R&S®SFU
Broadcast Test System
Release Notes
Firmware Version 02.72

The following abbreviations are used throughout this document:

R&S®SFU is abbreviated as R&S SFU.

ROHDE&SCHWARZ

Table of Contents

1 Information on the Current Version and History

1.1 Version 02.72

- Released: September 2012

New Functionality

- ISDB-Tmm (R&S SFU-K106): Full feature set is supported

- TsGen: Play out of BTS files for ISDB-Tmm supported

- DVB-T2 (R&S SFU-K16): Integer number of OFDM cells check implemented

- BCMux: DVB-T2 Gateway: Baseband Normal Mode supported

Fixed Issues

- ISDB-T streams (R&S SFU-K224): Repetition rate MPEG-2 tables not according to standard

Known Issues

- DVB-T2 (R&S SFU-K16): Time interleaving at Single-PLP via T2MI-Interface limited functionality

1.2 Version 02.70

- Released: August 2012

New Functionality

- DVB -C2 (R&S SFU-K17): New menu item "CALC CENTER FREQ"

- DVB-C2 (R&S SFU-K17): Push button solution for setting RF frequency to valid C2 frequency

- DVB-C2 (R&S SFU-K17): Script Files for RUN SCPI SCRIPT available

- Cable interferers (R&S SFU-K356): DVB-C2 waveform added

- DVB-T2 (R&S SFU-K16): Absolute timestamps for SFN operation supported

- DVB-T2 (R&S SFU-K16): CCM/ACM signaling check implemented

- DVB-T2 (R&S SFU-K16): DVB-T2 specification v1.3.1 (T2-Base) supported

- DVB-T2 (R&S SFU-K16): DVB-T2 specification v1.3.1 annex I (T2-Lite) supported

- DVB-T2 (R&S SFU-K16): Future Extension Frames (FEF) supported

- DVB-T2 (R&S SFU-K16): Process delay determination for SFN operation improved

- DVB-T2 (R&S SFU-K16): Script Files for RUN SCPI SCRIPT enhanced

- BCMux: DVB-T2 Gateway: Auto ISSY generation supported

- BCMux: DVB-T2 Gateway: T2-Lite supported

- BCMux: DVB-T2 Gateway: Baseband Normal Mode supported

Fixed Issues

- "TX RECALL: OPTION MISSING" is shown after installing new option and switching to new option

- CMMB Bandwidth and Coding editable in auto control in some cases

- DVB-C2 (R&S SFU K-17): L1-Signalling depends on signal frequency offset in interferer.

- DVB-C2 (R&S SFU-K17): Sporadically lost TS packets at external input

- DVB-T2 (R&S SFU-K16): False S2field1 warning fixed

- DVB-T2 (R&S SFU-K16): 'static_flag' and 'static_padding_flag' signaling for T2Version >= 1.2.1 fixed

- DVB-T2 MI streams (R&S SFU-K227): False CCM/ACM signaling

- T-DMB/DAB Waveforms (R&S SFU-K351): waveforms have out-of-band spectral components

- Warning "CODER: USEFUL DATARATE TOO HIGH" after change of data rate

- DVB-C2 (R&S SFU-K17): C/N value slightly incorrect (0.1 dB)

Known Issues

- DVB-T2 (R&S SFU-K16): Time interleaving at Single-PLP via T2MI-Interface limited functionality

1.3 Version 02.62

- Released: March 2012

New Functionality

- ISDB-Tmm (R&S SFU-K106): FEC for type A coder implemented

- DVB-C2 (R&S SFU-K17): Full data rate capacity available

- DVB-C2 (R&S SFU-K17): NUM XFEC FRAMES can now be '1' or '2'

- Display of Device ID supported

Fixed Issues

- DVB-C2 (R&S SFU-K17): Display of measured data rate stabilized

- DVB-C (R&S SFU-K2): After switching transmission standard to DVB-C RF level and C/N are correct

Known Issues

- DVB-T2 (R&S SFU-K16): Time interleaving at Single-PLP via T2MI-Interface limited functionality

1.4 Version 02.60

- Released: February 2012

New Functionality

- ISDB-Tmm (R&S SFU-K106) first feature set is supported

- ISDB-T (R&S SFU-K6): Error message for BTS <> 32,507937 MBit/s

- BCMux: DVB-T2 Gateway: FEF supported

- Cable interferers (R&S SFU-K356): Additional 4-Channel-Waveforms supported

- Cable interferers (R&S SFU-K356): DVB-C2 waveform added

- MoCA waveforms (R&S SFU-K364) supported

- CMMB streams (R&S SFU-K225): Manual: Video content description added

- TsGen: TS libraries LIB-K70, K71, K72 and K73 supported

Fixed Issues

- ARB (R&S SFU-K35): Indication of trigger state is faulty

- ARB (R&S SFU-K35): After Recall Appl., recovery of ARB clock rate is faulty

- ARB with Interface Board Ident No. 2110.3706.02: Switching MODULATION disturbs ARB spectrum in some cases

- DVB-T (R&S SFU-K1) hierarchical: Stuffing does not work with Interface Board Ident No. 2110.3706.02

- CMMB (R&S SFU-K15): BANDWIDTH 2MHz spectrum disturbed with hardware option R&S SFU-B15

- DVB-C2 (R&S SFU-K17): L1 time interleaver depth = 4 does not work properly

- DVB-C2 (R&S SFU-K17): Spectrum ripple too high

- T-DMB/DAB (R&S SFU-K11): ETI (NA) input signals are transmitted correctly

- T-DMB/DAB (R&S SFU-K11): NST=64 works correct

- T-DMB/DAB (R&S SFU-K11): Wrong Null symbol in transmission mode 3

- DVB-T2 MI streams (R&S SFU-K227): False S2 field in L1-pre signaling

- EMC Test streams (R&S SFU-K228): Audio isn't seamless

Known Issues

- DVB-T2 (R&S SFU-K16): Time interleaving at Single-PLP via T2MI-Interface limited functionality

1.5   Version 02.50

- Released: October 2011

New Functionality

- ARB Generator (R&S SFU-K35): Reload algorithm dependent on filename, date/time and size

- BCMux: DVB-T2 Gateway: MISO supported

- BCMux: DVB-T2: Input Mode "per PLP" supported

- Digital In: Measurement of low-level input signals is correct and output level setting is improved

- DVB-S (R&S SFU-K2): Additional roll off factor 0.20 for DIRECTV application added

- DVB-S2 (R&S SFU-K8): Symbol rate extended to meet NORDIG standard

- DVB-T2 (R&S SFU-K16): Additional SCPI scripts available

- DVB-T2 (R&S SFU-K16): MISO/SFN supported

- Audio BC (R&S SFU-K170): FM RDS: 0x0D terminating character missing

- Audio BC (R&S SFU-K170): FM RDS: Editor accept extended keyboard entries

- ATSC-MH (R&S SFU-K226): SFN transport streams added

- T-DMB DAB streams (R&S SFU-K221): DMB uncompliant streams added

- DVB-T2 MI streams (R&S SFU-K227): VV7xx corner case T2MI streams available

- EMC Test streams (R&S SFU-K228): Additional stream for DVB-T2 SPLP/MPLP added

- DMB Streams France (R&S SFU-K229) supported

- DTV interferers (R&S SFU-K354): DVB-T2 7MHz interferer signal added

- Cable interferers (R&S SFU-K356): DVB-C interference signal acc. to NorDig-Unified_TEst_Specification_ver_2.2.pdf added

