

# Keysight Technologies N9040B UXA Signal Analyzer

Option B2X, 255 MHz Analysis Bandwidth

Notice: This document contains references to Agilent. Please note that Agilent's Test and Measurement business has become Keysight Technologies. For more information, go to [www.keysight.com](http://www.keysight.com).

# Notices

© Copyright 2016-2022 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**

N9040-90017

## **Edition**

Edition 1, July 2022

Supersedes April 2016

Printed in USA/Malaysia

Published by:

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

## Option B2X, 255 MHz Analysis Bandwidth

Products Affected	UXA N9040B
Serial Numbers:	All
To Be Performed By:	<input checked="" type="checkbox"/> Keysight Service Center <input type="checkbox"/> Personnel Qualified by Keysight <input type="checkbox"/> Customer
Estimated Installation Time:	2.0 Hours
Estimated Adjustment Time:	6.0 Hours
Estimated Verification Time:	4.0 Hours

### Introduction

This installation note explains how to install Option B2X, 255 MHz Analysis Bandwidth, into a UXA signal analyzer.

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	-----
1	Wideband Analog IF assembly	N9020-60043
1	Wideband Digital IF assembly	N9020-60311
1	Flex Circuit, WB DIF to Flex Circuit Interconnect Bracket	N9040-60045
1	Flex Circuit, WB AIF to Flex Circuit Interconnect Bracket	N9040-60042
1	Bracket, Flex Circuit Interconnect	N9040-00025
1	Spring Clip (for flex cable)	N9040-00035
1	Cable Kit	N9040-60070
4	Screw, Pan Head, M3 x 0.5 8 mm long	0515-0372
15	Screw, Flat Head, M3 x 0.5 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
- Keysight Calibration and Adjustment Software, N7814A (revision E.16.00 or later required)
- Test equipment and computer supported by the Keysight Calibration and Adjustment Software
- UXA Signal Analyzer Service Guide, N9040-90006. Available online.

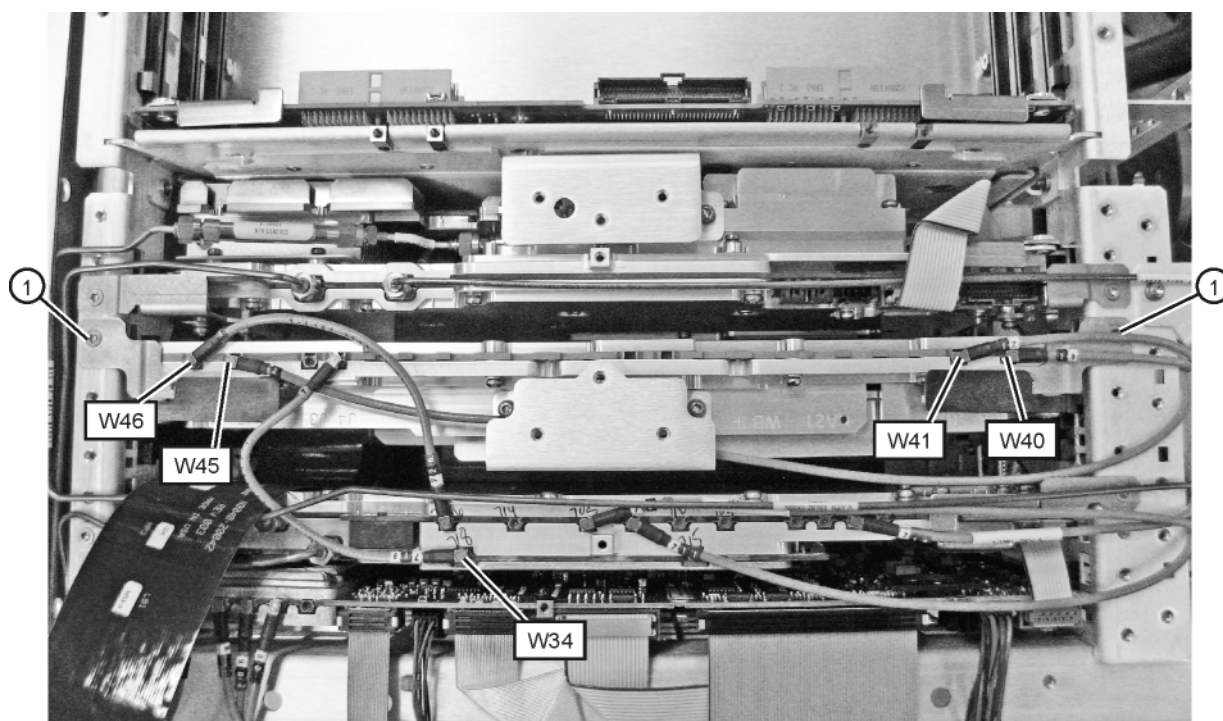
## Initial Instrument Functionality Check

