

# R&S® UPV / UPP\*

## Audio Analyzers

### Release Notes

### Firmware Version 3.3.0

\* Namely the models UPV, UPV66, UPP200, UPP400, UPP800

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The following abbreviations are used throughout this document:

R&S®UPV / UPP is abbreviated as UPV / UPP.

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# 1 Information on the Current Version and History

## 1.1 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 2 <sup>nd</sup> point	UPP UPV
POLQA in offline mode crashed when example WAV file was selected	UPV

**Known Issues**

<p>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.</p> <p>Work-around: Specify full path names in commands for storing and loading files, e. g. MMEM:STOR:STAT, "d:\upv\user\test1.set"</p>	<b>UPV UPP</b>
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**1.2 Version 3.2.0.683****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.	<b>UPV</b>
Digital Analyzer for Pulse Density Modulated data streams is now available with software option UPV-K421 as add-on to UPV-B42 hardware option.	<b>UPV</b>
Measurement functions PESQ, PEAQ, POLQA now available with digital and analogue measurements. Reference file sample rate must be multiple of 8 kHz	<b>UPV</b>
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.	<b>UPV UPP</b>
Analyzer function THD: The automatically optimized FFT size can be increased with a "refinement factor" (2, 4, or 8) in order to reduce noise contributions to the calculation of the harmonics. Especially useful for noisy signals without significant harmonics.	<b>UPV UPP</b>
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.	<b>UPV UPP</b>

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 $\Omega$ output impedance (switchable) and 600 $\Omega$ 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 $\Omega$ output impedance and can provide a DC voltage for instruments with serial numbers 100100 or higher. 0 $\Omega$ 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 steps 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 files, e. g. MMEM:STOR:STAT, "d:\upv\user\test1.set"	UPV UPP
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## 1.3 Version 3.1.2.0626 (UPV only)

### Firmware package contents

Component	FW version
UPxCheckPreconditions	1.3.2

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

### New Functionality

Analyzer/Generator	
Generator function Stereo Sine: Filter and Equalizer can be independently selected for each channel.	UPV
Generator function Play: Filter can be independently selected for each channel.	UPV
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 available 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

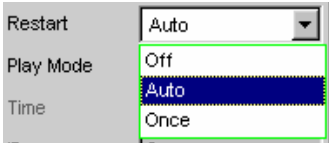
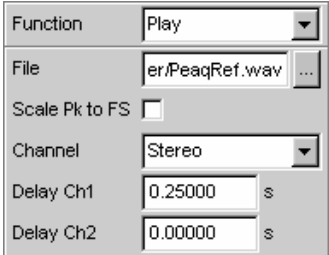
## 1.4 Version 3.1.0.0571

#### Firmware package contents

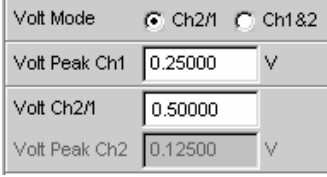
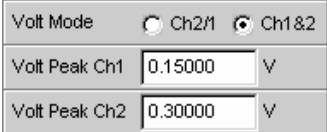
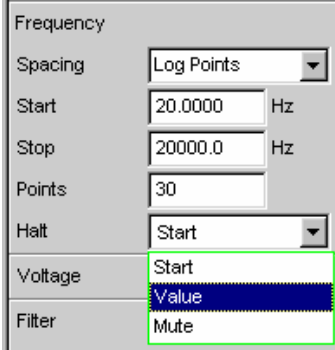
Component	FW version
UPxCheckPreconditions	1.3.1
UPVCompass_2.1.77.0s-Release	2.1.77.0
Setup_3.1.00571Release	3.1.0

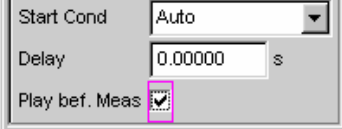
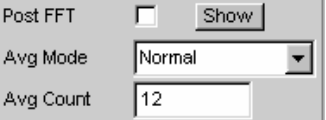
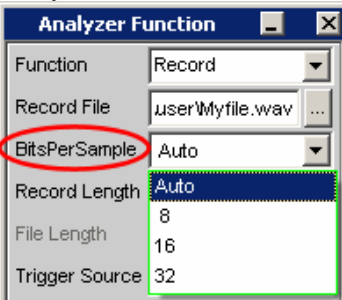
#### New Functionality

