# Keysight PXA Signal Analyzer Option B85 or Option HLB 85 MHz Analysis Bandwidth

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## Installation Note

Part Number N9030-90069
Printed in USA August 2014

KEYSIGHT TECHNOLOGIES

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# Option B85 or Option HLB 85 MHz Analysis Bandwidth Retrofit Kit

| | |
|---|---|
| Products Affected: | PXA N9030A, Option 503, 508, 513, 526, 543, 544, 550 |
| Serial Numbers: | All |
| To Be Performed By: | (X) Agilent Service Center |
| | (X) Personnel Qualified by Agilent |
| | ( ) Customer |
| Estimated Installation Time: | 1.5 Hours |
| Estimated Adjustment Time: | 1.0 Hours |
| Estimated Verification Time: | 4.0 Hours |

## Introduction

This installation note explains how to install the hardware and provides guidelines for adjustment and verification for Option B85, 85 MHz Digital I.F.

Option B85 provides capability of measuring digitally modulated signal with a analysis bandwidth capability of 85 MHz. This option also includes Option B25 and B40 that is installed during the license installation portion of the upgrade.

Option HLB is the ordering number for the retrofit kit that installs Option B85 on instruments with Option B40 previously installed.

**NOTE** Instrument software revision A.13.12 required.

**NOTE** The instrument must be readjusted and the performance tested to assure the instrument meets specifications following the hardware installation. The X-Series Performance Verification and Adjustment Software must be used. All adjustments are automated. This software is included in the N7814A, Agilent X-Series Signal Analyzer Calibration Application software.

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.

## Installation Kit Parts List

| Quantity | Description | Agilent Part Number |
|---|---|---|
| 1 | Installation Note | This note |
| 1 | Option Upgrade Entitlement Certificate | 5964-5178 |
| 1 | Wideband Analog IF Assembly | N9020-60044 |
| 1 | Wideband Digital IF Assembly | N9020-60257 |
| 1 | Cable Assembly, Flat Flexible 80-Conductor 3-in-LG | 8121-1854 |
| | Cable Kit, includes cables below: | |
| 1 | Cable Assembly, Coaxial 650 mm-LG<br>(with color bands 901 and 101 attached) | 8121-1865 |
| 1 | Cable Assembly, Coaxial 120G<br>(with color bands 806 and 726 attached) | 8121-0152 |
| 1 | Cable Assembly, Coaxial 120G<br>(with color bands 718 and 301attached) | 8121-0152 |
| 1 | Cable Assembly, Coaxial 530 mm LG<br>(with color bands 102 and 15 attached) | 8121-1401 |
| 1 | Cable Assembly, Coaxial 530 mm LG<br>(with color bands 17 and 805 attached) | 8121-1401 |

### Tools Required

- ❏ T-10 TORX Driver
- ❏ T-20 TORX Driver
- ❏ 5/16-inch torque wrench
- ❏ Agilent Calibration and Adjustment Software,
  N7814A TME Calibration Application, version E.11.00 or later
- ❏ Test equipment and computer supported by the X- Series Performance Tests and Adjustment Software
- ❏ PXA Signal Analyzer Service Guide. This manual is available for immediate download in PDF format from:

  http://cp.literature.agilent.com/litweb/pdf/N9030-90030.pdf
- ❏ Microsoft Windows based personnel computer with internet access and USB port
- ❏ USB storage device with > 2 GB 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.

| | |
|---|---|
| **WARNING** | **Before you disassemble the instrument, turn the power switch to Standby and unplug the instrument. Failure to unplug the instrument can result in personal injury.** |

| | |
|---|---|
| **CAUTION** | Electrostatic discharge (ESD) can damage or destroy electronic components. All work on electronic assemblies should be performed at a static-safe workstation. Refer to the documentation that pertains to your instrument for information about static-safe workstations and ordering static-safe accessories. |

# Procedure

**CAUTION** If the instrument is placed on its face during any of the following procedures, be sure to use a soft surface or soft cloth to avoid damage to the front panel, keys, or input connector.

**NOTE** Make sure any adapters on the front panel are removed.

### Installing the License Files

1. Locate the Option Upgrade Entitlement Certificate in the kit and follow the directions to redeem it. A License Key Certificate that contains the license file will be e-mailed to you.
2. Plug in instrument and power up.
3. Install the license file via a USB storage device into the instrument.
4. The instrument will automatically install the license file that enables Options B85, B25, and B40.
5. Power the instrument off. You are now ready to install the hardware.

