Keysight Technologies N9030B PXA Signal Analyzer

Option BUQ, 255 MHz Analysis Bandwidth Upgrade
for instruments with Option EPO currently installed.

KEYSIGHT TECHNOLOGIES

Installation Note

Notices

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
N9020-90283

Edition

Edition 1, July 2022
Supersedes July 2017

Printed in USA/Malaysia

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

Option BUQ, 255 MHz Analysis Bandwidth

Products Affected	N9030B, PXA Signal Analyzer
Serial Numbers:	All
Options Required	N9030B-MPB, Microwave Preselector Bypass N9030B-526, or 513, or 508 frequency range N9030B-EP0, Enhanced Performance DDS LO
To Be Performed By:	(X) Keysight Service Center ( ) Personnel Qualified by Keysight ( ) Customer
Estimated Installation Time: Estimated Adjustment Time: Estimated Verification Time:	2.5 Hours 6.0 Hours 4.0 Hours

Introduction

This installation note explains how to install Option B2X, 255 MHz Analysis Bandwidth, into a PXA that currently contains Option EP0 (Enhanced Performance DDS LO).

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.

NOTE N9030BU-B2X is the retrofit kit to upgrade to the 255 MHz Analysis BW when the instrument does not have Option EP0 installed.

Contents

Quantity	Description	Keysight Part Number
1	Installation Note	This note
1	Option Upgrade Entitlement Certificate	-----
1	Wideband Analog IF assembly	N9030-60038
1	Wideband Digital IF assembly	N9020-60311
1	Flex Circuit, WB DIF to WB AIF	N9030-60033
1	Spring Clip (for flex cable)	N9030-00002
1	Cable Kit, B2X	N9030-60037
3	Screw, Pan Head, M3x0.5 8 mm long	0515-0372
5	Screw, Flat Head, M3x0.5 5.8 mm long	0515-1035
4	Screw, Flat Head, M3x0.5 6 mm long	0515-1946

Tools Required

- Personal computer with internet access and USB port
- USB storage device with > 2 GB free memory
- T-10 TORX Driver
- T-20 TORX Driver
- 5/16-inch torque wrench, 10 inch-pounds
- 1/4-inch open-end wrench (for External Mixing cable)
- Keysight Calibration and Adjustment Software, N7814A (revision E.18.02 or later required)
- Test equipment and computer supported by the Keysight Calibration and Adjustment Software
- PXA Signal Analyzer Service Guide, N9030-90071. Available online.

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.

   N9030B-526, or 513, or 508 _____

   N9030B-MPB _____

   N9030B-EPO _____
4. Refer to the data in step 2 above. Verify that the Product Number in step 2 is appropriate for the upgrade being installed:

Kit to be Installed	Product Number (Step 2)
N9030BU-BUQ	N9030B

   If the Product Number in step 2 is not appropriate for the Option BUQ upgrade, **do not proceed** with the installation.
5. Refer to the data in step 2 above. If the Instrument software is earlier than A.18.24, you must upgrade to version A.18.24 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/N9030B_software
6. Refer to the data in step 3 above.

   Verify that N9030B-526, or 513, or 508 is checked (currently installed). This retrofit kit is for instruments with frequency range ≤ 26.5 GHz. It will not work on 3.6 GHz, or 44 GHz or 50 GHz instruments.

Verify that N9030B-MPB is checked (currently installed).

If N9030B-MPB is not installed, do not proceed with the installation of this kit. Option MPB, Microwave Preselector Bypass is required to obtain the wide 255 MHz analysis bandwidth for input frequencies above 3.6 GHz.

