

R&S®MNT100

RF Interference Locator

Radiolocation in mobile networks from the experts

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Radiolocation in mobile networks from the experts



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ROHDE & SCHWARZ

COMPANY RESTRICTED

What interference...?



china supplier 900MHz Signal Booster / GSM Signal Repeater with Yagi Antenna

US \$25.91-28.94 / Piece

1 Piece (Min. Order)

Model Number: SPB-0034
Brand Name: haweel
Gain: 28dBi
color: gold
Weight: 290g
Frequency Range: 696-960MHz



NEW LISTING GSM / CDMA / DCS / 3G / 4G Mobile Phone Signal Breaker / Jammer / Isolator

Brand New

\$572.28

Buy It Now

From Italy



IP65 Pitch composing 1R1G1B 7 segment p5 led display panel with long lifespan

FOB Reference Price: [Get Latest Price](#)

US \$100-500 / Square Meter | 1 Square Meter/Square Meters (Min. Order)

Supply Ability: 3000 Square Meter/Square Meters per Month

Port: Qingdao,Guangzhou,Shanghai,Zhengzhou

Contact Supplier

Start Order

Leave Messages

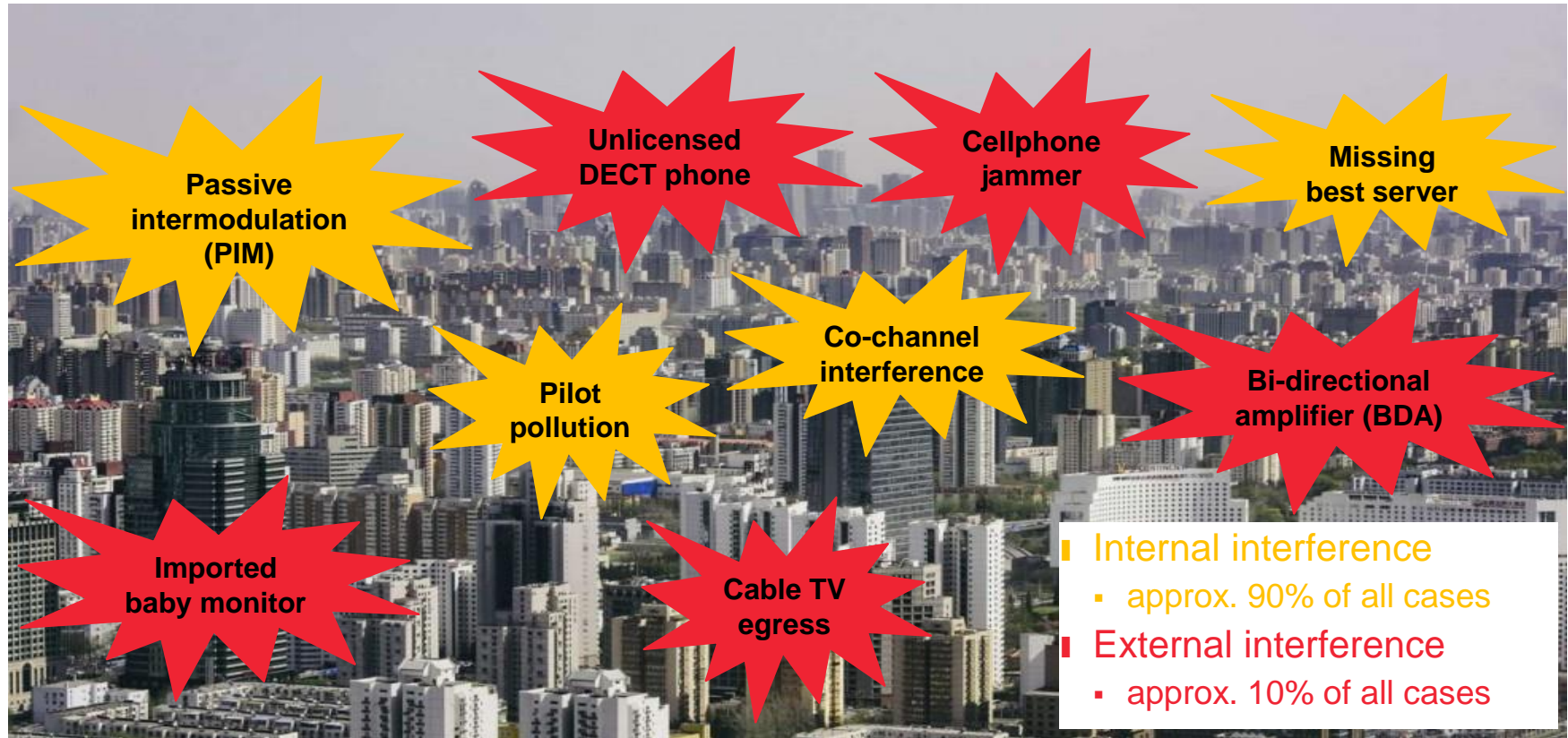
Seller Support:  Trade Assurance - To protect your orders from payment to delivery