- Cable interferers (R&S SFU-K356): R&S SFU-K356: Interference signal acc. to NORDIG task 2.14 added

- ISDB-S waveforms (R&S SFU-K362): Longer waveforms with video content added

- Satellite interferers (R&S SFU-K363): DVB-S2 waveform added

- ISDB-Tmm waveforms (R&S SFU-K365) are supported

Fixed Issues

- BC Studio: Deactivation of ISSY incorrect

- DVB-T2 (R&S SFU-K16): Time interleaving at Single-PLP via T2MI-Interface limited functionality

- DVB-T2 (R&S SFU-K16): TIME_IL_TYPE = 1 via T2MI-Interface not yet supported

- DVB-C2 (R&S SFU-K17): MER improved

- Impulsive noise (R&S SFU-K42): C/I value of -35.0 cannot be set with SCPI command

- TsGen (R&S SFU-K20): TS Library (.trp): Blocking effects at wrap around of .trp Files

- Audio BC (R&S SFU-K170): Preemphasis calculation af frequency below 1kHz is missing

- Audio BC (R&S SFU-K170): RDS: Open Format: Some groups are not accepted by clicking APPLY

- R&S SFU-K356 and -K363: Level offset tag is wrong

- Fading: Constant Phase parameter is read-only in Fine Delay 50MHz configuration

- Signal Source I/Q Digital In can not be output directly on I/Q Digital Out

- Inconsistent setting I/Q Digital In when Interferer Source = I/Q Digital In

Known Issues

- DVB-T2 (R&S SFU-K16): SinglePLP with TIME_IL_TYPE = 1 via T2MI-Interface not yet supported

- DVB-T (R&S SFU-K1) hierarchical: Stuffing does not work with Interface Board Ident No. 2110.3706

1.6 Version 02.42

- Released: June 2011

New Functionality

- Production changes on fader hardware are supported

Known Issues

- DVB-T2 (R&S SFU-K16): Time interleaving at Single-PLP via T2MI-Interface limited functionality

- DVB-T2 (R&S SFU-K16): TIME_IL_TYPE = 1 via T2MI-Interface not yet supported

1.7 Version 02.40

- Released: June 2011

New Functionality

- DVB-C2 (R&S SFU-K17): M-PLP/S-DSlice is supported

- DVB-T2 (R&S SFU-K16): SCPI scripts for DTG, NORDIG, OFCOM and V&V setups

- ISDB-T (R&S SFU-K6): Transport stream remultiplexer can be switched off

- CMMB (R&S SFU-K15): PMS TS stuffing allowed

- DTMB (R&S SFU-K12): SIP is supported

- MediaFLO (R&S SFU-K10): HW option B15 is supported

- BCMux: DVB-T2 T2-MI gateway is included in the BCMux application

- Multichannel ARB (R&S SFU-K38) waveforms are supported

- DVB-SH (R&S SFU-K13) not supported anymore

- A-VSB (R&S SFU-K14) not supported anymore

Fixed Issues

- DVB-T2 (R&S SFU-K16): Wrong C/N setting corrected (C -> +0.15 dB)

- CMMB (R&S SFU-K15): PRBS is not continuous over all services

- DVB-S2 (R&S SFU-K8): HW option B15: Corrupted signal after massive switching of coding parameters

- Fading: RC20 profile is incorrect

- TsGen: Seamless trp cause assertions

- Recall of instrument settings may corrupt GUI

Known Issues

- DVB-T2 (R&S SFU-K16): Time interleaving at Single-PLP via T2MI-Interface limited functionality

- DVB-T2 (R&S SFU-K16): TIME_IL_TYPE = 1 via T2MI-Interface not yet supported

1.8 Version 02.32

- Released: February 2011

New Functionality

- DVB-T2 (R&S SFU-K16): Dynamic Multi-PLP supported

Fixed Issues

- DVB-T2 (R&S SFU-K16): Single-PLP parameters not settable, if R&S SFU-K20 or R&S SFU-K22 is not available

- DVB-T2 (R&S SFU-K16): Temperature dependent problems (dependent on channel bandwidth and hardware) solved

Known Issues

- DVB-T2 (R&S SFU-K16): Time interleaving at Single-PLP via T2MI-Interface limited functionality

- DVB-T2 (R&S SFU-K16): TIME_IL_TYPE = 1 via T2MI-Interface not yet supported

- DVB-SH: limited functionality

1.9 Version 02.30

- Released: December 2010

New Functionality

- DVB-T2: MPLP (R&S SFU-K16) is supported
  and tested with Multi PLP setups VV413 (static, Number of PLP = 2),
  VV400 (dynamic, Number of PLP = 5) and VV401 (dynamic, Number of PLP = 5)

- DVB-T2: R&S SFU-B10 (SPLP) problem "ghost constellations" solved

- DVB-T2: Bandwidth variation is provided

- DTMB: R&S SFU-B15 HW option is supported

- ARB: Additional WinIQSim2 options supported

- ARB: 1GS supported

- Satellite interferes (R&S SFU-K363) is supported

- ISDB-S waveforms (R&S SFU-K362) is supported

- ATSC-M/H: Coder interoperable with non RS multiplexers

- BCMux (CMMB) is supported in R&S SFU

- CMMB: Default values changed

- DVB-C: Shoulder attenuation is improved

- ISDB-T: Enhanced range of channel bandwidths (6, 7 and 8 MHz)

- K356: Additional signals for SCTE40 tests are supported

- Phase Noise: Profile for ATSC-A74 supported

- T2-MI streams (R&S SFU-K227) is supported

● EMC test streams (R&S SFU-K228) is supported

Fixed Issues

● CMMB: Long remote control response time when missing input signal

● DVB-S2 C/N is not correct in some cases

Known Issues

● DVB-SH: limited functionality

1.10   Version 02.20

● Released: June 2010

New Functionality

● DVB-S2 and DirecTV: R&S SFU-B15 HW option is supported

● R&S SFU-K10 (MediaFlo AIS 2.0) is supported

● DVB-T2: Input parameter changed from Lf to Ldata

● DVB-T2: Parameter T2_VERSION in L1 signalling supported

● R&S SFU-K41 Noise: Extended C/I range

● SFx-K354 DTV Interferers: CMMB signals supported

● TsGen: Support of ETI files with extension .xeti

● ARB: WinIQSim2 options supported

● ATV Realtime: New group delay pre-correction B/G Australia available

● ATV VIDEO BASIC: Version 02.10 supports uniform testline assignment

● ATV: No warning displayed when changing residual carrier

● BERT: New TsGen TEST TS PACKET modes are supported

● Fading: DAB fading profiles based on EN50248 are supported

● Fading: In 2 path dynamic, fading table parameters are grayed out dependent on selected fading profile

● FILE: Run SCPI script

● Selection of DTV transmission standards without required HW option improved

● Softkey for adjustment of vector modulation local is available

Fixed Issues

● Application error when terminating the application

● ARB: Generator has problems with deleted waveform files

- BER: Inversion of serial data input affects BER TS input

- I/Q Analog, Digital: I/Q Digital output is not available without K35(ARB)

