS IEC 60335-2-6:1999 MS 1597:Part 2-6:2003 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-6 (ed5.0):2002 +A1:2004 +A2:2008 IEC 60335-2-6 (ed4.0):1997 +A1:2000

Note: ¹⁾ MEPS - Minimum Energy Performance Standards (MEPS)

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DOMESTIC II LABORATORY

SCOPE OF TESTING: ELECTRICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
11. Deep fat fryers, frying pans and similar appliances	Full Type Test	<p>MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995</p> <p>MS IEC 60335-2-13:2006 MS IEC 60335-2-13:1995</p> <p>IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999</p> <p>IEC 60335-2-13:2009 (ed6.0) IEC 60335-2-13 (ed5.0):2002 +A1:2004 +A2:2008 IEC 60335-2-13 (ed4.0):1993 +A1:1993 +A2:1998</p>
12. Battery chargers	Full Type Test	<p>MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995</p> <p>MS IEC 60335-2-29:2014 MS IEC 60335-2-29:2005 MS IEC 60335-2-29:2003 MS IEC 60335-2-29:1996</p> <p>IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999</p> <p>IEC 60335-2-29 (ed4.0):2002 +A1:2004+A2:2009 IEC 60335-2-29 (ed3.0):1994</p>

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DOMESTIC II LABORATORY

SCOPE OF TESTING: ELECTRICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
13. Portable heating tools and similar appliances	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS IEC 60335-2-45:2003 MS IEC 60335-2-45:2002 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-45 (ed3.0):2002 +A1:2008 IEC 60335-2-45 (ed2.0):1996
14. Air Cleaning Appliances	Full Type Test Except; a) sub clause 8.1.4, 16.102 & 32 of MS IEC/ IEC 60335-2-65	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS IEC 60335-2-65:2014 MS IEC 60335-2-65:2006 MS IEC 60335-2-65:1999 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-65 (ed2.0):2002 IEC 60335-2-65 (ed2.0):2002+A1:2008 IEC 60335-2-65 (ed1.0):1993

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DOMESTIC II LABORATORY

SCOPE OF TESTING: ELECTRICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
15. Insect Killer & Similar Appliances	Full Type Test Except; a) clause, 16.101, & 32 of IEC 60335-2-59:1997, IEC 60335-2-59: 2002 (+A1:2006)	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS IEC 60335-2:59:2006 MS IEC 60335-2-59:2000 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-59 (ed3.0):2002 +A1:2006 IEC 60335-2-59 (ed2.0):1997
16. Sewing Machine	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS IEC 60335-2-28:2003 MS IEC 60335-2-28:2017 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-28 (ed4.0):2002 +A1 :2008 IEC 60335-2-28 (ed4.0):2002

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DOMESTIC II LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
17. Range Hoods	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS IEC 60335-2-31:2014 MS IEC 60335-2-31:2003 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-31 (ed4.2) +A1:2006 +A2:2008

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8. Nurul Fatihah Mohd Azman
9. Amy Suraya Abu Samah

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DOMESTIC III LABORATORY

SCOPE OF TESTING: ELECTRICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. Spin Extractor	Full Type Test	<p>MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995</p> <p>MS IEC 60335-2-4:2007 MS IEC 60335-2-4:2005 MS IEC 60335-2-4:1995</p> <p>IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999</p> <p>IEC 60335-2-4 (ed6.0):2008 +A1:2012 IEC 60335-2-4 (ed5.0):2002 +A1:2004 +A2:2006 IEC 60335-2-4 (ed4.0):1993 +A1:1997 +A2:1999</p>
2. Washing Machine	Full Type Test	<p>MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995</p> <p>MS IEC 60335-2-7:1995</p> <p>MS 1597:Part 2-7:2005</p> <p>IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999</p> <p>IEC 60335-2-7 (ed7.0):2008 +A1:2011 IEC 60335-2-7 (ed6.0):2002 +A1:2004 +A2:2006 IEC 60335-2-7 (ed5.0):2000 IEC 60335-2-7 (ed4.0):1993 +A1:1998 +A2:1999 IEC 60335-2-7 (ed3.0):1984 +A1:1988 +A2:1990</p>

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DOMESTIC III LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
3. Storage Water Heater	Full Type Test	MS 1597-2-21:2015 MS 1597-2-21:2011 MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS IEC 60335-2-21:2005 MS IEC 60335-2-21:2000 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-21 (6.0):2012 IEC 60335-2-21 (ed5.0):2002 +A1:2004 +A2:2008 IEC 60335-2-21 (ed5.0):2002 +A1:2004 IEC 60335-2-21 (ed4.0):1997 +A1:1999 IEC 60335-2-21 (ed3.0):1989 +A1:1990 +A2:1990 +A3:1992 SS 146:Part 1:1994 SS 146:Part 2:8:1999

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DOMESTIC III LABORATORY

SCOPE OF TESTING: ELECTRICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
4. Instantaneous Water Heater	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS 1597-2-35:2019 MS 1597-2-35:2010 MS 1597:Part 2-35:2003 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-35:2012 (ed5.0) +A1:2016 IEC 60335-2-35 (ed5.0):2012 IEC 60335-2-35 (ed4.0):2002 +A1:2006 +A2:2009 IEC 60335-2-35 (ed4.0):2002 +A1:2006 IEC 60335-2-35 (ed3.0):1997 +A1:1999 IEC 60335-2-35 (ed2.0):1991 SS 146:art 1:2004 SS 146:Part 1:1994 SS 146:Part 2:5:2007 SS 146:Part 2:5:1999

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SCOPE OF TESTING: ELECTRICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
5. Refrigerators and food freezers (Appliances such as; - Refrigerator - Freezer - Minibar as specified by standard)	Full Type Test Except; a) sub-clause 21.101 MS IEC 60335-2-24:2002 & MS IEC 60335-2-24	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS IEC 60335-1:1995 MS 1597:Part 2-24:2005 MS IEC 60335-2-24:2002 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-24 (ed7.0):2010 +A1:2012 IEC 60335-2-24 (ed7.0):2010 IEC 60335-2-24 (ed6.0):2002 +A1:2005 +A2:2007 IEC 60335-2-24 (ed5.0):2000 IEC 60335-2-24 (ed4.0):1997 +A1:1998 +A2:1999 IEC 60335-2-24 (ed3.0):1992
6. Cloth Dryer and Towel Rail	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS 1597:Part 2-43:2003 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-43 (ed3.0):2002 +A1:2005 IEC 60335-2-43 (ed2.0):1995

