raditeq

Data Sheet

RadiSense® 10

Electric Field Probe

Models - RS2010B | RS2010H

Accurate | High Speed | Wide Band

AP FLYER

RadiSense® 10

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The fast and accurate E-field probe

Accurate **High Speed** **Wide Band**

Due to a new patented technology, drastically 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 from 9 kHz to 12 GHz. The ongoing endeavour of Raditeq to improve our 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 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, the surrounding walls, floor and ceiling will cause reflections. these reflections arrive at the probe elements from different angles. This results in large and unpredictable measurement errors when your probe is not isotropic. Furthermore, isotropic behaviour was often specified at MHz frequencies, while the non-isotropic behaviour will cause substantial measurement errors specifically at higher frequencies. Due to its superior design, the isotropic response of the RadiSense® 10 is improved by typically a factor of 5 compared to the competition. This will lead to a factor of 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 together make the RadiSense® 10 probe the most accurate, commercially available, E-Field probe in the world. Due to its unique antenna design of the RadiSense® 10 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.

Internal calibration data The linearity adjustment data is by default stored inside the probe. In addition, the frequency response calibration data of the X-Y-Z axis can be stored as user correction data inside the probe. As a result there is no need to apply frequency dependent corrections for individual axis' in software anymore. This feature results in a high accuracy and ease-of-use.

Performance	RSS2010B	RSS2010H
Measuring range	0,1 to 750 V/m*	
Damage level	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	9 kHz to 10 MHz | - 3 dB to + 1 dB 10 MHz to 1 GHz | - 1 dB to + 1,5 dB 1 GHz to 10 GHz | - 3 dB to + 3,5 dB	20 MHz to 1 GHz | - 3 dB to + 1,5 dB 1 GHz to 10 GHz | - 3 dB to + 3,5 dB
Resolution	0.01 V/m	
Linearity	± 0.5 dB ± 0.5 V/m	
Isotropic deviation[1]	< ± 0.25 dB up to 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)	1000 measurements/s	
Dimensions		
Shape of housing	Spherical	
Total electrical dimensions	4.9 * 4.9 * 4.9 cm (117 cm^3)	
Diameter of Spherical housing	2.5 cm (0.98 in)	
Environmental conditions		
Temperature range (operating)	0 °C to 40 °C (32 °F to 104 °F)	
Relative humidity (operating)	10 % to 90 % RH (non-condensing)	
Power consumption		
Accredited calibration[2]	Traceble, accredited calibration with calibration certificate (optional)	
Optical LASER power	Max. 0.5 Watt at aperture @ 808 nm	
Interfaces & cables		
F.O. connector LASER	FC/PC 200/230 µm fibre	
F.O. connector data	ST/PC 200/230 µm fibre	
Fiber length[3]	100 m maximum	
Saftey		
Interlock	External Interlock & closed loop safety system	
Warranty[4]	**3 years[4]**	

[1]) 0,4 to 750 V/m < 100 MHz only for RSS2010B

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

[2])The Calibration data can be stored inside the probe as user correction data.

[3]) 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.

[4]) After you register your new Raditeq product two (2) years of warranty will be added for free. Registration can be done at: www.raditeq.com