



Version  
01.01

May  
2006

# Probe Set R&S® HZ-15 for E and H near-field emission measurements with test receivers and spectrum analyzers

30 MHz to 3 GHz

- ◆ Special, electrically shielded magnetic field probes
- ◆ Probe tips adapted to near-field measurement
- ◆ High-resolution measurements
- ◆ Easy-to-determine magnetic field orientation
- ◆ Easy operation and handling

# E and H near-field measurements on electronic modules

Near-field measurements are often performed, if a developer has to find out why an emission limit of an EMC standard is exceeded, for example. Based on field strength measurements, the developer already knows several critical frequencies of the device or module under test. A practical way to reduce EMI is to analyze near fields, locate the sources and come up with targeted countermeasures.



*Near-field Probe Set R&S®HZ-15 with Spectrum Analyzer R&S®FSH3 and Preamplifier R&S®HZ-16*

## Special Probes R&S®HZ-15

Before you perform a near-field analysis, you first need to know how the E and H fields are distributed. The five probes from the Probe Set R&S®HZ-15 are well suited for this purpose. All near-field probes are designed for ease of use,

and are ideal for measuring high-frequency fields starting at 30 MHz on printed boards and on components. The magnetic field probes include special electrically shielded probe tips. The various probe tip shapes are designed for tasks in near-field measurements. The upper limit frequency of a probe

is determined by the size and design of the probe tip. All probes are passive and are connected to the 50  $\Omega$  input of a test receiver or spectrum analyzer. The Preamplifier R&S®HZ-16 increases sensitivity.

## Preamplifier R&S®HZ-16

Inserting the Preamplifier R&S®HZ-16 between the near-field probe and the spectrum analyzer makes it easier to measure very weak high-frequency fields of up to 3 GHz. The input and output are provided as 50  $\Omega$  BNC connectors to allow you to use any spectrum analyzer.



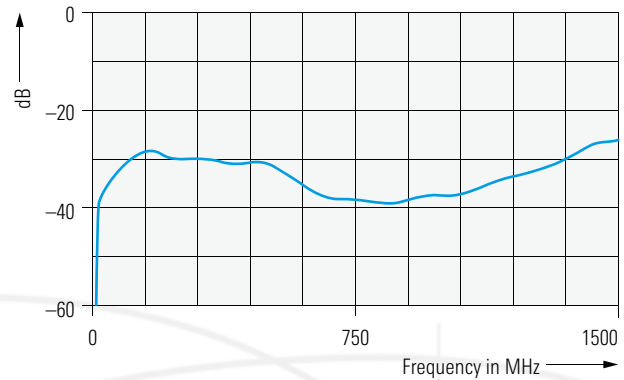
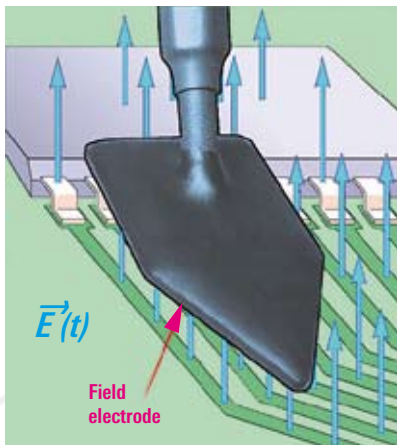
*Near-field Probe Set R&S®HZ-15 with Spectrum Analyzer R&S®FS300 and Preamplifier R&S®HZ-16*

# The E field probes

## E field probe RSE02

The surfaces of bus structures, large components or supply structures emit E fields that can cause EMI. The bottom

of the RSE02 probe detects these fields on an area measuring approx. 2 cm × 5 cm.

