ROHDE&SCHWARZ

Test and Measurement
Division

Release Notes

Firmware Release 1.80

with Service Pack 3

for R&S FSP Spectrum Analyzers

New Features:

- Support for 1xEV-DO Base Station Test Application Firmware R&S FS-K84
- FSP-B10: External generator level and reference signal selection now available as softkey
- Enhanced support for 8566/8568 GPIB command sets:
  - new commands ERR, MKPX, TDF, TRA, TRB, OA, OT, RESET
  - marker functions revised
  - bit order in status byte now conforming also with serial poll
  - sweep end message now also supported in continuous sweep operation
  - improved delta marker emulation by using reference fixed marker
  - support for REV command
- Support for 8560E, 8561E, 8562E, 8563E, 8564E and 8565E GPIB command sets
- Display remains on during 85xx-GPIB operation

Release Note Revision: 2

Printed in the Federal
Republic of Germany

Contents

History

Date	Rel Note Rev	Changes
03. Feb 2003	1	First revision for V1.80
04. Apr 2003	2	Problems Eliminated with Service Pack 3 added

General Topics

Firmware Update

Generation of the update disk set

The files needed for the firmware update are grouped according to the disk contents:

Disk 1:	disk1.bin	(self-extracting ZIP file; needs to be renamed to disk1.exe before unpacking)
Disk 2:	data2.cab	(packed contents of disk 2, will be automatically unpacked by FW update)
Disk 3:	data3.cab	(packed contents of disk 3, will be automatically unpacked by FW update)
Disk 4:	data4.cab	(packed contents of disk 4, will be automatically unpacked by FW update)
Disk 5:	data5.cab	(packed contents of disk 5, will be automatically unpacked by FW update)

The contents of disk 1 are packed in a self-extracting ZIP file and need to be unzipped.
For this purpose the following steps are necessary:

1. Create a temporary directory on your local PC (e.g. FSPTEMP on drive C:)
2. Copy disk1.bin into that directory and rename it to disk1.exe
3. Execute disk1.exe. Under Windows 95/98/NT this is done best using the following sequence:
   <CTRL><ESC> - RUN – C:\FSPTEMP\DISK1 - <ENTER>
   or
   <CTRL><ESC> - AUSFÜHREN – C:\FSPTEMP\DISK1 - <ENTER> for a German Windows version.
   The files will be unzipped.
4. Delete disk1.exe from the temporary directory.
   The temporary directory will now contain the following files:

inst32i.ex	_isdel.exe	_setup.dll	_sys1.cab	_user1.cab
Data.tag	data1.cab	lang.dat	layout.bin	os.dat
Setup.exe	Setup.ini	setup.ins	setup.lid	

   Please make sure that all the filenames are spelt correctly on your disks before you try to use them for the firmware update. Especially the trailing underscore ('_') as used in _inst32i.ex_ **is essential for correct operation of the update program.**
5. Copy the contents of the temporary directory onto update disk #1.

The contents of the other 4 disks are already packed in the format required by the firmware update program and need no further processing. The files only need to be copied onto disks #2 to #5, the number in the filename indicating the corresponding disk number (data2.cab => disk #2 etc).

Performing the firmware update on the instrument

The firmware update process via floppy disk is performed in the following steps:

- Switch the instrument on and wait until the Analyzer has resumed operation.
- Press SETUP → NEXT → FIRMWARE UPDATE
- Confirm the query "Do you really want to update the firmware?" with OK
- Insert update disk #1 to #5 as requested
- The instrument will perform several automatic shutdowns, until the new firmware is installed properly. **Do not switch the instrument off until the update process has been finished completely.**

After switching on the instrument for the first time after a successful firmware update, the following system message might occur once:

System Message
CDS: Error...

In this case the unit needs to be switched off and on again. This system message does not appear again during further power-on cycles.

Note: *If the unit is not restarted as described, system error correction data (CAL TOTAL) of a later date will be lost when switching the unit on again.*

Firmware installation of the R&S FS-K7 FM demodulator software

The R&S FS-K7 FM demodulator software package is included in the basic instrument firmware. It therefore needs no separate firmware update procedure.

