



ROHDE & SCHWARZ

Test and Measurement
Division

Release Notes

TD-SCDMA Base Station Test Application Firmware R&S FS-K76

Release 4.70 with Service Pack 2

for R&S FSP, FSU, FSQ, FSG, FSMR, FSUP
Analyzer Firmware 4.7x

Release Note Revision: 4

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History

Date	Rel Note Rev	Changes
21 April 2011	1	First revision for R&S FS-K76 Firmware 4.70.
08 August 2012	2	New function with Service Pack 1 added.
06 February 2014	3	Update according to new operating manual revision.
10 March 2016	4	Support for 4.7x SP7 with Service Pack 2 added.

General Topics

Compatibility of R&S FS-K76 TD-SCDMA BTS Application Firmware

The following table shows the compatible versions of the basic analyzer firmware version and the TD-SCDMA BTS application firmware:

Table of compatible versions:

R&S FS-K76 Application Firmware	R&S FSP Basic Firmware	R&S FSU Basic Firmware	R&S FSQ Basic Firmware	R&S FSMR Basic Firmware	R&S FSUP Basic Firmware	R&S FSG Basic Firmware
4.70 SP2	-	-	4.75 SP7	-	-	-
4.70 SP1	-	4.71 SP5 4.71 SP4	4.75 SP5 4.75 SP4	-	-	4.79 SP5 4.79 SP4
4.70	-	4.71	4.75	-	-	4.79
4.60	-	4.61	4.65	-	4.67	4.69
4.50	4.50	4.51	4.55	-	-	4.59
4.40 SP1	-	-	-	-	4.47	-
4.40	4.40	4.41	4.45	-	-	4.49
4.30	4.30	4.31	4.35	4.36	-	4.39
4.20	4.20	4.21	4.25	4.26	4.27	4.29
4.10	4.10	4.11	4.15	4.16	4.17	.-
4.00	4.00	4.01	4.05	4.06	-	-
3.90	3.90	3.91	3.95	3.96	3.99	-
3.80	3.80	3.81	3.85	3.86	-	-
3.70	3.70	3.71	3.75	-	-	-
3.60	3.60	3.61	3.65	3.66 SP1	-	-
3.50	3.50	3.51	3.55	-	-	-
3.40	3.40	3.41	3.45	-	-	-
3.30	3.30	3.31	3.35	-	-	-
3.28	3.20	3.21	3.25	-	-	-
2.80	2.80	2.81	-	-	-	-

R&S FS-K76 Application Firmware	R&S FSP Basic Firmware	R&S FSU Basic Firmware	R&S FSQ Basic Firmware	R&S FSMR Basic Firmware	R&S FSUP Basic Firmware	R&S FSG Basic Firmware
2.60	2.60	2.61	-	-	-	-
2.40	2.40	2.41	2.45	-	-	-
2.30	2.30	2.31	2.35	-	-	-
2.28	2.20	2.21	2.25	-	-	-

Application firmware versions 3.xx are running on R&S FSPs with order # 1164.4391.xx or R&S FSU with order # 1166.1660.xx or R&S FSQ with operating system XP.

Application firmware version 2.xx are running on R&S FSPs with order # 1093.4495.xx or R&S FSU with order # 1129.9003.xx or R&S FSQ with operating system NT.

Firmware Update of R&S FS-K76 TD-SCDMA BTS Application Firmware

Since basic firmware version 4.2x a ZIP file with the update sets of the basic system firmware and all available applications is provided. This ZIP file is available in the instruments FIRMWARE section, e.g. R&S FSU of the Service Board on GLORIS.

Please follow the steps described in the instrument's basic firmware release note to perform a complete firmware update.

Enabling the Application Firmware via License Key Code Entry

This section can be skipped if the option key was entered once.

After installing the application firmware package a license key for validation must be entered. The license key is printed either on a label on the rear panel of the analyzer or delivered as a part of the R&S FS-K76 TD-SCDMA BTS application firmware package.

The key sequence for entering the license key is:

SETUP - GENERAL SETUP – OPTIONS - INSTALL OPTION

Use the numeric keypad to input the license key number and press ENTER.

- On a successful validation the message 'option key valid' will appear.
- If the validation failed, the application firmware is not installed.
The most likely reason will be that the instrument is not equipped with the correct basic firmware version. In this case a message box will appear asking for installation of the correct basic firmware version.
If the application firmware package was not installed prior to entering the license key code, a message will appear asking for installation of the application firmware package.
In any case please make sure that the correct basic firmware version and the application firmware package is installed prior to entering the license key code.

