



ROHDE & SCHWARZ

Test and Measurement
Division

Release Notes

3G FDD UE

Application Firmware R&S FS-K73

Release 4.30

for R&S FSP, FSU, FSQ, FSG, FSMR, FSUP, FMU
Analyzer Firmware 4.3x

New Features:

- Support for variable length of analysis (slot length 1280 / 2560 chips) according to 3GPP specification.

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History

Date	Rel Note Rev	Changes
21 February 2008	1	First revision for R&S FS-K73 version 4.30.

General Topics

Hardware Requirements

Please note that R&S FS-K73 requires option R&S FSP-B15 in order to run on an R&S FSP.

If the required hardware option is not installed the unit will not accept the license key for the corresponding application firmware.

Additionally please note that FRAME based analysis with R&S FS-K73 on an R&S FSP is only possible if R&S FSP-B70 is installed; otherwise only SLOT based analysis will be available on the R&S FSP.

Compatibility of the R&S FS-K73 3G FDD UE Application Firmware

The following table shows the compatible versions of the basic analyzer firmware and the 3G FDD UE Application Firmware:

Table of compatible versions:

R&S FS-K73 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 FMU Basic Firmware	R&S FSG Basic Firmware
4.30	4.30	4.31	4.35	-	-	-	4.39
4.20 SP1	4.20	4.21	4.25	-	-	4.28	4.29
4.20	4.20	4.21	4.25	-	-	-	4.29
4.17			-	-	4.17	-	-
4.10	4.10	4.11	4.15	-	-	-	-
4.01	-	-	-	-	-	4.08	-
4.00	4.00	4.01	4.05	-	-	-	-
3.90 SP1	3.90	3.91	3.95	3.96	3.99	-	-
3.90	3.90	3.91	3.95	3.96	-	-	-
3.80	3.80	3.81	3.85	3.86	-	-	-
3.70	3.70	3.71	3.75	-	-	-	-
3.60 SP1	3.60	3.61	3.65	3.66 SP1	-	-	-
3.60	3.60	3.61	3.65	-	-	-	-
3.50	3.50	3.51	3.55	-	-	-	-
3.40	3.40	3.41	3.45	-	-	-	-
3.35	-	-	3.35	-	-	-	-
3.30	3.30	3.31	-	-	-	-	-
3.28	3.20	3.21	3.25	-	-	-	-
3.24	3.10	3.11	3.15	-	-	-	-
3.20	3.00	-	3.05	-	-	-	-
2.80	2.80	2.81	-	-	-	-	-
2.60	2.60	2.61	-	-	-	-	-
2.40	2.40	2.41	2.45	-	-	-	-
2.35	-	-	2.35	-	-	-	-
2.30	2.30	2.31	-	-	-	-	-
2.28	2.20	2.21	2.25	-	-	-	-
2.24	2.10	2.11	2.15	-	-	-	-
1.21	-	-	2.05	-	-	-	-
1.20	1.80	1.81	1.85	-	-	-	-

Application firmware versions 3.xx/4.xx running on FSPs with order # 1164.4391.xx or FSU with order # 1166.1660.xx are adequate to version 2.xx for FSPs with order # 1093.4495.xx or FSU with order # 1129.9003.xx. (Version 3.20 is adequate to 1.20)

On the FSQ application firmware versions 3.xx requires the Windows-XP upgrade kit FSQ-U2, order # 1162.9696.02.

Note:

Applications with version number 3.xx are only compatible with basic firmware 3.yy (see table above). Do not install them on basic firmware versions below 3.00!

Firmware Update of the R&S FS-K73 3G FDD UE 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 instrument or delivered as a part of the R&S FS-K73 3G FDD UE 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 probable reason will be that the instrument is not equipped with the correct basic firmware version. Therefore 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 4.30

- **Support for variable length of analysis (variable time slot length 1280 / 2560 chips) according to 3GPP specification.**

According to 3GPP specifications, for EVM and power steps estimation the length of analysis within in slot must be possible to be shortened from 2560 chips to 1280 chips. Within the R&S FS-K73 this is done by a softkey (*SLOT RES HALF FULL*) switching between half slot (1280 chips) and full slot (2560 chips) estimation. Each display that is influenced by the length of analysis within a slot is adapted to the changed conditions.

