R&S®SMM100A Release Notes

Software Version 5.30.175.18

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The software makes use of several valuable open source software packages. For information, see the "Open Source Acknowledgment" provided with the product.
The following abbreviations are used throughout this document: R&S®SMM100A is abbreviated as R&SSMM100A.

PAD-T-M: 3574.3288.02/07.00/CI/1/EN

Contents

1 Information on the current version and history

NOTICE

The signature of release

5.00.166.20/22

has a term of 2 years only.

1.1 Version 5.30.175.18

Released: August 2024

New Options

- none

New Functionality / Changed Behavior	
-	

Fixed Issues	
SMM-K200: Waveform doesn't register and causes the instrument to be in an infinite busy loop	1319763
Using IQ Delay or Skew parameters in Digital Impairments could cause a slight level variation, depending on the adjusted values	1322803

Known Issues	
AM state toggled off incorrectly, when activating IQ Mod in some cases	1311210
WLAN 11ax: Issue for 11ax BCC coding in certain cases (MCS0 and DCM,106 tone or 242 tone)	1323360
WLAN 11b/g: Some WLAN 11b/g signals have content issues. In case you have problems demodulating WLAN 11b/g signals, please go back to a previous firmware version (e.g 5.30.047.28) or ask your service contact for a beta version.	1275857
Bit Error Rate Tester: clock rates below 400Hz not working	1321046

1.2 Version 5.30.175.16

Released: June 2024

New Options

- none

New Functionality / Changed Behavior	
Improved switching times when changing bias values of analog IQ out.	1266498
PHP has been upgraded to version 8.1.28 to ensure improved security, performance and compatibility.	1284780

Fixed Issues	
SCPI Command :DISP:ANN:ALL not working	1286237

5GNR - Downlink: If the user configures a reserved value for the DCI antenna port field and attempts to generate the shared channel allocations, the firmware might crash	1286827

1.3 Version 5.30.175.14

Released: April 2024

New Options

- SMM-K178 Bluetooth 5.4 + Channel Sounding
- SMM-K478 Bluetooth 5.4 + Channel Sounding (WINIQSIM2)

New Functionality / Changed Behavior		
It is now possible to load in addition to wv file types also .csv, .iq.tar and .mat files.		1073547
OFDM: Addition of zero padding after symbols		1218874
5G New Radio		
General	Downlink: Coreset for 24 PRBs and 5 MHz bandwidth and 15 kHz can be punctured to 20 PRBs	1222515
	Sidelink: New message type PSFCH	1223419
	Rel-18: Addition of new bandwidth 3MHz and puncturing of SSB and CORESET	1174914
	R18 Test Models for 3 MHz	1248923
Bluetooth		
	First version to support options K178/K478.	1093059
	Support for options K178 and K478.	1162649
	DataList and User Sync Word are added to the Test Packet Configuration.	1220939

Fixed Issues		
ARB: instrument is crashing when Preset This Parameter is used inside ARB table (system mode Advanced + BB Coupled Sources)		1233678
ARB: SCPI Recorder does not work for Multi Segment table		1232542
Custom Digital Modulation: external local clock only available with 2x SMW-B10 installed		1213037
Do Preset this parameter on the parameter Secure update policy and User Interface presets value to default		1084190
Error message regarding LO signal displayed incorrectly under some circumstances		1215967
EUTRA/LTE: Uplink: UI configuration issue for aperiodic SRS.		1238426
Generated SCPI log contains dB?V instead of dBµV.		1219661
K544: Concatenation of s1p files in the first place of the list gave wrong result.K544: Resulting frequency response graphs and absolute level correction are now updated independent from RF state		1227956
EUTRA/LTE: Fix Data Source ID value in V2X		1201752
NB-IoT: RBIndex for Guardband is corrected for the respective bandwidths		1207036
OFDM: Fix for External Trigger Delay.		1227977
Output level setting using SCPI not handled correctly in Constant-Phase mode		1217318
Port Alignment correction not working correctly in certain frequency / level ranges.		1242324
Power Sensors: When adding a sensor manually in rare cases an error message could occur.		1222805
Preset takes longer than usual if K810 is present		1219257
Settling time of frequency/level too slow with 5.30.047.20/23 on devices equipped with IPC10/2		1235084
SMW B9, SMM: GSM burst correction for slot 8		1205208
TELPV indicators are now correct when either option 'A RF Off & B External' or 'A External & B RF Off' are chosen..'RF Connectors Dialog' now also shows the correct state for 'LO In' in these cases.		1234003
The SCPI connection is not blocked as expected by an *OPC query for the user preset feature		1249141
5G New Radio		
General	Possible errors and missing updates when working with a sequence length greater or equal to 256 subframes.	1257207
	Saving delta f to Output parameter in WinIQSim2 and recalling e.g. in SMW results in different signal.	1239819
	Cinit values are interpreted as binary, but should be decimal	1235868
	FRC wizard sets FRC settings sometimes not correctly	1241625
	PRACH Format 2 uses a N^RA_CP of 4680 instead of the 4688 given in 38.211, Table 6.3.3.1-1.	1258705
	PSS/SSS for SSB mapped incorrectly on FFT grid for 3 MHz bandwidht	1224538
	PSSCH cInit for DMRS uses wrong CRC calculation	1245262
	Restart slot index causes incorrect settingstransfer files. Settingstransfer should not be supported for this feature.	1244040

	Restart slot index does not update frame number correctly and therefore data reset is not called in the correct slots	1245865
	Rim-Rs for small bandwidths (10 MHz <) with Rim-Rs numerology being smaller than the bandwidth numerology causes waveform creation to crash	1220953
	Sidelink: CRC calculation did not append ones, but zeros	1236274
	Some Fr2_2 testmodels don't set restart data and control correctly.	1239834
	PSSCH SCI always modulated using QPSK	1206354
	The offset parameter in the FRC wizard does not work.	1227316
	Timeplan legend is not updated when changing the link direction	1255169
	Incorrect PDSCH pattern for slots >160 on FR2_2 TM2x	1265970
Downlink	FR2-2 test models do not correctly repeat after 80 slots.	1209276
Uplink	Copy Carrier in Scheduling Table does not work for Transport Block Over Multi Slots	1254486
	Parameter values of PRACH allocations are not updated correctly in certain circumstances	1257207
TCW	Missing SCS 15KHz issue in case of bandwidth 35/45Mhz for Chapter 7 test cases.	1218011
	Power level of chapter 7 test cases is not updated correctly.	1260821
802.11		
	Sample rate for BW of 20MHz is not displayed correctly.	1241273
	Single trigger sequence length incorrect in 20MHz MIMO mode for all other antennas except the first one.	1215302
802.11.b	Incorrectly adding QoS field to 11b MAC header	1229109
802.11ax	STBC Encoding is wrong	1231914
	Incorrect setting of Nsts=1 with enabled STBC	1231895
802.11 be	EHT SU Puncturing is wrong	1266238
	Idle Time is wrong	1270518
	OFDMA Multi user mode some signal parts could have wrong power under certain circumstances.	1270380
HWP-UWB		
	Idle Interval dependency based on the Fixed 2ms Frame Length is fixed	1236397
	Oversampling factors are Enabled/Disabled based on the BW of the instruments used.	1197705

	Power issue, when chips per Burst set to 1.	1248606
Bluetooth		
	Scpi command issue in Dirty Transmitter Test	1236913
	External trigger delay doesn't work.	1241194

Known Issues	
ARB: filenames containig special characters (non ASCII), cannot be selected	1008640
Focus in Security-dialogue can not be set after display-only mode.	1065289
ARB: filenames containing special characters (non ASCII), cannot be selected	**1008640**
K548 Crest Factor Reduction: Output crest factor for some 5GNR carrier aggregation signals offset by up to 1 dB with respect to the desired value.	832180
Table editing: Confusing behavior of TAB key on external keyboard	1013570
Custom Digital Modulation: narrow band SMM is crashing when using External Data Source and the Modulation Type is changed from 16QAM or higher to MSK	1280261

1.4 Version 5.30.047.28

Released: February 2024

New Options

- none

Fixed Issues	
Settling time of frequency/level too slow with 5.30.047.20/23 on devices equipped with IPC10/2	1235084

1.5 Version 5.30.047.23

Released: December 2023

New Options

- None

Fixed Issues	
Empty Open Source Acknowledgment File in FW	1222144
Time based trigger not working correctly in MIMO mode	1212142
Multi instrument with 2 SMMs: no sync when SGTs are connected as external RFs to secondary SMM	1215158

