Radiating Excellence

Your Partner in EMC Excellence

Trusted by Global OEMs

Auraexcel Private Limited, Pune, INDIA

AuraXL Introduction

We are **AuraXL**, India's first dedicated automotive EMC company, offering advanced testing, consultancy, training and turnkey lab solutions. Led by a team with over 50 years of combined global experience in EMC across India, Germany and Japan, we deliver smart, innovative and quality-focused services tailored to the evolving needs of the automotive industries.

Our Vision

Our vision is to be the world's most trusted partner, empowering customers to achieve product success, operational excellence, and seamless global market access creating a better, safer world for all.

The Challenge

“Ever wondered why some great products take forever to hit the market - not because of design flaws, but because of delays in testing and compliance?”

This is the silent bottleneck in modern automotive and electronics innovation.

As vehicles become smarter, safer and more connected, Electromagnetic Compatibility (EMC) is no longer optional, it’s mission critical.

The Shift

At **AuraXL**, we flipped the script.

Instead of treating testing as a roadblock, we built India’s first **smart, innovative and quality-focused** EMC lab designed to accelerate your journey from design to global markets.

More Than a Lab

AuraXL isn't just a lab.

With **global expertise, strong Indian roots, and a customer-first mindset,** we've created an environment where EMC testing is **faster, simpler, and more reliable.**

The Result

That's why leading automotive OEMs, technology centers, and innovators choose AuraXL.

The AuraXL Advantage

Up to 3× faster turnaround time

Shorter development timelines

Up to 2× more economical

Lower Validation Cost

Quality in our DNA

Faster market entry

auraX
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Our Edge: What Sets AuraXL Apart

Fastest Report Delivery

Because speed to market matters as much as compliance. Reports delivered in hours and in critical cases, minutes-not days or weeks

Handholding from Requirement to SOP

We don't just test. We guide you from specification interpretation to SOP alignment-until your product is market-ready

Largest Test Coverage

Comprehensive automotive EMC coverage across LV, HV, EV, ADAS, including systems with CAN FD, Ethernet, and next-generation vehicle networks

Advanced Monitoring Systems

Automated monitoring with reduced human intervention for higher precision and consistent quality. Examples: Light intensity monitoring, DUT current monitoring, mk-motion based DUT monitoring

Our Edge: What Sets AuraXL Apart

Debug-Friendly Lab Setup
Identify, rework, and fine-tune samples inside the lab itself, accelerating root-cause analysis and design closure

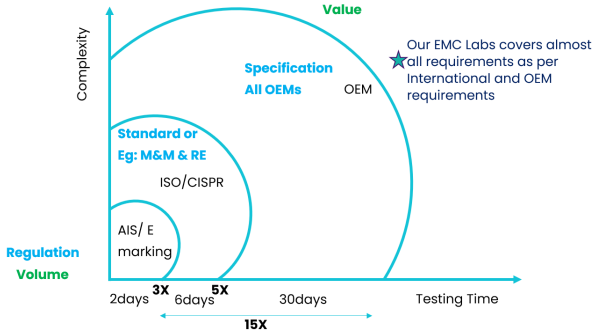
Future-Ready Infrastructure
Expandable chambers, scalable systems, and compliance frameworks aligned with evolving global OEM standards

Customer-Centric DNA
Every engagement is more than a transaction, it is a long-term partnership built on trust, precision, and shared success

Tests feasible as per all major Global OEMs

Evolving automotive electronics complexity demands cutting-edge EMC testing facilities stay ahead of technological advancements to meet both regulatory and OEM-Specific standards.