- Power Meter: After Preset is State = On not available when no sensor is connected

- Remote: *TST? answers reverse

- Remote: GUI is not correct updated after SYST:KLOCK ON

- R&S SFU-K170: RDS message does not disappear after pressing PRESET

- R&S SFU-K356: SCTE_NTSC analog aural carrier improved

- T-DMB/DAB: Problems with ETI stream (MID=4)

- TsGen has wrong data rate in bin mode after RECALL

Known Issues

- T-DMB/DAB: ETI-NA not supported

1.11   Version 02.14

- Released: January 2010

New Functionality

- Cal-Tool for frequency response is supported

Fixed Issues

- Remote Control: C/N value is not correct after change of transmission standard

- Interferer level out of limits

- CMMB: C/N accuracy improved

- CMMB: Test signal contains wrong PRBS length

- Mode ALC = On with interfered signals is improved

- Seamless level setting works correct

- DVB-T2: 16K PAPR (TR) missing TR carrier 109

1.12   Version 02.12

- Released: October 2009

Fixed Issues

- AWGN: C/N accuracy

- CMMB: MF-stream can't be analyzed when Urgent Broadcast Table is present

- ISDB-T: ISDB-T is not working correctly after switching from e.g. 8VSB

1.13 Version 02.10

- Released: August 2009

New Functionality

- DVB-T2 (R&S SFU-K16, Single PLP SISO) is supported

- ATSC M/H (R&S SFU-K18) is supported

- DRM/DRM+ WAVEFORMS (R&S SFU-K361) are supported

- Analog signals library (R&S SFU-K360) is supported

- Test key codes for decrypting TRP streams and IQ waveforms are supported

Modified Functionality

- CMMB: Input Signal - Source Test Signal is supported

- Digital interferer library (R&S SFU-K354) is extended

- Level accuracy for modulated signals is improved

- TsGen: In TRP mode stuffing ON/OFF switch is available

- TsGen: Parameter use of coder settings is removed

- TsGen: TEST TS PACKETS are supported

- ISDB-T: Warning when measured data rate exceeds max useful data rate

- FM: RDS: Group type 3A and 8A is used for TMC only

- FM: RDS: Radio Text and TMC without the corresponding group type in GROUP SEQUENCE is set to busy permanently

- Impairments: I- and Q-Offsets: negative values are supported

- Remote: ARB: Query command for maximum number of samples available

- Remote: VXI11 access for any computer

- SFx - Eb/No calculation corrected acc. to standard definitions

Fixed Issues

- R&S SFU DIGITAL OUT: enable and valid bit are not supported (no interoperability with SMx)

- CMMB: TRANSMITTER and AREA ID are not correctly transmitted

- CMMB: AUTOMATIC CONTROL detects wrong SCR. MODE in modes higher than 3

- T-DMB/DAB: incorrect information about MID

- T-DMB/DAB: starting up with Mode III is not functional

- Fading: correlation fader sync flag is not correctly set in configuration for diversity

- Fading: lognormal fading shows wrong behavior

- TsGen: drops packets in TRP mode when wrapping around

- TsGen: Interruption of transport stream when switching parameters of input interface

- TsRec: After preset info area and softkeys show recorder status only

- Communications: displays wrong IP address

- Info manager: shows multiple punctuation marks as separator

- ISDB-T: No clean constellation diagram

- ISDB-T: Incorrect RF level after switching segments

- Remote: Switching input signal of unused DTVs affects actual setting.

- Rotary knob: with FMR7 generates events for minutes

Known Issues

- None

1.14 Version 02.02

- Released: March 2009

New Functionality

- DVB-T2 Beta (SFU-K16) supported

- ATSC-M/H Beta (SFU-K18) supported

- ATSC-M/H (ATSC Mobile DTV) SFU-K226 library is supported

- TsGen (SFU-K22): Seamless TRP is available

Modified Functionality

- CMMB (SFU-K15): PMS input is supported

- DVB-T (SFU-K1): Unlimited number of disabled carriers possible

- ISDB-T (SFU-K6): TMCC "next" parameters are configurable

- ARB (SFU-K35): Option SFU-U35 supported

- Cable Interferer library (SFU-K356) Additional signals

Fixed Issues

- T-DMB/DAB (SFU-K11):

- TII signalling according to standard

- Padding complies with standard

● DVB-S2 (SFU-K8): Valid DVB-S2 signal after change of code rate

● DIRECTV (SFU-K9): No influence by DVB-S2 ACM parameter

● TsGen (SFU-K20): Selected filenames in Info area and open file area are the same

● ATV remote commands without [SPECial] work correct.

● FILE: Recall of settings without SW option is handled correct

● RDS-Coder Radiotext: Sending of two equal ratio text one after another will cause the busy sign permanently

● Remote: NOISE AWGN Eb/No is readable

1.15 Version 02.00

● Released: Jan. 2009

● Coder CMMB (R&S SFU-K15): Support of MF streams only, PMS streams will be supported in the next FW release.

● Converter tool for PMS files is available.

● TS Generator (R&S SFU-K20): previously recorded CMMB streams (*.trp) should be renamed to *.bin extension before playback.

New Functionality

● DVB-SH Coder (SH-A) (R&S SFU-K13) supported.

● Coder CMMB (R&S SFU-K15) supported.

● CMMB Stream Library (R&S SFU-K225) is supported.

● CMMB Waveforms (R&S SFU-K358) are supported.

● DVB-T2 Waveforms (R&S SFU-K359) are supported.

● Analog TV Signals (R&S SFU-K360): Analog signals supported.

● ISDB-T/ISDB-T_B /ISDB-T_{SB} Coder (R&S SFU-K6): Coder supports test packets with payload "00" and "FF".

● DVB-S2 Coder (R&S SFU-K8) Symbol rate up to 45 MSymb/s (over range).

● ATV: Audio generator via *.wv files supported.

● Coder AM/FM RDS (R&S SFU-K170): Fully support of RDS functions for FM.

● Multi ATV Predefined (R&S SFU-K199): Additional files supported.

● ARB Generator (R&S SFU-K35): Instrument setup via config file is supported.

● TS Generator (R&S SFU-K20): Instrument setup via config file is supported.

- BER Measurements (R&S SFU-K60): Log file available.

- Enhanced/Gaussian Fading (R&S SFU-K30/32): Diversity support of R&S SFE as second RF.

- TRP Player (R&S SFU-K22): File name extension *.eti for ETI streams supported.

- R&S SFU channel table files can be used in R&S SFE and vice versa.

- 2nd RF: Remote control of R&S SFE100 via R&S SFU GUI is supported.

Modified Functionality

- DVB-T/H Coder (R&S SFU-K1):

  - Improved MER.

  - Maximum string length of disabled carriers is 80 characters.

- ARB Generator (R&S SFU-K35): Memory management is optimized.

- Fading (R&S SFU-B30/31): Change of performance test fading profile.

- TV channel tables installed ex factory.

Fixed Issues

- Beta version of ISDB-T/ISDB-T$_B$ /ISDB-T$_{SB}$ Coder (R&S SFU-K6): Time interleaving index I = 32 is available.

- Changing modulation from 8VSB (ATSC/ 8VSB Coder, R&S SFU-K4) to DVB-T (DVB-T/H Coder, R&S SFU-K1) works correctly in any case.

