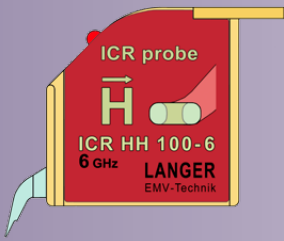


Data Sheets

ICR Near-Field Microprobes





ICR

Near-Field Microprobe

LANGER
EMV-Technik

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www.langer-emv.com
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Short Description

The ICR probes are used to measure magnetic or electric near fields. A preamplifier is integrated in the probe housing, which is powered by the BT 706 bias tee. Adjustment screws on the housing allow manual alignment of the probe tip to the probe housing. The probe supports the collision protection function of the Langer scanners, which stops the movement during vertical travel if the device under test is touched. The housing can also be mounted on commercially available testers.

Attention! The tip is very sensitive to impact due to its construction, therefore we recommend positioning the probe through an automatic positioning system.

Technical Parameters

Frequency range	0.5 MHz up to 6 GHz
Resolution	60 µm up to 300 µm
Internal diameter / electrode surface area	see overview probe types

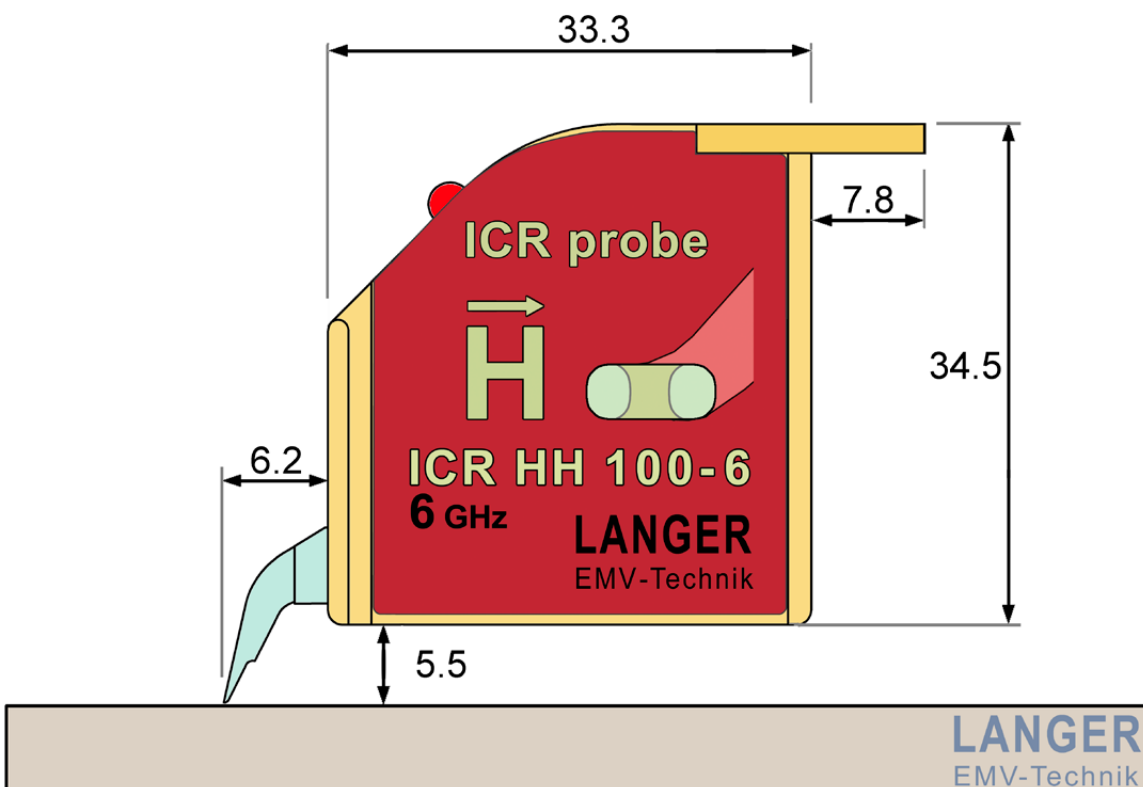
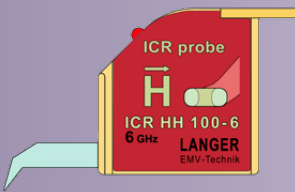


Image 1: Example of ICR near-field microprobe with normal probe tip (schematic)





ICR Ls

Near-Field Microprobe
with extended probe tip

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Short Description

The ICR Ls is manufactured with an extended probe tip according to customer requirements.

- for customer-specific measurement set-up

Technical Parameters

Max. horizontal distance from coil to probe body	24 mm
Resolution	according to product portfolio of Langer EMV-Technik
Internal diameter / electrode surface area	according to product portfolio of Langer EMV-Technik

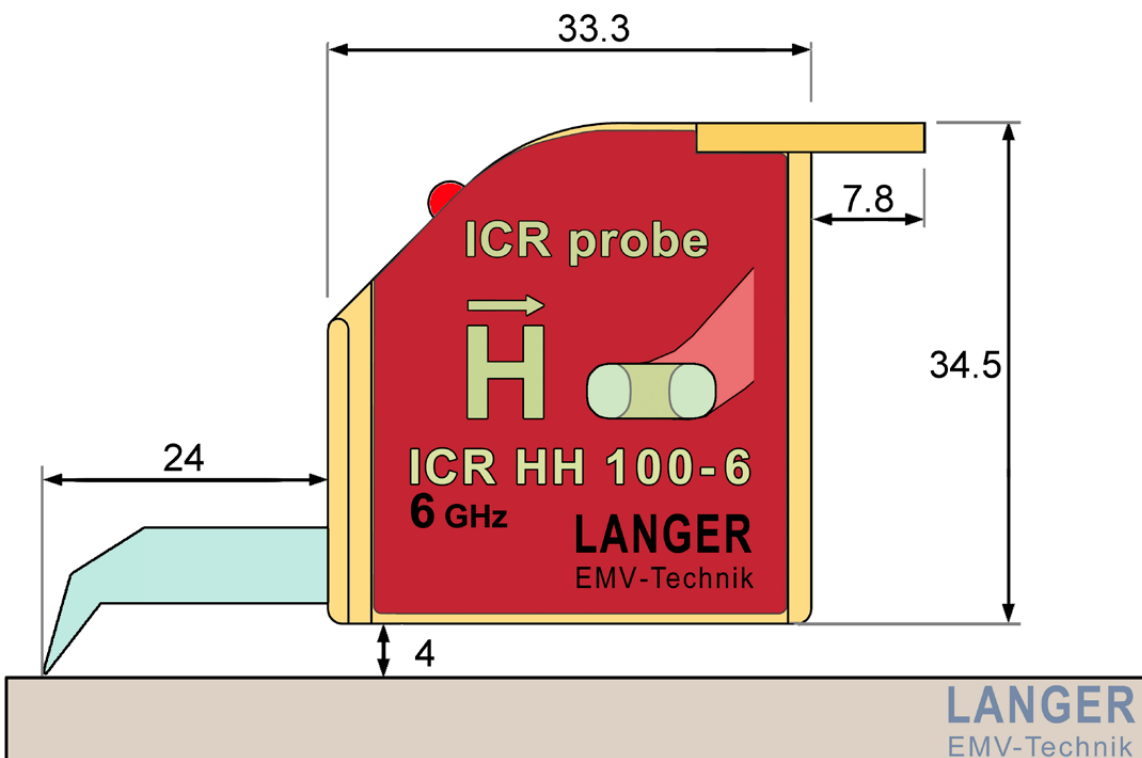
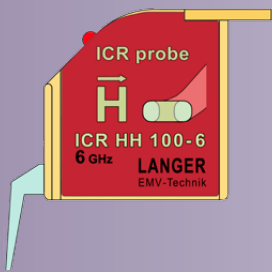


Image 1: Example of ICR near-field microprobe with extended probe tip (schematic)





ICR Ds

Near-Field Microprobe
with deeper probe tip

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Short Description

The ICR Ds is manufactured with a deeper probe tip according to customer requirements.