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DOMESTIC III LABORATORY

SCOPE OF TESTING: ELECTRICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
7. Commercial dispensing appliances and vending machines	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-1:2003 MS 1597:Part 2-75:2003 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-1 (ed3.0):1991 +A1:1994 +A2:1999 IEC 60335-2-75 (ed2.0):2002 +A1:2004 IEC 60335-2-75 (ed1.0):1995 +A1:1998
8. Electrical heat pumps, air-conditioners and dehumidifiers	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS 1597-2-40:2005 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0): 2001 +A1:2004 +A2:2006 IEC 60335-2-40 (ed5.0):2013 IEC 60335-2-40 (ed4.2):2005
9. Pumps	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 MS IEC 60335-2-41:2005 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0): 2001 +A1:2004 +A2:2006 IEC 60335-2-41 (ed4.0):2012 IEC 60335-2-41 (ed3.1):2004

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
10. Tumble Dryers	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 MS IEC 60335-2-11:2014 IEC 60335-2-11 (ed7.0):2008+A1:2012
11. Particular requirements for dishwasher	Full Type Test	MS IEC 60335-1:2015 MS IEC 60335-1:2013 MS IEC 60335-1:2005 IEC 60335-1 (ed5.0):2010 +A1:2013 +A2:2016 IEC 60335-1 (ed4.0):2001 +A1:2004 +A2:2006 IEC 60335-2-5 (ed6.0):2012 MS 1597-2-5:2014
12. Drills and impact drills	Full Type Test	MS IEC 60745-1:2010 MS IEC 60745-1:2005 IEC 60745-1 (ed4.0):2006 IEC 60745-1 (ed3.0):2001 +A1:2002 +A2:2003 MS IEC 60745-2-1:2011 IEC 60745-2-1 (ed2.0):2003+A1:2008 IEC 60745-2-1 (ed2.0):2003

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DOMESTIC III LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
13. Grinders, polishers and disk-type sanders	Full Type Test Except clauses 19 & 20 of IEC 60745-1:2001 and IEC 60745-2-3:2006	MS IEC 60745-1:2010 MS IEC 60745-1:2005 IEC 60745-1 (ed4.0):2006 IEC 60745-1 (ed3.0):2001 +A1:2002 +A2:2003 IEC 60745-1 (ed1.0):1982 MS IEC 60745-2-3:2010 IEC 60745-2-3 (ed2.0):2006 IEC 60745-2-3 (ed1.0):1984 +A1:1995
14. Sanders and Polishers, other than disk-type	Full Type Test	MS IEC 60745-1:2010 MS IEC 60745-1:2005 MS IEC 60745-2-4:2011 MS IEC 60745-2-4:2005 IEC 60745-1 (ed4.0):2006 IEC 60745-1 (ed3.0):2001 +A1:2002 +A2:2003 IEC 60745-1 (ed1.0):1982 IEC 60745-2-4 (ed2.0):2002+A1:2008 IEC 60745-2-4 (ed2.0):2002 IEC 60745-2-4 (ed1.0):1983 +A1:1992 +A2:1996

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4. **Mohd. Fairuz Zainordin**
5. **Khairul Azhar Muda**
6. **Amy Suraya Abu Samah**
7. **Mohd Khirul Anuar Saadon**

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ENERGY EFFICIENCY LABORATORY (DOMESTIC)**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. Household refrigerating appliances	Full Type Test Except Clause 9, 10, 11, 12, 14, 16, 17, 18	MS IEC 62552:2011 IEC 62552 (ed1.0):2007
	Full Type Test	MS IEC 62552-1:2016 MS IEC 62552-3:2016 Guide on Minimum Energy Performance Standard (MEPS) Requirements for Refrigerator (1 March 2018)
2. Non-ducted air conditioners and heat pumps	Full Type Test	MS ISO 5151:2012 ISO 5151:2017 ISO 5151:2010 ISO 16358-1:2013 ISO 16358-2:2013 Guide on Minimum Energy Performance Standard Requirements for Air Conditioner with Cooling Capacity ≤ 7.1 kW (1 March 2018)

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4. **Ahmad Farid Abdul Jalil**
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6. **Dzurliza Ahmad**

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IP AND MATERIAL TEST LABORATORY

SCOPE OF TESTING: ELECTRICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. Insulating material (General)	Ball pressure test	IEC 60695-10-2 (ed3.0):2014
2. Insulating material (General)	Tracking test	IEC 60112 (ed4.1):2009 IEC 60112 (ed4.0):2003 IEC 60112 (ed3.0):1979
3. Insulating material (for TV back cover)	Burning test	MS IEC 60065:2003
4. General electrical products	IP Tests	MS IEC 60529:2005 MS IEC 60529:2002 IEC 60529 (ed2.2):2013 (except Clause 14.2.9) IEC 60529 (ed2.1):2001 IEC 60529 (ed2.0):1989
5. Insulating material (General)	Glow Wire test	IEC 60695-2-1 (ed2.0):1991 IEC 60695-2-10 (ed2.0):2013 IEC 60695-2-11 (ed2.0):2014 AS/NZS 60695.2.10:2001 AS/NZS 60695.2.11:2001
6. Insulating material (General)	Needle Flame test	IEC 60695-2-2 (ed2.0):1991 IEC 60695-11-5 (ed2.0):2016 IEC 60695-11-5 (ed1.0):2004
7. Insulating material (General)	Glow Wire Flammability Index (GWFI)	IEC 60695-2-10 (ed2.0):2013 IEC 60695-2-12 (ed2.1):2014 IEC 60695-2-12 (ed1.0):2000
8. Insulating material (General)	Glow Wire Ignitability Test (GWIT)	IEC 60695-2-10 (ed2.0):2013 IEC 60695-2-13 (ed2.1):2014 IEC 60695-2-13 (ed1.0):2000
9. Solid electrical insulating material	Hot-wire coil ignitability test	IEC 60695-2-20: 1995

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2. **Sharifah Jusoh**
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ELECTRICAL & ELECTRONICS 2 SECTION (EEST2)**LAMP AND ACCESSORIES LABORATORY****SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. Fixed General Purpose Luminaires	Full Type Test	MS IEC 60598-1:2012 MS IEC 60598-1:2006 MS IEC 60598-2-1:1997 IEC 60598-1 (ed8.1):2017 IEC 60598-1 (ed8.0):2014+A1:2017 IEC 60598-1 (ed7.0):2008 IEC 60598-1 (ed6.0):2003 +A1:2006 IEC 60598-2-1 (ed2.0):2020 IEC 60598-2-1 (ed1.0):1979 + A1:1987
2. Recessed Luminaires	Full Type Test	MS IEC 60598-1:2012 MS IEC 60598-1:2006 MS IEC 60598-2-2:1998 IEC 60598-1 (ed8.1):2017 IEC 60598-1 (ed8.0):2014+A1:2017 IEC 60598-1 (ed7.0):2008 IEC 60598-1 (ed6.0):2003 +A1:2006 IEC 60598-2-2 (ed2.1):1997 IEC 60598-2-2 (ed2.0):1996 +A1:1997 IEC 60598-2-2 (ed3.0):2011 IEC 60598-2-2 (ed1.0):1979 +A1:1987 +A2:1991
3. Luminaires for Road and Street Lighting	Full Type test	MS IEC 60598-1:2012 MS IEC 60598-1:2006 MS IEC 60598-2-3:2006 MS IEC 60598-2-3:1997 IEC 60598-1 (ed8.1):2017 IEC 60598-1 (ed8.0):2014+A1:2017 IEC 60598-1 (ed7.0):2008 IEC 60598-1 (ed6.0):2003 +A1:2006 IEC 60598-2-3 (ed3.1):2011 IEC 60598-2-3 (ed3.0):2002 IEC 60598-2-3 (ed2.1):1997 IEC 60598-2-3 (ed2.0):1993 +A1:1997