- Fading (R&S SFU-B30/31):

  - Fading speed unit mph is calculated correctly.

  - 2 Path dynamic mode with reference Doppler freq. is correct.

  - Coupling parameters are shown correctly.

  - Doppler frequency is updated when fading is switched on.

  - Recall with local constant coupling (A=B) does not cause error message.

- Multi ATV Predefined (R&S SFU-K199): B/G PREDEF. SC1 works correctly.

- Remote control:

  - "SOURce:IQ:GAIN AUTO" works correctly.

  - *TST? command works correctly.

- RF: After Preset during SWEEP, RF frequency is set according to value indicated.

- T-DMB/DAB Streams (R&S SFU-K221): Error in X15.DAB_C solved.

- TS Generator (R&S SFU-K20):

  - Seamless PN23 TRP file is played correctly.

  - Working with H264 files having packet size of 204 and 208.

- ATSC/ 8VSB Coder (R&S SFU-K4): FPGA timing issues in 8VSB solved.

- "End program" with progress bar is not shown during shutdown.

- Application does not crash when pressing FILE button in channel table.

- DVB-S2 Coder (R&S SFU-K8): Progress bar works for SETUP/ADJUSTMENTs after startup.

Known Issues

- T-DMB/DAB Streams (R&S SFU-K221): Padding not compliant with standard.

- Extended I/Q (R&S SFU-K80): Digital IQ link between R&S SFU IQ Output and R&S SMU200A Input does not work due to incorrectly set enable signal.

- TS Generator (R&S SFU-K20): TRP mode is dropping packet when looping.

1.16 Version 01.90

- Released: Aug. 2008

New Functionality

- Coder AM/FM RDS (R&S SFU-K170): AM/FM supported.

- Enhanced/Gaussian Fading (R&S SFU-K30/32): Zoom of fading table is realized.

- BER Measurements (R&S SFU-K60): Gating time selectable.

- File selector: Recent list available.

- Dynamic warnings of any application are visible in all applications.

- Remote control: RAW TCP/IP is supported.

- TS Generator (R&S SFU-K20):

  − Interaction with the progress bar cursor possible.

  − Remote control: Read position is readable.

- TX: Digital IQ IN indicates input symbol rate.

- DAB+ Streams (R&S SFU-K223) supported.

- ISDB-T Streams (R&S SFU-K224) supported.

Modified Functionality

- Enhanced/Gaussian Fading (R&S SFU-K30/32): Path table visibility is improved.

- ATSC/ 8VSB Coder (R&S SFU-K4): Center frequency is realized in 8VSB with baseband shift.

- ISDB-T/ISDB-T_B /ISDB-T_{SB} Coder (R&S SFU-K6): Improved MER of central carrier.

- AWGN Noise (R&S SFU-K40): Eb/N0 is only shown when Signal Source = DTV.

Fixed Issues

- DVB-S2 Coder (R&S SFU-K8): PCR jitter improved.

- T-DMB/DAB Coder (R&S SFU-K11): Level of TII correct.

- ATSC/ 8VSB Coder (R&S SFU-K4): Sporadic errors in ATSC due to PRBS fixed.

- After repeated presets or enter with rotary knob, the softkeys are working correctly.

- DTMB/DMB-TH (TDS-OFDM) Coder (R&S SFU-K12): Synchronization error after constellation change fixed.

- Focus loss pressing <0> and <ESC> solved.

- MediaFLO™ Coder (R&S SFU-K10), remote control: MED:NAT DEF works correctly.

- Value ADJUSTMENT FREQUENCY is restored after adjustment of synthesis.

Known Issues

- Enhanced/Gaussian Fading (R&S SFU-K30/32): Entering Doppler frequencies in 2 path dynamic mode may cause wrong fading results. Use Fading/Settings/REFERENCE SPEED instead.

1.17 Version 01.84

- Released: June 2008

Fixed Issues

- Remote control: [SOURce]:FSIMulator{1:2}:STANdard[?] command is loading a fading profile correctly.

Known Issues

- Copying a table to the Favorites may cause problems.

1.18 Version 01.82

- Released: May 2009

Fixed Issues

- FinishSetup copies R&S SFU Icon from Desktop to StartUp to fix problem with error message after autostart of R&S SFU.

- FinishSetup can overwrite files with read only flag.

Known Issues

- Copying a table to the Favorites may cause problems.

1.19 Older Releases

VERSION 01.80 / 2008-05-06 / Manual D10 or E10

Note: OSS is part of this document

Known problems: Copying a table to the Favorites may cause problems

- A-VSB (SFU-K14) is supported
- MediaFLO: Channel Bandwidth 7 and 8 MHz is supported
- Fading: Split mode is supported
- HD Radio Waveforms (SFU-K357) supported
- Interferer: Level setting acc. to MBRAI (IEC62001)
- Phase Noise SFU-K41: Phase noise profile from K108 included
- External RF Calibration is available
- RF: Frequency Sweep: Mode STEP is supported
- CUSTOM OFDM (ARB) (SMU-K15) is supported
- Bug fix: ARB: Preset value of clock frequency harmonized with preset file
- Bug fix: Memory size for ARB and video generator is indicated correctly
- Singapore DV- and ATV-Libs supported
- ATV-VIDEO: Additional signals
- Bug fix: ATV Predef.: M/N PREDEF. works correct
- Bug fix: ATV: Video disturbance, by switching the SOUND MODEs, fixed.
- Bug fix: ATV-VIDEO: Field jitter of NTSC works correct
- Bug fix: ATV-VIDEO: Frequeny response of SINx/x is repaired
- Bug fix: AtvVideoBasic: Color burst length and field jitter are correct
- Bug fix: AtvVideoBasic: PAL M: Color error in picture fixed.
- Fading: Execution time at changing parameters of "2 path dynamic delay" is decreased
- Bug fix: FADING profiles gauss+doppler, gauss(0.1fd), gauss(0.08fd) do not require a K32
- Bug fix: Fading: After PRESET and SET TO DEFAULT, the insertion loss of the fader is shown correctly
- Bug fix: Fading: Common dopplershift all path with CONSTANT PHASE profile works correct
- ISDB-T: coder extension for "sync + 187 payload" in test TS mode
- Bug fix: ISDB-T PRBS before convolutional encoder works correctly
- Menu SETUP/CONTROLLER removed
- Setup Communications: After editing is finished menu data are updated again
- Setup Communications: Network address settings are changeable
- Bug fix: Recall of APPL does not result in a deadlock
- Bug fix: SAVE / RECALL APPL with ARB file works correct
- Remote: Subsystem Identifier "IQCoder:" is optional
- Remote: IQC:DVBS:ROLL works correct
- Remote: ISDBt:ACD2 works correct
- T-DMB: Zero test sequence in subchannel available
- Bug fix: STC/SSTC table handled correctly with missing ETI signal at start-up
- TsGen: After PRESET TsGen is in running state
- TsGen: New Softkey "Open File"
- TsGen: Warning: "TSGEN: MISSING SW OPTION <option>" is indicated
- Bug fix: TS Record: ETI input sensitivity is improved
- Bug fix: TsGen: In record mode and recording T10 files, the record time is indicated

correctly.
- Bug fix: TsGen: Repeatedly switching between START and STOP works
- Bug fix: DTMB: Missing constellations in SFN-mode added
- Bug fix: DVB-T: MER improved (central carrier)
- Bug fix: I/Q analog output overdrives I/Q analog inputs
- Bug fix: 8VSB: Special setting PRBS before mapper works correct
- Bug fix: Fading: Basic delay is set correctly after start of application
- Bug fix: Fading: FD30 and FD50 configurations show exact delays
- Bug fix: After Preset and pressing the rollkey (as enter) the softkeys are working
again

VERSION 01.72 / 2008-02-08 / Manual D9 or E9

Note: Bug fixes only.