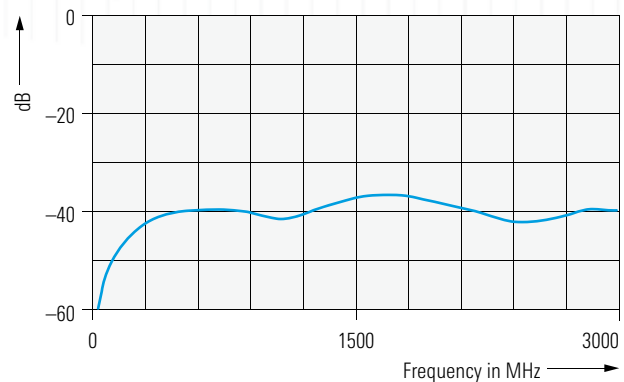
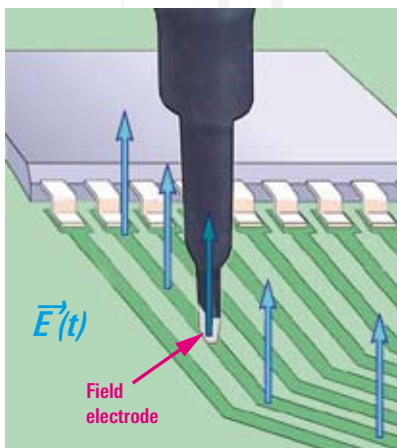


Characteristic in the 30 MHz to 1.5 GHz frequency range

## E field probe RSE10

The narrow electrode of the RSE10 probe can select a single conductor track from a bundle of conductor tracks 0.2 mm in width. The light color of the

probe tip stands out in sharp contrast to the dark green of the printed circuit board.



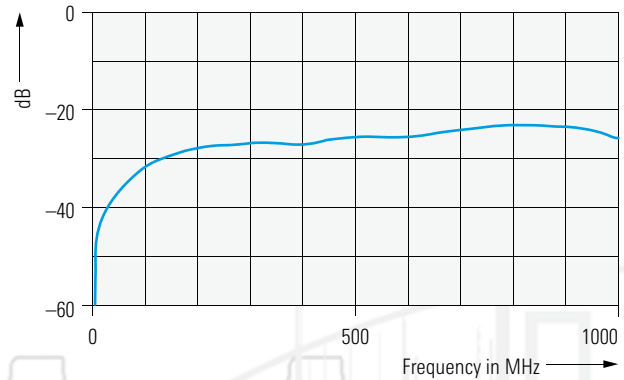
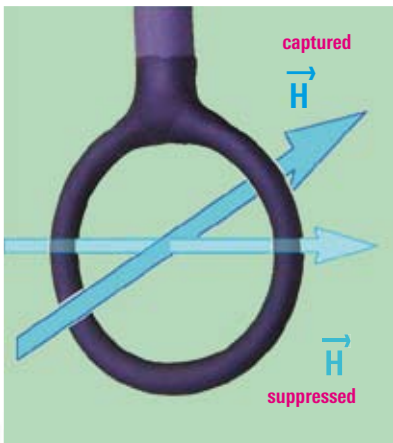
Characteristic in the 30 MHz to 3 GHz frequency range

# The H field probes

## H field probe RSH 400-1

Owing to its large diameter (approx. 25 mm), the RSH 400-1 probe for H field is extremely sensitive and provides the average of the magnetic

field strength in the loop area of the probe. You can use the probe at a 10 cm distance around modules and instruments.