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LAMP AND ACCESSORIES LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
4. Portable General Purpose Luminaires	Full Type Test	MS IEC 60598-1:2012 MS IEC 60598-1:2006 MS IEC 60598-2-4:2003 MS IEC 60598-2-4:1997 IEC 60598-1 (ed8.1):2017 IEC 60598-1 (ed8.0):2014+A1:2017 IEC 60598-1 (ed7.0):2008 IEC 60598-1 (ed6.0):2003 +A1:2006 IEC 60598-2-4 (ed3.0):2017 IEC 60598-2-4 (ed2.0):1997
5. Ballast For Tubular Fluorescent Lamps	Full Type Test	MS IEC 61347-1:2012 MS IEC 61347-1:2003 MS IEC 61347-2-8:2014 MS IEC 61347-2-8:2003 MS IEC 60921:2013 MS 141:2014 MS 141:Part 2:1993 +A1:1997 IEC 61347-1 (ed2.0):2007 +A1:2010 IEC 61347-1 (ed2.0):2007 IEC 61347-1 (ed1.0):2000 +A1:2003 IEC 61347-2-8 (ed1.0):2000 +A1:2006 IEC 61347-2-8 (ed1.0):2000 IEC 60921 (ed. 2.0):2004 +A1:2006 IEC 60921 (ed. 1.0):1988 +A1:1990 +A2:1994

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LAMP AND ACCESSORIES LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
6. Ballast for Discharge lamp	Full type test	MS IEC 61347-1:2012 MS IEC 61347-1:2003 MS IEC 61347-2-9:2003 MS IEC 60923:2008 IEC 61347-1 (ed2.0):2007 +A1:2010 IEC 61347-1 (ed2.0):2007 IEC 61347-1 (ed1.0):2000 +A1:2003 IEC 61347-2-9 (ed1.0):2000 +A1:2003 +A2:2006 IEC 61347-2-9 (ed1.0):2000 IEC 60923 (ed3.1):2006
7. Electronic Ballast for Fluorescent lamp	Full type test Except clauses 9, 10, 12 & 14 of MS IEC 90929:1995	MS IEC 61347-1:2012 MS IEC 61347-1:2003 MS IEC 61347-2-3:2003 MS IEC 60929:2008 MS IEC 60929:1995 IEC 61347-1 (ed2.0):2007+A1:2010 IEC 61347-1 (ed2.0):2007 IEC 61347-1 (ed1.0):2000+A1:2003 IEC 61347-2-3 (ed1.0):2000+1:2004 +A2:2006 IEC 61347-2-3 (ed1.0):2000 IEC 60929 (ed1.0):1990+ A1:1994+ A2:1996
8. Emergency Lighting	Full type test	MS IEC 60598-1:2012 MS IEC 60598-1:2006 MS IEC 60598-1:2003 MS IEC 60598-1:1997 MS 619-2-22:2005 (Confirmed:2013) MS 619:Part 102:Sect 102.22:1985 IEC 60598-1 (ed8.1):2017 IEC 60598-1 (ed8.0):2014+A1:2017 IEC 60598-1 (ed7.0):2008 IEC 60598-1 (ed6.0):2003+A1:2006 IEC 60598-2-22 (ed3.0):1997 +A1:2002

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LAMP AND ACCESSORIES LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
9. "KELUAR' Sign	Full type test except sub-clause 3.4 of MS 983:2004	MS IEC 60598-1:2012 MS IEC 60598-1:2006 MS IEC 60598-1:2003 MS IEC 60598-1:1997 MS 983:2004 MS 619-2-22:2005 (Confirmed:2013) MS 619:Part 102:Sect 102.22:1985 IEC 60598-1 (ed8.1):2017 IEC 60598-1 (ed8.0):2014+A1:2017 IEC 60598-1 (ed7.0):2008 IEC 60598-1 (ed6.0):2003+ A1:2006 IEC 60598-2-22 (ed3.0):1997+ A1:2002
10. Starting device other than glow-starter- (Ignitor)	Full type test	MS IEC 61347-1:2012 MS IEC 61347-1:2003 MS IEC 61347-2-1:2003 IEC 61347-1 (ed2.0):2007+A1:2010 IEC 61347-1 (ed2.0):2007 IEC 61347-1 (ed1.0):2000+A1:2003 IEC 61347-2-1 (ed1.0):2000 +A1:2005 IEC 61347-2-1 (ed1.0):2000 IEC 60927 (ed2.0):1996+A1:1999
11. Glow-starter for fluorescent lamp	Full type test	MS IEC 60155:1996 IEC 60155 (ed4.0):1993+A1:1995 +A2:2006 IEC 60155 (ed4.0):1993
12. Lampholder & starterholder for fluorescent lamp	Full type test Except Clauses 13 & 18 (for all standards)	MS IEC 60400:2006 MS IEC 60400:1999 IEC 60400 (ed7.0):2008+A1:2011 IEC 60400 (ed6.2):2004 IEC 60400 (ed6.0):1999+A1:2002 +A2:2004 IEC 60400 (ed5.0):1996+A1:1997

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LAMP AND ACCESSORIES LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
13. LED modules for general lighting	Full type test	MS IEC 62031:2011 IEC 62031 (ed2.0):2018 IEC 62031 (ed1.0):2008
14. Self-ballasted LED – lamps for general lighting services by voltage > 50V	Full type test	MS IEC 62560:2012 IEC 62560 (ed1.1):2015 IEC 62560 (ed1.0):2011+A1:2015 IEC 62560 (ed1.0):2011
15. Self-ballasted lamps for general lighting services	Full type test	MS IEC 60968:2006 IEC 60968 (ed1.2):1999
16. Luminaires – Floodlights	Full type test	MS IEC 60598-1:2012 MS IEC 60598-1:2006 MS IEC 60598-2-5:2006 IEC 60598-1 (ed8.1):2017 IEC 60598-1 (ed8.0):2014+A1:2017 IEC 60598-1 (ed7.0):2008 IEC 60598-1 (ed6.0):2003+A1:2006 IEC 60598-2-5 (ed3.0):2015 IEC 60598-2-5 (ed2.0):1998
17. Double-capped LED lamps designed to retrofit linear fluorescent lamps	Full type test	IEC 62776 (ed1.0):2014
18. Luminaires for Mains Socket-Outlet Mounted Nightlights	Full type test	MS IEC 60598-1:2012 MS IEC 60598-2-12:2010 IEC 60598-1 (ed8.1):2017 IEC 60598-1 (ed8.0):2014+A1:2017 IEC 60598-1 (ed7.0):2008 IEC 60598-2-12 (ed1.0):2006

