

Keysight Technologies

N9040B Signal Analyzers

Option FBP, Full Bypass Path

Notices

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Option FBP, Full Bypass Path

Products Affected	N9040B, UXA Signal Analyzer
Serial Numbers:	All
Options Required:	N9040B-B2X or B5X or H1G
To Be Performed By:	(X) Keysight Service Center () Personnel Qualified by Keysight () Customer
Estimated Installation Time:	1.0 Hours
Estimated Adjustment Time:	4.0 Hours
Estimated Verification Time:	2.0 Hours

Introduction

This installation note explains how to license, adjust, and verify performance of Option FBP, Full Bypass Path on N9040B instruments that contain Option B2X or B5X or H1G.

Option FBP provides a signal path through the instrument front end when the start frequency is 3.6 GHz or greater, where both the Preselector and the Low Band Assembly are bypassed, which results in low signal path loss and better sensitivity.

When Full Bypass Path is turned on, the standard Option MPB, Microwave Preselector Bypass is set to bypass the Preselector; and the standard Option LNP, Low Noise Path is set to bypass the Low Band Switch. In order for this FBP path to turn on, the start frequency must be greater than 3.6 GHz and the Preamplifier must be turned off.

The option is licensed for one instrument model number/serial number combination. The license file that is downloaded from the web will only install on the designated instrument.

Contents

Quantity	Description	Keysight Part Number
1	Installation Note	This note
1	Option Upgrade Entitlement Certificate	-----

Tools Required

- Personal computer with internet access and USB port
- USB storage device with > 3 GB free memory
- Keysight Calibration and Adjustment Software, N7814A (revision E.24.00 or later required)
- Test equipment and computer supported by the Keysight Calibration and Adjustment Software

Initial Instrument Functionality Check

1. Power on the instrument and allow the instrument to boot up, run the alignments and display the measurement screen. The instrument will probably display a spectrum analyzer screen and you will see the instrument sweeping.
2. 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.

N9040B-B2X _____

N9040B-B5X _____

N9040B-H1G _____

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

Option FBP Upgrade	Product Number (Step 2)
N9040BU-FBP	N9040B

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

5. Refer to the data in **step 2** above. If the instrument software is earlier than A.25.00, you must upgrade to version A.25.00 or later. 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

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6. Refer to the data in **step 3** above.

Verify that at least one of the selections are checked (currently installed).

If none of the selections are installed, do not proceed with the installation of this kit.

License Installation Procedure over USB

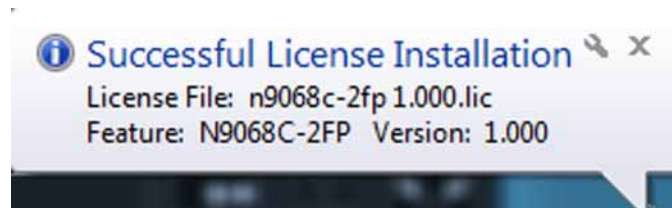
1. Locate the Option Upgrade Entitlement Certificate from the kit.
2. Redeem the Option Upgrade Entitlement Certificate by following the instructions on the Certificate.
3. After redeeming your Option Upgrade Entitlement Certificate you will receive an email with an attached License File.
4. Locate a 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 the signal analyzer 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



7. 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**.

Figure 2 Successful License Installation



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Alternate Installation Procedure

The License File can be manually installed over USB or LAN by placing the license file in the following folder on the signal analyzer

C:\Program Files\Agilent\licensing

Verify the License Installation and Hardware

1. Cycle power on the signal analyzer and wait until the analyzer boots to the measurement application screen.
2. Press **System, Show System** to display a list of installed options.
3. Verify that the installed options list contains the newly installed N9040B-FBP.

Instrument Software Installation

This upgrade requires instrument software version A.25.00 or later.

To verify the current version, press **System, Show System** and look for the "Instrument S/W Revision".

The latest revision of the X-Series Signal Analyzers software may be downloaded from:

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

Verify Option FBP Functionality

1. Press **MODE/MEAS**, and select Spectrum Analyzer, Swept SA.
2. Press **FREQ, Start Freq** and key in **4 GHz**. Press **Stop Freq** and key in **5 GHz**. This assures the start frequency is above 3.6 GHz, which is required in order to turn on the Full Bypass Path.
3. Press **AMPTD, Signal Path** and ensure Internal Preamp is set to Off. This is required in order to turn on the Full Bypass Path.
4. Press **uW Path Control**, and select **Full Bypass Enable**. You will hear the bypass switch click.
5. See **Figure 3**, and notice the Meas Bar at the top middle of screen shows uW Path:FByp On

Figure 3 Meas Bar Full Bypass On



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Utilities, Adjustments, and Performance Verification Tests

Utilities Required

None

Adjustments Required

Adjustment Name
Frequency Response Above 3.6 GHz Full Bypass Path
IF Frequency Response UWBIF Full Bypass Path
IF Phase Linearity

Performance Testing Required

Verification Test Name
Frequency Response Above 3.6 GHz Full Bypass Path Functional Test

Utilities Required

Utility Name
IF Frequency Response UWBIF Check (Utility) and print the output file
IF Phase Linearity Utility and print the output file

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)

