



RF AirAnalyzer

Digital protocol analyzer for PMR radio systems

The RF AirAnalyzer is a highly versatile measuring instrument for analyzing different Professional Mobile Radio (PMR) radio systems. It logs system data on the air interface and is perfectly suited for mobile operation thanks to its compact size.



RF AirAnalyzer

8150

Measuring instrument for professional mobile radio systems



For operators of a mobile radio network, it is particularly important to know the actual performance of their own system. For this purpose, the RF AirAnalyzer is the perfect measuring instrument to analyze existing mobile radio networks in detail.

Using the AirAnalyzer is extremely simple: Your own laptop with the corresponding software licenses is connected to the measuring instrument via ethernet connection.

Extensive functions allow users to quickly and easily obtain detailed results. The measurement data are processed and visualized via your own laptop. The user-friendly software design and the versatile search and filter methods ensure effective working.

Thanks to its compact size and the robust design, the AirAnalyzer is perfectly suited for your mobile operation.

The 8150 RF AirAnalyzer is a powerful protocol analyser for recording, displaying and analyzing the complex communication process at the air interface in Professional Mobile Radio (PMR) systems. In the process, the AirAnalyzer always delivers very precise results, regardless of the manufacturer of the mobile radio system. The highly sensitive receivers enable the simultaneous analysis of the complete uplinks and downlinks of several carriers.

Versatile application options

The AirAnalyzer can be employed in all types of different situations:

- Quality analysis of the air interface and services
- Analyzing the voice communication and quality
- Performing interoperability checks
- Securing the critical communication through resource monitoring
- Locating carrier and interference problems
- Investigating problems during the introduction of new system technologies
- Mobile radio coverage measurements
- Analyzing and maintaining a PMR network
- Verifying security features

Overview of the Technology

The 8150 AirAnalyzer receives data from the air interface of the network to be examined. The received data are decoded in real-time and transferred to a computer for storage purposes.

With the help of different analysis software, the data can be analyzed in more depth simultaneously or at a later time, without a direct connection to the measuring instrument. In this process, the 8150 RF AirAnalyzer supports the analysis of all important layers defined by the protocol.

The extensive analysis software excels with its extremely intuitive user interface. Among other things, views can be adjusted in a goal-oriented way using different filters. Large data volumes can be selectively reduced using protocol and subscriber filters. This enables an effective and clear search in the communication protocols.





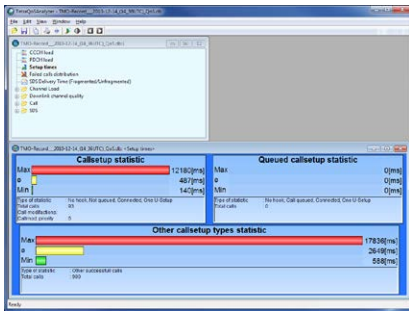
Extensive analysis options

The recorded data are stored as raw data on the hard disk of the computer. To evaluate the protocol, the raw data can be analyzed, filtered and displayed.

- **Message Sequence Chart (MSC)**
The MSC represents the complex communication flow in the signaling between terminal and base station in a user-friendly and detailed way.
- **Voice decoder**
To ensure a high voice quality, the voice decoder offers an evaluation of the voice quality in real-time. The data can be saved in WAV format for further analysis.
- **Scanner**
In a selectable frequency range, all the available carriers are represented with their broadcast parameters. A clear representation visualizes, among other things, the current occupation of channels, power received or frequency errors. The evaluation of the current network state is supported with respect to quality as well as quantity.

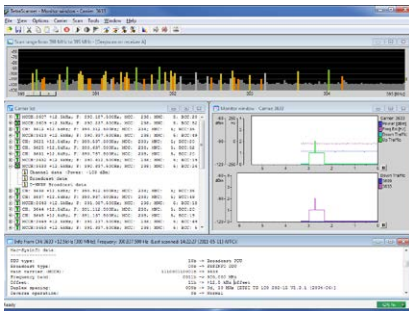
Flexible expansion

In addition to the standard functions, the analysis software can be expanded with a large number of functions. A selection of these very helpful functions is represented below.