### Remove the instrument outer case, top brace, front panel, and right side chassis (RF side bracket)

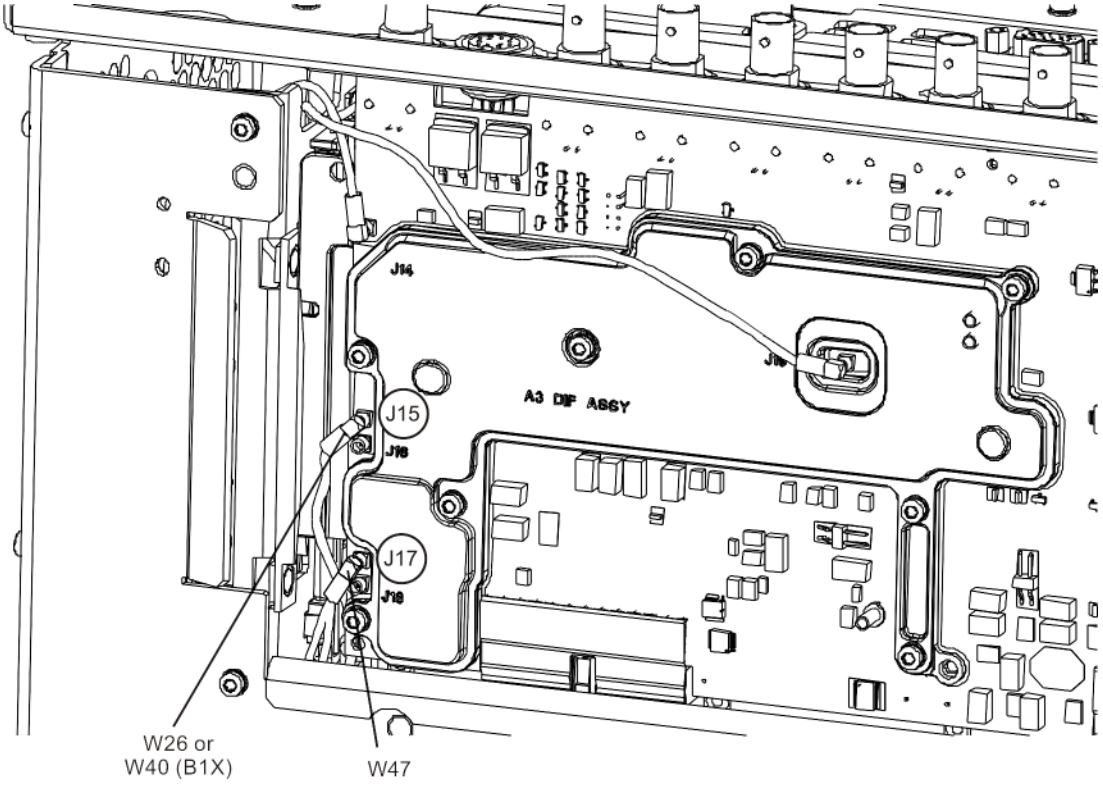
See the Instrument Outer Case, Top Brace, front panel, and right side chassis removal procedures in the Service Guide's "Assembly Replacement Procedures" chapter.

### Installing the retrofit kit

### Removing Cables

1. Refer to Figure 3. Remove wire cable hold down on right side of chassis to free gray coax cables.
2. Remove cable ties from bundle of gray coax cables.
3. Refer to Figure 1 that shows the A3 Digital IF assembly located on the bottom side of the instrument. Remove cable W47 connecting A3 Digital IF J17 to A16 Reference Assembly J726. Note cable routing from Digital IF J17 through the opening in the side panel. This cable will not be reused.
4. Remove cable W26 connecting A15 Front End Controller J901 to A3 Digital IF J15. Note cable routing from Digital IF J15 through the attenuator brackets and switches. This cable will not be reused.