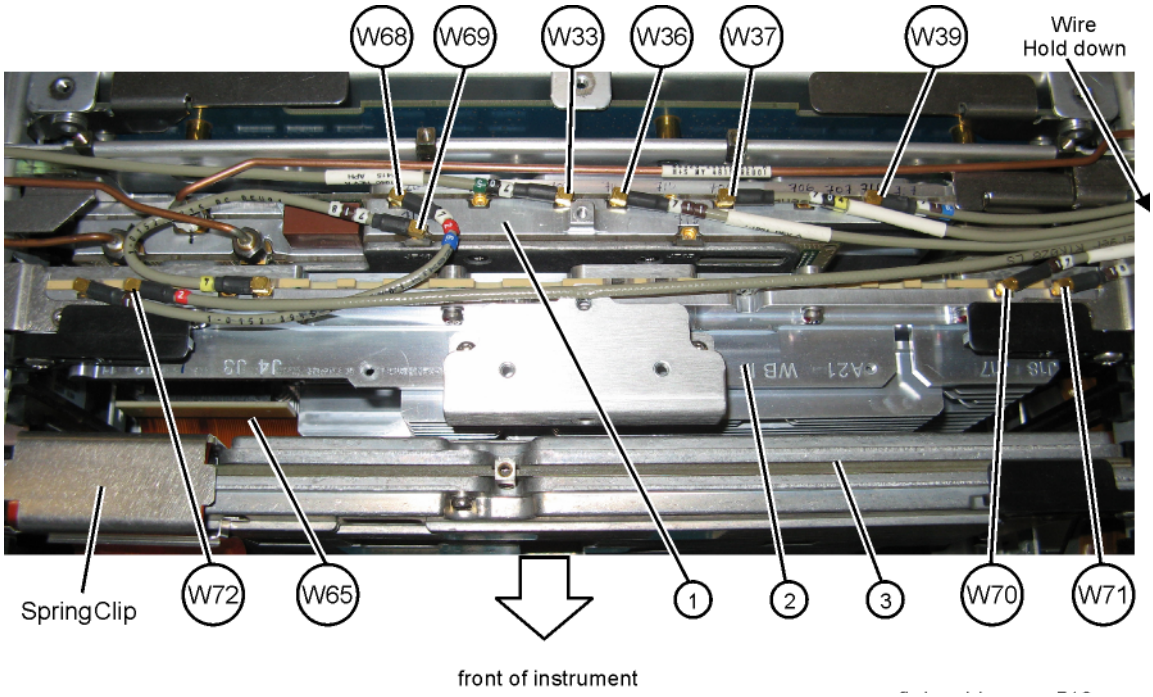
For information on how to order the Microwave Preselector Bypass, refer to the PXA upgrade page at:

http://www.keysight.com\find\pxa_upgrades

Installation of Option B2X Wide Bandwidth hardware

1. Power down the instrument, wait until the standby light comes on, and remove the power cord.
2. Remove the instrument side strap handles, feet, outer case, and top brace. See the PXA Service Guide Assembly Replacement Procedure section for the Top Brace removal. Save all screws for reuse.
3. Locate the replacement Wideband Analog IF, Wideband Digital IF, and the Flex Circuit in the kit. Connect the Flex Circuit to the header on left side of the Wideband Analog IF assembly, with the cable pointing down.
4. Refer to Figure 1. Install the Wideband Analog IF (2) into motherboard slot 3. Be sure to avoid damaging the Flex Circuit cable and the coax cables that run over the right hand chassis rail.
5. The Flex Circuit cable will attach to the upper left side of the Wideband Digital IF. Assure the loose end of Flex Circuit cable is above the chassis rail.
6. Install the Wideband Digital IF (3) into slot 5. and connect the Flex Circuit cable to the Digital IF header. Locate the metal Spring Clip in the kit, and carefully install it over the Wideband Digital IF Flex Circuit as shown in Figure 1.
7. Locate two flathead screws (0515-1035) in the kit and attach the Wideband Analog IF to the chassis.

