

Keysight Technologies
N9010B, N9020B, N9030B, and N9040B
Signal Analyzers

Option FS2,
Enhanced Fast Sweep Speed

Notices

© Copyright 2017 Keysight Technologies, Inc.

The information contained in this document is subject to change without notice.

Keysight Technologies makes no warranty of any kind with regard to this material, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Keysight Technologies shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Manual Part Number

N9040-90044

Edition

Edition 1, January 2017

Printed in USA/Malaysia

Published by:

Keysight Technologies, Inc.
1400 Fountaingrove Parkway
Santa Rosa, CA 95403

Option FS2, Enhanced Fast Sweep Speed Upgrade

Products Affected:	N9010B, EXA Signal Analyzer N9020B, MXA Signal Analyzer N9030B, PXA Signal Analyzer N9040B, UXA Signal Analyzer
Serial Numbers:	All
Options Required:	N90x0B-DP2, Digital Processor, 2 GB Capture Memory
Applications Required:	None
To Be Performed By:	(X) Keysight Service Center (X) Personnel Qualified by Keysight (X) Customer
Estimated Installation Time:	0.5 Hours
Estimated Adjustment Time:	0 Hours
Estimated Verification Time:	0 Hours

Introduction

This installation note explains how to install the license necessary to enable Enhanced Fast Sweep Speed in EXA, MXA, PXA, and UXA signal analyzers.

NOTE

Instrument software revision A.18.22 or later is required to install this upgrade.

Option FS2, Enhanced Fast Sweep Speed Upgrade

Installation Kit Parts List

Quantity	Description	Keysight Part Number
1	Entitlement Certificate	5964-5178
1	Entitlement Certificate Envelope	5967-7169
1	Installation Note	This note

Tools Required

- Microsoft Windows based personal computer with internet access and USB port
- USB storage device with > 2GB free memory

Initial Instrument Functionality Check

Power on the instrument and allow the instrument to boot up. Run an alignment and display the measurement screen. (The instrument will probably display a spectrum analyzer screen and you will see the instrument sweeping.)

There should be no alignment failures. If there are failures, investigate and fix the problem before continuing.

Installation Procedure

Analyzer Information

1. Connect a power cord to the analyzer and turn on the analyzer.
2. After the analyzer has completed turning on, press **System, Show, System**. Make note of the following information from the Show System screen:

Product Number _____

Serial Number _____

Instrument S/W Revision _____

3. Check for the presence of the options listed below in the Show System screen. Put a check mark after each option listed below that appears in the show System menu. The “x” in “N90x0B” could be either 1, 2, 3, or 4 for an EXA, MXA, PXA, or UXA, respectively.

N90x0B-DP2 _____

N90x0B-MPB _____

N90x0B-TDS _____

N6141C-2FP or 2TP _____

4. Refer to the data in **step 2** above. Verify that the Product Number in **step 2** is appropriate for the Option FS2 upgrade being installed:

Option FS2 Upgrade	Product Number (Step 2)
N9010BU-FS2	N9010B
N9020BU-FS2	N9020B
N9030BU-FS2	N9030B
N9040BU-FS2	N9040B

If the Product Number in **step 2** is not appropriate for the Option FS2 upgrade, **do not proceed** with the installation.

5. Refer to the data in **step 2** above. If the Instrument S/W Revision is earlier than A.18.22, you must upgrade to revision A.18.22 or later. Even if A.18.22 or later is already installed, Keysight recommends that you update to the latest instrument software version to ensure that you have the latest defect fixes. To check the latest instrument software version, visit the following website: http://www.keysight.com/find/xseries_software

6. Refer to the data in **step 3** above. Verify that N90x0B-DP2 is checked (currently installed).

If N90x0B-DP2 is not installed, do not proceed with the installation of this kit. If the analyzer is either an EXA or MXA, a hardware upgrade to an analysis bandwidth ≥ 40 MHz will be necessary to make this analyzer compatible with Option FS2. All analyzers with analysis bandwidth hardware that supports 40 MHz bandwidth also include Option DP2. Refer to the System/Signal Analyzer Upgrades web page, and the **N90x0B** model numbers to determine what other upgrade kits are required to upgrade your analyzer:

<http://www.keysight.com/find/saupgrades>

Option FS2, Enhanced Fast Sweep Speed Upgrade

Update Instrument Software

Go to the following website and determine whether or not the analyzer has the latest instrument software already installed:

http://www.keysight.com/find/xseries_software

If the analyzer does not have the latest instrument software already installed, download and install the latest version.

