ROHDE&SCHWARZ

Test and Measurement
Division

Release Notes

Firmware

R&SÒ SMU200A

Version 2.05.104.56

Printed in Germany

Dear Customer,

throughout this manual, R&S SMU is generally used as an abbreviation for the Vector Signal Generator R&S® SMU200A.

Table of Contents

1 General Information

ATTENTION

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

This R&S SMU firmware revision consists of only one file :

SMU200A_2.05.104.56.exe

There are two possible ways to update your instrument:

Local Firmware Update

The firmware update is performed directly on the instrument, typically using an USB memory stick. Mouse and keyboard have to be connected to the instrument. For instruments without front panel display (like the SMATE) an external monitor is required too.The appropriate VGA plug is located on the rear panel.

The front panel keys like PRESET or SETUP can be emulated performing a right-click on the block diagram.

See Chapter 2.1 for details.

Remote Firmware Update

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

See Chapter 2.2 for details.

ATTENTION

Important Note for updating without SP2:
Please contact your local R&S service department in order to update your instrument. Alternatively the needed files and packages can be installed manually. In this case download the file SystemSetup4SignalGenerators.zip and follow the instructions given in readme.txt.

2 Firmware Update

2.1 Local Firmware Update

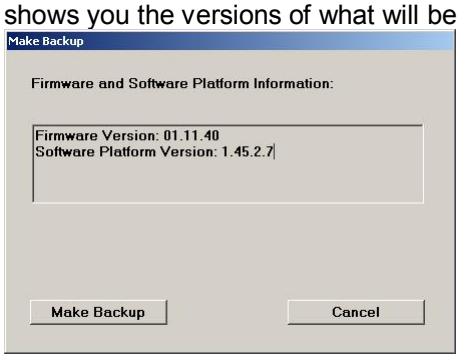
The following description of the firmware update references the use of the USB interface. The update via LAN interface is similar.

1. Save the current version

It is recommended to save the current/running version. This can be done very easily and completely intuitive with an USB keyboard and an USB mouse.

- Switch off the device and switch it on again. When the device is starting now you see the Bootmanager window (blue background, white field inside and a red selection line) after a short time. If you see this window press the cursor key under the rotary knob, select **Backup/Recovery** and confirm this with pressing the key BACKSPACE on the device or Enter on the USB keyboard..
- After a short time the recovery and backup service ist started.

Select Make Backup via mouse or keyboard. The menu disappears and the device shows you the versions of what will be stored.



Select Make Backup, follow the instructions and the device starts working. The backup process takes some minutes. Please do not switch off the device, otherwise your

backup may be corrupt. It's safe to switch off the device 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 R&S SMU

- Switch off the instrument.
- Connect the external mouse and keyboard to the USB interface.
- Switch on the instrument.
- ***Access Windows XP desktop***

  Operating with the mouse

  - Wait until R&S SMU firmware boot window with the progress bars appears.
  - Click on the Abort 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 file.
  - Double-click the item **SMU200A_2.05.104.56.exe**
  - Select Next / Install and wait until installation has finished.
  - Confirm that you want to reboot the instrument in order to activate the firmware update (the instrument then restarts automatically, the USB memory stick has to be removed)

3. Execute Internal Adjustments

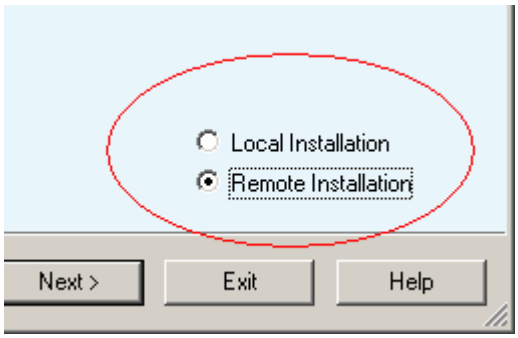
- Press the PRESET key on the instrument front panel.
- Press the SETUP key, select **Internal Adjustments** and execute **Adjust All**.
  This process updates internal instrument adjustments and will take several minutes. Adjustments requiring external measurement equipment are not affected by the firmware update and need not to be performed.

The firmware has been updated and the installation is completed.

