

International EMC/RF Calibrations

One-stop-shop · Cost Effective · Accredited

Calibration: the basis for quality

Quality is the extent to which a product or service fulfils the demands made by the client. In order to determine whether a product fulfils certain requirements, most often measurements will need to be performed. To ascertain these measurements are accurate, the measurement equipment has to deliver traceable results. The only way to ensure these results is by using calibrated equipment. Therefore many quality system standards, like the ISO9000 series and the ISO17025 require test and measurement instruments to be calibrated periodically i.e. integrated into a calibration system.

Calibration System

However, a proper functioning calibration system encompasses much more than the periodical calibration of measurement equipment. It is from this perspective that DARE!! Calibrations offers a complete service package, which enables the optimal management of your valuable instruments.

EMC/RF Instrument Calibrations

Within an EMC test laboratory a wide range of test and measurement instruments is being used to determine the emission/immunity behaviour of electrical and electronic products. The results obtained using this EMC measurement equipment determines the rejection or approval of the product. It is therefore essential to determine the reproducibility and traceability of the measurement results. These results depend in large to the quality of the used measurement instruments. The only

way to ensure quality and traceability of these instruments is through periodical calibration, using procedures and international standards that are optimised to the specific application of the instrument in question.

Facilities

The EMC/RF Calibrations are performed in our state-of-the-art calibration facilities located in Woerden (The Netherlands). Among these facilities we have a fully temperature/humidity controlled and shielded standards laboratory, a TEM-cell and two environmentally controlled fully-anechoic rooms at our disposal. We also operate a modern Outdoor Antenna Calibration Site (OATS) and an E-Field probe calibration chamber.

International Accreditation

DARE!! Calibrations is accredited according ISO17025 (K063) by the Dutch Accreditation Council (RvA). The RvA resides under MLA of the European Accreditation (EA) and as such all our calibration results are internationally accepted in other worldwide countries, like Germany (Dakks), United Kingdom (Ukas), France (Cofrac), USA (A2LA), Belgium (Belac), Italy (Accredia), Spain (Enac) and Finland (Finas).

Traceability

Traceability Our reference standards used in calibration of EMC/RF are periodically calibrated by the National Standards Laboratory or other accredited laboratory, which guarantees a direct traceability to (inter)national standards.





Technical Competence

At DARE!! Calibrations we offer ISO17025 accredited calibrations with fully traceable results for:

EMC

- ESD Generators (contact and air discharge)
- EFT/Burst Generators
- Surge Generators
- Voltage Dips/Interrupt Generators
- EMI Measurement Receivers including CISPR 16 detectors
- LISN's and Coupling-/Decoupling networks
- Antennae (CISPR 16-1-6, ANSI C63.5 or SEA-ARP958)
- Field Uniformity (16 points, IEC61000-4-3)
- Normalized Site Attenuation (OATS, anechoic chambers)

RF

- RF Amplifiers
- RF Signal Generators
- RF Power Meters up
- Current probes (injection and sensing)
- Spectrum Analysers
- Clamps
- E-Field probes
- Shielding Effectiveness (MRI, Faraday Cages)
- Site VSWR (anechoic chambers)

Antennae

Antenna calibrations are performed according to calibration methods of CISPR 16-1-6, ANSI C63.5 or SEA-ARP958 or Quasi Free Space. These methods apply to antennae that are used in "free space", like a fully anechoic room or "reflecting ground plane" test environment, like an OATS or Semi anechoic room. After calibration we will provide the antenna characteristics that should be used as a correction factor during daily EMC testing. As an additional service we will deliver these antenna factors in an electronic format, to enable easy import into EMC test software, like RadiMation®.

E-field probes

DARE!! Calibrations is accredited for E-field probes calibration in a frequency range from 9 kHz up to 40 GHz. Our procedure includes the frequency response in all three probe orientations (X-Y-Z), anisotropy and linearity, where our calibration method is in conformity with the IEC61000-4-3 (2008) Annex I "Calibration of E-field probes"

EMI receivers

The calibration procedure of EMI receivers covers all functions that are used for EMC emission measurements. The procedure includes for example the input VSWR over the full frequency band, RBW filters and CISPR16 detectors.

EMC Site Validation

DARE!! Calibrations is accredited for performing on-site shielding effectiveness measurements (EN50147, Mil. Std. 285) of screened rooms in a frequency range from 10 kHz up to 18 GHz. Beside this we measure Normalized Site Attenuation (NSA, 30 MHz to 1 GHz) and Site VSWR (1 GHz - 18 GHz) in accordance to CISPR16-1-4 to validate the performance of your anechoic chamber and/or Open Area Test Site (OATS). Finally we can perform Field Uniformity calibrations in accordance to IEC61000-4-3 in a frequency range from 10 kHz up to 18 GHz.

Certificates

The calibration certificates are ISO 17025 compliant and contain an extensive report of the measurement results and illustrations of the measured curves, where applicable. The certificates provide the technician with a direct answer, as to whether the calibrated instrument complies with the specifications that are part of the international standard. The total measurement uncertainty on the calibration certificate is determined according to methods described in the EA document EA-4/02 (Dec. '99) "Expressions of the Uncertainty of Measurements in Calibration" (prev. EAL-R2).

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