

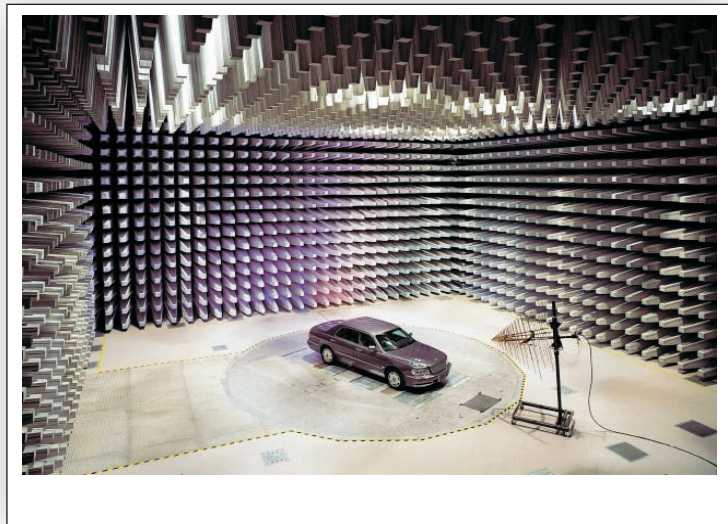


EMI/EMC Test systems

Electronic and electrical devices so widely and commonly used radiate electromagnetic energy that effects the performance of the surrounding systems. In order to ensure that the equipment will perform properly in its expected electromagnetic environment, thus maintaining an acceptable degree of Electromagnetic Compatibility (EMC).the EMI/EMC tests are performed. EMI and EMC control are becoming more and more important every day as there is hardly any new circuit or system design that is immune from EMI/EMC considerations.

Albatross Projects Gmbh leading international suppliers of turn-key EMC systems offers extensive and internationally approved range of EMC test systems solutions.

Structural Solutions Private Limited is authorised exclusive Indian representative of Albatross Projects Gmbh. Structural Solutions Private limited is a professional engineering company engaged in offering high end technology intensive products and system solutions for a complete range of "EMI/ EMC test chambers"



EMI/EMC Test Components

ElectroMagnetic Compatibility (EMC) means that the device is compatible with (i.e., no interference caused by) its electromagnetic environment, and it does not emit levels of EM energy that cause ElectroMagnetic Interference (EMI) in other devices in the vicinity

ElectroMagnetic Interference (EMI) is defined as electromagnetic energy from sources external or internal to electrical or electronic equipment that adversely affects equipment by creating undesirable responses (degraded performance or malfunctions)

These EMI/EMC tests can be performed in Shielded room test chambers or in open area test sites (OATS) depending upon the test requirements document. However, due to the increased use of electronic office equipment and wide-area communication systems such as cellular phones, pagers, and high powered radio signal sources, it has become more difficult to conduct accurate emissions tests using OATS. The increased ambient emissions from the external sources preclude accurate results in these test environments. Hence Indoor shielded chambers provide a good environment for EMI/EMC testing because they attenuate ambient emissions from the surrounding area.

The enclosure performs the function of reducing the transmitted field observed outside the shield, to acceptable levels while subjecting the EUT to the full specified field strengths inside the enclosure. In addition the testing is conducted under known and stable conditions.

EMC Test facility

Major components of a EMC test facilities are described below:

Shielding

One main criteria for the quality of the EMC laboratory is the shielding effectiveness. To protect the test set-up against disturbing electromagnetic energy the facility is shielded by a steel cage. Moreover the environment outside the facility has to be protected against the sometimes very high electromagnetic energy used during the test procedure

The shielding modules have standardised dimensions and are designed for frequencies from 10 kHz up to 40 GHz and are made of hot galvanised sheet steel, 2mm thick, continuously canted. The use of modules offers the possibility of building up enclosures to any size. The basic modules can be optionally equipped with shielding parts such as honeycomb inserts, feed-through etc. Special modules are available to match an enclosure to particular structural conditions of the host building.

Honeycomb inserts

Honey comb inserts shielding element is primarily used for ventilation inlet as gaseous media can pass the honeycomb structure at high flow rates.

Honeycomb inserts consist of a matrix of metal waveguides. Their shielding effectiveness up to the cm-wave range is based on the attenuation behaviour of waveguides beyond cut-off frequency and thus depends on size, length and number of waveguides. According to the Customer specification the cut-off frequencies are 1 GHz, 10 GHz and 20 Ghz.