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LAMP AND ACCESSORIES LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
19. Edison screw lampholders	Full type test	MS IEC 60238:2008 IEC 60238 (ed8.0):2004
20. Lamp caps and holders together with gauges for the control of interchangeability and safety	Lamp cap dimension	MS IEC 60061-1:2005 IEC 60061-1 (ed3.35):2005
21. DC or AC supplied electronic control gear for LED modules	Full type test	IEC 62384 (ed1.1):2011 (IEC 62384 (ed1.0):2006 +A1:2009)

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ENERGY EFFICIENCY LABORATORY (LAMP)**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. Self-ballasted lamps for general lighting services – Performance requirements	Full type test	MS IEC 60969:2006 (CONFIRMED:2015) MS IEC 60969:2006 IEC 60969:2016/COR1:2017 IEC 60969 (ed1.2):2001
2. Self-ballasted LED-lamps for general lighting services – Performance requirements	Full type test	MS IEC 62612:2015 IEC 62612 (ed1.0):2013 +A1:2015 +A2:2018
3. Lighting Products i. Lamps ii. Luminaires	Full type test	IES LM 79:2019 IES LM 79:2008 CIE 121:1996
4. Photobiological safety of lamps and lamps systems	Full type test	MS IEC 62471:2011 IEC 62471 (ed1.0):2006
5. Photobiological safety of lamps and lamp systems – Part 2: Guidance on manufacturing requirements relating to non-laser optical radiation safety	Full type test	MS 62471-2:2014 IEC/TR 62471-2 (ed1.0):2009
6. Luminaire performance – LED luminaires	Full type test	IEC 62722-1 (ed1.0):2014 IEC 62722-2-1 (ed1.0):2014
7. LED modules for generating lighting – Performance requirements	Full type test	MS IEC 62717:2017 IEC 62717 (ed1.0):2014+A1:2015

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ENERGY EFFICIENCY LABORATORY (LAMP)**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
8. Minimum energy performance standards (MEPS) for lamps	Full type test based on MS 2598:2014	MS IEC 60081:2003 (CONFIRMED:2015) IEC 60081(ed5.0):1997 +A1:2000 +A2:2003 MS IEC 60969:2006 (CONFIRMED:2015) IEC 60969 (ed1.2):2001 MS IEC 60901:2003 (CONFIRMED:2015) IEC 60901 (ed2.0):1996 MS IEC 62612:2015 IEC 62612 (ed1.0):2013 MS IEC 60064:2006 (CONFIRMED:2015) IEC 60064 (ed6.0):1993 +A1:2000 +A2:2002 +A3:2005
9. Lighting of Obstacles	ASD 404:2007 Clause 4.1 Photometric test & Clause 4.2 Flash rate and Duration	IES LM 79:2019 IES LM 79:2008 CIE 121:1996

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AUDIO/VIDEO AND ELECTRONICS LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. Mains Operated Electronics and Related Apparatus for Household and Similar General Use	Full type test	MS IEC 60065:1997 IEC 60065 (ed5.0):1985+ A1:1987+ A2:1989+A3:1992 TIS 1195-2536(1993) PNS 256:1999+A1:2003
2. Audio, Video and Similar Electronics Apparatus	Full type test	MS IEC 60065:2007 IEC 60065 (ed8.0):2014 IEC 60065 (ed7.1):2005 IEC 60065 (ed7.0):2001+ A1:2005+ A2:2010 IEC 60065 (ed7.0):2001+ A1:2005 IEC 60065 (ed7.0):2001 IEC 60065 (ed6.0):1998 PNS IEC 60065:2007 SNI 04-6253-2003
	Full type test except Clause 10.3 & 10.6	IEC 62368-1 (ed2.0):2014
3. Information Technology Equipment	Full type Test	MS IEC 60950-1:2007 IEC 60950-1 (ed2.0):2005+A1:2009+ A2:2013 IEC 60950-1 (ed2.0):2005+ A1:2009 IEC 60950-1 (ed2.0):2005 IEC 60950-1 (ed1.0):2001 IEC 60950 (ed3.0):1999
	Full type test Except Clause 10.3 & 10.6	IEC 62368-1 (ed2.0):2014
4. Fire Detection and Fire Alarm Systems; Control and indicating Equipment	Full type test except Clauses 15.11 to 15.12	MS 1745:Part 2:2004 EN 54-2:1997 BS EN 54-2:1997

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AUDIO/VIDEO AND ELECTRONICS LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
5. Fire Detection and Fire Alarm Systems: Fire Alarm Devices-Sounders	Full type test except Clauses 5.11 and 5.16	MS 1745:Part 3:2004 EN 54-3:2001 BS EN 54-3:2001
6. Fire Detection and Fire Alarm Systems: Manual Call Points	Full Type Test Except Clauses 5.13, 5.15 and 5.18	MS 1745:Part 11:2004 EN 54-11:2001
7. Medical electrical equipment, general requirements for safety	Full type test except Clause 9.4.2.4 and 15.3.5	MS IEC 60601-1:2006 IEC 60601-1 (ed3.1):2012 IEC 60601-1 (ed3.0):2005
8. Electrical Equipment for Measurement, Control and Laboratory Use	Full type test except: a) Sub-clauses 8.1.1, 11.7, 12.5.2, 13.2.4, 15 & 16 of IEC 61010-1:2001 b) Sub-clauses 8.1, 11.7, 12.5.2, 15 & 16 of IEC 61010-1 (ed1.0):1990+A1:1992 +A2:1995	IEC 61010-1 (ed2.0):2001 IEC 61010-1 (ed1.0):1990+A1:1992 +A2:1995 IEC 61010-1 (ed3.0):2010
9. Laboratory Equipment for the Heating of Material	Full type test except sub-clause 8.1, 11.7, 12.5.2, 15 & 16 of IEC 61010-1 (ed1.0):1990+A1:1992+A2:1995	IEC 61010-2-010 (ed1.0):1992+A1:1996
10. Washer Disinfectors used in Medical Pharmaceutical, Veterinary and Laboratory Fields	Full type test except sub-clause 8.1.1, 11.7, 12.5.2, 15 & 16 of IEC 61010-1 (ed1.0):1990+A1:1992+A2:1995	IEC 61010-2-045 (ed1.0):2000
11. Laboratory Equipment for Mixing and Stirring	Full Type Test except sub-clause 8.1.1, 11.7, 12.5.2, 13.2.4, 15 & 16 of IEC 61010-1 (ed1.0):1990+A1:1992+A2:1995	IEC 61010-2-051 (ed2.0):2003

