

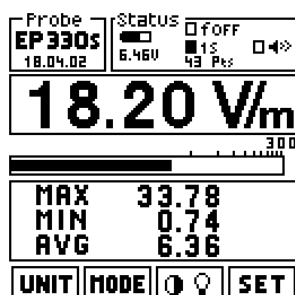
Field probes

PMM 8053A measurement system is complete with a series of electric and magnetic field probes in the frequency range from 5 Hz to 40 GHz.

Field Probes	Frequency range	Level range	
Electric Field Probe EP-105	100 kHz - 1000 MHz	0.05 - 50 V/m	
Electric Field Probe EP-300	100 kHz - 3 GHz	0.1 - 300 V/m	
Electric Field Probe EP-330	100 kHz - 3 GHz	0.3 - 300 V/m	
Electric Field Probe EP-301	100 kHz - 3 GHz	1 - 1000 V/m	
Electric Field Probe EP-183	1 MHz – 18 GHz	0.8 - 800 V/m	
Electric Field Probe EP-408	1 MHz – 40 GHz	0.8 - 800 V/m	
Electric Field Probe EP-44M	100 kHz - 800 MHz	0.25 - 250 V/m	
Electric Field Probe EP-33M	700 MHz - 3 GHz	0.3 - 300 V/m	
Electric Field Probe EP-33A	925 MHz - 960 MHz	0.03 - 30 V/m	
Electric Field Probe EP-33B	1805 MHz –1880 MHz	0.03 - 30 V/m	
Electric Field Probe EP-33C	2110 MHz –2170 MHz	0.03 - 30 V/m	
Magnetic Field Probe HP-032	0.1 - 30 MHz	0.01 - 20 A/m	
Magnetic Field Probe HP-102	30 - 1000 MHz	0.01 - 20 A/m	
Magnetic Field Probe HP-050	10 Hz – 5 kHz	10 nT – 40 μ T	
Magnetic Field Probe HP-051	10 Hz – 5 kHz	50 nT – 200 μ T	
Electric and Magnetic Field Analyzers EHP50A/B/C	5 Hz – 100 kHz	A	100 mV/m – 100 kV/m 10 nT – 10 mT
		B/ C	10 mV/m – 100 kV/m 1 nT – 10 mT

Probes type “S”

Normally all sensors are provided with full calibration report. Instead the sensors of type “S” have a limited calibration.



The main difference is that the frequency calibration is made only on 3 points. A table with typical calibration factors is also supplied with each probe.

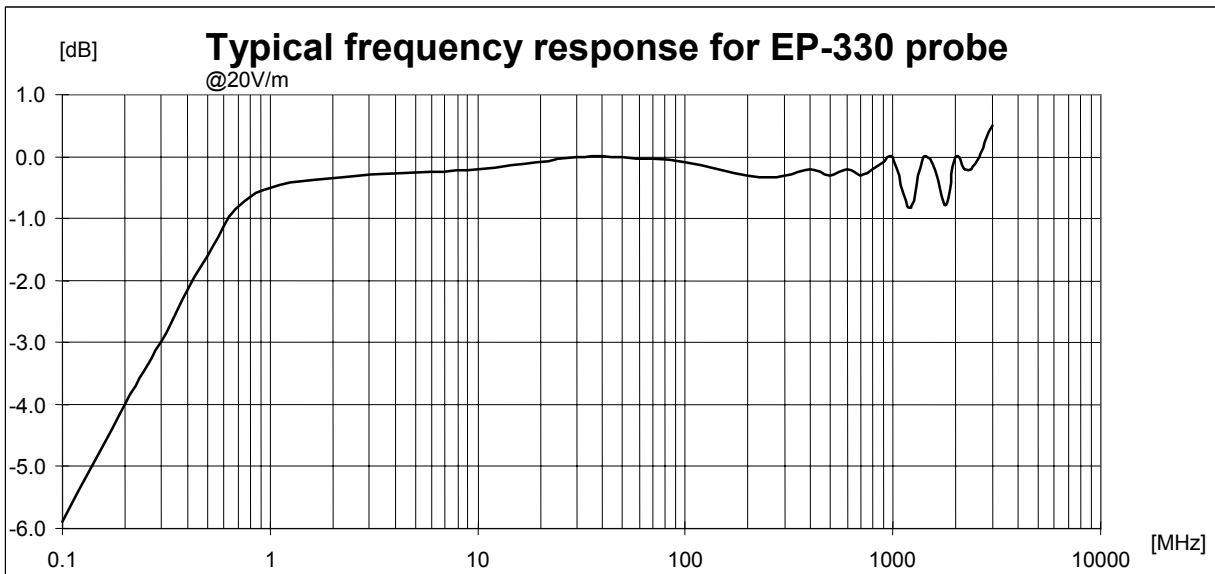
This type of probes is detected by 8053A with the extension “S” (e.g. EP330s) like in the figure.

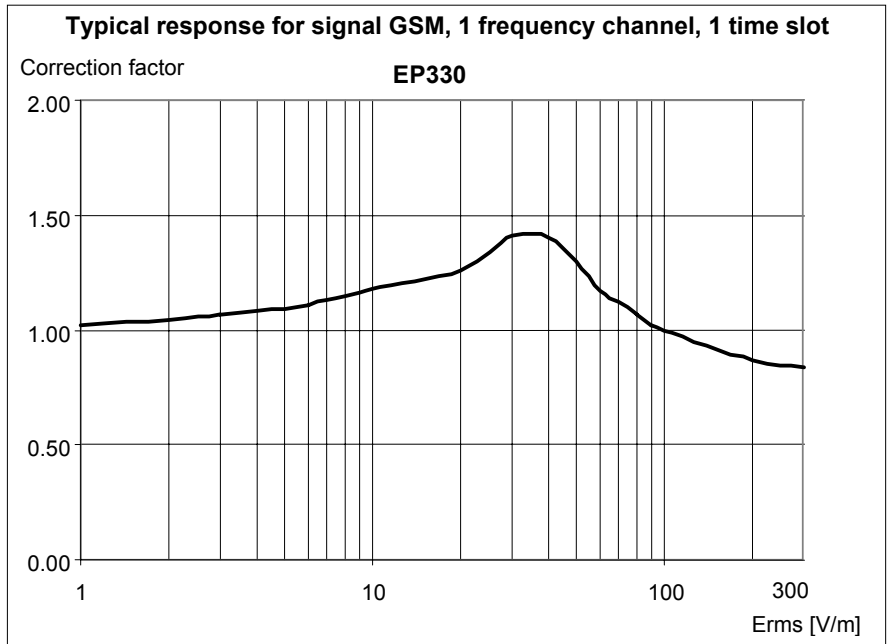
When using old 8053 series, is mandatory to update the internal firmware in order to recognize the probes type S.

TABLE 1-2	
Technical Specifications of the Field Probes	
Note: Technical specifications are subject to change without prior notice.	

ELECTRIC FIELD PROBE EP-330

Frequency range	100 kHz - 3 GHz
Level range	0.3 - 300 V/m
Overload	> 600 V/m
Dynamic range	> 60 dB
Resolution	0,01 V/m
Sensitivity	0,3 V/m
Absolute error @ 50 MHz 20 V/m	± 0.8 dB
Flatness (10 - 300 MHz)	± 0.5 dB
Flatness (3 MHz - 3 GHz)	± 1.5 dB
Isotropy	± 0.8 dB (Typical ± 0.5dB @ 930 and 1800 MHz)
H-field rejection	>20 dB
Temperature error	20°C÷60°C = ±0.1 dB 0°C÷20°C = -0,05 dB/°C -20°C÷0°C = -0,15 dB/°C
Calibration	internal into E ² PROM
Size	317 mm length, 58 mm diameter
Weight	100 g



