R&S® UPP*
Audio Analyzers
Release Notes
Firmware Version 3.3.6

Test and Measurement

Release Notes

ROHDE&SCHWARZ

Table of Contents

1 Information on the Current Version and History

1.1 Version 3.3.6.0834

Component	FW version
UPxCheckPreconditions	1.3.3
UPVCompass_2.1.77.0-Release	2.1.77.0
Setup_3.3.60834Release	3.3.6

New Functionality

Modified Functionality

Fixed Issues

HDMI E-EDID: The transmitted checksum was wrong, which caused a connected generator to stop output data transmission.	**UPP**

Known Issues

1.2 Version 3.3.4.0822

Component	FW version
UPxCheckPreconditions	1.3.3
UPVCompass_2.1.77.0-Release	2.1.77.0

Component	FW version
Setup_3.3.40822Release	3.3.4

New Functionality

Muting after measurement, selectable for generator function Random, Play and Play+Anlr	**UPV**
UPV-K421: • supports clock frequencies down to 1 kHz and sampling rates up to 400 kHz; • supports down sampling factor 8; • sample frequency can be set manually, if Clock Source Extern is selected	**UPV**
Averaging added for POLQA measurements	**UPV**
Undersampling and "triggered" now available for averaged FFT	**UPV**
SCPI only command: *SYSTem:SEArch? 'Drive+Path+Filename'*	**UPV**
If UPV-K9 is installed then all extended functionality (K6) is available	**UPV**
Generator Bandwidth selection "Sine 185 kHz" forces low distortion	**UPV**
Store trace as "Equalization List" or "Sweep List" available for 1/n octave bar graph display	**UPV** **UPP**
Generator phase accuracy increased for frequencies below 1 kHz	**UPV** **UPP**
Support added for UPP-8 option	**UPP**

Modified Functionality

UPV-K421: • clipping instead of rolling over, if 1.0 FS is exceeded	**UPV**

Fixed Issues

POLQA NB recordings can now be stored (11092)	**UPV**
Improved stability of external sweep with fix RMS and S/N measurements with precision frequency setting (11528, 11157, 11529)	**UPV**
UPV-K1: improved stability in communication with firmware	**UPV** **UPP**

Known Issues

1.3 Version 3.3.2.0805

Component	FW version
UPxCheckPreconditions	1.3.3
UPVCompass_2.1.77.0-Release	2.1.77.0
Setup_3.3.2.0805 Release	3.3.2

New Functionality

Allowing changes of sweep parameters frequency or volume only when sine signal has the next zero transition	**UPP**

Modified Functionality

Universal generator function: increasing maximum output level with equalization	**UPP**
FFT averaging now allows level trigger for each accumulated measurement	**UPP**

Fixed Issues

File menu --> Exit crashing sometimes (10766)	**UPP**
Digital analyzer not working after start up if generator was analogue (11310)	**UPP**
SCPI query for undefined parameters resulting in Visa Timeout (9922)	**UPP**
Wrong DC offset value measurements on channel pairs 1/2, 3/4, 5/6, 7/8 when using different AC coupling settings (10764)	**UPP**
HDMI fixed ARC problems with HDMI 1.4 CEC handshake (11553)	**UPP**

Known Issues

1.4 Version 3.3.1.0758

Component	FW version
UPxCheckPreconditions	1.3.3
UPVCompass_2.1.77.0-Release	2.1.77.0
Setup_3.3.10758Release.exe	3.3.1

New Functionality

Introducing support for R&S Sequencing and Reporting tool Can be invoked from UPP menu (File ➜ UPx Sequencing …) or tool bar	**UPP**
HDMI: • protocol generator now setting "Channel Number" to "Don't Care" • LipSync measurement now enabled with "Sine Burst" signals	**UPP**
SCPI: • hardcopy now creating missing directories • HCOPy <string> allows direct output of a graphical window with its window title even if it has no focus (only with "SCPI update On") • DISPlay:SCReen <n> allows selecting of given screen (only with "SCPI update On")	**UPP** **UPV**
All generated trace files now containing description of current device, serial no, date and time of creation	**UPP** **UPV**

Modified Functionality

HDMI: several improvements • Increased performance by reducing internal initializations • Using "Coding Autodetect" now rejecting trigger source "Gen Burst" • Allowing "Hotplug Detect" via new button "Resync" • Now ignoring HDMI interrupts while input is not Sink / ARC • Reducing analyzer update rate of protocol data and video timings during continuous measurements and sweeps	**UPP**
Time Tick sweeps: no longer restarting upon sample rate or coding format changes at digital inputs	**UPP** **UPV**
Improved overall stability in Remote operation, especially in "SCPI update On" mode	**UPP** **UPV**

PESQ / POLQA improvements • Degraded scaling now independent from data source and meas mode • Degraded scaling now independent from creation process (store in DUT mode / Record function) • Reducing gain headroom of filter usage, overall reduction up to 0dB when no filter selected	**UPV**
Graphic Display for Time Tick sweep: The x-axis can now be scaled up to 2048 ks (23.7 days). This allows to display the maximum sweep time of 1024 points with steps of 2000 s.	**UPP UPV**
External Sweep: Improved trigger delay: Up to now the trigger delay was related to the measurement time, which was specified in the analyzer measurement function, and which could be considerably long. Now the trigger has an independent short delay.	**UPP UPV**

Fixed Issues

fixed issues with HDMI: • fixed initialization problem when color depth at AUX IN changes • fixed "Format Change" error when CTS / N changes, no longer changing hardware settings • When DSP reports a PCM signal, now using direct data routing • Changing from "Monochrome" to "Pattern" or vice versa does now correctly update the audio settings	**UPP**
fixed issue with wrong SCPI status events on generator state	**UPP UPV**
fixed issue with creating hardcopies in SCPI operation:*WAI working correct	**UPP UPV**
fixed Gentrack Reference issues: Play, Play+Anlr, Peak functions and different level settings in generator chan 1 & 2	**UPP UPV**
fixed problem with marker drawing upon small FFT sizes: markers now at correct x position	**UPP UPV**
fixed problems resulting from loading a multiscan trace file	**UPP UPV**
fixed problem with binary data transfer and UPV-K1	**UPV**
fixed several problems with POLQA • Correct labelling of graphical y axis • Repainting of graphical display now showing POLQ result instead of last PESQ result • Scaling of x axis now updated with "Record length" • Average Delay display now allowing negative values	**UPV**

Known Issues

The printed and online documentation contains some wrong information regarding the POLQA measurement:
 	