1.6 Version 5.30.047.20

Released: November 2023

New Options

- none

New Functionality / Changed Behavior	
New feature Time Based Trigger	934883
802.11be: make bits 54 and 55 available for trigger frame - special user info field	**1084762**
Digital Input (DIG IQ and HS DIG IQ): Changed max. value of input signal Crest Factor (40 dB).	1105233
OFDM: DC sub carrier handling modes puncture and skip.	**1174793**
OFDM: Support Cyclic Suffix (CS) for OFDM.	**1089708**

5G New Radio		
	R17 FR2-2 test models for 960 kHz.	1068590
	New filter that optimizes EVM	1094710
	Channel bandwidth filter optimization for FR2 due to bad EVM	1073214
	Allow resetting the slot in frame index (used for example to initialize DMRS sequences) following a custom period instead of the default period (equal to the number of slots in a frame)	1050711
	Top level FRC wizard.	1072138
Downlink	-	
Uplink	Configurable offsets between slots for TBOMS	1095605
TCW	Power limits are able to select from 38.141 or 38.104.	1037405
	Record the Scpi commands for current test case.	956546
	Show what options are missing for test cases.	956560

Fixed Issues		
Analog IQ outputs: long setting times when using bias > 0V		1182262
Error message reference PLL unlocked shown when using Primary Secondary mode		1085398
FM deviation incorrect in certain cases		1185723
Frequency >= 10GHz can now be set in the main screen with the precision of 0.001 Hz		1203039
Invalid PEP warning related to RF ports alignment (K545) has been removed.		1067487
K544 state toggling has no effect if the Driver Amplifier is activated and the RF frequency is above 44 GHz.		1099579
K555: Resolved some minor bugs during setup calibration		1196442
NB-IoT: Error message for large start subframes if the Real Time feedback is activated.		1064267
NFC: Fix for Preset This Parameter, which cannot preset the parameter to default in NFC/EMV sequence tab		1196135
NFC: fix for SCPI Command availability for the parameters in GUI Table in EMV dialog		1186036
selection of LowDistortion and LowNoise greyed out and not selectable with ATT70		1180261
SMM100A: EMF Voltage of IQ outputs could deviate slightly from the adjusted value		1206091
Unexpected line feeds in Python SCPI recording		1169964
Warning occurs occasionally after initially activating Port Alignment.		1201735
K544 state toggling has no effect if the Driver Amplifier is activated and the RF frequency is above 44 GHz.		1099579
5G New Radio		
General	dmrs port 1000 showed wrong data for dmrs values	1176845
	Editing the antenna port table of shared channel allocations when using cylindrical mapping did not work	1082049
	Peak Cancellation fails in case reached cfr is not as good as desired by user	1096846
	PSSCH/PSCCH Settings - unexpected horizontal scrollbar at dialog	1172982
	TBOMS has a rate matching issue.	1174971
	Value of Delta f to Carrier for GUI Paramer for S-SSPBCH calculated incorrectly	1185072
	Waveform file generation does not correctly update marker-information	1083928
	Software crashes when closing the timeplan after zooming	1197541
	Some RNTI ranges corrected, set MCCH-RNTI and PEI-RNTI to fixed values	1178506
	FR2-2 test models do not correctly repeat after 80 slots	1209276
Downlink	Crash while increasing the CSI-RS rows.	1100831
Uplink	SRS start index calculation incorrect	1104132

EUTRA/LTE		
	Wrong subframe index issue.	1094264
802.11		
802.11.ac	Bugfix for crash because of clearing buffers that are not actually allocated when in MIMO mode	1086348
	Incorrect LDPC PPDU encoding process in some cases.	1098220
802.11ax	802.11ax/be: incorrect power factor for multiple MIMO streams.	1084706
	Firmware crash when selecting RU-996 with HE-160 for 2nd content channel	1104801
	Update preamble puncturing to latest specification version	1108272
802.11 be	Bugfix in segment deparser	1175599
	Data field power factor incorrect with 2 users, 2x2 MIMO and OFDMA disabled	1084309
	Incorrect power scaling for users in trigger based frames.	1105006
	Some large size MRUs in 160 and 320MHz are not working	1078873
	When user state is off, the STA ID will be set to 2046, and when user state is on, STA ID can not be set to 2046	1107497
HWP-UWB		
	Failure between PHR and PSDU which six zero bits are not correctly put into the gap for HPRF mode	1171268
	Appending of six Zeros to PHR.	1107048
AWGN		
	AWGN block state does not switch on the right streams when Duplicate Streams are active (System Config mode Advanced 3x1x1 or 4x1x1)	1108654
	Show SCPI Command... is not working well when called from context menu of AWGN Block (in Block Diagram)	1082824
Bluetooth		
	BLE setting error message	1103112
	SCPI command Filter/Clipping	1205383
	Sequence Length number when switch on/off Dirty Transmitter Test.	1100786
	Issue of single trigger which produces wrong number of trigger events for wideband instruments.	1168604
	Signal duration issue in case of single trigger mode.	1181007
	Unsuitable value range of impulse length from GUI part	1093198

	Set the parameter Corrupted CRC Every 2nd Packet to ready only and it can not set through GUI or scpi while Number of Packets per Set set to 1 and Dirty Transmitter Test set to On	1098222
OFDM		
	Missing warning if configuration is out of specification.	1047939
	Split Pattern not transmitted in Settings Transfer	1183157
	Waveform generation sometimes fails with DataInit error, with only switching state to off and on again solving the problem.	1185661

Known Issues	
ARB: filenames containing special characters (non ASCII), cannot be selected	1008640
baseband selftest sometimes shows errors concerning DSP	902551
Focus in Security-dialogue can not be set after display-only mode. Focus can be set again with a mouse click.	1065289
K548 Crest Factor Reduction: Output crest factor for some 5GNR carrier aggregation signals offset by up to 1 dB with respect to the desired value.	832180
Table editing: Confusing behavior of TAB key on external keyboard	1013570

1.7 Version 5.20.043.44

Released: June 2023

New Options

- SMM-K300 PULSE SEQUENCING
- SMM-K301 ENHANCED PULSE SEQUENCING
- SMM-K469 DVB-RCS2, WINIQSIM2
- SMM-K476 DVB-S2X-E, WINIQSIM2

New Functionality / Changed Behavior

RF Measurement: Added new feature Power Control. R&S RF power sensors can now be used for closed loop power control of the RF output.		1042906
RF Measurement: Dialogs have been rearranged in order to clarify dependencies and to integrate Power Control.		1072459
Internal adjustments can be configured to start automatically after warm up period and switch off instrument after execution. This facilitates performing adjustments in absence of operator.		1042855
Crest Factor Reduction: New algorithm Peak Cancellation added		**922341**
Custom Digital Modulation: added SOQPSK-TG modulation format		**763987**
Radar Echo Generation (REG): "Hold Off Time": Sets a time delay for the appearance of each object.		1050670
5G New Radio		
General	Ability to show incoming parameter dependencies.	949423
	Manual configuration of DMRS setting in scheduling table	1037294
	R17 NTN FRCs (38.181)	1048072
	Support 38.521-2 UL test-models tables for FR2	1004235
	Support DCI TRS availability indication	953196
	Write marker information into file on generate waveform	1027380
	R17 DCI updates	975137
	Add Peak Cancellation for 5G NR	1044356
	Allow datasource reset in units of slots in case of single numerology case	1036965
	Quick Settings: The number of slots now has a range of any value from 1 to 20	1017322
	Rel-16: add missing dci 0_1 parameter	1042879
	Rel-17 Add SSB Timeoffset	1044374
	Rel-17: Add Fr2-2 testmodels up to 480 kHz subcarrier spacing	1031671
Downlink	2nd Downlink Assignment Index Field for DCI 0_1 and 0_2	1061077
	R17 DCI fields updates for 0_x and 1_x formats	1004293

Uplink	SRS Rel.17 support.	1007385
	Transport Block Over Multi Slots	979048
EUTRA/LTE		
General	LTE: Support of ARB sequence Length in Subframes together with Frames.	1036955
HWP-UWB		
	HRP-UWB:SFD settings User1/2/3 are hidden.	1051824

