

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

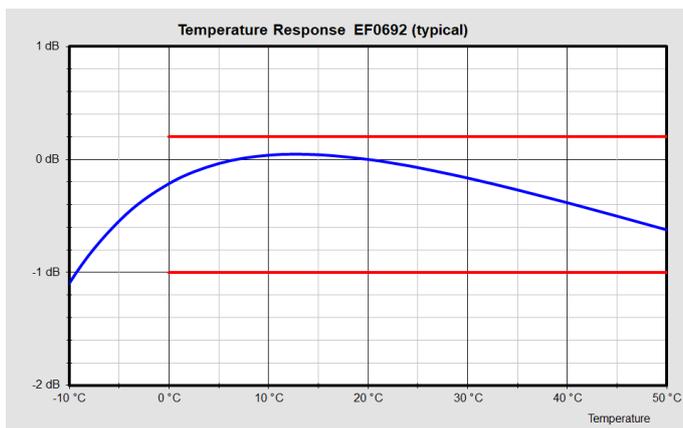
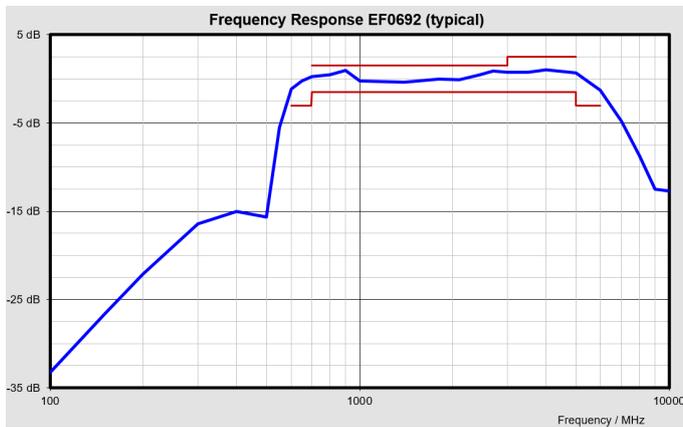
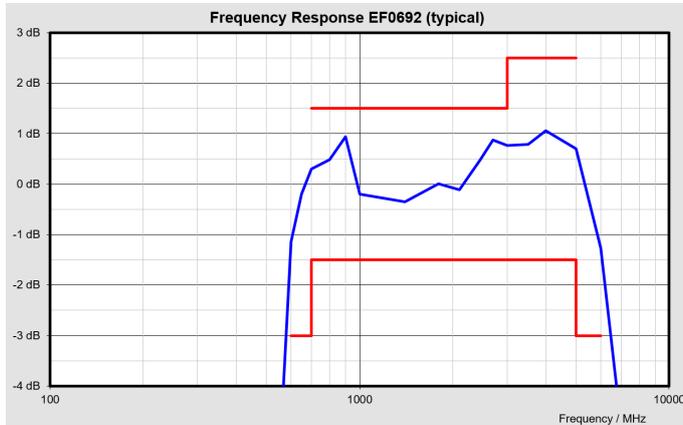
| Probe EF0692 | | Electric (E-)Field | |
|---|---|---|--|
| Frequency range ^(b) | 600 MHz to 6 GHz | | |
| Type of frequency response | Flat | | |
| Measurement range | 0.2 to 650 V/m (CW) 0.2 to 22 V/m (True RMS) | 10 nW/cm ² to 112 mW/cm ² (CW) 10 nW/cm ² to 0.13 mW/cm ² (True RMS) | |
| Dynamic range | 70 dB | | |
| CW damage level | 1000 V/m | 265 mW/cm ² | |
| Peak damage level, typical ^(c) | 10 kV/m | 26 W/cm ² | |
| 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) | | |
| Linearity Referred to 0.2 mW/cm ² (27.5 V/m) | ±0.5 dB (2.2 to 316 V/m) | ±0.5 dB (0.0013 to 26.5 mW/cm ²) | |
| Isotropic response ^(e) | ±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 | 0 °C to +50 °C | | |
| Non-operating (transport) | -40 °C to +70 °C | | |
| Humidity | 5 to 95 % RH @ ≤25 °C | ≤23 g/m ³ 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) Results are calculated from the maximum and minimum response obtained during the full revolution about the stem of the probe, oriented 54.7° to the electric field vector.

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 |

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