Access panels

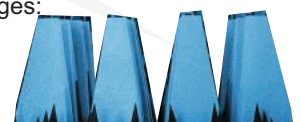
To mount the various feed through elements the facility has included penetration panels. These penetration panels can be equipped with different feed through devices according customer requirements. They can come in plugable or screwable versions. These mounting methods allow for high flexibility of the shielding structure since feed through devices such as RF-connectors and data line filters can be easily exchanged.



Absorbers:

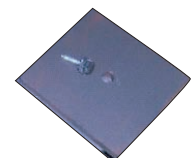
The absorbers have the following advantages:

- Easy & quick installation
- Long term stability
- Modular flexibility
- Easy modification



The various types of absorbers available are:

- Hollow Foam
- Hollow hybrid
- Ferrite tiles
- Solid hybrid
- Solid Foam



CCTV System

A Video monitoring System enables one to check if the EUT performs according to the intended function or if any malfunctioning occurred. It also gives vital information about the EUT and its environment during testing which can easily be recorded by a video recorder for documentation and verification. However, the camera unit has to have a very low RF-emission and be immune against very high field strengths to avoid malfunctions of the camera system.



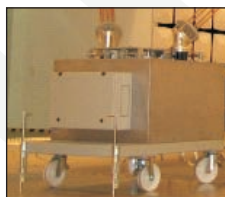
Power Line Filters

All non-screened cables entering into the chamber must be RF filtered. The filters are housed in high-frequency-proof cases and comprised of multiple-element filter circuits. All power line filter have a performance of 100 dB at full load conditions from 150 kHz - 40 GHz. The filters are built with single chokes which enable them to give the full insertion loss property



EH Generator

The E-/H-field generators consist of two parallel conducting cylinders. Their distance and height above ground can be adjusted to the optimal geometry for testing. The network in the transformer unit either feeds the two conductors in phase or in push-pull mode.



This enables one of the two conditions:

The in-phase mode creates mainly vertical electrical field components. The push-pull mode generates mainly horizontal electrical field components

Because both modes have associated travelling waves along the conductors, with the resultant E- and H-fields, the radiation field of horizontally or vertically polarized antennas is simulated to a large degree. The different types of the E-/H-field generators differ in frequency range, maximum input power, the number of devices, which can be controlled remotely and in the mechanical dimensions.

Positioning System

The Positioning System enables the automation of various testing purposes. The various positioning modules can be operated through the controller. The controller operates a user interface and can be integrated in the testing software. Fully automatic testing sessions are possible.

Complete range of Shielded enclosures, Power line filters, Shielding components, Absorbers, Antenna chambers and Anechoic chambers will be offered in Indian Rupees or in Foreign Exchange by **Structural Solutions Private Limited**

For further product & application details please contact:

Components of a positioning system:

Controller

The digital controller CO 2000 is suited for the operation of antenna masts, turntables, slide bars and other positioning equipment. This controller permits the operation in manual, semi-automatic and remote control mode (via IEEE 488/ GPIB bus). The CO 2000 works with HP, R&S, TDK RF (EMC-Automation), etc. software.



Antenna Mast

The antenna mast is suitable for use in either open areas or in electromagnetic absorption chambers. Metal parts are located only in the base plate and the drive mechanism (max. 0.3 m above ground level). All antennas during polarisation rotate around their axis so as to eliminate any elevation errors. The height of antenna varies from 1- 4mts, positioning speed is adjustable between 2 to 15 cm/sec with accuracy +/- 2 cm and a polarisation of 0°/90° (vertical / horizontal) is achievable



Turn Table :

The Chamber will be furnished with an electrical driven turntable. There is variety of turn tables available with albatross for different type of chambers. These turn tables differ in the diameters, permissible load limits, and how they are mounted in the chamber.



Testing

Once a chamber is built, performance verification of the chamber is conducted according to the international standards or pre-standard methods.

Common test procedures for the verification of the chambers are the following :

- Leakage Test
- Shielding Attenuation Measurement
- Normalised Site Attenuation (NSA) Measurement
- Normalised Site Attenuation (NSA) Measurement, Dual Antenna Measurement Method (DAMM)
- Transmission Loss (TL) Measurement
- Field uniformity (FU) Measurement
- Voltage Standing Wave Ratio (VSWR) Measurement
- Ambient Noise (AN) Measurement

Once tested the results are recorded to an official test report and the chamber is ready to be put in use

Your needs, specifications and requirements define the fundamentals of our activities and are a measure for our solutions. Please feel free to mail or contact us for solving your EMC testing needs.



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