Enabling the option via option key code entry

For activation of the R&S FS-K7 a license key for validation must be entered. The license key is printed either on a label on the rear panel of the R&S FSP or delivered as a part of the R&S FS-K7 option package.
The key sequence for entering the license key is:

SETUP - GENERAL SETUP – OPTIONS - INSTALL OPTION

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

- Ø On a successful validation the message 'option key valid‘ will appear.

- Ø If the validation failed, the option software is not installed.
  The most probable reason will be that the instrument is not equipped with firmware version 1.30 or higher.

Firmware installation of the R&S FS-K8 BLUETOOTH Analyzer software

The R&S FS-K8 BLUETOOTH application software package is included in the basic instrument firmware. It therefore needs no separate firmware update procedure.

Enabling the option via option key code entry

For activation of the R&S FS-K8 a license key for validation must be entered. The license key is printed either on a label on the rear panel of the R&S FSP or delivered as a part of the R&S FS-K8 option package.
The key sequence for entering the license key is:

SETUP - GENERAL SETUP – OPTIONS - INSTALL OPTION

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

- Ø On a successful validation the message 'option key valid‘ will appear.

- Ø If the validation failed, the option software is not installed.
  The most probable reason will be that the instrument is not equipped with firmware version 1.50 or higher.

Compatibility to other Firmware Option Packages

FSP V1.80 is compatible to the following firmware option releases:

R&S FS-K5	R&S FS-K72	R&S FS-K73	R&S FS-K82	R&S FS-K84
1.20	1.20	1.20	1.20	1.20

Modified Functions

The following modifications to functions released in earlier firmware versions are included in version 1.80:

1. GPIB: Modified status enable register default values
The ENABle part of the following status registers is set to 0 during system startup (was 65535 before):

- STAT:QUES:ENAB
- STAT:OPER:ENAB
- STAT:QUES:LIM1:ENAB
- STAT:QUES:LIM2:ENAB
- STAT:QUES:LMAR1:ENAB
- STAT:QUES:LMAR2:ENAB
- STAT:QUES:SYNC:ENAB
- STAT:QUES:POW:ENAB
- STAT:QUES:ACPL:ENAB
- STAT:QUES:FREQ:ENAB

2. GPIB: 85xx emulation

- With 85xx emulation active the FSP will allow the combination of 0 dBm reference level and 0 dB RF attenuation.
- Additionally the level setup for the input mixer will be set to low noise operation, as soon as the start frequency becomes ≥ 3 GHz (R&S FSP13/30/40 only).

Problems Eliminated

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

Manual Operation

1. (V1.60) Incorrect characteristics of TD-SCDMA channel filter
The filter specification of the channel filter for TD-SCDMA was not according to the standard.

2. (V1.40) TOI measurement does not take RefLvl Offset into account
A reference level offset other than 0dB was not taken into account in the TOI measurement results.

3. (V1.60) ACP limits do not handle RefLvl Offset correctly
Entering an ACP limit with an active reference level offset <> 0 dB leads to wrong limit check results during ACP measurements.

4. (V1.20) Selecting TRACE VIEW restarts the sweep counter
Selecting TRACE VIEW with a sweep count <> 0 restarts the counting mechanism, although the trace display is frozen.

5. (V1.40) Option B4 (OCXO) reports REFERENCE UNLOCKED rather than OVEN COLD during its warmup phase

6. (V1.50) Recall of active Bluetooth measurements doesn't work if option K7 (FM Demodulator) is not present
The recall of Bluetooth measurement setups failed if the option FM demodulator was not installed onn the instrument.

7. (V1.60) Display Lines do not work properly with active tracking generator normalization

8. (V1.70) Transducer state not restored on recall
After a recall of a data set with an active transducer the transducer was not in its orignal state as stored in the save/recall dataset.