**Figure 1 A3 Digital IF Assembly Cables**

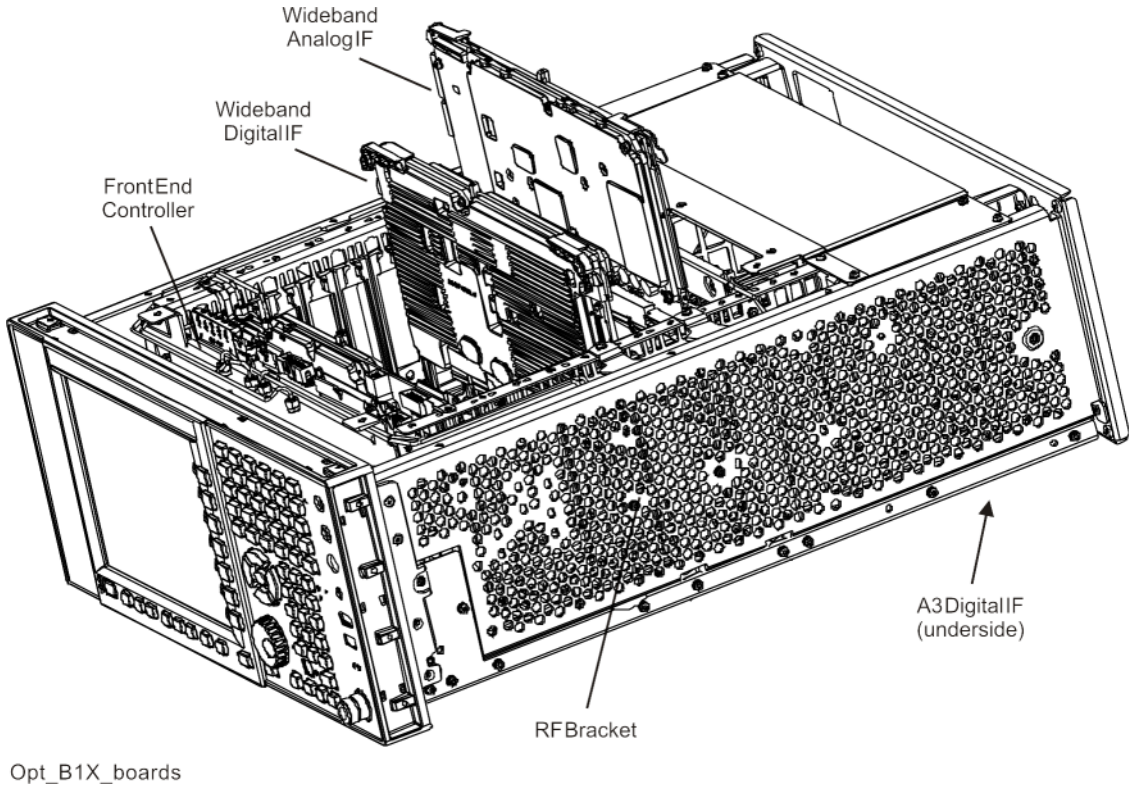



Opt_B1X_bottom_cables

### Installing Boards and Cables

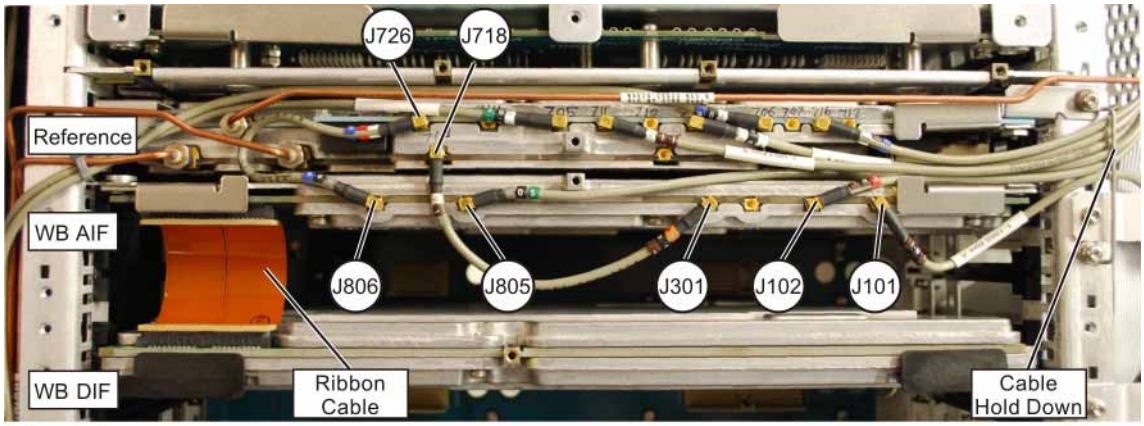
1. Refer to Figure 2. Install the Wideband Analog IF assembly into slot 3.
2. Install the Wideband Digital IF into slot 5. Slot 4 *must remain empty*.

