



ROHDE & SCHWARZ

Test and Measurement
Division

Release Notes

3G FDD UE

Application Firmware R&S FS-K73

Release 4.50

with Service Pack 1

for R&S FSP, FSU, FSQ, FSG, FSMR, FSUP, FMU
Analyzer Firmware 4.5x

Release Note Revision: 2

Printed in the Federal Republic of Germany

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History

Date	Rel Note Rev	Changes
19 August 2009	1	First revision for R&S FS-K73 version 4.50.
20 January 2010	2	Version changed to V4.50 SP1 (no functional change for uplink).

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
4.50 SP1	4.50	4.51	4.55 SP2	-	-	-	4.59 SP1
4.50	-	-	4.55	-	-	-	4.59
4.40	4.40	4.41	4.45	-	-	-	4.49
4.30	4.30	4.31	4.35	-	4.37	4.38	4.39
4.20 SP1	4.20	4.21	4.25	-	4.27	-	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 4.50

None

Improvements with Version V4.50

1. [V4.40] Channel detection algorithm corrected.

Up to version 4.40 the FS-K73 searched the whole code space for active channels. In some cases the algorithm detected channels in parts of the code space where no channel can be active (e.g. code number 0 at spreading factor 4). These parts of the signal therefore are now excluded from channel detection.

2. [V4.40] Wrong reference power calculation performed for average RCDE.

The reference power calculation of average RCDE could have been wrong in V4.40. The error occurred if one of the 4PAM channels did use slots with no power.

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

19. [V3.60/V2.60] Result Summary: added value RHO and timing offset

20. [V3.60/V2.60] Scrambling code input in hexadecimal and in decimal format

21. [V3.60/V2.60] HSDPA mode channel detection can be switched ON or OFF

22. [V3.60/V2.60] SEM: Adjustable transition frequency (30 kHz/1 MHz RBW)

23. [V3.60/V2.60] External trigger level adjustable from 0.5 to 3.5

24. [V3.60/V2.60] Carrier frequency step size softkey available

25. [V3.70] Remote command to read out total power versus slot

- 26. [V3.70] ACP/MCACP: number of adjacent channels increased to 12
- 27. [V3.70] ACP/MCACP: power mode to max hold the power results
- 28. [V3.80/V2.80] Support of enhanced channels (HSUPA)
- 29. [V3.80/V2.80] Trace view available within code domain analyzer
- 30. [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
- 31. [V4.00] Spectrum emission mask: List evaluation in lower screen now supported
- 32. [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.
- 33. [V4.00SP1] Automatic determination of the measurement interval for EVM (RMS) versus slot measurement according to 3GPP specification 34.121.
- 34. [V4.10] New remote command CALC:MARK:FUNC:WCDP:RES? MTYPE | AChannels
- 35. [V4.20] Support for instrument R&S FSG.
- 36. [V4.20] Soft key REF VALUE Y AXIS available for CDP measurements.
- 37. [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.
- 38. [V4.30] New remote command CALC:MARK:FUNC:WCDP:RES? MPIC returns the average power of the inactive codes for the selected slot.
- 39. [V4.40] Result Summary: added value RCDE and Average RCDE
- 40. [V4.40] New remote command CALC:MARK:FUNC:WCDP:RES? MTYPE | AChannels RCD | ARCD
- 41. [V4.40] Support for HSPA+ with new key code K73+

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