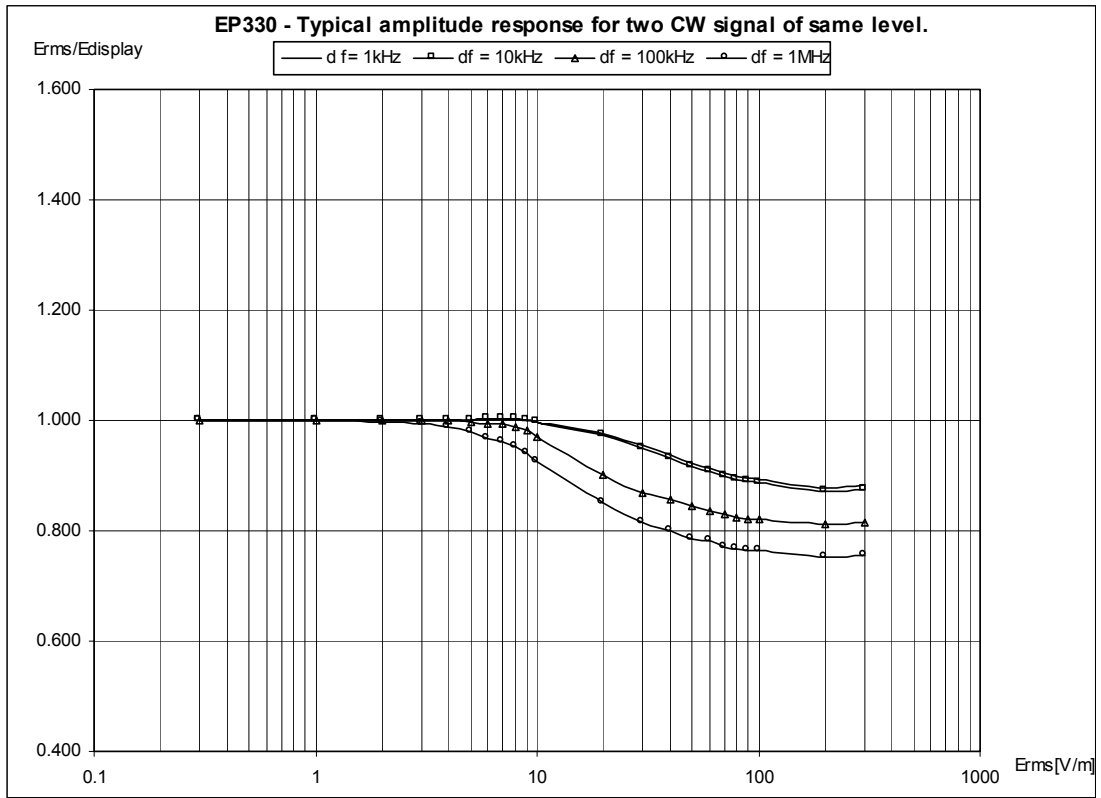


Erms [V/m]	Edisplay [V/m]	Correction factor
1	0.98	1.02
2	1.91	1.05
3	2.82	1.06
4	3.70	1.08
5	4.58	1.09
6	5.40	1.11
7	6.17	1.13
8	6.96	1.15
9	7.75	1.16
10	8.50	1.18
20	15.84	1.26
30	21.3	1.41
40	28.6	1.40
50	38.5	1.30
60	51.3	1.17
70	62.5	1.12
80	75.1	1.07
90	88.1	1.02
100	99	1.01
200	227	0.88
300	361	0.83



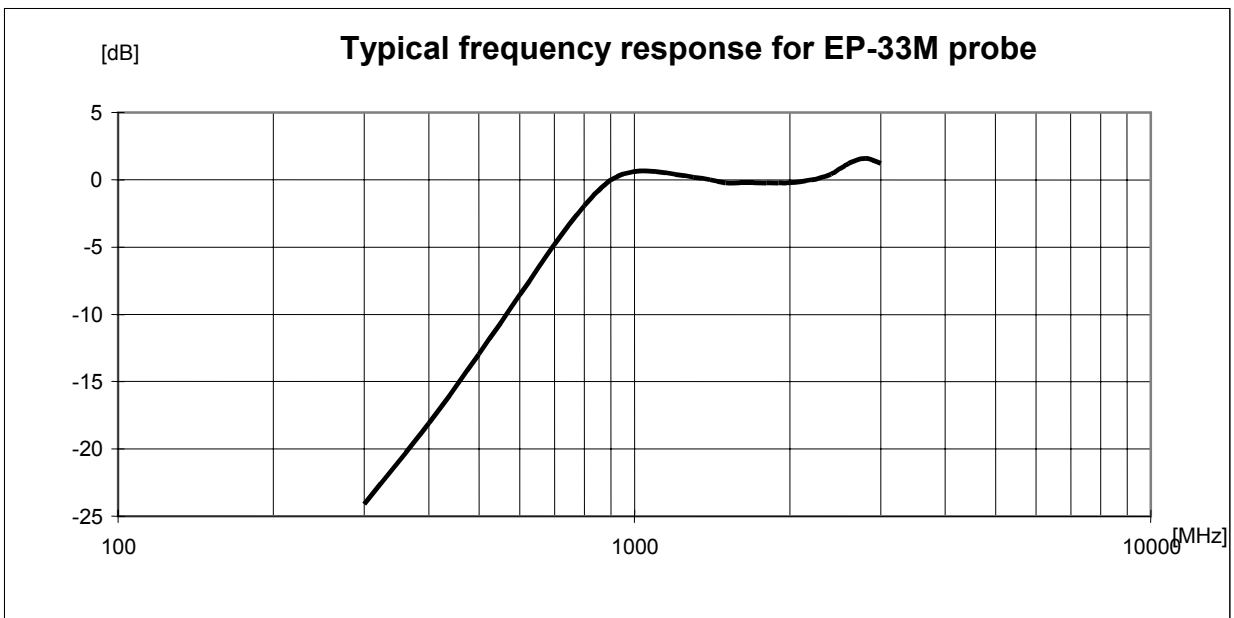
ATTENTION

This test is carried out with a signal currently used in laboratory for maximise the reading error to make a comparison of the performances of the probe with a common base.
 Actually the radiobase station use eight time slot of each channel so the effective error of the measurement is negligible.



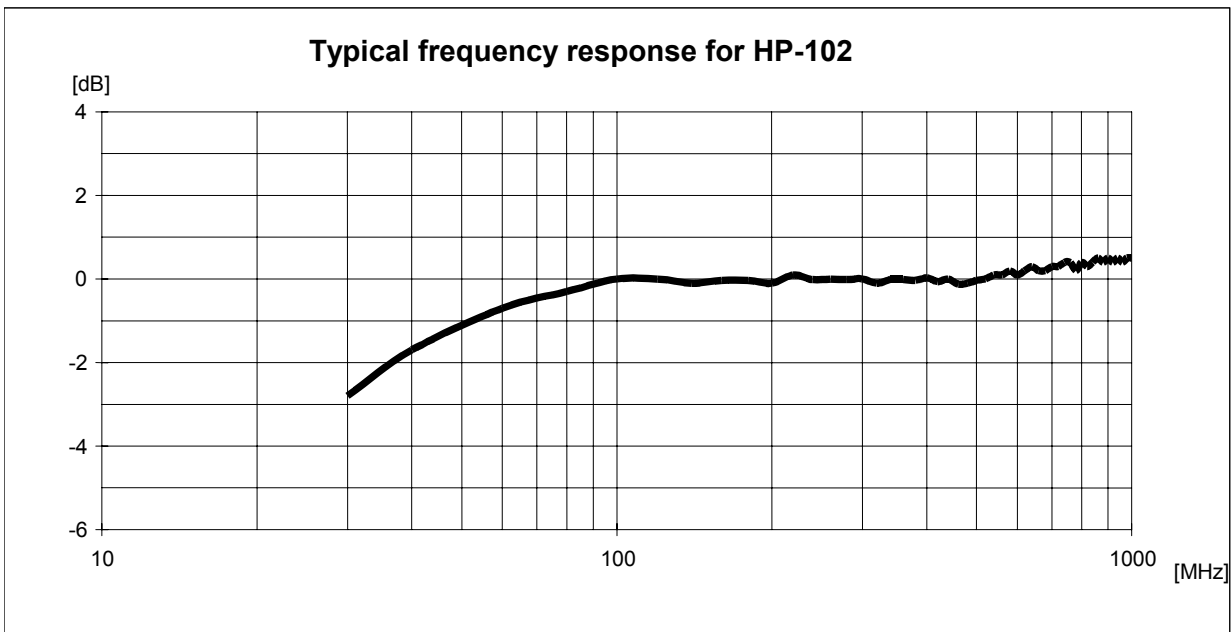
ELECTRIC FIELD PROBE EP-33M

Frequency range	700 MHz - 3 GHz
Level range	0.3 - 300 V/m
Overload	> 600 V/m
Dynamic range	> 60 dB
Resolution	0.01 V/m
Sensitivity	0.3 V/m
Absolute error @ 930 MHz 20 V/m	± 1 dB
Flatness (900 MHz - 3 GHz)	± 1.5 dB
Isotropy	± 0.8 dB (Typical ± 0.5 dB @ 930 and 1800 MHz)
H-field rejection	> 20 dB
Temperature error	0.05 dB/°C
Calibration	Internal into E ² PROM
Size	317 mm length, 58 mm diameter
Weight	100 g