Figure 1 Wideband Analog IF and Wideband Digital IF installed in card cage



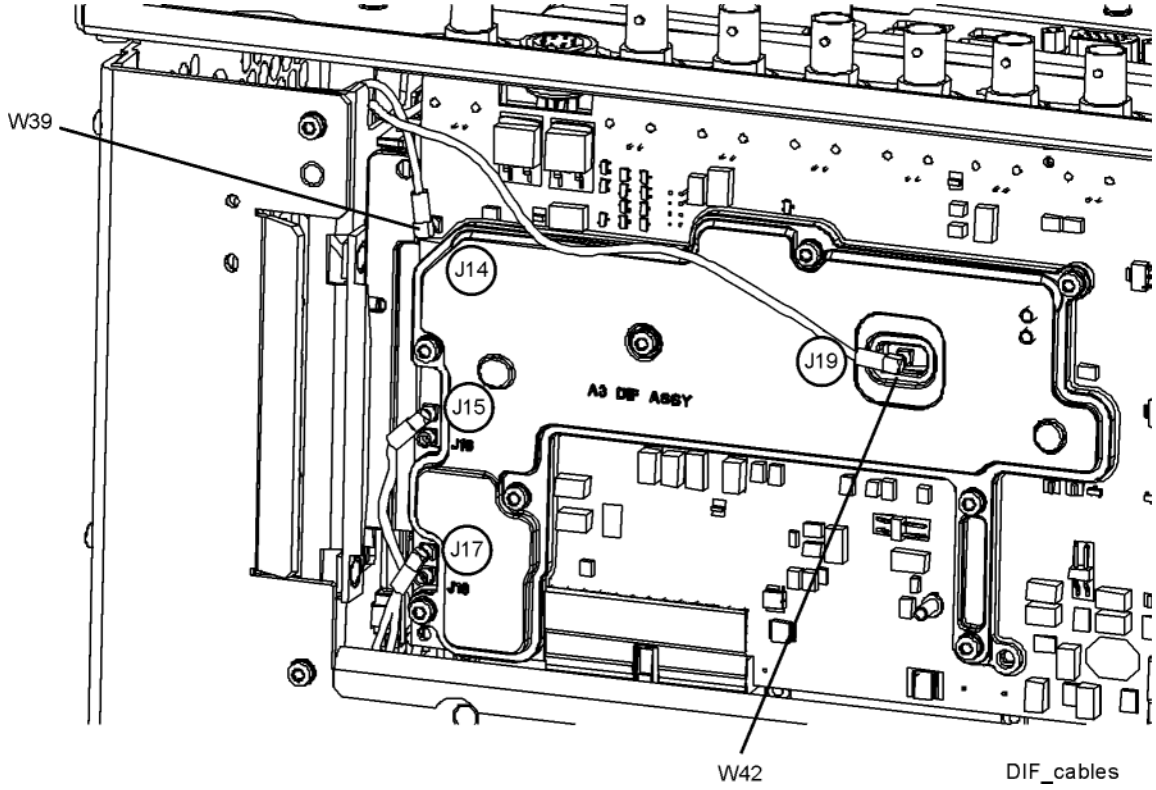
8. Locate the B2X cable kit. Locate the coax cable with color code bands 726 on one end and color code 1 on the other end (W68). Install the cable as shown in Figure 1. Color code 1 end is connected to the Wideband Analog IF at J1. You will need to remove the existing color code 726 cable from the Reference assembly (1). This cable will be discarded later.

9. In the cable kit, locate the coax cable with color bands 718 and 4 (W69), and install the cable as shown in Figure 1. Color code 4 end is connected to WB AIF at J4.

10. Refer to Figure 1. Remove the pan head screw on the right side attaching the wire hold down to the chassis. This will allow routing of additional cables from the Wideband Analog IF.

11. Refer to Figure 2 showing the A3 Digital IF assembly. Remove the coax cables from J15 and J17. These cables will be discarded after you separate them from the rest of the cables. You will need to cut some cable ties to free these two cables.

Figure 2 A3 Digital IF Assembly and Cable Connections



12. Locate the coax cable with color code 2 and color code 17 in the B2X Cable kit. Insert the color 2 end to the Wideband Analog IF assembly at J2. This is cable W72. See Figure 1.

13. Route the other end of this cable down the right side of the instrument to the A3 Digital IF board, and insert the cable into J17 of the Digital IF board. See Figure 2.