<b>Analyzer/Generator</b>	
Analyzer functions FFT, THD and THD+N: A progress information is	UPV UPP

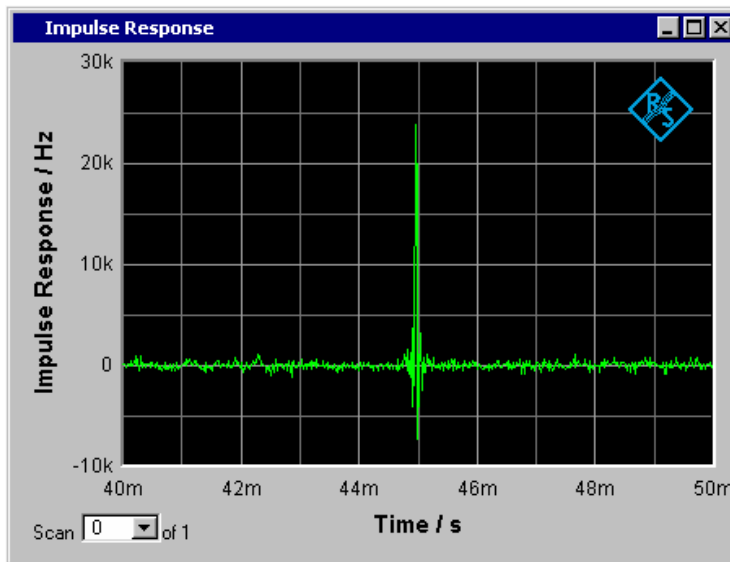
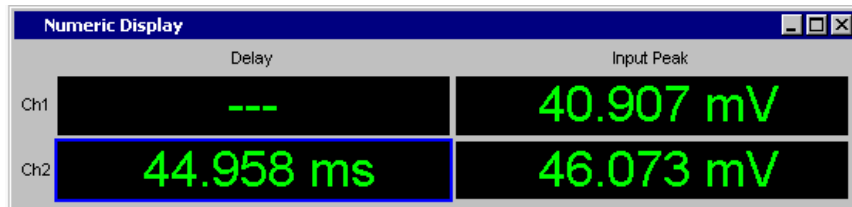
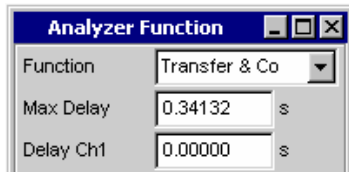
<p>displayed in the status bar, if averaging is selected and if the averaging takes more than only a few seconds.</p> <p><b>FFT-Averaging in progress; 60.0 % completed.</b></p> <p>The progress information starts after the 2nd average step and is updating once per second.</p>	
<p>PESQ now available in digital domain for I2S and USI Dual Channel instruments</p>	UPV
<p>New features for generator function Play:</p> <p><b>Restart:</b></p>  <p>Off: the waveform is not restarted  Auto: the waveform is restarted after any user interaction  Once: the waveform is started once</p> <p>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</p> <p>Remote control commands:  SOURce:PLAY:REStart OFF  SOURce:PLAY:REStart AUTO  SOURce:PLAY:REStart ONCE</p> <p><b>Inter-channel Delay</b></p>  <p>Available only for stereo wav files, played in stereo mode.  Maximum delay is 48 k samples (1 s @ 48 kHz sampling rate)</p> <p>Remote control commands:  SOURce:PLAY:DELay[1] .25 S  SOURce:PLAY:DELay2 0 S</p> <p><b>Stereo level setting</b>  The level can now be set independently for each channel. For mono and stereo wavefiles.  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)</p>	UPV



 <p>Remote control commands:          SOURce:VOLTage:SElect VLRT          SOURce:VOLTage 0.25 V          SOURce:VOLTage:RATio 0.5</p> <p>Ch1&amp;2 voltage setting</p>  <p>Remote control commands:          SOURce:VOLTage:SElect VLVL          SOURce:VOLTage 0.15 V          SOURce:VOLTage:CH2Stereo 0.30 V</p>	
<p>Generator Sweep:</p>  <p>The new menu item <b>Halt</b> defines the frequency of the generator after the sweep has terminated.</p> <p>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.</p> <p>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</p> <p>This halt state can be defined for all sweepable parameters. Therefore instead of FREQuency also VOLTage, PHASe (for stereo sine only), INTerval and ONTime (for Burst only) is supported.</p>	<p>UPV UPP</p>
<p>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:</p>	

