

# R&S® AFQ100A

## I/Q Modulation Generator

### Release Notes

### Firmware Version 3.50.201.17

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The firmware of the instrument makes use of several valuable open source software packages. For information, see the "Open Source Acknowledgement" document, which is available for download from the R&S AFQ product page at <http://www.rohde-schwarz.com/product/AFQ100A> > "Downloads" > "Firmware".

R&S®AFQ100A is abbreviated as R&S AFQ100A

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# 1 Information on the Current Version and History

## 1.1 Version 3.50.201.17

Released : February 2017

### New Functionality

Topic	Ref. No.
K289 NFC	241773
K407 Beidou	239445
K412 LTE Release 11 and Enhanced Features	239447
K413 LTE Release 12	239448
K418 V5G	242359
K419 LTE Release 13 / 14	242360
K442 802.11 AX	242365

### Resolved Issues

Topic	Ref. No.
Crash when playing multi segment files with > 100 segments	188954
Improved remote control compatibility between AFQ100A / AFQ100B	137812
HD radio file does not play	137838

## 1.2 Version 2.15.231.71

### New Functionality and Changes

Topic	Ref. No.
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New Standard LTE Release 10 (Advanced) (K285)	10508
New Standard 1xEV-DO Rev. B (K287)	10509
Trigger Inhibit disabled for trigger mode = Single or repeat N Times	10605

#### Resolved Issues

Topic	Ref. No.
Trigger delay incorrect	10209
USB driver not installed	10632

### 1.3 Version 2.15.231.65

- New Standard Galileo (K266)
- New Standard LTE Release 9 (K284)
- New Standard IEEE 802.11 AC (K286)
- New Standard Glonass (K294)

### 1.4 Version 2.15.231.59

- Bug fix: Artifacts in error history removed

### 1.5 Version 2.15.231.58

- Bug fix: GPIB address not persistent

### 1.6 Version 2.15.231.55

- Support for new SDRAM memory modules
- Improved marker operations
- Increased upper limit for repeat count
- New Standard T-DMB/DAB (K253)
- New Standard Tetra Release 2 (K268)

### 1.7 Version 2.09.285.24

Bug in software memory test fixed

## 1.8 Version 2.09.285.21

- New standard Bluetooth+ (K260)
- New standard GSM EDGE+ (K241)
- New standard HD-Radio (K352)
- Bug in command remote control command "sour:equ:mod:rffr xxx;\*opc?" fixed

## 1.9 Version 2.09.285.20

- New standard HSPA+ (K259)
- New Factory Preset dialog
- New Security dialog
- Visa resource strings in GPIB dialog
- New parameter clock slope for digital output port 2
- Impairments phase error now limited to +- 14 deg
- New trigger run mode Repeat N Times
- New SCPI commands for creating test signals
- Improvements in impairments handling
- Waveform files with identical names written in quick succession were sometimes ignored. Fixed
- Bug in memory clock synchronisation to external clock with low frequency fixed

## 1.10 Version 2.04.244.13

- Extended blank counter length allows playing long waveforms in trigger mode Single
- Removed spurious trigger glitches when using markers
- Improved EMC
- Extended segment count (512) for multi segment signals
- DAC problems in internal amplitude adjustment eliminated

## 1.11 Version 2.04.244.07

FPGA not loaded after test signal output and output board selection changed. Fixed

## 1.12 Version 2.04.244.06

- New option K-247 (1xEV.DO Rev.A)

- New option K-254 (802.11n)
- Note: FPGAs and output timing unchanged.
- PLL synchronisation problem on startup (Base Board version 8) fixed
- 1 Bit amplitude rounding error with disabled impairments fixed

### 1.13 Version 2.04.244.03

- Bugfix in playback of waveforms > 2GBytes
- New commands for creating a test sine signal

```
:SOURce:TSIGnal:SINE:SAMPles <number of samples>
:SOURce:TSIGnal:SINE:PHASe <phase in degrees>
:SOURce:TSIGnal:SINE:CREate
:SOURce:TSIGnal:SINE:CREate:NAMed <name>
:SOURce:TSIGnal:SINE:FREQuency?
```
- Symbolic display of current trigger state and external reference clock source in the block diagram
- Bug in playback of waveforms > 2 GBytes fixed

### 1.14 Version 2.04.187

- Support for BaseBoard Version 8
- Reference clock synchronisation (BaseBoard version  $\geq 8$  required)
- Ready-LED not switched on after system startup. Fixed
- Error message "Cannot sync..." not cleared by File New fixed

### 1.15 Version 2.04.176

- New option K-252 (DVB-H)
  - New option K-255 (EUTRA)
  - New option K-6 (Pulse Creator)
  - New option K-80 (BERT)
- The list of currently available options now is
- K-6 (Pulse Creator)