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AUDIO/VIDEO AND ELECTRONICS LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
12. Shaver transformer and shaver supply unit	Full type test except clause 14.3.2 of IEC 61558-1:2009	MS IEC 61558-1:2005 MS IEC 61558-2-5:2005 IEC 61558-1 (ed2.0):2005+A1:2009 IEC 61558-1 (ed1.0):1997+A1:1998 IEC 61558-2-5 (ed2.0):2010 IEC 61558-2-5 (ed1.0):1997
13. Safety isolating transformer for general use	Full type test except clause 14.3.2 of IEC 61558-1:2009	MS IEC 61558-1:2005 MS IEC 61558-2-6:2005 IEC 61558-1 (ed2.0):2005+A1:2009 IEC 61558-1 (ed1.0):1997+A1:1998 IEC 61558-2-6 (ed2.0):2009 IEC 61558-2-6 (ed1.0):1997
14. Household Electrical Appliances – Measurement of Standby Power	Full type test	MS IEC 62301:2007 MS IEC 62301:2012 IEC 62301 (ed2.0):2011 IEC 62301 (ed1.0):2005
15. Measurement of Power Consumption for audio/Video and Equipment	Full type test	IEC 62087 (ed3.0):2011 IEC 62087 (ed2.0):2008 MS IEC 62087-1:2017 IEC 62087-1 (ed1.0):2015 MS IEC 62087-2:2017 IEC 62087-2 (ed1.0):2015 MS IEC 62087-3:2017 IEC 62087-3 (ed1.0):2015

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AUDIO/VIDEO AND ELECTRONICS LABORATORY**SCOPE OF TESTING: ELECTRICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
16. Lamp controlgear – electronic controlgear for LED modules	Full type test	MS IEC 61347-1:2012 MS IEC 61347-1:2003 MS IEC 61347-2-13:2012 IEC 61347-1(ed3.1): 2017 IEC 61347-1 (ed2.0):2007+A1:2010 IEC 61347-1 (ed2.0):2007 IEC 61347-1 (ed1.0):2000+A1:2003 IEC 61347-1 (ed1.0):2000 IEC 61347-2-13 (ed2.1):2016 IEC 61347-2-13:2006
17. Minimum Energy Performance Standards (MEPS) for Television	Full type test	MS 2576:2014
18. Transformers and Power Supply Units for Bells and Chimes	Full type test	MS IEC 61558-1:2005 MS IEC 61558-2-8:2007 IEC 61558-1 (ed2.1):2009 IEC 61558-1 (ed2.0):2005 IEC 61558-1 (ed1.0):1997+A1:1998 IEC 61558-2-8 (ed2.0):2010 IEC 61558-2-8 (ed1.0):1998
19. Switch Mode Power Supply Units and Transformer for Switch Mode Power Supply Units	Full type test	MS IEC 61558-1:2005 MS IEC 61558-2-17:2007 IEC 61558-1 (ed2.1):2009 IEC 61558-1 (ed2.0):2005 IEC 61558-1 (ed1.0):1997+A1:1998 IEC 61558-2-17 (ed1.0):1997 IEC 61558-2-16 (ed1.0):2009+A1:2013

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PHOTOVOLTAIC LABORATORY

SCOPE OF TESTING: ELECTRICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. Photovoltaic (PV) modules – Crystalline Silicon	Full Type Test	IEC 61215-1 (ed1.0):2016 IEC 61215-1-1 (ed1.0):2016 IEC 61215-2 (ed1.0):2016
2. Photovoltaic (PV) modules – Thin-film Cadmium Teluride (CdTe)	Full Type Test	IEC 61215-1 (ed1.0):2016 IEC 61215-1-2 (ed1.0):2016 IEC 61215-2 (ed1.0):2016
3. Photovoltaic (PV) modules – Crystalline Silico	Full Type Test	IEC 61215 (ed2.0):2005 MS IEC 6215:2006 (Confirmed:2015)
4. Photovoltaic (PV) modules	Full Type Test	IEC 61730-1 (ed1.0):2004 MS IEC 61370-1:2010
	Full Type Test except MST 23 *MST 23 will be subcontracted	IEC 61730-2 (ed1.0):2004 MS IEC 61730-2:2010
4. Photovoltaic (PV) modules	Full Type Test	IEC 61730-1 (ed2.0):2016
	Full Type Test except MST 23 & 24 *MST 23 & 24 will be subcontracted	IEC 61730-2 (ed2.0):2016
5. Photovoltaic (PV) modules – Crystalline Silicon	Potential-induced degradation (PID) Stress Test	IEC TS 62804-1 (ed1.0):2015

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RADIO FREQUENCY & ELECTROMAGNETIC COMPATIBILITY SECTION (RFEMCT)**ELECTROMAGNETIC COMPATIBILITY LAB****SCOPE OF TESTING: ELECTROMAGNETIC COMPATIBILITY (EMC)**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. Industrial, scientific and medical (ISM) radio frequency equipment	Radio disturbance characteristics – Limits and method of measurement	CISPR 11:2015 +A1:2016+A2:2019 ANSI C63.4:2014 FCC Part 18 FCC MP-5 AS/NZS CISPR 11:2011 BS EN 55011:2009+A1:2010
2. Sound and television broadcast receivers and associated equipment	1. Radio disturbance characteristics –Limits and methods of measurement 2. Immunity characteristics – Limits and methods of measurement	CISPR 13:2015 (CISPR 13:2009 +A1:2015) FCC Part 15 Subpart B:2015 ANSI C63.4:2014 AS/NZS CISPR 13:2012 CISPR 20:2006 EN 55020:2007+A11 AS/NZS CISPR 20:2009
3. Household appliances, electric tools and similar apparatus	1. Part 1: Emission 2. Part 2: Immunity 3. Measurement methods for electromagnetic fields of household appliances and similar apparatus with regards to human exposure	CISPR 14-1:2016 CISPR 14-1:2005+A1:2008+A2:2011 FCC Part 15 Subpart B:2015 ANSI C63.4:2014 AS/NZS CISPR 14.1:2013 BS EN 55014-1:2006+A2:2011 CISPR 14-2:2015 AS/NZS CISPR 14.2:2015 BS EN 55014-2:2015 EN 62233:2008
4. Electric lighting and similar equipment	1. Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	CISPR 15:2018 FCC Part 15:Subpart B:2015 ANSI C63.4:2014 AS/NZS CISPR 15:2011 BS EN 55015:2013+A1:2015