2.2 Remote Firmware Update

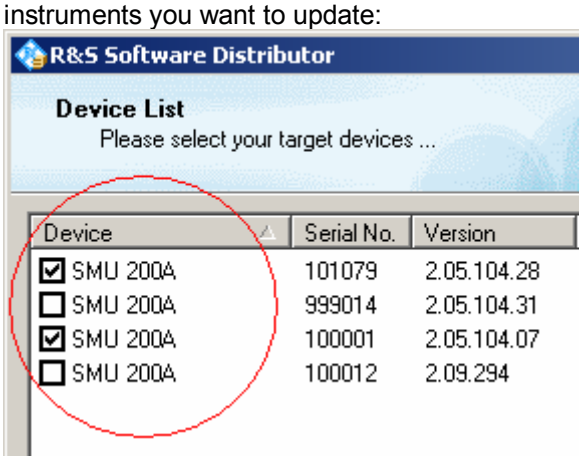
1. Install firmware

- Ø Run **SMU200A_2.05.104.56.exe** on your PC
- Ø Select “Remote Installation”



and click the button “Next>”

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



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!

- Ø Additonal help will be displayed after clicking the button “Help”
- Ø Start installation by selecting “Install”
- Ø Confirm that you want to reboot the instrument in order to activate the firmware update (the instrument then restarts automatically)

2. Execute internal adjustments

- Ø Press the PRESET key on the instrument front panel

Press the SETUP key, select **Internal Adjustments** and execute **Adjust All**.
This process updates internal instrument adjustments and will take several minutes. Adjustments requiring external measurement equipment are not affected by the firmware update and need not to be performed.

3 Modifications in Current Version

The new firmware offers the following functional improvements:

Version 2.05.104.56

- None

Version 2.05.104.54

- SMU-B90 (LO sync board for MIMO)
- XM-Radio : frame counter implemented

Version 2.05.104.33

New standards/options/modules

- SMU-K57 (FM stereo)
- SMU-K59 (HSPA+)
- Support of new synthesizer SSYN (1141.4220)

Other features

- Software update in one file and over LAN
- LXI Class C including web server
- Sophisticated hardcopy function
- Factory preset, standard Preset/*RST does not reset reference oscillator or power on state (level)
- Several layouts of external keyboards supported
- All windows can be resized in height using <REARR> button
- Busy display for Preset/Save/Recall and switching digital standards
- Fading Simulator : new profiles 3GPP “high speed train” and 1xEVDO
- Custom Digital Modulation : support of QAM128, several improvements of data list editor
- All sweeps support now shapes sawtooth and triangle
- Phase continuous frequency setting
- Setting times for level/frequency reduced by typ. 150 µs
- Display of NRP-Z81 peak power
- SMU B17 (BBIN) : Extended setting range for PEP and crest factor

EUTRA/LTE

Compatibility

- All supported features are in line with the following official 3GPP specifications unless not revised by the according CRs listed below:
  - TS36.211 v.8.2.0
  - TS36.212 v.8.2.0
  - TS36.213 v.8.2.0
- The following CRs are implemented:
  - R1-081248: PRS sequence generation for downlink reference signal
  - R1-081518: Draft CR on Correction of the number of subcarriers in PUSCH transform precoding
  - R1-081520: Draft CR on Correction of PUCCH resource index for PUCCH format 2
  - R1-081576: Correction of the number of subcarriers in PUSCH precoding
  - R1-081577: Correction of PHICH mapping
  - R1-081578: Correction of PUCCH resource index for PUCCH format 2
- The Downlink of this version of the SMx-K55 is compatible with FSQ-SW LTE K100/K101/K102 Version 2.2 BETA 3

General Features

- Updated bandwidth definitions 1.4MHz and 3MHz (previously supported by user defined settings)
- Support of User Filter: user-defined TX-filter can be generated (e.g. by means of R&S FiltWiz) and then uploaded to the SMx-K55.

Downlink

- Full support of P-SYNC, S_SYNC and DL Reference Signal derived from CELL ID
- Supports channel coding for PDSCH
- Support channel coding for PBCH
- Supports scrambling for PDSCH and PBCH
- Full MIMO and Transmit Diversity support (all precoding and CDD formats)
- Support of PCFICH
- Support of PHICH
- Support of PDCCH: An arbitraray bit stream (PN9, data list, pattern...) is used by the SMx-K55 (can be uploaded from external if needed), and PDCCH processing starts with "scrambling" (see 36.211, 6.8.2). The next steps of PDCCH are performed as defined in 36.211. The user is responsible for the content of the several PDCCHs (see 36.212, 5.3.3.1 DCI Formats) and the multiplexing of them. SMx-K55 does the scrambling, layer mapping, precoding and RE mapping including permutation and cyclic shifting.