   •   There are only two different bandwidths, namely "narrow band" and "super-wide band"
 	
   •   The measurements are done according to ITU-T P.863 instead of the mentioned P.861 / P.862
 	
   •   In narrow band mode, the POLQA measurement only supports reference files with 8 kHz sample rate
	UPV

1.5 Version 3.3.0.0724

Component	FW version
UPxCheckPreconditions	1.3.2
UPVCompass_2.1.77.0-Release	2.1.77.0
Setup_3.3.00724Release	3.3.0

New Functionality

Supporting UPP-B4 HDMI / digital audio measurements	**UPP**
In the "Start Condition" section of the analyzer config panel the selection of "Max FFT Size" was added for limiting the automatic zooming of FFT size. Especially useful for external sweeps to reduce measurement time of FFT based functions.	**UPP UPV**
Dual domain signal generation: If the generator instrument is switched between analog and digital, the previously selected generator keeps running with all its parameters settings made before. When the sampling frequency of the digital generator is below 200 kHz, this feature is possible for all analog and digital generator settings. When the sampling frequency of the digital generator exceeds 200 kHz, the analog generator must be set to function Sine and Low Dist must be set to ON (UPV-B1 option required).	**UPV**

Modified Functionality

Improvement of setup and SCPI compatibility between UPV and UPP	**UPP**
Speedup of external sweep: start trigger level now 0.1% below nominal value	**UPP UPV**

Fixed Issues

Loading of sweep list or equalization files crashed when > 1024 points. Now loading is rejected.	**UPP UPV**
External sweep sometimes stopping at 2nd point	**UPP UPV**
POLQA in offline mode crashed when example WAV file was selected	**UPV**

Known Issues

The remote control commands MMEM:MSIS and MMEM:CDIR, which could be used to define a default folder for file storage, do not work properly. The default folder is always c:\upv\bin and cannot be changed with those commands. Work-around: Specify full path names in commands for storing and loading files, e. g. MMEM:STOR:STAT, "d:\upv\user\test1.set"	**UPV UPP**

1.6 Version 3.2.0.0683

Firmware package contents

Component	FW version
UPxCheckPreconditions	1.3.2
UPVCompass_2.1.77.0-Release	2.1.77.0
Setup_3.2.00683Release	3.2.0

New Functionality

Perceptual Objective Listening Quality Analysis POLQA according to ITU-T recommendation P.863 is now available with software option UPV-K63.	**UPV**
Digital Analyzer for Pulse Density Modulated data streams is now available with software option UPV-K421 as add-on to UPV-B42 hardware option.	**UPV**
Measurement functions PESQ, PEAQ, POLQA now available with digital and analogue measurements. Reference file sample rate must be multiple of 8 kHz	**UPV**
Remote control emulation mode for direct replacement of the obsolete HP audio analyzer 8903B in remote controlled system applications. See also Application Note 1GA54_2e.	**UPV UPP**
Analyzer function THD: The automatically optimized FFT size can be increased with a "refinement factor" (2, 4, or 8) in order to reduce noise	**UPV UPP**

contributions to the calculation of the harmonics. Especially useful for noisy signals without significant harmonics.	
New "factory preset" functionality added during start up of firmware when the "OUTPUT OFF" indicator (UPV) or "BUSY" indicator (UPP) is flashing for 2 seconds: Pressing PRESET key (UPV) or TRIGGER key (UPP) during this period of time will delete the current settings and reset the display resolution to 800x600 after confirmation with the same key.	**UPV** **UPP**
Generator function Stereo Sine: Filter and Equalizer can be independently selected for each channel. Not yet available via remote control.	**UPV** **UPP**
Generator function Play: Filter can be independently selected for each channel. Not yet available via remote control.	**UPV** **UPP**
Protocol analysis in line with IEC 60958 now supported with software option UPP-K21. Digital Audio option UPP-B2 required.	**UPP**
1/n octave analysis now available with software option UPP-K601.	**UPP**
600 Ω output impedance (switchable) and 600 Ω input impedance (switchable) is now available for instruments with serial numbers 100100 or higher. This feature is not retrofittable into older instruments.	**UPP**
Monitor outputs now have 0 Ω output impedance an can provide a DC voltage for instruments with serial numbers 100100 or higher. 0 Ω output impedance is not retrofittable into older instruments.	**UPP**

Modified Functionality

None

Fixed Issues

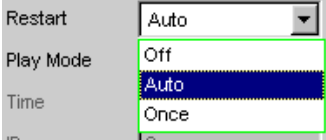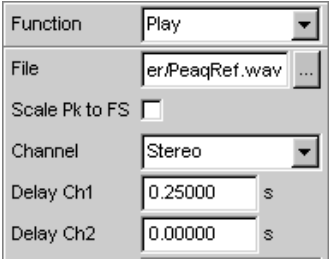|	
Analyzer functions PESQ, PEAQ, POLQA: From now on the measurement terminates with a fail message as soon as an overrange is detected.	**UPV**
Analyzer functions FFT or 1/n octave analysis might not terminate when measured on input channel 2 only.	**UPV** **UPP**
Sweep graphics: If the sweep steppes down from higher to lower values (i. e. the curve is plotted from right to left) the START button did not clear the scans. Now correct.	**UPV** **UPP**
Deadlock might occur when executing *wai or *opc?	**UPV**
Generator function Chirp: Now restarted on start of measurement.	**UPV**

Known Issues

The remote control commands MMEM:MSIS and MMEM:CDIR, which could be used to define a default folder for file storage, do not work properly. The default folder is always c:\upv\bin and cannot be changed with those commands. Work-around: Specify full path names in commands for storing and loading	**UPV** **UPP**

files, e. g. MMEM:STOR:STAT, "d:\upv\user\test1.set"	

1.7 Version 3.1.2.0626 (UPV only)

Firmware package contents

Component	FW version
UPxCheckPreconditions	1.3.2
UPVCompass_2.1.77.0-Release	2.1.77.0
Setup_3.1.20626Release	3.1.2

New Functionality

Analyzer/Generator	
Analyzer function THD: If all harmonics are outside the upper bandlimit, then the THD result is now set to "invalid". Up to now the result was displayed as 0 % or -240 dB.	**UPV**
Analyzer functions THD and THD+N: Undersampling FFT can now be activated to allow high-resolution, low-frequency distortion measurements. Post-FFT must be enabled, FFT size must be set manually.	**UPV**
Analog analyzer: Automatic internal DC offset correction now implemented via setting "Anl.ZeroAuto = ON" in diagnostic panel	**UPV**