**Figure 2 Board Installation**



3. Connect the flat ribbon cable 8121-1854 between the Wideband Analog IF assembly and the Wideband Digital IF assembly.

**Figure 3 Option Cables**



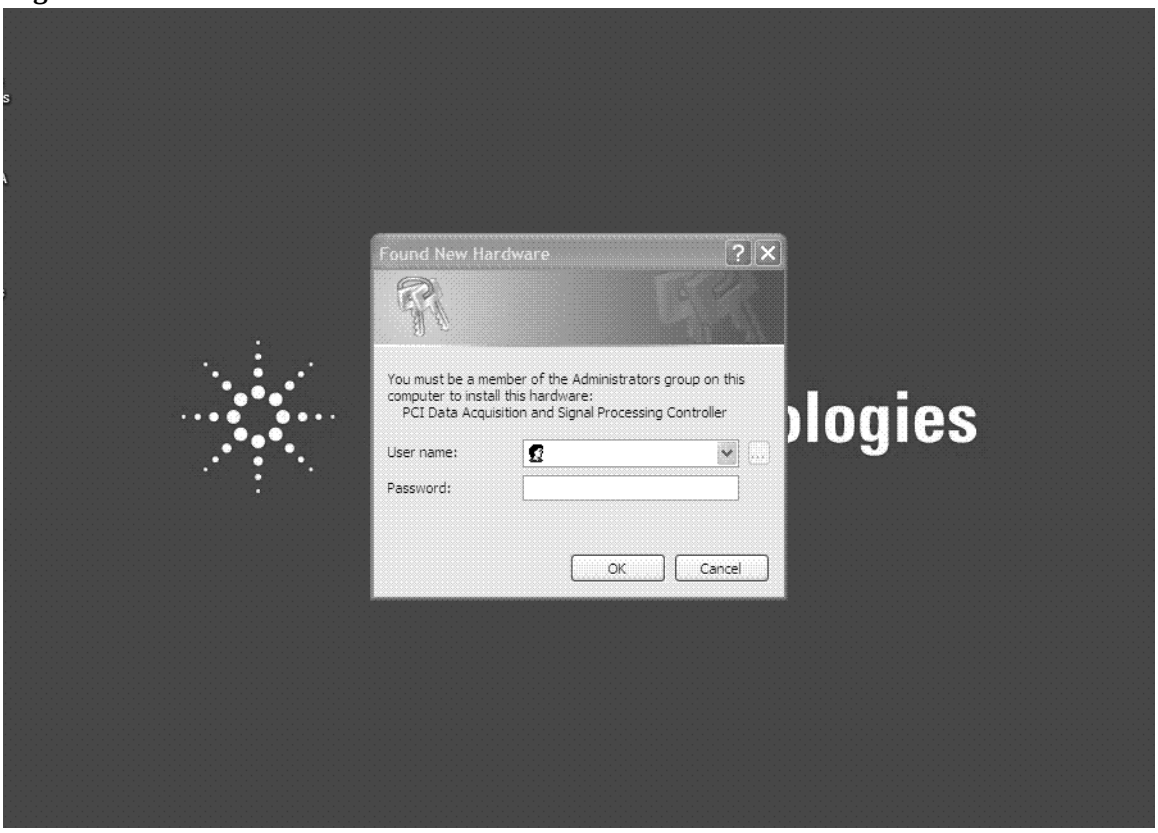

b1x_cables

4. Select the coax cable with color bands 102 and 15 from the kit. Connect the cable end with color code 102 to Wideband Analog IF assembly J102. Connect the other end of the cable to the A3 Digital IF J15. This cable must route through the chassis hole the same as the cable removed earlier.
5. Select the coax cable with color bands 805 and 17 from the kit. Connect the cable end with color code 805 to Wideband Analog IF assembly J805. Connect the other end of the cable to the A3 Digital IF assembly at J17. The cable must route through the same chassis hole as the cable installed in step 4.
6. Select the coax cable with color bands 301 and 718 from the kit. Connect the cable end with color code 301 to Wideband Analog IF assembly J301. Connect the other end of the cable to the A16 Reference assembly at J718.
7. Select the coax cable with color bands 806 and 726 from the kit. Connect the cable end with color code 806 to Wideband Analog IF assembly J806. Connect the other end of the cable to the A16 Reference assembly at J726.
