DARE!!
For a safe and interference-free world

RadiSense® 10

Most Accurate E-Field Probe

Accurate · High Speed · Wide Band · Small

Due to a new patented technology, dramatically improving the isotropic behaviour, the RadiSense 10 is the most accurate electrical field (E-Field) probe in the world! The probe can be used to measure the field strength over a wide frequency band of 9 kHz to 12 GHz. The ongoing endeavour of DARE!! Instruments to develop better products, has now resulted in an unprecedented accurate E-Field probe.

Why is accuracy important?

To perform correct radiated immunity (susceptibility) tests, the absolute electrical field strength must be measured accurately. This is important during actual testing, as well as during verification (substitution test) and during 1-, 4- or 16-point calibrations. Based on these measurements, the power to be provided by the signal generators and power amplifiers is determined.

What influences accuracy?

Firstly, the size of the probe is important. The smaller the probe the better. The invention of the laser powered E-field probe by DARE!! Instruments in 1999 was an important step in this respect. Secondly, the change from cubical to spherical probes improved the accuracy. Furthermore, aspects like amplitude linearity, frequency response, temperature drift and non-isotropic behaviour of the probe, are important parameters.

Superb Isotropy

Isotropic behaviour of E-field probes is rather underexposed. The isotropic response is the dependency of the measured field strength in relation to the position of the probe in the electric field. The lower this dependency, the better. During testing in an anechoic chamber, reflections from the surrounding walls, floor and ceiling will cause the field(s) to arrive to the probe elements from different angles, resulting in large and unpredictable, measurement errors.

Furthermore, isotropic behaviour was often specified at MHz frequencies, while the non-isotropic behaviour will cause substantial measurement errors at higher frequencies. Due to its superior design, the isotropic response of the RadiSense 10 is improved by typically a factor 5 compared to the competition. This will lead to a factor 2 or more improvement of the overall measurement accuracy!

How is accuracy achieved?

The RadiSense 10 uses a spherical design with six antenna elements and a laser power supply, providing an extreme small measuring volume. Patented technology is used to optimize the isotropic response. All these factors make the RadiSense 10 probe the most accurate, commercially available, E-Field probe in the world.

Different models

Due to its unique antenna design of the RadiSense 10 model RSS2010I an extremely wide frequency range from 9 kHz to 12 GHz is covered with a single E-field probe. This makes the RadiSense 10 ideal for nearly all (EMC) test applications. The RadiSense 10 offers a maximum speed of 100 isotropic measurements per second, enabling fast measurements for all EMC test applications like: Automotive, Military/Aerospace, and Industrial/Telecom testing in anechoic chambers or reverberation chambers. The RadisSense 10 Model RSS2010S covers a frequency range from 20 MHz to 10 GHz.

Internal calibration data

All frequency and linearity calibration data is stored inside the probe. In addition, the frequency dependent calibration data can be stored inside the probe, so there is no need to apply frequency dependent corrections for individual axis' anymore. This feature results in a high accuracy and ease-of-use.

DARE!! Instruments

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The Standard in EMC Instruments, EMC Software and Projects.

CERTIFIED ISO 9001

RadiSense® 10 GHz E-field Probe

Technical Specifications

Product code	RSS2010I	RSS2010S
Measuring range	1 to 750 V/m	1 to 750 V/m
Damage level	1000 V/m	1000 V/m
Frequency range	9 kHz to 10 GHz (usable up to 12 GHz)	20 MHz to 10 GHz (usable up to 12 GHz)
Frequency response	± 1 dB (9 kHz – 10 GHz)	± 1 dB (20 MHz – 10 GHz)
Resolution	0.01 V/m	0.01 V/m
Linearity	± 0.5 dB ± 0.5 V/m	± 0.5 dB ± 0.5 V/m
Isotropic deviation[1]	< ± 0.25 dB @ 1 GHz < ± 0.5 dB up to 3 GHz < ± 1.0 dB up to 6 GHz < ± 2.0 dB up to 10 GHz	< ± 0.25 dB @ 1 GHz < ± 0.5 dB up to 3 GHz < ± 1.0 dB up to 6 GHz < ± 2.0 dB up to 10 GHz
Measurement speed (X,Y, Z & ETot)	100 measurements/s	100 measurements/s
Shape of housing	Spherical	Spherical
Weight	65 g (1.77oz)	65 g (1.77oz)
Total electrical dimensions	4.9 * 4.9 * 4.9 cm (117 cm^3)	4.9 * 4.9 * 4.9 cm (117 cm^3)
Diameter of Spherical housing	2.5 cm (0.98 in)	2.5 cm (0.98 in)
Temperature range (operating)	0 °C to 40 °C (32 °F to 104 °F)	0 °C to 40 °C (32 °F to 104 °F)
Relative humidity (operating)	10 % to 90 % RH (non-condensing)	10 % to 90 % RH (non-condensing)
Factory calibration	Internally stored, ISO17025 calibration	Internally stored, ISO17025 calibration
Accredited calibration	Traceble, accredited calibration with calibration certificate (optional)	Traceble, accredited calibration with calibration certificate (optional)
Optical LASER power	Max. 0.5 Watt at aperture @ 808 nm	Max. 0.5 Watt at aperture @ 808 nm
F.O. connector LASER	FC 200/230 µm fibre	FC 200/230 µm fibre
F.O. connector data	ST 200/230 µm fibre	ST 200/230 µm fibre
Fiber length[2]	100 m maximum	100 m maximum

[1]) Isotropy is the maximum deviation from the geometric mean as defined by IEEE 1309-2013.

[2]) Probe is delivered with 1.5 m fixed + 10 m extension fiber and FC/ST in-line coupling set as a standard. Other fiber length available on request.

For more information contact DARE!! Instruments at:

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