Fixed Issues		
ARB: multiplier keys are not accepted for Single Trigger Sequence Length		994625
Common Trigger Source is not correctly displayed in 1-path instruments when they are set in mode Multi-Instrument Secondary.		1079924
Multi Instrument Common Trigger dependencies are not always done in SMW instruments that use ADV CLK / TRG connectors for signal synchonization		1073960
The invalid information messages, which appears after restarting the device with enabled RF ports alignment (K545) has been removed.		1067705
Digital standard Extended Sequencer: T/M/C local connectors not usable		1028170
Impulsive Noise: unable to activate impulsive noise when general AWGN mode is set to CW interferer		1055603
Internal adjustments not completing to 100% when other instruments are connected to HS DigIQ inputs or outputs.		1029271
Preset behavior: Keep connections to external instruments' is not working well with external instruments connected to Analog I/Q Outputs		1038057
K544: filter calculation issues with certain frequency responses		991199
K544: Firmware crashes if empty *.ucor file is chosen		1048028
OFDM: Timeplan does not scale correctly		1002976
5G New Radio		
General	Faulty recall of carrier mapping using global savefiles.	1031252
	The delta frequency of a carrier can have an unwanted offset.	1056531
	Delta f value not correctly restricted for FR2_2.	1049829
	For sample rates close to the boards maximum CA rate (high advanced MIMO configs) the real-time signal is not output correctly	1075711
	Quick Setting: Slot Period 1 cause an error.	1051697
	Settings transfer broken in beta 22.09.	1019190
	Interval of Datasource reset is calculated wrong in case of scs higher 120 kHz	1061535
	SCPI set command for DCI Candidate does not work.	986418
	SRS periodicity had the same SCPI command as Allocation repetition. SRS periodicity command is modified now.	1026794
	Switching off RMC switches on 'restrict to search space'	1010753
	Timeplan: Grid and axis scaling are incorrect for subcarrier spacing 480 kHz and 960 kHz.	1036825
	O-RAN: TC 3.2.3.1.17 has wrong payload in symbol #10 when using O-RAN data source feature	1017268
Test Case Wizard	Increase wanted signal power limit to 50dBm for TC 6.7	1073884
	Correct Interferer RF Frequency Calculation for TC 7.7 RX Intermodulation Narrowband.	1037716

Downlink	Minimal Value of the PDSCH BWP Setting Multi Time Domain Allocations is wrong	1044641
	SS/PBCH can be wider than carrier carrier channel bandwidth.	1067434
Uplink	SRS periodicity in scheduling table has no effect on signal	1058466
	Wrong configuration of the UCI payload length might lead to a firmware crash.	1016354
EUTRA/LTE		
General	Uplink: In case of TDD with a sequence length which is not a multiple of frames, signal parts can be missing or the level can be wrong. The issue was only in beta versions, not in officially released versions.	1070151
	3MHz and 5MHz PBSCH mapping for DMRS is fixed for sidelink.	1015750
	Calculation of the NID1 is fixed.	1014576
	NB-IoT: TM mode N-TM_Guardband is not correct leads to deltaFToDc is wrong.	1061190
802.11		
802.11	Sset to default does not properly set the antenna configurations	1043899
802.11ax	Incorrectly calculated number of A-MPDU padding bytes with some HE-TRIG configurations.	1080436
802.11be	application crash with 320MHz and 140 users	1077114
	configuration for user numbers 139 - 144 not available	1030875
	disable combination of MCS14 and trigger based frames in 20MHz	1020120
	EHT-TRIG frame format issue in 80MHz	1080442
	firmware crash with EHT-MU, 320MHz and 144 configured users	1030872
	incorrect constellation mapping for MCS14 in 320MHz	1021646
	incorrect EHT-LTF for 2x2 MIMO	1035970
	incorrect EHT-LTF power for higher MIMO streams.	1034852
	incorrect EHT-STF normalization for 2nd 484 tone RU.	1076573
	incorrect encoding for some MU-MIMO cases.	1042825
	incorrectly calculated number of EHT-SIG symbols with EHT-SIGB MCS 15 and a large number of users.	1078896
	MRU indices 5-8 not working correctly in 160MHz	1025710
	partially wrong 11be waveforms because of incorrect punctured MRU index	1043484
HWP-UWB		
	Power level is fixed in BPRF mode for STS configuration 1.	1014838
	Fix for Default value for Sync Length in different modes.	1082831

	Power fixed for higher payload Lengths.	1025032
	Trigger Length calculation is fixed in BPRF mode.	1019503
DVB		
DVB-RCS2	Crash in case of setting BTU bandwidth to 10Hz.	1071573
	Bug fix for pi/2 BPSK.	1066802
	Bug fix for Pi/2-BPSk Modulation	1062751
	Bug Fix for 16QAM 5/6 code rate	1055606
	Bug fix for preset values.	1084261
DVB-S2X	The parameters of general tab are invisible in case of K52 is not installed.	1033661
AWGN		
	'Noise Power (System Bandwidth)' throws parameter is read only error when 'Show Powers for Output' is I/Q Out or BBMM	1047015
	Noise Power and Carrier Power do not work with an external Frontend connected	1040431
	intermittently missing noise signal on narrowband SMWs in 8-channel MIMO configurations.	1053484
	spectrum deviation of AWGN in 8-channel system configurations	512284

Known Issues	
ARB: filenames containig special characters (non ASCII), cannot be selected	1008640
baseband selftest sometimes shows errors concerning DSP	902551
Invalid PEP warning related to RF ports alignment (K545) has been removed.	1067487
K544 state toggling has no effect if the Driver Amplifier is activated and the RF frequency is above 44 GHz.	1099579
K545 embedding bug solved.	1099362
K548 Crest Factor Reduction: Output crest factor for some 5GNR carrier aggregation signals offset by up to 1 dB with respect to the desired value.	832180
System Time locks via SCPI if using External Trigger, keeps running in the GUI	962298
Table editing: Confusing behavior of TAB key on external keyboard	1013570

1.8 Version 5.10.035.38

Released: April 2023

New Options

- SMM-B1044O 100 kHz to 44 GHz for RF path A, Pulse and BW lim. in 31.8-37 GHz

Fixed Issues

K544: filter calculation issues with certain frequency responses	991199
802.11be: firmware crash with EHT-MU, 320MHz and 144 configured users	1030872
AWGN Noise Power and Carrier Power do not work with an external Frontend connected	1040431
AWGN 'Noise Power (System Bandwidth)' throws "parameter is read only" error when 'Show Powers for Output' is I/Q Out or BBMM	1047015
GNSS: wrong value for NAVIC Signal Dynamics Velocity when set via SCPI in GNPR context	1062079
'Preset behavior: Keep connections to external instruments' is not working well with external instruments connected to Analog I/Q Outputs	1038057

1.9 Version 5.10.035.29

Released: December 2022

New Options

- -

Fixed Issues

Internal adjustments not completing to 100% when other instruments are connected to HS DigIQ inputs or outputs.	1029271
Internal adjustments fail for B1031	926986
Digital standard Extended Sequencer: T/M/C local connectors not usable	1028170
Issue if Optimize EVM and phase offset are both activated	1028957

1.10 Version 5.10.035.25

Released: November 2022

New Options

- -

New Functionality / Changed Behavior		
802.11be: support signaling of 320MHz channelization in U-SIG		1019456
Generate Waveform: Add Markers to exported waveform file		992643
5G New Radio		
General	Up to 256 subframes are now configurable.	957180
	Firmware is compatible to 3GPP spec 17.3.0.	1011290
	CSI-RS and SRS can be configured via scheduling table.	524481
	Implement all FR2-2 Bandwidths as suggested by R4-2202364.	968147
	Input of sequence length in subframes.	1000256
	Increased maximum RF frequency for phase compensation in manual mode to 999GHz	991770
	Introduce a Simple GUI mode which disables non custom DCI types and hides related parameters. Group all DCI related features into control sections.	958794
	Make internal debugging info visible without protection level. Caution, the shown information might change in future software version.	983917
	O-RAN: Support compression test-cases 3.2.3.1.2-3.2.3.1.11 and 3.2.5.1.2-3.2.5.1.12 for 100MHz 30kHz	971949
	Selectable RF reference for each carrier auto phase compensation.	961187
	Support data-source distinction for multi-carrier copy carrier	973776
	Support desired and blocking channel only mode in the TCW for some chapter 7 cases.	946604
	Support manually scheduled SRS Resource Type Aperiodic.	986052
	Support new R17 DCI Format 2_7.	953190
	Support new signal type RIM-RS.	751570
	Test case wizard support bandwidth 35MHz and 45MHz for release 17.	968199
	Time Plan: Add mouse drag functionality once we zoom in the Time Plan	922134
	Update available number of resource blocks per SCS and Bandwidth according to 38.101-2 v17.6.0.	916650
Downlink	Addition of new parameter for selecting the table used for time domain resource allocation being applied for creation of PDSCH	932641
	Add support for DCI 3_0 and 3_1.	722054
	Make Coreset DMRS reference point configuration explicit. Warning, this can break configurations with CoresetID == 0. Please use the new reference point configuration.	974549
	Support of Test Model 2b and 3.1b defined in 17.5.0 spec.	958666
Uplink	Add new FRC G-FR1-A8 of 38.141-1 and G-FR1-A9 of 38.141-2.	968553
	Draw the PUCCH payload bits from a single data source (e.g. a PN sequence).	926173

