ROHDE&SCHWARZ

Test and Measurement
Division

Release Notes

EUTRA/LTE Analysis

Application Firmware

R&S FSQ-K100/-K101/-K104/-K105

Release 4.60

for R&S FSQ, FSG Analyzer Firmware V4.6x

New Features:

- **Support for Uplink (K101, K105).**
- **Configurable Measurements on the upper screen.**
- **Sync Register support.**

Release Note Revision: 2

Printed in the Federal
Republic of Germany

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History

Date	Rel Note Rev	Changes
20 July 2010	1	Firmware 4.60.
19 October 2010	2	New hot line phone number for calls from Europe.

General Topics

Compatibility of the R&S FSQ-K100/-K101/-K104/-K105 EUTRA/LTE Application Firmware with other Firmware Releases

The following table shows the compatible versions of the basic analyzer firmware and the EUTRA/LTE Application Firmware:

Table of compatible versions:

R&S FSQ-K100 Application Firmware	R &S FSQ-K100/K104 Application Firmware	R &S FSQ-K100/K101/ K104/K105 Application Firmware	R&S FSQ Basic Firmware	R&S FSG Basic Firmware
-		4.60	4.65	4.69
-	4.51	-	4.55 SP2	4.59 SP1
4.50 SP2	-	-	4.55 SP1	4.59
4.50 SP1	-	-	4.55	-
4.50	-	-	4.55	-

Firmware Update of the R&S FSQ-K100/-K101/-K104/-K105 EUTRA/LTE Application Firmware

Since basic firmware version 4.5x 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 FSQ of the Service Board on GLORIS.

Please follow the steps described in the instrument's basic firmware release notes 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 FSQ-K100/-K101/-K104/-K105 EUTRA/LTE 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. The instrument will perform an automatic reboot.
- 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 messagebox 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.

Note any combination of K100, K101, K104 and K105 keycodes may be used.

System Memory Requirements

For FSQ- K100/-K101/-K104/-K105 Application Firmware, an installed system memory of 512 MByte is essential. The FSQ- K100/-K101/-K104/-K105 will generate an error message during activation, if available system memory does not meet the requirements. This may happen for if other options are activated before starting the FSQ-K100/-K104.

For instruments, shipped with 256MByte system memory, a memory extension FSQ-B512, order number 1157.1590.02, is available.

A reboot of the instrument after using other options will allow FSQ- K100/-K101/-K104/-K105 to be activated without memory extension.

The system memory size can be easily checked by pressing SETUP – SYSTEM INFO – STATISTICS, item "Memory size". This item is available since version 3.25 of the base system firmware.

New Functionality in Version 4.60

General

- **Support for Uplink (K101, K105).**
- **Configurable Measurements on the upper screen.**
- **Sync Register support.**

Improvements with 4.60

The version numbers in brackets indicate the version in which the issue was observed for the first time. All previous service packs are included.

1. **[V4.51] Auto-level improvements reduce the situations where constant clicking of the attenuator or Overloads could occur for Spectrum Mask and ACLR Measurements.**
2. **[V4.51] Cleared previous IQ Measurement trace results after an analysis error.**
3. **[V4.51] Corrected Spectrum Mask to report results for narrow span measurements in the sweep list.**
4. **[V4.51] Extended Allocation summary to support maximum number of control and data allocations.**
5. **[V4.51] Corrected Ref level and Attenuation flashing in Captur Buffer Title bar at the start of continuous measurements with autolevel enabled.**
6. **[V4.51] Corrected label in Save / Recall dialogs.**
7. **[V4.51] LTE I\Q specific status errors only displayed for relevent measurements.**
8. **[V4.51] The 'filter settings' on 'Constellation Diagram' title bar are fully visible.**
9. **[V4.51] STATus:QUEStionable:SYNC register supported.**
10. **[V4.51]'Screen A' may be configured for any LTE I\Q measurements.**
11. **[V4.51]Measurement Trace results are available for 'Screen A'.**
12. **[V4.60] Corrected PRBS test status report.**

Modified Functionality

The version numbers in brackets indicate the version in which the function was modified. If only the downlink (K100/K101 option) or the uplink (K101) option is affected, a *DL* for downlink and *UL* for uplink is added to the version number.

1. **[V4.50 SP1] Spectrum Mask and ACLR channel bandwidth (2.5MHz, User) restrictions implemented.**
2. **[V4.50 SP1] Markers automatically position themselves on valid data.**

3. [V4.50 SP1] Marker zoom support for Capture Memory.

4. [V4.50 SP1] 'Frame Start Offset' measurement result available.

5. [V4.50 SP1] 'Freq Err Vs Symbol' Measurement support for the 'All' Subframe Selection.

6. [V4.50 SP1] Spectrum Power RB measurement results displayed as hybrid histogram/trace.

7. [V4.50 SP1] A 'Nan' is returned via SCPI or a blank entry is displayed when the dB result is not finite i.e. dB equivalent for EVM = 0%.