Modified Functionality

None

Fixed Issues

Analyzer function FFT: Equalization did not work, though activated and a valid file was loaded. Now correct.	**UPV**
When a bandpass is used for analyzer or generator, it may become instable, if: 1. upper passband edge >> lower passband edge (very broad passband), 2. low signal frequency 3. high signal level (> 0.5 of FS) Now correct.	**UPV**

Digital Audio Interface (UPV-B2):
  - Sync Output is always set to Internal clock,
  - Sync Output Type is always set to Wordclock,
independent of the settings made in the analyzer config panel.
Now correct.
	UPV

If the generator is overloaded, it will be switched off internally. But this state is not indicated by the Overload LED, nor by the Output Off LED, nor by the Gen Ovld status information. Now correct.	**UPV**
Multichannel Analyzer: If a new channel was selected in the display panel, the trace of the previous channel was not removed. Now correct.	**UPV**
Analog analyzer: 250 kHz bandwidth: special combinations of filters together with very long measurement times might cause the measurement not to terminate. Fixed by reducing the maximum measurement times.	**UPV**
Generator overload might sporadically occur, if UPV-B3 is installed and generator bandwidth is changed at high output signal levels. Fixed by modification of hardware setting procedure.	**UPV**
Phase measurement did not work with dynamic mode precision (distortion measurements).	**UPV**
Generator level sweep: if start and stop level are defined in dBm, the x-axis of the sweep graph panel is scaled to the open circuit level of the generator – instead of the settings defined in the generator function panel. Now correct.	**UPV**
Waveform display might be corrupted if: - continuously measuring RMS in auto fast mode - signal frequency below 200 Hz - waveform length > 10 ms	**UPV**

Known Issues

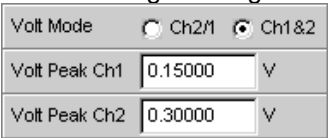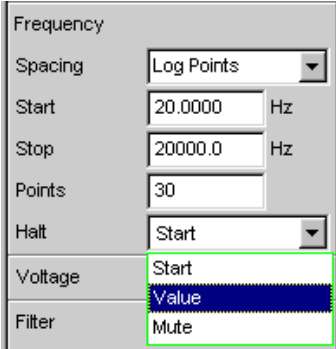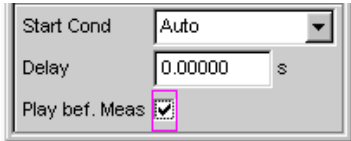|	
The remote control commands MMEM:MSIS and MMEM:CDIR, which could be used to define a default folder for file storage, do not work properly. The default folder is always c:\upv\bin and cannot be changed with those commands. Work-around: Specify full path names in commands for storing and loading files, e. g. MMEM:STOR:STAT, "d:\upv\user\test1.set"	**UPV UPP**
Graphics: The multichannel mode is vailable for FFT and bargraph window. Though it should be able to display more than 2 channels per graphics window, only 2 channels are possible now.	**UPV UPP**
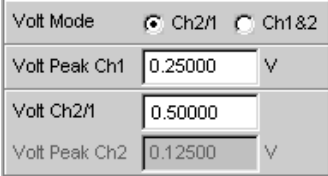
1.8 Version 3.1.0.0571
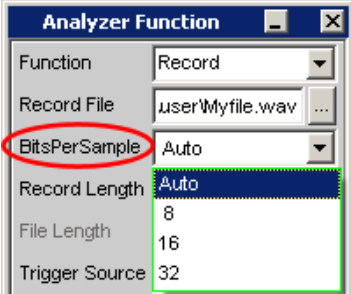
Firmware package contents

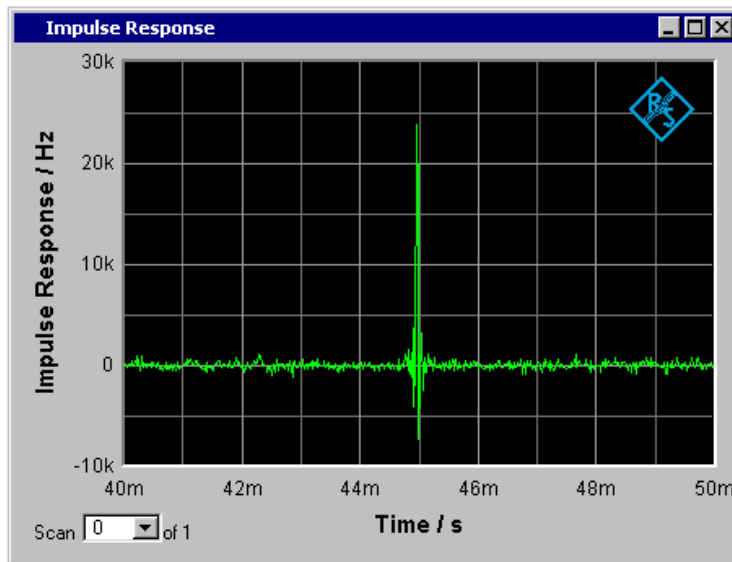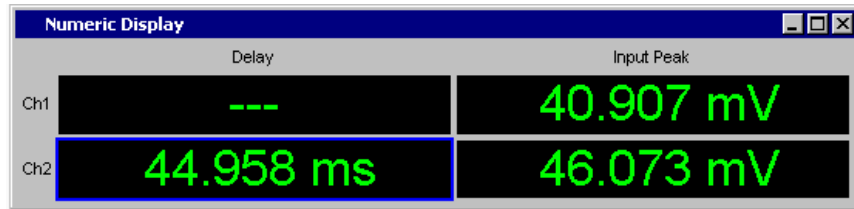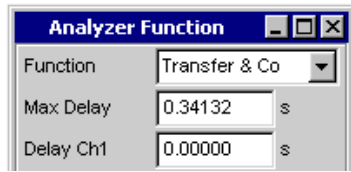| Component	FW version
UPxCheckPreconditions	1.3.1
UPVCompass_2.1.77.0s-Release	2.1.77.0
Setup_3.1.00571Release	3.1.0

