

Electromagnetic Compatibility (EMC) Lab



INTERNATIONAL CENTRE FOR AUTOMOTIVE TECHNOLOGY



Introduction of Lab or Facility

The EMC Laboratory provides comprehensive electromagnetic compatibility and interference testing for vehicles and their electronic sub-assemblies. The laboratory performs compliance testing in accordance with international, national, and customer-specific standards and requirements.

Capabilities

Automotive

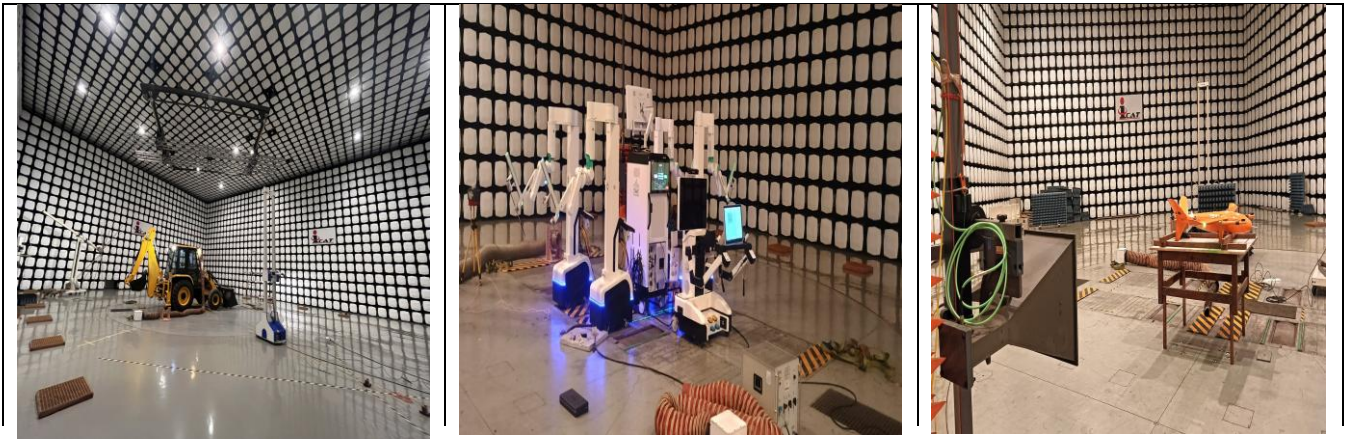
Non -
Automotive

Defence

Specific Capabilities / USPs

Emissions	Immunity	Military
• Radiated Emissions • Conducted Emissions • Magnetic Emissions • Harmonics • Conducted Transient Emissions	• Radiated Immunity • Conducted Immunity • Magnetic Immunity • Bulk current Injection • On Board Immunity/ Handy transmitter • Surge • Burst • EFT • Voltage Dips • Flicker • Electrostatic Discharge Test • TEM Cell • Strip Line	• CE 101 • CE 102 • CS 101 • CS 114 • RS 101 • RS 103 • RE101 • RE102

Details / Brief Specifications of Test Facilities:



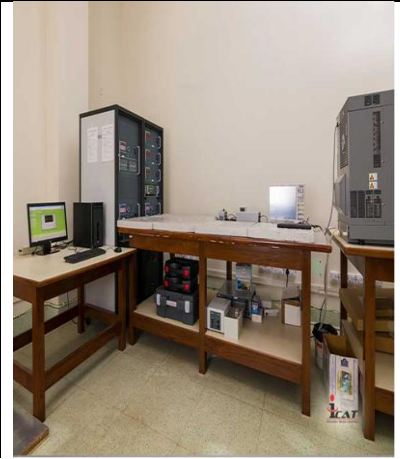
Vehicle Semi – Anechoic Chamber (VSAC)

- **Overall Dimensions: 30 m X 20 m X 10 m (L X W X H).**
- **11 m turntable, 4X4 chassis dynamometer for a vehicle up to 19 tons.**
- **Radiated emissions: 3m and 10m measurement, up to 18 GHz.**
- **Radiated immunity: up to 18 GHz in frequency and up to 100 V/m field severity.**



Component Semi – Anechoic Chamber (CSAC)