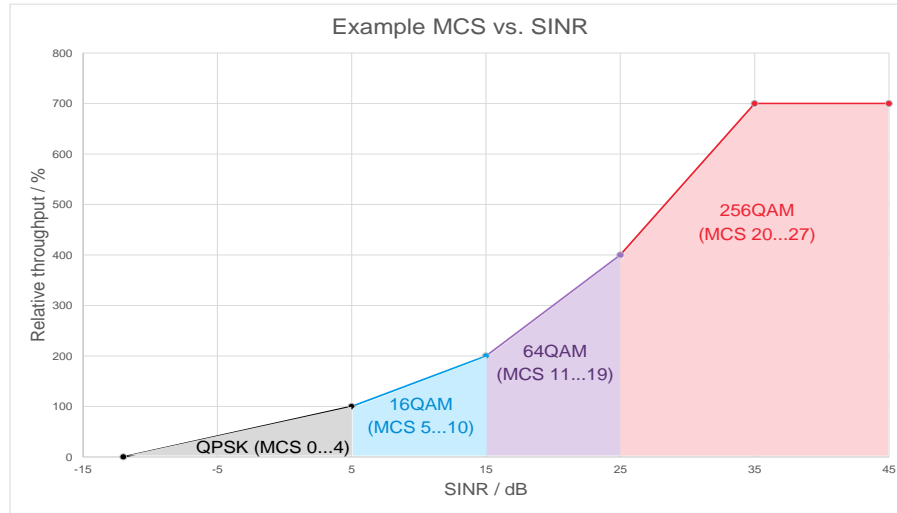
- The increasing number of wireless products that can be bought globally over the Internet contribute to the growing number of RF interferers experienced by mobile network operators

- This causes many possible sources of interference:
 - low quality RF design with insufficient shielding
 - products do not meet local EMI regulations
 - products transmit on different frequencies than those assigned for the specific application by local regulations
 - products are not allowed at all

Sources of Interference



Impact of RF interference on network performance



- RF interference affects the subscriber quality of experience
 - reduced coverage
 - low data rate
 - drop calls
 - no service at all
- Higher order modulation and coding schemes (MCS) allow for increased data throughput but require higher SINR (signal to interference and noise ratio)
- 10 dB lower SINR results in 50% lower data throughput (see figure)

R&S® Tools for Mobile Network Testing

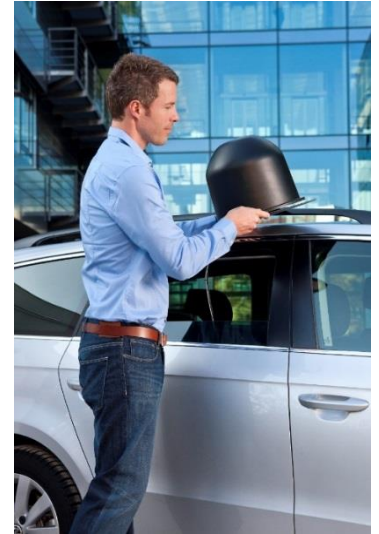
Complete portfolio of tools for MNT



PIM analyzers



Interference analyzers and locators



Vector network analyzers

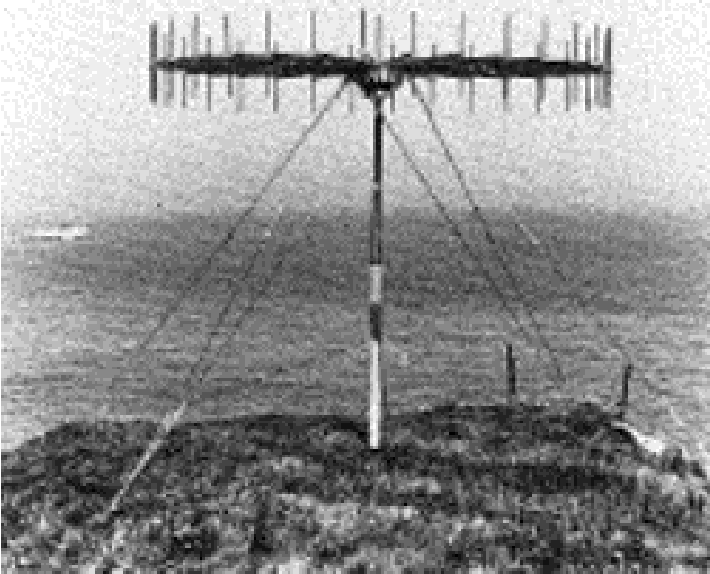


Spectrum analyzers



TSMx scanners & ROMES software

R&S® Testimonial



- RF since 1933
- Radiomonitoring and radiolocation since more than 50 years
- Active member in the International Telecommunications Union (ITU)
- All devices are developed and built in-house

R&S® Reference customers



Bundesnetzagentur

ANACOM

AUTORIDADE
NACIONAL
DE COMUNICAÇÕES



- Market leader in spectrum monitoring equipment and software for regulatory authorities



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Bundesamt für Kommunikation BAKOM