Note: With firmware version 4.00 SP1 an automatic determination of measurement interval for EVM (RMS) versus slot measurement was introduced. This EVM vs Slot specific function is no longer supported and is replaced by the new Half Slot Mode.

Command SENSE:CDPower:ETCHips ON | OFF will therefore generate an error message.

- **New remote command CALC:MARK:FUNC:WCDP:RES? MPIC**

The new command returns the average power of the inactive codes for the selected slot.

Modified Functions

The version numbers in brackets indicate the version in which the function was modified.

1. [V1.12] **New result display type Power vs. Symbol**
2. [V3.24/V2.24] **Code Domain Error Power measurement is now available**
3. [V3.24/V2.24] **Improved Resolution of Trigger to Frame measurement**
4. [V3.24/V2.24] **Improved absolute accuracy of Trigger to Frame measurement**
5. [V3.24/V2.24] **Trace statistic available on result summary parameters (MIN Hold, MAX Hold, Averaging)**
6. [V3.28/V2.28] **Unit circle display in constellation diagrams**
7. [V3.28] **Option FS-K9 power sensor support for RF measurements**
8. [V3.30/V2.30] **Multi-Frame Measurement supported**
9. [V3.30/V2.30] **Read out of spectrum emission mask worst fail position**
10. [V3.35/V2.35] **Detecting of incorrect pilot symbols of the DPCCH**
11. [V3.40/V2.40] **Detection of HS-DPCCH in HSDPA signal (TM5)**
12. [V3.40/V2.40] **Remote readout of frame bit-stream available**
13. [V3.50/V2.60] **Full Support of Uplink HSDPA signals (TM5)**
14. [V3.50/V2.60] **Eliminate 25us of each slot for EVM calculation:**

According to 3GPP specification Release 5 the measurement interval for error vector magnitude (EVM) is one slot (4096 chips) less 25 μ s at each end of the burst (3904 chips). This requirement depends on the expected power changes of the channel. The consideration of eliminating the tail of a slot can be switched ON or OFF.

15. [V3.50/V2.60] **Absolute and relative slot power display for Power vs Slot**
16. [V3.50/V2.60] **Disable/Enable root raised cosine (RRC) receiver filter**
17. [V3.50/V2.60] **Extended trigger range:**

In external trigger mode, the trigger event is expected in a time range of a half slot (333us) before and a half slot (-333us) after the start of the frame

18. [V3.60/V2.60] **Display of frequency error versus slot, phase discontinuity versus slot, symbol magnitude error, symbol phase error**
22. [V3.60/V2.60] **Result Summary: added value RHO and timing offset**