Licensing the New Options

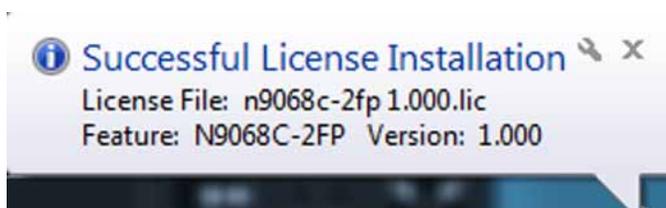
1. Locate the Option Upgrade Entitlement Certificate (5964-5178) from the kit.
2. Redeem the Option Upgrade Entitlement Certificate by following the instructions on the Certificate.
3. After redeeming your Option Upgrade Entitlement Certificate you will receive an email with an attached License File.
4. Locate a USB storage device. Perform a virus scan on this device before use.
5. Save the License file to the root directory of the USB storage device.
6. Connect the USB storage device to one of the analyzer's USB ports. Connect a mouse to another USB port. Windows will detect the new hardware and may display the configuration menu shown in **Figure 1**. This menu may be configured according to your preferences.

Figure 1 USB Storage Device Configuration Menu



- The signal analyzer will automatically consume the License File. (This may take a few minutes) When the License File is consumed the Keysight License Manager will display a “Successful License Installation” message as shown in [Figure 2](#). Since the license file contains multiple licenses, multiple “Successful License Installation” messages will appear. Wait until all licenses have been consumed before removing the USB storage device.

Figure 2 Successful License Installation



Verify the License Installation

- Before the licenses will be recognized, the XSA application must be restarted. Cycle power on the signal analyzer.
- Wait for the XSA application to finish starting (the analyzer should be sweeping). If the analyzer is sweeping continue to [step 6](#).
- If during the boot-up process, the instrument displays the window shown in [Figure 3](#), it means the instrument also has N90x0B-TDS and N6141C-2FP/2TP licensed. In [step 3](#) on [page 5](#), you should have placed check marks next to these two option designators.

The window is displayed because one of the FPGAs (Field Programmable Gate Arrays) inside the instrument does not have enough capacity to contain the FPGA images for both the Option FS2, Enhanced Sweep Speed, and Option TDS, Time Domain Scan (TDS used with EMC Application N6141C).

Notice near the bottom of the window, the **Currently Loaded** FPGA is displayed, and for this example, the Time Domain Scan is loaded. Do not confuse this with the **Selected FPGA** description that appears in the box, since the Selected FPGA entry can be used to choose what FPGA is about to be loaded, if you decide to load the other FPGA selection.

At this point you need to decide whether you want the instrument to replace the FPGA image that will enable the newly installed Enhanced Sweep Speed, or you want to continue using the currently installed Time Domain Scan to make EMI measurements.

- Keysight Service centers installing this kit for customers will want to enable Enhanced Sweep Speed since Option FS2 was ordered.

Notice the **Load FPGA** button in the window is grayed out until you choose to load the other FPGA image.

Option FS2, Enhanced Fast Sweep Speed Upgrade

If you want to replace the FPGA image, under **FPGA Load Preferences**, click the Enhanced Sweep Speed selection, then click **Load FPGA**. An update FPGA status window will appear, and it will take approximately 13 minutes for the instrument to perform this task.

NOTE

It is very important the instrument power is **not interrupted** during this process!

Notice under **FPGA Load Preference**, you can choose to be prompted with the window shown in **Figure 3**, each time the instrument boots up (default setting); or you can choose to not display the window by selecting which FPGA will be present when the instrument boots up.