Known problems: see V01.70

- Bug fix: DVB-S2, timing problem with some units solved
- Bug fix: TS Libs DV-xxx, decryption working correctly again

VERSION 01.70 / 2007-10-31 / Manual D9 or E9

Note: TSGEN: ETI output only available when Transmission Standard is set to T-
DMB/DAB.

Known problems:
TRP PLAY: Window Play with loaded DAB_C and FLO_C Files results in corrupt
transport stream
data output.
FADING: After Preset and Fading/Set to default/Fading ON the insertion loss of the
fader is
indicated wrong. This may lead to a wrong level of an interferer if fading is active.
Switching Insertion Loss mode to LOW ACP and back to Normal solves this problem.
FADING: Common Dopplershift all path = ON: Use of a Constant Phase or Static Path
as path 1-1
may result in inconsistent. Dopplershift settings.
DMB-T (SFU-K7): Pilot Data setting may be wrong, especially when switching from
DTMB (K12) to
DMB-T (K7). Solution: Turn Special Settings on, Turn Pilot Data off, Turn Pilot Date on.

New:
- ISDB-TSB is supported
- ISDB-T: Status messages are shown
- Power Sensor (SFU-K55) is supported
- TsGen: Recording of ETI streams is supported
- SFU-K222: MediaFLO transport streams are supported
- BERT: Handling of high data rates improved
- DMB-TH: Support of released Chinese terrestrial DTV standard
- DMB-TH: Name changed to DTMB
- DTMB: PRBS 2^9-1 no longer available
- Bug fix: DTMB: Error-Message 'CODER: USEFUL DATARATE TOO HIGH' appears if

true
- ATV REALTIME: SFU-K193 M/N: Residual carrier was increased
- ATV: Korean stereo sound system supported
- ATV: SFU-K193 M/N: FM deviation is increased
- ATV REALTIME: New NICAM Signals supported
- MULTI-ATV PREDEFINED SFU-K199: Additional signals available
- Bug fix: ATV K199: All Std. I Predefines work correct.
- Bug fix: ATV: Sound mode no longer change the vision picture from video generator
- Bug fix: ATV: No longer influence between long video sequences and NICAM data
- SFU-K354: Digital Interferers: Additional signals available
- SFU-K356: Cable Interferers are supported
- SFU-K41: Phase noise: New Profile DVB-S2 A2 available
- Bug fix: Phase Noise Mask DVB-S2 P1 improved
- Bug fix: Phase Noise Mask DVB-S2 P2 improved
- Level: Additional unit dBmV is supported
- Remote: VXI-11 firewall exception is customer friendly supported
- Remote: Guard interval 1/4 is correct readable
- Remote: Preset does not change GPIB address
- Remote: Set default computer name is supported
- Remote: Improved OPC handling
- Remote: ISDB-T: [SOURce]:IQCoder:ISDBt[:SPECial]:SEGMents[:STATe] extended with [:SPECial]
- Bug fix: Remote: IQC:DVBT:USED:BAND? is correct documented
- Bug fix: Remote: SYST:KLOC ON and OFF works correct
- Bug fix: Remote: *SAV works correct
- Bug fix: Remote: UNIT:VOLT switches unit for LEVEL in GUI
- DVB-S2: short FECFRAMEs supported
- DVB-S2: ACM mode supported
- DVB-S2: CCI mode no longer supported
- Bug fix: DVB-S2, DirecTV: File recall no more hangs
- Bug fix: Level and C/N inaccuracy in some rare cases of DVB-S2 fixed
- T-DMB: Test signal available
- MediaFLO: Limits of sinusoid test frequency are depending on channel bandwidth
- Fading: PI, PO, VU, MR profiles are realized as fading predefines
- Fading: Change of CONFIGURATION switches STANDARD to USER
- Bug fix: Fading: Single K32 enables gaussian fading profiles
- MediaFLO: Improvement of system clock accuracy
- STATUS: Menu is available
- Bug fix: IQ-Digital output select box entries correct
- Bug fix: Shut down of SFU is not interrupted by timeout
- Bug fix: No more system error while closing application
- Bug fix: Toggling by +/- key works correct
- Bug fix: SFU starts correctly after restore
- Bug fix: Key response is no longer broken by file recall

VERSION 01.60 / 2007-02-16 / Manual D1.60 or E1.60

Note: Due to extensive calculations at PATH TABLE ´PATH DYNAMIC DELAY´ the setting times are significantly longer than at other fading path tables.
The use of ´*OPC?´ with fading commands in remote operation is recommended.

- Known problems:

FADING configuration FINE DELAY50: even and odd path GAUSDAB profile
alternation is not correct.
INTERFERER MANAGEMENT: The use of I/Q DIGITAL IN or I/Q ANALOG IN as
INTERFERER SOURCE together with corresponding external signals can lead to
faulty level settings. Level check is recommended.

- ATV-D/K, -I, -M/N (SFU-K191..193) supported
- ATV-L (SFU-K194) supported
- ATV: NICAM supported
- ATV: External VIDEO and AUDIO supported
- ATV-VIDEO library supported
- ATV without DTV and ATVPredef modulations possible
- ATV: Bandwidth coupling available
- Bug Fix: ATV: Special settings available after reboot
- DVB-S2: Enhanced features (Symbol rates, MODCODs 16/32APSK)
- Bug fix: DVB-S2: GUI field "USER1" no longer get lost
- Bug fix: Switching transmission standard from DirecTV to DVB-S2 works correct
- ISDB-T: supporting configuration via transport stream (compliant to ARIB STD-B31
Version 1.5)
- MediaFLO: supports 5 MHz bandwidth setting
- ARB: MediaFLO waveforms (SFU-K355) supported
- Fading: SFU-B31 (40 paths) supported
- Fading: Settings Reference = DopplerFreq available
- Fading: IEC62002_Portable Profile realized as predefine
- Fading: Fine delay profiles are only selectable with K30
- Fading: Remote: Query commands are working correct while FSIM:STATe = Off
- Fading: Remote: New command: FSIMulator:CONFig[?]
BIRThdeath|DELay|D30Fine|D50Fine|MDELay|P2Dyn
- Bug fix: Fading: Insertion loss reading with MODE=USER works properly
- Bug fix: Fading: Coupled parameters can only be read by SCPI
- Bug fix: Fading: RC20_ANX_B predefined profile is correct
- T-DMB/DAB: Setting of TII available
- DMB-TH (SFU-K12): Single Carrier Mode is supported
- DMB-TH (SFU-K12): Default constellation changed
- Bug fix: DMB-TH: Restore of parameters in CODING \ SPECIAL menu works correct
- Remote: Full File\Save, Recall, Load is supported, Save Noise to D:\NOISE moved
- TsGen: Using roll key for cursor setting
- Channel tables are supported
- Noise: C/N resolution expanded to 0.01dB
- Level: Resolution of output power in steps of 0.01dB
- Documentation: Error and warning messages are explained
- Save Now is supported
- File Box treats MB as 1024 * 1024 Bytes
- Bug fix: Hexadecimal input of PID in settings menu
- Controller FMR7 is supported
- 8VSB: Center frequency input not realized with a baseband shift
- Bug fix: 8VSB: output signal with small pilot values is correct
- Bug fix: No more system error after changing unit and value
- Bug fix: Attenuator fixed range up to date
- Bug fix: Attenuator fixed range setting is after start up correct
- Bug fix: Change of C/N without signal interrupts supported
- Bug fix: DVB-T/H USED BANDWIDTH values for predefined channels are correct
- Bug fix: DVB-C/-S: rare error in output signal at changement of constellation @ low