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.

## Wideband Analog IF Assembly Hardware Installation

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, top brace front, top brace rear, and remove the rear panel (be careful to not damage the cables), and remove the rear brace. See the UXA Service Guide Assembly Replacement Procedure section for A22 and A23 WB Digital IF Boards. Save all screws for reuse.
3. Disconnect the gray ribbon cable from the rear motherboard. This cable runs from the front of the instrument, and must be disconnected to allow the Wideband Analog IF to be installed.
4. Locate the Wideband Analog IF Assembly and the **N9040-60042** Flex Circuit Cable in the kit. Install the Flex Circuit cable into the connector on the Wideband Analog IF Assembly. This flex cable will be connected to the other flex cable in the kit later in the installation process.
5. Install the Wideband Analog IF into card cage connectors J8 and J10. See **Figure 1**.
6. Locate 2, **0515-1946** flat head screws in the kit and secure the board brackets to the chassis using these screws (1). Torque to 9 inch-pounds.

**Figure 1** Wideband Analog I.F. Installed in Card Cage

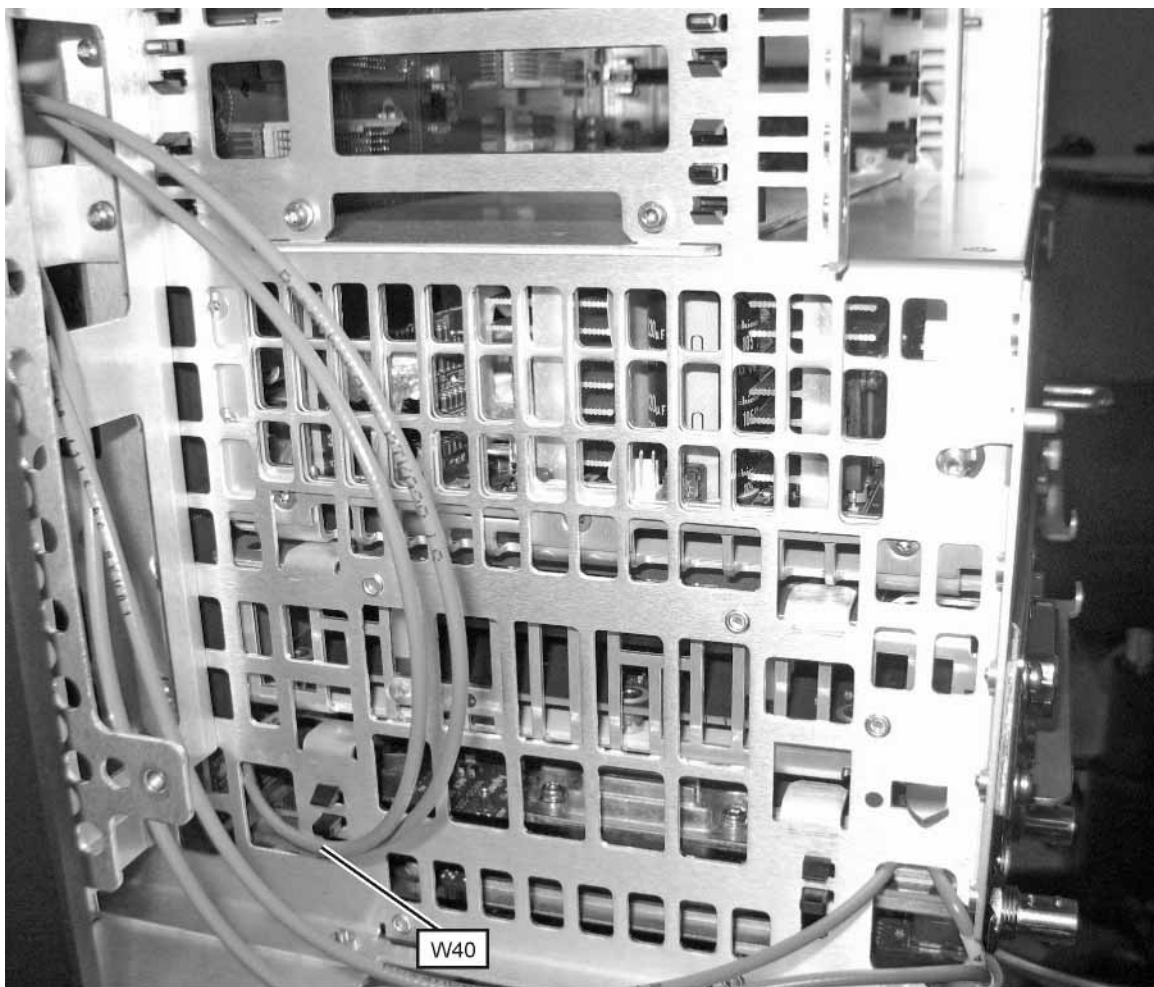


B2X\_board\_cables