New Functionality

Analyzer/Generator	
Analyzer functions FFT, THD and THD+N: A progress information is displayed in the status bar, if averaging is selected and if the averaging takes more than only a few seconds. FFT-Averaging in progress; 60.0 % completed. The progress information starts after the 2nd average step and is updating once per second.	**UPV** **UPP**
PESQ now available in digital domain for I2S and USI Dual Channel instruments	**UPV**
New features for generator function Play: **Restart**: Restart Auto Play Mode Off Auto Time Once Off: the waveform is not restarted Auto: the waveform is restarted after any user interaction Once: the waveform is started once If restart is switched from Auto to Off, the generator is stopped and muted. Auto is the default to be compatible to older firmware versions Remote control commands: SOURce:PLAY:RESTart OFF SOURce:PLAY:RESTart AUTO SOURce:PLAY:RESTart ONCE **Inter-channel Delay** Function Play File er/PeaqRef.wav ... Scale Pk to FS ☐ Channel Stereo Delay Ch1 0.25000 s Delay Ch2 0.00000 s Available only for stereo wav files, played in stereo mode. Maximum delay is 48 k samples (1 s @ 48 kHz sampling rate) Remote control commands: SOURce:PLAY:DELay[1] .25 S SOURce:PLAY:DELay2 0 S **Stereo level setting** The level can now be set independently for each channel. For mono and stereo wavefiles.	**UPV**

Two voltage setting modes are supported (same as for stereo sine)
Channel 1 and ratio Ch2/1
This is the default, with ratio = 1 (mono level setting, thus compatible to previous firmware versions)

Volt Mode	⊙ Ch2/1 ○ Ch1&2	
Volt Peak Ch1	0.25000	V
Volt Ch2/1	0.50000	
Volt Peak Ch2	0.12500	V

Remote control commands:
SOURce:VOLTage:SELect VLRT
SOURce:VOLTage 0.25 V
SOURce:VOLTage:RATio 0.5

Ch1&2 voltage setting

Volt Mode	○ Ch2/1 ⊙ Ch1&2	
Volt Peak Ch1	0.15000	V
Volt Peak Ch2	0.30000	V

Remote control commands:
SOURce:VOLTage:SELect VLVL
SOURce:VOLTage 0.15 V
SOURce:VOLTage:CH2Stereo 0.30 V

Generator Sweep: **UPV**
                                                                                    UPP

Frequency		
Spacing	Log Points ▾	
Start	20.0000	Hz
Stop	20000.0	Hz
Points	30	
Halt	Start ▾	
Voltage	Start	
	Value	
Filter	Mute	

The new menu item **Halt** defines the frequency of the generator after the sweep has terminated.

Start:The generator returns to the start frequency
Value: The generator frequency is set to a predefined value
Mute: The generator mutes after the sweep has terminated.

Remote control commands:
SOURce:SWEep:FREQuency:HALT STARt
SOURce:SWEep:FREQuency:HALT
VALue;:SOURce:SWEep:FREQuency:HALT:VALue 1 KHZ
SOURce:SWEep:FREQuency:HALT MUTE

This halt state can be defined for all sweepable parameters. Therefore instead of FREQency also VOLTage, PHASe (for stereo sine only), INTerval and ONTime (for Burst only) is supported.

Play before measurement:
This feature is only available for the 2-channel analog analyzer, with UPV-K9

option installed. It can then be activated in the analyzer config panel: It is intended for use in mobile phone tests, to play an activation signal (usually a voice-like signal stored in a *.wav file) before the test signal (e.g. a sinewave) is started. Measurement starts, with the start of the test signal, and can be further delayed with the start condition delay. As test signal one of the generator functions must be selected. An appropriate measurement function must be selected in the analyzer. The *.wav file must have been loaded in the generator function play, before the test signal function is selected. Remote control command: TRIGger:PLAYbefmeas ON | OFF	
UPV-B42 generator: the maximum setting of MClk Ratio is increased from 768 to 800.	**UPV**
The THD+N&SINAD measurement function now provides 2 filters. Up to now only one filter was possible.	**UPV** **UPP**
Measurement functions THD+N&SINAD and THD: Average Mode for the Post FFT The number of averages can be set in the range from 1 to 10000 The resulting measurement value is calculated from the averaged FFT. Remote control commands: SENSe:FUNCtion:FFT:AVERage:MODE NORMal SENSe:FUNCtion:FFT:AVERage 12	**UPV** **UPP**
Analyzer function record Up to now only the automatic mode was supported. From now on 3 fixed settings are possible. Remote control command: SENSe[1]:FUNCtion:RECord:BPS AUTO | L8 | L16 | L32	**UPV**
Interchannel delay and impulse response can now be calculated with the	**UPV**

analyzer function Transfer&Co from any input signal, maybe speech, music or noise.

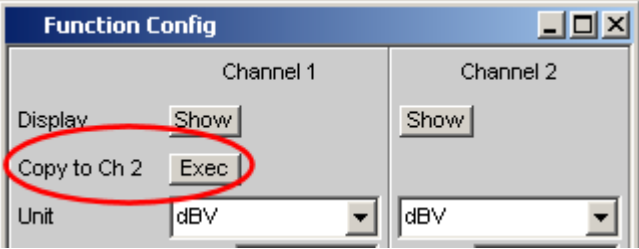|	
Noise density can now also be displayed in the unit "dBV/√Hz". The reference must be set to "Noise Density dB" in the FFT graph config panel.	**UPV**
Analyzer function FFT: The RMS level via FFT can now be calculated within a freely selectable frequency range Remote control command: SENSe[1]:FREQuency:LIMit ON | OFF OFF is the same as the previously supported wideband mode (default).	**UPV** **UPP**
Analyzer function FFT: The start of the FFT can now be triggered simultaneously with the waveform	**UPV**
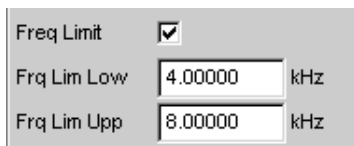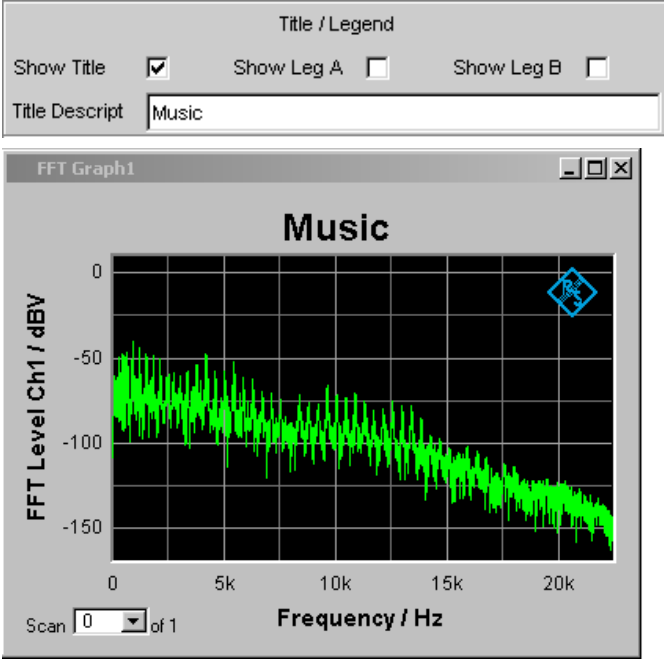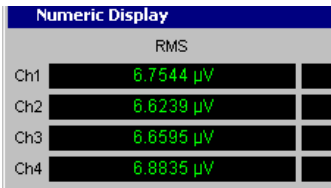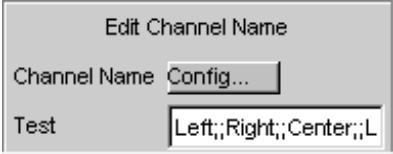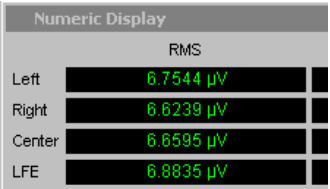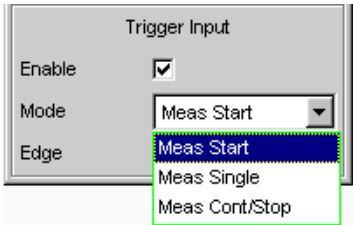
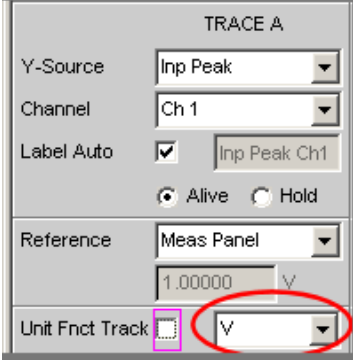|	
trigger.	
The FFT triggered mode is activated in the analyzer FFT function . If not yet active, the waveform is switched on.	
The trigger parameters are the same as for the waveform function, and hve to be defined there.	
Remote Control	