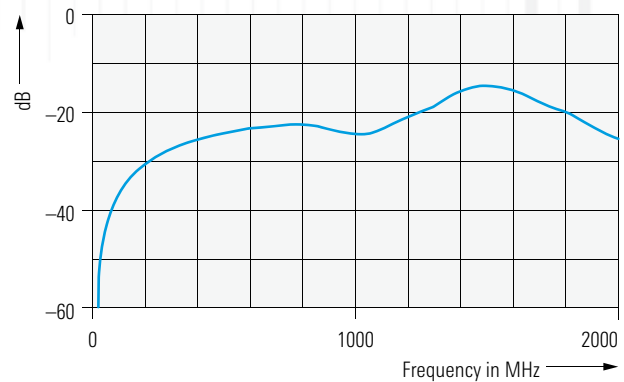
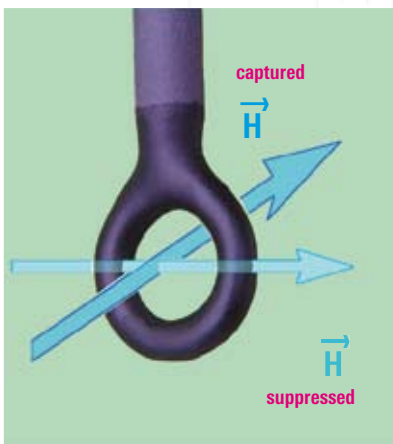


*Characteristic in the 30 MHz to 1 GHz frequency range*

## H field probe RSH 50-1

The RSH 50-1 (diameter approx. 10 mm) is higher in resolution and lower in sensitivity than the RSH 400-1. It is suitable for performing measurements at

a smaller distance of up to approx. 3 cm. In this range, you can determine field distribution and field orientation even more precisely.



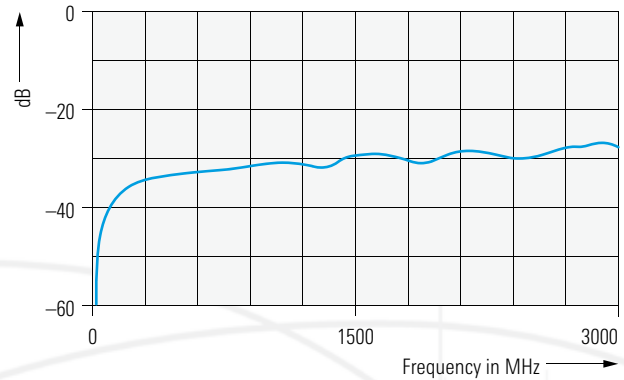
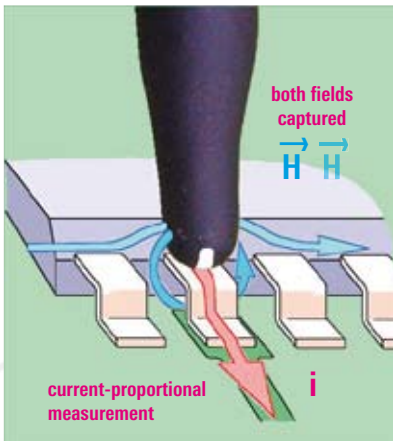
*Characteristic in the 30 MHz to 2 GHz frequency range*

# The H field probes

## H field probe RSH 2.5-2

The RSH 2.5-2 H field probe can be used to selectively detect the current spectrum in conductor tracks and component leads such as on capacitors or ICs. The

probe tip has a magnetically active groove of approx. 0.5 mm in width.



Characteristic in the 30 MHz to 3 GHz frequency range

## Specifications of the Preamplifier R&S®HZ-16

Frequency range	100 kHz to 3 GHz
Gain	20 dB (see frequency response)
Noise figure	4.5 dB
Max. input power	+13 dBm
Operating voltage	12 V
Plug-in power supply	for 100 V to 240 V, 50 Hz to 60 Hz, with Euro connector (2 mm × 4 mm) and adapter for USA and Japan
Typical frequency response	

## Ordering information

Designation	Type	Order No.
Near-Field Probe Set	R&S®HZ-15	1147.2736.02
Preamplifier 20 dB	R&S®HZ-16	1147.2720.02
Accessories supplied	The R&S®HZ-15 and R&S®HZ-16 each come in a robust plastic case. The R&S®HZ-15 includes a 1 m RF cable with BNC (male) and SMB (female) connectors.	



More information at  
[www.rohde-schwarz.com](http://www.rohde-schwarz.com)  
(search term: HZ-15, HZ-16)



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