

RELEASE NOTES

Version 19.1.0

Date: 3. December 2018



Release Notes	Version 19.1.0	
	Imprint	3. December 2018

Imprint

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Version 19.1.0

December 2018

Enhancements

General

- improved support for display scaling and custom font sizes

APC

General

- added XML schema files for APC XML output format
- new state "recognition": modem recognition without production
- substantial changes** in the APC XML output format are underway. These are scheduled to be included in the **next major release, v19.2 (July 2019)**. Some of the changes might not be backwards compatible. This means all tools that depend **directly** on the current XML format must be adopted for the v19.2 release. Details will be available prior to the release.

Demodulator

- FSK disc.: soft symbol output support
- Pactor 2/3:
 - increased burst detector robustness to frequency deviation
 - make use of burst length information from decoder
 - improved burst start detection

Decoder

- new decoder for
 - YAESU System Fusion
 - ALIS2 (was detection-only)
- extended decoder for
 - INMARSAT-C-TDM: EGC mode (SafetyNet, FleetNet)
 - INMARSAT AERO-C: added voice output for 8.4 kbps mode
 - CODAN3212 (single channel): 150/300bps modes, soft decision, ARQ, STANAG5066
 - NXDN: descrambling with known key
 - Pactor 2/3: support for AirMail/SailMail
 - D-STAR: improved synchronization, data output
- added XML tags for decoder meta information
 - ALE-2G
 - AIS
 - ACARS-VHF
 - CODAN3212 16-channel
 - DSC-HF/VHF
 - HFDL
 - VDL2

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RCM

- support for R&S EB500
- NetSDR: test presence of down-converter board in VHF mode
- NetSDR: adjustable gain compensation

DANA

- highlight FM and inphase output if enabled

Decoder Debugger

- keyboard shortcut to bring current line into view
- watch list can be sorted and rearranged

Decoder Editor

- added documentation for system variables `_class` and `_mode`

SDA

- allow setting a corresponding BCU modem for each (APC) modem
- replaced push button for burst mode with checkbox for better state visibility
- adjustable parameter tab width
- dropped support for deprecated ver-file format (no XML)

SOMO

- option to specify receiver center frequency for wav-file output
- show commonly used modulation format names in addition to ITU types
- J3E USB/File: Nominal Frequency and Bandwidth are initially set to full-span of the selected file

Sonagram Viewer

- add desktop menu entry

Bug Fixes

General

- SOMO is no longer closed on SDA exit

APC

General

- fixed high CPU consumption if "LimitSourceSignal" is enabled (not the default)

Demodulator

- KBPSK: fixed handling of very long frame definitions in synchronization phase

Decoder

- Morse Decoder: use Cyrillic alphabet only for non-ASCII characters
- dPMR: false positive detection rate reduced
- Mil39Tone: runtime error in decoder fixed

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Detector

- false position detection of Voice F3E CTCSS

DANA

- fixed issue with input set to "Sound" on application start
- fixed CLI issue with frequency parameter
- stopped removing the DC component for FM demodulated output

Decoder Debugger

- desktop menu icon was missing (Linux only)
- fixed toggle breakpoint on double-click
- fixed list of relevant decoder parameters in Online Debugger

Decoder Editor

- fixed high CPU consumption when showing line numbers

RCM

- fixed absolute signal level for Winradio G35DDCi
- fixed runtime error when no output channel is defined
- fixed quadrature channel in ThinkRF

Receiver Configuration

- fixed "Close without Saving" for newly added receivers

SDA

- modem option "AudioinWave" was not restored correctly
- fixed slow switching of decoder output channels in result display
- fixed restoring eye diagram display on application start
- window restoration from the menu wouldn't update the parameters tab
- parameters tab was not always updated when switching between sonagram and other displays
- prevent zero height for parameters widget
- fixed analysis display for FM primary demodulated signals
- fixed bandwidth display for OFDM and "Multichannel FSK 2" signals in sonagram display
- wrong initial gain for Winradio G33DDC receiver
- opening Receiver Configuration non-blocking (Windows only)
- fixed discovery of Acrobat Reader installation path (Windows only)

Version 18.1.0

June 2018

Enhancements

General

- upgraded GUI framework (Qt5)
- new quick start tutorial, extended FAQs
- pre-defined configuration for FSK analysis

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APC

General

- inclusion of patented vocoders from DVSI: improved voice output quality for APCO25, DMR, dPMR and NXDN
- SSB signals are reported as such in APC results (instead of USB/LSB)

Demodulator

- OQPSK demodulator: improved synchronization and symbol handling
- FSK4 demodulator: extended range of automatic frequency offset correction
- improved demodulation performance of NXDN signals

Decoder

- new detector for
 - Robust Packet modems
 - several OFDM-based CIS variants including CIS-45, CIS-112, CIS-128
 - STANAG 4285: added KG-84 encryption detection
- new decoder for
 - INMARSAT-C-TDM
 - CIS-12 PSK4B
 - MFSK-32
- extended decoder for
 - Codan 3212 PSK single channel: 75, 2400 and 3600 bps modes supported
 - APCO25: now also showing the manufacturer ID
 - Morse: added Cyrillic alphabet (output in decoder channel 2)
 - Motorola SmartNet: added modem for signals with 4 kHz shift

Detector

- support for FM-modulated USB/LSB voice signal with nominal offset (e.g. "FM2" or voice inversion and FDM signals)

DDL

- performance improvements for commands using the Viterbi algorithm
- new command ProcCloseWriteChannel to control external processes

RCM

- support for RFspace NetSDR
- support for Winradio G35DDCi
- support for Narda SignalShark
- new plugin interface for receiver libraries

DANA

- IQ input via sound card channels left/right
- detailed error message for unsupported WAV files
- allow inphase output when FM demodulation enabled

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Decoder Editor

- faster compilation of whole directories
- show line numbers as default

PMO

- external programs were not started
- converter tools were not found on Windows
- fixed WAV file converter script (Windows)

Receiver Configuration

- added generic template for VITA49

SDA

- loading too large modem lists triggers a warning
- more predefined modemlists
- Linux audio output: discover and preferably use virtual PulseAudio devices
- save last used modem group when selecting modems to load
- histogram calculation in time display is now based on (harmonic) x-cursors if active
- optional automatic database login
- deactivate modem if decoder was not found
- audio output: new modes FM-USB and FM-LSB for FM-modulated USB/LSB voice signals with nominal offset (e.g. "FM2" or voice inversion and FDM signals)
- maximum symbol rate set to 4 MBd