Centre of Excellence



- Conducted Emissions (Voltage & Current) with best-in-class floor noise performance
- Radiated Emissions testing with best-in-class floor noise performance
- Radiated Immunity testing up to 300 V/m (Radar Bands)
- Bulk Current Injection (BCI) testing up to 2.1 GHz
- TEM Cell and Stripline testing for component-level EMC validation
- Handheld and portable transmitter testing as per ISO and Global OEM methods
- Magnetic Immunity testing up to 1 MHz
- Magnetic Emission measurements for automotive applications
- Electrical transient, pulse, and abnormal voltage testing as per ISO and OEM standards
- Electrostatic Discharge (ESD) testing — all applicable methods
- Human exposure testing as per ISO and Global OEM methods
- High-voltage component EMC testing including HV–LV attenuation
- Pulse A and Pulse B testing as per ISO 7637-4
- Complete test capability for UNECE R10 Rev. 7 and AIS004 Part3

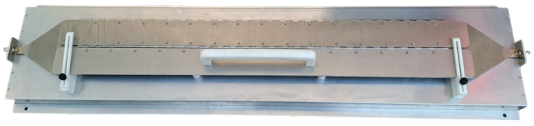
emc Gear

emcGear is driven by the vision of making India self-reliant in **Electromagnetic Compatibility (EMC) testing and solutions**. As a proud torchbearer of the **Make in India** initiative, we are committed to building a world-class **EMC ecosystem**—designed, developed, and delivered on Indian soil for Indian and global industries.

Beyond cutting-edge EMC solutions, **emcGear** empowers Indian **EMC labs** with **advanced instruments**, **precision accessories, and global methodologies** to enhance **capabilities, accuracy, and efficiency.** From **new setups to upgrades**, we ensure labs meet **world-class compliance standards.**

Automotive Radiating Source (Long Wire Harness)

The Radiation Source meets CISPR 25 Edition 4 standards for ALSE performance validation (150 kHz – 1 GHz).

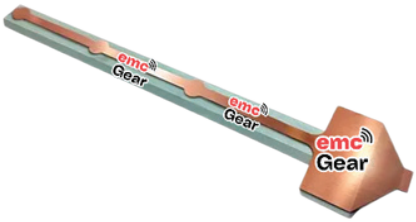


Capacitive Coupling Clamp (as per ISO 7637-3)

Capacitive Coupling Clamp (CCC) Engineered for fast transient injection on automotive electronics sub assembly components signal lines as per ISO 7637-3.

ESD Target Plate as per ISO 10605 and IEC 61000-4-2

ESD target plate, featuring a CTR2 target and a 20dB attenuator. The entire setup is designed to be easily movable on wheels for convenient storage.



Field Coupling Plane

Field coupling plane, designed in accordance with ISO 10605 for indirect testing of automotive wiring harnesses, features a Plane/DUT area measuring 200x400mm (Customizable based on DUT size). It includes three islands, each separated by 500mm, and is supported by isolation material with a thickness of 50mm.

Battery Box

According to CISPR 25 standards, automotive EMC testing requires battery buffering. Our customizable automotive battery box supports 12V, 24V, and various Ah capacities. It features a proper metal ground plane for optimal grounding, along with protections against leakage and overcurrent via fuses. Additionally, it offers input and output voltage.

Much More Stay Tuned

aquair

The Future of Live EMC Data

Making EMC Test Data Live – for Faster Design Decisions

The Problem

EMC test results are still shared as:

- Printed Reports
- Static PDFs
- Compressed Plots
- Screenshots over emails & calls

Result

- Slow Analysis
- Misinterpretation
- Repeated Discussions
- Delayed design decisions

The Aquair Breakthrough

Aquair transforms static EMC reports into live, interactive intelligence.

Possibly the **first platform in the world** to make **EMC test data truly live** - enabling engineers to explore, compare, and decide faster in today's rapid automotive design cycles.

What Makes aquair Different

Zero-Tolerance Security
OTP-based login for authorized users only.

Delta Difference Tables
Exact numerical comparison across runs.

True Zoom. No Compression.
Explore real EMC data at any frequency.

Multi-Run Comparison
Compare multiple tests to see real progress.

Flexible Visualization
Change plot colors, toggle plots and limits.

Freedom to Experiment
Change limits and see impact instantly.