9. (V1.70) GPIB language selection "SCPI" is not marked in selection list
If the GPIB language "SCPI" is selected in the corresponding selection list, the corresponding line is not marked when the list box is opened next time. "SCPI" is nevertheless activated.

10. (V1.70) GPIB language selection "8566A"/"8566B"/"8568A"/"8568B"/"8594E" is not restored during system startup
If a GPIB language other than "SCPI" is selected before the instrument is switched off, the corresponding language will not be restored after the system has booted the next time, although the correct selection is displayed in the selection list. "SCPI" will be selected instead internally.

11. (V1.70) Level calibration of 200 Hz Filter not correct

IEC/IEEE Bus

1. (V1.41) Missing GPIB commands for Limit Line x-axis spacing
The commands for selection of the x-axis spacing was missing. For details please refer to the supplements to the operating manual.

2. (V1.70) SYSTem:LANGuage "8566A"/"8566B"/"8568A"/"8568B"/"8594E" selection is not restored on system startup
If a GPIB language other than "SCPI" is selected before the instrument is switched off, the corresponding language will not be restored after the system has booted the next time, although the correct selection is displayed in the selection list. "SCPI" will be selected instead internally.

3. (V1.70) Command "ID" will always return "8566A"
Command ID will always return "8566A", no matter which GPIB language is selected or which user defined identification string was entered.

4. (V1.70) Command "ID?" does not work
The query form of the command ID will return a syntax error.

5. (V1.70) Response formats are not conforming to the GPIB language selection "8566A"/"8566B"/"8568A"/"8568B"/"8594E"
If a GPIB language other than "SCPI" is selected the data returned on GPIB queries are not in a compatible data format.

6. (V1.70) AT and MKPX do not accept DM as unit

7. (V1.70) MKN and MKD are not accepted without parameters

8. (V1.70) MKD and M3 will not affect the reference marker
The above commands will not set the reference marker correctly.

9. (V1.70) VAVG will not start a new sweep

10. (V1.70) RCLS1 yields a command error with GPIB language 8566A/B and 8568A/B

Problems Eliminated with Service Pack 3

Service Pack 3 fixes a number of problems included in the first release of version 1.80.

Instruments shipped with this release note edition included have service pack 3 already installed.

Manual Operation

1. (V1.80) IF Filter Board model index 04 supported

IEC/IEEE Bus

1. (V1.80) Synchronisation problem with option Trigger Port FSP-B28 and SENS:LIST command with meas time < 1ms

85xx-Emulation:

2. (V1.70) The sweep end bit is not supported in continuous sweep operation.

3. (V1.70) Screen is turned off during remote operation.

4. (V1.70) Random signal count result after peak search in continuous sweep mode

Known Problems

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

1. (V1.70) Softkey POWER ABS/REL will not change the time tomain power results
The time domain power values are always shown in dBm. A change to REL has no effect.

Modifications to the Operating Manual

The order numbers for the current manual sets are

- 1093.4820.11-**03** (German) and
- 1093.4820.12-**03** (English).

The corresponding PDF-Files are separately available on the service board.

The firmware options FS-Kxx come with their own operating manual and release notes. Please refer to the corresponding release notes for more information on changes to these packages.

Last minute changes to the operating manual

Menu SETUP - GENERAL SETUP - GPIB

The *GPIB LANGUAGE* softkey opens a list of selectable remote-control languages:

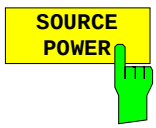
- SCPI
- 8560E
- 8561E
- 8562E
- 8563E
- 8564E
- 8565E
- 8566A
- 8566B
- 8568A
- 8568B
- 8594E

Notes:
Selecting a language different from "SCPI" will set the GPIB address to 18 if it was 20 before.
Start / stop frequency, reference level and # of sweep points will be adapted to the selected instrument model.

IEC/IEEE-bus command:

```
SYST:LANG "SCPI" | "8560E" | "8561E" | "8562E" |
"8564E" | "8565E" | "8566A" | "8566B" | "8568A" | "8568B" |
"8594E"
```

Menu NETWORK with option R&S FSP-B10



The *SOURCE POWER* softkey activates the input of the generator output level. The value range depends on the selected generator (See table of chapter "Configuration of the External Generator").