New Functions in Version 4.70

- Support for base system version 4.7x SP4 (with Service Pack 1)
- Support for base system version 4.7x SP7 (with Service Pack 2)

Improvements

None

Known Issues with R&S FS-K76

None

Modified Functions

1. [V3.30/V2.30] "Signal Statistics" measurements CCDF and APD are supported.
2. [V3.30/V2.30] For all code domain analyzer measurements, the maximum capture length has been extended from 35 to 63 slots.
3. [V3.30/V2.30] "Composite Constellation" is available within the code domain analyzer.
4. [V3.30/V2.30] The China Wireless Telecommunication Standard "TSM" is supported.
5. [V3.30/V2.30] Unit circle display in constellation diagrams is shown.
6. [V3.50/V2.60] Change of default node for CALC2:FEED 'XTIM:CDP:PVSL'
For compatibility reason with other 3G applications the default node for the IEC/IEEE bus command
CALC2:FEED 'XTIM:CDP:PVSL[:ABS]' is changed to
CALC2:FEED 'XTIM:CDP:PVSL[:RAT]'.
7. [V3.60/V2.60] External trigger level adjustable from 0.5 to 3.5V .
8. [V3.60/V2.60] Center Frequency Stepsize softkey available.
9. [V3.60/V2.60] Changed SCPI commands.
In order to limit to 12 chars the :CALCulate2:FEED 'XTIME:CDPower:SYMBOL:CONStellation' and
:CALCulate2:FEED 'XTIME:CDPower:COMPOSITE:CONStellation' are changed to
:CALCulate2:FEED 'XTIME:CDPower:SYMBOL:CONSt' and
:CALCulate2:FEED 'XTIME:CDPower:COMPOSITE:CONSt'.
10. [V3.70/V2.80] ACP: number of adjacent channels increased to 12.
11. [V3.70/V2.80] ACP: power mode to max holds the power results.
12. [V3.80/V2.80] Trace view available within code domain analyzer.
13. [V3.90] Support for noise correction in ACLR measurement with power trigger.
14. [V4.00] High Dynamic Mode for Power vs. Time Measurement.
15. [V4.00] Support for High Speed Physical Downlink Shared Channel (HS-PDSCH) using 16QAM modulation symbols.
16. [V4.00] Spectrum emission mask: List evaluation in lower screen now supported.
17. [V4.00] Multicarrier ACP measurement support.
18. [V4.20] Support for instrument R&S FSG.

- 19. [V4.20] **Softkey REF VALUE Y AXIS** available for CDP measurements.
- 20. [V4.20] **Power vs Time: Sweep Mode SINGLE/CONTINUOUS** is now restored to it's previous state, when HIGH DYNAMIC is switched off.
- 21. [V4.30] **Softkey AC / DC Coupling** available.
- 22. [V4.30] **New Ref Value Y Axis / Reference Level** coupling simplifies grid scaling configuration for Code Domain measurments.

Since version 4.20 the Reference Level and the grid scaling (REF VALUE Y AXIS) with unit dBm can be independently set for Code Domain measurements. In previous versions changing the Reference Level and changing the Ref Value Y Axis were independent. If the Reference Level value is changed the Ref Value Y Axis is now automatically adjusted to keep the difference between Reference Level and Ref Value Y axis constant.

Example:

Ref Level set to 0 dBm

Ref Value Y axis set to -10 dBm (at Y Axis Position 100%)

► The upper Y limit of the grid scaling is now at 10 dB below reference level.

Change Reference Level to -10dBm

The Ref Value Y Axis is now adjusted to -20 dB

► The upper Y limit of the grid scaling is at 10 dB below reference level as before.

Note: The internal reference level change with function ADJUST REF LEVEL is treated in the same way.

- 23. [V4.30] **Selectable Phase Reference (softkey SYNC TO SLOT)** for repeater measurements.
- 24. [V4.50] **The Relative Code Domain Error (RCDE)** is displayed in the result summary.
- 25. [V4.50] **Support for High Speed Physical Downlink Shared Channel (HS-PDSCH) using 64QAM modulation symbols.**

64QAM constellations are fully supported as code channel modulation. An improved robust channel search algorithm classifies the modulation automatically from QPSK up to 64QAM. For bad SNR environments the automatic search can optionally be limited to lower constellations.

26. [V4.50] New midamble based synchronization mode.

By default the R&S FS-K76 determines the phase reference for all downlink data slots from the downlink pilot channel (DwPCH). For e.g. beamforming or repeater measurements it might be necessary to apply different phase offsets to each time slot. Using the DwPCH as phase reference leads to rotated constellation diagrams and bad EVM values in these time slots.

Since version 4.30 the R&S FS-K76 provides the optional synchronization on the selected slot. This synchronization needed at least one code channel with QPSK or 8PSK modulation within the slot. The new midamble based synchronization mode is independent of the code channel modulation and thus allows synchronization on slots with arbitrary code channel modulation.

27. [V4.50] Optional code channel phase synchronization on associated midamble.

By default the R&S FS-K76 determines one phase reference for all midambles and code channels of a data slot. The new setting considers phase rotations between the code channels. Each code channel gets its own phase reference from the associated midamble according to section AA.2 of the standard document 3GPP TS 25.221.

Modifications to the Operating Manual and Supplements

For the R&S FS-K76 TD-SCDMA Base Station Test Application Firmware manuals please refer to the following order numbers:

- 1300.7304.44-05 (German/English)

They can be downloaded from R&S internet – search: FS-K76:

<http://www.rohde-schwarz.com>

The current documentation is up-to-date.

Customer Support

Technical support – where and when you need it

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

Up-to-date information and upgrades

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

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