- for customer-specific measurement set-up

Technical Parameters

Max. vertical distance from coil to lower edge of the probe body	40 mm
Resolution	according to product portfolio of Langer EMV-Technik
Internal diameter / electrode surface area	according to product portfolio of Langer EMV-Technik

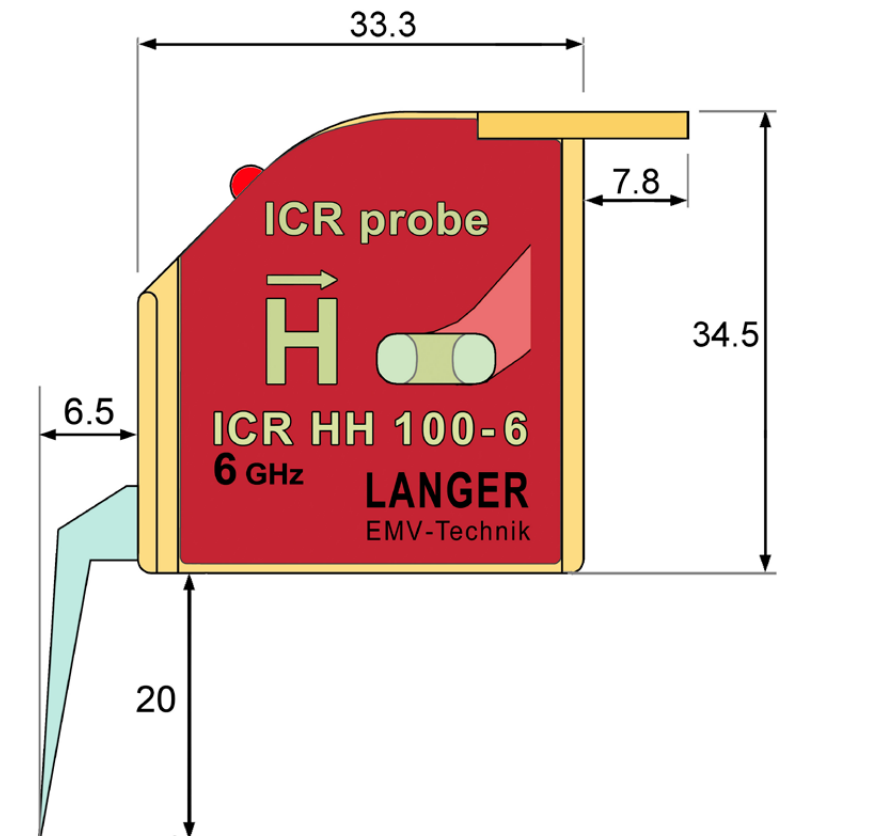


Image 1: Example of ICR near-field microprobe with deeper probe tip (schematic)

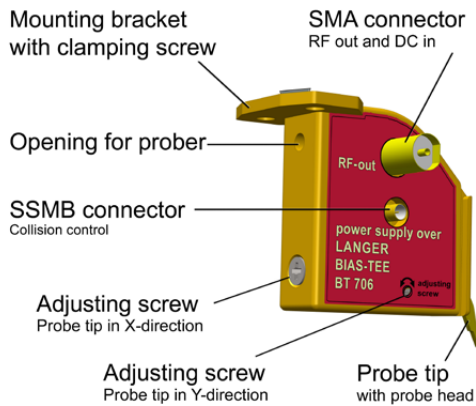




ICR Near-Field Microprobes - Design and Descriptions -

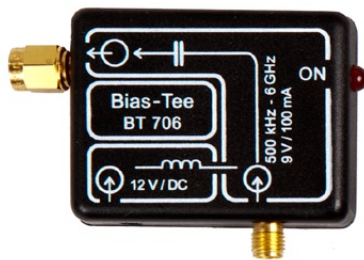
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Design

- Probe housing with integrated preamplifier
- Adjusting screws
- Probe tip with probe head
- SMA output
- SSMB output
- Mounting bracket with clamping screw for fixation on the prober

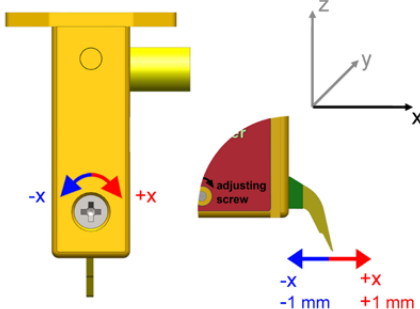


**Use ICR probes
only with BT 706 Bias Tee**

BT 706 Bias Tee

The Bias tee is used for the power supply of ICR near-field microprobes and stabilizes their voltage supply (9 V, 100 mA). The bias tee is inserted into the signal path between the active near-field probe and the spectrum analyzer or oscilloscope and powered by a plug-in power supply. Frequency range: 500 kHz to 6 GHz
Connector: SMA
Supply voltage: 12 V / 70 mA plug-in power supply

Adjusting screw for moving
the probe tip in **+x** and **-x** - direction

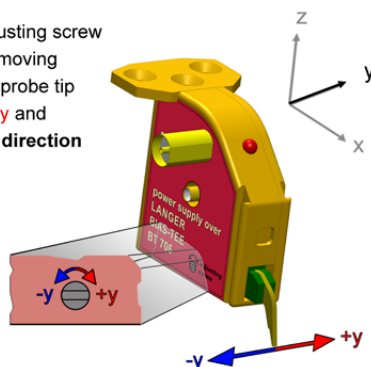


Adjusting screw for X-direction

The adjustment screw on the back of the ICR probe is used to adjust the probe tip in the x-direction (see diagram).

The adjustment travel is ± 1 mm.

Adjusting screw
for moving
the probe tip
in **+y** and
-y - direction



Adjusting screw for Y-direction

The adjustment screw on the left side of the ICR probe is used to adjust the probe tip in the y-direction (see diagram).

The adjustment travel is ± 1 mm.

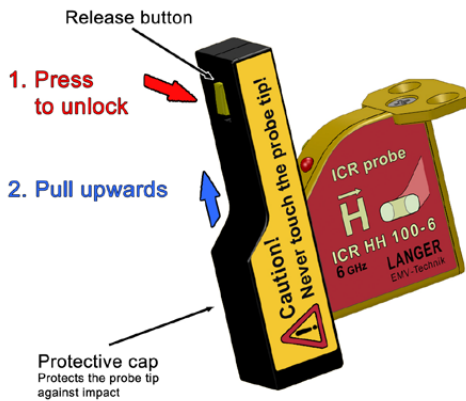




ICR Near-Field Microprobes - Design and Descriptions -

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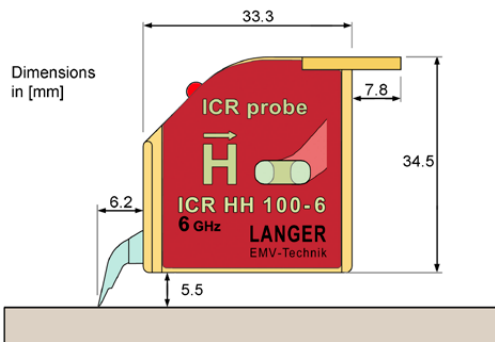
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Protective cap

The removal of the protective cap is shown in the figure on the left. The protective cap should only be removed for measurements and should always be re-attached when the probe is not in use.

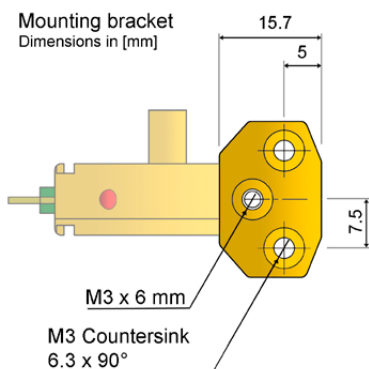
The underside of the protective cap is open, so care must be taken to ensure that nothing penetrates the inside of the protective cap from below. Otherwise damage to the probe tip cannot be ruled out.



View - side view

Information on:

- Probe type (here: ICR HH 100-6)
- Resolution (here: 100 μ m)
- Frequency range (here: 6 GHz)
- Orientation (here: horizontal)

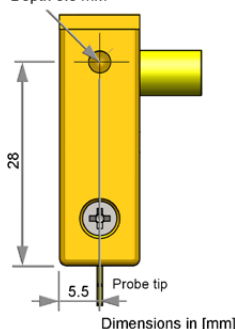


View - top view

An ICR probe can be attached to a Langer scanner via the mounting bracket.

Opening for prober

\varnothing 3 mm
Depth 5.5 mm



View - rear side

Alternatively, the ICR probe can be installed on a micro manipulator. For this purpose, the opening on the back below the mounting bracket is available.

The clamping screw is used for fixation.