- 23. [V3.60/V2.60] Scrambling code input in hexadecimal and in decimal format
- 24. [V3.60/V2.60] HSDPA mode channel detection can be switched ON or OFF
- 25. [V3.60/V2.60] SEM: Adjustable transition frequency (30 kHz/1 MHz RBW)
- 26. [V3.60/V2.60] External trigger level adjustable from 0.5 to 3.5
- 27. [V3.60/V2.60] Carrier frequency step size softkey available
- 28. [V3.70] Remote command to read out total power versus slot
- 29. [V3.70] ACP/MCACP: number of adjacent channels increased to 12
- 30. [V3.70] ACP/MCACP: power mode to max hold the power results
- 31. [V3.80/V2.80] Support of enhanced channels (HSUPA)
- 32. [V3.80/V2.80] Trace view available within code domain analyzer
- 33. [V4.00] Vector error of Error Vector Magnitude (EVM) versus chip, Magnitude error of Error Vector Magnitude (EVM) versus chip, Phase error of Error Vector Magnitude (EVM) versus chip, Composite constellation diagram of scrambled chip buffer available
- 33. [V4.00] Spectrum emission mask: List evaluation in lower screen now supported
- 34. [V4.00SP1] Error Vector Magnitude (EVM) versus chip for composite signal
In the vector error, magnitude error and phase error display the averaging interval for RMS values is shown.
- 35. [V4.00SP1] Automatic determination of measurement interval for EVM (RMS) versus slot measurement according to 3GPP specification 34.121.
- 36. [V4.10] New remote command CALC:MARK:FUNC:WCDP:RES? MTYPE | ACHannels
- 37. [V4.20] Support for instrument R&S FSG.
- 38. [V4.20] Soft key REF VALUE Y AXIS available for CDP measurements.
- 39. [V4.30] Support for variable length of analysis (variable time slot length 1280 / 2560 chips) according to 3GPP specification.
A new Half Slot mode is available for all graphical displays.
Hint: The command SENSE:CDPower:ETCHips ON | OFF is no longer supported.
- 40. [V4.30] New remote command CALC:MARK:FUNC:WCDP:RES? MPIC returns the average power of the inactive codes for the selected slot.

Problems Eliminated with 4.30

1. [V4.20] Chip rate error corrected.

The chip rate error, entry of the display Result Summary, had to be corrected. Up to version 4.20 the chip rate error was scaled in Hz except in ppm as stated in Result Summary. In version 4.30 and higher the chip rate error is re-scaled to ppm which will result in a reduction of its value of approximately 4.

2. [V4.20] Behaviour of R&S FS-K73 in case of sync failed changed.

Up to version 4.20 the R&S FS-K73 did stop calculations at the moment a sync failed occurred. This led to a display not being updated in case of sync failed. This now has been overcome by finishing analysis even in that case. Through the channel table will not have entries of data channels whilst a sync failed occurred this case – probably the loss of signal - can now be detected more easily in the displays and via IEEE bus.

3. [V4.20] A Reference Level Offset $\neq 0$ dB is not taken into account when the dialog REF VALUE X AXIS is opened.

A wrong REF VALUE X AXIS is displayed after changing the reference level offset. The problem is only visible on the input dialo. The grid scaling settings are correct. When a new value is entered the reference level is correctly taken into account.

4. [V4.20] Some open dialogs are not automatically closed when softkey CHANNEL BANDWIDTH is pressed.

Following dialogs are affected: EDIT ACLR LIMIT, ACP CHANNEL BW and ADJ CHANNEL SPACING.

Modifications to the Operating Manual

The R&S FS-K73 3G FDD UE analyzer functions are included in a separate manual set. Please refer to the following order numbers:

- 1154.7275.42-04 (English)
- 1154.7275.44-04 (German)

Modified Chapters for manual operation

None.

Modified Chapters for remote operation

None.

Appendix: Contact to our hotline

Any questions or ideas concerning the instrument are welcome by our hotline:

USA & Canada

Monday to Friday (except US public holidays)

8:00 AM – 8:00 PM Eastern Standard Time (EST)

Tel. from USA 888-test-rsa (888-837-8772) (opt 2)

From outside USA +1 410 910 7800 (opt 2)

Fax +1 410 910 7801

E-mail Customer.Support@rsa.rohde-schwarz.com

East Asia

Monday to Friday (except Singaporean public holidays)

8:30 AM – 6:00 PM Singapore Time (SGT)

Tel. +65 6 513 0488

Fax +65 6 846 1090

E-mail Customersupport.asia@rohde-schwarz.com

Rest of the World

Monday to Friday (except German public holidays)

08:00 – 17:00 Central European Time (CET)

Tel. from Europe +49 (0) 180 512 42 42

From outside Europe +49 89 4129 13776

Fax +49 (0) 89 41 29 637 78

E-mail CustomerSupport@rohde-schwarz.com