

# R&S® HE400 Handheld Directional Antenna

Expert in interference  
hunting



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**ROHDE & SCHWARZ**

# R&S®HE400 Handheld Directional Antenna At a glance

Versatile, sensitive and easy to use.

The R&S®HE400 reliably locates transmitters and interference sources in any environment in the shortest possible time.

The R&S®HE400 handheld directional antenna is used to locate transmitters and interference sources. Bearings are found by manually pointing the antenna in the direction where the signal is strongest.

The antenna is optimized to be used with the R&S®PR100 portable receiver or the R&S®FSH handheld spectrum analyzer. It consists of an antenna handle, a receiver-customized cable set and different antenna modules that can easily be attached by means of a locking ring.

## Key facts

- ▮ Pluggable antenna modules
- ▮ Ease of use and control
- ▮ Geolocation and triangulation
- ▮ Sensitivity and dynamic range

Interference hunting using the R&S®HE400 antenna with the R&S®HE400HF antenna module.





# R&S®HE400 Handheld Directional Antenna

## Benefits and key features

Removable armrest for fatigue-free operation.



### Pluggable antenna modules

Five different antenna modules from 8.3 kHz to 8 GHz with partial overlap are available. They can be plugged into the antenna handle in order to enable reception of vertically or horizontally polarized signals.

The type of module and its orientation is detected by the antenna handle – making it possible to automatically display field-strength values on the connected receiver based on stored antenna factor data.

### Ease of use and control

The R&S®HE400 features trigger and toggle buttons directly on the antenna handle, allowing users to perform all necessary controls – including receiver-configurable trigger actions. Its light weight makes operation fatigue-free. In conjunction with the removable armrest, even long-term surveillance tasks in the field do not stress the user.

### Geolocation and triangulation

The integrated electronic compass delivers exact azimuth and elevation data. Together with the sensitive GPS- and Glonass-capable receiver in the antenna handle, precise location accuracy is provided by triangulation.

### Sensitivity and dynamic range

The built-in low-noise amplifier (LNA) is enabled or disabled with a toggle button directly on the antenna handle. It ensures optimum sensitivity in active mode but also offers improved dynamic range when switched to passive mode, where it is bypassed.

The LNA as well as all other components in the antenna are supplied by the connected receiver via the cable set, thus eliminating the need for batteries inside the R&S®HE400.

# Applications



The R&S®HE400 addresses a wide range of applications and a multitude of potential customer groups. With the individual configuration of the antenna modules, it can be tailored to any individual task. Upgrades with additional antenna modules are possible at a later stage.

## General interference hunting or bug hunting

All antenna modules (except R&S®HE400HF) provide an unambiguous radiation pattern, allowing users to locate a potential interference source based on triangulation of multiple bearings. In highly reflective environments (i.e. indoors) the last few meters to the target are often found more easily by gradually approaching the transmitter (homing mode).

The R&S®HE400UWB ultrawideband antenna module covers the extremely wide frequency range from 30 MHz to 6 GHz with a single module. This improves antenna handling significantly, as it eliminates the need to exchange the antenna module even after a major change of frequency band.

## EMC measurement in the lab environment

The R&S®HE400 is also suitable for any EMC or engineering lab where precompliance measurements have to be performed over a wider frequency range. Typical antenna/transducer factor values are provided with the antenna and are also available by default in the memory of the recommended receiver or spectrum analyzer. With the lightweight and height-adjustable R&S®HE400Z4 tripod, the antenna can be accurately positioned.

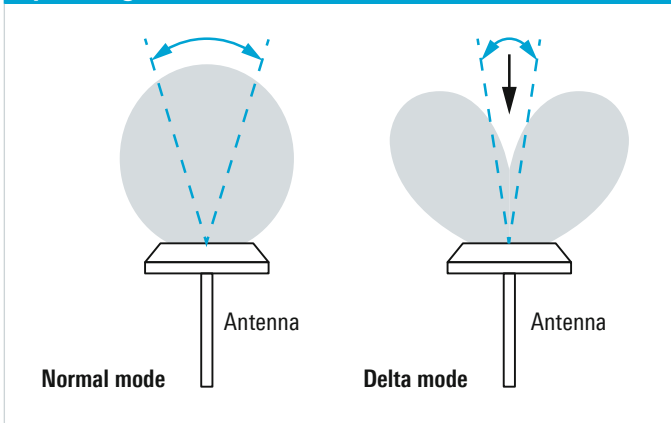
## Base station maintenance and interference hunting in cellular networks

Interference in cellular networks is a growing problem for network operators or their subcontracted maintenance crews.

Highly accurate bearing results are needed in order to quickly locate and find the potential interference source. An antenna based on the log-periodic principle cannot always deliver the required accuracy due to its wide beamwidth. Solutions based on Yagi antennas are more accurate but very limited in bandwidth.