SOMO

- new OQPSK generator
- detailed error message for unsupported WAV files

Sonagram Viewer

- set sonagram center to IFFrequency specified in separate .para file
- detailed error message for unsupported WAV files

Bug Fixes

APC

Automat

- modems with invalid nominal frequency were not activated on input bandwidth change

Segmentation

- fixed calculation of FSK2 energy scheme to avoid exclusion of some FSK2 signals (e.g POCSAG 512 Bd)

Decoder

- STANAG 4415: correctly stop production on signal end
- System3000: reduce false-positive detection
- Panther H: reduce false-positive detection

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- Tetra DMO: avoid runtime error for signal with poor quality
- HFDL: more CPDLC keywords ("IMIs")
- CPDLC
 - fixed rounding in output of position data
 - UM163 fixed
- Motorola SmartNet: added another dialect
- Voice J3E /ICAO: allow production of audio files in manual production mode
- INMARSAT-Aero: adjusted to improved OQPSK demodulator

DANA

- missing files in playlist were reported multiple times
- frequency spinboxes can move cursors in stopped mode now
- show filter boundary in spectrum after signal stop
- show IQ/Audio settings in context menu of WAV file in stopped mode

Decoder Debugger

- fixed issue with octal numbers

Decoder Editor

- manuals could not be opened in Linux version
- minor behavior fix in forward search
- show line number for undefined errors

Receiver Configuration

- only start RCM at exit if stopped before
- fixed possible crash at exit

SDA

- fixed issues with import/export of modems and modem lists
- inactive modems could not be reactivated if a decoder was initially missing
- fixed errors with too small settings for the audio bandwidth
- RCM configuration tool could not be launched from SDA
- modem database: modems could be saved without write permissions
- modem database: no overwrite confirmation dialog for newly created decoders
- recording of bit stream was not stopped on production end
- new modems were not immediately listed in result display
- adding several modems did take a long time
- size of minimized windows was not restored correctly
- avoid crash when sound device was deactivated while sound configuration dialog was open (e.g. switch to remote desktop)
- result display: result text was not updated often enough if DANA replay speed was greater than 1
- bit display: fix scrollbar on font size changes
- bit display: offset value was limited after unpausing or changing the channel number
- autocorrelation display: set maximum value to 5000ms
- Filter channel dialog: update modem parameters when restore clicked
- show both decoders of F7B

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SOMO

- missing files in J3E USB generators were reported multiple times

Sonagram Viewer

- correctly adjust X axis unit
- use double precision for center frequency spinbox

Version 17.2.0

December 2017

Enhancements

General

- availability of Linux version
- increased maximum supported input sampling rate to 10 MHz
- moved production memory to user folder (was C:\mem_prod)

APC

General

- increased maximum supported input sampling rate to 10 MHz

Demodulator

- GMSK demodulator improved for BT values less than 0.5

Decoder

- new decoder for
 - CIS FSK 200/1000
 - INMARSAT-C-TDMA
 - Motorola Smartnet
 - XPA
 - XPA2
 - Merod 267 Bd
- STANAG 5066
 - implemented in STANAG 4285, STANAG 4529, STANAG 4539
 - postprocessing to retrieve email contents (HMTP and CFTP) and store as files
- new detector for
 - MIL 188-110C App.D (Wideband HF) 3/6/9/12/15/18/21/24 kHz
 - Japanese Slot Machine
 - DPRK PSK 150/300/600/1200 Bd (North Korean Diplo radio)
- CPDLC and ADS-C protocol
 - implemented in HFDL, ACARS, VDL2, INMARSAT-AERO
- INMARSAT-AERO P,R,T,C
 - complete decoding of data layers
- Tetrapol
 - complete decoding of data layers of up and downlink

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RCM

- support for receivers
 - CommsAudit CA7851
 - VITA 49

DANA

- allow to change file replay speed (faster or slower than real time)

SDA

- show sampling rate of input signal in bottom status bar
- sonagram display
 - SNR measurement with help of cursors
 - option to show power density spectrum (PSD)
 - show dBm values instead of dBFS if supported by connected receiver
- analysis display
 - SNR measurement with help of cursors
- bit display
 - correctly resize axis labeling when zooming
- spectrum display
 - option to show power density spectrum (PSD)
 - always show control frequency decorator (but it is smaller and cannot be moved anymore)

SOMO

- sonagram display
 - SNR measurement with help of cursors
 - option to show power density spectrum (PSD)

Sonagram Viewer

- SNR measurement with help of cursors
- option to show power density spectrum (PSD)

Bug Fixes

APC

Automat

- burst info from decoder was ignored
 - sometimes at emission start
 - at end of emission (flush)

Decoder

- ALE-2G: long addresses were shortened when repeated
- STANAG 4538: fix for TM-PDU
- HFDL: some long uplink bursts were not decoded
- Morse: avoid crash when call sign contains German Umlauts

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DANA

- control from command line had problems when successive commands were sent too fast
- receiver frequency (from file input) larger than 2^{31} Hz were not correctly displayed

Decoder Debugger

- online debugger was under certain conditions very sluggish
- large octal numbers were not correctly displayed

Decoder Editor

- Replace All: replace in complete document and not only from the current cursor position

SDA

- control connection to APC was lost when signal input bandwidth was very high
- bit display
 - correctly resize axis labeling when zooming
 - offset == 0 was not allowed
- spectrum display
 - 128k FFT did not work

SOMO

- level of complex file output was 6 dB too low

Version 17.1.0

June 2017

Enhancements

General

- support for Codemeter licensing

APC

General

- measurement of SNR, noise and signal power during production (optional)
 - average values for complete production
 - for every single burst
- replace invalid UTF8 characters in decoder text output

Demodulator

- new demodulator for Pactor-4: all speed levels

Decoder

- new decoder for
 - Pactor-4
 - complete decoding of all speed levels
 - post-processing (decompression) of airmail/sailmail emissions (if possible)
 - INMARSAT AERO-P (physical layer only)