	<p>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.</p> <p>As test signal one of the generator functions must be selected. An appropriate measurement function must be selected in the analyzer.</p> <p>The *.wav file must have been loaded in the generator function play, before the test signal function is selected.</p> <p>Remote control command: TRIGger:PLAYbefmeas ON   OFF</p>	
<p>UPV-B42 generator: the maximum setting of MClk Ratio is increased from 768 to 800.</p>	<p>UPV</p>	
<p>The THD+N&amp;SINAD measurement function now provides 2 filters. Up to now only one filter was possible.</p>	<p>UPV UPP</p>	
<p>Measurement functions THD+N&amp;SINAD and THD: Average Mode for the Post FFT</p> 	<p>The number of averages can be set in the range from 1 to 10000</p> <p>The resulting measurement value is calculated from the averaged FFT.</p> <p>Remote control commands: SENSe:FUNCTION:FFT:AVERAge:MODE NORMAl SENSe:FUNCTION:FFT:AVERAge 12</p>	<p>UPV UPP</p>
<p>Analyzer function record</p> 	<p>Up to now only the automatic mode was supported. From now on 3 fixed settings are possible.</p> <p>Remote control command: SENSe[1]:FUNctioN:RECOrd:BPS AUTO   L8   L16   L32</p>	<p>UPV</p>
<p>Interchannel delay and impulse response can now be calculated with the analyzer function Transfer&amp;Co from any input signal, maybe speech, music</p>	<p>UPV</p>	

or noise.

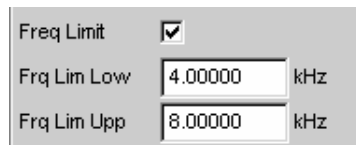


Noise density can now also be displayed in the unit "dBV/√Hz". The reference must be set to "Noise Density dB" in the FFT graph config panel.

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).

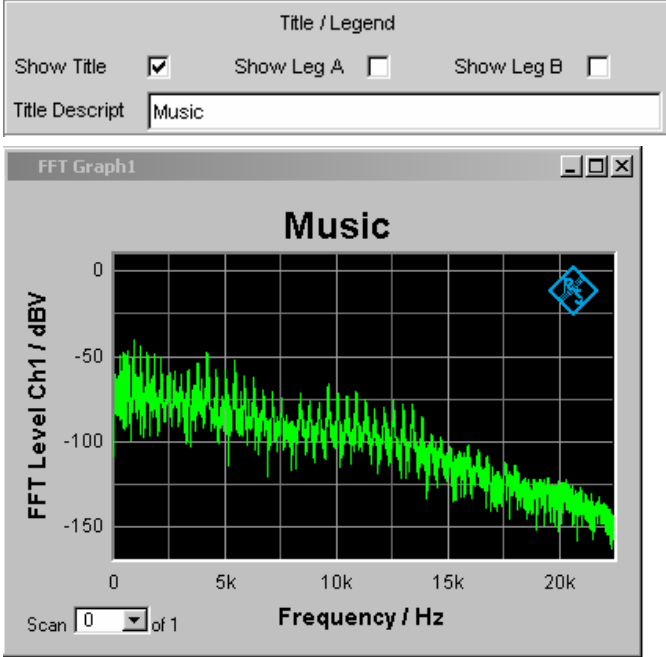
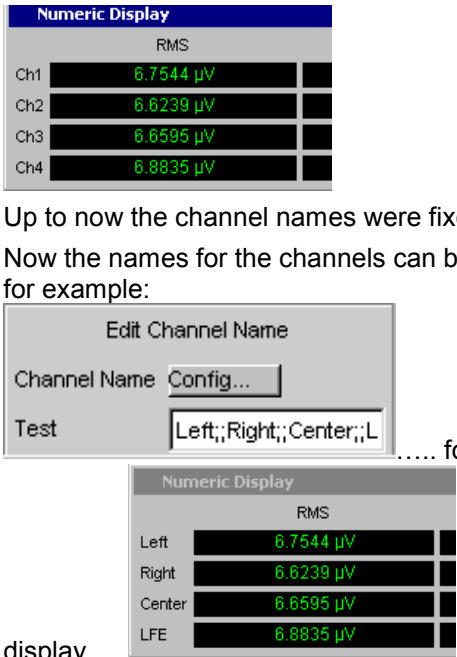
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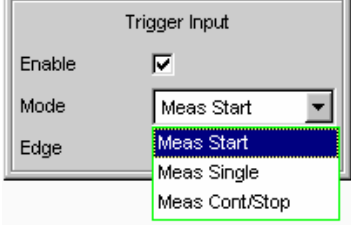
Analyzer function FFT:

The start of the FFT can now be triggered simultaneously with the waveform trigger.

UPV

<p>The FFT triggered mode is activated in the analyzer FFT function triggered . If not yet active, the waveform is switched on.</p> <p>The trigger parameters are the same as for the waveform function, and hve to be defined there.</p>	
<p><b>Remote Control</b></p>	
<p>New remote control command: INITiate:CONTInuous RStart</p> <p>This commands starts a single measurement (like INITiate:CONTInuous OFF), and in addition:</p> <ul style="list-style-type: none"> <li>- resets all parameters (like Min/Max values or limit violations)</li> <li>- re-starts the wavefile for the generator function Play</li> </ul> <p>Thus this command simulates the sequence of pressing the START and then the SINGLE button on the front panel.</p>	<p>UPV UPP</p>
<p>New remote control command: SYSTem:WInStyle ON   OFF</p> 	<p>UPV UPP</p>
<p>New remote control commands:</p> <p>SENSe[1]:CONFIg:COPIYother ONCE SENSe2:CONFIg:COPIYother ONCE SENSe6:CONFIg:COPIYother ONCE</p> <p>These commands copy the settings made for channel 1 in the Display Config Panels of Function, Input and Level Monitor to channel 2.</p> 	<p>UPV UPP</p>
<p>Strings can be transmitted to and queried from the UPx, by using the remote control commands SYSTem:MEMory:STRing&lt;i&gt; 'Any String' and SYSTem:MEMory:STRing&lt;i&gt;?.</p> <p>If the queried string was an empty string " this could lead to a timeout in the controlling program.</p> <p>If the string buffer was deleted before, the query answer was ' ' (space).</p> <p>Now in both cases the query answer is 'empty'.</p>	<p>UPV UPP</p>
<p>New command to query the MAC address of the instrument: SYST:SINFo:MAC?</p>	<p>UPV UPP</p>
<p>New remote control command...</p> <p>SENSe&lt;n&gt;:DATA:ALL?</p> <p>... to query the measurement results of all channels with one command.</p> <p>In the return string, the results a separated by commas.</p>	<p>UPV UPP</p>
<p>New remote control command...</p> <p>OUTPut:IMPedance:UNBalanced?</p> <p>... to query the value (which is fixed to 5 ohm) of the generator impedance,</p>	<p>UPV UPP</p>

<p>when the generator is set to Output Type Unbal.</p>	
<p><b>Graphics</b></p>	
<p>Graphic Windows can have a title above the grid. The title is defined in the graphic config panel:</p>  <p>The title of a graphic is stored (and loaded) with the trace file.</p>	<p>UPV UPP</p>
<p><b>Numeric display</b></p>  <p>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:</p> <p>..... for the following</p> <p>display.....</p> <p>Remote control command: SYSTEM:CHNString 'Left;Right;Center;;LFE'</p>	<p>UPV UPP</p>
<p>The numeric display can now be copied to file or clipboard. Up to now this</p>	<p>UPV</p>