New remote control command: INITiate:CONTinuous RSTart
 	
This commands starts a single measurement (like INITiate:CONTinuous OFF), and in addition:
  - resets all parameters (like Min/Max values or limit violations)
  - re-starts the wavefile for the generator function Play
 	
Thus this command simulates the sequence of pressing the START and then the SINGLE button on the front panel.
	UPV
	UPP

New remote control command: SYSTem:WINStyle ON | OFF 	**UPV** **UPP**
New remote control commands: SENSe[1]:CONFig:COPYother ONCE SENSe2:CONFig:COPYother ONCE SENSe6:CONFig:COPYother ONCE These commands copy the settings made for channel 1 in the Display Config Panels of Function, Input and Level Monitor to channel 2. 	**UPV** **UPP**
Strings can be transmitted to and queried from the UPx, by using the remote control commands SYSTem:MEMory:STRing\<i\> 'Any String' and SYSTem:MEMory:STRing\<i\>?. If the queried string was an empty string '' this could lead to a timeout in the controlling program. If the string buffer was deleted before, the query answer was ' ' (space). Now in both cases the query answer is 'empty'.	**UPV** **UPP**
New command to query the MAC address of the instrument: SYST:SINFo:MAC?	**UPV** **UPP**
New remote control command… SENSe\<n\>:DATA:ALL? … to query the measurement results of all channels with one command. In the return string, the results a separated by commas.	**UPV** **UPP**
New remote control command…	**UPV**

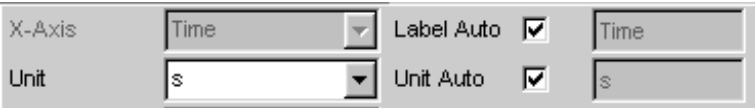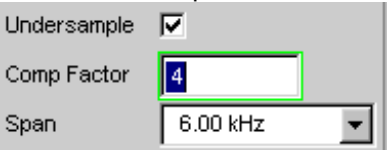|	
OUTPut:IMPedance:UNBalanced? … to query the value (which is fixed to 5 ohm) of the generator impedance, when the generator is set to Output Type Unbal.	**UPP**
Graphics	
Grafic Windows can have a title above the grid. The title is defined in the graphic config panel: The title of a graphic is stored (and loaded) with the trace file.	**UPV** **UPP**
Numeric display Up to now the channel names were fixed to Ch1, Ch2, …….. , Ch16 Now the names for the channels can be freely configured in the config Panel, for example: ….. for the following display….. Remote control command:	**UPV** **UPP**

SYSTem:CHNString 'Left;;Right;;Center;;LFE'	
The numeric display can now be copied to file or clipboard. Up to now this was only supported for active graphics window.	**UPV UPP**
General	
The setup of the instrument can be stored as *.html file, by selecting "Report Files" as file type when saving the setup….. Save as type: `Report Files(*.html)` …..and loaded with a browser **Generator Config** Instrument Analog Channel 2 ≡ 1 Output Type Unbal Impedance 5 Ω Common Float Bandwidth 22 kHz Volt Range Auto Max Voltage 20.0000 V Ref Voltage 1.00000 V Ref Frequency 1000.00 Hz	**UPV UPP**

Trigger Input now implemented
 	
Trigger Input
Enable ☑
Mode `Meas Start`
Edge
  Meas Start
  Meas Single
  Meas Cont/Stop
 	
The impuls at the trigger input acts like a keystroke of one of the front panel keys START, SINGLE or STOP/CONT. The Mode selects, which key is simulated by the trigger impulse.
 	
Edge selects the active slope of the impulse. It is expected, that the impulse has a fast rise/fall time due to modern logic circuit outputs.
 	
Trigger input cannot be used together with a generator or analyzer sweep.
 	