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- INMARSAT AERO-C (physical layer only)
- INMARSAT AERO-T (physical layer only)
- INMARSAT AERO-R (physical layer only)
- INMARSAT-C TDMA (detection only)
- Turkish Navy FSK (similar to STANAG 4481 FSK)
- DMR
 - decoding of short messages
 - improved output of Manufacturer FID
- DMR Continuous
 - voice output
 - improved output of Manufacturer FID
 - faster detection
- POCSAG: added modem with shift of 6 kHz (default is 8-9 kHz)
- STANAG 4481 FSK: added detection of KG-84 encryption
- Pactor-I: decoding of Robust Connect bursts
- dPMR: decoding of short messages
- APCO-25: faster detection

DDL

- changed search strategy to load external libraries (see DDL manual for details)
- new commands BinFileXMLOpen and BinFileXMLClose (see DDL manual for details)
- DDL command MeasRef removed (obsolete)

RCM

- support for receivers
 - ThinkRF WSA5000-427

Decoder Editor

- option to enable compiler warnings

SDA

- time display
 - added histogram view for magnitude, frequency and phase
 - added horizontal scrollbar
- options menu
 - added checkbox to activate SNR measurement during production
- removed option for pre-/post-carrier measurement (obsolete)
- removed field for input of BCU Pattern (obsolete)

SOMO

- maximum emission duration can be set for each generator
- emission start can be delayed for each generator
- result of Eb/No measurement is shown in status bar at the bottom

Bug Fixes

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General

- fix for large monitors with high resolution

APC

Automat

- avoid duplicated decoder output when decoding time is over
- do not stop XML file output to production memory when decoding time is over

Decoder

- D-Star: less false positive detection
- CODAN 3212 16 channel: increased sync tolerance to avoid premature production end

DANA

- fix for loading .para file when signal file has upper case WAV extension

SDA

- FileDB
 - existence of decoder txt file is optional
 - remove .bin extension from decoder when loading modem which was copied directly into file system
- added tooltip to frequency table dialog to clarify meaning of frequency values
- sonagram display
 - fixed control frequency decorator for F7B and multichannel modems using a frequency table

Version 5.2.1

August 2017

Bug Fixes

APC

General

- KeepAliveRequests were sent too often when in blocking mode (offline signal source)

Decoder

- CHN4+4: polarity was mismatched (fixed decoder and modem files)

DDL

- DDL commands to communicate with external processes (ProcRead etc.) did not work on Linux

SDA

- Modem parameter channel delay: fix for CHN4+4

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Version 5.2.0

December 2016

Enhancements

General

- added example files to demonstrate APC plugin mechanism for external modems

APC

General

- added C interface to plugin external modems developed by the customer
- symbol stream of production modem can be optionally saved as REC file in production memory

Demodulator

- added special mode to FSK2 matched demodulator for asynchronous Baudot signals
- new demodulator for Chirp signals
- significantly increased demodulation quality and frequency stability of (G)MSK demodulator

Decoder

- new decoder for
 - Contestia
- POCSAG
 - automatically switch to alphanumeric or numeric output format; this is important for senders that do not follow strictly the standard protocol
 - added timestamp to output
- DMR: significantly improved quality of voice output
- Flex: added timestamp to output

Detector

- use automatic gain control (AGC) for NF recordings of FM Voice

DANA

- option for FM demodulator output
- new command line parameter *noiffromwav*

RCM

- graphical interface to configure receivers (callable from Windows Start Menu and from within SDA)
- support for receivers
 - IZT SignalSuite R4000
 - NARDA NRA-2500/3000/6000
 - NARDA IDA2

SDA

- all displays

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- enable zoom in/out with Ctrl+mouse wheel
- added entry in context menu to save current display to clipboard
- analysis display
 - added histogram view for magnitude, frequency and phase
 - added horizontal scrollbar
- sonagram display
 - allow moving search-range when already running modem recognition
- eye pattern displayed
 - allow entering time difference for inverse cursor
- constellation display
 - show timestamp (of last sample)
 - added overlay mode: brightness depends on number of points
- symbol table editor: avoid input of invalid characters
- options menu
 - added button to start receiver configuration GUI
 - removed some obsolete parameters and regrouped some parameters
- indicate in Help->About if PMR and/or MIL version is installed

Bug Fixes

General

- XML files in production memory for production results were corrupted in case of a modem with burst mode enabled
- only terminate the APC process that was started and not all APC processes that are running
- removed apcng component

APC

General

- XML result: the fields <receiver_mode> and <modulation> within <production_start> had incorrect values
- XML result: report correct center frequency within <production_start> for manual production mode

Automat

- avoid endless search loop for multimodems (Pactor multimodem)

Decoder

- SI-FEC: avoid recognition in case of arbitrary idle sequences
- Pactor: avoid runtime error when decoder output time is limited
- CIS-14: less false positive detection
- PACTOR FEC: fixed usage of Huffman alphabet to get better output
- CODAN 3212 1 channel PSK: avoid runtime error

DDL

- check for output buffer overflow reactivated

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Decoder Editor

- context help did not open when command highlighted by double click

SDA

- loading previously saved .conf file did not restore all windows
- receiver control toolbar: gain value was only visible if drop-down box was opened
- Hell display
 - avoid wipe out of display if parameters was changed in pause mode
- result display
 - last lines were sometimes not shown
- analysis display
 - fixed simultaneous zoom of phase and time
- bit display
 - do not clear view when changing mode between burst and circulation length

SOMO

- if generator name of loaded file was identical to existing one then new parameters were not set
- removed symbol table V.29 for PSK8 generator

Version 5.1.0

June 2016

Enhancements

General

- GUI to control external receiver (frequency, bandwidth, attenuation) from within SDA
- availability of 64 bit version
- audio output enabled for monitoring version
- added template modems for different universal detectors (bit sequence correlation, burst timing, bit autocorrelation) which can be parametrized via decoder parameters without any further DDL knowledge

APC

General

- XML result output is completely encoded as UTF-8; charset command from decoder to switch encoding is handled internally
- added information about burst start and end time from demodulator (only if burstmode is enabled) or decoder (if DDL command is sent) to production results

Modems

- added DSC-HF with shift of 500 Hz
- added Olivia 8/250 and Olivia 16/500
- corrected value for offset nominal frequency of several modems

