



**ROHDE & SCHWARZ**

Test and Measurement  
Division

## **Release Notes**

# **1xEV-DO Base Station Test Application Firmware R&S FS-K84**

## **Release 4.30**

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

### **New Features:**

- New Softkey RF INPUT AC / DC.
- New Ref Value Y Axis / Reference Level coupling simplifies grid scaling configuration for Code Domain measurements.

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## History

<u>Date</u>	<u>Rel Note Rev</u>	<u>Changes</u>
06 March 2008	1	First revision for R&S FS-K84 Firmware 4.30.

## General Topics

### Compatibility of R&S FS-K84 1xEV-DO BTS Application Firmware

The following table shows the compatible version of the basic spectrum firmware version and the 1xEV-DO BTS application firmware:

**Table of compatible versions:**

R&S FS-K84 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
4.30	4.30	4.31	4.35	-	-	4.39
4.21	4.20	4.21	4.25	-	4.28	4.29 SP1
4.20	-	-	-	-	-	4.29
4.10	4.10	4.11	4.15	-	4.17	-
4.00	4.00	4.01	4.05	-	-	-
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	-	-	-
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	-	-	-
2.30	2.30	2.31	2.35	-	-	-
2.28	2.20	2.21	2.25	-	-	-
2.24	2.10	2.11	2.15	-	-	-
1.20	1.80	1.81	1.85	-	-	-

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-K84 1xEV-DO 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-K84 1xEV-DO 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 successful validation the message 'option key valid' will appear.
- If the validation failed, the application firmware will not be 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 4.30

- **Softkey RF INPUT AC / DC is now available for the application.**

Note: AC /DC coupling is not provided by all instrument models.

- **New Ref Value Y Axis / Reference Level coupling simplifies grid scaling configuration for Code Domain measurements.**

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 10dB 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.

## Modified Functions

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

1. [V3.24/V2.24] **Higher resolution of trigger to frame value on display.**
2. [V3.24/V2.24] **Result summary evaluation allows MIN/MAX and AVERAGE statistics.**
3. [V3.24/V2.24] **Transducer factors supported also for Code Domain Analyzer.**
4. [V3.24/V2.24] **Number of Sweep Points selectable in RF measurements.**
5. [V3.28/V2.28] **Unit circle display in constellation diagrams.**
6. [V3.28] **Option FS-K9 power sensor support for RF measurements.**
7. [V3.30/V2.30] **Read out of spectrum emission mask worst fail position.**
8. [V3.50] **CDP measurement over 1824 consecutive Slots for R&S FSQ possible (over 3 seconds of IQ data).**
9. [V3.40/V2.40] **Sign change for frequency offset, phase offset and q-inversion for symbol constellation and bitstream.**  
Due to a correction of the cdma2000 specific -q definition, the mention values had been changed
10. [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'.
11. [V3.60/V2.60] **External trigger level adjustable from 0.5 to 3.5V.**
12. [V3.60/V2.60] **Carrier frequency step size softkey available.**

13. [V3.70/V2.80] Multi carrier adjacent channel power measurement within application.
14. [V3.70/V2.80] ACP: Number of adjacent channels increased to 12.
15. [V3.70/V2.80] ACP: Power mode to max holds the power results.
16. [V3.70/V2.80] SEM: Configurable transition frequency for RBW change between 30 kHz and 1 MHz.
17. [V3.70/V2.80] CDP with multi carrier filter: Selectable enhanced algorithm and low pass or RRC filter with configurable roll off factor and cut off frequency.
18. [V3.80/V2.80] SEM now supports peak list evaluation.
19. [V3.80/V2.80] PVT now with restart on fail functionality and burst fit algorithm.
20. [V3.80/V2.80] PVT measurement with improved usage of IF power trigger.
21. [V3.80/V2.80] Trace view available within code domain analyzer.
22. [V3.90] Support for 1xEV-DO Revision A (Subtype 2).
23. [V4.00] Support for RHO Mac and RHO DATA.
24. [V4.00] Spectrum emission mask: List evaluation in lower screen now supported.
25. [V4.20] Support for instrument R&S FSG.
26. [V4.20] Softkey REF VALUE Y AXIS available for CDP measurements.
27. [V4.21] Band Classes 14 and 15 supported.
28. [V4.30] Softkey AC / DC Coupling available.
29. [V4.30] New Ref Value Y Axis / Reference Level coupling simplifies grid scaling configuration for Code Domain measurements.

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:

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► 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.

## Problems Eliminated

The version numbers in brackets indicate the version in which the error was observed for the first time.

### 1. [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.

### 2. [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.

**3. [V4.20] ACLR / MULTI CARR ACLR Measurement: A few softkeys are not visible but described in the manual.**

Following softkeys are not available:

ACLR measurement:

Menu ACLR: Softkey SWEEPTIME

MULTI CARR ACLR measurement:

Menu MULTI CARR ACLR: Softkey SWEEPTIME

Menu CP/ACP CONFIG: Softkey ACP REF SETTING

## **Known Problems with R&S FS-K84**

None.

## **Modifications to the Operating Manual**

For the R&S FS-K84 1xEV-DO BTS Application Firmware manuals please refer to the following order numbers:

- 1007.2868.44-05 (English)
- 1007.2868.42-05 (German)

They can be downloaded from R&S internet – search: FS-K84:

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

## **Modified Chapters**

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](mailto: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](mailto: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](mailto:CustomerSupport@rohde-schwarz.com)