Remote control commands:
AUXiliaries:TRIGger:INPut:ENABle ON | OFF
AUXiliaries:TRIGger:INPut:MODE MSTart | MSINgle | MCONtstop
AUXiliaries:TRIGger:INPut:EDGE RISing | FALLing
	UPV

Modified Functionality

None

Fixed Issues

Analyzer functions PESQ and PEAQ: When operating in offline mode, where the degraded signal is loaded from file, the waveform display still showed the signal at the analyzer input connectors, which is meaningless in offline mode. Now the signal in the loaded file is displayed.	**UPV**
Analog analyzer bandwidth 250 kHz: If a prefilter and 3 function filters (if possible for the selected measurement function) were used, the measurement did not terminate. From now on the third function filter can no longer be selected for the 250 kHz bandwidth analyzer.	**UPV**
Generator signal sine squared burst: If a negative voltage was entered the generated pulse was still positive and the level setting was not correct. Now the pulse is inverted by entering a negative voltage.	**UPV**
Sweep Graph Config panel: If Inp Peak was selected as Y-Source, the unit could not be selected manually, though Unit Fnct Track was unchecked. Now correct. 	**UPV**
Analog analyzer with bandwidth 250 kHz: If a startcondition delay > 2.8 s was used, the user interface was blocked (due to internal calculation errors). The UPV application had to be ended with the windows task manager. Now fixed.	**UPV**
Multichannel instruments: Wrong input peak reading in the 3rd and 4th active channel, if the measurement time was longer than 500 ms. Now correct.	**UPV**
Waveform trigger channel, analog analyzer bandwidth 250 kHz, single channel measurement: When the channels were switched between 1 and 2, the trigger source was set to "Manual". Now the trigger source tracks to the selected channel.	**UPV**
Analog 16 channel instrument (2 UPV-B48 options fitted): Channels 9 to 16 could not be set to a fixed range via remote control, because the command SENSe:VOLTage:RANGe<n>:VALue <level> produced a "Data out of range" error, if <n> was in the range from 9 to 16. Now correct.	**UPV**
Generator function Stereo Sine: The input range of the voltage ratio setting was not limited according to the maximum allowed level. Now correct.	**UPV**
Generator function Play: The level of channel 2 was too low, when channels were switched between Stereo and Mono and if the level was > 50 % of Fullscale. Now correct.	**UPV**
Up to now the limit file parser expected capital letters. An error message occured, when e.g. Hz was written instead of HZ. Now the parser is no	**UPV**

longer case-sensitive.	
The following remote control commands to show/hide and define the legend string have been missing for the bargraph display: DISPlay:BARgraph1|2:A|B:LEGend:SHOW ON | OFF DISPlay:BARgraph1|2:A|B:LEGend:DESCription "String"	**UPV**
The following remote control commands have been missing for the PESQ display: DISPlay:PESQ:X:LABel:AUTO ON | OFF DISPlay:PESQ:X:LABel:USER 'MyXLabel' DISPlay:PESQ:X:UNIT S | MIN | DS DISPlay:PESQ:X:UNIT:AUTO ON | OFF DISPlay:PESQ:X:UNIT:USER 'MyXUnit' X-Axis [Time] Label Auto ☑ [Time] Unit [s] Unit Auto ☑ [s]	**UPV**
The following remote control commands have been missing for the PESQ display: DISPlay:PESQ1|2:A|B:LABel:AUTO ON | OFF DISPlay:PESQ1|2:A|B:LABel:USER 'MyLabel' Y-Source [PESQ & MOS] [Delay] Label Auto ☑ [PESQ & MOS] ☑ [Delay Ch1]	**UPV**
The following remote control commands did not work for trace B of the PESQ display DISPlay:PESQ1|2:B:YSOurce PEMO | DELay | REFSignal | DEGSignal | DROPouts Now correct	**UPV**
When undersample FFT was selected ….. Undersample ☑ Comp Factor [4] Span [6.00 kHz] ….. the MIN/MAX query SENSe:FUNCtion:FFT:CMPFactor? MIN | MAX did not work properly: the return value was the actual value, not MIN or MAX. Now correct.	**UPV**
Multichannel instruments: The remote control command SENSe3:FREQuency:REFerence:MODE to store the frequency reference value did not work for the following parameters: MREFchannel CH<n>Store <n> = 3 to 16	**UPV**
FFT Phase Ch1, Ch2 or Ch2-Ch1 (selected in FFT Graph Config Panel) could only be displayed, if Freq/Phase measurement in Analyzer Function Panel was set to Freq & Phase. Now fixed.	**UPV**

Known Issues

The remote control commands MMEM:MSIS and MMEM:CDIR, which could be used to define a default folder for file storage, do not work properly. The default folder is always c:\upv\bin and cannot be changed with those commands. Work-around: Specify full path names in commands for storing and loading files, e. g. MMEM:STOR:STAT, "d:\upv\user\test1.set"	**UPV UPP**
Graphics: The multichannel mode is vailable for FFT and bargraph window. Though it should be able to display more than 2 channels per graphics window, only 2 channels are possible now.	**UPV UPP**

2 Firmware Update

ATTENTION

For any update of **UPV** firmware from a version 1.x to a version higher than 2.0.0 the upgrade to version 2.0.0 is required before. For this purpose a bootable CD "UPV Audio Analyzer Firmware Upgrade 2.0.0" is provided, which is included in the "UPV Firmware Version 2.0.0 Installation Manual", ident number 1406.0154.42.

Please contact your local R&S agency to receive the Installation Manual and the CD-ROM free of charge.

Local Firmware Update

The firmware update is performed directly on the instrument, typically using an USB memory stick which contains the files for the firmware update.
Mouse and keyboard have to be connected to the instrument. In addition, an external monitor is required for UPP (DVI monitor) and UPV66 (VGA monitor). The appropriate connector is located on the rear.

See chapter 2.1 for details.

Remote Firmware Update

Alternatively the firmware update can be performed over LAN or GPIB from an external PC (running Windows XP). Connect the instrument via LAN or GPIB to the PC and run the firmware update from the PC.

See chapter 2.2 for details.

ATTENTION

It is strongly recommended to do **no firmware downgrade** below the version the instrument was delivered originally (this is the version you can see if you select "Factory Default" starting with Backup/Recovery).

2.1 Local Firmware Update

1. **Save the current version**

   It is recommended to save the currently installed version. This can be done very easily and completely intuitive with the built-in recovery and backup tool.

   - Switch off the instrument and switch it on again. When the instrument is starting now you see the Boot manager window (blue background, white field inside and a red selection line) after a short time. If you see this window press the cursor key ⬆ and **Enter** on the external keyboard.