Decoder

- new decoder for

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- Throb and ThrobX
- MT63
- Autocab
- Voice A3E Air Traffic
- Clansman
-
- new detector for
 - Thales System 3000 Skymaster Selcall
 - Panther-H start sequence bursts
- Pactor II: soft decision implemented to improve output quality
- HF DL: support for PSK4

DDL

- LibLoad command for external libraries improved
 - search first in user folder and then in installation folder
 - relative paths and subfolders within code folder are supported
- New command BitCorrelation

DANA

- support for PROCITEC RAW file format removed
- added menu entry to reset settings to default values
- added button to prune complete play list

Decoder Editor

- optionally show line numbers
- tab key inserts two spaces

Decoder Debugger

- Option to convert text files (1 = 1|x|X|H, 0 = 0|-|.|L) to PROCITEC .rec format
- breakpoints are not automatically deleted when decoder description is reloaded

RCM

- config file: introduced active flag for easier editing
- list of supported receivers and tips for configuration revised in manual

SOMO

- analogue generators: allow input of complex WAV files
- avoid "identical" fading for two different generators (different random seed)

SDA

- analysis and time display
 - show absolute timestamp
 - optionally switch between single dots and line display
- sonagram display
 - modem recognition: show markers for frequency search range or nominal frequency; option can be enabled in context menu

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- manual production: show markers for center frequency or nominal frequency and lower and upper frequency bound (FSK and multichannel/multitone modems); option can be enabled in context menu
- above frequency markers indicate absolute receiver frequency
- select frequency search range directly in sonagram display with the mouse (context menu)
- copy screenshot to clipboard (context menu)
- bit display
 - default display mode changed to dark/white
 - zoom in/out using Ctrl key and mouse wheel
- result display
 - zoom in/out using Ctrl key and mouse wheel
- added menu entries to open Decoder Datasheets, List of Decoders and ReleaseNotes documents
- decoder parameters: option for tool tips
- default signal sources: added CMAS/go2MONITOR
- save and restore position and layout of toolbars
- new modem list
 - empty list (do not create one fake modem)
 - APC control parameters (search range or nominal frequency) are kept

Bug Fixes

General

- avoid conflict with RCM from CMAS/go2MONITOR

APC

Automat

- If modem was disabled because nominal frequency was outside of input signal range then reactivate it if frequency of input signal changes.
- Do not combine internally several voice detector modems into a single one.

Decoder

- PSK63-FEC: less false positive detection
- PSK31-FEC: less false positive detection
- dPMR: error correction improved
- STANAG 4415: avoid recognition of STANAG 4539 signals
- STANAG 4529: less false positive detection
- STANAG 4481 FSK: less false positive detection
- HFDL: output of all LPDUs
- ALE-3G: output of '@' character was missing
- Voice A3E: avoid detection if carrier is not within parametrized frequency search range

DDL

- LibLoad command: unload external library if decoder is unloaded/replaced

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DANA

- WAV files: timestamp of recording was not properly restored from auxi Chunk (affected recordings from SpectraVue and NetSDR)
- Playing from playlist with system time set: APC did not restart search if files had different receiver frequency

RCM

- Data loss and performance problems when using WinRadio receivers fixed

SOMO

- scrambler did not work anymore
- avoid crash if two generator names were identical
- avoid deadlock if generator name was void

SDA

- displays
 - in pause mode not reset when demodulator type is changed
 - signal type "Primary demodulated AM/FM" was not always available

Version 4.2.2

Date: May 2016

Bug Fixes

RCM

- communication protocol with IFStorage fixed (error code for AbortMsg)

SDA

- fix for IFS toolbar when changing parameters very quickly
- configuration file was not correctly saved (bug was introduced in v4.2.1)

Version 4.2.1

Date: April 2016

Bug Fixes

SDA

- communication with RCM was sometimes lost after several minutes of operation
- APC results were not shown immediately in system monitoring environment

Version 4.2.0

Date: January 2016

Enhancements

General

- Support for Live-Stream of digital voice

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- Monitoring version: editing of modem parameters is possible
- Sonagram context menu offers mouse measure: delivers X-, Y- and Z-values of the current mouse position in the sonagram in the corresponding cursor boxes

APC

General

- Production memory: support for RAW file format for IF files removed

Decoder

- new decoder for X6 Mazielka
- new decoder for ERMES
- new decoder for DSTAR (data and voice)
- DMR
 - add Trunked Mode (Tier III)
 - Layer 3 PDUs (Data and Voice)
 - base station activation and deactivation
 - call setup, maintenance and tear-down
 - destination addressing
 - built-in services
 - data call control
 - announcement signaling
 - Trunk Station Control Channel (TSCC) outbound channel
 - improved Tier I and II
 - Manufacturers Feature ID (MFID)
 - Layer 3 PDUs (Data and Voice)
 - Layer 3 information element coding
 - error correction improved
 - voice output quality improved
- Pactor I:
 - enabled output of binary file
 - added option to stop modem after initial addressing
- Packet 300
 - output with ISO8859-15 Encoding
 - Hex output added (on channel 16)
 - force output if CRC is incorrect
- CIS 36-50
 - synchronization improved
 - output of sync and session key
 - added modem files with shift of 200 and 500 Hz, respectively

DDL

- new command to get version of APC and compiler
- LibLoad command will not longer throw a runtime error if library could not be loaded but instead will return a handle with value 0

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DANA

- Show visually that frequency marker cannot be moved
- Removed spinbox „Predefined Frequencies“ and Output Spectrum
- Support for parameter „AbsIFFrequency“ in .para file

Decoder Debugger

- support for MSB-first annotation in decoder editor

RCM

- license check removed; can be run standalone on a different computer

SDA

- communication with RCM for receiver configuration overhauled
- Spinboxes for burst parameters: milliseconds as default unit

Bug Fixes

General

- fixed support for non-Latin filenames and paths

APC

General

- IF recording for UK signals: last file was not closed if segmentation did not detect a signal

Decoder

- less FP detection: FEC-A, PSK31, PSK31-FEC, LINK11 CLEW, DGPS, PSK63, QPSK31
- PSK250: no output in case of idle sequences
- Link-11 SLEW: channel bandwidth was too large which could cause erroneous measurement of center frequency
- POCSAG: shift tolerance increased

DDL

- CorrectRSext command: punctured symbols erroneously increased number of error reported