8. [V4.50 SP1] A 'Nan' is returned via SCPI or a blank entry is displayed for every dB results when any dB result in the set (mean, minimum, maximum) is not finite.

9. [V4.50 SP1] Disabled 'Auto Demodulation' setting on any PDSCH Subframe Configuration modification.

10. [V4.50 SP1] Modified Allocation Summary measurement results to append a single EVM result for All Allocation Ids and All RBs.

11. [V4.50 SP2] LTE Measurements support for the 'Optimal, Pilot and Payload' Channel Estimation algorithm.

12. [V4.51] LTE Data can now be recalled when the LTE option is not active.

13. [V4.51] Cleared Previous result summary results after an analysis error.

14. [V4.51] Modified RF Input Power measurements (Power Spectrum, Power vs. RB, Allocation Summary Power, List: Power and List: OSTP) and Capture Buffer to include the effect of the Ext Attenuation.

15. [V4.51] Modified Ref Level to include the effect of the Ext Attenuation.

16. [V4.51] Corrected Physical Layer Cell Identity settings now used for measurements, previously 'Auto' always used.

17. [V4.51] Corrected PHICH Modulation (Allocation Summary measurement) reporting.

18. [V4.51] SCPI :CONFigure:LTE:DL:PLCI:PLID and :CONFigure:LTE:DL:PLCI:CIDGroup DEFault setting now enables AutoID.

19. [V4.51] 'Auto Level' disabled if related parameters modified.

20. [V4.51] Disabled 'Auto' for Physical Layer Cell Identity if related parameters 'Cell Id' 'Cell Identity Group' or 'Identity' modified.

21. [V4.51] Modified Marker X-axis setting popup and Marker X-axis display report to use same unit scaling.

22. [V4.51] Ensured 'Demod Settings' changes whilst in Continuous measurement mode are used for the next analysis.

23. [V4.51] Corrected continuous measurement of 1.4MHz bandwidths signals; previously analysis and results reporting would stop being updated after a small number of measurement.

24. [V4.51] Corrected SCPI ACLR measurement 'Rel. Power of upper adjacent channel' result.

25. [V4.51] Corrected 'DISPLAY LIST' update on next measurement after selection from Spectrum Mask or ACLR measurements.

26. [V4.60] Support for Uplink (K101, K105)

27. [V4.60] The definition of the MIMO physical channel power boosting has changed compared to the FSQ-K100, FSQ-K104 V4.51 release. The EPRE is now defined on a per antenna port basis as specified in R1-101470s.

28. [V4.60] Channel BW 'User' is not an option when a standard Resource Block setting is selected.

29. [V4.60] Corrected Allocation Summary SCPI modulation results.

30. [V4.60] Unsupported SCPI Fornat Data option 'PACKED' removed.

31. [V4.60] A Measurement group can be selected without forcing a default measurement on the currently selected screen.

32. [V4.60] Modifying RF or EL Attenuation will disable Auto-Level.

Known Issues with Option R&S FSQ-K100/-K101/-K104/-K105 EUTRA/LTE Application Firmware

The version numbers in brackets indicate the version in which the issue was observed for the first time. Unless otherwise stated all listed issues apply to the FSQ-K100.

Manual Operation and IEC/IEEE Bus

1. (K100 V4.50) Memory usage.
Performing combinations of calibration, activating and using the other options and activating and using FSQ-K100 on an instrument may lead to the FSQ-K100 option no longer being able to be activated due to insufficient memory.

Workaround: Ensure no other applications are running. Restarting the firmware after performing calibration also improves memory usage. Using Preset also releases memory.

IEC/IEEE Bus only

1. (K100 V4.50 SP2) INITiate:IMMediate:CONTinuous OFF command should not be used to terminate a continuous measurement sequence.
Do not use the INITiate:IMMediate:CONTinous OFF command when an continuous measurement sequence is running as it may not fully abort the measurement sequence and further measurements will not be possible until after a Preset.

Workaround: Use ABORt to terminate a continuous measurement sequence.