   - After a short time the recovery and backup service is started.
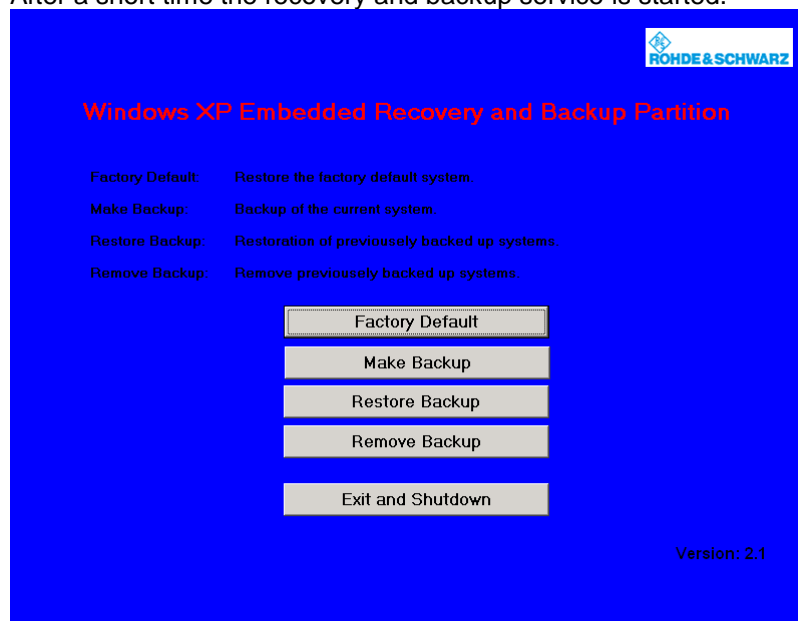
   Select Make Backup via mouse or keyboard. The menu disappears and the instrument shows you the versions of what will be stored.
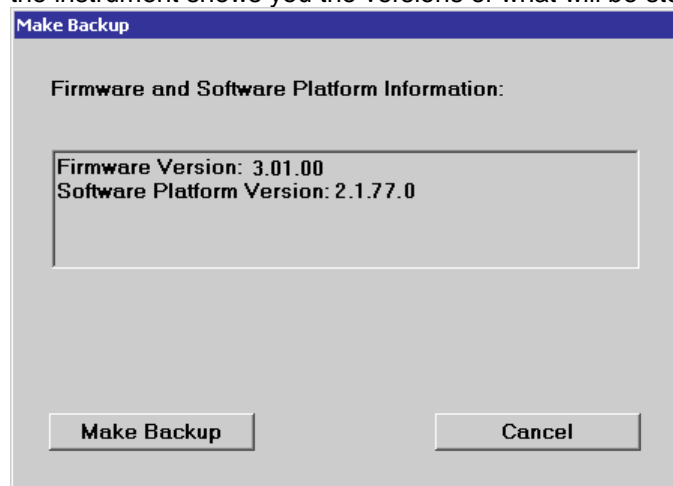
   Select Make Backup and follow the instructions on the screenand the instrument starts working. The backup process takes some minutes. Please do

not switch off the instrument, otherwise your backup may be corrupt. It's safe to switch off the instrument with the | Exit and Shutdown | button, when the menu is shown again.

If you want to restore a previously saved version select **Restore Backup** in the same way.

2. **Install the new firmware version on the UPP**

● Switch on the instrument.

● *Access Windows XP desktop*

Operating with the mouse

- Wait until R&S UPP firmware boot window with the progress bars appears.

- Click on the | Cancel | button in the boot window. Booting of the instrument firmware is aborted and the Windows XP desktop is displayed.

Operation with the keyboard

- Wait until R&S instrument firmware has booted and the application has started.

- Press | Alt | **+** | F4 | to close the application. The Windows XP desktop is displayed.

● *Install new firmware version*

- Plug in the USB memory stick which contains the update files.

- Double-click the item **Setup_3.3.60834Release.exe**

- Keep the defaults and start the installation by selecting Next > Install.

- When installation is completed the instrument automatically shuts down.

- UPV only: switch the instrument off.

- Switch the instrument on again.

Depending on the installed version and the update version of the firmware the installer may request that you run the item **UPxCheckPreconditions.exe** before you can install the new firmware. In this case, please follow the instructions in section 2.3 "Firmware Installation".

2.2 Remote Firmware Update

1. **Save the current version**
    Please ensure that the current version of the remote instrument has been saved by the operator, as described in section 2.1.

2. **Connect the remote instrument to your PC**
    The remote instrument may be connected to your PC via GPIB or via a LAN connection.
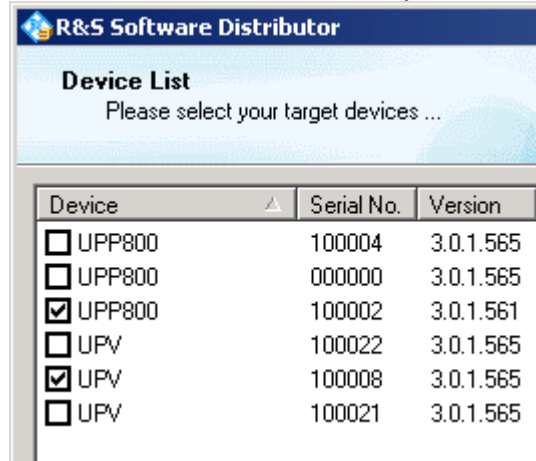
3. **Install the new firmware version**

    - Run **Setup_3.3.60834Release.exe** on your PC

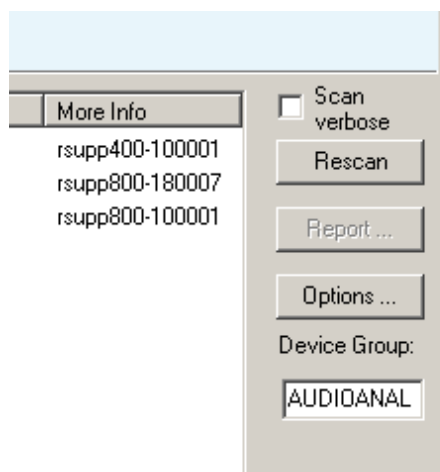   - Select "Remote Installation"
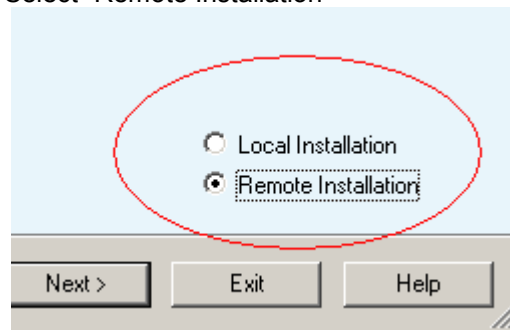

    and click the button "Next >"

    - After scanning GPIB connections and your LAN subnet all found instruments are listed. Select the instruments you want to update:

    - If no audio analyzers are found even if they are connected to GPIB or LAN, please ensure that the **Device Group** is set to "**AUDIOANALYZER**" and perform a rescan.