Uplink

- Support of new definitions of reference signal sequences
- Update on demodulation and sounding reference signals
- Support of group and sequence hopping
- Supports channel coding for PUSCH including multiplexing of data and control information
- Supports scrambling of PUSCH
- Support of all PUCCH formats

3GPP-FDD

New Features

- HSPA+
  - higher order modulation: downlink 64QAM
  - CPC: HS-SCCH less operation
  - MIMO support
  - new H-Sets 7-9 (3GPP Rel.7)
- new H-Set 10 (3GPP Rel. 8)
- more flexibility in the H-Set configuration („User“ – H-Set)

- The user gets support by the user interface for selecting the right ARB sequence length when generating H-Set signals.
- For H-Sets, the (least necessary) UE-category is displayed.
- third OCNS-Mode „HSDPA 2“ (according to TS 25.101)
- E-AGCH: now with user coding

Bugfixes / Changes

- Computationally expensive realtime-signals (e.g. RMC384 or H-Set3) were sporadically shifted in time after retrigger: fixed.
- Conflicts between H-Sets and OCNS in the channel configuration are avoided now.
- When switching off the OCNS-Mode, the OCNS-Channel state is switched off now (in previous releases the channels were only converted to normal DPCHs, but with state on).
- When generating H-Set 6, the database was read out at the wrong positions: fixed.
- HARQ-Feedback:
  - Immediately after retrigger, the packets were sent with random retransmission sequence number (RSN): fixed.
  - When changing from one RSN to another, the last 1024 chips of the old packet were sent already with the new RSN: fixed.

Wimax

- CSTD (Cyclic Delay Diversity)
- Coupled Baseband Modes (Baseband B is controlled from Baseband A for STC configurations)
- Transmit Diversity with 4 antennas
- Band AMC modes for 2x3 AMC
- Band bitmap for sounding
- Additional user definable power boosting for each zone
- Time Plan displays inactive zones in grey (such as SISO zones on Antenna 1)
- Multiple PDUs per burst
- DCD and UCD added for OFMD mode
- UL-MAP and DL-MAP in one burst for OFDM mode

Version 2.04.303.32

- None

Version 2.04.303.31

- SMU-K65 : Assisted GPS

Version 2.04.303.17

- None

Version 2.04.303.16

New standards/options

- SMU-B18 (baseband digital out board)
- SMU-K47 : 1xEVDO Rev. A
- SMU-K53 : T-DMB / DAB
- Support of BB Input mode “Digital Input” with BBINS Rev 5.01 and BBINR Rev 3.00 or higher
- Support of R&S EX-IQ-Box 1409.5505.02

Version 2.04.303.03

New standards/options

- SMU-K54 : IEEE 802.11n (WlanN)
- SMU-K74 : MIMO-Fading

Extentions to existing standards / Improvements

WiMAX

- Corrigendum2/D4 compatibility
- Uplink Sounding
- Added Zone_Switch_IE in DL-MAP
- Mixed STC Matrix A and B configuration within the same zone
- CID_Switch_IE inclusion in DL-MAP can be toggled
- Added Collaborative Spacial Multiplexing in uplink
- Fading: ITU profiles now available without option SMU-K72

Version 2.04.202

- None

Version 2.04.201

New standards/options

- SMU-K55 : EUTRA/LTE
- SMU-K56 : XM-Radio
- SMU-K72 : new fading profiles for WiMAX/Gauss
- SMU-K6 : Support of external Pulse Sequencer Software

Extentions to existing standards / Improvements

3GPP

- 3GPP HSDPA H-SET6 Extensions
- 3GPP HSUPA Extensions (E-DPDCH with new symbol rates 15ksps and 30 ksps, separate channel powers possible, HARQ State)

WiMAX

- HARQ
- Offline Filter
- AMC 2x3
- Fast Feedback Bursts
- Dedicated Pilots for AMC 2x3 and PUSC
- Switchable Subchannel Rotation for Uplink PUSC
- DCD and UCD Bursts
- New modulation QAM 5/6
- Extension of DL-MAP (CID-SWITCH-IE, bursts of all zones, MAC Header and CRC on, …)

Enhancements of fading and noise

- TETRA Fading DR50/DU50
- AWGN : Extended S/N Range -50 dB to +30 dB

Other

- TD-SCDMA : Predefined Settings / Testmodels
- NRP power sensors : persistent power display in block diagram
- List mode : level setting without interruption/blanking
- ARB Multi segment : several improvements / bugfixes
- Armed/Triggered state visible in block diagram
- Security Menu : possibility to switch off USB port and LAN for file transfer
- New optimization mode "high quality" to reduce modulation frequency response