ICR Near-Field Microprobes - Overview Probe Types -

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Type	Inner Diameter	Orientation	Measuring Range	
ICR HV 100-27	100 µm		vertical	1.5 MHz to 6 GHz
ICR HV 100-6				2.5 MHz to 6 GHz
ICR HH 100-27	100 µm		horizontal	1.5 MHz to 6 GHz
ICR HH 100-6				2.5 MHz to 6 GHz
ICR HV 150-27	150 µm		vertical	1.5 MHz to 6 GHz
ICR HV 150-6				2.5 MHz to 6 GHz
ICR HH 150-27	150 µm		horizontal	1.5 MHz to 6 GHz
ICR HH 150-6				2.5 MHz to 6 GHz
ICR HV 250-75	250 µm		vertical	500 kHz to 2 GHz
ICR HV 250-6				2.5 MHz to 6 GHz
ICR HH 250-75	250 µm		horizontal	500 kHz to 2 GHz
ICR HH 250-6				2.5 MHz to 6 GHz
ICR HV 500-75	500 µm		vertical	500 kHz to 1 GHz
ICR HV 500-6				2 MHz to 6 GHz
ICR HH 500-75	500 µm		horizontal	500 kHz to 1 GHz
ICR HH 500-6				2 MHz to 6 GHz
ICR E 150	150 µm x 35 µm		horizontal	7 MHz to 3 GHz



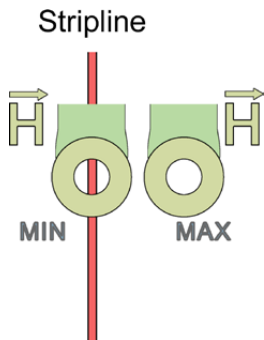


ICR HH100-6

Near-Field Microprobe 2.5 MHz to 6 GHz

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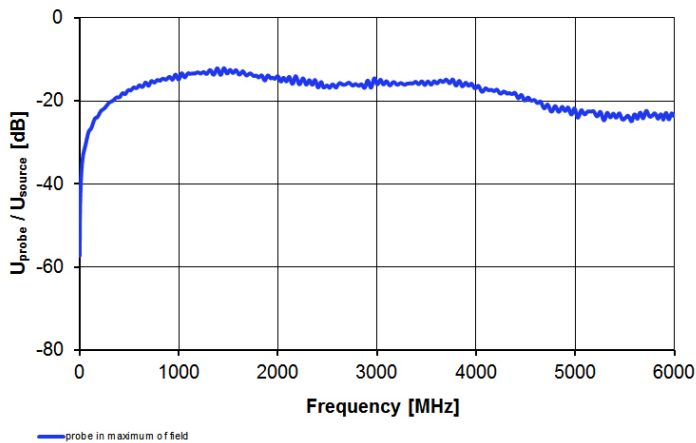


Short Description

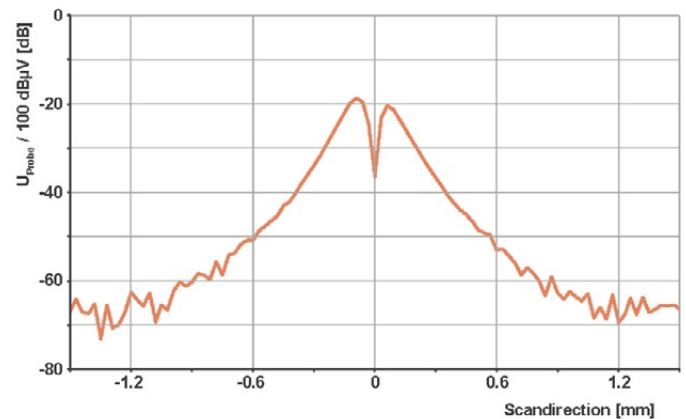
The ICR HH100-6 near-field microprobe is used to measure magnetic fields at extremely high resolution and sensitivity. The optimal distance to the object being measured is < 1 mm. The measuring coil is horizontally aligned within the probe head.

Technical Parameters

Frequency range	2.5 MHz ... 6 GHz
Resolution	70 μm
Internal diameter	100 μm



Frequency response ICR HH100-6 @ Stripline width 20 μm , distance 20 μm



Transverse profile ICR HH100-6 @ Stripline width 20 μm , distance 20 μm



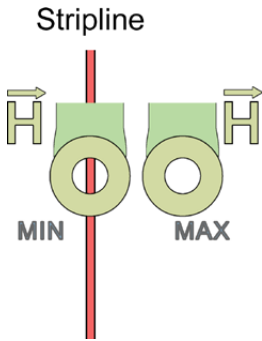


ICR HH100-27

Near-Field Microprobe 1.5 MHz to 6 GHz

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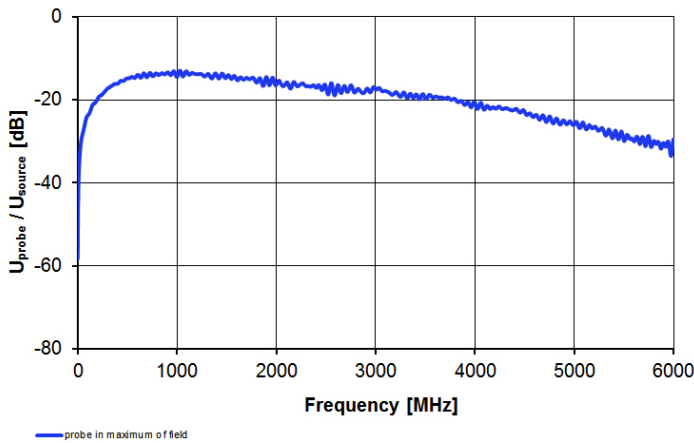


Short Description

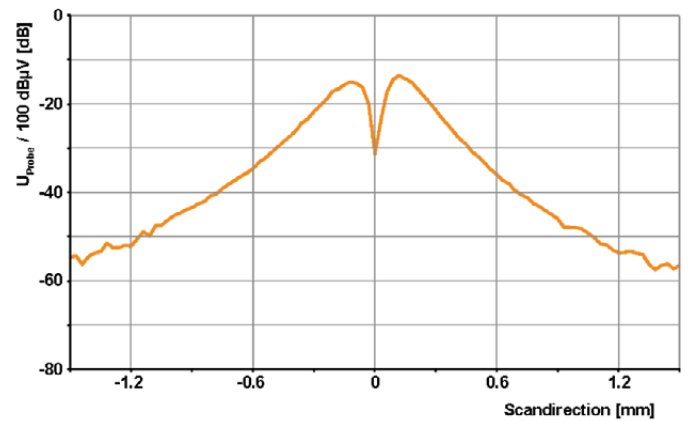
The near-field microprobe is used to measure magnetic fields at extremely high resolution and sensitivity. The optimal distance to the object being measured is < 1 mm. Using the ICR HH100-27, a higher output signal in the lower frequency range is generated (in comparison to ICR HH100-6). The measuring coil is horizontally aligned within the probe head.

Technical Parameters

Frequency range	1.5 MHz ... 6 GHz
Resolution	70 μm
Internal diameter	100 μm



Frequency response ICR HH100-27 @ Stripline width 20 μm , distance 20 μm



Transverse profile ICR HH100-27 @ Stripline width 20 μm , distance 20 μm



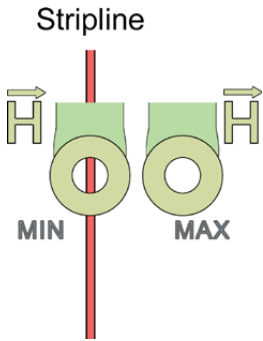


ICR HH150-6

Near-Field Microprobe 2.5 MHz to 6 GHz

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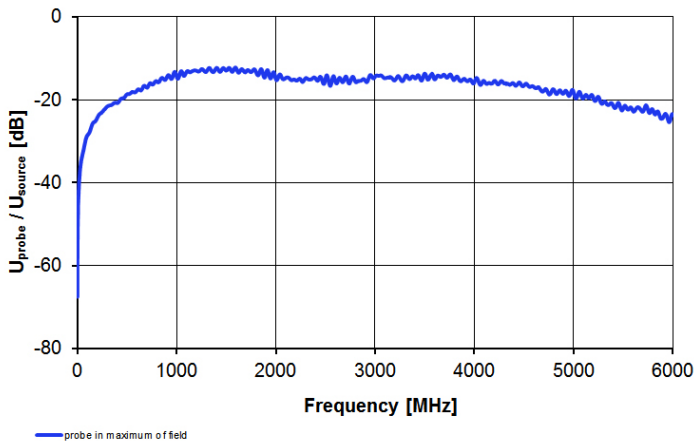
Short Description

The ICR HH150-6 near-field microprobe is used to measure magnetic fields at extremely high resolution and sensitivity. The optimal distance to the measuring object is < 1 mm.

