BASE STATION ANALYSIS WITH CELLULAR NETWORK ANALYSIS

Rogue cells pose a significant threat to cellular networks. They need to be addressed as quickly as possible to avoid damage to network integrity, especially for critical infrastructure. R&S®NESTOR cellular network analysis (CNA) software lets users efficiently detect and locate harmful cells in the network environment through base station analysis (BSA) in order to protect sensitive areas.

Embassies, official government buildings and meeting rooms are all potential targets for rogue cells.

Your task

Building cell site simulators has become increasingly easy in recent decades. The hardware components are inexpensive and easily purchased online; open-source software is freely accessible, and there are plenty of tutorials available for setting up the devices. This means that anybody can build their own device to conduct espionage and monitoring activities. Governmental authorities, law enforcement agencies, armed forces and even private companies (network providers, electronics/car manufacturers) have become increasingly concerned about how this technology impacts their ability to protect sensitive areas.

To respond to the acute and rising threat, governments and law enforcement agencies require solutions to support BSA and enable efficient detection and location of rogue cells. Solutions for analyzing the electromagnetic environment of sensitive sites must be capable of:

- Real-time, 24/7 unmanned measurement and analysis of different-sized specific areas of interest
- Reliable detection and location of rogue cells in the network
- Simultaneous monitoring of every technology and frequency band at high scanning speed, independently of the network

Rohde&Schwarz solution

R&S®NESTOR cellular network analysis (CNA) software meets these requirements. R&S®NESTOR can easily be configured via analysis parameters to fit any type of network environment, automatically handling differences in configuration between network operators and countries. Additionally, R&S®NESTOR easily supports multiple measurement devices to cope with different types and sizes of physical environments (city centers, army bases, airports, etc.). Automatic analysis is usually done online since misconfigured cells require immediate countermeasures, but it can also be done offline during postprocessing. R&S®NESTOR provides visual and audio alarms whenever irregularities are detected in the network environment, and the information can be forwarded to any C3 platform through a dedicated API.

WHY R&S®NESTOR?

Automated analysis

Automated analysis with dedicated algorithms for each technology focusing on parameters typical to rogue cell behaviors enables comprehensive classification of results for each detected cell.

Easy system optimization

Performing measurements before deploying the system helps to determine the number of probes required and where to set them up to efficiently protect the area of interest. This also helps generate a cell reference database and fine-tune the analysis algorithm to cope with the unique characteristics of the network environment at each location.

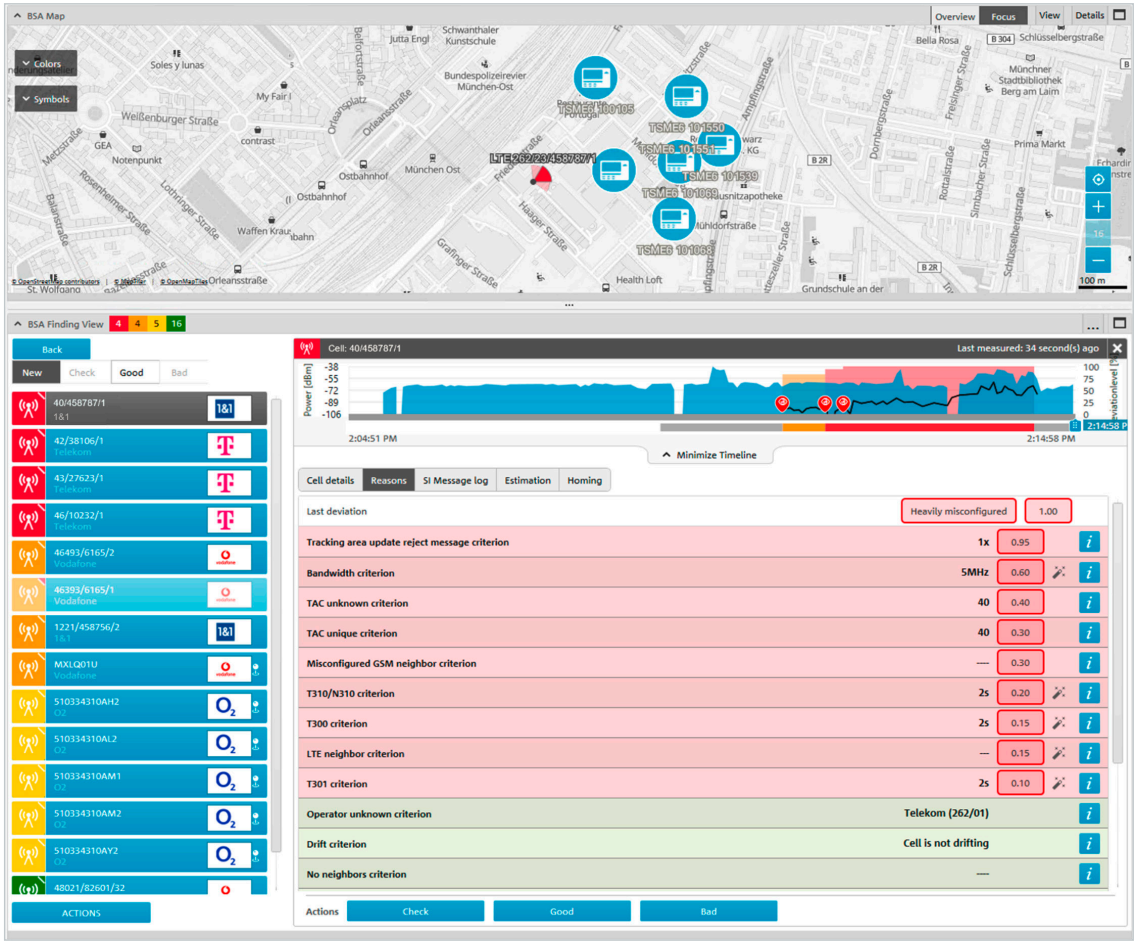
Deployable anytime anywhere

R&S®NESTOR supports any type of topology, from a fixed installation to a temporary deployment, from a single sensor for a single site (e.g. meeting room/embassy) to multiple sensors for larger environments (city centers, army bases) and even multiple sites. It also supports any type of infrastructure (LAN, 4G/5G/WLAN routers or even tactical radios), enabling it to connect different system components to fit any type of activity.

Software and analysis

Automated analysis, classification and easy-to-read color coding give users an overview of suspicious cell behaviors in the location of interest at a glance.

Once a rogue cell has been identified and its position estimated, users can follow up by deploying countermeasures to respond to the situation.



R&S®NESTOR protecting Rohde&Schwarz headquarters by detecting and locating rogue cells in the vicinity

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Base station analysis with cellular network analysis
Data without tolerance limits is not binding | Subject to change