7. Locate the gray coax cables in the kit. Find the short cable, W46, with color code 1 on one end, and color codes 726 on the other end. Attach the color code 1 end of the cable to the Wideband Analog IF at J1 as shown in **Figure 1**. Attach the other end of the cable to the Reference board J726.

8. Locate the W45 cable with color code 2 on one end and 17 on the other end. Attach color code 2 end to the Wideband Analog IF at J2. Route the cable as shown in **Figure 2**, the other end of the cable will be routed later to the A3 Digital IF.
9. Locate the W34 cable with color code 4 at one end and color code 718 at the other end. Attach the color code 4 end to Wideband Analog IF at J4, and the other end to A16 Reference assembly at J718.
10. Locate W41 cable with color code 17 at one end and color code 901 at the other end. Attach the color code 17 end to the Wideband Analog IF at J17, and the other end to A15 Front End Controller at J901. Remove cable that is on A15J901, it will be discarded after the other end of the cable at A3J15 is removed later.
11. Locate W40 cable with color code 18 at one end and color code 15 at the other end, Attach the color code 18 end to the Wideband Analog IF at J18. The other end of the cable will be routed to the A3 Digital IF assembly.
12. See **Figure 2** that shows the hole in the chassis the W40 cable routes through in order to connect to A3J15.