symbolrates solved

VERSION 01.50 / 2006-08-18 / Manual D1.50 or E1.50

Note: Due to extensive calculations at PATH TABLE ´PATH DYNAMIC DELAY´ the setting times are significantly longer than at other fading path tables.

- Known problems:
DIRECTV: Switching from DIRECTV (SFU-K9) to DVB-S2 is not working properly.
   Interim Solution: After a PRESET of the instrument DVB-S2 is fully able to work again.
FADING INSERTION LOSS: Mode USER is not working properly.

- ISDB-T (SFU-K6) is supported
- Option DV-ISDBT is supported
- ATV-B/G (SFU-K190) is supported
- Extended ATV Predef (SFU-K199) is supported
- ATV Predef: K199 extended with NTSC split color bars with pluge
- DVB-T/H: Smart input stuffing is available
- ARB: trigger input and marker output signals available
- Channel tables are supported
- Fading: Profiles GAUS1, GAUS2, GAUSDAB are supported
- Fading: Extended delay ranges for birth/death and moving propagation are supported
- Fading: Moving Propagation and Birth Death: Minimum increment with speed unit mph and km/h works correct
- Bug fix: Fading: Lognormal with static path works correct
- TsGen: GTS Play: Shift of progress bar markers while player is paused works correct
- TsGen: Layout improved
- Bug fix: TsGen: Understandable warning messages are shown
- Bug fix: TsGen: Data rates at 100kBit are recordable
- Bug fix: TsGen: Manual stop of recording does not cause StopDelay and File Write Error
- Remote: BERT: Reading values simultaneously
- Remote: Network parameters are readable
- Bug fix: Remote: No longer ScpiKernelMassMem errors
- Bug fix: Remote: UNIT:VOLTage is used by setting VOLTage
- "Remote operation" is signaled during operation via TCPIP
- DVB-S2: backwards compatible mode (H8PSK) no longer supported
- Bug fix: ASI/stuffing off compatible with DVB-S2
- J.83/B: Improvement of shoulder distance at roll off = 0.12
- Bug fix: 1024QAM sync trailer sequence works correct
- Assign to Info: Filenames (TsGen, ARB) can be assigned to Info
- Help of VISA and LabView drivers are visible

VERSION 01.44 / 2006-05-15 / Manual D1.44 or E1.44

- Automatic SW installation supported
- Phase noise, AWGN or impulsive noise simultaneously
- Impulsive noise covers ATSC A/74 Norm
- MediaFLO (SFU-K10): Improved pre-release is supported
- DMB-TH is supported

- SW Option SFU-K353 (DRM-Waveforms) supported
- SW Option SFU-K354 (DTV/MBRAI-Interferer) supported
- TsGen: Option K22 is independent of option K20
- Fading: brazil fading profiles added to standard fading profiles
- Fading: MBRAI Portable Profile is based on 360° reference
- Parameter names extended when assigned to favorites
- Optional shorten parameter names for user info field
- DVB-T/H: Range of used bandwidth enlarged to 1 .. 10 MHz
- DVB-T/H: Stuffing ON/OFF with input TS Player possible
- DVB-T/H: IFFT SYNCOUT signal is available
- Bug fix: DVB-T/H hierarchical coding: HP and LP is synchronized in DEMUX
- Bug fix: Fading: Basic delay after loading of fading profiles is correct
- Bug fix: ARB ON works if ARB is not selected in TX
- Bug fix: Interferer attenuation with signal source = ARB is correct
- Bug fix: All DVB standards: SPECIAL\RS=OFF works correct
- Bug fix: DVB-C/-S: rare error in output signal at symbol rates below 1MS/s solved
- Bug fix: BERT recognizes All Ones signals
- Bug fix: DVB-S2: Internal synchronization at PRBS signal works correct
- Bug fix: Fading: MBRAI portable profile is correct
- Bug fix: ATT. FIXED RANGE is updated after change of MODULATOR LEVEL
- Bug fix: Remote level read out after noise only is correct

VERSION 01.42 / 2006-03-16 / Manual D1.40 or E1.40

- MediaFLO (SFU-K10): Pre-release is supported
- PEP value of RF signal is indicated
- ARB: Pulse generator simulation is available as waveform
- ARB: File loading progress is shown with a continuous bar

VERSION 01.40 / 2006-02-15 / Manual D1.40 or E1.40

Note: If the instrument is operated with ALC = ON and ATTENUATOR MODE = FIXED perform ADJUSTMENT:LEVEL calibration for highest accuracy.

- T-DMB/DAB Transmission Standard is supported
- Hardware Option B11 (External ETI Input) is supported
- TsGen: TRP Play (SFU-K22) is available
- Stream Library DV-H264 is supported
- SW Option SFU-K221 (T-DMB Streams) is available
- SW Option SFU-K352 (DVB-H Waveforms) is supported
- DIRECTV: Code rate 1/2 is supported
- BERT: Ability to handle bursty signals (e.g. DVB-H)
- TsRec: T10 Mode with 204 Packets and DVALID = 188 functional
- ARB: Readout of header data for waveform files is supported
- Default value of Level/ALC/State changed to ON
- Adjustment parameters are not saved with application
- Hardware for multi noise is supported
- Bug fix: Remote: DVB-T: Setting long strings to disabled carriers no longer crash system
- Bug fix: After switching between applications ARB clock frequency is correct
- Bug fix: Startup works with MOD=OFF and NOISE=ON

- Bug fix: Fading: Set to default works correct
- Bug fix: Fading: Fine delay 30/50 mode: Static path does not respond to a constant phase input
- Bug fix: Remote: Queries of floats deliver full resolution
- Bug fix: Recall works with MOD=OFF and NOISE=ON
- Bug fix: Remote: Display off works correctly
- Bug fix: Remote: All queries return short form (SCPI compliant)
- Bug fix: DVB-C, DVB-S very low input data rate: Messages are correct
- Bug fix: TsGen: BIN mode of recorder is working
- Bug fix: ATV Predef: NICAM has correct impulse shaping
- Bug fix: ATV Predef: Level is vision carrier power
- Bug fix: Database error "Condition: m_childTAList.find >=0" fixed
- Bug fix: Switching applications after changing real-time clock is possible
- Bug fix: Fast sweep no longer crashes SW due to memory protection fault
- Bug fix: No more memory leaks during sweep

VERSION 01.30 / 2005-12-06 / Manual D1.30 or E1.30

Note: If the instrument setting was stored with Noise=ON or if the instrument was switched off with Noise=ON, a RECALL or switching on the instrument forces Modulation=ON.