	Draw the PUSCH UCI payload bits from a single data source (e.g. a PN sequence).	939105
EUTRA/LTE		
General	LTE Sidelink: 64QAM support added.	944854
HWP-UWB		
	STS Data can be configured Bitwise.	977043
OFDM		
	Support CAZAK Preamble with a Zadoff Chu Sequence	958232
	Support of Custom Constellation	957648
	Support of Split Pattern for Allocations in both frequency and time domain	949974

Fixed Issues		
Error message thrown under some conditions using frontend levels >0dBm		972842
3GPP:Updating of Symbol rate for user coding.		1021027
Global Connectors: Incorrect settings applied in some cases when RF is switched on		1021540
OFDM: Time plan can show symbol #0 twice.		981990
Remote Emulation: *IDN* and *OPT? strings can not be entered via touch screen. External keyboard or mouse required		657096
The GUI is no longer accessible after Save As... is called in some File editors		1005052
Unexpected options are used in special cases after loading a savefile.		1015972
+/- Hardkey on Numblock does not toggle / change the sign of a numeric value.		957951
5G New Radio		
General	Checkboxes Unique Data Source for ... had a wrong behavior for enabling/disabling other parameters	1000907
	Buggy parameter values after a recall of device settings when working with auto phase compensation.	1007421
	Copy To and repetition-mode issues if only showing a certain user in the Scheduling table.	959766
	Empty scheduling table for subframe number 160 and bigger.	957289
	Error if no carrier is mapped on a block output.	951935
	FR2-2 default waveform results in a bad EVM as SSB overlaps with PDSCH DMRS.	967851
	Issue while loading save files with different older versions.	947852
	Missing adjustments for blocks >2 when loading a global save-file.	952638
	O-RAN: K175 Output may create double signed values (1+-0j)	971307
	O-RAN: TMs 3.2.5.1.6 and 3.2.3.1.10 erroneously reset to invalid version for <= 10MHz	975363
	Quick Settings: Channel Spacing is limited to 300 MHz for K525	997429
	Saving the xml for Settings Transfer is not possible in case pi/2 modulation for Pxsch is being used	1005215
	Settings transfer broken in beta 22.09.	1019190
	Settings Transfer: MCS Table 4 is not forwarded.	952609
	UCI bits mapped between PUSCH DMRS symbols in UCI only mode.	995454
	Dysfunctionalities and crash when single user mode was selected in the scheduling table.	997822
	Creating waveform including a Rim-Rs signal fails	1005081
	SSB indices calculated incorrectly for SSB using either SCS of 120 kHz or 240 kHz using bitmaps with at least 17 and 33 consecutive ones respectively	989348
	Timeplan: Axis scaling is not updated if grid is on (coarse or fine) and scs changes	1014469

Test Case Wizard	RB offset is not correct for both MUE and SUE for TC 8.2.5.	965974
	TCW should allow the user to configure the same frequency range as the connected front end	970823
	The SNR should be corrected according to specification for TC 8.2.5	986960
Downlink	Configuring SS/PBCH for FR2-2 gets wrong SCS/CP.	966835
	Copy Carrier with selected Test Model in the Quick Settings does not copy the cell id correctly.	973765
	Coreset: Firmware can create an internal error for specific interleaved settings.	937435
	Creating a transfer file with number of layers set to 7 or 8 causes an error.	950569
	CSI-RS configuration out of BWP range results in internal std::bad_alloc error message.	952566
	CSI-RS NZP: Too few bits are configurable for row 17 and row 18	1008291
Uplink	1024QAM not selectable without channel coding	951948
	Copy Carrier with selected Test Model in the Quick Settings does not work for O-RAN Test Models.	966512
	FRC: Some values on the FRC tab are not stored and might be wrong after save/recall	947865
	GUI does not update the IMCS correctly by switching USCH Channel Coding ON	963038
EUTRA/LTE		
General	LTE: 3MHz and 5MHz PBSCH mapping for DMRS is fixed for sidelink.	1015750
	EUtra: ORAN State was not stored.	979836
802.11		
	802.11b: Incorrect output power for low duty cycles	997428
	802.11be: EHT-LTF not correct in some cases with enabled preamble puncturing	1017654
	802.11be: incorrect processing of null carriers for small MRUs.	965596
HWP-UWB		
	Display of Mean PRF value is fixed in HPRF mode.	958974
	Fix for Data Length.	952104
	Fix for Databse settings.	999851
	Fixes for different Chips per burst and hop burst combinations.	898437
	GUI label state for Impairments tab is fixed.	1009364
	Heap Fixes for CRC Append.	968937

	MAC FCS 4 fixed for different hop burst and chip burst configuration.	898039
	Power is fixed for different oversampling values.	1002624
	Power level is fixed in BPRF mode for STS configuration 1.	1014838
	Power level is fixed.	983775
	Remote control command fix for Signal Duration Unit.	1002728
	STS fixes without payload.	914827
	Trigger is fixed for oversampling factors other than one.	972105
	Trigger Length calculation is fixed in BPRF mode.	1019503
	Frequency offset in Impairments works for different Oversampling factors.	909774
	Power fixed for higher payload Lengths	1025032

Known Issues	
ARB: filenames containing special characters (non ASCII), cannot be selected	1008640
baseband selftest sometimes shows errors concerning DSP	902551
K548 Crest Factor Reduction: Output crest factor for some 5GNR carrier aggregation signals offset by up to 1 dB with respect to the desired value.	832180
S-Parameter not used in Fill User Correction Data With Sensor	1021049
System Time locks via SCPI if using External Trigger, keeps running in the GUI	962298

1.11 Version 5.00.166.23

Released: August 2022

New Options

- -

New Functionality / Changed Behavior	
802.11be: add support for punctured RUs in OFDMA mode.	942903
802.11be: added non-OFDMA DL MU-MIMO	911554

Fixed Issues	
Internal adjustment: BUSY led was shown late	969479
802.11be: partly incorrect duplication of EHT-SIG content channels to 20MHz subblocks	946735
802.11be: encoding issues with MCS14 and MCS15, incorrect scrambling of payload data	965587
802.11be: incorrect constellation mapping to second 996 RU for EHT-160	966620

1.12 Version 5.00.166.22

Released: June 2022

New Options

- -

New Functionality / Changed Behavior	
802.11: New parameter Frame Delay supporting waveform time shift.	954461

Fixed Issues	
Custom Digital Modulation: firmware crash in some cases when using binary control lists	964263
Firmware crashes after changing the global connectors many times	962208

1.13 Version 5.00.166.20

Released: May 2022

New Options

- SMM-K170 5G-NR SIDELINK
- SMM-K470 5G-NR SIDELINK
- SMM-K171 5G NR RELEASE 17
- SMM-K471 5G NR RELEASE 17
- SMM-K507 ARB ETHERNET UPLOAD

