

Conducted Emission

Single phase up to 16A 3 phase up to 63A

This test measures the amount of electromagnetic energy that is conducted by the Product Under Test onto the power supply cords. These energy levels have to be within the prescribed limits set by the standard agencies applicable for that appropriate geographic region. This test is intended to ensure that the product under test:

Does not pollute the power supply lines

Nearby electrical devices are not affected by the device under test

Test Standard	Test Description	Range of Testing / Limits of Detection
CISPR 11/BS EN55011	Emission requirement for Industrial, Scientific & Medical Radio Frequency Equipment	150KHz to 30MHz
CISPR 14-1/BS EN 55014-1	Emission requirement for Household Appliances, Electrical tools and similar Electrical apparatus	150KHz to 30MHz
CISPR 35 / BS EN 55035	Emission requirement for multimedia equipments	150KHz to 30MHz
IEC 61000-6-3 IEC 61000-6-4	Generic standards. Emission requirement for residential, commercial and light-industrial equipment	150KHz to 30MHz

Conducted Immunity

Single phase up to 16A 3 phase up to 32A

External EMI could come in any one of the following types – Conducted or radiated, Transient or continuous. Immunity tests are intended to qualify and quantify how immune and resilient the device under test is to external EMI. Care has to be taken by the manufacturers that their equipment has built-in features to protect itself from external EMI.

Test Standard	Test Description	Range of Testing / Limits of Detection
IEC 61000-4-2 CISPR 14-2 IEC 61000-6-1 IEC 61000-6-2 CISPR 35	Electro Static Discharge (ESD) Contact Discharge Air Discharge	1kV to 8kV 1kV to 16 kV
IEC 61000-4-4 CISPR 14-2 IEC 61000-6-1 IEC 61000-6-2 CISPR 35	Electrical Fast Transients (Burst) Amplitude Pulse duration	0.25kV to 6kV 15ms 0.75ms
IEC 61000-4-5 CISPR 14-2 IEC 61000-6-1 IEC 61000-6-2 CISPR 35	High Energy Surge Amplitude Pulse duration	0.25kV to 4kV 1.2 / 50µs
IEC 61000-4-1 CISPR 14-2 IEC 61000-6-1 IEC 61000-6-2 CISPR 35	Power Fail (Line Voltage Dips & Short Interruption) - Dips	230 Vrms / 415 Vrms at 50Hz / 60 Hz 0% of Uin 80% of Uin 70% of Uin 40% of Uin ½ Cycle to 250 Cycles
IEC 61000-4-6 IEC 61000-6-1 IEC 61000-6-2 CISPR 35	Conducted susceptibility on power and signal lines	9kHz to 400MHz

Radiated Emission

Open Area Test Site - 3M

This test involves measuring the electro-magnetic field strength of the emissions that are generated by any electrical product or equipment. These emissions have to be within the limit prescribed by the standards that are prevalent in that country/region.

Open Area Test Site (OATS – 3M) is the most common test to measure the EMI generated by a product under open area conditions.

Test Standard	Test Description	Range of Testing / Limits of Detection
CISPR 11/ BS EN 55011 IEC 61000-6-3 IEC 61000-6-4	Emission requirement for Industrial, Scientific & Medical Radio Frequency Equipment	30MHz to 1GHz

Harmonic Emission

This test involves measuring the harmonic currents drawn by the electrical equipments and so maintain the mains voltage quality. The harmonic current has to be within the limit prescribed by the standards.

Test Standard	Test Description	Range of Testing / Limits of Detection
IEC 61000-3-2	Harmonics Current Emission requirements for the Equipments	Single Phase up to 16A

Flicker Emission

This test involves measuring the voltage fluctuations and flicker impressed on the public low-voltage system from the device under test. Voltage fluctuations and flicker have to be within the limit prescribed by the standards.

Test Standard	Test Description	Range of Testing / Limits of Detection
IEC 61000-3-3	Voltage fluctuations and flicker requirements for the Equipments	Single Phase up to 16A

Power Frequency Magnetic Field (PFMF)

This test is performed for evaluating the performance of electrical and electronic equipment when subjected to magnetic fields at power frequency.