DANA

- Adapt spectrum view if sampling rate of sound card was changed
- limit mixer frequency within bandpass filter

Decoder Debugger

- Online-Debugger did not show upfront if activated

PMO

- fixed crash of tool Codec2Wav

SDA

- analysis view: do not reset view when filter bandwidth is adjusted
- plain files database: deleted modem could not be saved in database again

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- sonagram view: position of sonagram <-> spectrum splitter was not restored on restart
- GUI was not responsive if TCP connection to APC failed
- connection to APC is faster established
- result view: show correct error message if license for a decoder is missing

Version 4.1.1

Date: November 2015

Enhancements

APC

Detector

- New Voice J3E-USB detector (SVM):
 - Detection rate for nominal frequency mode and frequency search range improved
 - False positive detection rate significantly reduced
 - Less false positive detection of A3E signals

APC

General

- XML result output: some fields in production_start/signal were missing in case of manual production
- Voice: application could crash in case of AF recording for Voice F3E

Demodulator

- OFDM: fix reporting of measured nominal frequency

Detector

- Voice: in some cases AF recording was carried out on incorrect frequency

Decoder

- Voice F3E - Selcal DTMF: check for correct voice modulation type (FM) before Ident is sent
- MIL-STD 188-110B (STANAG 4539): data block (1440 bits) before first probe was missing

SDA

- Sonagram display was not shown for monitoring version
- Result display:
 - Help button <?> did not open manual file correctly
 - save to result file could crash application
 - Context menu "Add to MultiModem" is now hidden during production
- Fixed crash when saving decoder into database was cancelled and decoder editor then re-opened

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Decoder Debugger

- In some cases Drag'n drop of lines in editor did not work correctly
- Output of WAV files (PMR decoder) works again in offline debugger

Dana

- Replay was not stopped when file was removed from play list
- Context menu "Save IF" in play list did fail in case of negative frequencies

PMO

- Conversion of codec files to WAV files did not work (crash)

Sonagram Viewer

- File info dialog did not show correct frequency range for quadrature signals

Version 4.1.0

Date: July 2015

Enhancements

General

- Ability to use a license server: number of actual installations in a network can exceed the number of concurrently running applications
- Added SonagramViewer tool: This is a standalone application of the spectrum/sonagram display for offline analysis of WAV files (professional license needed)

APC

General

- added support for AMBE codec
- added AGC to vocoder framework
- XML result output
 - added channel and modem bandwidth
 - additional output of signal parameters within production_start and submodem tags
- Disable modem if nominal frequency or search range is out of input signal range
- Support End of Signal flag in signal source: recognize signals shorter than search duration of automat

Decoder

- DMR
 - direct production of audio output in WAV file format
 - new decoder for continuous signals
- NXDN: direct production of audio output in WAV file format
- dPMR: direct production of audio output in WAV file format
- Tetra: using vocoder framework
- New decoder for BIIS
- Baudot async:
 - Improved detection in case of idle sequences

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- Support for Arabic Baghdad-70 and Baghdad-80
- Alphabet (latin, cyrillic, arabic, hebrew) can be set in modem description (decoder parameter)

SDA

- Support to edit MultiModems
- Analysis display:
 - Reciprocal value (frequency) of time cursor distance is shown. This facilitates to get the symbol rate.
 - Magnitude can be shown either in linear or logarithmic (dB) scaling
- Support for a plain files database to store and retrieve modem and decoder files
- Show modem description when loading modems from database
- Proper support for different encodings (Cyrillic, Arabic alphabets etc.) in the result display
- Settings are always saved automatically (option to deactivate automatic saving is removed)
- New option to reset settings to default values
- Show and store channel and modem bandwidth for each modem (estimated from modem parameters)

SOMO

- HF Channel Simulation (multipath fading and noise)
- Allow to specify sample format when saving (PCM16 or FLOAT32, default is FLOAT32)
- Optional selection of channel left/right was removed

DANA

- Allow to graphically change the input band pass filter directly in the spectrum display
- Context menu in play list
 - Allow to save the parameterized frequency
 - Set IQ or audio input mode

PMO

- Allow to export IQ WAV files as audio files
- Allow to inspect IQ WAV files with the new SonagramViewer tool
- Allow to convert codec files to WAV files

RCM

- Support for SIR 5110 receiver
- Support for WinRadio G33DDC receiver
- Support for WinRadio G39DDC receiver

Bug Fixes

General

- MultiModem: disable when manual production is selected

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APC

General

- avoid overlapping of IF recording

Demodulator

- PSK Data Aided: avoid crash under certain conditions

Decoder

- dPMR: no output between bursts
- Packet 300: support for long bursts (output was cut after 10 seconds)
- STANAG 4539 HDR: Tail-Biting correctly implemented

SDA

- Bit display: copying with shortcut Ctrl-C did not work
- Links in the online help were inoperable
- Modem description was not saved in file
- Avoid crash when disabling first modem in list

Dana

- Band pass filter: show absolute frequencies in spin box

SOMO

- Generator Analog: Avoid crash if sampling rate of input WAV file is higher than sampling rate of sound card

Version 3.7.0

Date: January 2015

Enhancements

- Update of MCM interface for codec and binary files
- New implementation of database plugin
- Possibility to enable/disable all tooltips through "ShowTooltips" config entry
- Possibility to start Offline Decoder Debugger from SDA Extras menu
- Per channel relative time delay parameters for M(D)PSK demodulator
- New "Description" field in modem parameters

Bug Fixes

- Fixed crash caused by the database plugin if login credentials were invalid
- Fixed default symbol table for FSK4 discr.
- Show more than the first channel of OFDM in IQ Display
- Primary demodulated signal was not shown correctly in Analysis Display
- Bit Display: "Select all" from context menu did not work

Release Notes	Version 19.1.0		
	Version 3.6.2	3. December 2018	Page 24

Version 3.6.2

Date: March 2015

Bug Fixes

- monitoring mode: display stucks and stutters in monitoring mode

Version 3.6.1

Date: October 2014

Changes

- Database: Allow update of modem and decoder by name (ignore ID and version)