Post-og teletilsynet

- Numerous monitoring receivers and direction finders are in operation worldwide
- Rohde&Schwarz has a high reputation among regulatory authorities

bm vfi

Bundesministerium
für Verkehr,
Innovation und Technologie



Agentschap Telecom
Ministerie van Economische Zaken



ROHDE & SCHWARZ

Interference Hunting Solution with R&S®MNT100

Key benefits



Fast automatic direction-finding with multi-element DF antenna and sophisticated interference locator software as upgrade

Designed for the use with antennas in dense spectrum environments thanks to an extensive preselection



Easy-to-use solution that automatically locates sources of interference strikingly faster than other solutions on the market

High spurious free dynamic range and fastest real-time signal processing in its class



Innovative handheld dual-mode antenna for accurate manual direction-finding (optional HE400CEL)



Designed for the use with antennas in dense spectrum environments

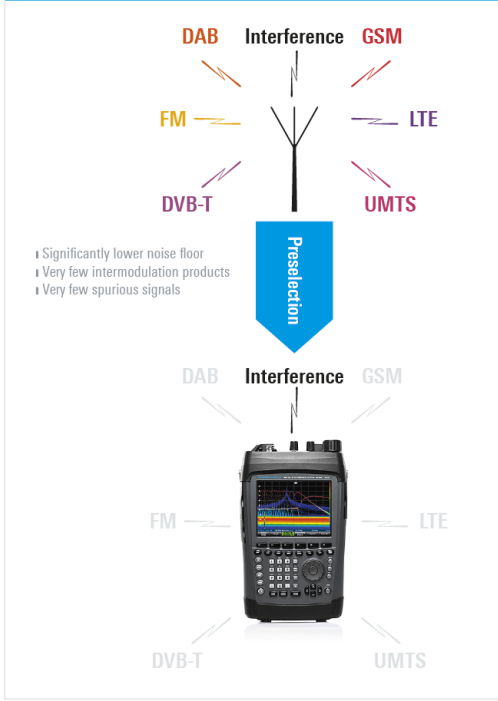


- R&S®MNT100 is essentially a monitoring receiver
 - Monitoring receivers are optimized for
 - measurements connected to an antenna,
 - dense spectrum environments with lots of signals, most of them stronger than the signal of interest, and
 - fast realtime signal processing.
- In contrast to that, spectrum analyzers are optimized for
 - conducted measurements,
 - clean spectrum environments with only the signal of interest,
 - network analysis and cable testing etc.

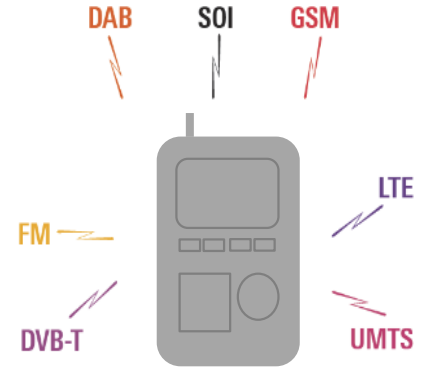
RF preselection and highest sensitivity in its class

Effective filter for strong out-of-band signals

Sophisticated preselection



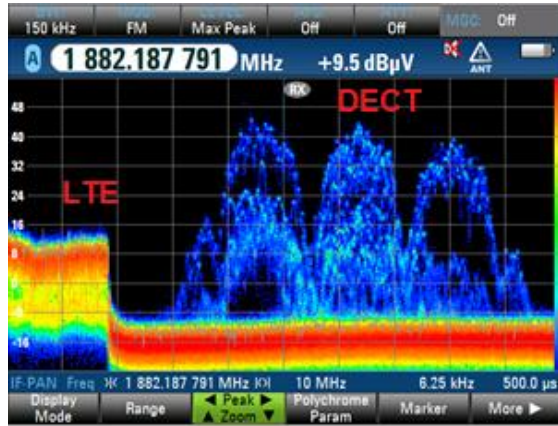
- In practice, many other out-of-band signals arrive at the antenna in addition to the interference signal, e.g. broadcast signals
- Most of these out-of-band signals are stronger than the interference
- R&S®MNT100 features an RF preselection to filter such out-of-band signals. Benefits:
 - Significantly lower noise floor
 - Very few intermodulation products
 - Very few spurious signals
- R&S®MNT100 provides **exceptionally high spurious free dynamic range**



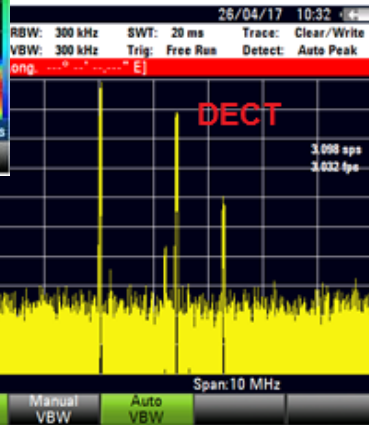
Other comparable devices on the market do not feature an RF preselection. This results in higher noise floor and more spurious signals.