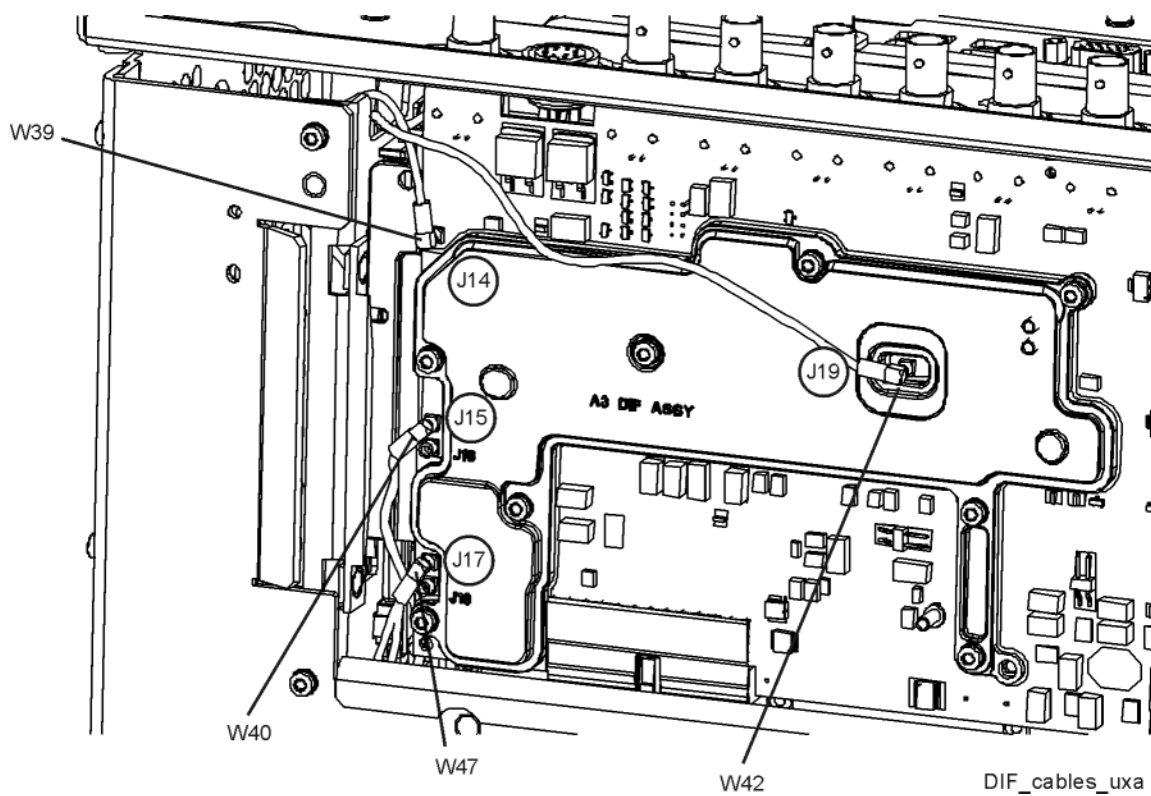
**Figure 2** Cable Routing



B2X\_cable\_route

13. See **Figure 3** that shows where the color code 15 end of W40 connects to the A3J15, Digital IF assembly.

**Figure 3** DIF Cables Showing W40 Connection to J15

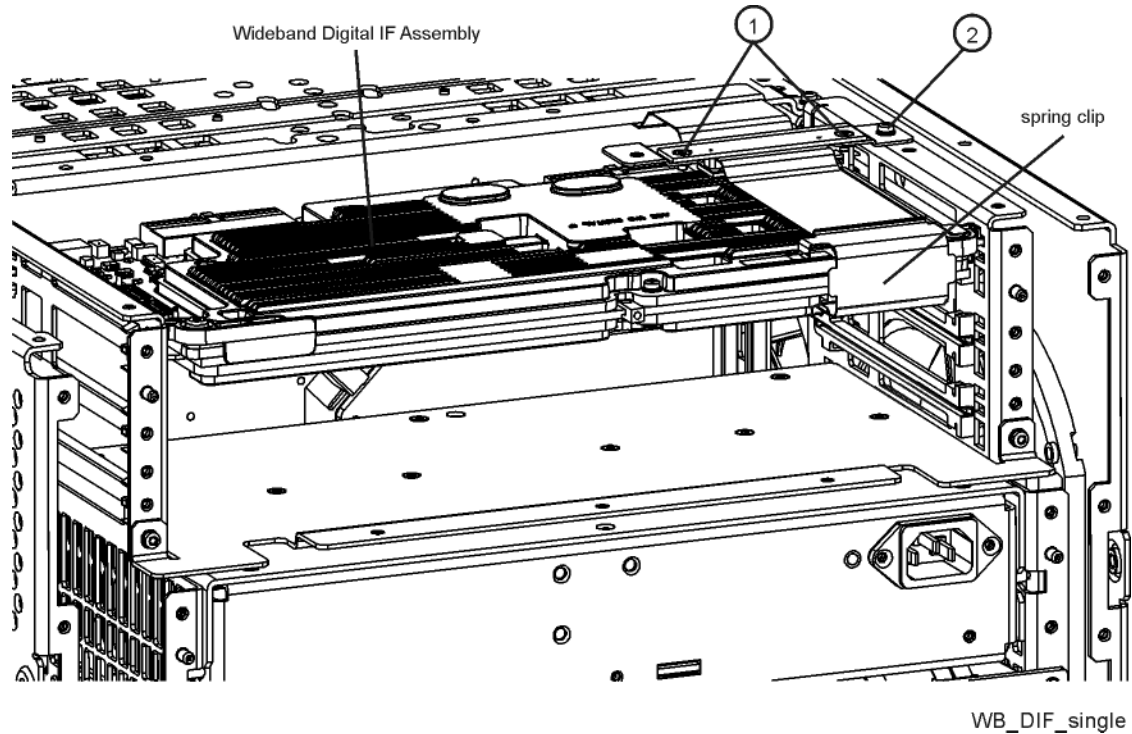




## Wideband Digital IF Assembly Hardware Installation

14. See **Figure 4**. Locate the Wideband Digital IF assembly in the kit. Install the assembly into the top card slot as shown.

**Figure 4** Wideband Digital I.F. Installation



15. Locate the **N9040-60045** Flex Circuit cable in the kit and connect one end to the Wideband Digital IF assembly and the other end to the Flex Cable previously installed on the Wideband Analog IF assembly.
16. Locate the "**Bracket, Flex Circuit Interconnect**" in the kit. This bracket secures the flex circuit connection you made in the previous step. See **Figure 4**. attach the flex cable connection to the interconnect bracket using the two flat head screws (1), and mount the interconnect bracket to the instrument frame using a pan head screw (2) and torque to 9 inch-pounds.

- 17.** Locate the spring clip in the kit. Install the spring clip to secure the flex circuit connection on the Wideband Digital IF assembly.
- 18.** Re-install the Rear Brace and the Rear Panel. An additional flat head screw, **0515-1946** is required to secure the new Wideband Digital IF assembly to the rear panel. This flat head screw is in the bag of screws in the kit. Torque to 9 inch-pounds
- 19.** Re install the front top brace and use the **0515-1946** flat head screws in the kit in the countersunk locations. Torque to 9 inch-pounds.
- 20.** Reinstall the rear top brace and outer case, side strap handles, and feet.