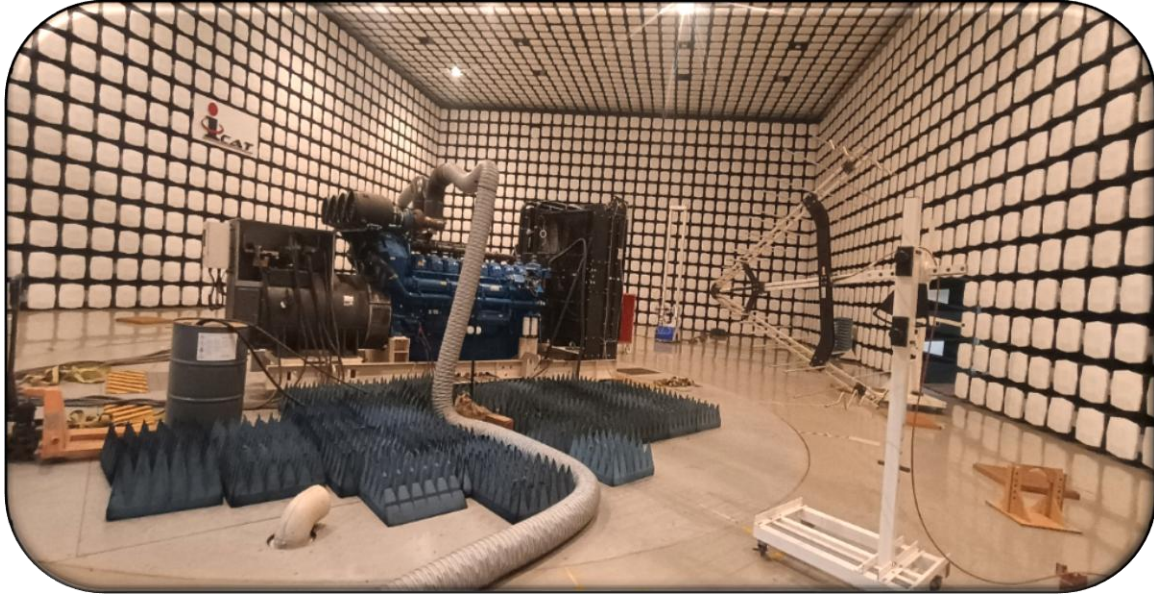
- **overall Dimensions: 8.5 m X 7 m X 6 m (L X W X H).**
- **Can also be used for 2/3 wheelers and small 4 wheelers**
- **Radiated emissions: 1m, 3m measurement, upto 18 GHz.**
- **Radiated immunity: upto 18 GHz in frequency and upto 200 V/m field severity.**
- **2 W turntable and dynamometer.**



Instrumentation Lab (IR)

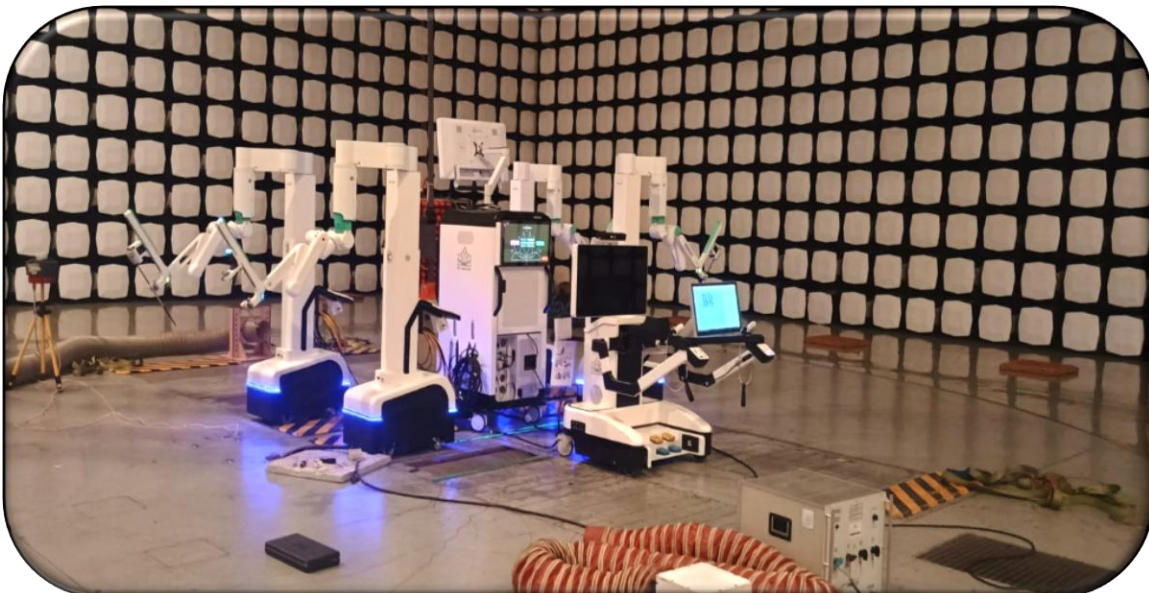
- ESD test setup upto ± 30 KV for air & contact discharge
- Surge Immunity test: 160 V - 5 kV up to 200A
- EFT/Burst Immunity Test: 200 V – 5.5 kV
- Power frequency magnetic field: Test levels 1A/m to 1000A/m
- Voltage changes, voltage fluctuations and flicker
- Harmonic current emissions
- Harmonics and inter harmonics immunity tests
- Voltage fluctuation immunity test
- Ripple on DC input power port immunity test
- Harmonics and inter harmonics immunity tests
- Voltage fluctuation immunity test
- Voltage dips, short interruptions and voltage variations on D.C. input power port immunity tests
- Ripple on DC input power port immunity test
- Pulses as per DVP requirement