- Known problems:
RECALL APPL: Opening old instrument setups which were stored with an older FW version can cause problems (wrong preset values and default values). Solution: Do not use old instrument setups.
DVB-T: seldom sync problems with QPSK CR=5/6

- Enhanced Fading (SFU-K30) supported
- 8VSB (SFU-K4) supported
- J.83B (SFU-K5) supported
- DIRECTV legacy Mode (SFU-K9) supported
- T-DMB-ARB-Files (SFU-K351) supported
- ATV Predefined (SFU-K199) supported
- Interferer management (SFU-K37) supported
- Remote commands TSGEN/TSREC supported
- Automatic setting of base band gain can be disabled for seamless level setting
- SFU-B10 is exchangeable to SFU-B1
- Fading: Delay units in µs
- Fading settings: insertion loss and clipped samples are visible
- Fading settings: insertion loss modes USER / LOW ACP are available
- File box: File size > 4GByte is supported
- DVB-S2: Progress bar is improved
- Favorites in user area are supported
- Mouse clicks can start trigger events
- Mouse wheel is supported
- In Modulation/Signal Source = I/Q Analog, Over range of the AD-Converter generates warnings
- TSGEN: Player data rate under 300 kBit/s work correct
- TSGEN: Unit keys MHz/KHz also work for unit Bytes in BIN mode
- TSGEN: TRP Play: Shift of progress bar markers while player is paused works correct

- ARB: Header information IQ SWAP in waveform files is supported
- New Parameter FREQUENCY:SWEEP:STATE supported
- IP address and full computer name are shown at Setup\Communication
- Signal Info / Statistics is supported
- Stuffing Off available with Input ASI
- Remote state is correct indicated
- Bug fix: Phase noise level offset corrected
- Bug fix: Base band impairments are working correctly
- Bug fix: erroneous PLL UNLOCK message suppressed
- Bug fix: File Dialog Box: Sorting by size and date works correct.
- Bug fix: File box: New directories are shown
- Bug fix: adjustment of vector modulation is working in state modulation off
- Bug fix: Fading: Speed unit is not changed after loading profiles
- Bug fix: DVB-S2 correct spectrum at Special Settings = Off
- Bug fix: DVB-T hierarchical SPI Stuffing off is available on both SPI inputs.
- Bug fix: DVB-T: Channel bandwidth VARIABLE is not selectable
- Bug fix: Missing 12.8MHz REF also shown in the Warnings after new boot of the SFU
- Bug fix: remote operation of FREQUENCY:SWEEP:MODE is working
- Bug fix: Remote: State queries are SCPI compliant (0/1 instead of OFF/ON)
- Bug fix: soft key "SET TO STANDARD" works correct
- Bug fix: SFU starts up normally after changing date and time properties
- Bug fix: File Save/Load is compatible to former SW versions
- Bug fix: TSGEN: In TRP mode the TS-Data rate is correct.
- Bug fix: TSGEN: BIN-File mode of TS-Player is working correct

VERSION 01.22 / 2005-08-19 / Manual D3 or E3

- Known problems:
   Focus can seldom be lost, Solution: Pressing home key.
   At use of a mouse the input can be seldom blocked when editing the fading path
table, Solution: Pressing the Preset key.
   Adjustment fails if MOD=OFF

- Bug fix: Timing problems (results in MER degradation) on some DA-Converterboards
solved
- Bug fix: Fading Doppler Freq updated on the display after changing the RF
- Bug fix: Settling times Freq/Level with fading improved
- Bug fix: SCPI command SYST:SERR? works correct
- Sweep supported again

VERSION 01.20 / 2005-06-30 / Manual D3 or E3

- Known problems:
SWEEP:
- Sweep disabled.
FADING:
- Long settling times at Freq and Level if fading is installed.
- Doppler Freq not updated on the display after changing the RF, change speed, freq.
ratio or speed unit for display update.
-Focus is seldom lost, Solution: Pressing home key.

- Fading (SFU-B30) supported
- DVB-S (SFU-K3) supported
- TS-Recorder (SFU-B21) supported
- Phase Noise (SFU-K41) supported
- Impulsive Noise (SFU-K42) supported
- Help context sensitive
- Improved File dialog with File Manager
- LCD screen saver supported
- DVB-S2 CCI-Mode supported
- DVB-S2 (AMC-DIRECTV) extended test signals
- External Mod-Calibration for I/Q supported
- Automatic update of work view

- Bug fixes in all applications

VERSION 01.12 / 2005-02-16 / Manual D2 or E2

- DVB-S2: Input Signal Source = Test Signal supported
- DVB-S2: AMC=DIRECTV: Signal Source = Test signal supported
- Bug fix: DVB-S2 data rate dependent on pilots
- Bug fix: DVB-S2 pilots are handled correctly

- Bug fix: DVB-T hier. / Stuffing with ext. Clock works correct
- Bug fix: DVB-T Test signal (PRBS 2-15 / PID) works correct
- Bug fix: TEST SIGNAL with DVB-T hierarchical works correct
- Bug fix: DVB-T/H hier. coding: problems with some combinations of SOURCE (HP), SOURCE (LP)
- Bug fix: DVB-T/H hier. coding - SOURCE (LP) = TS PLAYER
- Bug fix: DVB-T/H: PID TEST PACKET works correct

- Bug fix: TS Player Play/Stop/Pause problem solved
- TS Player: Restart after switching off/on the instrument

VERSION 01.10 / 2004-12-14 / Manual D2 or E2

- DVB-T/H (SFU-K1) supported
- TS-Generator (SFU-K20) supported
- DVB-S2(SFU-K8, SFU-B1) supported
- AMC-option)SFU-K108) supported
- High Power (SFU-B90) supported
- Extended I/Q (SFU-K80) supported
- Simple File dialog supported
- Favorites supported
- Option Management

- Bug fixes in all applications

VERSION 01.00 / 2004-10-11 / Manual D1 or E1

- DVB-C (SFU-K2) supported

- BER (SFU-K60) supported
- Noise (SFU-K40) supported
- DMB-T (SFU-K7, SFU-B1) supported

1.20 Overview of R&S SFU Firmware Version and Related Multi ATV Predefined and Analog Video Signal Library Versions

R&S SFU firmware version	Related multi ATV predefined library version (R&S SFU-K199)	Related analog video signal library version (R&S ATV Video)
01.00	-	-
01.10	-	-
01.12	-	-
01.20	-	-
01.22	-	-
01.30	01.30	-
01.40	01.40	-
01.44	01.40	-
01.50	01.50	01.50
01.60	01.50, 01.60	01.60
01.70	01.50, 01.70	01.60
01.72	01.50, 01.70	01.60
01.82	01.50, 01.70, 01.80	01.82
01.84	01.80	01.82
01.90	01.80	01.82
02.00	02.00	01.82, 02.00
02.02	02.00	01.82, 02.00
02.10	02.00	02.00
02.12	02.00	02.00
02.14	02.00	02.00
02.20	02.00	02.00, 02.10
02.30	02.00	02.00, 02.10
02.32	02.00	02.00, 02.10
02.40	02.00	02.00, 02.10
02.42	02.00	02.00, 02.10

R&S SFU firmware version	Related multi ATV predefined library version (R&S SFU-K199)	Related analog video signal library version (R&S ATV Video)
02.50	02.00	02.00, 02.10
02.60	02.00	02.00, 02.10

2 Modifications to the Documentation

The current documentation is up-to-date.