Bug Fixes

- OFDM parameters were not checked
- last chosen signal source is not saved in config file and not restored upon restart
- monitoring mode: do not crash if one tries to open autocorrelation display
- Database
- it was not possible to delete existing BCU patterns
- allow to overwrite modems that are marked as deleted in database
- list of decoders and modems was not updated if one was deleted
- do not crash at program termination when BCU emission display is opened but not logged into database
- do not delete inadvertently decoder from modem file in database

Version 3.6.0

Date: May 2014

Changes

- Allow parameterization of decoder during runtime: settings are stored in modem file and GUI elements are dynamically created when modem file is loaded
- Allow symbol recording in modem recognition state: recording begins at production start and ends at production end
- New display: autocorrelation (cross-correlation of signal with itself, e.g. to identify repeating patterns)
- Restore last operation state (modem recognition, production, classification) on restart (only if settings are saved)
- Displays
- surround window with red border when display is paused
- all display types have a context menu
- Modem files VHF: provide both variants for primary and baseband demodulation
- Added documentation for parameterization of OFDM demodulator

Bug Fixes

- Fixed replay from signal memory for very short segments
- Displays
- Eye display stopped or did not show anything under certain conditions
- Fixed zoom out in analysis display

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- Fixed bit display for multichannel demodulators
- Bit display was sometimes unintentionally cleared
- Avoid crash when magnifier in sonagram display is applied
- Database: uDecoder binary was not uploaded when locally changed

Version 3.5.0

Date: December 2013

Changes

- Window menu: show status of opened windows (signal type, channel number, paused)
- Removed modems that are not on air anymore from default modem list (modem files are still installed in subfolder modems)

Bug Fixes

- Modem files with uppercase file extension could not be loaded
- modem files containing QAM-N demodulator were not loaded correctly

Version 3.4.5

Date: 2014-04-7

Changes

- License flag for Link Manager added
- Burst duration limited to 99 seconds

Version 3.4.4

Date: 2014-03-11

Bug Fixes

- correct display of bcu-results with high emission ids

Version 3.4.3

Date: 2013-11-15

Bug Fixes

- correct display of bcu-results in monitoring mode

Version 3.4.0

Date: 2013-06-12

Changes

- Create new modem: show complete list of all modems supplied with the installation and modems created by the user
- Always install modem files (signal files are still optional)
- Drop-down list for demodulator types: grouped by modulation type
- Use consistent naming for demodulator types

Release Notes	Version 19.1.0		
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- Filter parameters: extended with frequency/magnitude filter parameters
- Window titles of all displays: show current channel number if applicable
- Entries for signal sources DANA and SOMO are not built-in and can be removed
- Supplied decoder files (.bin) include name and version number of DDL source file (.txt)
- Modem files (.ver) include interface and revision control version. Files with higher interface version than the installed application are processed but are read-only
- OFDM parameterization: added an XML editor in order to enable editing of the parameters of the new OFDM v2 demodulator; XML files from the PROCITEC Matlab OFDM Analysis Tool can be imported
- All PSK demodulators allow modulation order of up to 16
- Multitone (MFSK): increased maximum possible tone distance from 10 to 20 kHz
- FSK discr.: increased maximum possible shift from 5 to 6 times the symbol rate
- Table in result display renewed
- Columns can be enabled/disabled through context menu
- Ordering of columns can be altered

Bug Fixes

- do not clear bit display if production is stopped
- do not allow change of modem parameters during recording of bit stream
- Replay from signal memory fixed
- Last selected signal source was not saved at session end
- Missing network connection to signal source was not correctly indicated in status bar
- Displays were empty if burst mode was enabled and channel signal selected
- Result display: message about deleted files in production memory was misinterpreted as "classification start"
- Audio output
- always use signal "IF Unbuffered" (independently from sonagram display)
- show audio frequency handle in sonagram only if signal "IF Unbuffered" is selected
- enable output during automat search mode

Version 3.3.4

Date: 2012-12-20

Changes

- STANAG-4529: demodulator type removed; modem file uses general PSK now

Version 3.3.2

Date: 2012-12-19

Changes

- Audio output
- display in spectrum view a transparent rectangle which width equals the audio bandwidth and has a special marker for audio nominal frequency
- nominal frequency and bandwidth can be changed graphically through mouse interaction

Version 3.3.1

Date: 2012-07-27

Release Notes	Version 19.1.0		
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Changes

- PSK demodulators: new dialog to specify channel filter parameters

Bug Fixes

- more than 60 different bug fixes

Version 3.1.0

Date: 2011-03-15

Changes

- A combobox for APC mode selection is introduced.
- Automat tool button is separated into new tool button for classification, modem recognition and production.
- A special filter for classification results is used in result display.

Version 3.0.2

Date: 2011-03-07

Bug Fixes

- A new decoder can be compiled and saved into database.
- The limits of number of tones and tone distance is mutually checked and corrected.
- Symbol table handling for FSK universal demodulator is fixed.
- The closing of decoder editor after pressed cancel button is fixed.
- APC is closed if cancel button is pressed is fixed.
- Local decoder source code from installation directory can't be compiled is fixed.

Version 3.0.1

Date: 2011-01-13

Bug Fixes

- Display of voice mode was not working properly

Version 3.0.0

Date: 2010-12-02

Changes, Enhancements and Bug Fixes

Common

- Software is running under Windows7
- Software takes care on Windows user rights
Software can be installed as Administrator and applied by a standard user
- Start procedure with desktop icons is modified; all applications can be run from inside SDA
- Drop-down list for source selection is user definable and can be configured in the options dialog
- Options menu is modified
- GUI style is adapted to Qt4

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Version 2.5.5

Date: 2010-01-26

Enhancements

- French localisation

Version 2.5.2

Date: 2009-09-08

Changes, Enhancements and Bug Fixes

Common

- Bug fix licence request acknowledge

Version 2.5.1

Date: 2009-09-02

Changes, Enhancements and Bug Fixes

Common

- Added dialog to edit BCU pattern

Version 2.5.0

Date: 2009-07-16

Changes, Enhancements and Bug Fixes

Sonagram

- Pre calculated frequency lines
- Parameter layout changes
- Frequency scrollbar range according to sample rate
- Bug fix complex FFT binning
- Bug fix gap control

Analysis Display

- Use of channel number
- Bug fix frequency auto range

Constellation Display

- oversampling

Common

- Optical bug fixes
- MCM communication interface

Release Notes	Version 19.1.0		
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- Save settings not automatically as default
- Various bug fixes on demodulator parameter settings
 - F6F7B, multi tone
- Translations
- Sound Configuration