Test Standard	Test Description	Range of Testing / Limits of Detection
IEC 61000-8	Performance of electrical and electronic equipment	Up to 30A/m

Test Facilities as per Military Specifications

Conducted Emission

Single phase up to 50A

This test measures the amount of electromagnetic energy that is conducted by the Product Under Test onto the power supply cords. These energy levels have to be within the prescribed limits set by the standard agencies applicable for that appropriate geographic region. This test is intended to ensure that the product under test:

Does not pollute the power supply lines

Nearby electrical devices are not affected by the device under test

Test Standard	Test Description	Range of Testing / Limits of Detection
CE101–Power leads (As per MIL-STD-461 E/F/G)	Requirements for the control of Electromagnetic Interference Characteristics of Subsystems and equipment	30Hz to 10KHz
CE102–Power leads (As per MIL-STD-461E/F/G)	Requirements for the control of Electromagnetic Interference Characteristics of Subsystems and equipment	10kHz to 10MHz

EMI/EMC Compliance Testing

Overview

EMIS houses sophisticated and fully equipped testing facilities at our EMI/EMC testing laboratory in Bangalore, India. Our EMI Testing Facility is accredited by the National Accreditation Board for Testing and Calibration Laboratories (A Constituent Board of Quality Council of India) in Accordance with the standard ISO/IEC 17025:2017. We also support on-site testing.

We provide industry-specific EMC testing services. Some of the industries we cater to include:

Consumer Electronics

Defence

Medical electronics

Telecommunications

Tests at DSIR recognised R&D Lab

Hi-Pot Test
 LCR Measurements
 DC Resistance Test
 Insulation Resistance
 Temperature Rise Test
 Surge withstand Test
 Leakage Current Test
 Overload Test
 Endurance Test
 Insertion Loss Test

Test Name	Test Standard	Test Range
Conducted Emission	CISPR 11, 32, 14-1, 15 IEC 61000-6-3 IEC 61000-6-4	150KHz to 30MHz Up to 63A
Conducted Immunity	IEC 61000-4-6 CISPR 14-2, 35 IEC 61000-6-1 IEC 61000-6-2	100kHz to 400MHz
Electro static discharge	IEC 61000-4-2 CISPR 14-2,35 IEC 61000-6-1 IEC 61000-6-2	Contact Discharge: up to ±8KV Air Discharge: Up to ±15KV
Electrical fast transient	IEC61000-4-4 CISPR 14-2,35 IEC61000-6-1 IEC61000-6-2	Up to ±6.6 KV 3 Phase Up to 32A Power & Signal lines
Surge Immunity	IEC61000-4-5 CISPR 14-2,35 IEC61000-6-1 IEC61000-6-2	Up to ±4.4KV 3 Phase Up to 32A Power line
Telecom Surge	IEC61000-4-5	±6.6 KV 10/700 µS Power & Signal lines
V-Dips & Interruption	IEC61000-4-11,29 CISPR 14-2,35 IEC61000-6-1 IEC61000-6-2	3 phase Up to 32A
Power frequency magnetic field	IEC61000-4-8 CISPR 14-2,35 IEC61000-6-1 IEC61000-6-2	3 phase Up to 32A
Harmonics Emission	IEC61000-3-2 CISPR 35	Single phase up to 16A
Flicker test	IEC61000-3-3 CISPR 35	Single phase up to 16A

EMI/EMC Consulting Services

Overview

We offer a wide range of EMI/EMC services to customers to seamlessly take their products from concept to delivery. Our expert engineering and consulting team provide support to design, plan, execute, inspect and verify EMI compliant systems. EMIS can help customers with their products to meet International EMI/EMC standard compliance by providing suitable solutions within a short time span. Our EMI Consultancy Services include:

Support and guidelines for selecting the appropriate filters for various applications

EMC Control Planning EMI/EMC Product design review and compliance risk assessments

Trouble-shooting and design mitigation

Performance Requirements Definition and Flow Down Requirements

Gap Analysis Risk

Mitigation Plans Test Procedures

EMI Test Plans and Procedures Development