Fastest real-time signal processing in its class

Optimally prepared for bursted interferences



R&S®MNT100 with polychrome display



Spectrum analyzer

- R&S®MNT100 features fast gap-free FFT-based realtime signal processing
- Thanks to this, it can manage hard to detect unstable and bursted interferers
- R&S®MNT100 does not miss even extremely short emissions. Even signals that are transmitted for only 20 ns are detected with 100% probability of intercept (depending on the signal level)

Handheld directional antenna with compass/GPS

For accurate manual direction-finding



- Triangulation of interferers by means of the R&S®HE400LP [log-periodic antenna module](#)
- Covers the frequency range of R&S®MNT100
- [Constant gain](#) over the entire operational frequency range
- [Distinctive radiation pattern](#) facing to the front
- [Integrated compass and GPS](#)

Innovative handheld cellular module with sum/delta mode

For accurate manual direction-finding

- In contrast to typical handheld antennas, R&S®HE400CEL contains **two antenna elements**, which can be combined in normal/delta mode

- Frequency range **700 MHz to 2.5 GHz**

- **In normal mode**

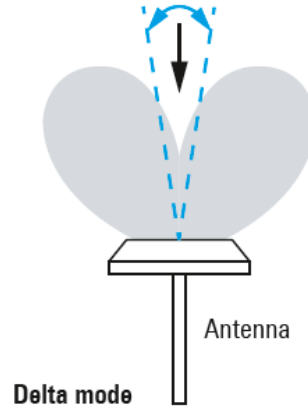
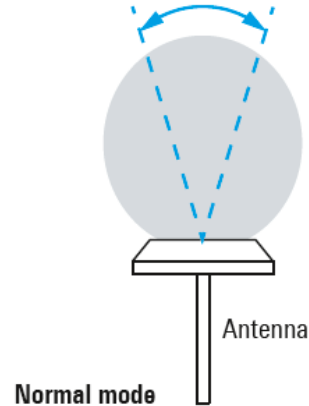
- R&S®HE400CEL provides for high directivity over the entire frequency range

- **In delta mode**

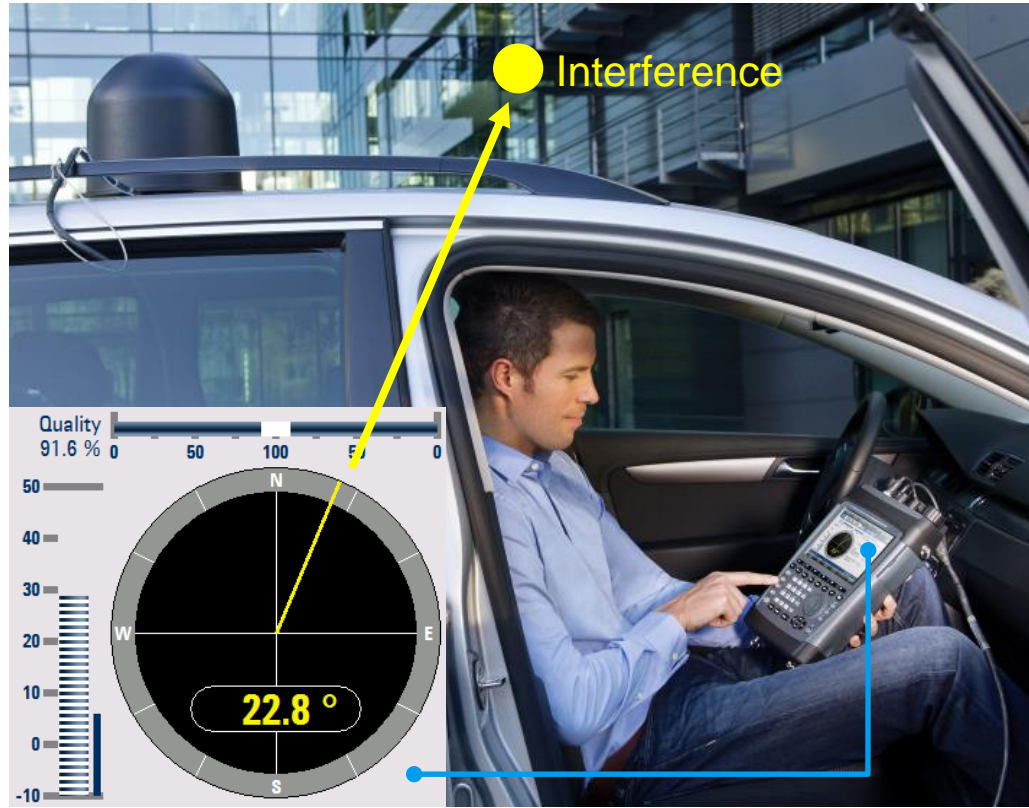
- R&S®HE400CEL provides for a steep edge indent at the boresight of the antenna for highly accurate manual direction finding, better than with any Yagi antenna