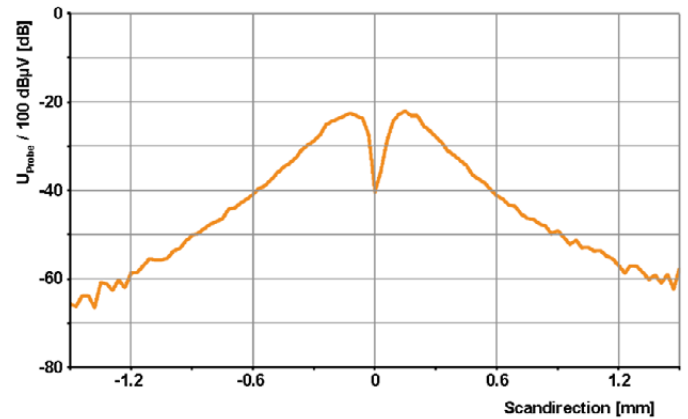
The measuring coil is horizontally aligned within the probe head.

Technical Parameters

Frequency range	2.5 MHz ... 6 GHz
Resolution	100 μ m
Internal diameter	150 μ m



Frequency response ICR HH150-6 @ Stripline width 20 μ m, distance 20 μ m



Transverse profile ICR HH150-6 @ Stripline width 20 μ m, distance 20 μ m



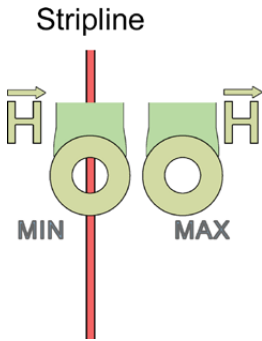


ICR HH150-27

Near-Field Microprobe 1.5 MHz to 6 GHz

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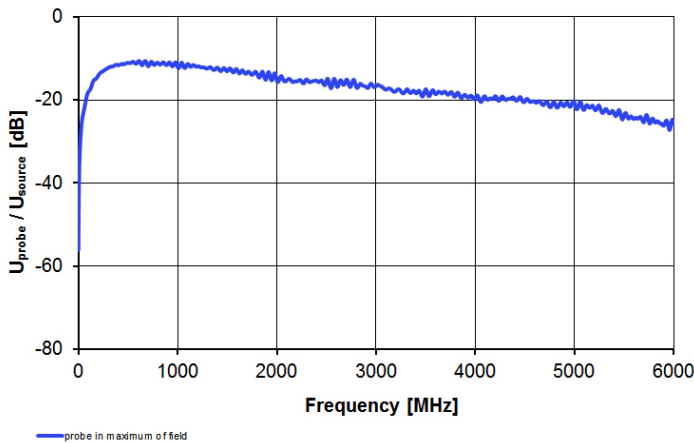


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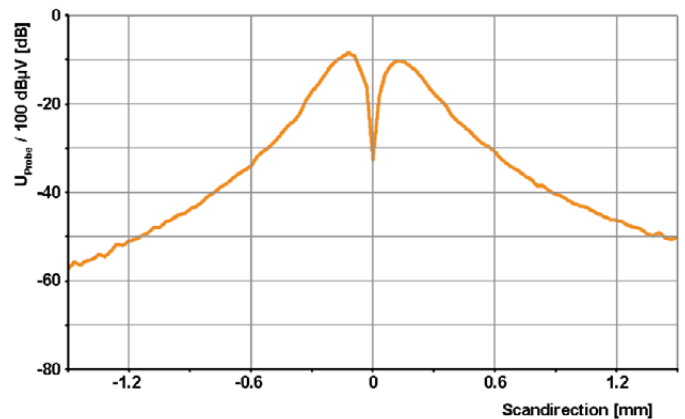
The near-field microprobe is used to measure magnetic fields at extremely high resolution and sensitivity. The optimal distance to the object being measured is < 1 mm. Using the ICR HH150-27 a higher output signal in the lower frequency range is generated (in comparison to ICR HH150-6). The measuring coil is horizontally aligned within the probe head.

Technical Parameters

Frequency range	1.5 MHz ... 6 GHz
Resolution	100 μ m
Internal diameter	150 μ m



Frequency response ICR HH150-27 @ Stripline width 20 μ m, distance 20 μ m



Transverse profile ICR HH150-27 @ Stripline width 20 μ m, distance 20 μ m



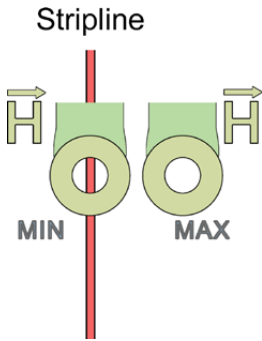


ICR HH250-6

Near-Field Microprobe 2.5 MHz to 6 GHz

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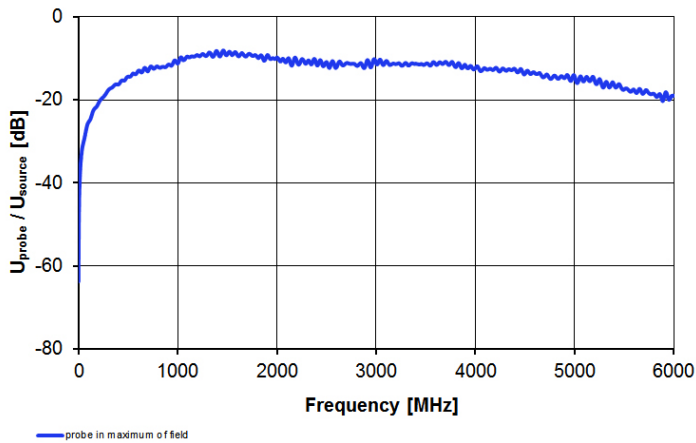


Short Description

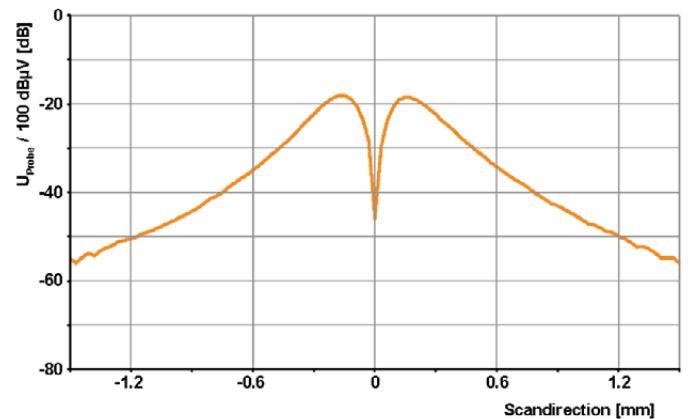
The ICR HH250-6 near-field microprobe is used to measure magnetic near fields at extreme high resolution and sensibility. The optimal distance to the object being measured is < 1 mm. The measuring coil is horizontally placed within the probe head.

Technical Parameters

Frequency range	2.5 MHz ... 6 GHz
Resolution	150 μm
Internal diameter	250 μm



Frequency response ICR HH250-6 @ Stripline width 20 μm , distance 20 μm



Transverse profile ICR HH250-6 @ Stripline width 20 μm , distance 20 μm



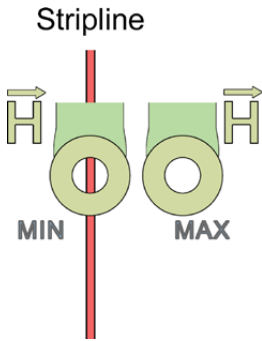


ICR HH250-75

Near-Field Microprobe 500 kHz to 2 GHz

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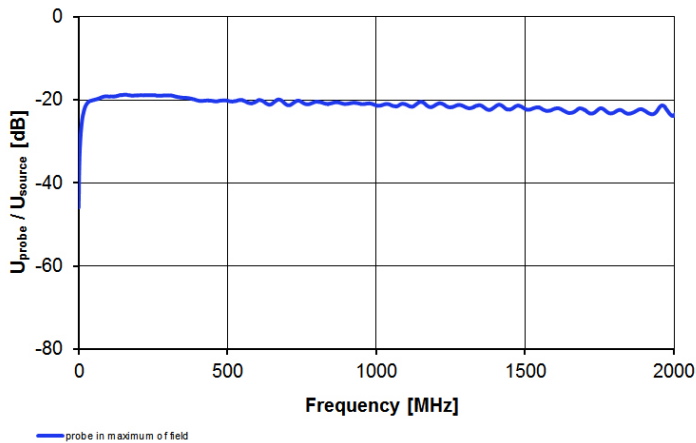