Version 2.3.0

Date: 2009-03-24

Changes, Enhancements and Bug Fixes

Sonagram

- Maximum FFT length 131072
- Time range behaviour on resize is customizable
- Relative zoom factor is parameterizable
- Horizontal scrollbar in frequency dimension
- Immediate zoom by mouse action
- Zoom on maximal frequency range
- Zoom on maximal time range
- Popup menu for cursor and zoom functions
- Loupe function
- Scrolling, sliding by mouse action
- Stepless parameterizable lines per second also for fixed spectral lines

Analysis Display

- Bug fix zoom in
- Bug fix on change of display colour

Spectrum

- Bug fix Squaring error

Common

- Optical bug fixes
- Bug fix initial cursor position in displays
- Translations
- Sound Configuration

Version 1.12.1

Date: 2008-11-21

Changes, Enhancements and Bug Fixes

Modem parameters

- FSK discriminator with modulation order 3

Release Notes	Version 19.1.0		
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- Bugfix: do not alter modulation order if modem type is changed (1497, 2651, 3190)

Version 1.12.0

Date: 2008-09-09

Changes, Enhancements and Bug Fixes

Common

- Bugfix (3036) Recording of demodulator data

Analysis Display

- Bugfix(3084) Display of data incomplete in pause or stop mode

Eye Pattern Display

- Bugfix(2924) Difference between signal "symbol rate" and button "symbol rate"

Spektrum/Sonogramm

- Bugfix(2812) Squaring error
- Bugfix(2477) Start/End time setting incorrect in analysis offline mode
- Pause Mode: Scrollbar navigation in pause mode
- Pause Mode: Spectrum can be displayed at (or between) cursor position(s)
- Peak-Hold-Pause-Functionality (display changes to pause mode after defined time)

Version 1.11.0

Date: 17. April 2008

Changes, Enhancements and Bug Fixes

- Invalid parameter initialisation (2862)
- Parameter "Peak-Hold Time" renamed (2899)
- Combobox "Tone Position" disabled, if there is no frequency list functionality (2934)
- Layout error on demodulator tab (2957)
- Saving of configuration data (2985)
- Qpsk related to user license disabled (2997)
- Default display type for iq display changed to absolute (for mdpsk and mpsk)

Version 1.10.3

Date: 19. Feb. 2008

Changes, Enhancements and Bug Fixes

- No sound output as long as apc is in search mode
- Independent result (XML) and IF recording enabled (additional checkbox)

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- OFDM demodulator parameter functionality (including custom channel definition)
- New OFDM parameters for phase (absolute and differential)
- PSK/MPSK/MDPSK: equalizer checkbox added

Version 1.10.0

Date: 22 June 2007

Common

- New primary demodulation signals and parameters

Changes, Enhancements and Bug Fixing

Modem List

- New parameter "Primary demodulator"
- FM parameters moved from Voice to Extras parameter tab for primary demodulation type FM
- New demodulators "MPSK 2,4,8 A/B" and "F1A"
- New frequency table for Multitone and multi channel demodulators
- New parameters Channel / Tone position type for aforementioned demodulators

Analysis display

- Improved Phase jumps bounds parameterization and display

Result display

- Column Offset renamed to Center offset
- New result columns Nominal offset and Decoder modified modem

Version 1.9.10

- Projektspezifische Version, basierend auf Version 1.9.6, Build 349

Changes, Enhancements and Bug Fixing

- Korrekturen, um Modems fehlerfrei und vollständig bearbeiten zu können. Für weitere Details sei auf interne Release Notes (PROCITEC-RNO-SDA-Internal.txt verwiesen).

Version 1.9.6

- Projektspezifische Version

Version 1.9.5

Date: 20 March 2007

Common

- New audio output of IF unbuffered signals including audio parameters
- Configuration of sound card for audio output
- Special grey icons for unselectable menu / toolbar functions
- New icons for several database functions
- Production memory now also records XML results from the APC

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- Enable change of metric prefixes of units via context menu on number entry fields
- Show connection state of a monitored APC in the status bar
- Reconnect to monitored APC on a new SSS command with the same network connections

Changes, Enhancements and Bug Fixing

Modem List

- Separated modem list functions into a modem list menu
- New export and import functions for modems and modem lists (PROCEED only)
- Added save modem list as in addition to save modem list
- Show modem list name in window title

All displays

- Added harmonic cursor number to all displays supporting harmonic cursors

Spectrum / Sonagram display

- Added possibility to store measure parameters from Z-Cursors via new Store button

Bit display

- Enable row input in pause
- Corrected display of last line for an offset > 0

Result display

- Save results in a results subdirectory
- Copy results.css in this subdirectory
- Corrected display of last line for an offset > 0
- Show error message if incorrect text codec was sent by decoder

Version 1.9.1

Date: 29 November 2006

Common

- Input signal "IF unbuffered" available for search and production
- Reload decoder is now done automatically as needed
- Show error message if database login or save to or deletion from database failed.

Changes, Enhancements and Bug Fixing

Modem List

- New demodulator Pactor (Pactor II, III)
- New Clover parameter "Clover type" (Clover 2000 detection)
- Voice demodulator: Adjusted minimum / maximum values for FM Voice.
- Added buttons "Ok", "Cancel" to symbol table.
- Editing the symbol table does no longer directly change the current modem.

All displays

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- Improved display updates when moving cursors
- When opening a new display in maximize state keep maximize state.

Analysis display

- Zoom In/Out: Include invisible signal section when calculating the signal position.
- Show signal on small time sections.

Bit display

- Removed delay of shown quality when a new signal is displayed.

Decoder editor

- Save, Save as file functions for saving a decoder (tool bar uses Save).
- Removed question for Reload decoder (done automatically)
- Keep dark background of selected text if decoder editor is inactive

Version 1.9.0

Date: 27 October 2006

Common

- New input signal "IF unbuffered" for all displays.

Changes, Enhancements and Bug Fixing

Configuration

- Show ports of APC and signal source
- Allow selection of different signal source than Dana
- New parameter to set the signal source channel

Modem List

- New demodulator Link11.
- Allow to set maximum burst length to 0 to indicate long bursts.
- Added burst to MDPSK 2, 4 demodulator.
- Reading and saving of measurement parameters from/to the database corrected.
- Added Import of decoder files to the database including editing of it's abbreviation.
- Reduce minimum symbol rate of all demodulators to 5.