Note:

1. CISPR : Comité Internationale Spécial des Perturbations Radioelectrotechnique (International Special Committee on Radio Interference)
2. EN : European Standards
3. ANSI : American National Standards Institute
4. AS/NZS : Australia & New Zealand Standards
5. IEC : International Electrotechnical Commission

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ELECTROMAGNETIC COMPATIBILITY LAB**SCOPE OF TESTING: ELECTROMAGNETIC COMPATIBILITY (EMC)**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
4. Electric lighting and similar equipment (continue)	2. EMC Immunity requirements 3. Assessment of lighting equipment related to human exposure to electromagnetic fields	IEC 61547:2009 IEC 62493:2015
5. Information Technology Equipment	1. Radio disturbance characteristics – Limits and methods of measurement 2. Immunity characteristics – Limits and methods of measurement	CISPR 22:2008 FCC Part 15 Subpart B:2015 ANSI C63.4:2014 AS/NZS CISPR 22:2009, Amd 1:2013 CISPR 24:2010 AS/NZS CISPR 24:2009
6. Electrical/ Electronic Products	1. Radio Disturbance Characteristics- Limits and Method of Measurements 2. Electrostatic Discharge Immunity 3. Radiated, Radio Frequency, Electromagnetic Field Immunity 4. Electrical Fast Transient Immunity 5. Surge Immunity 6. Immunity to Conduct Disturbances, Induced by Radio Frequency Fields 7. Power Frequency Magnetic Field Immunity 8. Voltage Dips, Short Interruptions and Voltage Variations Immunity 9. Ring Wave Immunity 10. Damp Oscillatory Wave	FCC Part 15 Subpart B:2015 ANSI C63.4:2014 IEC 61000-4-2:2008 IEC 61000-4-3:2010 (IEC 61000-4-3:2006+A1:2007 +A2:2010) IEC 61000-4-4:2012 IEC 61000-4-5:2017 (IEC 61000-4-5:2014+AMD1:2017) IEC 61000-4-6:2013 IEC 61000-4-8:2009 IEC 61000-4-11:2004+A1:2017 IEC 61000-4-12:2017 IEC 61000-4-18:2011 (IEC 61000-4-18:2006+A1:2010)

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ELECTROMAGNETIC COMPATIBILITY LAB**SCOPE OF TESTING: ELECTROMAGNETIC COMPATIBILITY (EMC)**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
6. Electrical/ Electronic Products (continue)	11. Harmonic Current Emission	IEC 61000-3-2:2018 IEC 61000-3-12:2011
	12. Voltage Changes, Voltage Fluctuations and Flicker in Public Low Voltage Supply Systems	IEC 61000-3-3:2013+A1:2017 IEC 61000-3-11:2017
	13. Electromagnetic compatibility (EMC) – Part 17: Testing and measurement techniques – Ripple on D.C. input power port immunity test	IEC 61000-4-17:2009 (IEC 61000-4-17:1999+A1:2001 +A2:2008)
	14. Electromagnetic compatibility (EMC) – Part 29: Testing and measurement techniques – Voltage dips, short interruption and voltage variations on D.C. input power port immunity test	IEC 61000-4-29:2000
	15. Pulse Magnetic Field Immunity	IEC 61000-4-9:2016
	16. Safety of household and similar electrical appliances Part 1 : General Requirement	IEC 60335-1:2010+A2:2016 Clause: 19.11.4.1 to 19.11.4.6
	17. Switches for household and similar fixed electrical installation. Part 2-1: Particular requirement – electric switches	IEC 60669-2-1:2002+A2:2015 Clause:26

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ELECTROMAGNETIC COMPATIBILITY LAB**SCOPE OF TESTING: ELECTROMAGNETIC COMPATIBILITY (EMC)**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
6. Electrical/ Electronic Products (continue)	18. Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) – Part 1: General rules 19. Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) – Part 1: General rules 20. Fire detection and alarm systems: Part 2: Control and indicating equipment 21. Fire detection and alarm systems: Part 3: Audible fire alarm devices 22. Fire detection and alarm systems: Part 11: Manual call points 23. Alarm systems Electromagnetic compatibility. Product family standard: Immunity requirements for components of fire, intruder, hold up, CCTV, access control and social alarm systems 24. Electrical equipment for measurement, control and laboratory use – EMC requirements: Part 1: General Requirement 25. Measuring relays and protection equipment – Part 26 : Electromagnetic compatibility requirement	MS IEC 61008-1:2012 Clause:8.17 IEC 61008-1:2010 Clause:8.17 MS IEC 61009-1:2012 Clause:8.17 IEC 61009-1:2010 Clause:8.17 MS 1745 – Part 2:2004 Clause: 15.8 to 15.12 MS 1745 – Part 3:2004 Clause: 5.16(a) to 5.16(e) MS 1745 – Part 11:2004 Clause: 5.18(a) to 5.18(e) BS EN 50130-4:2011+A1:2014 IEC 61326 -1 : 2012 IEC 60255 – 26:2013

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ELECTROMAGNETIC COMPATIBILITY LAB

SCOPE OF TESTING: ELECTROMAGNETIC COMPATIBILITY (EMC)

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
6. Electrical/ Electronic Products (continue)	26. Traffic control equipment performance of signal heads 27. Residual current-operated protective devices (RCDs) for household and similar use – electromagnetic compatibility	BS EN 50293:2012 MS 2478:2012 Clause: 5.2 IEC 61543:1995+A1:2014+A2:2005
7. Road vehicles	1. Electrical disturbance from conduction and coupling Part 2: Electrical transient conduction along supply lines only 2. Electrical disturbance from conduction and coupling Part 3: Electrical transient transmission by capacitive and inductive coupling via lines other than supply lines 3. Component test method for electrical disturbances from narrowband radiated electromagnetic energy Part 4: Harness excitation methods 4. Test methods for electrical disturbances from electrostatic discharge 5. Vehicles test methods for electrical disturbances from narrowband radiated electromagnetic energy – Part 2: Off-vehicle radiation sources 6. Component test methods for electrical disturbances from narrowband radiated electromagnetic energy – Part 2: Absorber-lined shielded Enclosure	ISO 7637-2 3 rd Edition 2011-03-01 ISO 7637-3:2016 ISO 11452-4 th Edition 2011-12-15 ISO 10605 2 nd Edition 2008-07-15 ISO 11451-2:2015 ISO 11452-2 Third Edition 2019-01