Operating modes



Fast automatic direction-finding with multi-element DF antenna

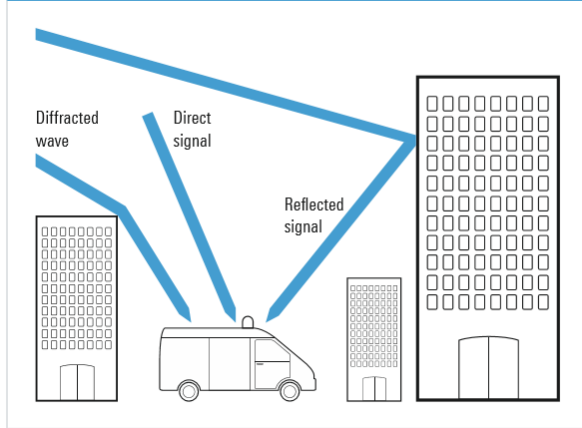


- Fast automatic direction-finder with 600 DF measurements / minute
- The first handheld correlative interferometer direction-finder with typ. 1 degree RMS system DF accuracy on the world market
- Integrated GPS and electronic compass
- Magnetic mount for quick and easy DF antenna installation on a vehicle roof

Fast automatic direction-finding with multi-element DF antenna

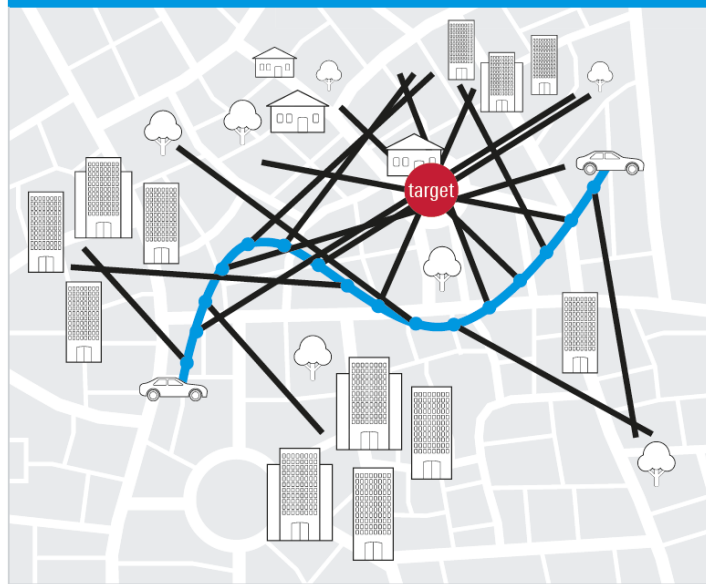
Overcome multipath propagation

Multipath propagation



Multi-path propagation (reflections) can cause a signal to be received from different directions simultaneously.

Principle of a running fix in urban propagation environment

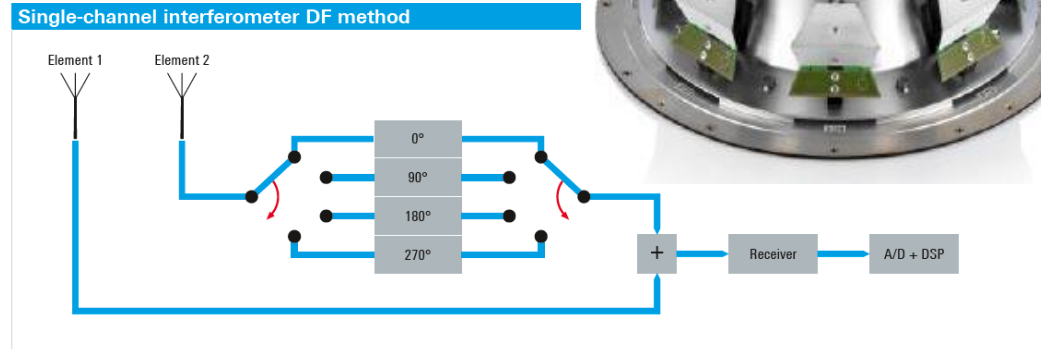


This can be resolved by obtaining and processing large amount of bearings from different locations to overcome the effects of multi-path propagation. This requires fast automatic direction finders in combination with statistical analysis.

Fast automatic direction-finding with multi-element DF antenna

Tried-and-tested technology used by regulators

- Patented single-channel interferometer DF method
- Based on the precise measurement of the phase angles between the reference antenna and other elements
- The sophisticated multi-element R&S®ADD207 compact UHF/SHF DF antenna provides for superior DF accuracy, sensitivity and immunity to reflections
- Tried-and-tested technology used by regulatory authorities worldwide



Easy-to-use solution that locates sources of interference ...strikingly faster than other solutions on the market

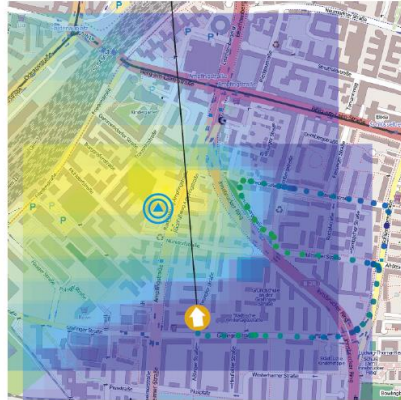
R&S® MobileLocator

After 30 s ¹⁾



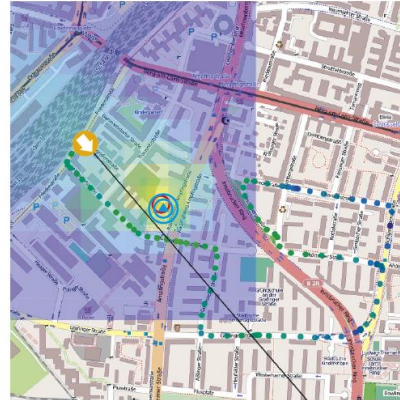
Result after 30 s into the mission. ¹⁾

After 3 min ¹⁾



Approaching the source of interference.