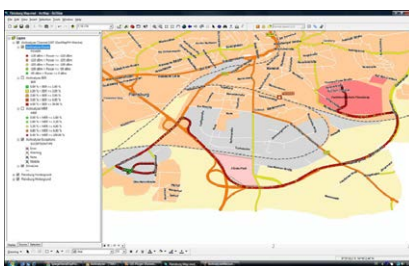
Quality of Service Analyzer

- **Quality of Service (QoS) Analyzer**
The data are visualized in easily readable form, in graphic or tabular form, thereby facilitating the interpretation. The network quality is determined via SDS, call setup times, calls in the queue, call priorities, cell utilization, and many other parameters.
Expansion option: It represents the utilization as well as the use of the channels by the current groups or group calls. It allows the user to recognize resource utilizations at an early stage and remedy them.



Scanner

- **IQ Analyzer (Physical Data Analyzer)**
It measures all the relevant IQ data of a base station (e.g. the spectrum of the carrier, Peak, C/I and RMS vector errors as well as the Constellation Display of the base station) and represents them in graphical form.
- **Scanner Analyzer**
Representation of the neighbour relationships of base stations as well as the offline analysis of the results of the scanner. Recording of all carriers in the selected frequency spectrum with automatic fault analysis in the relationships between the neighbor cells.



AirAnalyzer Coverage Test Software

- **Static/Dynamic Air Interface Encryption**
Statically or dynamically encrypted radio communication can be analysed with the help of additional authentication and encryption algorithms*. For this purpose, messages in the uplink and downlink are automatically decrypted for the analysis.
*Encryption codes and algorithms are not a part of the option.
- **Direct Mode Option (DMO)**
It enables the full analysis potential for the direct communication between terminals (DMO terminals, repeaters and gateways).

- **AirAnalyzer Coverage Test Software Option GeoMap**
It enables linking the measurements of the signal output and different error rates with GPS position data of the own site. The positions of terminals can also be displayed. The representation of the measurements is done in real-time. The data provide information about the values of signal output, frequency errors as well as best server of several channels in the downlink.

Technical Data

Technical Specifications	
Chassis	19-inch chassis, 3 RU
Temperature range	0 °C to +50 °C
Voltage supply	100 V - 240 V AC, 47 - 63 Hz
Power consumption	< 60 W
Other connections	Ethernet, USB, RS232, Digital I/O
Weight	< 5.5 kg

Receiver	
Number of RF receivers	2
Frequency range	100 MHz - 1,000 MHz
Max. input power	30 dBm (High Power Path)
Connector	two N-sockets
Bandwidth	10 MHz (each receiver)
Supported TETRA frequency ranges	no limitations
Number of channel frequencies within a 10-MHz downlink band:	All
Sensitivity RSSI measurement BER in payload	-124 dBm 100 to 500 MHz: typical -120 dBm 100 to 500 MHz: < -118 dBm 500 to 950 MHz: typical -117 dBm 500 to 950 MHz: < -115 dBm
IFDR (Intermodulation-Free Dynamic Range)	-75 dBc
Dynamic range	> 80 dB

Services

Besides powerful technology, we offer you services that are individually tailored to your needs. Our range of services includes, among other things, a calibration and maintenance of the devices as well as the option of extending warranties.

This allows you to secure the optimal performance and availability of your fjord-e design product at low, predictable operating costs. Thanks to the extensive package of services provided you can profit from guaranteed availability and a longer product service life for the device.

We offer you especially tailored training sessions covering all aspects of mobile radio network analysis. We concentrate primarily on your measurement problems, in addition to the measuring instruments. The session contents are prepared for beginners as well as specialists. Upon demand, we will gladly develop specific seminars tailored to your requests. They can even be held in your company upon request.

Your partner:



For further information, please go to:
www.fjord-e-design.com

Contact us if you are interested in purchasing, sales or application partnerships:
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Encryption features are optional and have to be configured separately; they also are subject to German and European export regulations.

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