

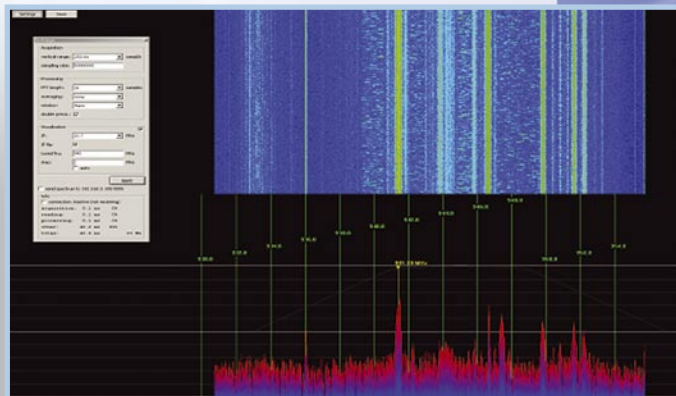
# AKRS

## Radiosignal Analysis and Classification

- system for measurement, processing, analysis and classification of radiosignals
- on-line monitoring and digitizing of IF analog receiver output
- off-line processing of measured signal samples
- import of digital IF output data for supported receivers (Rohde & Schwarz)

### AKRS on-line monitoring and measurement

- setting of sampling parameters (input sensitivity, sampling frequency, length of measured signal, etc.)
- tuning of the receiver (supported receivers only)
- real-time spectral analysis with adjustable parameters (FFT length, window type, spectrum averaging, etc.)
- real-time spectrogram



### AKRS off-line analysis and classification

- loading and importing of measured files (from on-line window, from digital IF receivers or common wav files)
- selecting the area of interest (frequency vs. time)
- selected signal demodulation (amplitude, frequency, phase or quadrature demodulators)
- extracting of signal characteristics (carrier frequency, bandwidth, symbolrate, histogram, eye pattern, IQ diagram, etc.)
- radiosystem classification based on measured signal database

#### loading and importing files

- file info and measurement options
- spectrogram and spectrum preview
- cursors for quick selection of interest signal

#### signal selection

- based on software defined receiver technology
- adjustable carrier frequency
- selectable decimation factor and output bandwidth
- enable resampling of output signal
- manual or full automatic mode

#### symbol rate detection

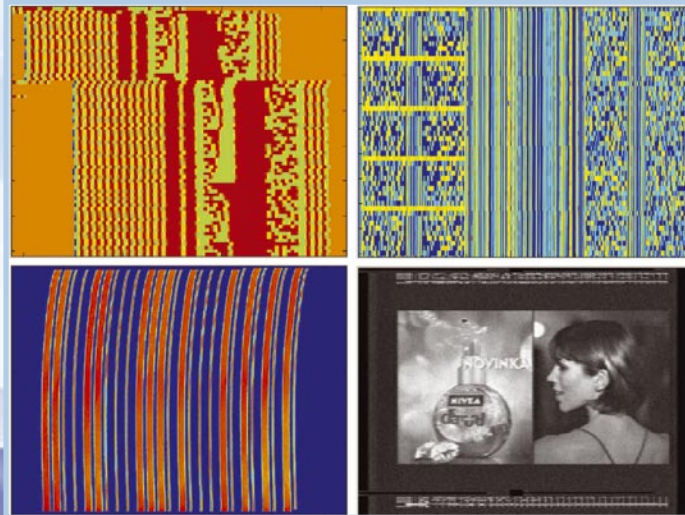
- fully automatic symbol rate detection
- independent on modulation type
- manual settings option for very noisy signals

#### spectral analysis

- spectrogram with adjustable parameters
- spectrum max-hold and average
- cursors for precise selection of interested signal
- selectable type of visualization
- selectable axes calibration

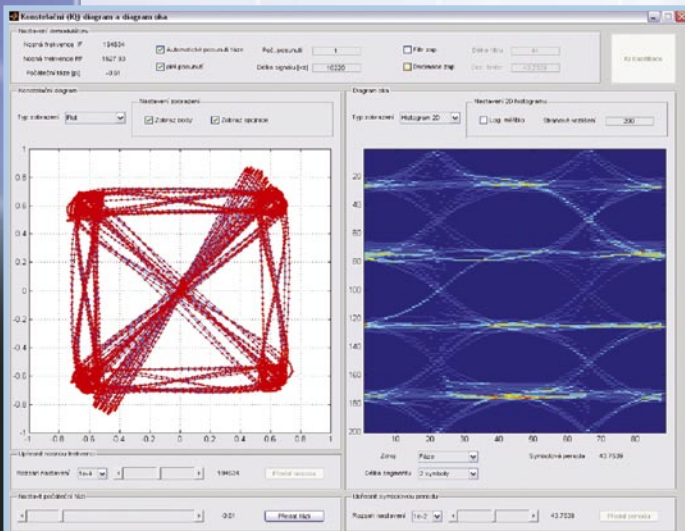
#### signal demodulation

- normalized amplitude envelope with squelch level
- time scope of demodulated signal
- cursors for time interval or period measurement
- filtering option for demodulated signal or amplitude envelope



## symbol matrix and histogram

- visualization of segmented demodulated signal in 2D matrix
- short-time and full-time histogram of demodulated signal
- modulation method classification according to the histogram shape
- many detailed settings for precision analysis

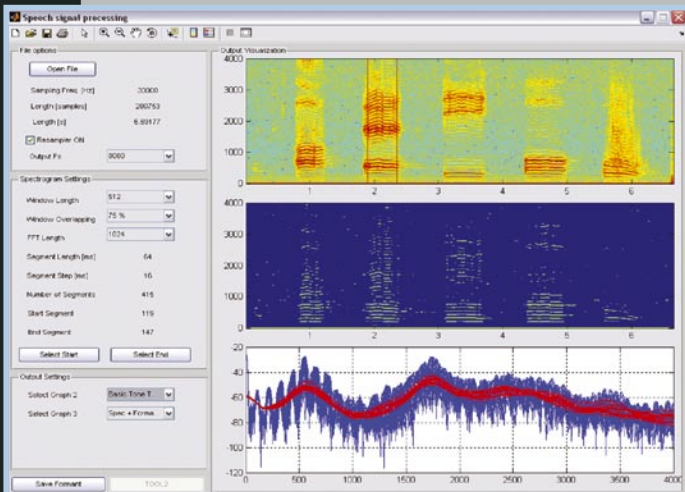


## carrier frequency detection

- for PSK and QAM modulations
- selectable frequency range and frequency/angle step
- fully-automatic method independent on modulation type

## IQ diagram and eye pattern

- for PSK and QAM modulations
- adjustable carrier frequency and phase offset for IQD
- adjustable symbol period for EP
- classification based on IQD shape



## other tools and possibilities

- GSM downlink processing (time synchronization – SCH, BCCH)
- UMTS downlink processing (PSC, SSC, SdI, BCCH)
- FH burst detection
- speech signal processing – detection of basic tone and formants

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