Version 2.02.170

- None

Version 2.02.145

- Improvement of the level adjustment (new internal adjustment “level attenuation”)

Version 2.02.130

- Support of new main board with FMR7 (first version)
- New menu SETUP – UPDATE for updating internal FPGA

Version 2.02.116

- Support of new digital standard DVB (SMU-K52)
- Support of new option SMU-K256 (WinIQSIM2 XM RADIO)
- Power sensor: Offset mode implemented
- TD-SCDMA: new marker mode "Frame Active Part"
- Internal adjustment: reference frequency mode not changed to “internal” during internal adjustment
- GPIB channel address: now saved immediately to support hard power off
- PhaseModulation: SCPI: default unit changed from degree to rad (due to SCPI norm)
- 3GPP Power Control: new marker mode “Dynamic Power Control” for marker 4

Version 2.02.65

- Support of SMU-B9 - Baseband with ARB(128Msamples)
- Digital standard TD-SCDMA with two options
  SMU-K50 (basic functions)
  SMU-K51 (Enhanced BS/MS test)
- Digital standard SMU-K45 (3GPP FDD HSUPA)
- Support of WinIQSIM2 options K2xx
- Support of NRP-Zxx power sensors (power viewer and user correction)
- "Generate Waveform File" for all digital standards (for multi carrier/ multi segment)
- Support of user filter files generated with R&S FiltWiz
- Import of list mode and user correction data from CSV and TXT files
- WiMAX (SMU-K49) : several extensions including WiBro and multi zones
- BBIN (SMU-B17) : Several improvements
- 3GPP FDD (SMU-K43) : parameter range of BER / BLER extended to 50%, 3 power steps for HS-DPCCH
- Setup menu : Display of instruments TCPIP address and BIOS version
- Unit keys [k][M] now working as multipliers for parameters with only one unit eg. 38.4 [k] -> 38400
- list mode : frequency and level display dotted when list mode running
- SCPI: Error Queue entries with path indication A/B
- phase modulation: unit rad and degree supported (attention: default is rad now!)

Version 1.40.21

- None

Version 1.40.20

- None

Version 1.40.19

- New level calibration for factory purposes supported
- Improvement of settling time with IQ modulation on

Version 1.40.13

- Generation of HSDPA H-Sets (SMU-K44)
- Support of WiMAX OFDMA mode (SMU-K49)
- Support of ARB multi carrier
- Support of parameter variation with mouse wheel
- UCOR level range extended to 100 dB
- Several improvements of file dialog
- Several improvements of AWGN dialog (SMU-K62)

Version 1.35.14

- Improvement of Calibration

Version 1.35.13

- Loading from setups from elder versions improved

Version 1.35.10

- New: Support of digital standard SMU-K44 (GPS)
- New: Support of digital standard SMU-K48 (WLAN IEEE 802.11 (a/b/g))
- New: Support of digital standard SMU-K49 (WiMax IEEE 802.16 (d))
- New: Custom digital modulation – Modulation Type -Variable FSK: 4/8/16FSK with free selectable deviations available now
- New: phase offset available in baseband block menu
- New: Custom digital modulation: display type of modulation directly in the baseband block
- „User Marker / Aux I/O Settings …“ now directly in menu “Trigger/Marker”
- New: separate “*rst” for path A and B possible via :SOURce<HW>:PRESet and DEVice:PRESet
- Digital standard 3GPP FDD: Channel Coding - Transport Channel: max value of “Transport Blocks” now 24

- New: GSM/EDGE: External Clock: trigger delay and trigger inhibit available

Version 1.30.13

- Improvement in I/Q calibration (better side band suppression)

Version 1.30.12

- New: GSM/EDGE: External trigger source “external clock” added

Version 1.30.10

- New: 3GPP FDD “Test Case Wizard…” (according to TS25.141)
- New: AWGN: mode “CW Interferer” and reference mode
- Support of new motherboard with Differential I/Q Out (Option SMU-B16)

Version 1.20.34

- Internal tests of fader improved

Version 1.20.33

- In rare cases the selftest of the fader fails; improved

Version 1.20.32

- None

Version 1.20.31

- Support of Fading Simulator (Option SMU-B14)
- Support of Fading Simulator Extension (Option SMU-B15)
- Enhanced Resolution and Dynamic Fading (Option SMU-K71)

Version 1.20.17

- Support of 3GPP-FDD including HSDPA (Option SMU-K43)
- Support of CDMA2000 (Option SMU-K46)
- Support of 16 Megasample Modulation Generator (Option SMU-B11)
- Support of Multisegment Arbitrary Waveform
- Improved 3GPP-FDD PRACH capabilities,
  e.g. channel coding in UE2 to UE4.
- Code domain display for 3GPP-FDD uplink.
- User definable slot markers for GSM.
- Several improvements for AWGN, e.g. extended C/N range.
- Selectable CRC order for BERT/BLERT.
- Forced relearning of List in list mode.
- New filter for Custom Digital Modulation (Pure Gauss).
- Selectable bandwith for external reference frequency.