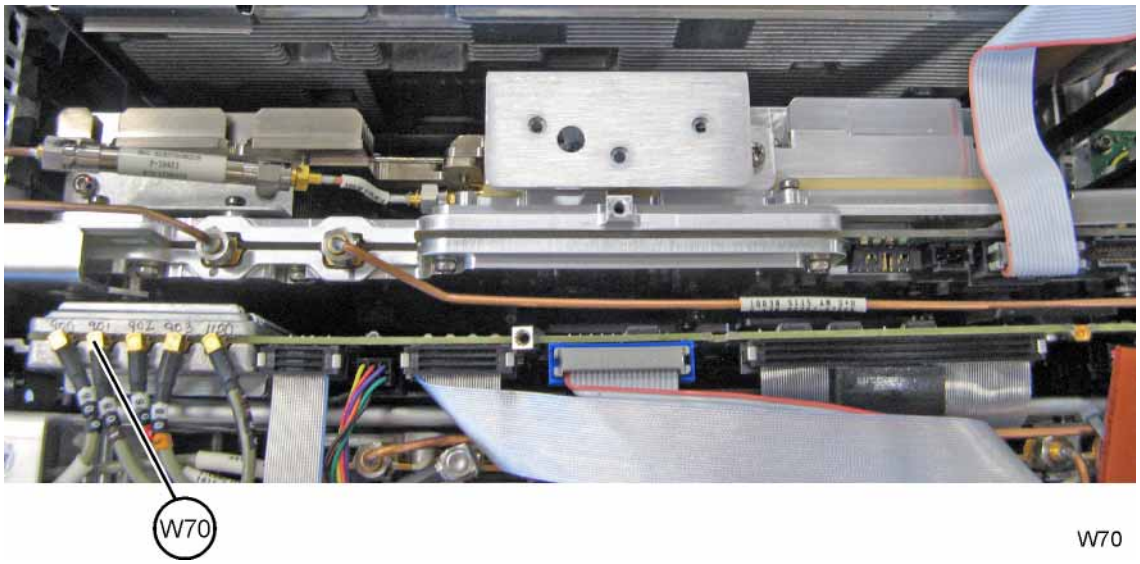
14. Locate the coax cable with color code 18 and color code 15 in the B2X Cable kit. Insert the color 18 end to the Wideband Analog IF assembly at J18. This is cable W71. See Figure 1.

15. Route the other end of this cable down the right side of the instrument to the A3 Digital IF board, and insert the cable into J15 of the Digital IF board. See Figure 2.

16. Replace any cable ties removed to bundle the coax cables going to the A3 Digital IF.

17. Refer to Figure 3. Remove color code 901 cable (W70), cut cable ties to free this cable, and discard cable.

Figure 3 Front End Controller W70 Location



18. Locate the coax cable with color code 901 and color code 17 in the B2X Cable kit. This is cable W70. Insert the color 17 end to the Wideband Analog IF assembly at J17. Route the cable forward behind the attenuator and switch brackets. Route the cable in front of the Front End Assembly, and attach the cable to the A15 Front End Control board at J901. See Figure 1 that shows the color code 17 end connected to WB AIF J17. See Figure 3 also.

19. Re-attach cable ties and check cable routing to assure cables will not be pinched when covers are installed.

20. Replace the pan head screw, 0515-0372, in the wire cable hold down to the right of the WB AIF and Reference assemblies.

Instrument Software Installation

Upgrade the software to the latest revision. Even if the software is at the latest revision, reinstall the software because the software installation re-programs the FPGAs in the instrument.

The latest revision of the X-Series software can be downloaded from:
http://www.keysight.com/find/N9030B_software

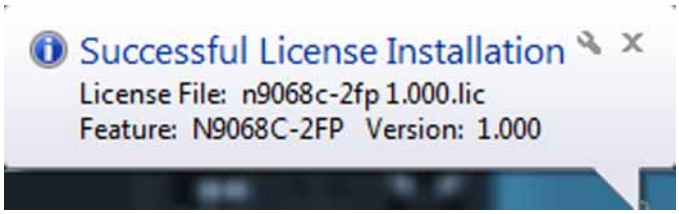
License Installation Procedure over USB

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 4. This menu may be configured according to your preferences.

Figure 4 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 5.

Figure 5 Successful License Installation



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 N9030B-B2X.

Complete the Hardware Installation

1. Replace the top brace, instrument cover and bottom and rear feet.
2. Power up the instrument.

Verify Option B2X Functionality

1. Press **MODE/MEAS**, and select I/Q Analyzer (Basic). Assure Complex Spectrum is highlighted. Tap OK. Tap Frequency to view the pull down menu and select Meas Setup. Tap IF Path, then IF Path again and verify 255 MHz appears. Select this 255 MHz path.
2. Turn on the 50 MHz calibrator signal (**Input/Output**, **RF Calibrator**, select **50 MHz**), and set the span to 255 MHz. (press **Frequency**, select **Span**, **255 MHz**). Tune the analyzer center frequency to 50 MHz. The 50 MHz signal (and LO feed through and -50 MHz) should appear on screen.

Utilities, Adjustments, and Performance Verification Tests

Utilities Required

None

Adjustments Required

Adjustment Name
Perform: 50 MHz Calibrator Amplitude 4800 MHz calibrator Amplitude IF Frequency Response IF Frequency Response UWBIF IF Input Gain Option EXM (if present)

Performance Testing Required

Verification Test Name
Perform all tests

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)

Edition 1, July 2022

N9020-90283

www.keysight.com