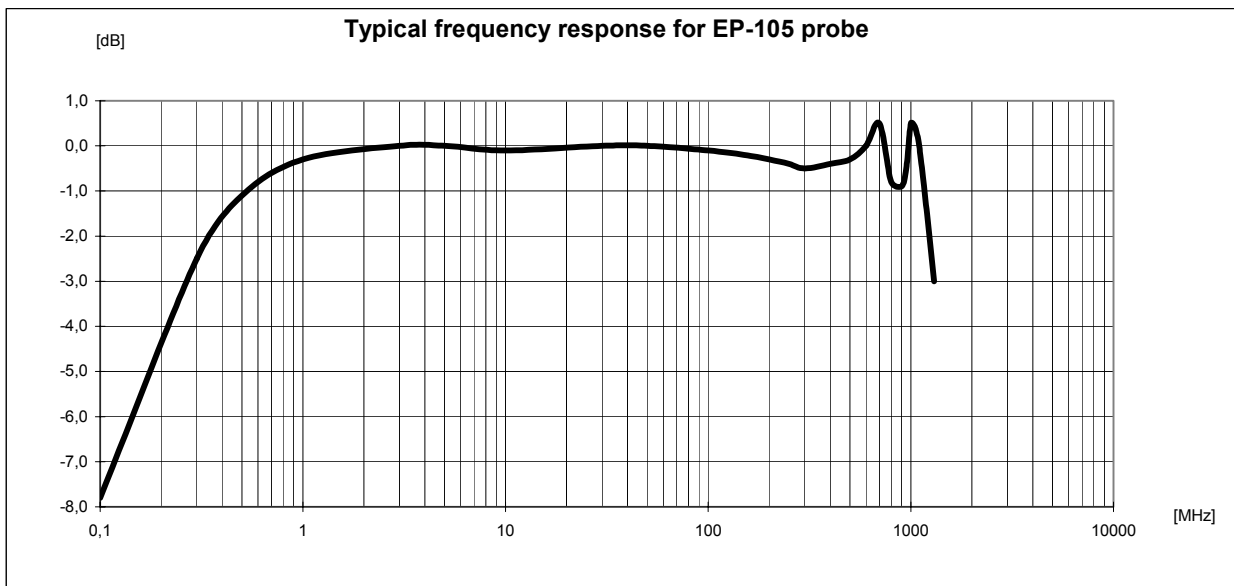
MAGNETIC FIELD PROBE HP-102

Frequency range	30 - 1000 MHz
Level range	0.01 - 20 A/m
Overload	> 40 A/m
Dynamic range	> 60 dB
Resolution	1 mA/m
Sensitivity	0.01 A/m
Absolute error @ 50 MHz 2 A/m	± 1 dB
Flatness (50 - 900 MHz)	± 1 dB
Isotropy	± 0.8 dB (Typical ± 0.5 dB @ 930 MHz)
E-field rejection	> 20 dB
Temperature error	0.05 dB/°C
Calibration	Internal into E ² PROM
Size	317 mm length, 58 mm diameter
Weight	110 g



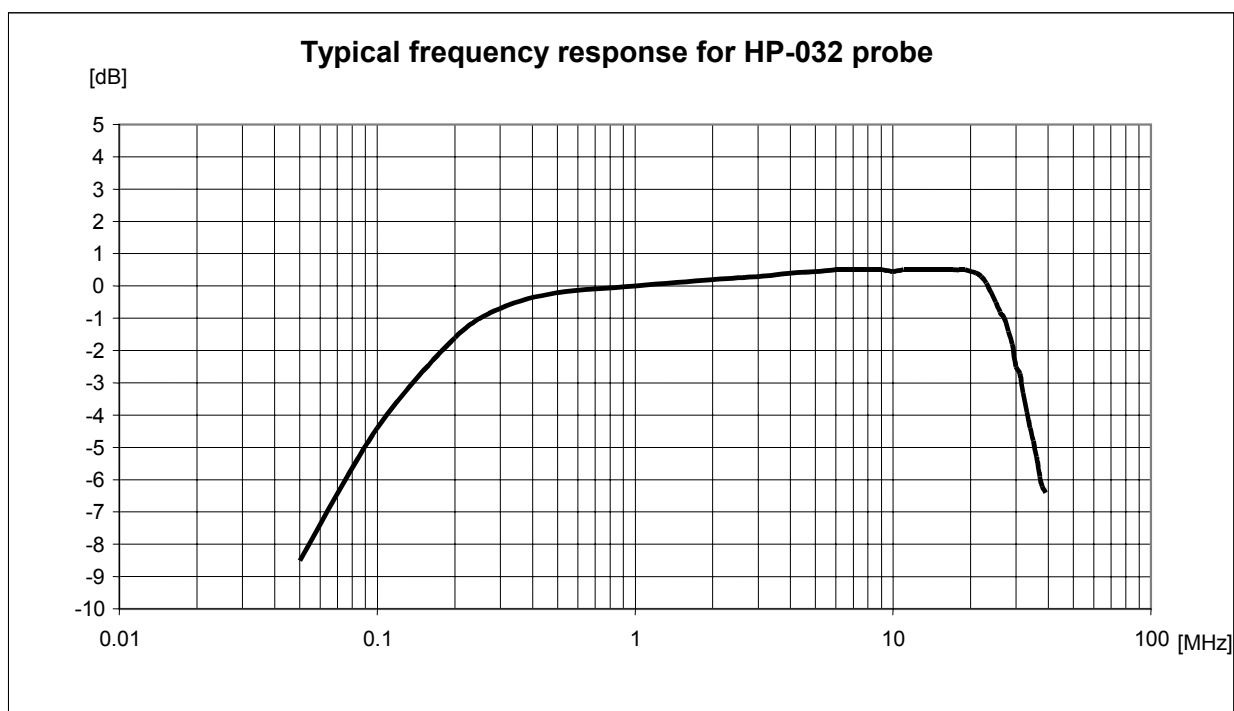
ELECTRIC FIELD PROBE EP-105

Frequency range	100 kHz - 1000 MHz
Level range	0.05 - 50 V/m
Overload	> 100 V/m
Dynamic range	> 60 dB
Resolution	0.01 V/m
Sensitivity	0.05 V/m
Absolute error @ 50 MHz 6 V/m	± 0.8 dB
Flatness (10 - 300 MHz)	± 0.5 dB
Flatness (300 kHz - 1 GHz)	± 1 dB
Isotropy	± 0.8 dB (Typical ± 0.5 dB @ 930 MHz)
H-field rejection	> 20 dB
Temperature error	0.05 dB/°C
Calibration	Internal into E ² PROM
Size	350 mm length, 133 mm diameter
Weight	290 g



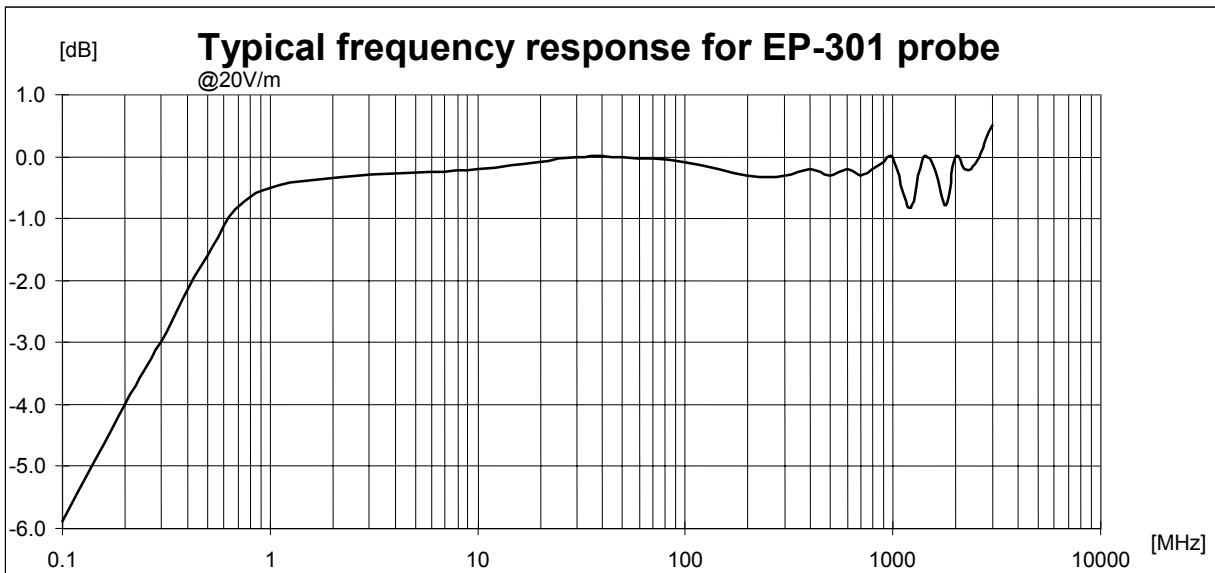
MAGNETIC FIELD PROBE HP-032

Frequency range	0.1 - 30 MHz
Level range	0.01 - 20 A/m
Overload	> 40 A/m
Dynamic range	> 60 dB
Resolution	1 mA/m
Sensitivity	0.01 A/m
Absolute error @ 1 MHz 2 A/m	± 1 dB
Flatness (1 -25 MHz)	± 1 dB
Isotropy	± 0.8 dB (Typical ± 0.5 dB @ 1 MHz)
E-field rejection	> 20 dB
Temperature error	0.05 dB/°C
Calibration	Internal into E ² PROM
Size	350 mm length, 133 mm diameter
Weight	400 g



