

# DECODIO NET for Tetrapol

**Decodio NET** for Tetrapol is a powerful air interface analysis tool for Tetrapol PMR networks, based on Decodio RED. It provides interactive network overview, real-time identification and parallel decoding of all active Tetrapol emissions.

Tetrapol networks are expected to deliver outstanding performance in the toughest situations. Decodio NET for Tetrapol is the perfect tool for accurate network health monitoring and detailed configuration analysis.

## NETWORK CONFIGURATION AND BASE STATION BROADCASTS

Decodio NET is a PC-based software solution able to perform Tetrapol channel extraction and processing from the physical layer to the protocol layer. It operates in conjunction with a spectrum analyzer or I/Q receiver and can extract and decode multiple channels in parallel.

All PDUs are decoded, giving a detailed view of the network. Country code, network code, base network ID, radio switch ID as well as cell broadcast parameters are available. At any time, the user can instantaneously distinguish between control and traffic channels and verify that ongoing calls are placed on the right frequencies. In addition, the neighbor cell information is decoded, giving a useful insight into the network's cell configuration.

Reports containing all the decoded information can be generated for documentation or for further processing in other software, such as Microsoft Excel.

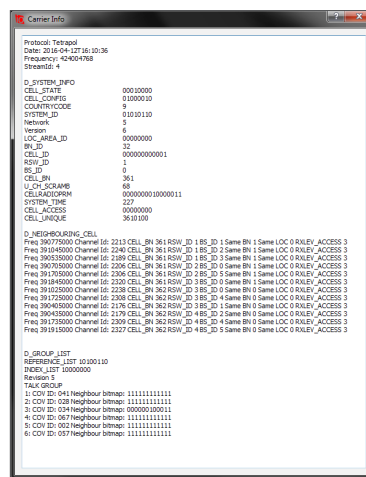
## AIR INTERFACE INTERFERENCES

Interferences on the air interface caused by other Tetrapol carriers, signals from other systems, or intentional jamming can become a serious problem for secure and reliable communications. When building an on-demand network in a remote or crisis area, one must ensure that the spectrum is clean for communications. In such a case, Decodio NET acts as a self-protection tool answering the simple but crucial question: does everything work as expected?

Continuous logging of both signal quality and signal power for all channels allows early detection of system outage, signal quality drop and external interferences. Besides, frequency planning can be easily verified by measuring the quality of each frequency independently.

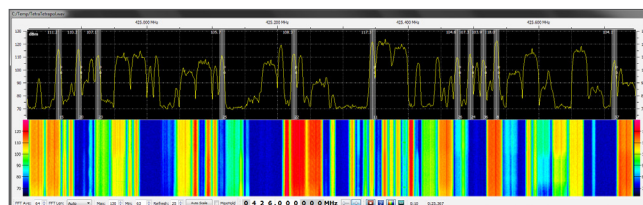
### HIGHLIGHTS

- Network monitoring via air interface
- Simple operation and clear visualization
- Monitoring of station broadcasts and call allocations
- Signal quality and power monitoring
- Automatic detection of Tetrapol emissions

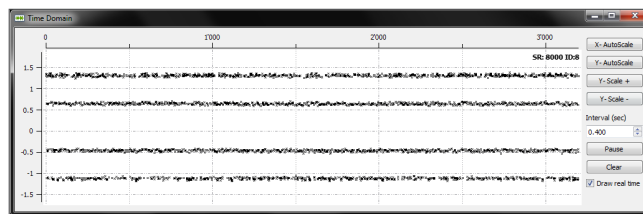


Tetrapol cell information

Tetrapol cell list



Radiospectrum with multiple Tetrapol carriers



Demodulated symbol output for quality evaluation

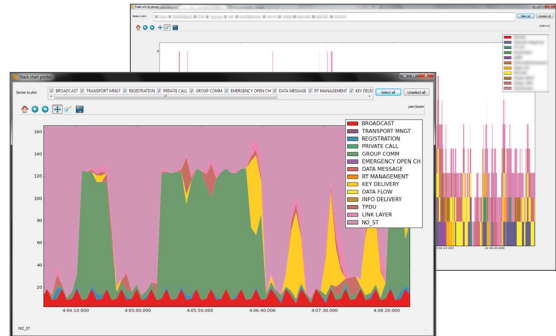
## LIVE ANALYSIS

Besides decoding the broadcast information, the system is able to display and log ongoing calls in real-time, including the source and destination IDs. Direct calls which do not use the network infrastructure are also supported.

The call information decoded by Decodio NET is automatically saved to a database for easy retrieval at a later time. Various filtering and sorting features make it very easy to analyze long-term monitoring sessions.

Optionally, network PDUs can be saved and exported in a format compatible with Microsoft Excel. In combination with Decodio ORANGE, advanced statistical analysis can then be performed, such as visualizing the network load and call history by group or coverage.

Tetrapol calllist



PDU and call statistics

## FLEXIBLE EXTENSIONS

Decodio NET can be extended with the following features:

<b>Decodio RUNNER</b>	Drive test
<b>Decodio PINK/QoS</b>	Automatic network monitoring and QoS
<b>Decodio BLUE</b>	Logging, visualization and post-processing in the web browser
<b>Decodio ReX</b>	Recording and analysis of unknown emissions and analog PMR
<b>Decodio Orange</b>	PDU post-processing and call statistics

## APPLICATIONS

- Mission-critical network monitoring
- Self-protection
- Signal quality analysis
- Load measurements
- Network coverage planning and verification
- Interference detection

## TECHNICAL DATA

Decodio software components	RED (BLUE available as option)
Frequency range	9 kHz – 6 GHz
Bandwidth	Up to 27 MHz in portable setups and 80 MHz in fixed setups
Broadcast parameters	Power, Quality, Scrambling, TrafficStatus, Coverage-BaseNetwork, Group-Coverage, Source ID, CountryCode, Network, BaseNetwork, RadioSwitch, CellNo, CellCode, UplinkScrambling, SystemTime
D_SYSTEM_INFO	CellState, CellConfig, CountryCode, SystemID, Network, Version, LocationArea, BaseNetworkID, CellID, RadioSwitch, BaseStationID, CellBaseNetwork, UplinkChannel Scrambling, CellRadioParameter, SystemTime, CellAccess S, CellUnique
D_NEIGHBOURING_CELL	Frequency, Channel ID, Cell Base Network, Radioswitch ID, Base Station ID, Same Base Network, Same Location, RXLEV_ACCESS
D_GROUP_LIST	REFERENCE_LIST, INDEX_LIST, Revision, Talk Group (Coverage ID, Neighbour Bitmap)
Call parameters	Control Channel, Scrambling, Coverage-BaseNetwork, Group-Coverage, SourceID, CellCode, Frequency, ChannelID, KeyReference, Type, ScramblingUplink, Date/Time, Length, Start Date/Time (for group calls)

## Decodio AG

Technoparkstrasse 1  
8005 Zürich  
Switzerland

phone: +41 44 552 08 70  
email: info@decodio.com  
internet: www.decodio.com