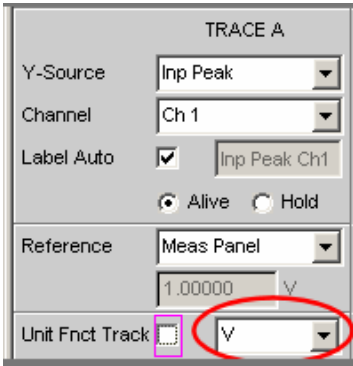
was only supported for active graphics window.	UPP																				
<p><b>General</b></p>																					
<p>The setup of the instrument can be stored as *.html file, by selecting “Report Files” as file type when saving the setup.....</p>  <p>.....and loaded with a browser</p> <p><b>Generator Config</b></p> <table border="0"> <tr><td>Instrument</td><td>Analog</td></tr> <tr><td>Channel</td><td>2 ÷ 1</td></tr> <tr><td>Output Type</td><td>Unbal</td></tr> <tr><td>Impedance</td><td>5 Ω</td></tr> <tr><td>Common</td><td>Float</td></tr> <tr><td>Bandwidth</td><td>22 kHz</td></tr> <tr><td>Volt Range</td><td>Auto</td></tr> <tr><td>Max Voltage</td><td>20.0000 V</td></tr> <tr><td>Ref Voltage</td><td>1.00000 V</td></tr> <tr><td>Ref Frequency</td><td>1000.00 Hz</td></tr> </table>	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
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																				
<p>Trigger Input now implemented</p>  <p>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.</p> <p>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.</p> <p>Trigger input cannot be used together with a generator or analyzer sweep.</p> <p>Remote control commands:          AUXiliaries:TRIGger:INPut:ENABLE ON   OFF          AUXiliaries:TRIGger:INPut:MODE MStArt   MSINgLe   MCONtstop          AUXiliaries:TRIGger:INPut:EDGE RISing   FALLing</p>	UPV																				



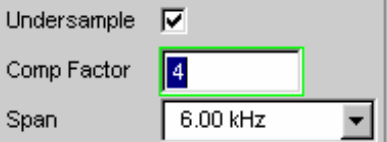
**Modified Functionality**

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	UPV
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mode. Now the signal in the loaded file is displayed.	
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 3 <sup>rd</sup> and 4 <sup>th</sup> 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 occurred, when e.g. Hz was written instead of HZ. Now the parser is no longer case-sensitive.	UPV
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	UPV

<p>DISPlay:BARgraph1 2:A B:LEGend:DESCription "String"</p>	
<p>The following remote control commands have been missing for the PESQ display:</p> <p>DISPlay:PESQ:X:LABel:AUTO ON   OFF  DISPlay:PESQ:X:LABel:USER 'MyXLabel'</p> <p>DISPlay:PESQ:X:UNIT S   MIN   DS  DISPlay:PESQ:X:UNIT:AUTO ON   OFF  DISPlay:PESQ:X:UNIT:USER 'MyXUnit'</p> 	<p><b>UPV</b></p>
<p>The following remote control commands have been missing for the PESQ display:</p> <p>DISPlay:PESQ1 2:A B:LABel:AUTO ON   OFF  DISPlay:PESQ1 2:A B:LABel:USER 'MyLabel'</p> 	<p><b>UPV</b></p>
<p>The following remote control commands did not work for trace B of the PESQ display</p> <p>DISPlay:PESQ1 2:B:YSource PEMO   DELay   REFSignal   DEGSignal   DROPOuts</p> <p>Now correct</p>	<p><b>UPV</b></p>
<p>When undersample FFT was selected .....</p>  <p>..... 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.</p>	<p><b>UPV</b></p>
<p>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&lt;n&gt;Store                    &lt;n&gt; = 3 to 16</p>	<p><b>UPV</b></p>
<p>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 &amp; Phase. Now fixed.</p>	<p><b>UPV</b></p>



**Known Issues**

<p>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.</p> <p>Work-around: Specify full path names in commands for storing and loading files, e. g.</p> <p>MMEM:STOR:STAT, "d:\upv\User\test1.set"</p>	<b>UPV UPP</b>
<p>Graphics: The multichannel mode is available 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.</p>	<b>UPV UPP</b>

## 2 Firmware Update

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**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.

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### 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.

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**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).