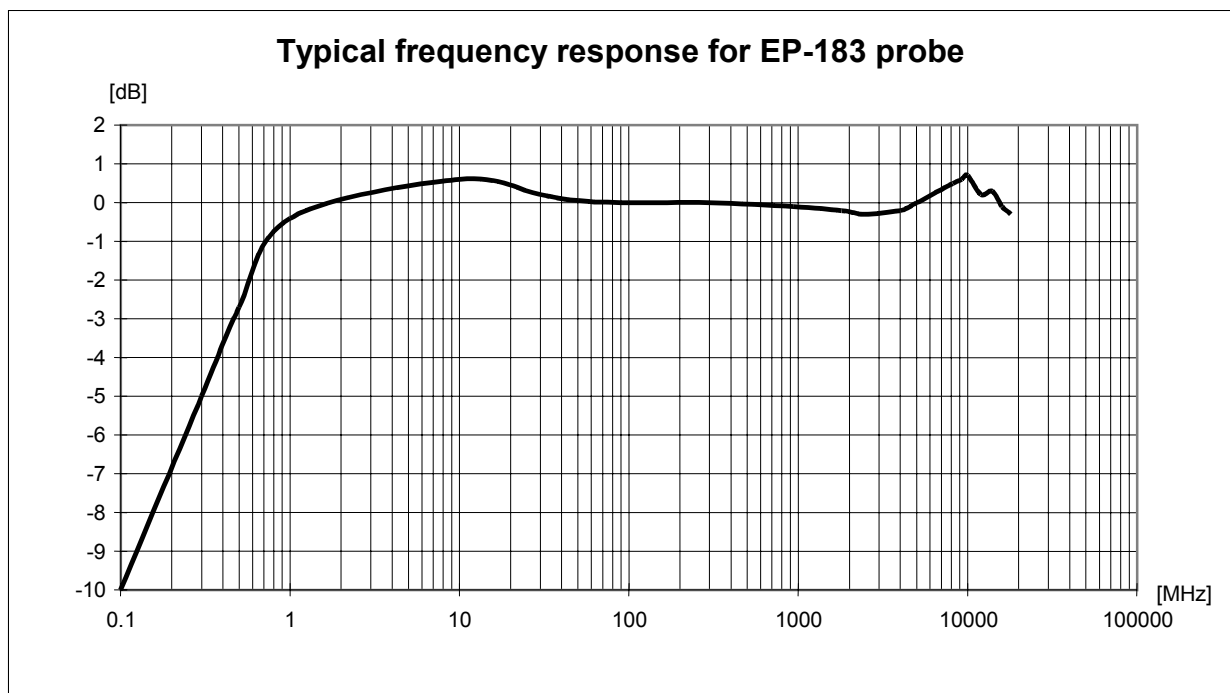
ELECTRIC FIELD PROBE EP-301

Frequency range	100 kHz - 3 GHz
Level range	1 – 1000 V/m
Overload	> 1200 V/m
Dynamic range	> 60 dB
Resolution	0.1 V/m
Sensitivity	1 V/m
Absolute error @ 50 MHz 20 V/m	± 0.8 dB
Flatness (10 - 300 MHz)	± 0.5 dB
Flatness (3 MHz - 1 GHz)	± 1.5 dB
Isotropy	± 0.8 dB (Typical ± 0.5dB @ 930 and 1800 MHz)
H-field rejection	> 20 dB
Temperature error	0.05 dB/°C
Calibration	Internal into E ² PROM
Size	317 mm length, 58 mm diameter
Weight	100 g



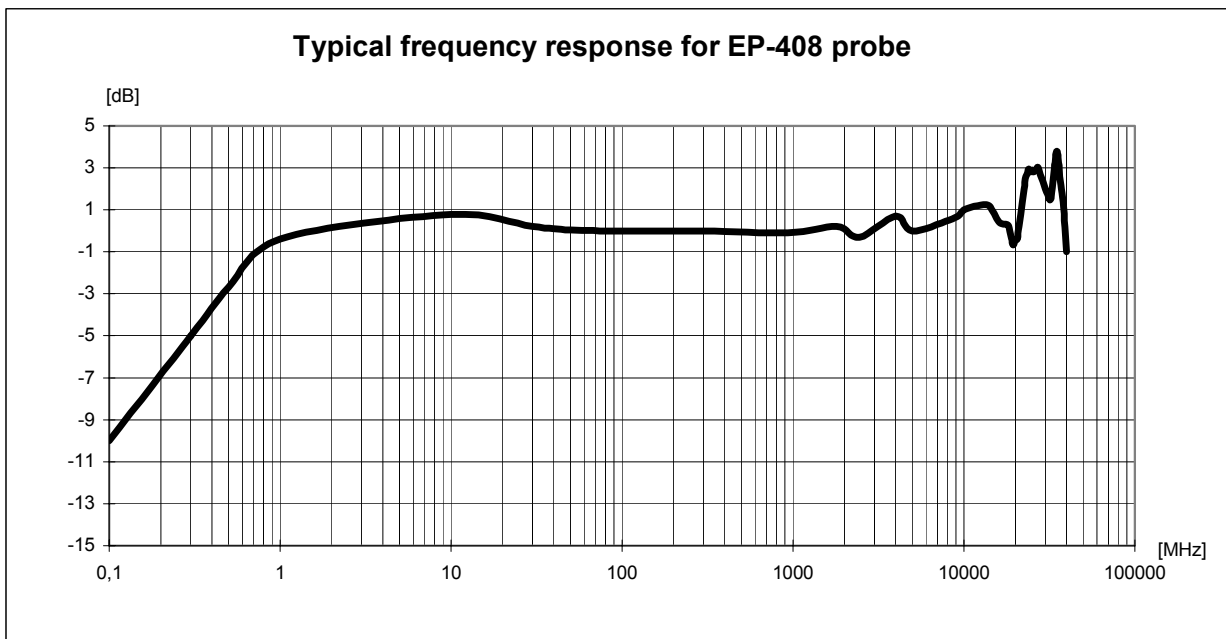
ELECTRIC FIELD PROBE EP-183

Frequency range	1 MHz - 18 GHz
Level range	0.8 - 800 V/m
Overload	> 1200 V/m
Dynamic range	> 60 dB
Resolution	0.01 V/m
Sensitivity	0.8 V/m
Absolute error @ 200 MHz 6 V/m	± 0.8 dB
Flatness (1 MHz - 1 GHz)	± 1.5 dB
Flatness (1 - 3 GHz)	± 2.0 dB
Flatness (3 - 18 GHz)	± 2.5 dB
Isotropy @ 200 MHz	± 0.8 dB (Typical ± 0.5dB @ 930 and 1800 MHz)
H-field rejection	> 20 dB
Temperature error	0.02 dB/°C
Calibration	Internal into E ² PROM
Size	317 mm length, 50 mm diameter
Weight	90 g