New Functionality / Changed Behavior		
AWGN: Incorrect display of signal and noise power values for analog IQ and BBMM outputs / incorrect min/max limitation of C/N value for analog IQ outputs		933250
OFDM: Implement allocation based transform precoding.		365538
Option T0 expanded with options K22, K23, K24, K548, K703, K704, and K720		880492
5G New Radio		
General	Add new allocation type Puncturing, which punctures zero energy holes into the signal.	880616
	Update specification version to 16.8.0	936392
	Up to 400 SFs may be displayed in the timeplan	913604
	Align with spec.-version 16.7.0	888968
	Change naming within the timeplan of conflict to overlap and change colour scheme (indicating warning not danger)	930888
	Clarify Point A definition by renaming Point A to Carrier Center to Point A to Baseband Center.	923367
	First version to support option K470 5G NR Sidelink	739208
	Update 3GPP Spec to 17.0.0	951651
	O-RAN: Add TMs 3.2.6.1.1-3.2.6.1.5 for 100 MHz	887418
	O-RAN: Support for 3.2.3.1.X and 3.2.5.1.X TMs for SCS=15kHz and BW >= 20MHz	920113
	O-RAN: Support for 3.2.6.1.1-3.2.6.1.5 for 100MHz 30kHz	923504
	Possibility to copy other carriers or to load single carrier out of a nr5g file.	908844
	Sidelink: Support message type PSSCH/PSCCH with DMRS	721736
	Sidelink: Support S-SSPSBCH generation.	721746
	Add possibility to sum up multiple multi layer carriers.	922407
	Add new R17 bandwidths and numerologies (K171 needed).	852075
	O-RAN: Support for 3.2.3.1.X and 3.2.5.1.X TMs for BW < 20MHz	924371
Downlink	Rel-17 feature, add new SCS and cases for SS/PBCH for FR2-2	916648
	IAB-MT reference measurement channels for PDCCH	885011
	Configurable PDSCH power for allocations generated through DCI	924036
	Rel-17 feature, enable coding for 1024 QAM	916652
	Rel-17 feature, new Test Models for 35&45 MHz	918873

Uplink	Rel-17 feature, more prbs supported for PUCCH for FR2-2	928100
	Rel-17 feature, new scs for PRACH	927164
	/User/BWP: Some new FRCs for Rel.16	862635
Setting Transfer	Settings Transfer: Add basic support for PUCCH format 3&4.	897124
EUTRA/LTE		
General	New 1024QAM test models (E-TMs 2b and 3.1b) of 3GPP TS 36.141.	934411
	O-RAN: Support for 3.2.3.7.X and 3.2.5.7.X TMs for BW < 20MHz	937390
	O-RAN: Support K175 U-Plane generation for NB-IoT	926024
	O-RAN: Uplink: Support U-Plane generation for Uplink (excluding PRACH)	909935
	O-RAN: Support for 3.2.3.7.X and 3.2.5.7.X TMs for 10MHz/20MHz	896594
HWP-UWB		
	Extra SFD Lengths are added	890953
	Filter for 15.4z supported.	847459
	Fixed 2ms Frame Length is added.	938033
	Text LSB is Transmitted First is added for Data Sources.	898371

Fixed Issues

ARB: Marker output of previously loaded waveform not disabled, when a new waveform without markers is selected.	943369
Bluetooth: Measured guard time only ~4.5us for EDR packets on SMW and SMBVB internal generators	919953
Bluetooth: Signal peaks during guard time for some EDR packets	933761
I/Q Analog outputs: voltage not returning to zero when output is switched off and bias > 0V is set	933178
OFDM: Trigger Mode Single, Signal Duration Unit - Sequence Length (SL) behaves like Signal Duration Unit - Sample.	955271
OFDM: User data sources are restarted after each allocation.	947995
OFDM: User state OFF has no implemented behavior. Switching to OFF can result in error messages or undefined behavior. The issue is fixed by removing the feature.	955245
Pattern length could not be set using commands like.:SOURce1:BB:NR5G:SCHed:CELL0:SUBF0:USER0:BWPart0:ALLoc0:CS:DCI0:BITLength	884770
SCPI: *ESR? and *STB? can not be accessed asynchronously during sensor nulling	843068

5G New Radio		
General	Two Coresets with different CCEs are displayed as conflicting in the timeplan.	928603
	Some parameters are not included in the generators' SCPI export.	886923
	Progress bar does not show up for long signal calculations.	891801
	New timeplan axis was not correctly scaled in some conditions, i.e. subcarrier spacing was not considered correctly	888409
	Slot Format Index 1 or 2 in quick settings causes a firmware crash.	888575
	The new grids in the Time Plan are only available for the first frame	922048
	Time Domain Resource Assignment should be 4 Bits for DCI 0_0	920211
	PxSCH DMRS without data == 2 not correctly visualized in time plan.	839260
	Unexpected restart due to inconsistent CSI-RS data.	901318
	O-RAN TMs 3.2.3.7.4 & 3.2.5.7.4 10MHz not configured correctly	901181
	O-RAN: TC 3.2.3.1.3 for 20MHz 30kHz does not occupy entire bandwidth	944151
	Power Leveling for Count Full System Frame Number SSPBCH mode does not work with advanced power modes	906070
	Save Recall: Old Save Recall Files cause problems in Scheduling Symbol Offset created with versions up to C45.4.70.128.50.20 beta / Nov. 2020 beta.	947736
	SCPI: some SCPI commands ending with a number could be misunderstood.	908607
	Settings Transfer: Creating a transfer file with two active PDSCH codewords is broken and creates an error message.	926151
	Using K175 with bwp-offset settings creates invalid u-plane data	934488
Test Case Wizard	Interfering RB Center Frequency of TC 742B is not updated when SCS of WS changed.	895624
Downlink	Auto Dci: Rel-15 PDSCH DMRS is generated even though dmrsDownLink-R16 is ON.	939932
	NR PDSCH coding uses wrong RNTI when configured by a CORESET	936382
	PDSCH Type configuration restrictions are too restrictive.	902268
	AutoDCI: Incorrect number CDM groups without data for antenna port index 23.	945505
	Coreset: Firmware can create an internal error for specific interleaved settings.	937435
	Coreset: Restrict to search space mode calculates incorrect CCE indexes for frame index bigger than 1.	912160
	CSI-RS configuration out of BWP range results in internal std::bad_alloc error message.	952566
	GUI display error in NZP CSI-RS Antenna Port Table.	945334
	When generating PDSCH through DCI 1_0 using P-RNTI, MsgB-RNTI, RA-RNTI, the redundancy version used might be wrong.	937429
	A pdsch scheduled by a CORESET always uses cellID for the PDSCH DMRS scrambling Ids regardless of scramblingId0/scramblingId1 set in	945811

	DL BWP Config. This contradicts 38.211, clause 7.4.1.1.1 which requires the scrambling Id to be set depending on dci usage, dci format and set cellID/scramblingIds.	
Uplink	1024QAM not selectable without channel coding	951948
	PUCCH Format3 and Format4 polar coding might be wrong for some configurations (e.g. some payload sizes)	940867
802.11		
	802.11ac: Frame type Trigger not working correctly.	945603
	802.11ax: Possible firmware crash when activating time domain windowing	911014
	802.11be: added max PE duration of 20us	911570
	802.11be: added non-OFDMA DL MU-MIMO	911554
HWP-UWB		
	Channel Number is added instead of Channel Num.	912942
	Fixes for Pattern in Datasources.	887252

Known Issues	
+/- Hardkey on Numblock does not toggle / change the sign of a numeric value.	957951
baseband selftest sometimes shows errors concerning DSP	902551
K548 Crest Factor Reduction: Output crest factor for some 5GNR carrier aggregation signals offset by up to 1 dB with respect to the desired value.	832180
Remote Emulation: *IDN* and *OPT? strings can not be entered via touch screen. External keyboard or mouse required	657096

1.14 Version 5.00.044.40

Released: March 2022

New Options

- -

New Functionality / Changed Behavior	
Internal Improvement / Support of new controller	
SMM-K553 - Allow up to two simultaneous LAN connections to one external frontend. Please note: Incompatible firmware versions installed on analyzer and the external frontend will lead to a deactivated connection to the external frontend. Please update the external frontend firmware in this case. FE50DTR Simultaneous Mode requires FSV Version ≥ V1.70 Support for new revision of External Frontend synthesizer boards, revision ≥ 3.11	

