Cellular network analysis

R&S®NESTOR

ROHDE&SCHWARZ

Make ideas real

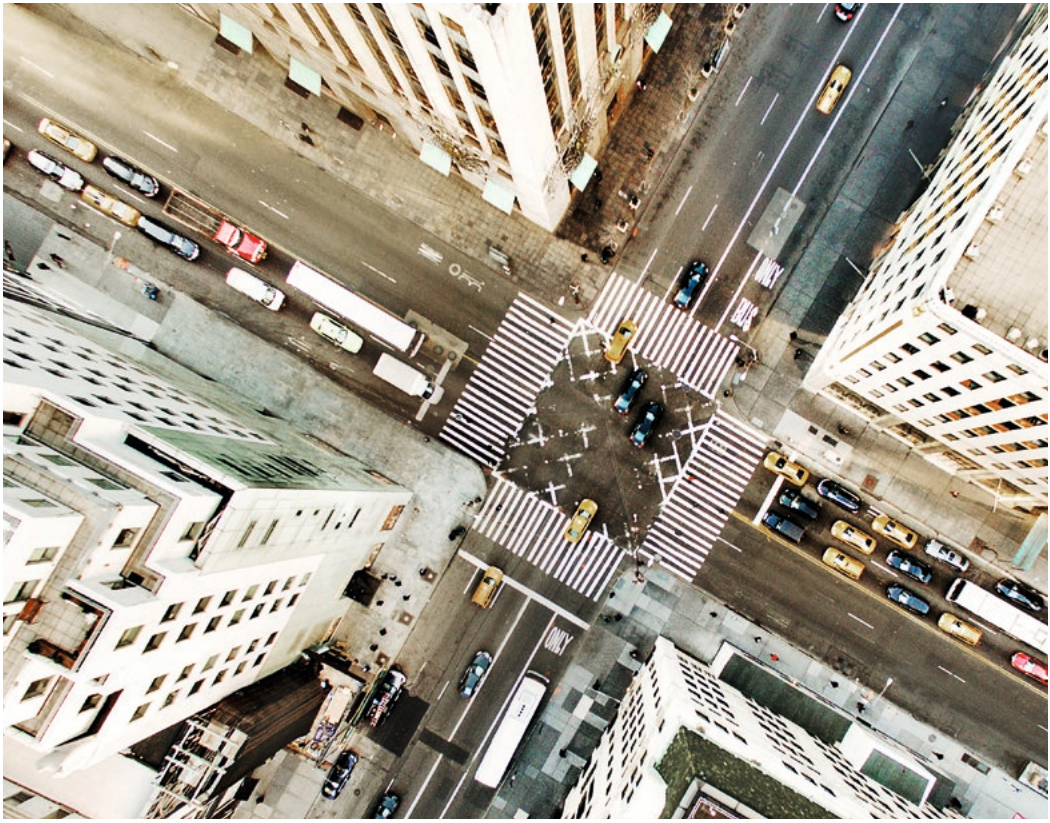
HOW TO MAKE MOBILE RADIO NETWORKS VISIBLE

Cellular network analysis systems measure parameters and read out data from mobile radio networks. They allow authorities to unveil valuable information.

Whenever real facts and parameters of cellular networks are essential, Rohde&Schwarz provides the proper solution. The cellular network analysis (CNA) systems perform measurements on the environment, read out parameters and analyze them. The systems provide data about the network structures and single cells. This information allows authorities to get an overview of the available networks and their coverage. The systems can estimate cell positions, detect irregularly configured base transceiver stations (BTS) and even support forensic investigations.

CELL MEASUREMENTS

Rohde&Schwarz CNA systems visualize how the frequency spectrum is utilized by mobile radio networks. Users quickly get an overview of the network technologies in operation, used frequency bands and channels. The systems measure values and read out cell data over the air. The resulting comprehensive picture of the network topology is fundamental information for numerous further analyses. Cell coverage measurements deliver a picture of the propagation of cells, groups of cells and entire networks. Best server plots show the cell reselection conditions either by physical power or by the selection conditions that mobile phones would use.