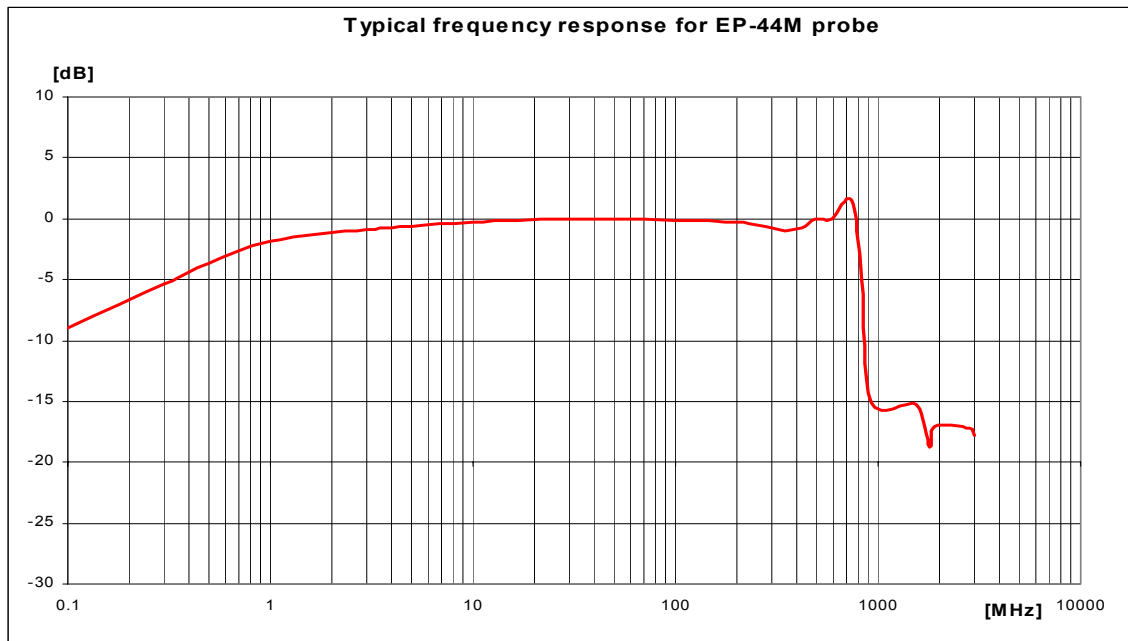
ELECTRIC FIELD PROBE EP-408

Frequency range	1 MHz - 40 GHz
Level range	0.8 - 800 V/m
Overload	> 1000 V/m
Dynamic range	> 60 dB
Resolution	0.01 V/m
Sensitivity	0.8 V/m
Absolute error @ 200 MHz 6 V/m	± 0.8 dB
Flatness (1 MHz - 1 GHz)	± 1.5 dB
Flatness (1 - 3 GHz)	± 2 dB
Flatness (3 - 18 GHz)	± 2.5 dB
Flatness (18 - 26.5 GHz)	± 3 dB
Flatness (26.5 - 40 GHz)	± 4 dB
Isotropicity @ 200 MHz	± 0.8 dB (Typical ± 0.5dB @ 930 and 1800 MHz)
H-field rejection	> 20 dB
Temperature error	0.02 dB/°C
Calibration	internal into E ² PROM
Size	317 mm length, 52 mm diameter
Weight	90 g



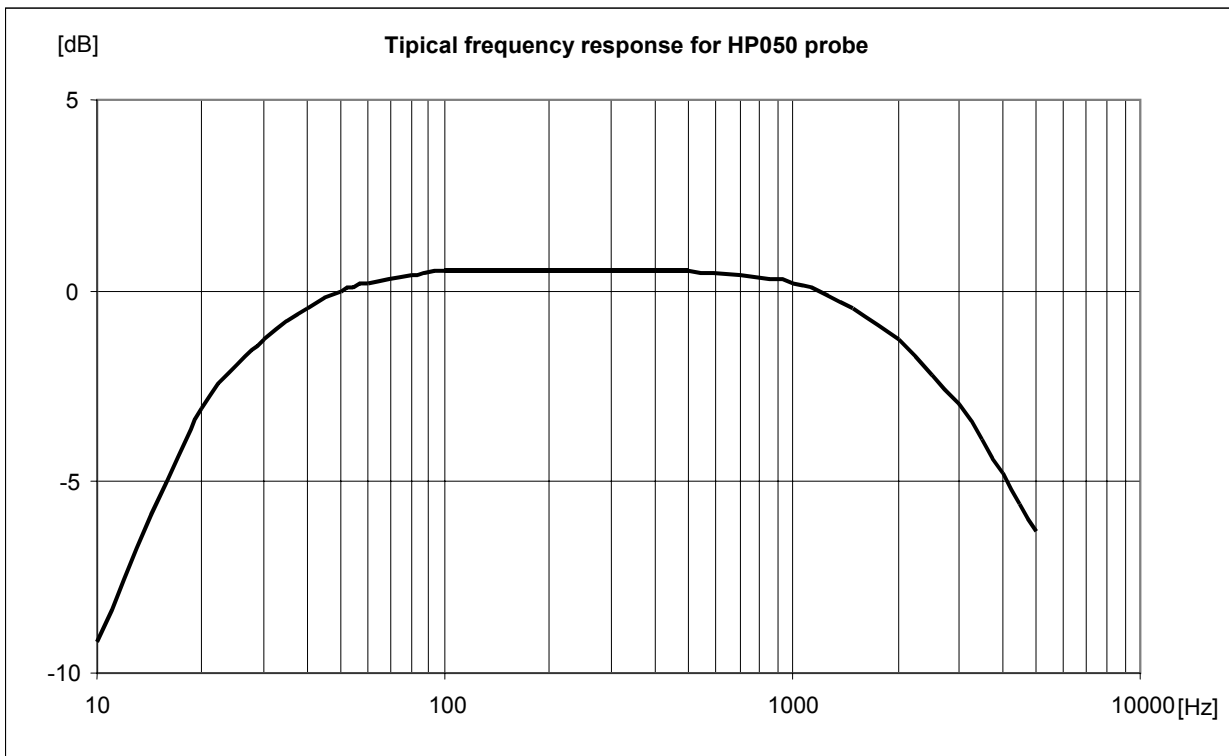
ELECTRIC FIELD PROBE EP-44M

Frequency range	100 kHz - 800 MHz
Level range	0.25 - 250 V/m
Overload	> 500 V/m
Dynamic range	> 60 dB
Resolution	0.01 V/m
Sensitivity	0.25 V/m
Absolute error	
@ 50 MHz e 6 V/m	± 0.8 dB
Flatness	
(10 MHz - 200 MHz)	± 1.5 dB (typical ± 0,8 dB)
(200 MHz - 800 MHz)	± 2.0 dB (typical ± 1,5 dB)
Isotropy	± 0.8 dB (Typical ± 0.5dB @ 740 MHz)
Out band attenuation respect to 50 MHz	
900 MHz – 3 GHz	> 12 dB (typical >15dB)
H-field rejection	> 20 dB
Temperature error	0.02 dB/°C
Calibration	Internal into E ² PROM
Size	317 mm length, 58 mm diameter
Weight	100 g



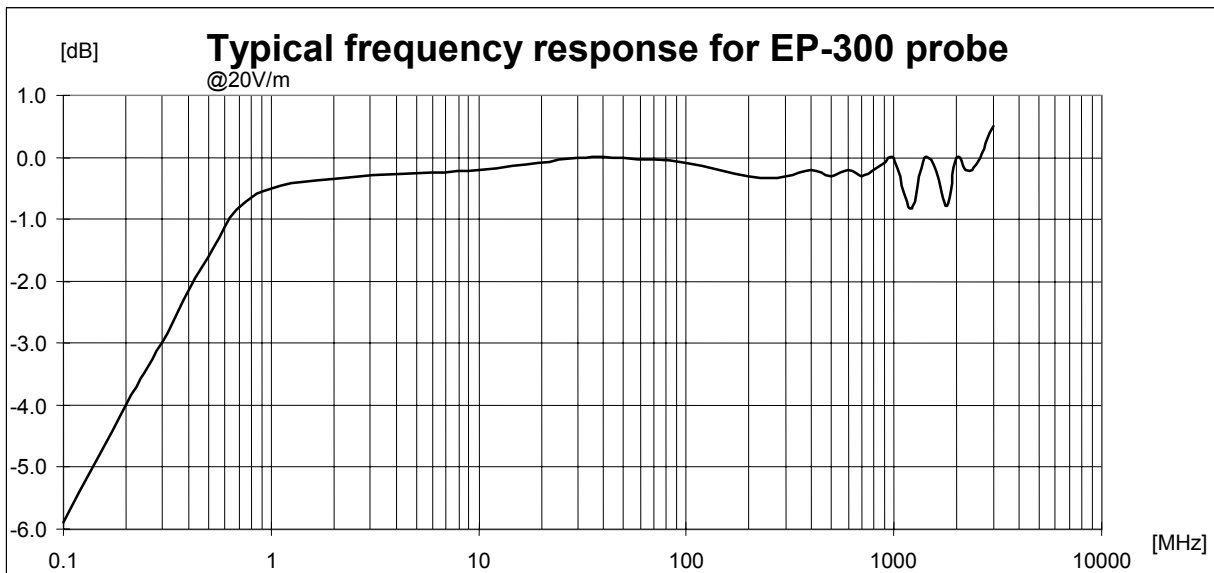
MAGNETIC FIELD PROBE HP-050

Frequency range	10 Hz – 5 kHz
Level range	10 nT – 40 μ T
Overload	400 μ T
Dynamic range	> 72 dB
Resolution	1 nT
Sensitivity	10 nT
Absolute error	\pm 0.4 dB
@ 50 Hz 200 nT 25 °C	
Flatness (40 Hz – 1kHz)	\pm 1 dB
Isotropy @ 50 Hz 200 nT	\pm 0.3 dB
Electric field rejection	> 20 dB
Temperature error	0.015 dB/°C
Calibration	internal into E ² PROM
Size	350 mm length, 133 mm diameter
Weight	400 g