3 Firmware Update

Your R&S SFU is delivered with the latest firmware version available. Firmware updates are provided on the Rohde & Schwarz Home Page (http://www.rohde-schwarz.com/downloads/firmware/sfu.html), by Rohde & Schwarz service centers or sales offices.

You can install the new firmware version by using either the USB or the LAN interface. Store the downloaded update files on a memory stick for an update using the USB interface or transfer them using the LAN interface (for faster updates LAN interface is recommended).

Further information

- Installing software options
  See User Manual, chapter "Basic Instrument Configurations".

- Connecting the R&S SFU to a network (LAN)
  See the User Manual, chapter "Operating the R&S SFU in a LAN".

- Sharing and accessing R&S SFU drives
  See the User Manual, chapter "Operating the R&S SFU in a LAN".

- Making a backup before installing new firmware
  See the User Manual, chapter "Installed Software".

3.1 Update Information

The firmware update consists of 11 files. The version numbers in the file names vary with each update (symbolized by placeholder x).

- Release Notes: *SFU_ReleaseNotes.pdf*

- Install Complete R&S SFU: *InstallCompleteSFU.exe*

- Firmware R&S SFU: *SFU_xx.xx.xx.xx(Release).msi*

- Firmware RF Part: *SMU_Server_x.xx.xx.exe*

- Batch File: *FinishSetup.bat*

- GUI Framework: *GuiFramework.dll*

- Boot Flash Tool: *SFUBootFlash.msi*

- Data for Boot Flash: *Distfile.cab*

- Orglayer DLL: *OrgLayer.dll*

- Baseband Plug in Server DLL: *BasebandPluginServer.dll*

- Driver for DAC Board: *DACIFdrv.dll*

If Analog Realtime Modulations (ATV) are used with the R&S SFU, the following file is necessary too:

- Video-Signals: *AtvVideoBasic_xx.xx.xx.xx.msi*

ATV Predefined Signals (R&S SFU-K199) are also available. Delivery is carried out with a separate DVD:

- *Atv_Predef_xx.xx.xx.xx.msi*

- *Atv_Predef2_xx.xx.xx.xx.msi*

- *Atv_Predef3_xx.xx.xx.xx.msi*

- *Atv_Predef4_xx.xx.xx.xx.msi*

- *Atv_Predef5_xx.xx.xx.xx.msi*

The update is performed under control of the Windows XP Embedded operating system.

3.2 Updating the Firmware

1. Switch off instrument.

2. Connect mouse and/or external keyboard to the USB interface.

3. Switch on instrument.

4. Wait until the R&S SFU firmware has booted and the application has started.

5. Access Windows XP Embedded desktop.

   − Operation with mouse: Click the "Close" button of the R&S SFU application.

   − Operation with keyboard: Press ALT+F4 to close the application.

   The Windows XP Embedded desktop is displayed.

6. Copy update files.

   a. Open folder with update files using the Windows Explorer.
   b. Delete all files in *D:\SFU\Installations* except the files Atv_Predefx_01.*.msi if no newer version is available.
   c. Copy update files to *D:\SFU\Installations*.
   d. If available, copy new *AtvVideoBasic_01.*.msi* and *Atv_Predefx_02.*.msi* to *D:\SFU\Installations*.
   e. Change to *D:\SFU\Installations*.

7. Install new firmware version.

   a. Execute *InstallCompleteSFU.exe*.
   b. Start the update process with "OK".
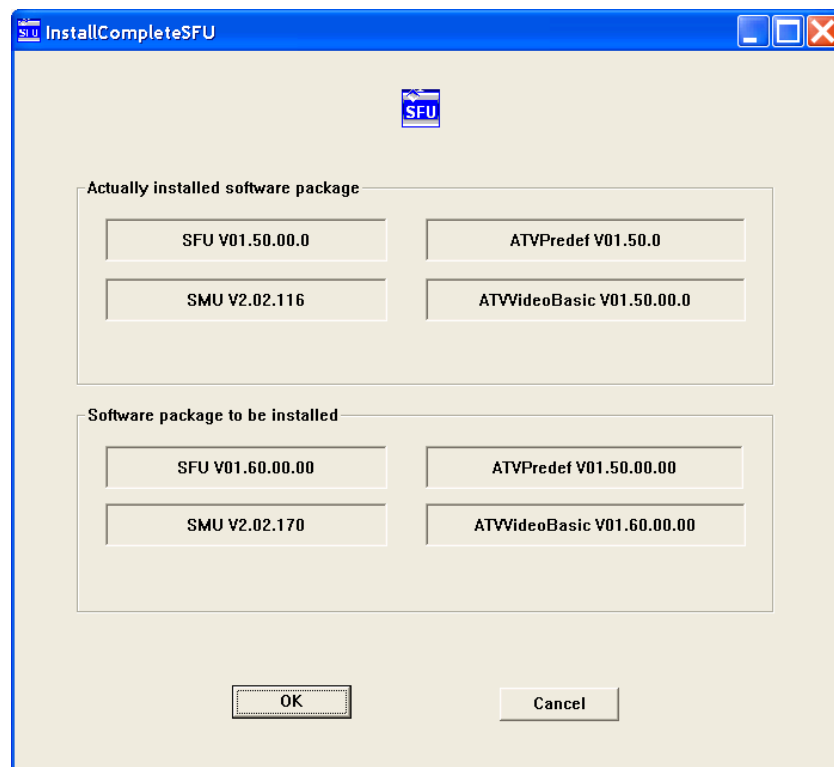
The following procedures are performed:

The previous firmware is uninstalled automatically.

A reboot is carried out with following "chkdsk".

The new firmware is installed.

Again a reboot will be carried out.

The boot eeproms in the R&S SFU are checked and reprogrammed if necessary.

    c.   If reprogramming was necessary, the R&S SFU is shut down again and you have to proceed with step 8.

    d.   If reprogramming was not necessary, the R&S SFU is briefly started, then immediately shutdown and then restarted.
With the first start of the SFU-FW an "Adjustment All" is carried out automatically.

    e.   Wait until R&S SFU firmware is operational.

    f.   The firmware installation is finished.

8.   Finish the reprogramming of the boot flashes by switching on the R&S SFU.
The R&S SFU firmware will be started.
With the first start of the R&S SFU firmware, an "Adjustment All" is carried out automatically.

Wait until R&S SFU firmware is operational.

The firmware installation is finished.

4 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 in the following chapters.

Package	Link	License
OpenSSL	http://www.openssl.org	OpenSSL/SSLeavy
zlib	http://www.zlib.net	zlib, v.1.2.3
Xalan Xerces	http://xalan.apache.org/ http://xerces.apache.org/	Apache Software License, Version 2.0
ONC/RPC	http://www.plt.rwth-aachen.de	SUN
VNC	http://www.realvnc.com/	GPL V3

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