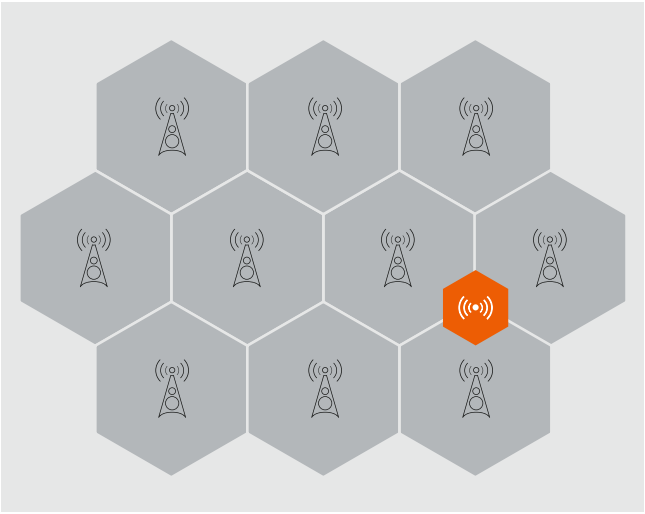
CELL POSITION ESTIMATION

Rohde&Schwarz CNA systems estimate the geographic positions and sector azimuths of the mobile radio cells. Mounted in a vehicle or an aircraft, or deployed for stationary monitoring, the systems permanently measure and gather cell data while cruising through the area of interest. The systems use advanced signal separation algorithms for outstanding results even in difficult signal environments. This way, cell lists can be created and updated, even without network operator information.

BASE STATION ANALYSIS

Rohde&Schwarz CNA systems can detect and locate misconfigured cells in mobile radio networks. Cells that are not harmonically integrated in the network environment deviate from the operators' usual network settings. The CNA systems recognize these conspicuous characteristics and alert the users. The analysis of suspicious cells can be performed stationarily with a single system or with several networking stations; however, depending on the requirements, mobile operation is also possible.

Detecting and geolocating irregularly configured cells



FORENSIC INVESTIGATIONS

Rohde&Schwarz CNA systems also support measurements for law enforcement purposes. Users can measure cell parameters at certain sites and compare them with data from the involved network operators. Results can verify alibis or substantiate suspicion. Moreover, such data matching with measurements at crime scenes can reveal further indications about potential suspects.

MOBILE NETWORK SCANNERS

Rohde&Schwarz mobile network scanners measure all common technologies in all bands in parallel. They scan the spectrum at top speed, even in dense networks and with active BCH demodulation. Thanks to their high sensitivity and dynamic range, the scanners are multipurpose instruments for different network environments.
The software defined receivers are upgradable for new technologies, making them future-proof investments.

R&S®TSMA6 autonomous mobile network scanner
The lightweight R&S®TSMA6 supports multiband scans in the mobile radio frequency ranges. The high-performance device reads out data from all common wireless networks and also features spectrum analysis, all in one box.

R&S®TSME6 ultracompact drive test scanner
The extremely compact R&S®TSME6 offers multitechnology measurements in the mobile radio frequency ranges. Its low power consumption makes the device ideal for portable use, where it is usually housed in a backpack. With its internal GNSS receiver, it is prepared for vehicle based and dismounted missions.

R&S®NESTOR

R&S®NESTOR cellular network analysis software is the heart of the Rohde&Schwarz CNA portfolio. The software controls the Rohde&Schwarz mobile network scanners and analyzes, evaluates and visualizes the results. R&S®NESTOR allows realtime analyses during data acquisition and recordings of measurements with post-mission in-depth analysis. Its application-oriented user interface allows intuitive operation for even complex tasks of public authorities.

APPLICATION-ORIENTED OPERATIONS

Rohde&Schwarz cellular network analysis solutions are designed for stationary or mobile use. The individual tasks and requirements determine the mission. Common integrations include:

- Fixed installations can perform 24/7 surveillance of the mobile network environment in a specific area. The systems can monitor changes in the network structure, detect misconfigured cells and geolocate them.

- Carried in backpacks, the systems can perform measurements in places where vehicles have no access. Typical applications include indoor coverage measurements and forensic investigations.
- When integrated in vehicles, the cellular network analysis systems feature high flexibility for all types of applications. When the vehicles move in a tightly meshed pattern through a city or town, they can usually obtain sufficiently accurate measured values.
- Airborne cellular network analysis systems are the fastest way to determine cell locations and get an overview of the cellular network structure. Plus, they can detect and geolocate irregularities in networks.

Service that adds value

- Worldwide
- Local und personalized
- Customized and flexible
- Uncompromising quality
- Long-term dependability

Service & sales locator
www.rohde-schwarz.com/contact

Regional contact
- Europe, Africa, Middle East | +49 89 4129 123 45
  customersupport@rohde-schwarz.com
- North America | 1 888 TEST RSA (1 888 837 87 72)
  customer.support@rsa.rohde-schwarz.com
- Latin America | +1 410 910 79 88
  customersupport.la@rohde-schwarz.com
- Asia Pacific | +65 65 13 04 88
  customersupport.asia@rohde-schwarz.com
- China | +86 800 810 82 28 | +86 400 650 58 96
  customersupport.china@rohde-schwarz.com

www.rohde-schwarz.com

Mobile network survey
Subject to change | PD 3607.7857.92 V02.00

81671 Munich | Germany
Printed in Germany | October 2019