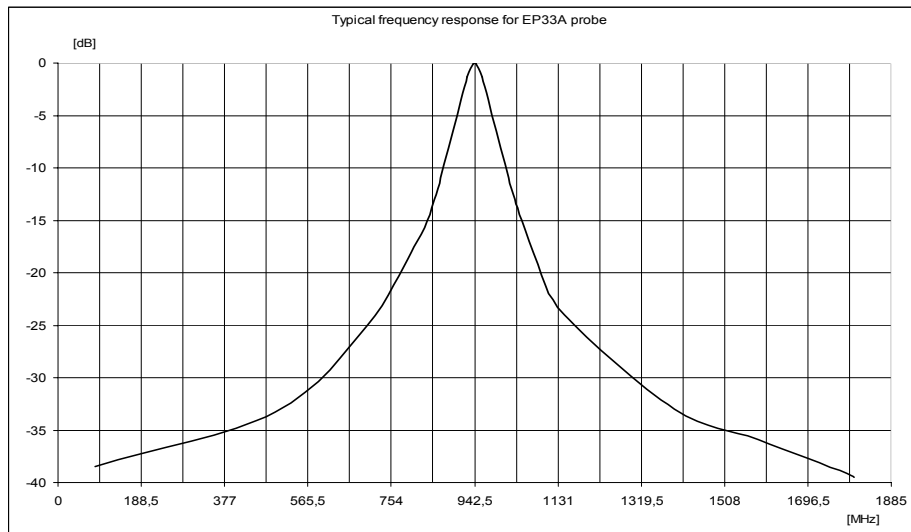
ELECTRIC FIELD PROBE EP-300

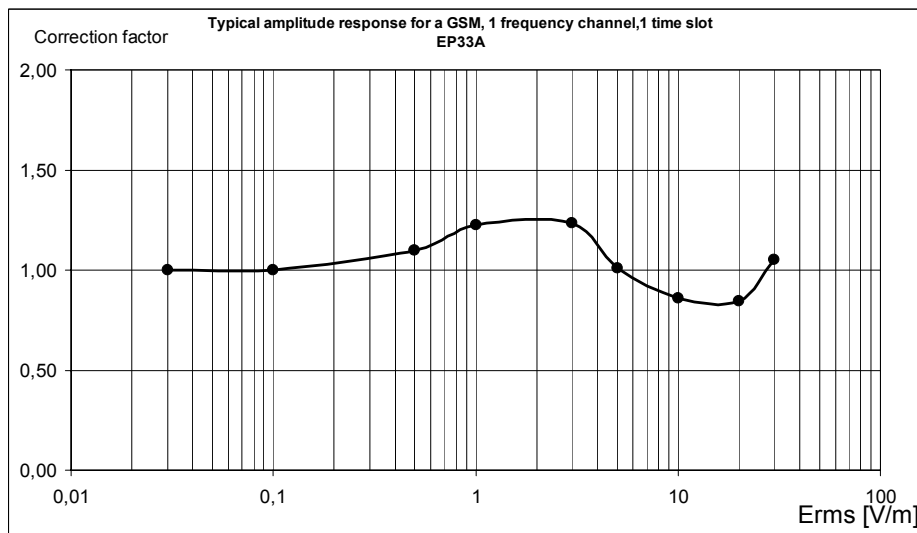
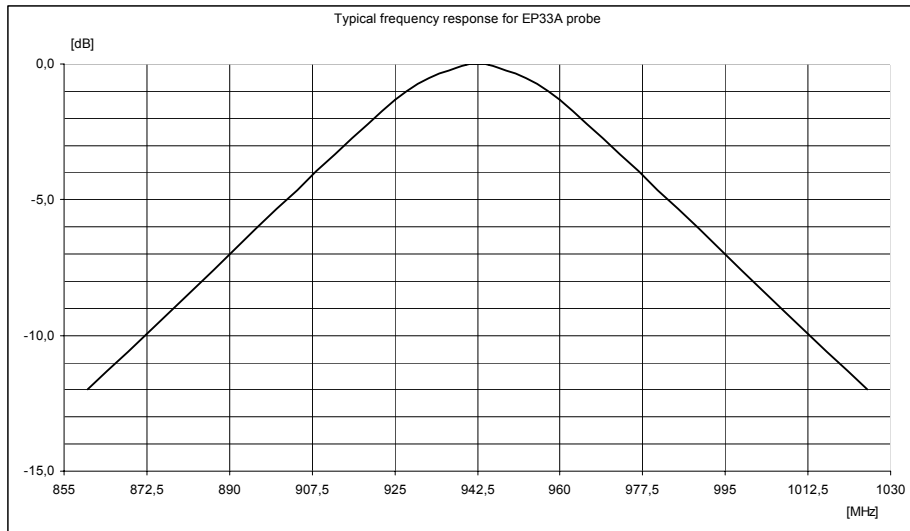
Frequency range	100 kHz - 3 GHz
Level range	0.1 - 300 V/m
Overload	> 600 V/m
Dynamic range	> 66 dB (Typical >70db)
Resolution	0,01 V/m
Sensitivity	0,15 V/m (Typical >0.1V/m)
Absolute error @ 50 MHz 20 V/m	± 0.8 dB
Flatness (10 - 300 MHz)	± 0.5 dB
Flatness (3 MHz - 3 GHz)	± 1.5 dB
Isotropy	± 0.8 dB (Typical ± 0.5dB @ 930 and 1800 MHz)
H-field rejection	>20 dB 20°C÷60°C = ± 0.1 dB
Temperature error	0°C÷20°C = -0,05 dB/°C -20°C÷0°C = -0,15 dB/°C
Calibration	internal into E ² PROM
Size	317 mm length, 58 mm diameter
Weight	100 g



ELECTRIC FIELD PROBE EP-33A

Frequency range	925 MHz - 960 MHz
Level range	0,03 – 30 V/m
Overload	> 120 V/m
Dynamic range	> 60 dB
Resolution	0,001 V/m
Sensitivit�	0,03 V/m
Absolute error @ 942.5 MHz 20 V/m	± 1 dB
Flatness (925 - 960 MHz)	+ 0.2 dB / -1.8 dB
OFF Band attenuation respect to 924.5 MHz	
860 MHz	> 10 dB
1025 MHz	> 10 dB
Isotropy	± 0.8 dB (Tipico ± 0.5dB)
Reyection to H field	> 20 dB
Errore temperature	0°C ÷ 60°C = ± 0.2dB -20°C÷0°C = -0,1 dB/°C
Drift Frequency Vs Temperature	40°C ÷ 60°C = ± 100 kHz -20°C÷40°C = -100 kHz/°C
Calibration	E ² PROM internal
Size	317 mm lenght, 58 mm diameter
Weight	100 g