After 6 min ¹⁾



Position fix with 10 m accuracy after 6 min. ¹⁾

 Position of interferer

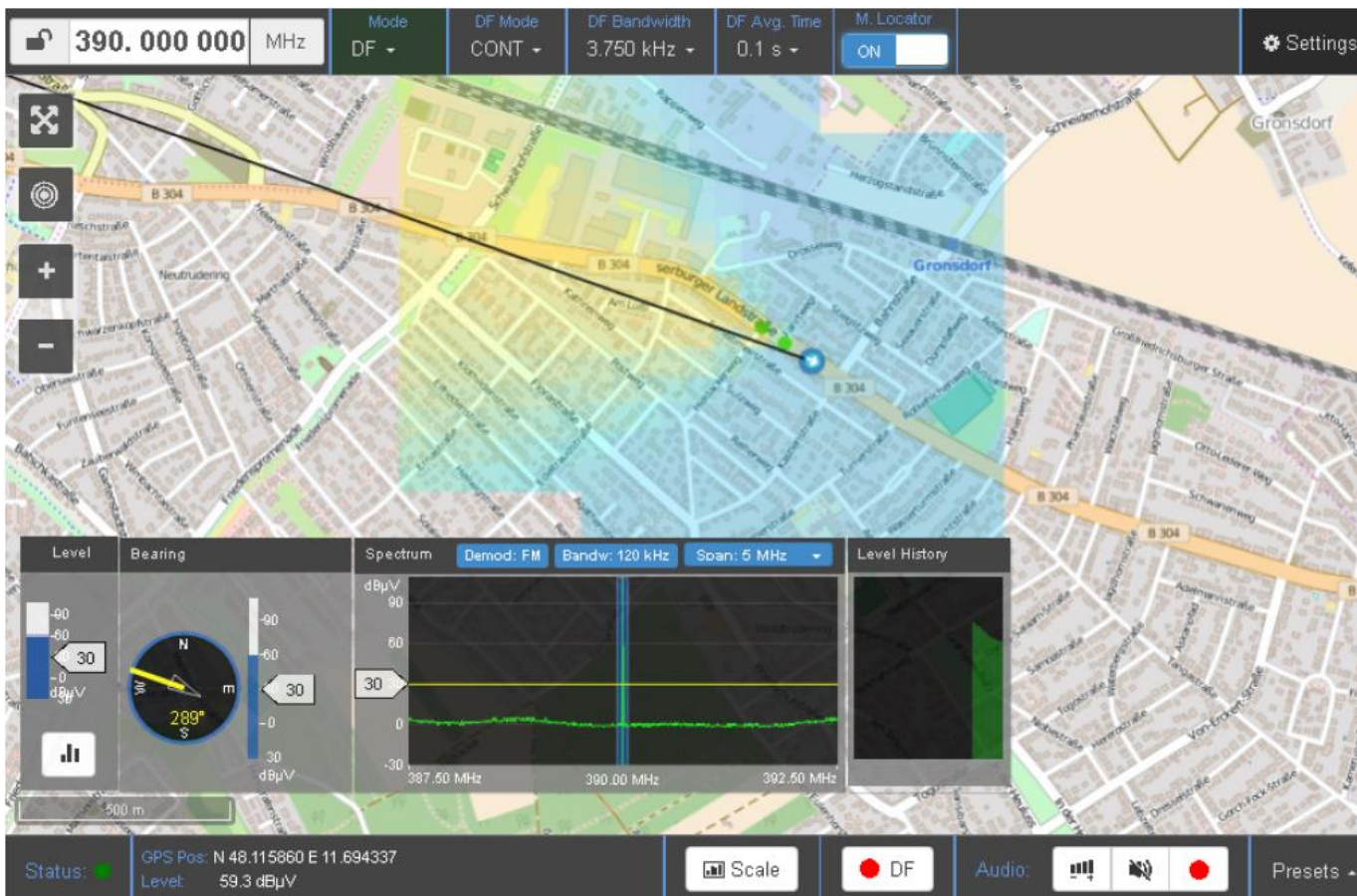
 Mobile direction finding (DF)