Known Issues	
See 5.00.044.34	

1.15 Version 5.00.044.38

Released: January 2022

New Options

- -

Fixed Issues	
SMM-K200: option never goes active	919176

Known Issues	
See 5.00.044.34	

1.16 Version 5.00.044.34

Released: December 2021

New Options

- SMM-B93 Solid State Drive

New Functionality / Changed Behavior		
New Option: SMM-B93 Solid State Drive		870712
New functionality for external frontends: Network settings		869351
ARB: New display parameter Processing Time shows the time required from an external trigger event to output of the first waveform sample		894193
SMM-K980 HUMS: Utilization improved		796595
Optimize the initial EVM performance via single button click		866496
5G New Radio		
General	The frequency range FR2 are divided into FR2-1 and FR2-2	865401
	Possible 200 configurable users.	819533
	Provide O-RAN TM configurations for 3.2.5.1.X and 3.2.3.1.X	815386
	Quick Settings and Marker: Support IAB slot formats according to release 16.	785344
	Quick Settings: More flexibility for special slot in TDD mode	831399
	Synchronize Quick Settings to Marker's TDD Mode.	849631
	xOverhead for transport block size determination	879622
	O-RAN: General: Provide O-RAN.CONF0 3.2.3.1.X and 3.2.5.1.X support for BW >= 20MHz	876115
	O-RAN: General: Provide O-RAN.CONF0 3.2.3.7.X	866243
	Time Plan: X- and Y-axis description cannot show slots/symbol and subcarrier/RB in axes	849736
Downlink	Add IAB-MT reference measurement channels	864231
	Additional SSPBCH Occasions.	774527
	Extend PBCH scrambling and payload generation for access to unlicensed spectrum.	774511
	Implement transport block scaling factor S.	863922
	K148: Increase number of configurable DCIs to 32.	866826
	New SSB periodicities for IAB	819201
	RMCs for FR2 according to 38.521-2	864358
	Type 1 Single Panel Codebook Precoding	724742
	Some release 16 updates to DCI type 2_0.	832345
Uplink	Add R16 OCC length and index configuration for PUCCH format 2 and 3.	774525

	IAB-DU reference measurement channels	793740
	Optional Cyclic Prefix Extension for PUSCH and PUCCH.	774498
	PRACH sequence lengths 571 and 1151 for unlicensed spectrum	774505
	PUSCH allocation can be shifted in time (needed for 2-step-RACH BS conformance tests).	745720
	Support for additional FRCs according to recent versions of 3GPP TS 38.141.	762540
	Support for PUCCH interlace	774507
	Support for PUSCH interlace with allocation type 2	774497
	Support Multiplexing of R16 Configured Grand - Uplink Control Information to PUSCH.	774515
	Test Case Wizard: Support for release 16 up to v16.7.0.	750672
	Test Case Wizard: Support instrument setup for using one or two RF port for OTA chapter 7.	740801
Setting Transfer	Support allocation type 0.	869280
	Support coreset Allow PDSCH mode.	878228
EUTRA/LTE		
General	Marker delay is additionally displayed in time units.	761883
	Renamed DRS to DMRS where demodulation reference symbols are meant.	521452
	Starting seed of PN sequences is configurable.	846389
HRP-UWB		
	FCS support for 2 and 4 Octets.	812490
	Filter for 15.4z supported.	847459
	Frame Length is added in Frame Configuration.	817166
	Maximum Idle Interval is one second.	855484
	Payload Lengths 1023,2047 and 4095 are available in HPRF Mode.	811167
	Channel Number and Code Index are taken as 9.	849071

Fixed Issues		
ARB: In sporadic cases the beginning of the waveform output is blanked		890929
AWGN: changing the C/N parameter results in a time-shift of the signal with respect to an external trigger in some cases		776616
Bluetooth: Allow test packets with 0 bytes payload length for all packet formats.		878035
Occasional level overshoots while deactivating FM.		889891
Permanent options that are also activated with the trial are displayed with the trial's expiry date.		870611
Pulse Modulation: SOUR1:PULM:MODE ESIN leads to error message		854797
Unwanted signal spike when switching on the I/Q Analog output		880220
SMM-B9: Baseband marker output on user 1-6 connectors sometimes incorrect, depending on stream mapper and RF / IQ output states.		897244
The Generate Waveform function of baseband standards fails to create a waveform file when parameters are changed before the waveform calculation has finished.		880043
Fixed since 4.90.049.47SP1 already:		
Bluetooth: Allow test packets with 0 bytes payload length for all packets formats		878035
Unwanted signal spike when switching on the I/Q Analog output		880220
Unwanted signal blank during change of digital attenuation value		882124
5G New Radio		
General		
	some parameters are not included in the generators' SCPI export.	886923
	Progress bar does not show up for long signal calculations.	891801
	new timeplan axis was not correctly scaled in some conditions, i.e. subcarrier spacing was not considered correctly	888409
	Slot Format Index 1 or 2 in quick settings causes a firmware crash.	888575
	Oran datalist files are not updated.	856241
	Allocation type 0 is allowed although transform precoding is enabled.	879309
	for some channel bandwidths, a PRACH allocation could require more RBs than what is available in the BWP	855328
	Fix settings transfer for FR2+	853541
	Min mode sample rate does not result in full sample cyclic prefix.	832872
	Possible issues with old savefiles when loading more carriers with deployment FR2.	843953
	Quick Settings: No SCPI for modulation type pi/2 available.	825524
	Settings File Transfer: Incorrect default value for Scaling factor S	855945
	Time Plan: x-axis does not zoom correctly in grid fine and coarse mode.	877783
	SMM might freeze when setting DCI usage to P-RNTI	898416

	UL PTRS MIMO: Codebook with fully-coherent restricts the PTRS mapping to first DMRS port	883568
	UL PTRS MIMO: PTRS AP does not include muted PTRS RE from other PTRS port and PT-RS power issue for MIMO PT-RS	885519
	Time domain resource assignment bit in CORESET is mostly only1 bit for user 1 (instead of 4)	898411
	Timeplan: axis scaling (grid coarse and fine) does not consider Subcarrier spacing correctly	887853
	Test Case Wizard: SNR is not correct for 38.141-1:TC73 Dynamic Range and 38.141-2:TC74 OTA Dynamic Range.	846999
	Test Case Wizard: Incorrect RB offset of interfering signal of 7.4.2B in lower frequency	826900
	Test Case Wizard: Interfering RB Center Frequency of TC 742B is not updated when SCS of WS changed.	895624
Downlink	DCI field Precoding Information and Number of Layers in DCI 0_1 and 0_2 could have an erroneous width in the case of SRS resources configured with different number of antenna ports	828830
	SRI field width in DCI 0_1 and 0_2 could be erroneous	828819
	Time Plan shows conflict while both PRS and OCNG are ON	844366
	FR2: RMC TBSize and nPhysBits for 64QAM and 256QAM are not correct. The numbers do not match 38.521-2.	888495
Uplink	Oran testmodels are not written into settings transfer file.	861104
	PUCCH: Format 0 does not support 0 ACK bits in case of active scheduling request.	825783
	PUSCH Interlace: Transport Block calculation does not take into account interlacing	859573
	Several PTRS configurations cannot be mapped with only one SRS-PTRS Port Idx configuration.	828315
	the number of RBs shown in the scheduling table for PRACH allocations with certain configurations could be wrong	857381
EUTRA/LTE		
General	Error in TxDiversity is shown under certain conditions.	852923
	For some rarely used parameters, a value change could possibly not trigger a signal recalculation.	769627
	In case of carrier aggregation, an invalid sample rate can be configured, which causes a crash.	624353
	Some unlogical GUI behavior around the special subframe configs of newer specification releases.	540121
	Wrong delta-f limits for some system configurations.	730341
	O-RAN: Activating U-Plane generation does not re-trigger signal calculation and accordingly creates no files	849186

Downlink	DCI 1A mode PRACH does not work.	674649
	Problems with Release DCI while configuring and recalling SPS settings.	732688
802.11		
	802.11ax: some HE-160 trigger based PPDU configurations crash	845722
	802.11be: Filter settings cannot be changed in 20MHz.	896821
HRP-UWB		
	Hop Bursts 8 and 32 are added in BPRF mode.	848583
	Issue fix for BPRF- DRBM_HP PHR Data rate Mode.	847495
	Issue for SFD = 0 in BPRF mode.	833183

Known Issues	
baseband selftest sometimes shows errors concerning DSP	902551
BER: bit error rate is not displayed in engineering notation	901503
Digital IQ: Enabling Markers 1 and 2 from Digital IQ HS input	845552
Digital IQ: Unstable HS digital IQ connection between devices.	804492
K548 Crest Factor Reduction: Output crest factor for some 5GNR carrier aggregation signals offset by up to 1 dB with respect to the desired value.	832180
Pulse generator external gated mode: Pulse delay applies delay to both pulse out and sync signal.	455775
Remote Emulation: *IDN* and *OPT? strings can not be entered via touch screen. External keyboard or mouse required	657096
GSM: level at slot 8 for levatt 7 value is wrong	334932
SMW-K980 HUMS: SNMP Interface fails when requesting long data blocks	**904603**