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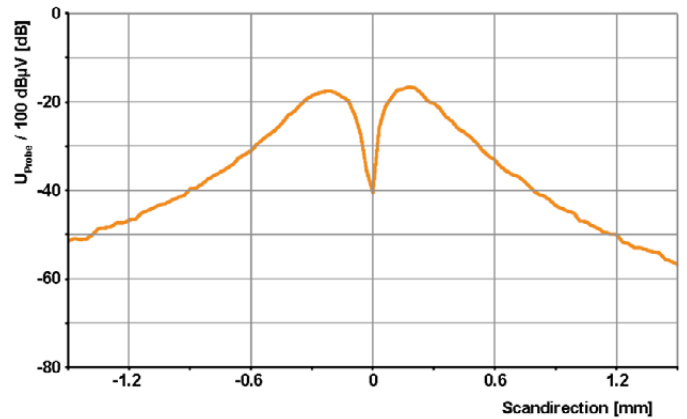
The near-field microprobe is used to measure magnetic fields at extremely high resolution and sensitivity. The optimal distance to the object being measured is < 1 mm. Using the ICR HH250-75 a higher output signal in the lower frequency range is generated (in comparison to ICR HH250-6). The measuring coil is horizontally aligned within the probe head.

Technical Parameters

Frequency range	500 kHz ... 2 GHz
Resolution	150 μm
Internal diameter	250 μm



Frequency response ICR HH250-75 @ Stripline width 20 μm , distance 20 μm



Transverse profile ICR HH250-75 @ Stripline width 20 μm , distance 20 μm



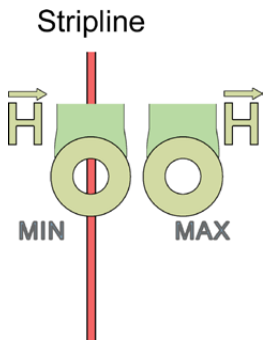


ICR HH500-6

Near-Field Microprobe 2 MHz to 6 GHz

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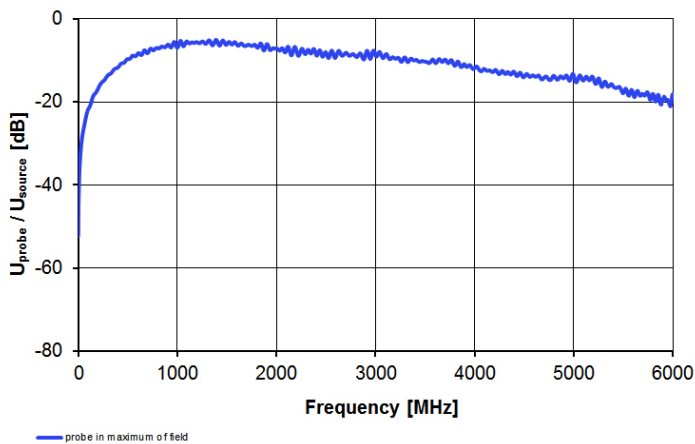


Short Description

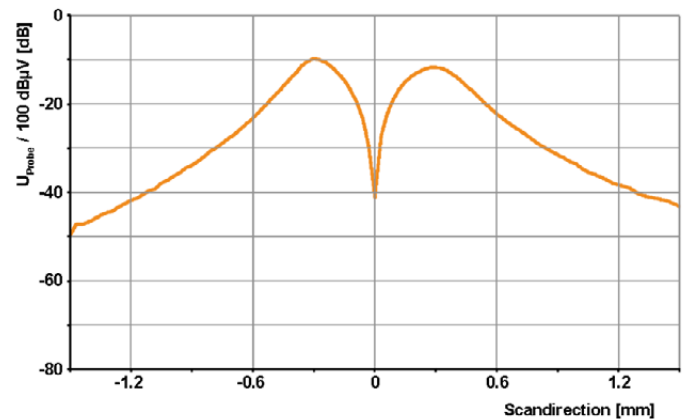
The ICR HH500-6 near-field microprobe is used to measure magnetic near fields at extreme high resolution and sensibility. The optimal distance to the object being measured is < 1 mm. The measuring coil is horizontally placed with in the probe head.

Technical Parameters

Frequency range	2 MHz ... 6 GHz
Resolution	300 μm
Internal diameter	500 μm



Frequency response ICR HH500-6 @ Stripline width 20 μm , distance 20 μm



Transverse profile ICR HH500-6 @ Stripline width 20 μm , distance 20 μm



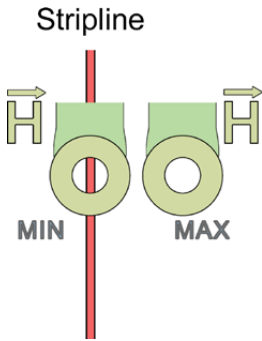


ICR HH500-75

Near-Field Microprobe 500 kHz to 1 GHz

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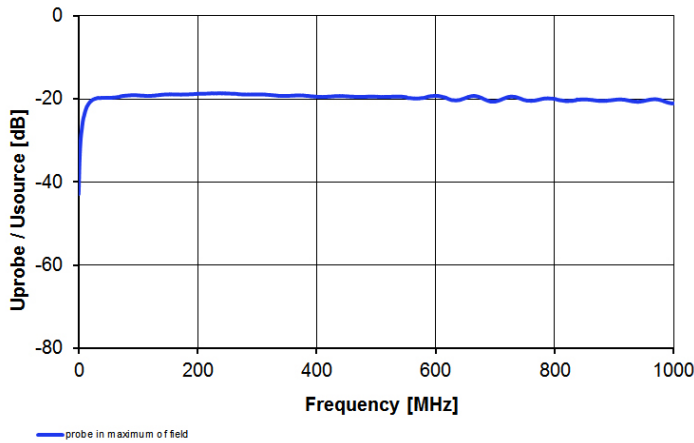


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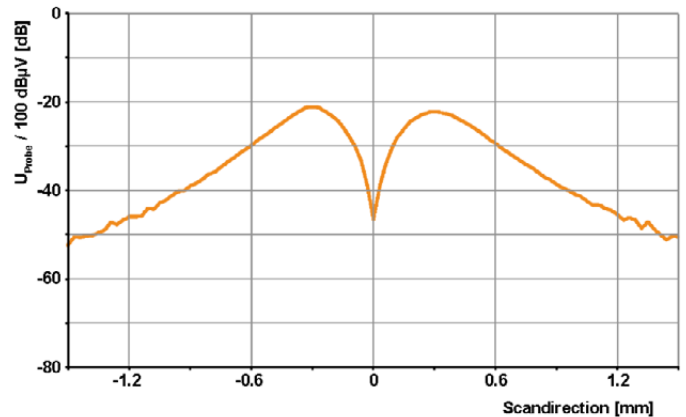
The near-field microprobe is used to measure magnetic near fields at extreme high resolution and sensibility. The optimal distance to the object being measured is < 1 mm. The ICR HH500-75 generates a higher output signal in the lower frequency range in comparison to ICR HH500-6. The measuring coil is horizontally placed within the probe head.

Technical Parameters

Frequency range	500 kHz ... 1 GHz
Resolution	300 μm
Internal diameter	500 μm



Frequency response ICR HH500-75 @ Stripline width 20 μm , distance 20 μm



Transverse profile ICR HH500-75 @ Stripline width 20 μm , distance 20 μm



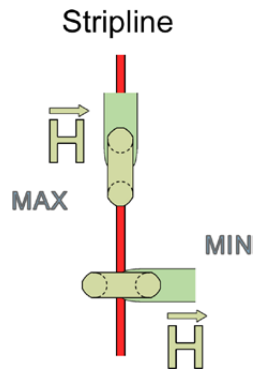


ICR HV100-6

Near-Field Microprobe 2.5 MHz to 6 GHz

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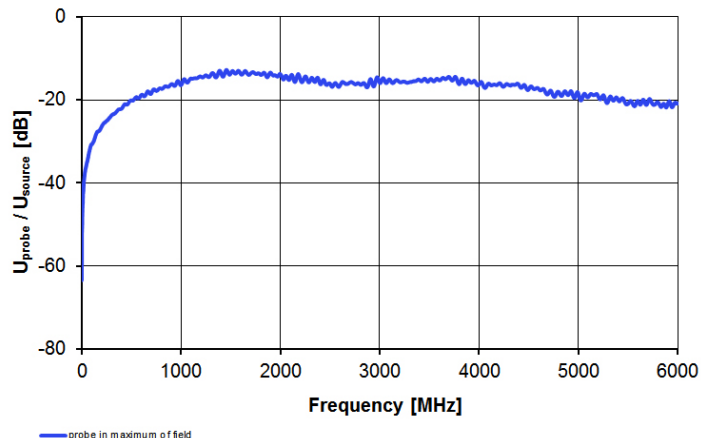