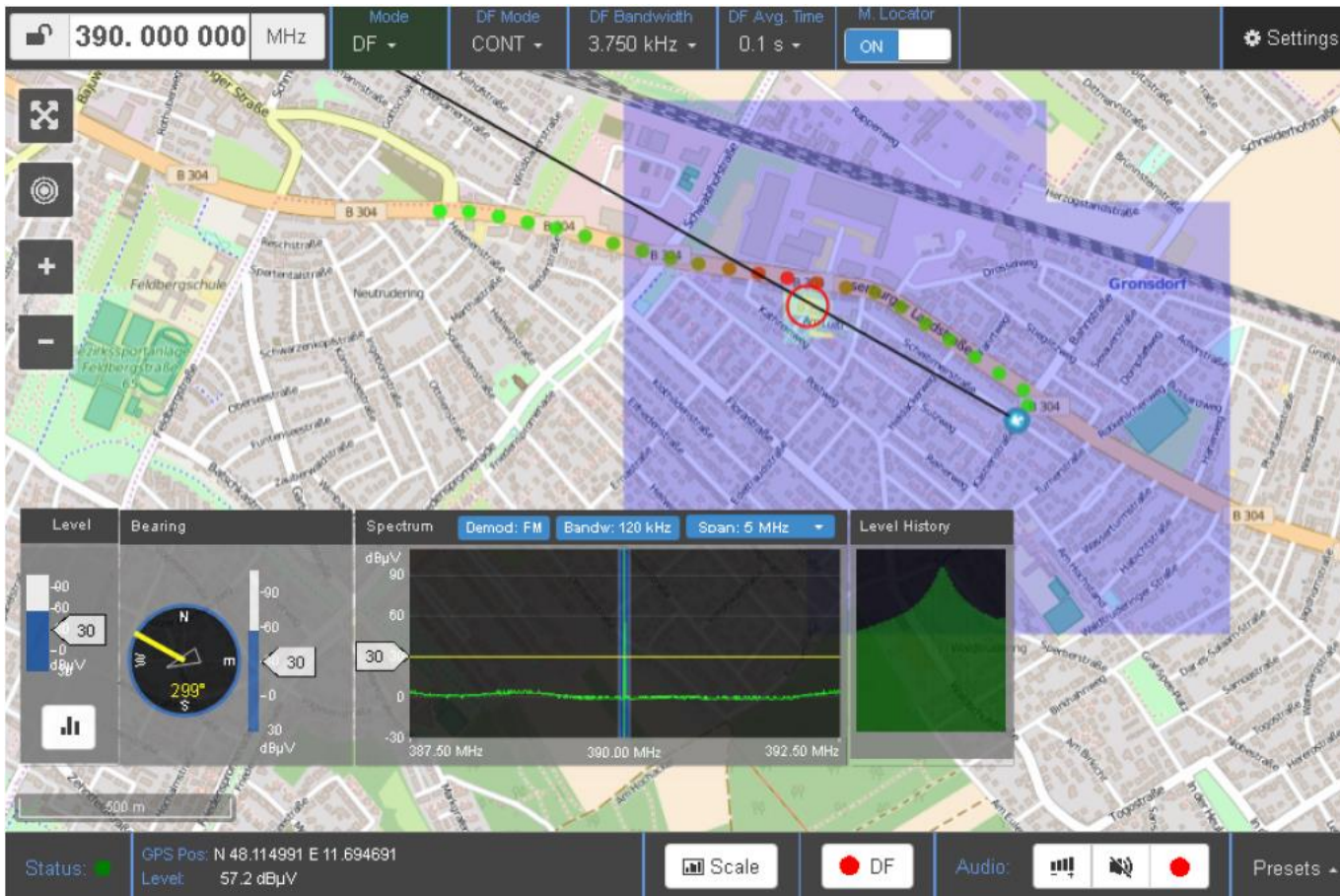
¹⁾ The actual accuracy and processing time depends on the propagation environment.

Customer comment:

“We were searching for an interference without success for 4 weeks . With MobileLocator it took 30 minutes to locate it.”







Standard Locator Package based on R&S®MNT100

Manual direction-finding (homing)



- Based on R&S®MNT100 RF Interference Locator
- Detect, analyze and locate sources of interference in the frequency range 600 MHz to 6 GHz
- Designed for the use with antennas in dense spectrum environments thanks to an extensive preselection
- Highest sensitivity and fastest realtime signal processing in its class
- Package contains R&S®MNT100, R&S®HE400LP and accessories
- Innovative handheld antenna with dual-mode for accurate manual direction-finding in the range 700 MHz to 2.5 GHz (with R&S®HE400CEL as option)



R&S®MNT100



R&S®HE400LP

Automatic Locator Package based on R&S®MNT100

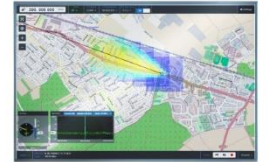
Automatic radiolocation of interferers



- Upgrade to fast automatic direction-finding and automatic interference locator software
- Overcome misleading information from multi-path propagation by means of up to 600 DF results per minute
- Multi-element DF antenna with magnet mount, turns commercial vehicles into mobile DF within minutes
- User-friendly software that allows for one-man operation
- Automatically locates sources of interferers strikingly faster than all other solutions on the market
- Package contains R&S®ADD207, tablet PC with pre-installed R&S®MobileLocator software and accessories