- To store Device Group "**AUDIOANALYZER**" permanently, select "Options …"-Button and type "AUDIOANALYZER" in the field shown below,
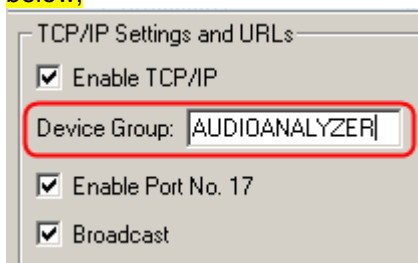
then click "Save Options"-Button and "OK"-Button in sequence.

ATTENTION

Please be careful and check twice if you have selected the correct instruments. Depending on your company's network structure also instruments of other departments will show up!

- Additional help will be displayed after clicking the button "Help"
- Start installation by selecting "Install"
- When installation is completed the instrument automatically shuts down.
- UPV only: switch instrument off.
- Switch instrument on again.

Depending on the installed version and the update version of the firmware the installer may request that you run the item **UPxCheckPreconditions.exe** before you can install the new firmware. In this case, you are not able to do the update via remote, please follow the instructions in section 2.3 "Firmware Installation".

2.3 Firmware Installation

Connect mouse and keyboard to the instrument.

Connect external monitor to UPP (DVI monitor) or UPV66 (VGA monitor).

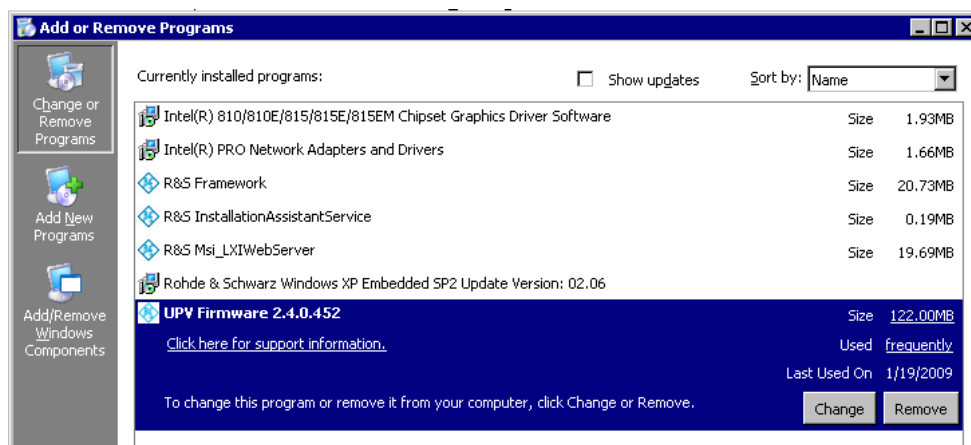Switch on the instrument.

Plug in the USB memory stick which contains the update files.

1. Remove the previous firmware version

Use the Windows tool "Add or Remove Programs" to remove the R&S Framework, the R&S InstallationAssistantService and the R&S Msi_LXIWebServer…
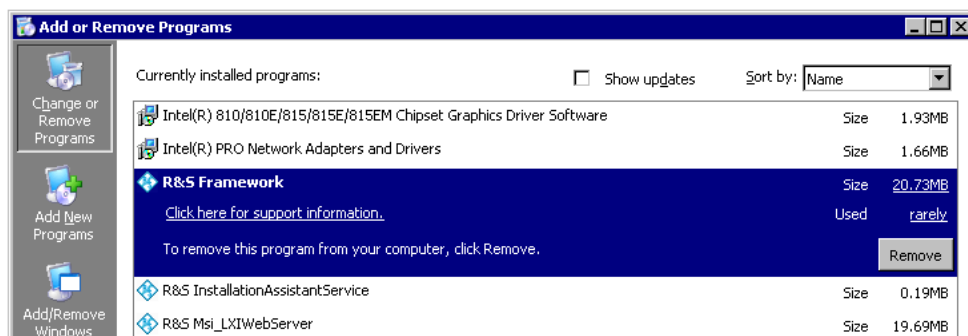
Remove the previous version of the instrument firmware …

2. **Run the UPx preconditioning tool**

    ● Double-click the item **UPxCheckPreconditions.exe**.
       The instrument is now prepared for the installation of the new R&S Framework
       and the new UPV / UPP firmware version.
       Click on the [OK] button and follow the instructions on screen.

3. **Install the new firmware version on the UPP**

    ● Double-click the item **UPVCompass_2.1.77.0-Release.exe**

        • **Keep the defaults and start the installation by selecting Next >
           Install.**

        • **Quit the installation by selecting Exit.**

        • **Skip a request for a reboot, which may be displayed on screen.**

    ● Double-click the item **Setup_3.3.60834Release.exe**

        • **Keep the defaults and start the installation by selecting Next >
           Install.**

        • **When installation is completed the instrument automatically shuts
           down.**

        • **Switch the instrument off and on again.**

3 Open Source Acknowledgement

This instrument firmware makes use of valuable open source software packages. The most important of them are listed below together with their corresponding open source license. The verbatim license texts are provided on the documentation disk delivered with each instrument.

Package	Link	License
OpenSSL	http://www.openssl.org	OpenSSL/SSLeavy
Net-SNMP	http://www.net-snmp.org	NetSnmp-5.0.8
Xitami	http://www.xitami.com	2.5b6
PHP	http://www.php.net	PHP, Version 3
DOJO-AJAX	http://www.dojotoolkit.org	Academic Free License (BSD)
ResizableLib	http://www.geocities.com/ppescher	Artistic License
BOOST Library	http://www.boost.org	Boost Software, v.1
zlib	http://www.zlib.net	zlib, v.1.2.3
Xalan Xerces	http://xalan.apache.org/ http://xerces.apache.org/	Apache, Ver.2
ACE	http://www.cs.wustl.edu/~schmidt/ACE.html	ACE_TAO
TAO (The ACE ORB)	http://www.cs.wustl.edu/~schmidt/TAO.html	ACE_TAO
PC/SC-Lite	http://www.linuxnet.com/	PCSCLite
ONC/RPC	http://www.plt.rwth-aachen.de/index.php?id=258	SUN

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com) and software written by Tim Hudson (tjh@cryptsoft.com).

Rohde & Schwarz would like to thank the open source community for their valuable contribution to embedded computing. The source code of the open source packages is available on request.

4 Customer Support

Technical support – where and when you need it

For quick, expert help with any Rohde & Schwarz equipment, contact one of our Customer Support Centers. A team of highly qualified engineers provides telephone support and will work with you to find a solution to your query on any aspect of the operation, programming or applications of Rohde & Schwarz equipment.

Up-to-date information and upgrades

To keep your instrument up-to-date and to be informed about new application notes related to your instrument, please send an e-mail to the Customer Support Center stating your instrument and your wish. We will take care that you will get the right information.

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