Short Description

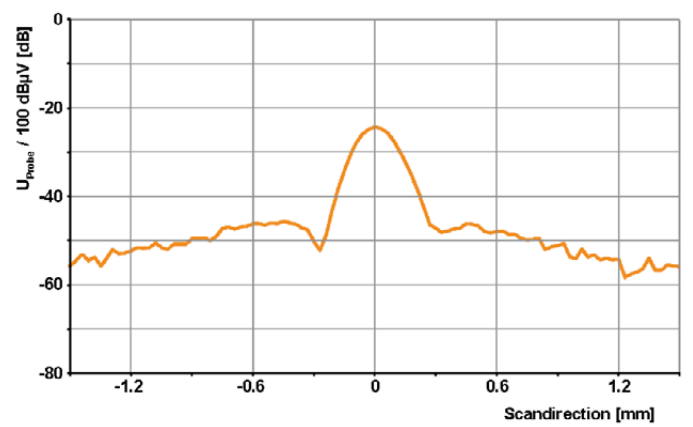
The ICR HV100-6 near-field microprobe is used to measure magnetic fields at extremely high resolution and sensitivity. The optimal distance to the measuring object is < 1 mm. The measuring coil is vertically aligned within the probe head.

Technical Parameters

Frequency range	2.5 MHz ... 6 GHz
Resolution	60 μm
Internal diameter	100 μm



Frequency response ICR HV100-6 @ Stripline width 20 μm , distance 20 μm



Transverse profile ICR HV100-6 @ Stripline width 20 μm , distance 20 μm



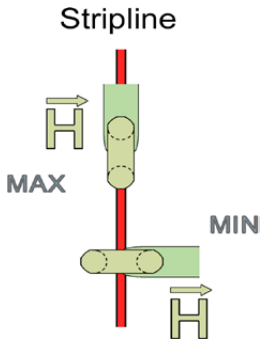


ICR HV100-27

Near-Field Microprobe 1.5 MHz to 6 GHz

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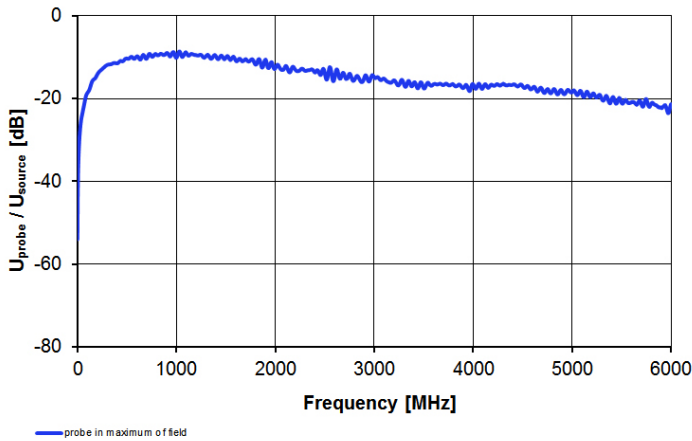


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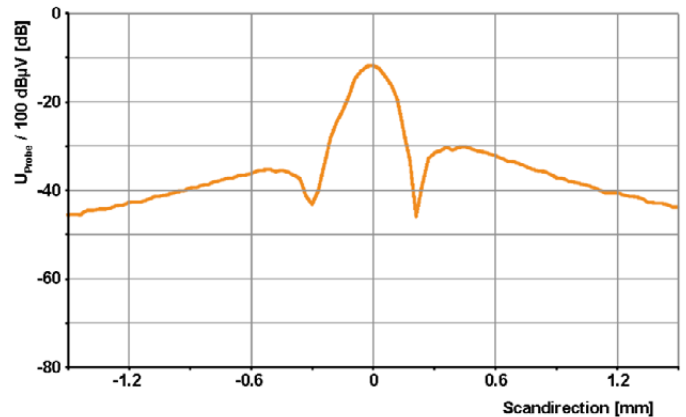
The near-field microprobe is used to measure magnetic fields at extremely high resolution and sensitivity. The optimal distance to the object being measured is < 1 mm. Using the ICR HV100-27 a higher output signal in the lower frequency range is generated (in comparison to ICR HV100-6). The measuring coil is vertically aligned within the probe head.

Technical Parameters

Frequency range	1.5 MHz ... 6 GHz
Resolution	60 μm
Internal diameter	100 μm



Frequency response ICR HV100-27 @ Stripline width 20 μm , distance 20 μm



Transverse profile ICR HV100-27 @ Stripline width 20 μm , distance 20 μm



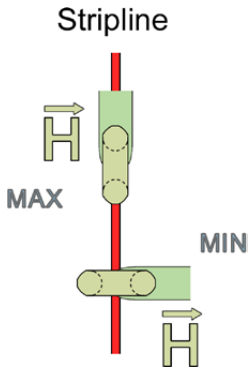


ICR HV150-6

Near-Field Microprobe 2.5 MHz to 6 GHz

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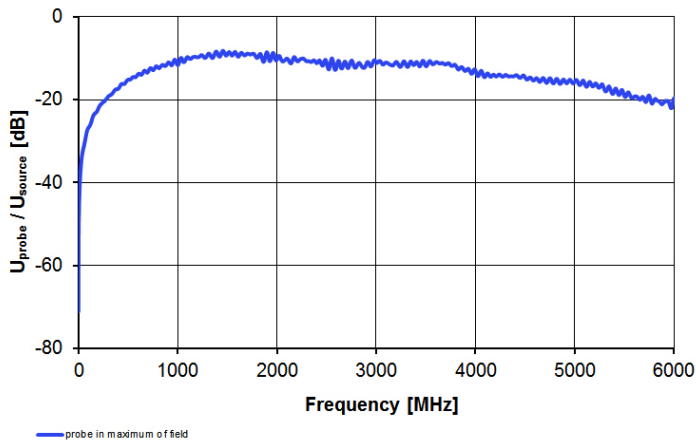


Short Description

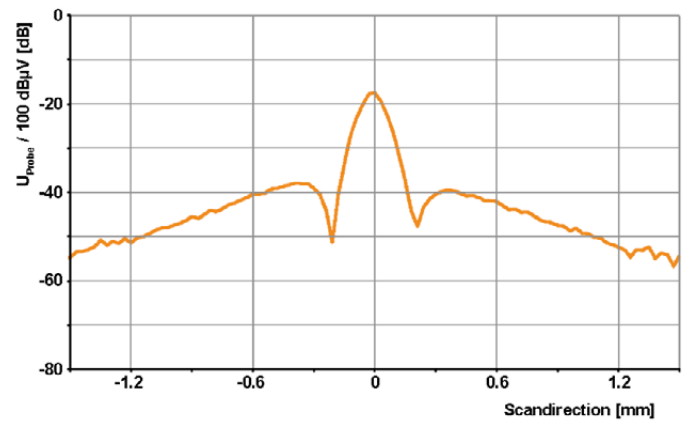
The ICR HV150-6 near-field microprobe is used to measure magnetic fields at extremely high resolution and sensitivity. The optimal distance to the object being measured is < 1 mm. The measuring coil is vertically aligned within the probe head.