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ELECTROMAGNETIC COMPATIBILITY LAB**SCOPE OF TESTING: ELECTROMAGNETIC COMPATIBILITY (EMC)**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
8. Vehicles, boats and internal combustion engines	1. Radio disturbance characteristics – Limits and methods of measurements for the protection off-board receivers 2. Radio disturbance characteristics – Limits and method of measurement for the protection on-board receivers	CISPR 12:2009 (CISPR 12:2007+A1:2009) CISPR 25:2016
9. ITE and Multimedia Equipment	1. Electromagnetic compatibility of multimedia equipment – Emission requirements 2. Electromagnetic compatibility of multimedia equipment – Immunity requirements	CISPR 32:2015 AS/NZS CISPR 32:2015 BS EN 55032:2015 CISPR 35:2016
10. Railway Applications	1. Part 4 – Emission and immunity of the signaling and telecommunications apparatus 2. Part 3-2: Rolling Stock – Apparatus 3. Railway applications. Electromagnetic compatibility. Emission and immunity of fixed power supply installations and apparatus	BS EN 50121-4:2016 BS EN 50121-3-2:2016 BS EN 50121-5:2017

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ELECTROMAGNETIC COMPATIBILITY LAB**SCOPE OF TESTING: ELECTROMAGNETIC COMPATIBILITY (EMC)**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
11. Electric Motorcycle	<ol style="list-style-type: none"> Radio Disturbance Characteristic- Limit and methods of measurement for the protection off-board receivers Vehicles test method for the electrical disturbances from narrowband radiated electromagnetic energy- Part 2: Off-vehicle radiations sources 	<p>MS 2413-1:2011 CISPR 12:2009 (CISPR 12:2007+A1:2009)</p> <p>MS 2413:2011 ISO 11451-2:2015</p>
12. Electrical/ Electronic Products for Industrial Environments	<ol style="list-style-type: none"> Emission standard Immunity standard 	<p>IEC 61000-6-4:2018 IEC 61000-6-3:2011 (IEC 61000-6-3:2006+A1:2010) IEC 61000-6-1:2016 IEC 61000-6-2:2016</p>
13. Medical Electrical Equipment	EMC – Requirement & Test	IEC 60601-1-2:2014
14. RF and Telecommunication Products	<ol style="list-style-type: none"> Electromagnetic compatibility and radio spectrum matters (ERM): Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirement Electromagnetic compatibility and radio spectrum matters (ERM): Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 7: Specification condition Specification for asymmetric digital subscriber line (ADSL) transceivers 	<p>ETSI EN 301 489-1:2017</p> <p>ETSI EN 301 489-7:2017</p> <p>MCMC MTSFB TC T010:2014</p>

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ELECTROMAGNETIC COMPATIBILITY LAB**SCOPE OF TESTING: ELECTROMAGNETIC COMPATIBILITY (EMC)**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
14. RF and Telecommunication Products (continue)	4. Specification for terminal equipment connecting to the public switch telephone network (PSTN)	SKMM MTSFB TC T001 (2013)
	5. Technical specification for GSM Mobile Terminal	SKMM WTS GSM-MT (rev 1.01:2007)
	6. Specification for Land Mobile Radio Equipment	MCMC MTSFB TC T012 (2015)
	7. Resistibility of telecommunication equipment installed in customer premises to overvoltages and overcurrents – basic recommendation	ITU-T K.21:2015
	8. Resistibility tests for telecommunications equipment exposed to overvoltages and overcurrents – basic recommendation	ITU-T K.44:2012
	9. Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment; Part 17: Specific conditions for Broadband Data Transmission Systems	ETSI EN 301 489-17:2012
10. Electromagnetic compatibility and Radio spectrum Matters (ERM); (EMC) standard for radio equipment and services; Part 24: Specific conditions for MT-2000 CDMA Direct Spread (UTRA and E-UTRA) for Mobile and portable (UE) radio and ancillary equipment	ETSI EN 301 489-24:2010	

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ELECTROMAGNETIC COMPATIBILITY LAB**SCOPE OF TESTING: ELECTROMAGNETIC COMPATIBILITY (EMC)**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
14. RF and Telecommunication Products (continue)	11. Electromagnetic compatibility and Radio spectrum Matters (ERM); Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Sort- Range Device (SRD) operating on frequencies between 9 kHz and 40 GHz	ETSI EN 301 489-3:2013

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ELECTROMAGNETIC COMPATIBILITY LAB**SCOPE OF TESTING: ELECTROMAGNETIC COMPATIBILITY (EMC)****SITE: CATEGORY I**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. Electrical and Electronics Products	1. Generic Standards – Immunity for residential, commercial and light industrial environments 2. Generic Standards – Immunity for Industrial environments 3. Generic Standards – Emission Standard for residential, commercial and light industrial environments 4. Generic Standards – Emission standard for industrial environments 5. Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current \leq 16 A per phase) 6. Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage supply systems, for equipment with rated current \leq 16 A per phase and not subject to conditional connection 7. Electromagnetic compatibility (EMC) – Part 3-12: Limits – Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current $>$ 16A and \leq 75 A per phase	IEC 61000-6-1:2016 IEC 61000-6-2:2016 IEC 61000-6-3:2011 (IEC 61000-6-3:2006+A1:2010) IEC 61000-6-4:2018 IEC 61000-3-2:2018 IEC 61000-3-3:2013+A1:2017 IEC 61000-3-12:2011

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ELECTROMAGNETIC COMPATIBILITY LAB**SCOPE OF TESTING: ELECTROMAGNETIC COMPATIBILITY (EMC)****SITE: CATEGORY I**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
2. Railway Applications	1. Part 4 – Emission and immunity of the signalling and telecommunications apparatus 2. Railway applications. Electromagnetic compatibility. Rolling stock. Train and complete vehicle 3. Railway applications. Electromagnetic compatibility. Rolling stock. Apparatus 4. Railway applications. Electromagnetic compatibility. Emission and immunity of fixed power supply installations and apparatus 5. Part 2: Emissions of the whole railway system to the outside world	BS EN 50121-4:2016 BS EN 50121-3-1:2017 BS EN 50121-3-2:2016 BS EN 50121-5:2017 BS EN 50121-2:2006

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RADIO FREQUENCY LAB**SCOPE OF TESTING: RADIO FREQUENCY (RF)**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Hand portable, mobile station, base station and/or repeater station operating in the allocated VHF/UHF bands: 1. V.H.F. Mobile 2. V.H.F. Mobile (Trunk) 3. V.H.F. Walkie-Talkie 4. V.H.F. Walkie-Talkie (Trunk) 5. V.H.F. Base Station 6. V.H.F. Repeater 7. U.H.F. Mobile 8. U.H.F. Mobile/Fixed 9. U.H.F. Mobile (Trunk) 10. U.H.F. Walkie-Talkie 11. U.H.F. Walkie-Talkie (Trunk) 12. U.H.F. Base Station 13. U.H.F. Repeater	Full type test except extreme test condition	ETSI EN 300 086-1 V1.4.1 (2010-06) ETSI EN 300 086-2 V1.3.1 (2010-06) ETSI EN 300 086 V2.1.2 (2016-08) ETSI EN 300 296-1 V1.4.1 (2013-08) ETSI EN 300 296-2 V1.4.1 (2013-08) ETSI EN 300 296 V2.1.1 (2016-03) ANSI/TIA-603-D-2010 MCMC MTSFB TC T012:2015