Bit display

- Show first number of axial label also if it is a multi-digit number.
- Reduce flickering when moving horizontal scroll bar
- Corrected line break for long bursts
- Fixed problem when a large number of bits are shown in the display
- Minor corrections on deserialization and font selection
- Store new symbols when changing the valence

Eye pattern display

- Show always the last vector in the display

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Constellation display

- Make buffer limit checks more robust
- Correct update rate when a certain number of points was set

Spectrum / Sonagram display

- Enlarge buffer size to have the complete signal stored on low number of lines per second.

Spectrum display

- Always show the current spectrum in the display
- Recalculation of the display in pause when parameters are changed.

Decoder editor

- On double click the word limits are kept.
- Mark system variables in a different colour.

Version 1.8.8

Date: 31 October 2006

Changes, Enhancements and Bug Fixing

- Possibility to disable decoder editing via license
- Possibility to disable modem editing via license

Version 1.8.7

Date: 17 October 2006

Common

- Minor translation update

Changes, Enhancements and Bug Fixing

Modem List

- Changed Pre and Post carrier length from 100 to 1000 ms.
- Reduced minimal Tone duration to $1 / (9600 * 1000)$ s
- FSK 2 matched demodulator has same minimal shift limits like FSK 2, 4 discr.
- New Voice mode "FM" for Voice demodulator including FM bandwidth parameter.

Version 1.8.6

Date: 31 May 2006

Common

- Interface to APC was changed (demodulator changes in APC)

Changes, Enhancements and Bug Fixing

Control

- IF recording can be changed to "On" again

Release Notes	Version 19.1.0		
	Version 1.8.6	3. December 2018	Page 35

- Setting Record SNR parameter to 0 does no longer change IF recording to "On"

Result display

- For long update operations on the formatted text a parts of it is shown in advance.

Version 1.8.5

Date: 13 March 2006

Common

- SDA shows splash screen at start up

Changes, Enhancements and Bug Fixing

Modem List

- Always create a new modem when creating a new modem list.
- When changing the abbreviation of a database modem and trying to save it to database again an error message is shown.
- New modes for F7B demodulator (enables to set one symbol rate or keying rate and decoder per channel)

All Displays

- The first display is placed at the upper part, the second in the lower part, and the third in the upper part etc.

Spectrum / Sonagram display

- Improved accuracy of time axis and Z-Cursors.
- Z-Cursor times are shown formatted.
- Remove limitation of Z-Cursor difference.
- Alternative Zoom with mark.
- Removed relative Z Cursor absolute parameter (Cursor is always absolute).
- On Zoom out the positions of the Z-Cursors do no longer change.

Eye pattern display

- Update rate changed to 10 / sec from 4 / sec.

Bit display

- Show warning when trying to overwrite a file.
- Rename parameters Channel selection to Output channels and Wrap to Alignment

Result display

- Show raw data from decoder in result display
- Setting for the decoder output channel of f7b modem.
- The time in the name of the result file is set to UTC time.

Miscellaneous

- No error message is shown when Cancel is selected on database login.

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Version 1.7.3

Date: 17 January 2006

Common

- SDA starts without console (console output not visible)
- SDA shows an error message if the APC has no connection to it's data source
- SDA shows mid frequency of signal in status bar

Changes, Enhancements and Bug Fixing

Modem List

- When selecting a modem from database deleted modems can be restored.
- Number of characters for decoder abbreviation enhanced to 20.

Control

- Parameter Signal search: Signal position renamed to signal search, Centre with correction renamed to Frequency range
- Frequency range can now be set as a frequency interval.

Extras

- New parameter to set the SSO Search bandwidth as frequency interval.
- Improved layout of measure parameters (more compact)

Spectrum display

- If the cursor is moved to the border it no longer disappears in harmonic mode

Eye pattern display

- IF Signal with synchronisation (display type eye pattern) works now with slow symbol rate signal.

I/Q display

- The number of points can now be set instead of the number of vectors.
- Show cursor values at the cursor position including the difference between cursors.
- Renamed XY-centre X/Y to Display centre X/Y and XY-Range to Display range.

Bit display

- In Burst Mode the scroll bar width is limited to the largest burst.

Miscellaneous

- Synchronisation of abbreviation of a decoder in the decoder editor and the modem list entries containing the decoders when the decoder is saved to database.

Version 1.6.1

Date: 25 Mai 2005

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Changes, Enhancements and Bug Fixing

Modem List

- Number of characters for modem abbreviation enhanced to 20.
- No longer remove a modem from the list when removing from database.

All Displays

- Avoid displaying all harmonic numbers when they are tightly positioned.
- Improved space of axis label and axis grid in all displays.

Spectrum / Sonagram display

- Show time axis of display normal, not bold under Linux.
- Peak hold works now correctly for low values of lines per second.

Hell display

- Show time axis of display normal, not bold under Linux.

Result display

- Optimized output speed by using plain text.
- Avoid removing of new line characters in rare cases when showing text.
- Allow long file path names when creating the result file.

Decoder editor

- Focus problem when loading a file in the editor has been removed

Version 1.6.0

Date: 8 March 2005

Common

- Extras -> Record of Demodulator Output: Possibility to record the data of the demodulator output to a file.

Changes, Enhancements and Bug Fixing

Modem List

- New Modem: No default decoder.

Control

- Changing to Analysis Offline sets the short term memory times for start/end time.

All displays

- Show cursor values at the cursor position including the difference between cursors.
- Show harmonic cursor number for harmonic cursors.
- Window title shows state of display ("Halted", Signal, and Channel).

Bit display

Release Notes	Version 19.1.0		
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- Added horizontal scrollbar when the circulation length is larger than the window width
- Corrected display of wrong bits in Burst Mode

IQ display

- Allow several vectors to be displayed with display types having no symbol rate synchronisation

Analysis display

- Limit filter band width to 50 to avoid high computing time

Result display

- Added the possibility to use a style sheet for the XML result files.

Decoder editor

- When deleting only delete marked text if a mark was set.
- When searching text at the end continue searching from the start of the file