ATTENTION

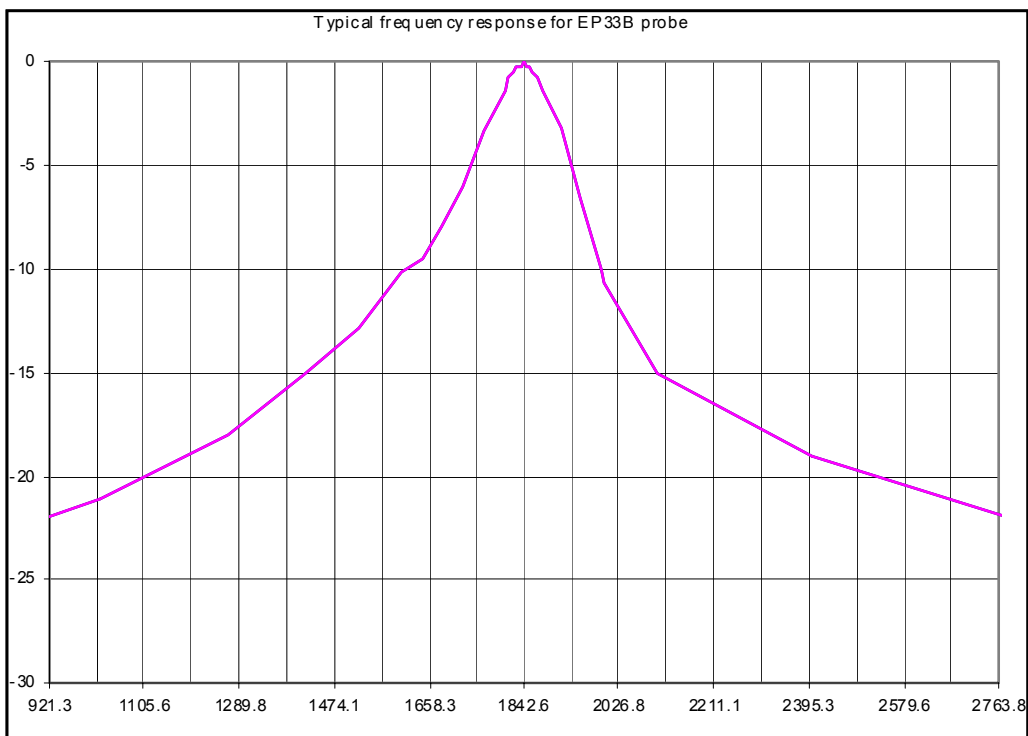
This test is carried out with a signal currently used in laboratory for maximise the reading error to make a comparison of the performances of the probe with a common base.

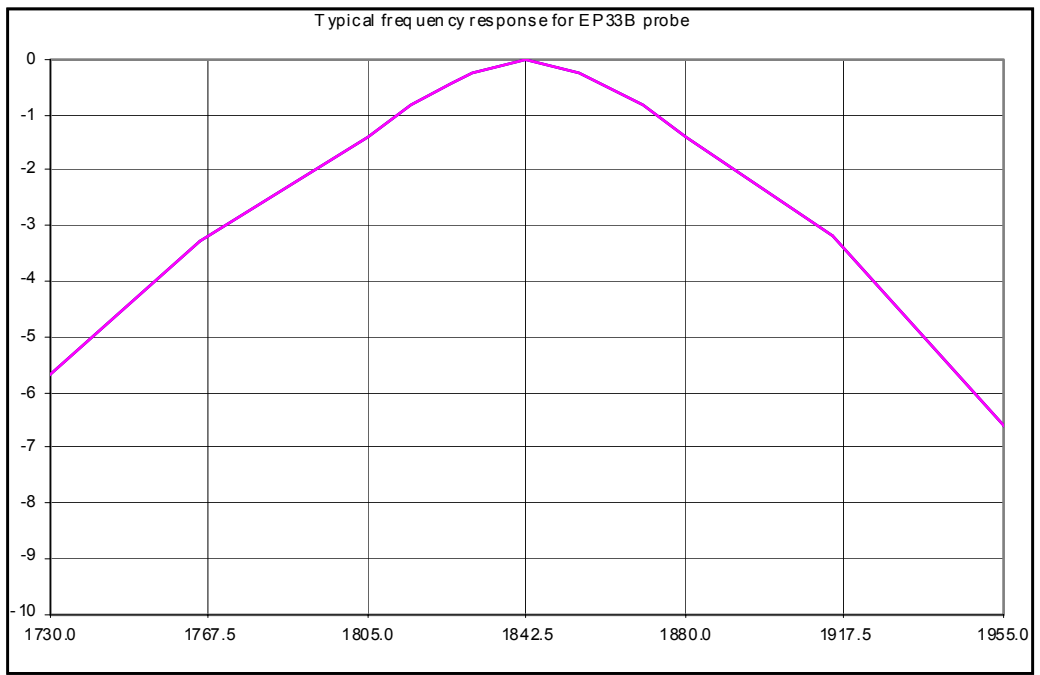
Actually the radiobase station use eight time slot of each channel so the effective error of the measurement is negligible.



ELECTRIC FIELD PROBE EP-33B

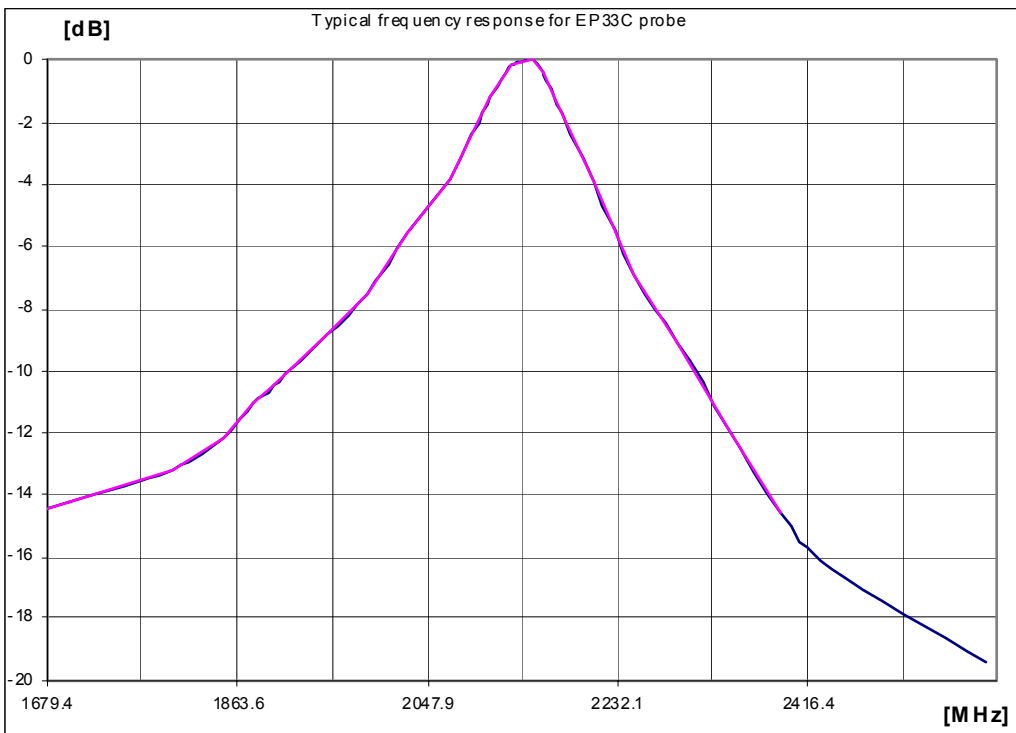
Frequency range	1805 MHz – 1880 MHz
Level range	0,03 – 30 V/m
Overload	> 120 V/m
Dynamic range	> 60 dB
Resolution	0,001 V/m
Sensitivit�	0,03 V/m
Absolute error @ 1842.5 MHz 2 V/m	± 1 dB
Flatness (1805 - 1880 MHz)	+ 0.2 dB / -1.8 dB
OFF Band attenuation respect to 1842.5 MHz	
1580 MHz	> 10 dB
2010 MHz	> 10 dB
Isotropicity	± 0.8 dB (Tipico ± 0.5dB)
Reyection to H field	> 20 dB
Errore temperature	0°C ÷ 60°C = ± 0.2dB -20°C÷0°C = -0,1 dB/°C
Drift Frequency Vs Temperature	40°C ÷ 60°C = ± 100 kHz -20°C÷40°C = -100 kHz/°C
Calibration	E ² PROM internal
Size	317 mm lenght, 58 mm diameter
Weight	100 g