Version 1.10.08

- Support of 3GPP/FDD including HSDPA with WinIQSIM (Option SMU-K20).
- Support of overvoltage protection (Options SMU-B30, -B32, -B35, -B37).
- Support of BER/BLER measurement (Option SMU-K80).
- Several additional improvements in 3GPP.
- Several improvements in GSM/EDGE.

Version 1.04.14

- Support of 6GHz extension.

Version 1.04.13

- On firmware installation, option SMU Instrument Setup is the default, instead of PC Simulation Setup.

Version 1.04.11

- Significantly improved performance of the user interface.
- Significantly improved display of hardware equipment, hardware revision, software revision and instrument options.
- Several optimizations for two path operation.
- Added 3GPP Compressed Mode.
- Support for option AWGN (Option R&S SMU-K62, Add White Gaussian Noise).
- Resolution of trigger delay changed to 0.01 symbol.

> ***Note:*** *The front panel keys* HCOPY *and* RECALCULATE *are provided for future use and have no function yet.*

4 Problems Eliminated

Version 2.05.104.56

Sometimes the guaranteed maximum level was not reached: fixed	6899

Version 2.05.104.54

Custom Digital modulation : bit clock now used falling slope with external data and symbol clock	6627
GSM : Instrument crashes using external retrigger mode : fixed	6754
Remote control : transfer fails if character 0x0A is in first block of binary data : fixed	6783
BBIN : selftest fails : fixed	7695
Fading : settings cannot be exchanged between SMU and AMU : fixed	6804

Version 2.05.104.33

Several hyperlinks in online help not working : fixed	5323
Construction of multi segment waveform in path B erroneous	5366
Out of memory calculating dynamic fading scenarios : fixed	5961
Fading standard 3GPP VA30 (UE) does not set all parameters (speed) : fixed	6269
Level sweep without dropouts : fixed	6533
Trigger not stored in multisegment waveform : fixed	6589
Several bugs with multi segment waveform : fixed	5205
ARB file selection dialog improved (tool tipp with all comments) : fixed	5884
DigMod: Pure Gauss parameter not accessible from SCPI : fixed	6168
Several small changes in user manual / online help : fixed	6334
DigMod: 16QAM Edge not properly working : fixed	6434

Version 2.04.303.32

Sometimes the device does not shut down correctly : fixed	6424
SMU with BBOUT (SMU-K18) but without BBIN (SMU-K17): some problems with ExBox fixed	
Sporadic bit errors in GSM and 3GPP FDD signal generation (problem was observed only in combination with UNICOD version > 6.00): fixed	

Version 2.04.303.31

Sporadic extension of setting times for level and frequency : fixed	6273
Wrong display of AWGN values in display mode baseband : fixed	6290

Version 2.04.303.17

Option SMU-B30/B32/B35/B37 should not be displayed with new CMOS attenuator	6195
Support of multilevel user correction protected with a registry key; feature now available for all	6196
AM: Sometimes an error message "..output unlevelled" occurred when using AM with low deviation	6206

Version 2.04.303.16

XM-Radio. No markers in physical layer mode "Terrestrial A" and "Terrestrial B"	5834
IEEE 802.16 WiMAX: system crash possible when changing from uplink to downlink, standard is active and predefined settings are used	6000
IEEE 802.11 n: Indikator „MOD OFF" does not disappear when this standard is activated	6042