The R&S®HE400CEL cellular antenna module offers a novel approach and provides highly accurate bearing results over the wide frequency range from 700 MHz to 2.5 GHz. The antenna can be switched between normal operating mode, with a distinct maximum pointing to the front, and delta mode, where the radiation pattern exhibits a steep-edge indent at the boresight. Direction finding based on the minimum signal in delta mode allows users to find the source much more accurately.

## Operating modes



# Ordering information

Designation	Type	Order No.
Handheld Directional Antenna (antenna handle)	R&S®HE400	4104.6000.02
HF Antenna Module, 8.3 kHz to 30 MHz	R&S®HE400HF	4104.8002.02
VHF Antenna Module, 20 MHz to 200 MHz	R&S®HE400VHF	4104.8202.02
UWB Antenna Module, 30 MHz to 6 GHz	R&S®HE400UWB	4104.6900.02
Log-Periodic Antenna Module, 450 MHz to 8 GHz	R&S®HE400LP	4104.8402.02
Cellular Antenna Module, 700 MHz to 2500 MHz	R&S®HE400CEL	4104.7306.02
Cable Set for R&S®HE400 and R&S®PR100 or R&S®FSH	R&S®HE400-K	4104.7770.02
<b>Recommended extras</b>		
Transport Case for R&S®HE400	R&S®HE400Z1	4104.9009.02
Transport Bag (small) for R&S®HE400 (recommended for one or two antenna modules)	R&S®HE400Z2	4104.9050.02
Transport Bag (large) for R&S®HE400 (recommended for three or four antenna modules)	R&S®HE400Z3	4104.9080.02
Tripod for R&S®HE400	R&S®HE400Z4	4104.9109.02
Portable Receiver	R&S®PR100	4079.9011.02
Handheld Spectrum Analyzer	R&S®FSH	1309.6000.xx

R&S®HE400Z1 transport case.



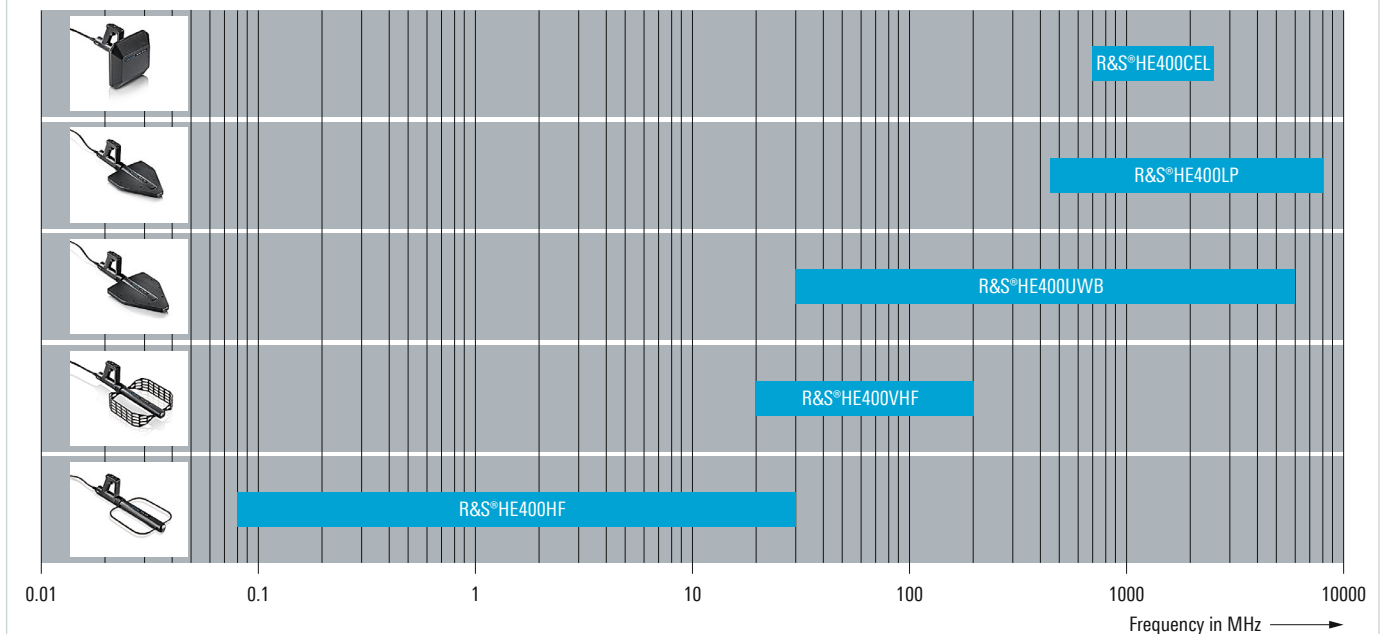
R&S®HE400Z3 transport bag (large).



R&S®PR100 portable receiver with R&S®HE400UWB.



## Frequency coverage of the respective R&S®HE400 antenna modules showing partial overlap



## Service that adds value

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- | Uncompromising quality
- | Long-term dependability

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PD 3607.3468.12 | Version 01.01 | October 2016 (sk)

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3607346812