K-80 (BERT)  
K-240 (GSM/EDGE)  
K-242 (3GPP FDD)  
K-243 (3GPP Enhanced MS/BS Tests incl. HSDPA)  
K-244 (GPS)  
K-245 (HSUPA)  
K-246 (Cdma2000)  
K-248 (802.11 (a/b/g) (WLAN))  
K-249 (802.16 (WiMAX))  
K-250 (TD.SCDMA)  
K-251 (Enhanced TD-SCDMA)  
K-252 (DVB-H)  
K-255 (EUTRA)  
K-256 (XM Radio)  
K-261 (Multi Carrier CW)  
K-262 (Awgn)

- Fast segment hopping FHOP (BaseBoard version  $\geq 5$  required)
- Segment mode Auto and therefore SCPI command SOURce:TRIGger:SEGment:MODE AUTO no longer supported. Use SOURce:TRIGger:SEGment:SOURce AUTO instead
- Commands :SOURce:OUTPut:DIGital:CLOCK and :SOURce:OUTPut:DIGital:CLOCK:SOURce obsolete.
- This FW requires an update of the PCI FPGA. Go to menu Setup/System/Update to perform the update.
- Ramp signal waveform file "sawtooth.wv" for (digital output) testing included.
- Full support of long waveforms
- Faster loading of waveforms
- Spurious glitches due to internal periodic switching operations removed
- Limitation of waveform length to < 2GBytes removed
- Swapped bit order on digital output port 2 fixed

## 1.16 Version 2.02.80.02

- Support for Base Board revision 5

## 1.17 Version 2.02.80

- WinIQSIM2 support
- Option-B11 (4 GB waveform memory)
- Option K-256 (XM Radio)
- Remote control command [:SOURce<HW>:]STATe modified to :SOURce<HW>:STATe
- New remote control command :PATH:COUNT

## 1.18 Version 1.46.98

- Encrypted FPGA files
- Setup now includes sample waveform files in folder Lists\Waveforms
- DIAGnostic:EEPRom? 'AFQ\_DIGITAL','BLOCK\_IDENT' works now
- DIAGnostic:BGInfo:CATalog? works now
- :SOURce:INPut:BERT:IMPedance G50 works now
- Message "unhandled Interrupt" in manual multisegment trigger mode fixed
- Fallback mechanism for configuration files fixed

## 1.19 Version 1.46.73

- First release



## 2 Installing the Firmware

### 2.1 Installing new instrument firmware

1. Save the current version

It is highly recommended to save the current/running version. This can be done very easily (and it is completely intuitive with a mouse).

1. Switch off the device and switch it on again. When the device is starting now you see the boot manager window (blue background, white field inside and a red selection line) after a short time. If you see this window select "Backup/Recovery" and press **ENTER**.
2. After a short time you see a new window (blue background!) with five buttons. Select "**Make backup**" via the up or down arrow keys. Confirm this with the key **ENTER**. The device shows you the versions of what will be stored. Select the button "Make Backup" and the device starts working. This takes a while, but you get an information, when you can switch off the device (press the power on key for four seconds).

If you want to restore a previously saved version you select "**Restore Backup**" at point 2.

**HINT:** At the moment the backup/recovery it is the only (easy) way to downgrade a device from version 2.xx to 1.xx.

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2. Call Windows XP Embedded desktop

- Connect USB mouse to instrument.
- Turn on the instrument.
- Wait until R&S AFQ firmware boot window with the progress bars appears.
- Click the **Abort** button in the boot window or press **Alt-F4** on the USB keyboard. Booting of the instrument firmware is aborted and the Windows XP Embedded desktop is displayed.

3. Uninstall old firmware version

- Go to Control Panel / Add or Remove Programs
- Select your current AFQ firmware and click on button Remove  
This script file identifies and removes all currently installed R&S instrument software items. The process will take several minutes.
- Confirm to restart the instrument.

4. Install new firmware version

- Double-click item **AFQ\_3.50.201.17.exe (AFQ100A)** or **AFQ100B\_3.50.201.17.exe (AFQ100B)**
- Click the button "finish" when displayed (the instrument then restarts automatically).



## 3 Customer Support

### **Technical support – where and when you need it**

For quick, expert help with any Rohde & Schwarz equipment, contact one of our Customer Support Centers. A team of highly qualified engineers provides telephone support and will work with you to find a solution to your query on any aspect of the operation, programming or applications of Rohde & Schwarz equipment.

### **Up-to-date information and upgrades**

To keep your instrument up-to-date and to be informed about new application notes related to your instrument, please send an e-mail to the Customer Support Center stating your instrument and your wish. We will take care that you will get the right information.

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