Version 2.04.303.03

CDMA2000: new default setting (one channel switch to ON to avoid error messages when setting state to ON)	5263
Sometimes a system crash occurs when toggling LEVEL/DIAGRAM buttons very often	5353
WiMax: - Subchannel rotation fixed for uplink PUSC zones including FastFeedback and Ranging bursts - Fix in uplink AMC2x3 mode - STC Matrix B mode fixed	5355
ARB: sine generator: error message when using sine generator immediately after switching on EUTRA (SMU-K55)	5356
Custom Digital Modulation: List editor: system crash when using "goto"-command	5385
FM: source is "INTERNAL + EXTERNAL": sensitivity not visible in dialog	5433
W3GPP: Enhanced channel 11: selecting "config data" shows no reaction (menu don't open)	5542
ARB: Loading AMIQ/SMIQ waveforms sometimes causes an error message	5597
SCPI: all return values of "…:stat?" is OFF/ON instead of 0/1 (bug in V2.04.202 only)	5610
Custom Digital Modulation: "user filter" doesn't work in path B	5655
CDMA2000: "Set To Default" resets settings in path A and B (not the selected path only!)	5751
W3GPP: error message when selecting "PRACH Preamble only" with trigger mode "Armed Auto external"	5801
W3GPP: copy BS1 to BS2 doesn't copy all relevant parameters	5802
WLAN: when setting state to ON the filter settings are always the default one, not the displayed one!	5816
AWGN: Doesn't work if no option B9/10/11 or B17 is installed (bug in V2.04.202 only)	5833
GSM: Recall doesn't set the frames	5882
WLAN: sequence length not limited correctly	5894
Fading: system crash when copying a path group to an other one	5905
CDMA2000: unknown exception when using predefined settings RC4 with frame length = 80 ms	5930

Version 2.04.202

- Sometimes at startup an error message occures „… unicod SDRAM …"; only with V2.04.201
- BBIN: in rare cases the output spectrum is not ok; only with V2.04.201

- Fading – predefined WIMAX settings: parameter “Virtual RF “ not considered

Version 2.04.201

ARB test sine signals : some remote commands not working	4376
CustomDigMod/FSK : envelope not constant with root cosine filter and some roll-off factors	4763
ARB sequence length : maximum depending on ARB size	4815
3GPP FDD : Save waveform not working for uplink	4850
WLAN : predefined frames not working correctly	4903
WiMax/3GPP : clipping not working correctly	4907
WiMax : output power not correct when using more than 15 frames	4913
Save/Recall : 'exclude frequency" and "exclude level" without impact	5109
Data lists exceeding 256 Mbyte cannot be loaded to B9	5161

Version 2.02.170

Error message “I/Q out level is below minimum...” with option SMU-B16	4866
Error messages while graphic is running and trigger mode is armed	4885
Sometimes trigger input 1 and 2 does not work immediately after power on	5069
MCCW: spectrum not perfect with 3 or 15 carriers	5087
Sometimes a system crash happens at power on	5151
Error message „General plugin error“ in GSM after PRESET and :BB:GSM:MODE SINGLE	5197
:syst:time xx,xx,xx and :syst:date xx,xx,xx doesn’t work anymore	5272
Sometimes system hangup while doubleclicking menu points (e.g.GPIB or Ethenet)	5280

Version 2.02.145

GUI: Sometimes GUI is frozen after PRESET (you cannot open any new window in the application after PRESET)	4884
GUI: Some menus have an unnecessary horizontal scroll bar (bug in V2.02.130 only)	
Menu SETUP-HARDWARE CONFIG: memory leak caused system hang up	5025
Testcase Wizard: error message “Fader Insertion Loss Limit Exceeded; value set to limit” when using test case 8.4 with antenna diversity ON	5034

Version 2.02.130

Custom Digital Modulation: *.vam files couldn’t be selected via IEEE bus	4270
Custom Digital Modulation: symbol rate not accessible via GUI	4845
Option SMU-B16: error message “I/Q out level is below minimum for ‘optimize I/Q signals for RF output’ enabled” sometimes doesn’t disappear (V2.02.116 only)	4866
Fading: insertion loss USER does not work with high crest factors (wrong output level and error message); all V2.02.xx affected	4868
Fading: 2 Channel Interferer: state not accessible via IEEE	4910

Version 2.02.116

GSM/EDGE:'Recall Predefined Frame' cannot copy to frame 2	4074
Custom Digital Modulation: ASK: graphic for 'Modulation Settings' empty	4131
ARB Multi Segment: Recall GUI Problem	4623
Multi Carrier: "Division by zero" if all carriers are switched off	4639
WLAN: „Generate Waveform File…“ doesn’t work	4665
ARB: *.wv files which need options SMU-K11 til SMU-K20 does not work	4670
ARB: tag “clock rate”: precision too low	4708
List mode: system hang up while editing via “Insert Range…”	4713
Data list: saving long lists via SCPI does not work correctly	4722
System crash while switching off incompatible modulations internally	4748
“Generate Waveform File…” doesn’t work if file exists already	4773
3GPP HSUPA: "Code Domain" graphic: E-DPDCH displayed not correctly	4779
3GPP uplink: SCPI: channel numbering wrong („1“ sets channel 2 and so on)	4794