Key Projects Executed:



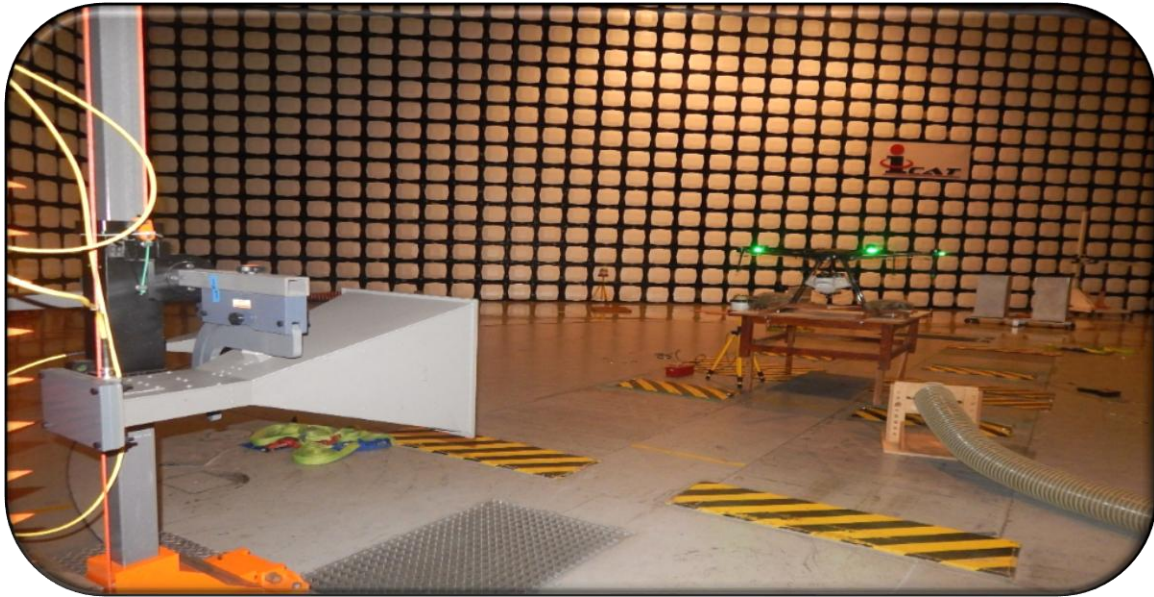
- **2000kVA Caterpillar DG Set**

High-capacity power generation for critical industrial applications



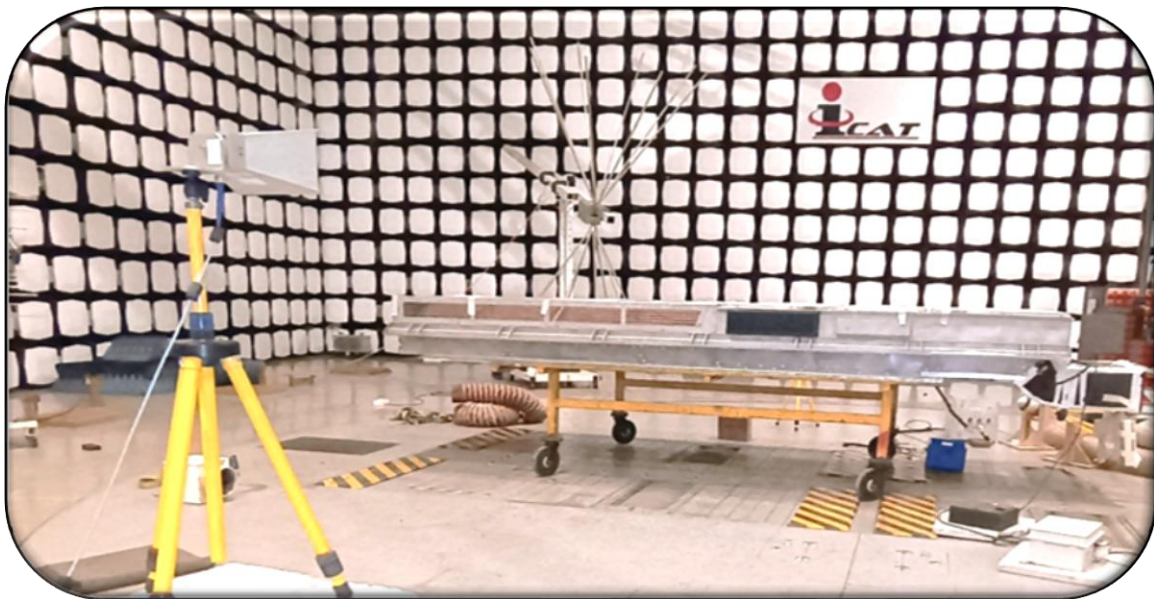
- **Surgical Robotic System**

Advanced medical robotics development and system integration



- **Drone Systems**

Agriculture and Defence Unmanned aerial platforms for surveillance, monitoring & precision agriculture



- **Railway/Metro and Defence HVAC Systems**

Specialized air-conditioning solutions for transport and defence sectors

Standards / Regulations (National & International):

AIS	• 004 • 076 • 138 • 140
ECE	R 10
ISO	• 11452 -2 (Radiated Immunity) • 11452-3 (TEM Cell) • 11452-4 (Bulk Current Injection) • 11452-5 (Stripline) • 11452-7(Direct RF Injection) • 11452 – 8 and 9 • 10605 (ESD) • 7637-2/3(Conducted Immunity/ Transient Emissions)
CISPR	25 (Radiated & Conducted Emissions)
SAE	• J1113-4 (Bulk Current Injection) • J1113-25 (Triplate)
IEC	• 61000-4-2 • 61000-4-3 • 61000-4-4 • 61000-4-5 • 61000-4-8 • 61000-4-13 • 61000-4-14 • 61000-4-17 • 61000-4-28 • 61000-3-2 • 61000-3-3 • 61000-3-11 • 61000-3-12 • 61000-6-2 • 61000-6-3 • 61000-6-4



For Further Lab Scope kindly refer the QR code

Compliance / Lab Accreditations / Recognitions:

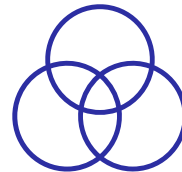
Accreditation	Accreditation Agency	Scope
ISO 9001, 14001, 45001	Intercert	IMS: Quality, Environmental, OHSAS
ISO 17025	NABL	Electrical & Electronics
TEC	TEC	Electrical & Electronics

Correlation & Benchmarking:



EMC ensures strong correlation and benchmarking through regular participation in Inter Laboratory Comparison (ILC) and Proficiency Testing (PT) programs to evaluate performance against peer laboratories.

Conducts Intra-lab and Blind Sample Testing to maintain objectivity, identify variations, and ensure unbiased measurement results.



Performs Scheduled Intermediate Checks between calibration cycles to continuously verify measurement accuracy and stability.

Implements Test Replication through multiple runs to confirm repeatability, consistency, and reliability of test outcomes.



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