Technical Parameters

Frequency range	2.5 MHz ... 6 GHz
Resolution	80 μ m
Internal diameter	150 μ m



Frequency response ICR HV150-6 @ Stripline width 20 μ m, distance 20 μ m



Transverse profile ICR HV150-6 @ Stripline width 20 μ m, distance 20 μ m



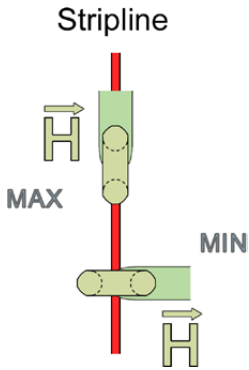


ICR HV150-27

Near-Field Microprobe 1.5 MHz to 6 GHz

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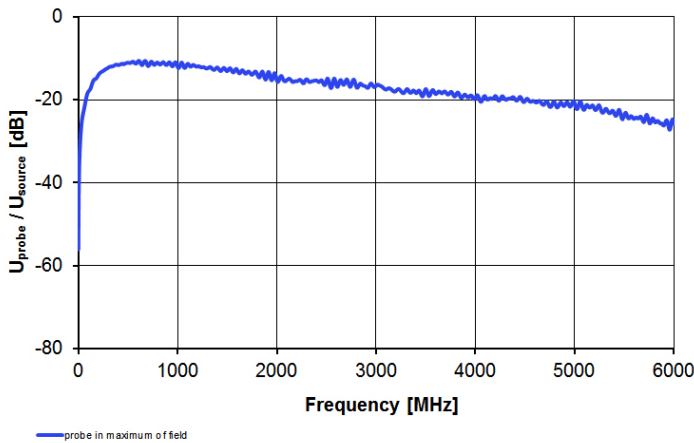


Short Description

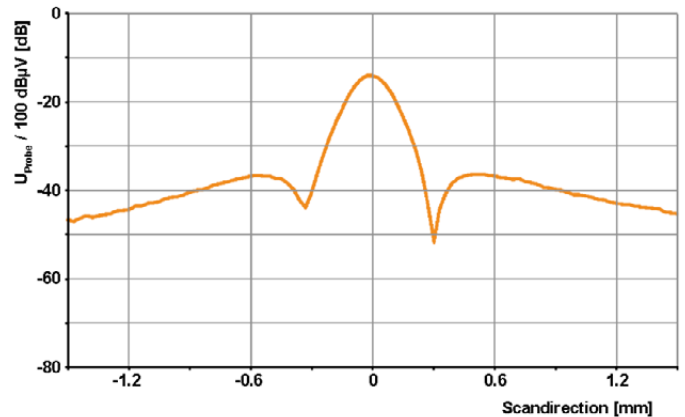
The near-field microprobe is used to measure magnetic fields at extremely high resolution and sensitivity. The optimal distance to the measuring object is < 1 mm. Using the ICR HV150-27 a higher output signal in the lower frequency range is generated (in comparison to ICR HV150-6). The measuring coil is vertically aligned within the probe head.

Technical Parameters

Frequency range	1.5 MHz ... 6 GHz
Resolution	80 μ m
Internal diameter	150 μ m



Frequency response ICR HV150-27 @ Stripline width 20 μ m, distance 20 μ m



Transverse profile ICR HV150-27 @ Stripline width 20 μ m, distance 20 μ m



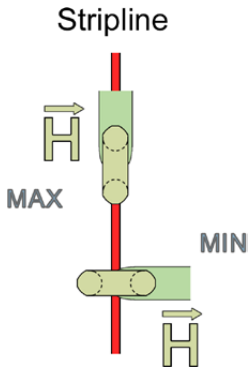


ICR HV250-6

Near-Field Microprobe 2.5 MHz to 6 GHz

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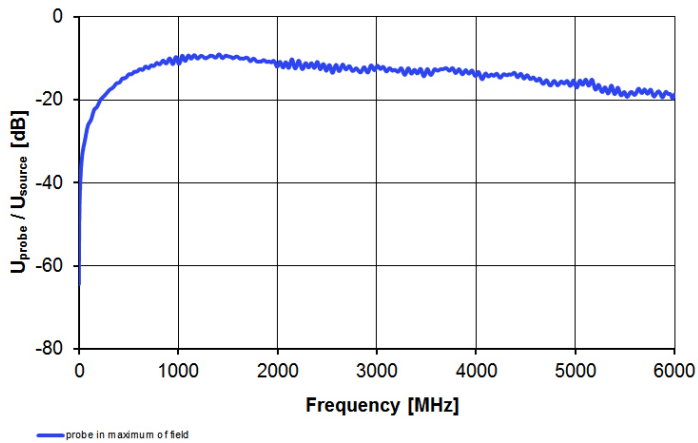
Short Description

The ICR HV250-6 near-field microprobe is used to measure magnetic fields at extremely high resolution and sensitivity. The optimal distance to the object being measured is < 1 mm.

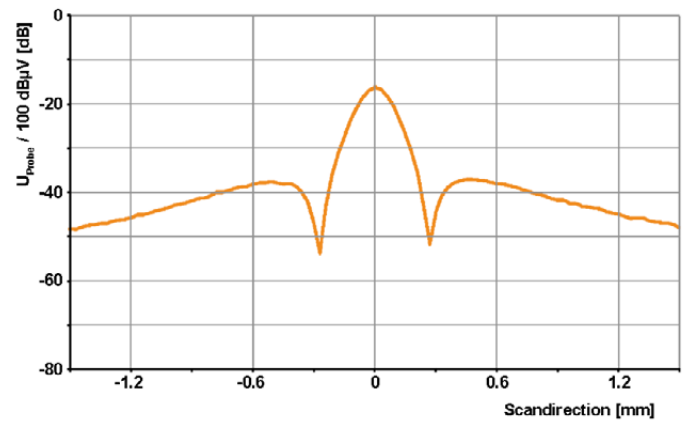
The measuring coil is vertically aligned within the probe head.

Technical Parameters

Frequency range	2.5 MHz ... 6 GHz
Resolution	110 μm
Internal diameter	250 μm



Frequency response ICR HV250-6 @ Stripline width 20 μm , distance 20 μm



Transverse profile ICR HV250-6 @ Stripline width 20 μm , distance 20 μm



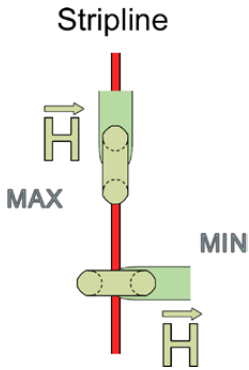


ICR HV250-75

Near-Field Microprobe 500 kHz to 2 GHz

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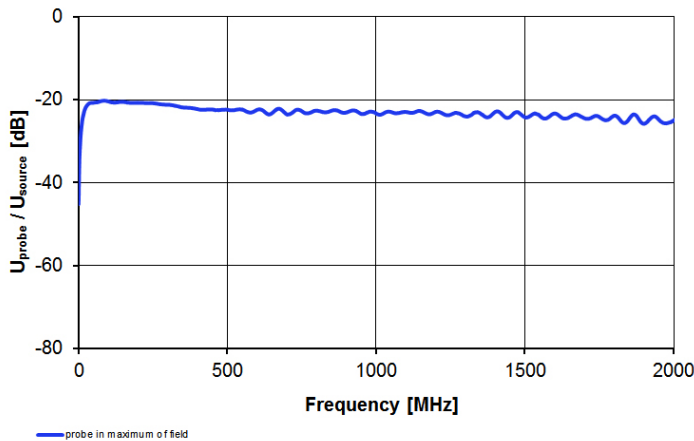


Short Description

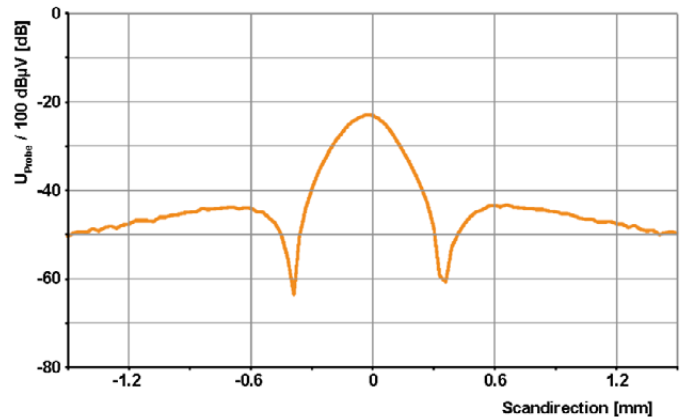
The near-field microprobe is used to measure magnetic fields at extremely high resolution and sensitivity. The optimal distance to the object being measured is < 1 mm. Using the ICR HV250-75 a higher output signal in the lower frequency range is generated (in comparison to ICR HV250-6). The measuring coil is vertically aligned within the probe head.