Note:

1. ETSI : European Telecommunications Standards Institute

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RADIO FREQUENCY LAB**SCOPE OF TESTING: RADIO FREQUENCY (RF)**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Short Range Devices (SRD)	Full type test	MCMC MTSFB TC T007:2020
1. Security Device 2. Short Range Communication 3. Industrial, Scientific and Medical (ISM) 4. Radio Frequency Identification Device (RFID) 5. Remote Control Device 6. Wireless Microphone Device 7. Wireless Closed Circuit TV (CCTV) 8. Wireless Access Device 9. Wireless CCTV Access 10. SRC Device (RLAN) 11. Inductive Device 12. Cordless Telephone 13. Ultra Wide Band (UWB) Communication Device 14. Automotive Radar	Max Field Strength/ RF Power Output (9kHz to 40 GHz) Transmitter & Receiver Spurious Emissions (9kHz to 40 GHz) Exclude extreme environment	MS 300 330-1:2008 ETSI EN 300 330-1 V.1.8.1 (2015-03) ETSI EN 300 330 V2.1.1 (2017-02) ETSI EN 302 195 V2.1.1 (2016-06) ETSI EN 302 195-1 V1.1.1 (2004-03) MS 300 220-1:2008 ETSI EN 300 220-1 V2.4.1 (2017-02) FCC Part 15 Subpart C:2015 FCC Part 15 Subpart E:2015 ANSI C63.10.2013 ETSI EN 301 839 V2.1.1 (2016-04) ETSI EN 301 839-1 V1.3.1 (2009-10) ETSI EN 300 176-1 V2.2.1 (2015-10) MS 300 440-1:2008 ETSI EN 300 440 V2.1.1 (2017-03) ETSI EN 300 440-1 V1.6.1 (2010-08) MS 300 328-1:2008 ETSI EN 300 328 V2.1.1 (2016-11) ETSI EN 300 328-1 V1.9.1 (2015-02) MS 301 893:2008 ETSI EN 301 893 V1.8.1 (2015-03)

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Note:

1. SKMM : Suruhanjaya Komunikasi Multimedia Malaysia
2. MS : Malaysian Standards
3. FCC : Federal Communications Commission
4. MCMC : Malaysian Communications & Multimedia Commission
5. MTSFB : Malaysian Technical Standards Forum Berhad

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TELEPHONY LAB

SCOPE OF TESTING: RADIO FREQUENCY (RF)

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. Facsimile 2. Multifunction Printer 3. Single Line Telephone 4. Digital Enhanced Codeless Telephone (DECT) Phone 5. Point of Sale (POS) Terminal 6. Modem 7. Foreign eXchange Office (FXO) 8. Alarm System 9. Cordless Telephone	Ringing Signal and Service Tone Power Fail Condition Insulation Resistance Impedance Limits (Unlooped and Looped) Impedance Unbalance About Earth Signal Frequencies and Sending Levels Calling Functions Dual Tone Multi Frequency Signalling Decadic Pulse Keypad Dialling Automatic Dialling Automatic Answering Sending Loudness Rating (SLR) Receiving Loudness Rating (RLR) Sidetone	SKMM MTFSB TC T001:2013 SKMM MTSFB TC T002:2013 MCMC MTSFB TC T003:2019 ETSI ES 203 021-1 V2.1.1 (2005-08) ETSI ES 203 021-2 V2.1.2 (2006-01) ETSI ES 203 021-3 V2.1.2 (2006-01) ETSI ES 203 038-2 V1.21 (2013-05)
10. Analogue Calling Line Identity Presentation (A-CLIP)	Received Data Signal Parameters Data Message Format Single Data Message Format (SDMF) Multiple Data Message Format (MDMF) Content of Message Error Detection	SKMM MTSFB TC T001:2013 SKMM MTSFB TC T002:2013 MCMC MTSFB TC T003:2019 ETSI ES 203 021-1 V2.1.1 (2005-08) ETSI ES 203 021-2 V2.1.2 (2006-01) ETSI ES 203 021-3 V2.1.2 (2006-01) ETSI ES 203 038 V1.2.1 (2013-05)

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TELEPHONY LAB

SCOPE OF TESTING: RADIO FREQUENCY (RF)

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
11. Private Automatic Branch Exchange (PABX) System	Extension Telephones & Exchange Lines Tones, Cadences Ringing Current	SKMM MTSFB TCT001:2013 SKMM MTSFB TC T002:2013 MCMC MTSFB TC T003:2019 ETSI ES 203 021-1 V2.1.1 (2005-08) ETSI ES 203 021-2 V2.1.2 (2006-01) ETSI ES 203 021-3 V2.1.2 (2006-01) ETSI ES 203 038 V1.2.1 (2013-05)
12. Cordless Telephone Systems	Full Type Test	SKMM WTS CTS Rev 1.01:2007
	Transmission power, EIRP Authorised Frequency Band Radio Frequency Channel Spacing Number of Speech Channels Carrier Frequency stability/ tolerance Spurious Emissions	ETSI EN 300 175-1 V2.6.1 (2015-07) ETSI EN 300 175-2 V2.6.1 (2015-07) ETSI EN 301 406 V2.2.2 (2016-09) ETSI EN 300 176-1 V2.2.1(2015-10)

Note:

1. MTSFB : Malaysian Technical Standards Forum Berhad
2. TC : Technical Code
3. ETSI : ETSI Standard

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DIGITAL TERRESTRIAL TELEVISION (DTTV) LAB**SCOPE OF TESTING: RADIO FREQUENCY (RF)**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1. IDTV (Integrated Digital Television)	Full type test	SKMM MTSFB TC T004:2013
2. Set Top Box		MCMC MTSFB TC T011:2020

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RADIO FREQUENCY LAB**SCOPE OF TESTING: RADIO FREQUENCY (RF)****SITE: CATEGORY I**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Land Mobile Radio Equipment	<ol style="list-style-type: none"> Radio Equipment and Systems Land Mobile Services, Technical Characteristics and Test Conditions for radio equipment with an internal or external RF connector intended primarily for analogue speech Electromagnetic compatibility and Radio Spectrum Matters (ERM); Land Mobile Service; Radio equipment using integral antennas intended primarily for analogue speech; Part 1: Technical characteristics and method of measurement 	ETSI EN 300 086-1 V1.4.1 (2010-06) ETSI EN 300 086-2 V1.3.1 (2010-06) ETSI EN 300 296-1 V1.4.1 (2013-08) ETSI EN 300 296-2 V1.4.1 (2013-08) ANSI/TIA-603-D-2010

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