8. Select the coax cable with color bands 101 and 901 from the kit. Connect the cable end with color code 101 to Wideband Analog IF assembly J101. Connect the other end of the cable to the A15 Front End Controller assembly at J901. This cable must route through the attenuator brackets and switch brackets the same as the W26 cable removed earlier.
9. Re-install the wire cable hold down. Assure the cables lay flat.
10. Attach two cable ties around the bundle of gray cables.
11. Re-install the right side RF bracket, top brace, and instrument cover. Be careful and avoid smashing cables when installing the top brace.

### Power Up and New Hardware Wizard

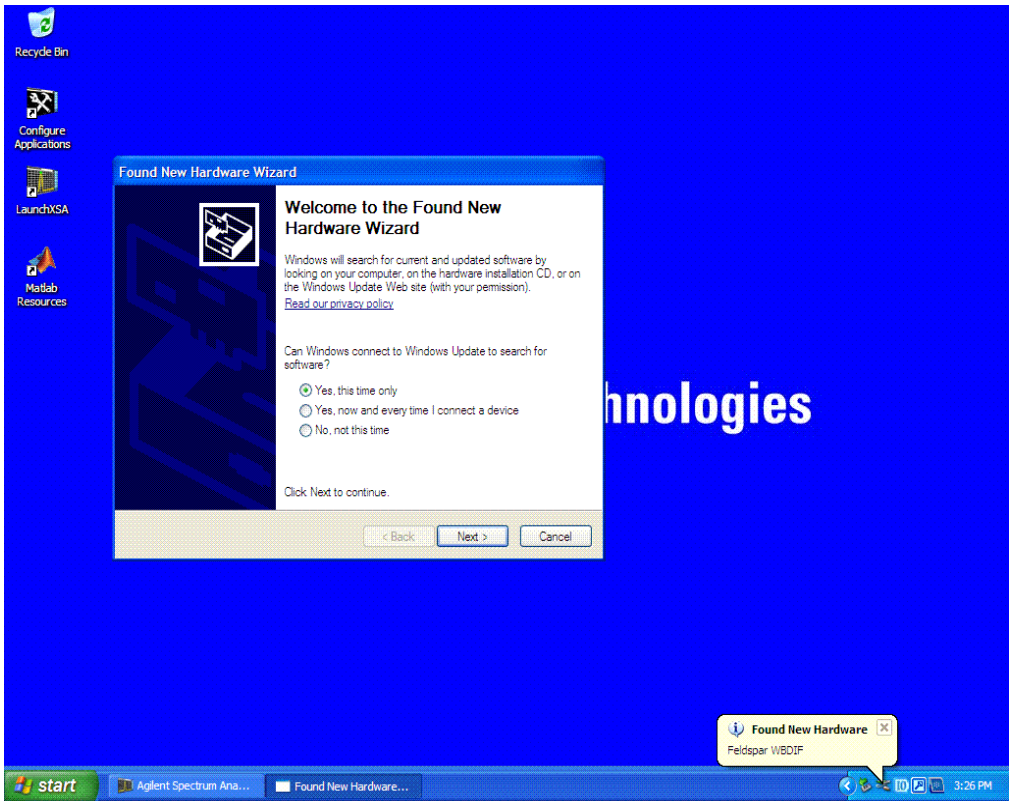
1. Connect a keyboard and mouse to the instrument.
2. Power on the instrument.
3. During the boot up process you may notice that the “Found New Hardware” bubble appears in the lower right screen, and a “Found New Hardware’ message window appears for a short period, and then is covered by the analyzer splash screen.
4. After the instrument is completely booted, press the front panel File key, select Exit, and click OK to view the desktop and see the “Found New Hardware” window shown in Figure 4.

