

E-Field Probe Type 18



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100 kHz to 3 GHz

NEW!

Highly sensitive
E-field probe
(from 0.2 V/m)



- Excellent measurement sensitivity beginning at 0.2 V/m
- Isotropic (three-dimensional) measurement
- 64 dB dynamic range
- Compatible with all EMR-200 and EMR-300 mainframes

Applications and features

“Extremely high sensitivity” is the catchphrase for probe type 18. The wide frequency range for E-field measurements is covering the most typical frequencies in telecommunications and industrial applications. The specified measurement range starts at an extremely low value of 0.2 V/m. Excellent measurement accuracy of low limit values found in national and international standards for exposure of the general public is achieved. Within its frequency range, the probe has very good linearity and can be used as a reference receiver. The isotropic properties allow measurements independent of the polarization and direction of the incident wave, which greatly simplifies correct usage of the probe. With a dynamic range of 64 dB (or a measurement range from typ. 0.2 to 320 V/m), all of the familiar limits can be verified. The combination of the EMR-300 mainframe, the H-Field Probe Type 14 and this new E-Field Probe Type 18 is a package that is unique in the world for measuring very low-level EMF in the RF/microwave range.

Calibration

A calibration interval of two years is recommended. The calibration data is traceable to national or international standards and is confirmed with a calibration certificate.

Basic functional concept

The probe uses three separate sensors. Three dipoles with detector diodes for measuring signals in all spatial directions (x, y, z) are used as sensor elements for the electric field. The detected signals are lead separately to the mainframe device. There, the signals are combined through digital signal processing to calculate the equivalent field strength in compliance with the relevant standard(s). The extremely high sensitivity is a product of the unique design of the diode sensor.

Rugged design

In both mechanical and electrical terms, the probe is designed for use in the field. For instance, it is possible to carry the device on the probe head. For pulsed and CW signals, the electrical destruction limits are a multiple of the personal safety limits.

Specifications¹⁾ for E-Field Probe Type 18

Sensor type	electric field (E)	Isotropy deviation	
Frequency range	100 kHz to 3 GHz	Field probe only	typ. ± 0.5 dB for $f > 1$ MHz
Directional characteristic	isotropic, three-dimensional	Probe and EMR-200/-300 meas. unit	typ. ± 1.0 dB
Temperature range	0 to +50 °C	Overload limit, CW	800 V/m (175 mW/cm ²)
Meas. range	0.2 to 320 V/m 0.00001 to 27 mW/cm ²	Pulse	8000 V/m (17.5 W/cm ²)
Dynamic range	typ. 64 dB	H-field suppression	typ. > 20 dB
Absolute error at 27.5 V/m and 27.12 MHz	± 1.0 dB	Temperature response (0 to +50 °C)	+0.2/-1.5 dB (± 0.025 dB/K)
Linearity at 27.12 MHz referred to 27.5 V/m		Dimensions	diameter 75 mm, length 310 mm
1.2 to 200 V/m	± 0.5 dB	Calibration	
200 to 320 V/m	± 0.7 dB	Recommended calibration interval	24 months
Frequency response referred to 27.12 MHz			
at 80 kHz	typ. -3 dB		
300 kHz to 1.2 GHz	typ. ± 1 dB		
1.2 GHz to 2.5 GHz	typ. ± 1.5 dB		
at 3 GHz	typ. -3 dB		

1) Unless otherwise noted, all of the specifications hold under the following conditions: Sinusoidal signals; device in far-field of a source; ambient temperature +23 °C ± 3 K; relative humidity 25% to 75%.

Ordering Information

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BN 2244/90.72

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