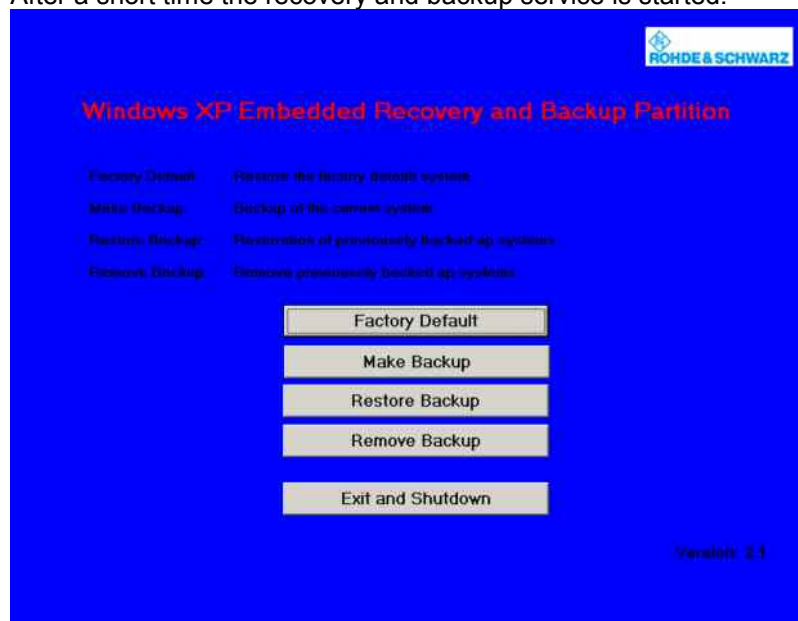
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## 2.1 Local Firmware Update

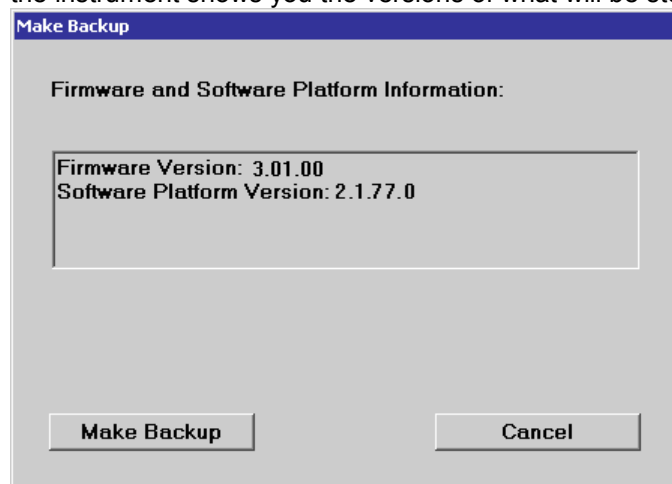
### 1. Save the current version

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 screen and 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 UPV / UPP

- Switch on the instrument.
- **Access Windows XP desktop**

Operating with the mouse

- Wait until R&S UPV / 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\_3.3.00724Release.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.

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

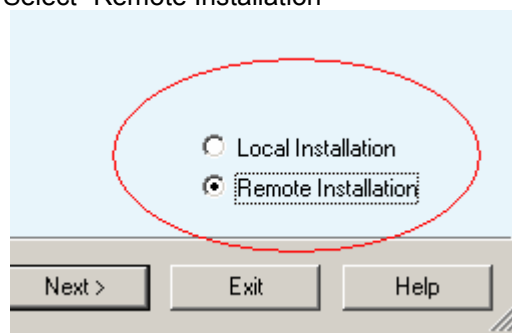
Please ensure that the current version of the remote instrument has been saved by the operator, as described in section 3.1.

## 2. Connect the remote instrument to your PC

The remote instrument may be connected to your PC via GPIB or via a LAN connection.

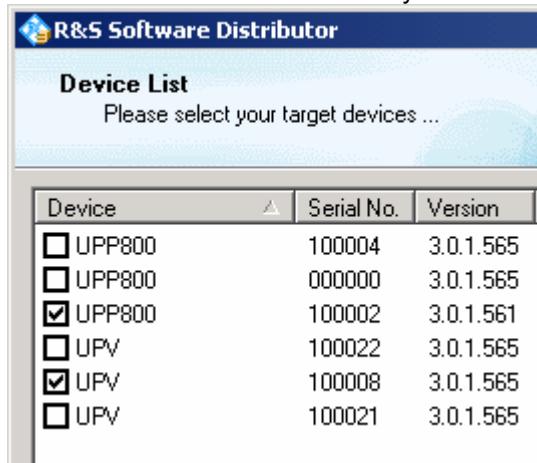
## 3. Install the new firmware version

- Run **Setup\_3.3.00724Release.exe** on your PC
- Select "Remote Installation"