**Figure 4**



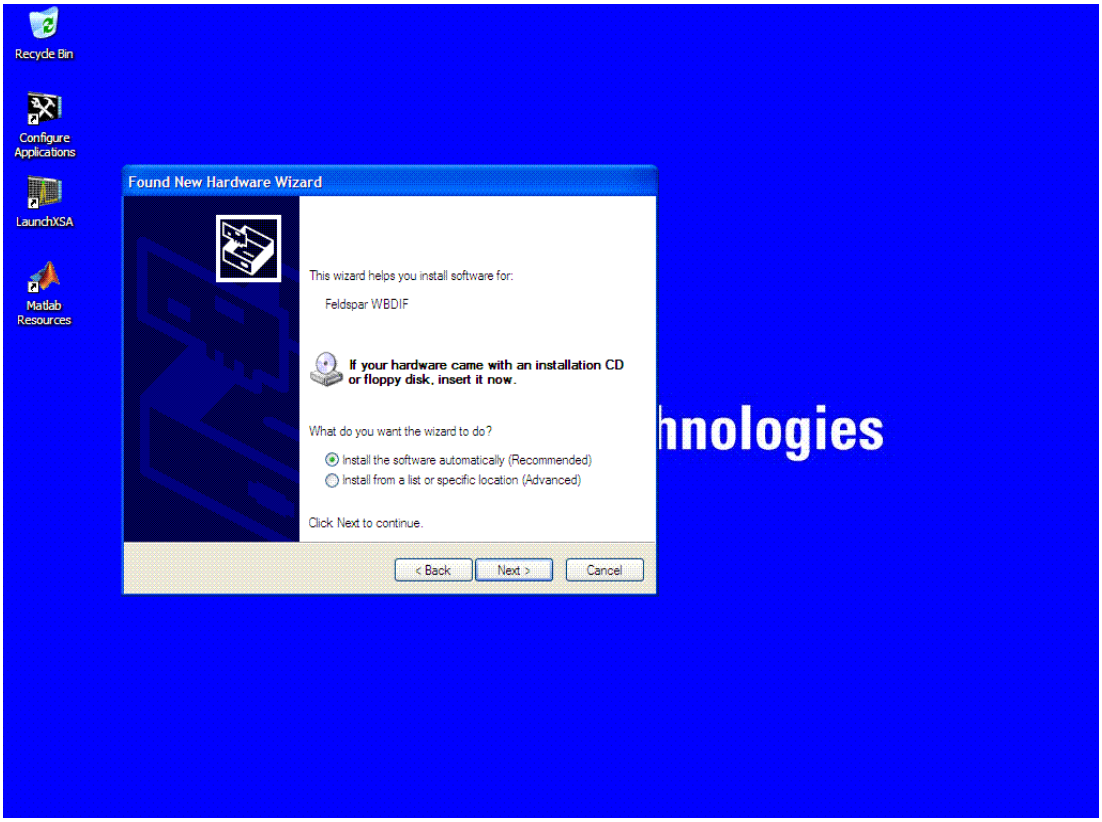

5. Enter **administrator** as the user name, and **agilent4u** as the password. Select OK.
6. The screen in Figure 5 appears. Select Yes, This time only. Click Next.

**Figure 5**




7. The screen in Figure 6 appears. Ensure “Install the software automatically’ is selected and click Next.

**Figure 6**




8. The wizard will install the required software. Once you see the “Completing the Found New Hardware Wizard” screen appear, click Finish.