If both option External Generator Control FSP-B10 and option Tracking Generator B9 are installed, the softkey will modify the output power of the generator currently in use.

The default output power is -20 dBm.

IEC/IEEE-bus command: `SOUR:EXT:POW -20dBm`

The *REFERENCE INT/EXT* softkey selects the reference signal for the external generator. Selection EXT allows connecting the external generator to an external reference frequency source. By default the external generator will use its internal frequency reference.

IEC/IEEE-bus command: `SOUR:EXT:POW -20dBm`

New supported 85xx-commands

85xx - command	Supported subset	Known differences
ERR?		Erases the error bit in the status register but always returns 0.
M3	M3 M3 <numeric_value> HZ|KHZ|MHZ|GHZ M3 DN M3 UP M3?	default value value range step size. Noise measurement activated with KSM is automatically switched off with any M3-command..
MKPT	MKPT MKPT HI MKPT NH MKPT NR MKPT NL	
OA		
OT		
RESET		
REV?		
TRA?		
TRB?		
TDF	TDF P	

Model dependent default settings

When selecting a 85xx model language the GPIB address will be automatically set to 18, if the FSP default address (20) is active. Other values than 20 will be left unchanged. On return to GPIB language SCPI the current GPIB address will be preserved.
The following table shows the default settings which will be set when selecting the GPIB language or when using the commands IP, KST and RESET.

Model	# of Trace Points	Start Freq.	Stop Freq.	Ref Level	Input Coupling
8566A/B	1001	2 GHz	22 GHz	0 dBm	DC (FSU) AC (FSP)
8568A/B	1001	0 Hz	1.5 GHz	0 dBm	AC
8560E	601	0 Hz	2.9 GHz	0 dBm	AC
8561E	601	0 Hz	6.5 GHz	0 dBm	AC
8562E	601	0 Hz	13.2 GHz	0 dBm	AC
8563E	601	0 Hz	26.5 GHz	0 dBm	AC
8564E	601	0 Hz	40 GHz	0 dBm	AC
8565E	601	0 Hz	50 GHz	0 dBm	AC
8594E	401	0 Hz	3 GHz	0 dBm	AC

Note on selected stop frequency:
The stop frequency indicated in the table will be limited by the maximum stop frequency of the analyzer.

Note on the selected number of trace points:
The adaption of the number of trace points will only be performed on the LOCAL -> REMOTE transition.

Trace data output formats

Two formats are supported for trace data output: display units (command O1) and physical values (commands O3 or TDF P). With format "display units" the level data will be converted into value range and resolution of the 8566/8568 models. On transition to REMOTE state the number of trace points will be reconfigured in order to be conforming to the selected instrument model (1001 for 8566A/B and 8568 A/B, 601 for 8560E to 8565E, 401 for 8594E).

GPIB status reporting system

The assignment of the status bits performed by commands R1, R2, R3, R4, RQS is supported since firmware V1.80. Commands STB and a serial poll on the GPIB will return an 8 bit value with the following bit assignment:

Bit enabled by RQS
1 (Units key pressed)
2 (End of Sweep)
3 (Device Error)
4 (Command Complete)
5 (Illegal Command)
6 (Service Request)

Bits 0 and 7 are unused and always set to 0.

Please note that the FSP reports any key pressed on the front panel rather than only the unit keys if bit 1 was enabled..
Another difference is the behaviour of bit 6 when using the STB? query. On the HP analyzers this bit monitors the state of the SRQ line on the bus. On the FSP this is not possible. Therefore this bit is set, as soon as one of the bits 1 to 5 is set. It won't be reset by performing a serial poll.

Appendix: Contact to our hotline

Any questions and ideas concerning the instrument are welcome to our hotline:

Phone : ++49-1805-124242
FAX : ++49-89-4129-13777
e-mail : CustomerSupport@rsd.rohde-schwarz.com