Clean Screenshots
Instant capture with no cursor disturbance.

Full-Screen Analysis
Focus on details when it matters most.

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Why aquair Matters

- Faster EMC debugging
- Better stakeholder collaboration
- Confident, data-driven decisions
- Shorter development cycles

Stop reading EMC reports. Start using EMC data.

Scan to watch the demo

AuraXL is the authorized sales and service partner of MK-Messtechnik GmbH in India and Singapore.

mk messtechnik
EMC Test and Measuring Systems

MK Messtechnik GmbH is a global leader in high-precision EMC testing solutions. For over 20 years, MK Messtechnik has designed, developed, and produced cutting-edge EMC monitoring devices, adhering to the latest standards. Its solutions are **trusted by top automotive OEMs and EMC laboratories in Germany, Europe, and worldwide.**

Its advanced camera & audio systems, optical signal transmission, and automated testing/DUT monitoring tools like MK Motion ensure **error-free, reduced human intervention, and seamless, reliable, and repeatable** EMC compliance tests, setting new industry benchmarks.

As the authorized partner of MK Messtechnik in India and Singapore, **AuraXL ensures seamless access to world-class EMC testing technology.** By integrating advanced automation, real-time DUT monitoring, and optical transmission, **we help Indian automotive OEMs and labs** to achieve higher efficiency, accuracy, and compliance with global standards, reducing human intervention and errors.

automotive links:

- optoA2B
- optoCAN-FD/ -SW / -LS / -HS
- optoLIN / -K
- optoFlex
- optoSENT
- optoPSI5
- optoDSI3
- opto5x (CAN-FD/ LIN / others)

analogue/digital links:
optoTTL (1-16 channels)
transmission of analogue signals from 1 to 16 channels from DC to 100 kHz .... 30 MHz

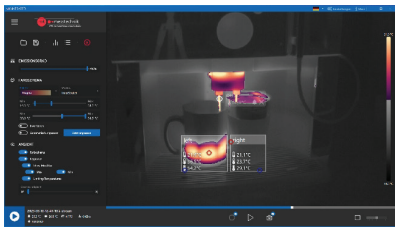
LVDS Links:

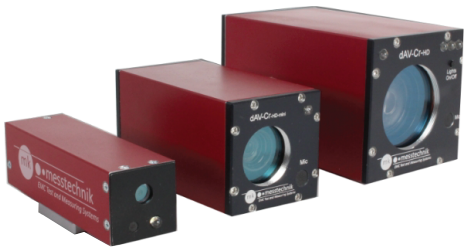
- optoLVDS
- optoCML (GMSL 2 / GMSL 3)
- optoAPIX2 / 3
- optoLVDS (FPD III / FPD IV)

optical links for LVDS or GMSL signals with different chipsets (Maxim, TI, ADI, SONY, Inova,,,) optional integration of POC, wake or other signals

automotive Ethernet links:

- optoLAN 10GBase-T1
- optoLAN 10GBase-TX
- optoLAN 1000Base-T1
- optoLAN 100Base-T1
- optoLAN 3x100Base-T1
- Media Converter
  10GBase-T1 <-> TX
  100/1000Base- T1
  100Base-T1





camera systems
Full HD Camera
(10x, 20x, 30x zoom and µ)
4k quad multi viewer
4k camera, IR camera
mk-motion
motion detection software
recording software
full compatible Surveillance Line
Basic line and Low Price Line for cost saving
Various mountings for cameras

Industry / Consumer Links:

- optoHDMI
- optoUSB 2.0 / 3.X
- optoRS232
- optoRS485
- optoLAN 100/ 1000Base-TX