Technical Parameters

Frequency range	500 kHz ... 2 GHz
Resolution	110 μ m
Internal diameter	250 μ m



Frequency response ICR HV250-75 @ Stripline width 20 μ m, distance 20 μ m



Transverse profile ICR HV250-75 @ Stripline width 20 μ m, distance 20 μ m



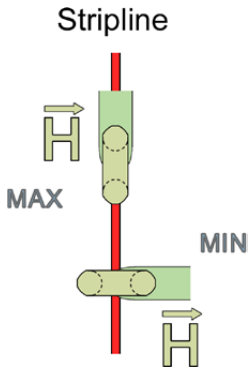


ICR HV500-6

Near-Field Microprobe 2 MHz to 6 GHz

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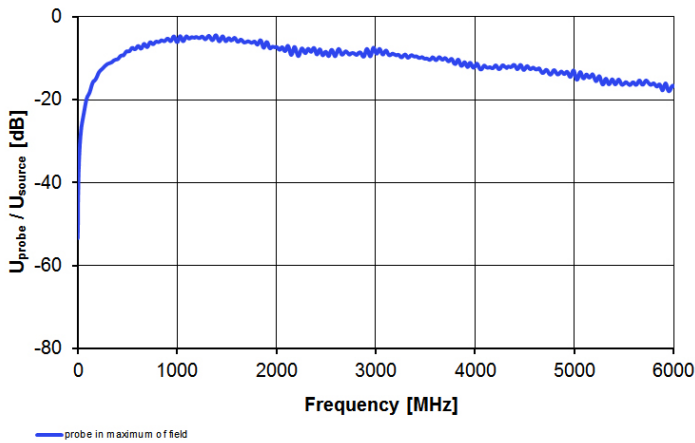


Short Description

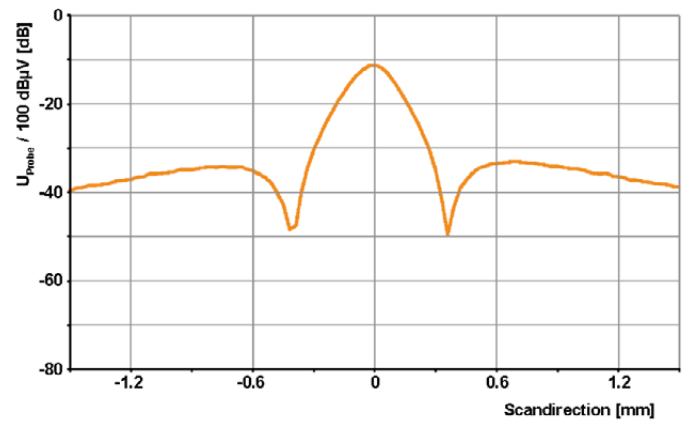
The ICR HV500-6 near-field microprobe is used to measure magnetic fields at extremely high resolution and sensitivity. The optimal distance to the object being measured is < 1 mm. The measuring coil is vertically aligned within the probe head.

Technical Parameters

Frequency range	2.5 MHz ... 6 GHz
Resolution	300 μ m
Internal diameter	500 μ m



Frequency response ICR HV500-6 @ Stripline width 20 μ m, distance 20 μ m



Transverse profile ICR HV500-6 @ Stripline width 20 μ m, distance 20 μ m



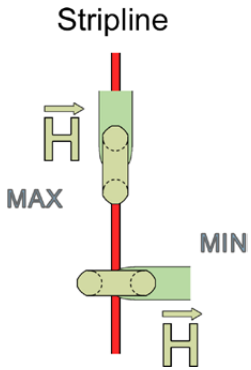


ICR HV500-75

Near-Field Microprobe 500 kHz to 1 GHz

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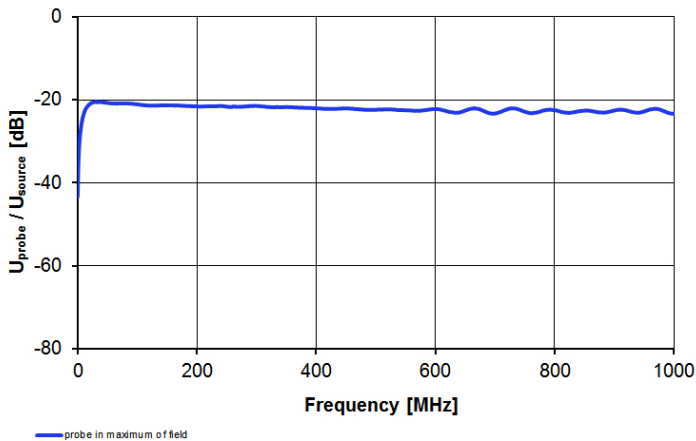


Short Description

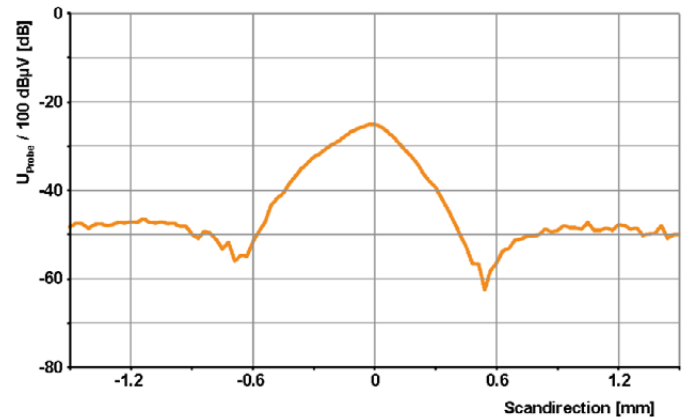
The near-field microprobe is used to measure magnetic fields at extremely high resolution and sensitivity. The optimal distance to the object being measured is < 1 mm. Using the ICR HV500-75 a higher output signal in the lower frequency range is generated (in comparison to ICR HV500-6). The measuring coil is vertically aligned within the probe head.

Technical Parameters

Frequency range	500 kHz ... 1 GHz
Resolution	300 μm
Internal diameter	500 μm



Frequency response ICR HV500-75 @ Stripline width 20 μm , distance 20 μm



Transverse profile ICR HV500-75 @ Stripline width 20 μm , distance 20 μm



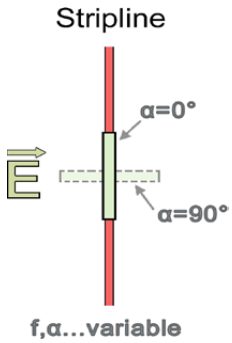


ICR E150

Near-Field Microprobe
E-field 7 MHz to 3 GHz

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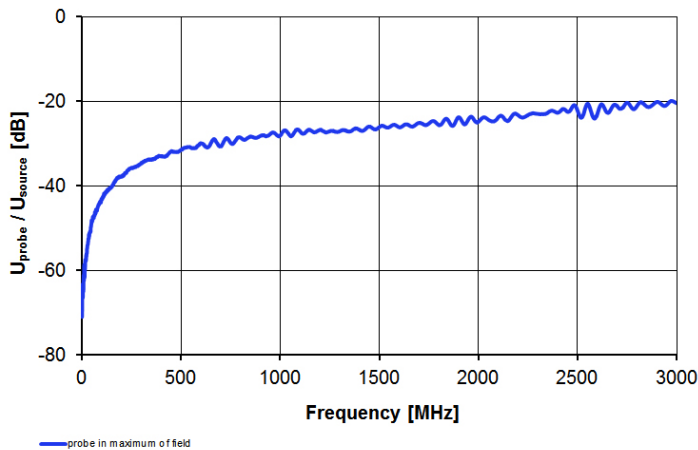


Short Description

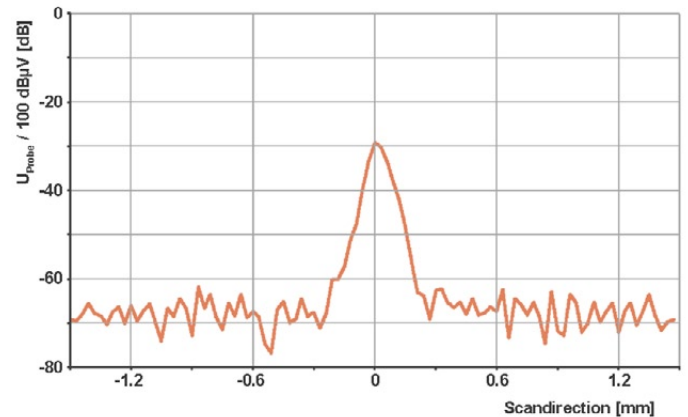
The ICR E150 near-field microprobe is used to measure electric fields at extremely high resolution and sensitivity. The optimal distance to the object being measured is < 1 mm. Due to its small probe head dimensions, the probe has to be moved by a manual or automatic positioning system, e.g. Langer-Scanner.

Technical Parameters

Frequency range	7 MHz ... 3 GHz
Resolution	65 μm
Electrode surface area	(150 x 35) μm



Frequency response ICR E150 @ Striplinewidth 20 μm , distance 20 μm



Transverse profile ICR E150 @ Stripline width 20 μm , distance 20 μm