1.17 Version 4.90.049.47

Released: August 2021

New Options

- -

New Functionality / Changed Behavior	
SMM-K553 Support for 2nd frequency band configuration	809273

1.18 Version 4.90.049.40

Released: June 2021

New Options

- SMM-K147 IEEE 802.11BE
- SMM-K447 IEEE 802.11BE with R&S®WinIQSIM2
- SMM-K175 U-PLANE GENERATION
- SMM-K553 EXTERNAL FRONTEND SUPPORT
- SMM-K811 NOTCHED SIGNALS
- SMM-K980 HUMS

New Functionality / Changed Behavior		
The terms Master and Slave have been replaced by Primary and Secondary in documentation, user interface and remote control. Previous remote control commands continue to be valid in order to maintain compatibility.		777014
5G New Radio		
General	Dummy Data serves OCNG definition of 3GPP TS 38.521.	720502
	Dummy Data supports precoding matrix	720502
	PDSCH, PUSCH, PUCCH: Support release 16 DMRS.	724635
	Possibility to store the 5GNR configuration in a file which can be imported by the 5G NR functionality of Rohde&Schwarz signal or spectrum analyzers.	684698
	Quick Settings: Copy Carrier usable for Settings Transfer	784812
	Add per carrier phase-shift for multi carrier setups	782352
	Add per carrier time-shift (< 1ms) for multi carrier setups	767366
	Add toggle for disabling scrambling in PDSCH and PUSCH.	786052
	Carrier signals can be cyclically shifted by subframes.	790660
	For marker type TDD UL/DL, the rise and fall offsets can be configured.	761653
	Further speedup of the signal calculation.	825114
	Increased number of independently configurable subframes.	781290
	Marker delay is additionally displayed in time units.	761652
	Markers: Add "active high" / "active low" selection to invert marker signal.	762926
	Optionally, the PDSCH/PUSCH target code rate can be configured manually.	754714
	O-RAN test models.	799001
	Release 15 option has been renamed for harmonization.	816536
	Support of the release 16 UL full power transmission modes (SRS and DCI).	806317
	Update to 3GPP specifications 38.211 V16.4.0, 38.212 V16.4.0, 38.213 V16.4.0, 38.214 V16.4.0. Test models according to 38.141 V16.6.0.	823042
Downlink	Possibility to apply a test model to multiple carriers (by means of Quick Settings).	720514
	Support for TS 38.521 RMC assistance functionality.	720513
	Additional PDSCH DMRS durations with option K148	774512
	Additional PDSCH Type B symbol lengths with option K148	774513
	Auto-DCI: Release 16 PDSCH Type B symbol lengths and DMRS positions	798674
	Create PDSCH for DCI 1_2	750928
	DCI formats 0_0, 0_1, 0_2, 1_0, 1_1, 1_2, 2_0 (partly), 2_1, 2_2, 2_3, 2_4, 2_5, 2_6 are updated / created according to release 16.	824884

	Default SRS Request field width in DCI 1_2 changed according to the related higher layer parameter	801642
	Display DMRS symbols in CORESET for DCI1_x after "Create PDSCH"	809007
	New PDSCH type "DCI Format 1_2"	723892
	RNTI type "custom".	790880
	Settings transfer: Add DCI usage and format to transferred settings	788778
	Support for 38.141-2 FR2 NR-TM 2a and 3.1a.	750671
	Support for AI-RNTI and DCI 2_5.	748930
	Support for DCI format 0_2.	750930
	Support for DCI format 1_2.	755818
	Support for new antenna port tables in auto DCI mode with format 1_1	782493
	Support multiple lte-crs rate match patterns, according to release 16.	750495
	Type 1 frequency allocation with granularity larger than 1 for DCI format 1_2	811550
Uplink	Support release 16 SRS	725527
	New PUSCH type "DCI Format 0_2"	750933
	Support for additional FRCs except new FRCs defined in A.4 according to recent versions of 3GPP TS 38.141.	750670
EUTRA/LTE		
General	Marker delay is additionally displayed in time units.	761883
Test Case Wizard	Support for newer releases.	732520
Uplink	FRCs A.21, A.22.	508595
802.11		
	802.11be: first feature set including the non-OFDMA mode	732639
HWP-UWB		
	"Symbol timing Error" is replaced with "Chip Clock Error" in Impairments.	808096
	Configurable MAC Header.	781438
	Flexible configuration of sync lengths.	779506
	Gap Configuration is supported between Payload and STS.	808104
	SFD values are flexible in BPRF and HPRF mode.	815894
	Support for flexible STS active segment lengths and number of active segments	781354
	Support for Flexible STS Active Segment Lengths.	789311
	Support of up to 4096 octets for HPRF payload.	791465
	Oversampling factors 3 to 8 are supported.	790062

	The Maximum Value of Idle interval is 10ms.	821654

Fixed Issues		
3GPP: Specific waveform files cannot be played back if only ARB file playback options (no internal options) are present.		811790
AWGN: Setting range CW Frequency Offset and Center Frequency Offset might be too large. Affected devices: SMW-B9, SMW-B10, SMM, SMCVB.		786178
Baseband Error - Fader: WaitTillDownlinkFlagOn() No DATA_DONE when changing system configuration		815601
External connection CODER IN: Connected FSW get unwanted scpi commands		808164
Fading: SCM coefficients could be wrong in case of MS zero speed.		800457
Fixed bug where high level spikes can appear during Power level or frequency change. Problem mainly occurred for signals with high crest factor		807989
Full attenuation during RF off is not set when IQ modulation is active		750322
K548 Crest Factor Reduction: improved output crest factor accuracy for a variety of different signals.		771072
LXI-web-GUI: 'download log entries as CSV' (Diagnostics - SCPI Remote Trace) is not working with 4.80.xx		791471
Switching the system configuration through loading a settings file causes a firmware crash in some cases.		790653
When reading NRP-Z power values via SCPI while Power Viewer is on an unintended settings conflict arises.		780259
Issue for the preset values of some 5G Release 16 HST fading models.		806098
3GPP: Downlink: Crash with certain channel coding configurations.		809765
5G New Radio		
General	Allocations within a subframe might not be filled up with user payload data ordered according to playback order.	805145
	Clipping does not work for Carrier Aggregation	808704
	Configuration issue for data list files in case of more than one user.	787883
	K81 output files are named: "<filename>.json.json" rather than "<filename>.json"	783420
	Markers: Raise offset, Fall offset not applied in TDD UL/DL mode	789034
	PDSCH/PUSCH settings transfer: dmrs nid_rs and dmrs antenna ports not exported. CSI-RS bitmap flipped, RB offsets not exported.	768574
	possible inconsistencies when first increasing number of carriers then number of users	768682
	Quick Settings: No SCPI for modulation type pi/2 available.	825524
	Unexpected data source behavior if there are allocations with state off.	823914
Test Case Wizard	Incorrect local connector for test cases with closed loop feedback on devices equipped with B9.	821470
	Incorrect RB offset of interfering signal of 7.4.2B in lower frequency	826900
	Issue for some configurations of 8.4.1.	801562
Downlink	Configuration issue for rate match pattern resource block data list files in case of more than one user.	787877