Version 2.02.65

Renaming files with MMEM:MOVE did not work	2875
Eye diagram did not work correctly	3417
Save/Recall with :MMEM:LOAD:STAT / :MMEM:STOR:STAT not working	3473
3GPP HSDPA : bursts have been cut instead of wrapped around at end of sequence	3902
Fading : clipping display not working correctly in all modes	3918
sporadic crashes when handling big ARB waveforms	4026
inconsistent block diagram in REMOTE state	4029
SCPI commands for ARB multi segment SOUR:BB:ARB:WSEG: missing	4210
sporadic erros in output signal, when I/Q graphic is running	4214
block diagram with BBIN without baseband block incorrect	4495
SCPI commands FSIM:DEL:GRO<group>:PATH1:CORR only working for group1	4640

Version 1.40.21

- WLAN: save/recall not possible if CDMA2000 and 3GPP FDD is not available
- Bugfix with new calibration data from level (RFM V2.0; internal use only)

Version 1.40.20

- “DSP communication error” sometimes occurs (only in V1.40.19); fixed
- Bugfix with new calibration data from level (RFM V2.0; internal use only)

Version 1.40.19

- In rare cases the level adjustment failed with error “DACIF…”; fixed

Version 1.40.13

List-Mode : dwell time of first step not correct	2703
Custom DigMod : support of CW switching incorrect	2966
:SYST:SERR? does not respond “no error” if everything is ok	3225
Changing the remote interface VXI11 <->GPIB causes crash of instrument	3360
ARB: no independent sine test signal output possible on path A/B	3365
Pulse modulation deactivates digital modulation	3687
Internal graphics stopps when both paths are triggered by marker 1	3699
3GPP FDD : TFCI setting of S-CCPCH not allowed	3716
List mode : online help missing	3849
FM external impedance only switchable if FM is ON	3870
Setups of older firmware versions cannot be read	3877
Power-on-preset not working	3879
All standards : units of single trigger duration harmonized	3892
Input of values with leading floating point (eg. ".5") not supported	3906
Pop-ups not operable without mouse (eg. ARB multi segment)	3911
Fading : insertion loss not working correctly	3917
Multi carrier/SCPI : unit [dB] not accepted	3938
Sweep : Attenuator switches in fixed mode (occasionally)	3966
Power Up/Down (RF level) not supported by remote interface	3973
All standards / SCPI : instrument crashs when pattern length exeeds 32	3987
3GPP FDD : Update problem when changing UE4 paramaters with active addional Ues	3992
WLAN : given RF level not referred to burst power	4012
Multi carrier : Set To Default does not reset output signal	4015
Custom DigMod : symbol rate remains unchanged after recall	4066
CDMA2000 : SCPI command BB:C2K:MSTation1:CHANnel1:DATA:RATE not working	4088
3GPP FDD : progress bar missing after fast parameter change (occasionally)	4094
Some standards : pattern editor not operable after leaving with ESC before	4096
All standards : trigger delay ignored when trigger source is other baseband	4117
WLAN : chip rate can be set to 100 MHz (fixed:limited to 40 MHz)	4132
Range of level in attenuator fixed mode wrong (occasionally)	4138
Displayed baseband signal level wrong with fading and or AWGN	4174
Sometimes no baseband signal with external clock and internal trigger	4176
Fading Birth Death Propagation: delay grid minimum wrong; check of offset/hopping dwell missing	4188
:swe:res:all does not work	4195

Version 1.35.13

- In rare cases the message “Device key missing” at start of the instrument occurs; fixed

Version 1.35.10

- I/Q impairments: user settings lost when switching baseband state to off and on again; fixed
- SCPI order „ :freq? min|max“ and „:pow? min|max“ does not work; fixed
- Editing a bit pattern: in very rare cases the system crashes while editing the pattern; fixed
- In some cases the tooltip lost the units; fixed

- File dialog: sometimes two lines are highlighted and/or no focus; fixed
- Digital standard 3GPP FDD: sometimes no marker output at first start; fixed
- Digital standard 3GPP FDD: unnecessary info messages when selecting “Set To Default” or “Recall 3GPP FDD Settings”; fixed
- Custom digital modulation: error message using modulation 4FSK with coding GSM; fixed (now no selection of coding GSM with modulation 4FSK allowed)
- GSM/EDGE: switching to external clock produces an error message “settings conflict ..”; fixed
- Sometimes no min/max check while changing parameters via rotary knob; fixed
- No capitals with external keyboard possible (i.e. file dialog); fixed
- CList editor: cursor left/right has no function; fixed (now: same functionality as rotary knob)
- Sweep: setting a new frequency in mode STEP results in a wrong output frequency (always max value of step mode); fixed
- Sweep: mode STEP: variation with rotary knob works til min/max is reached, then no further variation possible; fixed