- 21.** Power up the instrument. Assure the instrument passes the auto alignments

## 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 5**. This menu may be configured according to your preferences.

**Figure 5** 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 6**.

**Figure 6** Successful License Installation



Option B2X, 255 MHz Analysis Bandwidth

### 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-B2X. You will see Option DP4 appear also, and this is the extra capture memory the new Wideband Digital IF assembly provides.

## Instrument Software Installation

This upgrade requires instrument software version A.17.07 or later.

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

Even if the instrument software is the latest, reinstalling the software will reprogram the FPGAs in the new Wideband Digital IF assemblies.

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

[http://www.keysight.com/find/xseries\\_software](http://www.keysight.com/find/xseries_software)

## 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. The Microwave Preselector Bypass is automatically turns on at this point. The preselector bypass is mentioned only because it is possible during installation of the kit, a cable was not installed or tightened, and this could be one reason you do not see a correct signal.

Option B2X, 255 MHz Analysis Bandwidth

## Utilities, Adjustments, and Performance Verification Tests

### Utilities Required

None

### Adjustments Required

Adjustment Name
Perform all IF Flatness adjustments
Remember to perform YTF Alignment. Press <b>System, Alignments, Advanced, Characterize Preselector</b> .
Perform Characterize Noise Floor. Press <b>System, Alignments, Advanced, Characterize Noise Floor</b> .

### 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)