R&S®ADD207
with magnet mount
and cable set



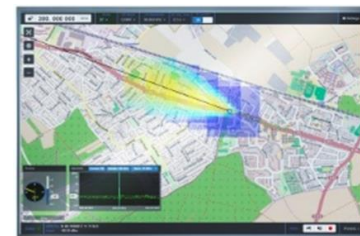
R&S®Mobile
Locator

Locator Packages based on R&S®MNT100

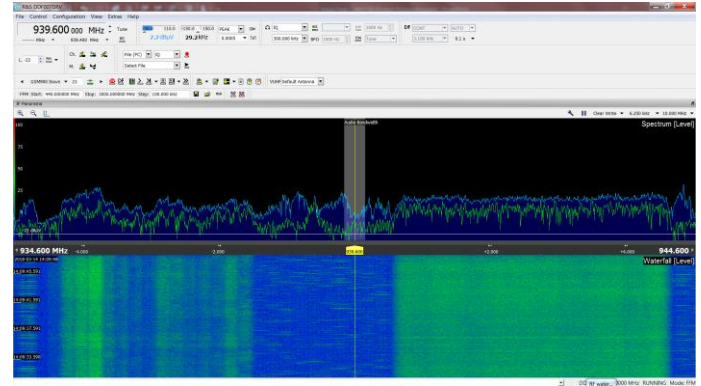
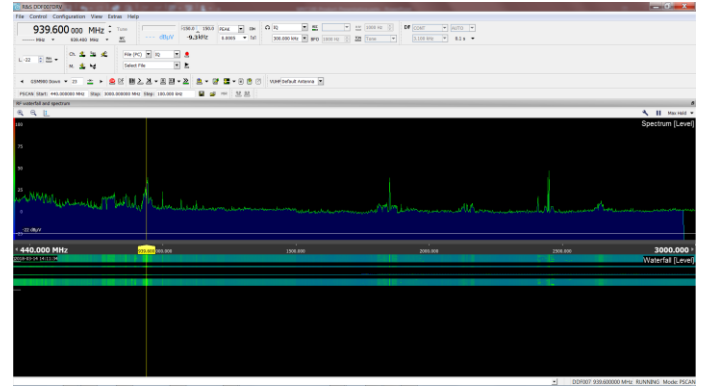
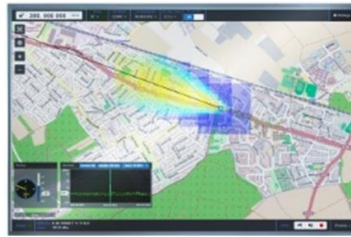
Ordering information



Designation	Type	Order No.
Standard Locator Package Includes: <ul style="list-style-type: none"> ▮ R&S®MNT100¹⁾ RF interference locator ▮ R&S®HE400LP handheld directional antenna with log-periodic module ▮ Handle and cable set ▮ R&S®HA-Z222 carrying holster with R&S®PR100-AP1 sunroof ▮ R&S®HE400Z2 transport bag (small) 	R&S®MNT100LOC1	4081.0218.00
Automatic Locator Package Includes: <ul style="list-style-type: none"> ▮ R&S®ADD207 compact UHF/SHF DF antenna with R&S®ADD17XZ5 antenna cable set (length: 5 m) and R&S®ADD17XZ3 magnet mount ▮ Tablet PC with pre-installed R&S®MobileLocator ▮ R&S®MNT100-TC¹⁾ transport case ▮ R&S®HA-Z202 vehicle power adaptor 	R&S®MNT100LOC2	4081.0224.00
Complete Locator Package Includes basic and automatic locator packages	R&S®MNT100LOC3	4081.0230.00
Accessories		
Cellular Antenna Module	R&S®HE400CEL	4104.7306.02
Rechargeable Battery	R&S®HA-Z206	1309.6146.00
Rechargeable Battery, with charging cradle	R&S®PR100-BP	4071.9206.02
Documentation		
Documentation of Calibration Values ¹⁾	R&S®MNT100-DCV	4071.9906.32



Receiver R&S®EM100 directly connected on BTS Station



A few Unique Selling Points

Cable & antenna testing



ZPH/ZVH:

- ✓ Fastest CAT
- ✓ No errors (Wizard)
- ✓ No calibration needed

PiMPro Tower:

- ✓ Lightest PIM tester
- ✓ 40 W, battery op. mode
- ✓ Dual band models
- ✓ Price!

Spectrum, signal and OTA analysis



FSH:

- ✓ Fastest multi-standard
- ✓ CAT, SPA, OTA (Best MIMO tester!)

FPH:

- ✓ Low-cost spectrum analysis

Interference & spectrum clearance



MNT100:

- ✓ Receiver with preselector
- ✓ Fast scanning

FPH:

- ✓ Low-cost SPA-based interference hunting

BTS functional test



Qualipoc Android:

- ✓ Reflects user perception
- ✓ Voice, data & video testing
- ✓ Channel and cell locking

Network scanning



TsMA:

- ✓ Passive (no SIM card)
- ✓ Automatic channel detection
- ✓ Full on-air network visualization

The only ones with a complete portfolio - Always on target: The Rohde & Schwarz solutions for interference hunting

Identification and location of defective components
Cable and antenna analyzers

Identification of neighbour cell and co-channel interferences
QoS and QoE testing
Network scanners, test mobiles, dedicated analysis software

Network monitoring
Dedicated analysis software, network scanners, remote test mobiles



Identification and location of passive intermodulation
PIM analyzer

Identification, manual and fully-automated location of interferences
Spectrum analyzers, portable receiver
Automatic location software
Directional and DF antennas

Thank you