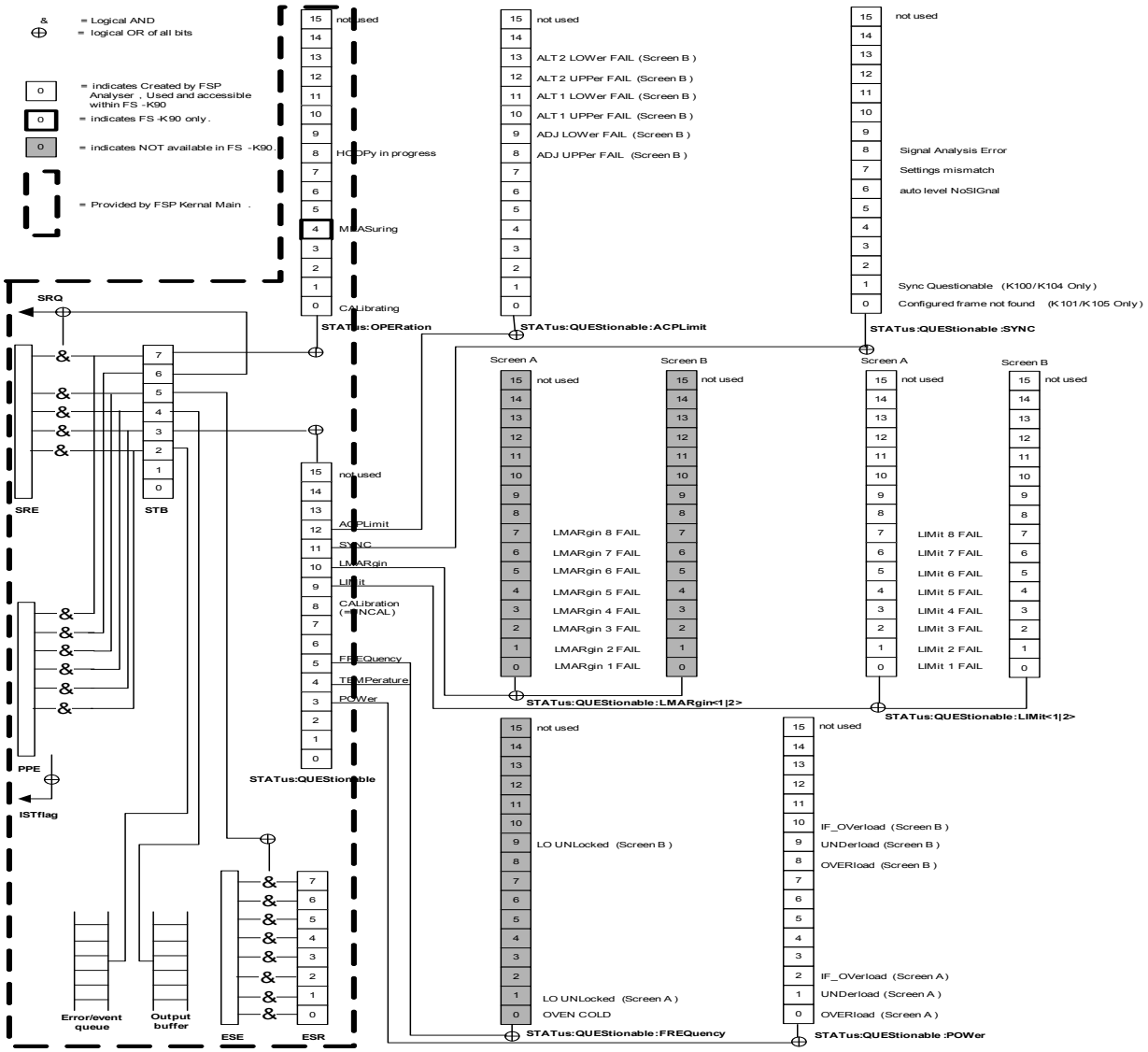
Modifications to the Operating Manual

The R&S FSQ-K100/-K101/-K104/-K105 analyzer functions are included in a separate manual set. Please refer to the following order number:

- 1173.0620.42-03- (English)

Modified Chapters for remote operation

Status Reporting System



STATus:QUEStionable:LIMit Register

This register comprises information about the observance of limit lines in the corresponding measurement window (LIMit 1 corresponds to Screen A, LIMit 2 to Screen B).

It can be queried with commands

`STATus:QUEStionable:Limit :CONDition?` and
`STATus:QUEStionable:Limit[:EVENt ]?`.

Note that no limit lines are displayed in screen A and as such all bits in the LIMit1 register are always set to 0.

Bit No	Meaning
0	LIMit FAIL This bit is set if limit line 1 is violated
1	LIMit FAIL This bit is set if limit line 2 is violated
2	LIMit FAIL This bit is set if limit line 3 is violated
3	LIMit FAIL This bit is set if limit line 4 is violated
4	LIMit FAIL This bit is set if limit line 5 is violated
5	LIMit FAIL This bit is set if limit line 6 is violated
6	LIMit FAIL This bit is set if limit line 7 is violated
7	LIMit FAIL This bit is set if limit line 8 is violated
10-14	These bits are not used
15	This bit is always 0

STATus:QUEStionable:SYNC Register

This contains information about settings mismatch, sync and analysis error.

The bits can be queried with commands

`STATus:QUEStionable:LIMit<1>:CONDition?` and
`STATus:QUEStionable:LIMit<1>[:EVENt?]`.

Bit No	Meaning
0	Configured frame not found (K101/k105 Only)
1	SYNC Questionable (K100/K104 Only) This bit is set if ther is either 'P sync' or 'S sync' or 'Coarse OFDM symbol timing' failure.
2 to 5	These bits are not used
6	Auto level – no signal present.
7	Settings mismatch.
8	Signal Analysis Error.
9 to 14	These bits are not used
15	This bit is always 0

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) 89 4129 12345
From outside Europe	+49 89 4129 13776
Fax	+49 (0) 89 41 29 637 78
E-mail	CustomerSupport@rohde-schwarz.com