

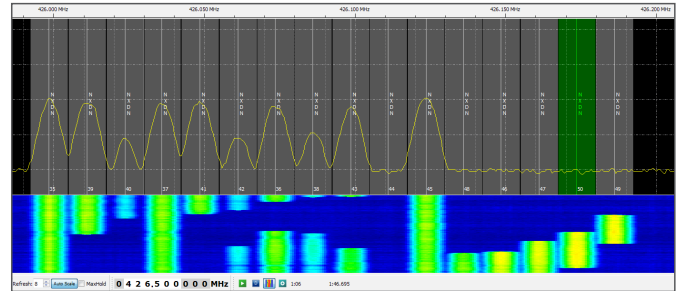
DECODIO REGULATION AUTHORITIES

Decodio is specialised in software-defined radio technologies and offers a spectrum monitoring solution tailored to the needs of regulation authorities, with a focus on modern digital VHF/UHF transmission protocols.

HIGH THROUGHPUT

Manual or automatic monitoring of up to 256 simultaneous channels over an instantaneous bandwidth of 50 MHz is possible, entirely in software.

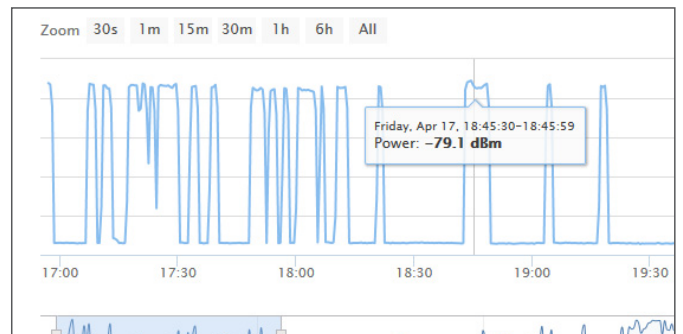
The solution is based on multi-purpose receivers capable of streaming baseband IQ data and thus operates passively, in total independence of the network infrastructure. Multiple receivers can be used to increase the total bandwidth.



Spectrum/Waterfall

Time	Mod	Source	Dest	Quality	MCC	MNC	LAC	Cell ID	Signal	Power	Type	Status
2015-04-17 18:45:01	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:02	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:03	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:04	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:05	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:06	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:07	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:08	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:09	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:10	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:11	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:12	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:13	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:14	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:15	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:16	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:17	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:18	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:19	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done
2015-04-17 18:45:20	TETRA	407.A	1077310	100000	407.A	100	100	1	1	1	DG750	Done

Web-based front-end



Power-measurement

EXTENSIVE DIGITAL PROTOCOL SUPPORT

Decodio spectrum monitoring system is capable of decoding and analysing a wide range of modern digital VHF/UHF transmission protocols in both uplink and downlink directions. With full support for TETRA, Tetrapol, NXDN, DMR, dPMR and P25, all practical mobile radio networks can be monitored.

ADVANCED DIGITAL NETWORK MONITORING

Full decoding of broadcast information such as cell ID and country code helps regulation authorities identify sources of interference and unwanted emissions. A fast and powerful scanning feature allows to automatically find signals for a given protocol. Voice recording, contents decoding and database logging are also available. All decoding modules have been optimised for bad signal conditions and perform frequency tracking, sampling rate tracking and equalisation.

TDMA-AWARE MONITORING

Traditional direction finding approaches with hand-held antennas based on signal power observation typically fail for TDMA (time division multiple access) systems, where multiple users emit on the same frequency. Thanks to the decoded protocol information, Decodio's solution can separate multiple time-slots and display their individual power levels.

In addition, demodulation quality is evaluated as well to identify interferences that don't appear on the spectrum.

FULLY CUSTOMISABLE MONITORING AND RECORDING

Narrowband channels with bandwidths from 8 kHz to 20 MHz can be defined for the recording, demodulation, decoding and power monitoring of both digital and analog signals. The system continuously performs and logs real power measurements of the extracted time domain signals (detector measurement). Level-based squelch is available for each channel to trigger automatic recording of demodulated waveforms or baseband IQ data.

WEB-BASED FRONT-END

Thanks to a web-based front-end to the spectrum monitoring system, call and power history as well as live network activity can be remotely accessed from a wide range of devices.

LEVERAGING THE POTENTIAL OF SOFTWARE-DEFINED RADIO

Based on modern software-defined radio technologies, Decodio's solution sets new standards in network monitoring with the ability to analyse all available channels in the network simultaneously, as opposed to the traditional single-channel approach. Browser-based visualisation features include time series charts of long-term signal quality monitoring and report generation in various formats such as Microsoft Excel and PDF.

APPLICATIONS

Network health monitoring, voice logging, network planning and verification, interference detection

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