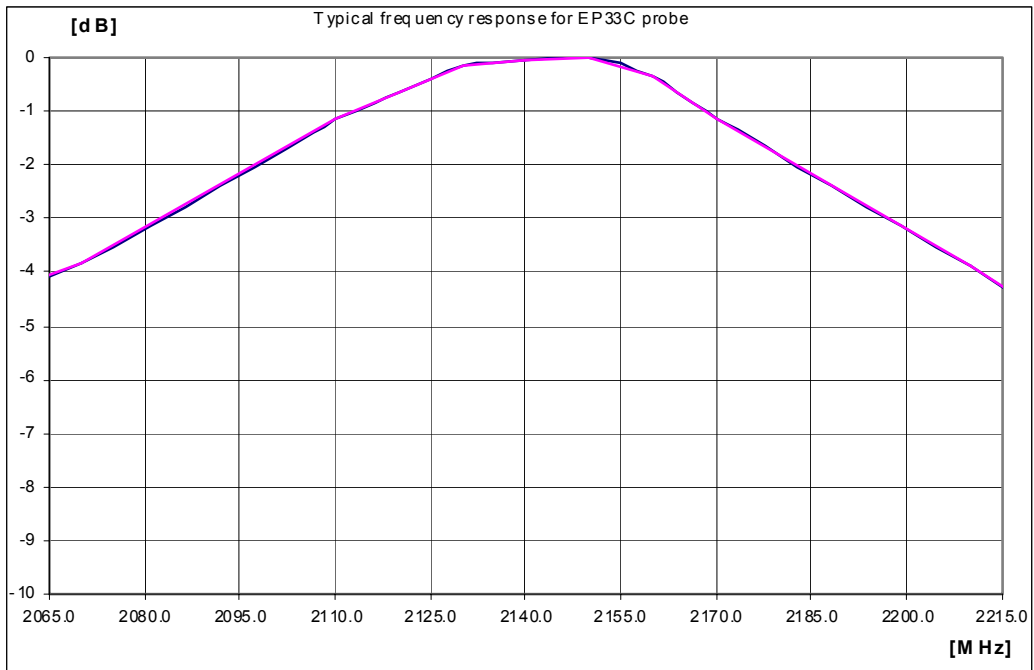




ELECTRIC FIELD PROBE EP-33C

Frequency range	2110 MHz – 2170 MHz
Level range	0,03 – 30 V/m
Overload	> 120 V/m
Dynamic range	> 60 dB
Resolution	0,001 V/m
Sensitivit�	0,03 V/m
Absolute error @ 2140 MHz 2 V/m	± 1 dB
Flatness (2110 - 2170 MHz)	+ 0.2 dB / -1.8 dB
OFF Band attenuation respect to 2140 MHz	
1880 MHz	> 10 dB
2320 MHz	> 10 dB
Isotropicity	± 0.8 dB (Tipico ± 0.5dB)
Reyection to H field	> 20 dB
Errore temperature	0°C ÷ 60°C = ± 0.2dB -20°C÷0°C = -0,1 dB/°C
Drift Frequency Vs Temperature	40°C ÷ 60°C = ± 100 kHz -20°C÷40°C = -100 kHz/°C
Calibration	E ² PROM internal
Size	317 mm lenght, 58 mm diameter
Weight	100 g





ELECTRIC AND MAGNETIC FIELD ANALYZER EHP-50B

	Electric field	Magnetic field
Frequency range	5 Hz – 100 kHz	
Level range	0.01 V/m – 100 kV/m	1 nT – 10 mT
Overload	200 kV/m (@ 50 Hz)	20 mT (@ 50 Hz)
Dynamic		> 140 dB
Resolution	0.001 V/m	1 nT
Sensitivity	0.01 V/m	1 nT
Absolute error	± 0.5 dB (@ 50 Hz and 1 kV/m)	± 0.5 dB (@ 50 Hz and 0.1 mT)
Flatness (40 Hz – 10 kHz)	± 0.5 dB	± 0.5 dB
Isotropy		± 1 dB
Linearity @ 50 Hz	± 0.2 dB (1 V/m – 100 kV/m)	± 0.2 dB (200 nT – 10 mT)
SPAN	100 Hz, 200 Hz, 500 Hz, 1 kHz, 2 kHz, 10 kHz, 100 kHz	
Start frequency	1.2 % of the SPAN	
Stop frequency	Equal to the SPAN	
E-field rejection	---	> 20 dB
H-field rejection	> 20 dB	---
Calibration		Internal into E ² PROM
Temperature error		0.05 dB/°C
Size		96 x 96 x 115 mm
Weight		525 g
Tripod support		Threaded insert ¼"
Internal battery		Rechargeable NiMH batteries (5 x 1.2 V)
Operating time		> 10 hours >150 hours in low-power mode
Recharging time		< 4 hours
External DC supply		DC, 10 - 15 V, I = about 200 mA
Fiber optic connection		Up to 80 meters
Firmware update		Update available through the serial port
Autocheck		Automatically when switched on
Operational temperature		-10°C to +40°C
Storage temperature		-20°C to +70°C

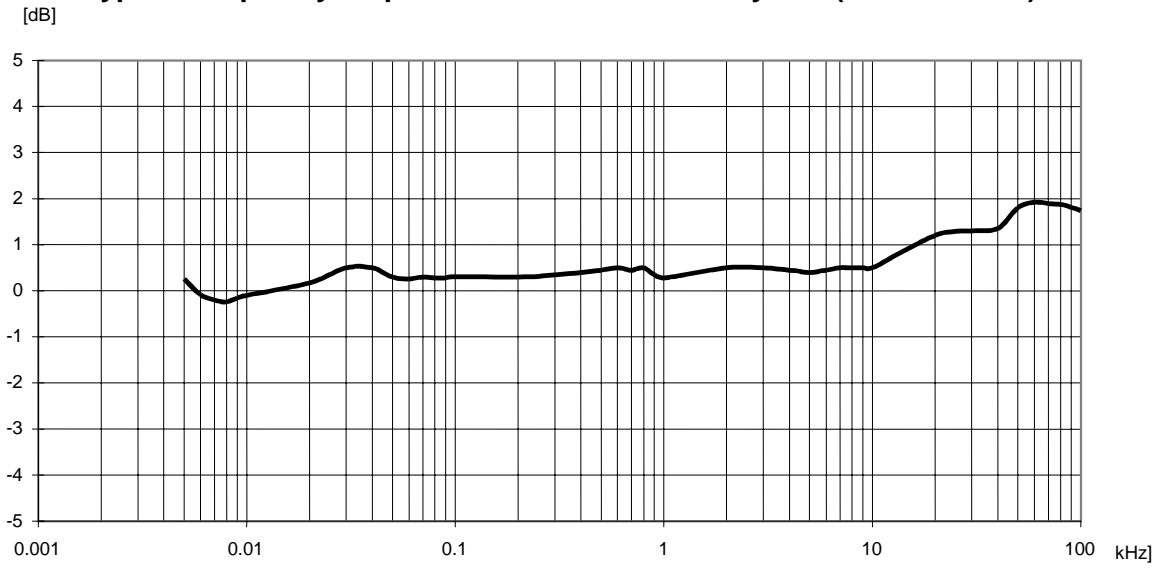


ELECTRIC AND MAGNETIC FIELD ANALYZER EHP-50C

	Electric field	Magnetic field
Frequency range	5 Hz – 100 kHz	
Level range	0.01 V/m – 100 kV/m	1 nT – 10 mT
Overload	200 kV/m (@ 50 Hz)	20 mT (@ 50 Hz)
Dynamic	> 140 dB	
Resolution	0.001 V/m on 8053A Display 0.1 V/m with 8053A Data logger	1 nT on 8053A display or internal data logger 10 nT with 8053A Data logger
Sensitivity	0.01 V/m	1 nT
Absolute error	± 0.5 dB (@ 50 Hz and 1 kV/m)	± 0.5 dB (@ 50 Hz and 0.1 mT)
Flatness (40 Hz – 10 kHz)	± 0.5 dB	± 0.5 dB
Isotropy	± 1 dB	
Linearity @ 50 Hz	± 0.2 dB (1 V/m – 100 kV/m)	± 0.2 dB (200 nT – 10 mT)
Internal memory	1440 data with 1 minute storing; 2880 data with 30 sec storing. The data can be transferred only to PC	
Internal data logger	1 measurement every 30 or 60 seconds	
FFT	Real time FFT analysis	
SPAN	100 Hz, 200 Hz, 500 Hz, 1 kHz, 2 kHz, 10 kHz, 100 kHz	
Start frequency	1.2 % of the SPAN	
Stop frequency	Equal to the SPAN	
E-field rejection	---	> 20 dB
H-field rejection	> 20 dB	---
Calibration	Internal into E ² PROM	
Temperature error	0.05 dB/°C	
Size	92 x 92 x 109 mm	
Weight	525 g	
Tripod support	Threaded insert ¼"	
Internal battery	Rechargeable NiMH batteries (5 x 1.2 V)	
Operating time	>10 hours in normal mode >150 hours in low-power mode 24 hours with internal data logger (SPAN higher than 200 Hz) in stand alone mode of operation	
Maximum operating distance	80 meters via fiber optic	
Recharging time	< 4 hours	
External DC supply	DC, 10 - 15 V, I = about 200 mA	
Fiber optic connection	Up to 80 meters	
Firmware update	Update available through the serial port	
Autocheck	Automatically when switched on	
Operational temperature	-10°C to +40°C	
Storage temperature	-20°C to +70°C	



Typical frequency response for EHP-50B/C Analyzers (Electric Field)



Typical frequency response for EHP-50B/C Analyzers (Magnetic Field)