	Coreset interleaving by default has an invalid parameter value combination.	792335
	Creating a PDSCH through Auto DCI with format 1_0 in a cell with present CIF could fail	814070
	DCI field "Precoding Information and Number of Layers" in DCI 0_1 and 0_2 could have an erroneous width in the case of SRS resources configured with different number of antenna ports	828830
	Enabling "Restrict to Search Space" with a present CIF could lead to an NR5G internal error	794189
	No PDSCH allocation was created through Auto DCI for Format 1_0 and 1_1 in case of MCS-C-RNTI	803533
	Pattern initialization of coreset data source does not work.	803522
	PDSCH target code rate is not shown correctly.	788936
	SRI field width in DCI 0_1 and 0_2 could be erroneous	828819
	Test models: Incorrect RNTI used in TM3_2 and TM3_3	767567
	The default number of bits for the PUCCH resource indicator field in DCI 1_2 changed	810875
Uplink	PUCCH: Format 0 does not support 0 ACK bits in case of active scheduling request.	825783
	Settings transfer: PUSCH Frequency Hopping Offset not transferred.	788770
	Several PTRS configurations cannot be mapped with only one SRS-PTRS Port Idx configuration.	828315
	SRS: internal error in case of BWP RB offset != 0	820323
EUTRA/LTE		
General	Crash in case of specific user filters.	622579
	For some rarely used parameters, a value change could possibly not trigger a signal recalculation.	769627
	In case of carrier aggregation, an invalid sample rate can be configured, which causes a crash.	624353
	Wrong delta-f limits for some system configurations.	730341
Test Case Wizard	For TC 8.3.3 the mode for splitting up the test over two devices is not working properly.	138540
	Incorrect local connector for test cases with closed loop feedback on devices equipped with B9.	821299
	The 2x2 tests of TC 8.3.9 are not configurable.	138541
Downlink	DCI 1A mode "PRACH" does not work.	674649
	Issue for test model N-TM_Standalone.	790511
	Problems with Release DCI while configuring and recalling SPS settings.	732688
Uplink	Crash when configuring PRACH for eMTC in some cases.	785922
	Occasionally the spectrum of an NB-IoT signal in standalone mode is distorted.	739369
	Parameter update issue for NB-IoT FRCs.	801138

Custom Digital Modulation		
	Activated power ramping disables subsequent use of other baseband standards.	809913
802.11		
	802.11: The effective single trigger sequence length is twice the set value for 11b and 11p	808712
	802.11ax: incorrect LDPC tone mapping with DCM=on	782439
	802.11ax: Packet Extension missing	819462
	802.11ax: post-FEC padding bits are not mapped correctly to the last 2 OFDM symbols with STBC=on	803469
	802.11b: Incorrect filter settings when setting CCK or PBCC modulation through SCPI	820433
Digital IQ		
	Fixed firmware crash in combination with internal graphics	800596
	Leveling partly incorrect when switching between baseband input and internal baseband.	704730
	Sample rate and level info mistakenly updated at the receiver even when state is off.	771987
HWP-UWB		
	Confusing GUI label for Viterbi constraint length.	791243
	Data Part should not be available in STS format 3 for both BPRF and HPRF modes.	797439
	Idle Interval is fixed for HPRF mode.	808782
	Issue fix for BPRF- DRBM_HP PHR Data rate Mode.	847495
	Issue for bandwidths more than 1GHz.	805073
	Issue for code indices in case of HPRF mode.	791194
	Issue for SFD = 0 in BPRF mode.	833183
	Issue for specific Viterbi constraint lengths in case of HPRF mode.	789265
	Signal issue in case of more than one STS segment.	789272
	The levelling is fixed for all the STS Packet modes.	811191

Known Issues	
Remote Emulation: *IDN* and *OPT? strings can not be entered via touch screen. External keyboard or mouse required	657096

1.19 Version 4.80.041.54

Released: January 2021

New Functionality
Initial firmware release. For a complete list of available functionalities and options refer to the SMM100A datasheet Version 13 released on the R&S web side.

Modified Functionality / Changed Behavior	
None	

Improvements	
None	

Known Issues	
None	

2 Modifications to the documentation

The current documentation is up-to-date.

3 Firmware update

3.1 Update information

R&S firmware releases are thoroughly tested concerning backward compatibility of features and performance.

A prerequisite for publishing a new firmware release is the fact that according to our test results a re-calibration is not required after updating an instrument to this new version.

If a firmware release does not fulfill this prerequisite, a corresponding note will be placed in the info of the corresponding version.

The update procedure requires that the instrument is operational. There is no need to uninstall the current firmware. Instrument settings are preserved during the update, including user data and network settings.

NOTICE

To perform this procedure, USB Storage must be enabled in security settings. Press the SETUP key, select Security and check USB Storage setting

3.2 Downgrade

Generally, it is not recommended to use an earlier version than the latest version available. In some cases, the older versions do not support the hardware used in your instrument. Before installing this firmware, check if this could happen:

- Start System Config / Setup / Instrument Assembly / Versions/Options
- In the tab “Firmware”, you find the Downgrade Info

Downgrade Info

Package	Version
Factory Version	4.80.041.48
Min. Version	03.01.009.16

- If the version to be installed is greater or equal than the “Min.Version”, the hardware will be supported after downgrading. (However, this cannot be guaranteed for all software options)
- If the version to be installed is lesser than the “Min.Version”, not all of the modules will be supported. You instrument will not work after downgrading!
- Downgrading may fail using standard rsu-Files (eg. due to changes in the instrument configuration file). In this case, press PRESET-Button during

power-on or install ISO image available from service department.

3.3 Updating the firmware

Required equipment

Software:Firmware update file SMM_<version-number>.rsu

Hardware: USB memory stick with enough free space to save the update file (about 630 MByte).

The memory stick does not need to be bootable and previous data on the stick is not affected. Several update files may reside on the stick in parallel. During update procedure the stick is not modified by the instrument.

Prepare Memory Stick

Download update file to a PC

Connect USB stick to PC and copy the update file to the root directory

Wait until copy procedure has finished and remove USB stick

Install new firmware on R&S®SMM100A:

Connect USB stick to instrument

Switch on instrument, if instrument is powered off

Wait a few seconds until “Process Software Update?” message box appears. Confirm by touching the YES Button or pressing the rotary knob.

Select firmware version using the arrow keys and press knob to start update

Wait until ”Software update successful“ message box appears. This may take several minutes

Remove USB stick and touch the Reboot button

The instrument now reboots.

Execute internal adjustments (only if indicated)

Internal adjustments can be initiated manually (e.g. after warming up) by performing the followings steps:

Press 

on the instrument front panel.

Press 

and execute “Adjust All”. internal instrument adjustments and will take several minutes.internal instrument adjustments and will take several internal instrument adjustments and will take several minutes.internal instrument

adjustments and will take several minutes.internal instrument adjustments and will take several minutes.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.

3.4 Alternative update procedures

The USB firmware update is recommended for most situations. However, alternative methods for updating the firmware are available:

3.4.1 Firmware update over LAN

Instrument settings are preserved during the update, including user data and network settings.

- Get access to the file system of the instrument using ftp (other methods like samba share is also supported, see application note 1GP72 for details).
  Enter ftp://<ip address or host name> ıe file manager
- Copy SMM_<version-number>.rsu to directory update
- The update procedure starts immediately
- Execute internal adjustments, if indicated
-

3.4.2 Firmware update using ISO image

NOTICE

Potential loss of data!

User data and user specific instrument settings will be lost during this procedure. Instrument serial number, software license keys and all adjustments requiring external measuring equipment are not affected.

Required equipment

Software:

ISO image for firmware update SMM_<version-number>.iso
Please contact the service department to get this file!

Hardware:

External USB CD or DVD ROM burner with USB cable.

1 CD Recordable.

PC with burn program that can burn ISO images onto CD.

About ISO image

This is a standardized file format for creating CD images. A CD image is a single file encapsulating the whole data of a CD including directories and files. Unpacking the

image to a CD restores the original data. Almost any CD burning program is able to write CDs based on ISO images.

Update procedure

Burn ISO image onto CD

On most computers, burning an ISO image can be initiated by simply double clicking the ISO image file. If this is not the case, the manual procedure is similar to the following instructions. Nero Burning ROM (StartSmart) is used in this example.

Connect the external USB CD/DVD drive to the PC

Insert CD recordable

Start Nero StartSmart

Select medium „CD“

Select „Create Data CD“

From the Files menu, open file SMM_<version-number>.iso

Click "Burn"

When finished, close Nero and disconnect external USB CD/DVD drive

Install new firmware on R&S®SMM100A

Instrument must be switched off

Connect the external USB CD/DVD drive to the R&S®SMM100A

Switch on Instrument

The instrument boots from external drive

Follow the instructions on screen

Disconnect the external USB device

Reboot instrument

- Execute internal adjustments, if indicated

NOTICE

If the CD refuses to boot please ensure that you have burned the ISO-image as an “image” and not as a single file. Check the CD regarding presence of several files.

4 Customer support

Technical support – where and when you need it

For quick, expert help with any Rohde & Schwarz product, contact our customer support center. A team of highly qualified engineers provides support and works with you to find a solution to your query on any aspect of the operation, programming or applications of Rohde & Schwarz products.

Contact information

Contact our customer support center at www.rohde-schwarz.com/support or follow this QR code:

Figure 4-1: QR code to the Rohde & Schwarz support page