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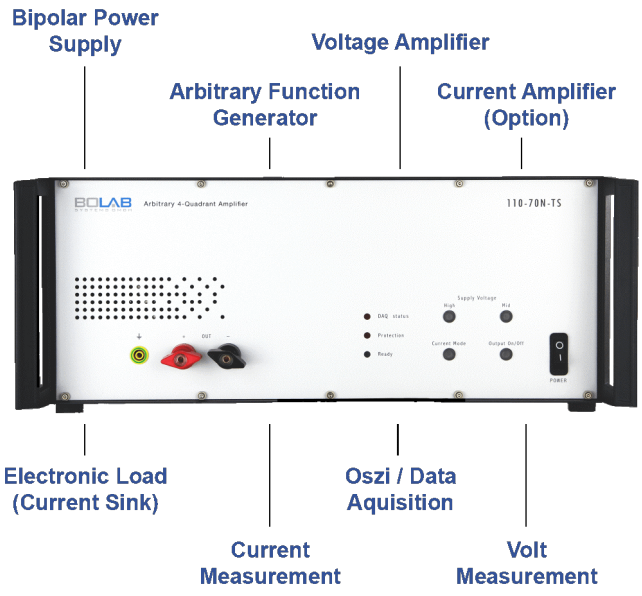
BOLAB

BOLAB Systems GmbH is a German engineering company specializing in advanced automotive electrical and power electronics testing solutions. With deep expertise in vehicle electrical system simulation, BOLAB develops high-performance low-voltage and high-voltage test systems, including precision 4-quadrant voltage and current amplifiers. These systems enable accurate validation of automotive components according to global standards such as ISO, LV123, LV124, and OEM-specific requirements. Trusted by leading automotive OEMs and Tier-1 suppliers across Europe, BOLAB solutions support the development and validation of next-generation conventional, hybrid, and electric vehicles.

As the **authorized partner of BOLAB Systems in India**, AuraXL enables Indian automotive OEMs, suppliers, and EMC laboratories to access world-class vehicle electrical testing technology. By integrating advanced power simulation and electrical network testing solutions, AuraXL helps the Indian automotive ecosystem achieve higher accuracy, efficiency, and compliance with global automotive validation standards.



Comprehensive Test System for VW 80000, LV124, ISO 16750, ISO 7637, and More.

High-Voltage Testing According to VW 80300 and LV 123
Including waveform libraries for:
LV123 | VW 80300 | VW 80303 | PSA | ISO 21498 | MBN LV 123 | ISO 7637-4 etc.

BOLAB systems offer a unique and unparalleled solution for high-end mobile testing of Electric Vehicles. Specifically, there is no other product on the market that provides a complete test solution for VW80000 with 15 kW (1,000 V / 15 A) in such a compact form factor—a small 19" rack with a height of only 10 U.

Moreover, BOLAB systems excel in their capability to cover a wide range of voltage profiles, including LV 124, LV 148, VW80000, VDA 320, and OEM standards. These systems can effectively handle voltage profiles up to 2000 A, providing comprehensive testing solutions that meet the industry's most stringent standards.
With BOLAB systems, you can confidently conduct your high-voltage testing for Electric Vehicles, knowing that you have access to a cutting-edge solution that offers exceptional performance and compliance with various industry standards.

Before You Close This Brochure...

Grab This EMC Cheat Sheet "A quick reference worth keeping on your desk."

Log↔Linear Voltage

dBµV to Volts	$V = 10^{((dB\mu V - 120)/20)}$
Volts to dBµV	$dB\mu V = 20\log(V) + 120$
dBV to Volts	$V = 10^{(dBV/20)}$
Volts to dBV	$dBV = 20\log(V)$
dBV to dBµV	$dB\mu V = dBV + 120$
dBµV to dBV	$dBV = dB\mu V - 120$

Log↔Linear Power

dBm to Watts	$W = 10^{((dBm - 30)/10)}$
Watts to dBm	$dBm = 10\log(W) + 30$
dBW to Watts	$W = 10^{(dBW/10)}$
Watts to dBW	$dBw = 10\log(W)$
dBW to dBm	$dBm = dBW + 30$
dBm to dBW	$dBW = dBm - 30$