### Update the instrument Software

**NOTE** Instrument software revision A.13.12 required.

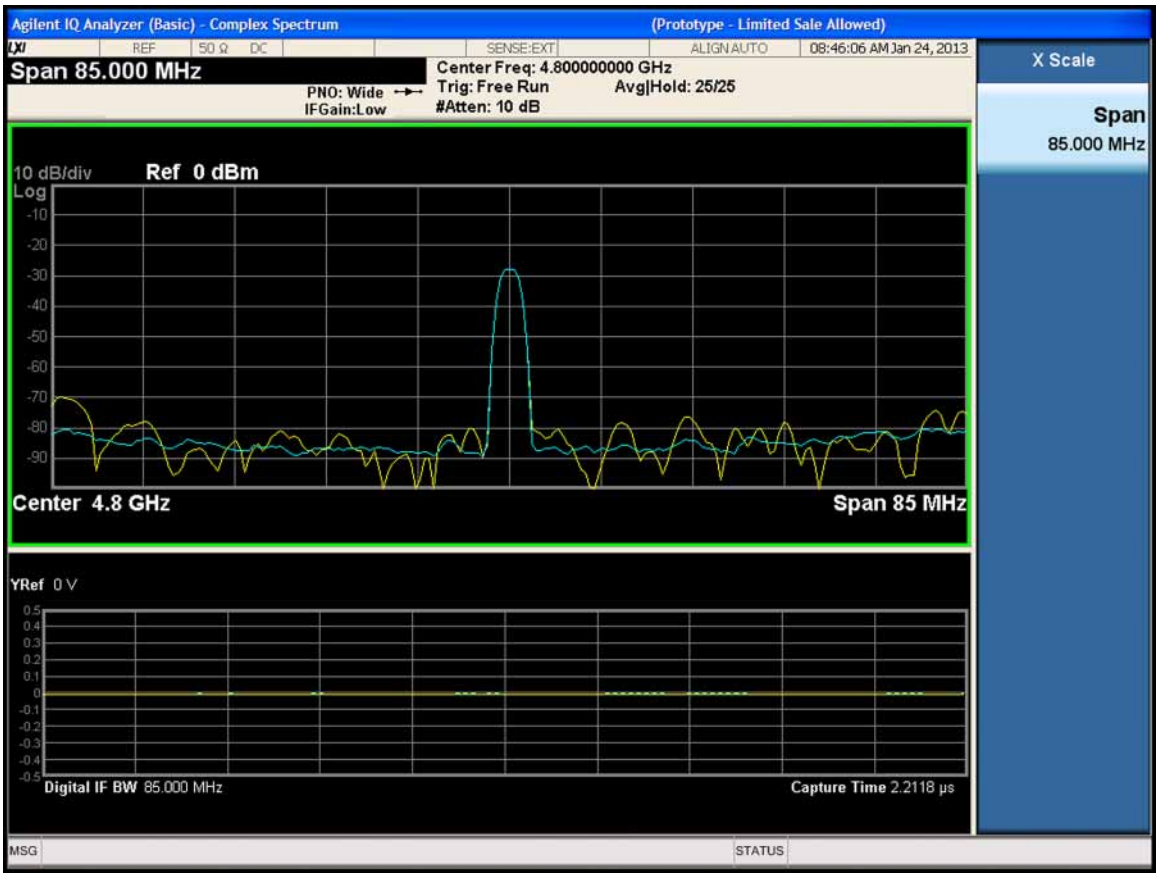
1. Loading the latest instrument software is required to assure all FPGAs and drivers located on both the newly installed hardware and on the base instrument are synchronized. Therefore, even if the instrument contains the latest revision of software, you must reinstall the software to assure proper operation.

   The latest revision of software may be downloaded from:
   http://www.agilent.com/find/Xseries_software

### Verify the Option

1. Turn the instrument on and verify no errors reported at power up through the power on alignment of the instrument.
2. Press **Mode**, **IQ Analyzer (Basic)**.
3. Press **Mode Setup**, **IF Path**, **85 MHz**.
4. Press **Frequency**, **Center**, **4.8 GHz**.
5. Press **Input/Output**, **RF Calibrator**, **4.8 GHz**.
6. Press **Span**, **85 MHz**.
7. The instrument should display a signal in the center of the screen with an amplitude of approximately –28 dBm (See figure below).

**Figure 7 4.8 GHz Signal**




**NOTE** If the PXA upper-frequency range is 3.6 GHz (Option 503), use a signal source set to 1 GHz and –28 dBm instead of the internal 4.8 GHz calibrator.

### Utilities, Adjustments, and Performance Verification Tests

Calibration software and specified test equipment is required to perform the adjustments and performance verification testing.

Obtain Agilent X-Series Signal Analyzer Calibration Application SW, N7814A TME Calibration Application. version E.11.00 or later. Information on how to obtain this software can be found at:

http://www.agilent.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 retrofit was begun. Performing only these tests does not guarantee the instrument meets specifications.

### Utilities Required

None

### Adjustments Required

| Adjustment Name |
|---|
| IF Frequency Response Adjustment |

### Performance Tests Required

| Verification Test Name |
|---|
| Perform all performance tests |

End of installation.

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

http://www.agilent.com/find/assist

1-800-452-4844 (8am-8pm EST Monday -Friday)