Version 1.30.13

- GSM/EDGE: Editing the slot defined marker results in a system crash; fixed
- Fading: Changing parameter speed or delay while insertion loss USER is active causes a wrong output power; fixed
- Digital modulation: FSK with coding GSM produces an error message; fixed
- List mode with high power option: max value for power is now 30 dB (not 20 dB); fixed
- Error messages from DAC-Board occurred in devices without baseband source; fixed
- Internal: setting of operation time and power on count possible for service purposes

Version 1.30.12

- Menu LF Output: value for “output voltage” not visible (you see “<null descriptor>” instead of the correct value; bug only in version 1.30.10); fixed
- 3GPP FDD and MCCW: Trigger in: external trigger delay does not work; fixed
- Fading - Insertion Loss Configuration – Mode “User”: Switching off the fading state with an insertion loss value unequal 0 affects the output signal (worst case: when setting the value to 30 dB your output signal is minimal); fixed
- 3GPP FDD: power setting of uplink HS-DPCCH has no effect; fixed

Version 1.30.10

- Fading - Insertion Loss Configuration – Mode: “Low ACP” and “user” improved
- Common: loading of ARB waveforms accelerated

Version 1.20.34

- None

Version 1.20.33

- Fader: menu of “Path Table …” filled with “---“ when no option SMU-K42 is installed

Version 1.20.32

- The carrier leakage is bad after switching on the device. Executing the I/Q modulator adjustment makes it good until to the next power on: fixed
- Fading: The insertion loss displays a wrong value in mode “NORMAL”; fixed
- Sometimes a system crash occurs at power down; fixed

Version 1.20.31

- Setting the RF phase leads to system hang; fixed
- Problem with user step level variation fixed
- Problem regarding Device Clear (DCL) fixed

Version 1.20.17

- SCPI instruction regarding 3GPP trigger output mode fixed:
  :SOUR:BB:W3GP:TRIG:OUTP2:MODE USER
- GSM LevAtt timing was one symbol period too early; fixed
- 3GPP Trigger/Marker panel path B fixed
- Reduced breaks in output signal on frequency changes
- SCPI: Range of User correction was restricted; fixed
- Improved minus sign handling on level settings
- List Mode: Under some circumstances a list was received incomplete by SCPI; fixed
- Remote state inconsistent after GTL; fixed
- Limited range of TDMA trigger delay; fixed

Version 1.10.10

- Timing problems with FPGA on SMU-B10 fixed

Version 1.10.09

- Sometimes options are not correctly recognized; fixed
- Displaying of installed options is not correct with two SMU-B10; fixed
- System hang up when clicking in the graphic with right mouse button; fixed

Version 1.10.08

- Analog Modulation / Internal modulation generator:
  Output voltage setting accuracy for V_p < 300mV fixed.
- Overvoltage Protection now is indicated in display and via SCPI status reporting.
- Several problems in GSM/EDGE fixed.
- Several problems in 3GPP fixed.
- Several problems regarding Phase Setting fixed.
- Blank signal only worked with active digital modulation. This is fixed.
- System stopped when running Sweep for a long time with short dwell times. This is fixed.

Version 1.04.13

- Devices equipped with two baseband pathes and one RF path:
  Several problems regarding this configuration are fixed.

Version 1.04.11

- mV and µV unit keys:
  When entering a level value using the mV and µV keys of the R&S SMU keyboard the maximum level was set. This is fixed.
- SCPI commands:
  SCPI command chains separated by semicolons were treated wrongly when parts did not start with a colon. This is fixed.
- 3GPP Reference Measurement Channel Coding:
  Bug in 3GPP Reference Measurement Channel Coding is fixed.
- 3GPP Uplink:
  Slot assemblies DPCCH and DPDCH and Data Source DPDCH are now displayed.

- Save Recall:
  Checkbox Exclude Frequency is functional now.

- User Correction:
  Editor now creates new lists.

5 Open Source Acknowledgement

This firmware makes use of the following open source software package. The verbatim license text is provided in the following chapters.

Package	Link	License
OpenSSL	http://www.openssl.org/	OpenSSL / SSLeay

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.

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