Log↔Linear Current

dBuA to uA	$\mu A = 10^{(dB\mu A/20)}$
uA to dBuA	$dB\mu A = 20\log(\mu A)$
dBA to A	$A = 10^{(dBA/20)}$
A to dBA	$dBA = 20\log(A)$
dBuA to dBA	$dBA = dB\mu A - 120$
dBA to dBuA	$dB\mu A = dBA + 120$

Log↔Linear Impedance

dB(ohms) to ohms	$Z = 10^{(dB(ohms)/20)}$
ohms to dB(ohms)	$dB(ohms) = 20\log(Z)$

Term Conversion

dBm to dBuV	$dB\mu v = 90 + 10\log(Z) + dBm$
dBuV to dBm	$dBm = dB\mu V - 90 - 10\log(Z)$
dBuA to dBm	$dBm = dB\mu A + 10\log(Z) - 90$
dBm to dBuA	$dB\mu A = dBm - 10\log(Z) + 90$
dBuA to dBuV	$dB\mu V = dB\mu A + 20\log(Z)$
dBuV to dBuA	$dB\mu A = dB\mu V - 20\log(Z)$

Volts to Amps & Watts	$A = \frac{V}{Z}$	$W = \frac{V^2}{Z}$
Amps to Volts & Watts	$V = A * Z$	$W = A^2 * Z$
Watts to Volts & Amps	$V = \sqrt{W * Z}$	$A = \sqrt{\frac{W}{Z}}$

RF related, Field Strength & Power Density

dBuV/m to V/m	$V/m = 10^{(((dB\mu V/m) - 120)/20)}$
V/m to dBuV/m	$dB\mu V/m = 20\log(V/m) + 120$
dBuv/m to dBmW/m2	$dBm/m^2 = dB\mu V/m - 115.8$
dBmW/m2 to dBuV/m	$dB\mu V/m = dBm/m^2 + 115.8$
dBuV/m to dBuA/m	$dB\mu A/m = dB\mu V/m - 51.5$
dBuA/m to dBuV/m	$dB\mu V/m = dB\mu A/m + 51.5$
dBuA/m to dBpT	$dBpT = dB\mu A/m + 2$
dBpT to dBuA/m	$dB\mu A/m = dBpT - 2$
W/m2 to V/m	$V/m = \sqrt{(W/m^2) * 377}$
V/m to W/m2	$W/m^2 = \frac{(V/m)^2}{377}$
wound coil Flux Density	$\mu T = \frac{4\pi(turns)(amps)}{20(radius, m)}$
uT to A/m	$A/m = \frac{\mu T}{1.25}$
A/m to uT	$\mu T = 1.25 * (A/m)$

Antenna (Far Field)

Gain, dBi to numeric

$$Gain_{numeric} = 10^{(dBi/10)}$$

Gain, numeric to dBi

$$dBi = 10\log(Gain_{numeric})$$

Gain, dBi to Antenna Factor

$$AF = 20\log(MHz) - dBi - 29.79$$

Antenna Factor to gain in dBi

$$dBi = 20\log(MHz) - AF - 29.79$$

Field Strength given Watts, Numeric Gain, Distance in meters

$$V/m = \frac{\sqrt{30 * watts * Gain_{numeric}}}{Meters}$$

Field Strength given Watts, dBi gain, Distance in meters

$$V/m = \frac{\sqrt{30 * watts * 10^{(dBi/10)}}}{Meters}$$

Transmit Power needed, given desired V/m, Antenna numeric gain, Distance in meters.

$$watts = \frac{(V/m * meters)^2}{30 * Gain_{numeric}}$$

Transmit Power needed, given V/m, Antenna dBi gain, Distance in meters

$$watts = \frac{(V/m * meters)^2}{30 * 10^{(dBi/10)}}$$

Amplitude Modulation

Peak power, given CW power and modulation %.(sine wave AM)

$$W_{peak} = W_{CW}(1 + (Mod\% * 0.01))^2$$

Average power, given CW power level and modulation % (sine wave AM)

$$W_{avg} = \frac{W_{cw} * (2 + (Mod\% * 0.01)^2)}{2}$$

Average power, given peak power and modulation %

$$W_{avg} = \frac{W_{peak} * (2 + (Mod\% * 0.01)^2)}{2 * (1 + (Mod\% * 0.01))^2}$$