NOTE

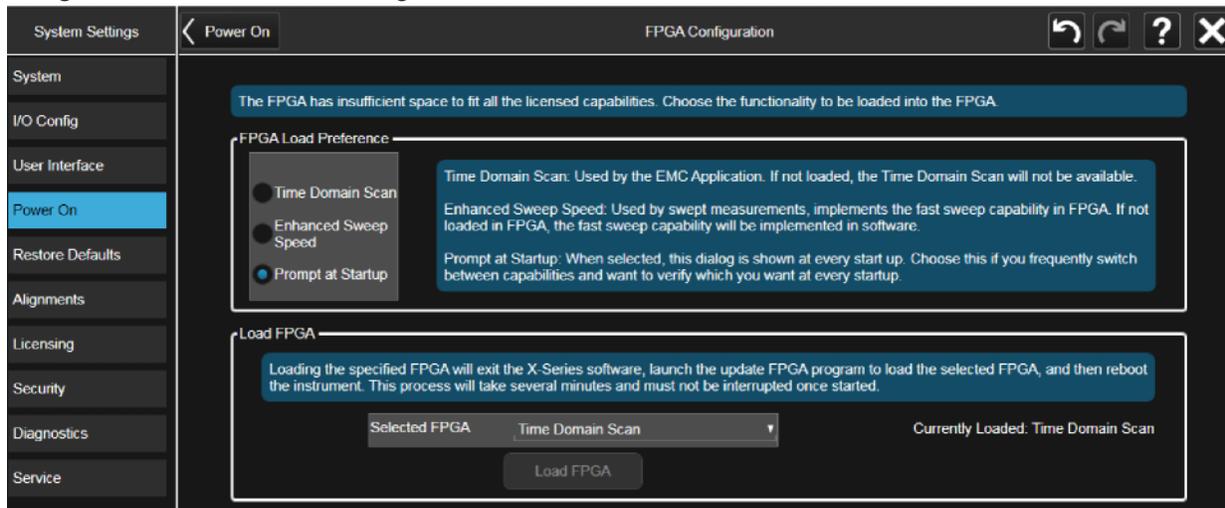
The FPGA image will not be reloaded at each reboot. Once you load an FPGA image, it will remain until you change it.

5. Keysight Service centers installing this kit for customers must leave the "Prompt at Startup" selection checked. When the customer powers up the instrument they will be advised of the situation, and will need to make a decision on how to proceed.

To make the window go away, press the **FREQ** key on the front panel.

To make the window reappear, press **System, Power On, FPGA Configuration**.

Figure 3 FPGA Configuration Screen



6. Press **System, Show System** on the analyzer to display a list of installed options. Verify that N90x0B-FS2 Enhanced Fast Sweep Speed (where "x" is either 1, 2, 3, or 4) appears.

Verify Option FS2 Functionality

1. With the analyzer in the Spectrum Analyzer mode, press **Mode Preset**.
1. Set **Center Frequency** to 3 GHz, **Span** to 100 MHz, **Res BW** 5.1 kHz.
2. Notice Sweep Time is 79.7 ms.
3. Select **Res BW** 4.7 kHz, and sweep time decreases to 13.9 ms.
4. If Option FS2 was not present, the sweep time with 4.7 kHz BW would be 93.4 ms

Option FS2, Enhanced Fast Sweep Speed Upgrade

Utilities, Adjustments, and Performance Verification Tests

Calibration Software and specified test equipment is required to perform the adjustments, and can be used to automate the performance verification testing.

Obtain Keysight X-Series Signal Analyzer Calibration Application SW, N7814A TME Calibration Application, version E.18.00 or later. Information on how to obtain this software can be found at:

<http://www.keysight.com/find/calibrationsoftware>

The following tests are required to assure the installation was performed correctly. The instrument may not have been in spec before the upgrade was begun. Performing only these tests does not guarantee that the analyzer meets all specifications.

Utilities Required

- None

Adjustments Required

- None

Performance Tests Required

- None

End of installation.

For assistance, contact your nearest Keysight Technologies Sales and Service Office. To find your local Keysight office access the following URL, or if in the United States, call the following telephone number:

<http://www.keysight.com/find/assist>

1-800-829-4444 (8 am - 8 pm ET, Monday - Friday)



This information is subject to change without notice.

© Keysight Technologies 2017

Edition 1, January 2017

N9040-90044

www.keysight.com