narda Safety Test Solutions
an L3 Technologies Company

E-FIELD PROBE

EF0692

Measuring electric fields from 600 MHz to 6 GHz

using instruments in the NBM-500 family

- **Field exposure from mobile radio and wireless LAN signals**
- **Suppression of broadcast signals below 600 MHz**
- **Isotropic (non-directional) measurement**
- **70 dB dynamic without changing range**
- **High sensitivity starting at 0.2 V/m**

The probe contains three orthogonally arranged dipoles with detector diodes. The three voltages, corresponding to the spatial components, are available individually at the probe output. The NBM basic unit calculates the resulting isotropic field strength.

APPLICATIONS

The probe detects electric fields from 600 MHz to 6 GHz and is thus particularly suitable for measuring the field strength generated by mobile radio base stations and wireless LAN systems. Due to its high dynamics and sensitivity of 0.2 V/m, the probe can detect even low field strengths accurately. The probe exceeds the requirements of the basic standards EN 50492, IEC 62232 and HJ 972-2018 (China), but uses a band limitation that suppresses electromagnetic fields below 600 MHz.

PROPERTIES

The probe is designed with mechanical and electrical properties ideal for field use. The probe head is made of foam material to provide effective protection for the sensors, while having excellent RF characteristics.

CALIBRATION

The probe is calibrated at several frequencies. The correction values are stored in an EPROM in the probe and are automatically taken into account by the NBM instrument. Calibrated accuracy is thus obtained regardless of the combination of probe and instrument.

SPECIFICATIONS [a]

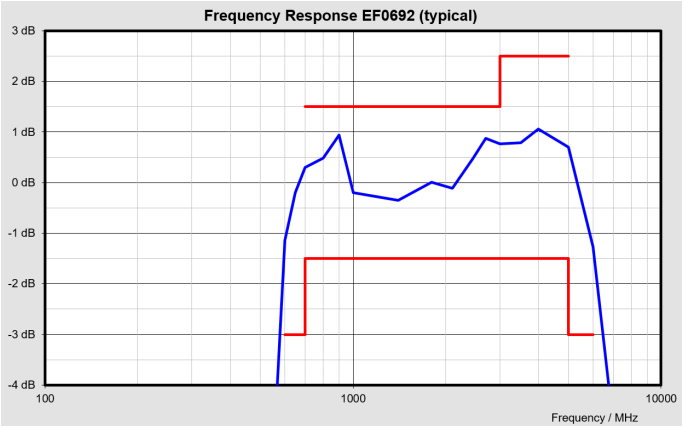
Probe EF0692	Electric (E-)Field	
Frequency range [b]	600 MHz to 6 GHz	
Type of frequency response	Flat	
Measurement range	0.2 to 650 V/m (CW) 0.2 to 22 V/m (True RMS)	10 nW/cm² to 112 mW/cm² (CW) 10 nW/cm² to 0.13 mW/cm² (True RMS)
Dynamic range	70 dB	
CW damage level	1000 V/m	265 mW/cm²
Peak damage level, typical [c]	10 kV/m	26 W/cm²
Sensor type	Diode based system	
Directivity	Isotropic (Tri-axial)	
Readout mode / spatial assessment	3 separate axes	
UNCERTAINTY		
Flatness of frequency response [d] Calibration uncertainty not included	±1.5 dB (700 MHz to 3 GHz) +2.5/ -1.5 dB (> 3 GHz to 5 GHz)	
Calibration uncertainty [e] @ 0.2 mW/cm² (27.5 V/m)	±1.5 dB (600 MHz to 1.2 GHz) ±1.3 dB (≥ 1.2 GHz)	
Linearity Referred to 0.2 mW/cm² (27.5 V/m)	±0.5 dB (2.2 to 316 V/m)	±0.5 dB (0.0013 to 26.5 mW/cm²)
Isotropic response [f]	±1 dB (600 MHz to 4 GHz) ±1.5 dB (> 4 GHz to 6 GHz)	
Temperature response	+0.2/ -1 dB (0 °C to 50 °C, related to 23 °C)	
GENERAL SPECIFICATIONS		
Factory calibration frequencies	0.25/ 0.4/ 0.6/ 0.65/ 0.7/ 0.8/ 0.9/ 1/ 1.4/ 1.8/ 2.1/ 2.45/ 2.7/ 3/ 3.5/ 4/ 5/ 6 GHz	
Recommended calibration interval	24 months	
Temperature range Operating Non-operating (transport)	 0 °C to +50 °C -40 °C to +70 °C	
Humidity	5 to 95 % RH @ ≤25 °C	≤23 g/m³ absolute humidity
Size	318 mm x 66 mm Ø	
Weight	90 g	
Compatibility	NBM-500 series meters	
Country of origin	Germany	

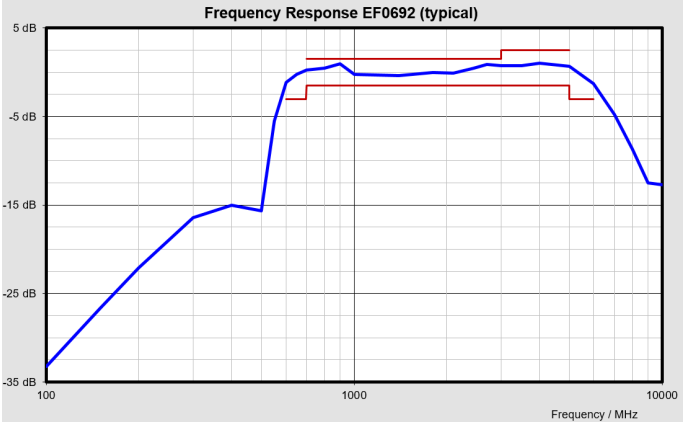
(a) Unless otherwise noted specifications apply at reference condition: device in far-field of source, ambient temperature 23±3 °C, relative air humidity 25% to 75%, sinusoidal signal
(b) Cutoff frequency at approx. -3 dB
(c) Pulse length 1µsec, duty cycle 1:100
(d) Frequency response can be compensated for by the use of correction factors stored in the probe memory
(e) Expanded measurement uncertainty. Accuracy of the fields generated to calibrate the probes
(f) Uncertainty due to varying polarization (verified by type approval test for meter with probe). Ellipse ratio included and calibrated for each probe.

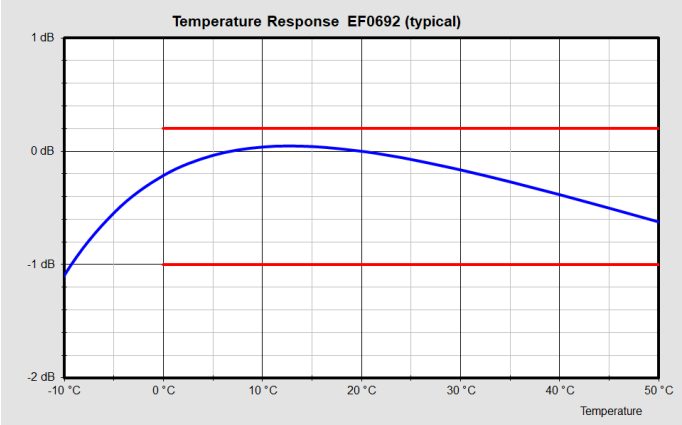
ORDERING INFORMATION

	Part number
Probe EF0692, E-Field, for NBM, 600MHz-6GHz, Isotropic	**2402/20B**
Probe EF0692, E-Field, ACC - with accredited (DAkkS) calibration, basic unit required	**2402/20B/ACC**

CHARACTERISTICS







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