Current Probe

dB(ohm) to Zt (transfer impedance)

$$Z_t = 10^{(dB(ohm)/20)}$$

Zt to dB(ohm)

$$dB(ohm) = 20\log(Z_t)$$

Conductance (Gt) in dB(s) to transfer impedance, (Zt) in dB(ohms)

$$Z_t = -G_t$$

Transfer Impedance in Zt (dB(ohms)), to Conductance in Gt (dB(s))

$$G_t = -Z_t$$

Power needed for BCI Probe (50Ω), given voltage level into 50Ω load (V) and Probe Insertion Loss I_L.

$$watts = 10^{((I_L + 10\log(V^2/50))/10)}$$

Watts needed for 150 Ohm EM Clamp

$$watts = 10^{((I_L + 10\log(V^2/150))/10)}$$

Conducted current level using current measuring probe given probe factor in dB(ohm) and probe terminal voltage in dBuv

$$dB\mu A = dB\mu V - dB(ohm)$$

Conducted current level, given probe factor in Zt (ohms) and terminal voltage in dBuv

$$dB\mu A = dB\mu V - 20\log(Z_t)$$

dB calculations

Compute db delta (volts) $dB = 20\log\left(\frac{V_1}{V_2}\right)$

Compute dB delta (amps) $dB = 20\log\left(\frac{A_1}{A_2}\right)$

Compute dB delta (watts) $dB = 10\log\left(\frac{W_1}{W_2}\right)$

compute new voltage w/ db delta

$$V_{new} = 10^{\left(\frac{(dB\Delta + 20\log(V_{given})}{20}\right)}$$

compute new wattage w/ db delta

$$W_{new} = 10^{\left(\frac{(dB\Delta + 10\log(W_{given})}{10}\right)}$$

VSWR/reflection coefficient/return loss

VSWR given Fwd/Rev Power

$$VSWR = \frac{1 + \sqrt{\frac{P_{rev}}{P_{fwd}}}}{1 - \sqrt{\frac{P_{rev}}{P_{fwd}}}}$$

VSWR given reflection coefficient

$$VSWR = \frac{1 + \rho}{1 - \rho}$$

Reflection coefficient, ρ, given Z1/Z2 ohms

$$\rho = \left| \frac{Z_1 - Z_2}{Z_1 + Z_2} \right|$$

Reflection coefficient, ρ, given fwd/rev power

$$\rho = \sqrt{\frac{P_{rev}}{P_{fwd}}}$$

Return Loss, given fwd/rev power

$$RL(dB) = 10\log\left(\frac{P_{fwd}}{P_{rev}}\right)$$

Return Loss, given VSWR

$$RL(dB) = -20\log\left(\frac{VSWR - 1}{VSWR + 1}\right)$$

Return Loss, given reflection coefficient

$$RL(dB) = -20\log(\rho)$$

Mismatch loss, given fwd/rev power

$$ML(dB) = 10\log\left(\frac{P_{fwd}}{P_{fwd} - P_{rev}}\right)$$

Mismatch loss, given reflection coefficient

$$ML(dB) = -10\log(1 - \rho^2)$$

Misc

Linear interpolation with log of freq

$$Value = \frac{Log(F_X / F_L)}{Log(F_U / F_L)} * (X_U - X_L) + X_L$$

where F_L = lower frequency
F_U = Upper frequency
X_L = Value at lower frequency
X_U = Value at upper frequency
F_X = Frequency of desired value

TEM Cell Power Needed

$$Watts = \frac{(V * Height * 0.5)^2}{Z}$$

where V = field strength in V/m
Z = TEM cell impedance in ohms

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EMC = AuraXL

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