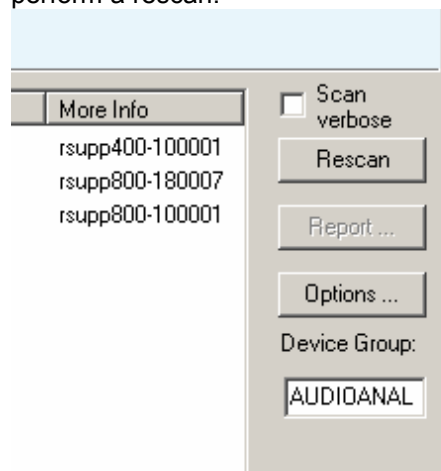
and click the button "Next >"

- 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.



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**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!

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- Additional help will be displayed after clicking the button "Help"
- Start installation by selecting "Install"
- When installation is completed the instrument automatically shuts down.
- Switch instrument off and 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.

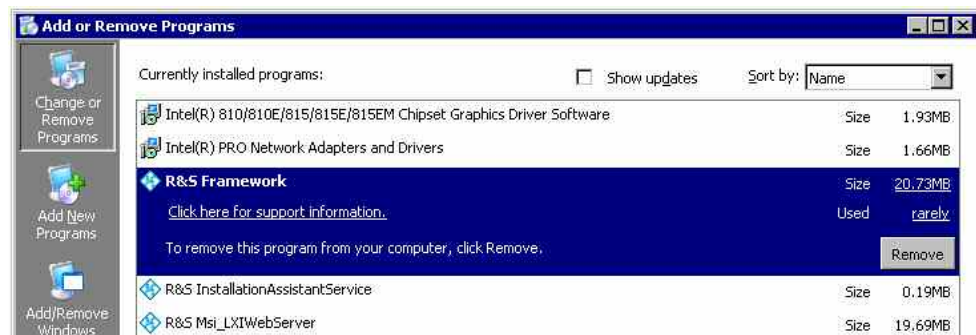
Connect external monitor to UPP (DVI monitor) or UPV66 (VGA monitor).

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 UPV / 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\_3.3.00724Release.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	<a href="http://www.openssl.org">http://www.openssl.org</a>	OpenSSL/SSLLeavy
Net-SNMP	<a href="http://www.net-snmp.org">http://www.net-snmp.org</a>	NetSnmp-5.0.8
Xitami	<a href="http://www.xitami.com">http://www.xitami.com</a>	2.5b6
PHP	<a href="http://www.php.net">http://www.php.net</a>	PHP, Version 3
DOJO-AJAX	<a href="http://www.dojotoolkit.org">http://www.dojotoolkit.org</a>	Academic Free License (BSD)
ResizableLib	<a href="http://www.geocities.com/ppescher">http://www.geocities.com/ppescher</a>	Artistic License
BOOST Library	<a href="http://www.boost.org">http://www.boost.org</a>	Boost Software, v.1
zlib	<a href="http://www.zlib.net">http://www.zlib.net</a>	zlib, v.1.2.3
Xalan Xerces	<a href="http://xalan.apache.org/">http://xalan.apache.org/</a> <a href="http://xerces.apache.org/">http://xerces.apache.org/</a>	Apache, Ver.2
ACE	<a href="http://www.cs.wustl.edu/~schmidt/ACE.html">http://www.cs.wustl.edu/~schmidt/ACE.html</a>	ACE_TAO
TAO (The ACE ORB)	<a href="http://www.cs.wustl.edu/~schmidt/TAO.html">http://www.cs.wustl.edu/~schmidt/TAO.html</a>	ACE_TAO
PC/SC-Lite	<a href="http://www.linuxnet.com/">http://www.linuxnet.com/</a>	PCSCLite
ONC/RPC	<a href="http://www.plt.rwth-aachen.de/index.php?id=258">http://www.plt.rwth-aachen.de/index.php?id=258</a>	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.

### Regional contact

#### Europe, Africa, Middle East

Phone +49 89 4129 12345

[customersupport@rohde-schwarz.com](mailto:customersupport@rohde-schwarz.com)

#### North America

Phone 1-888-TEST-RSA (1-888-837-8772)

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