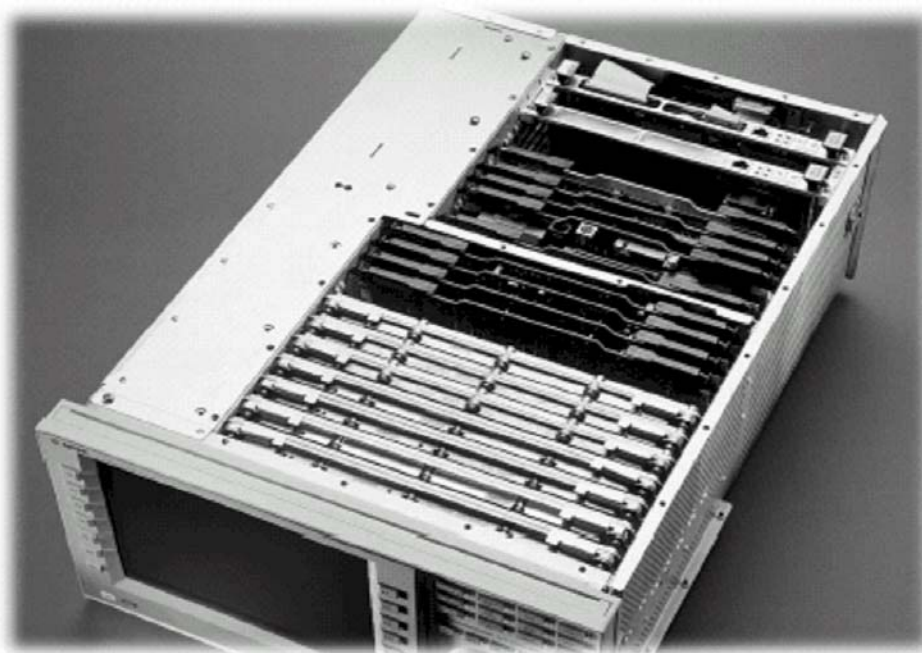


# Installation Note

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**Agilent Technologies 8960 Wireless Communication Test Set  
RFIO Upgrade 2  
Kit Part Number: E5515CU-609**



**Notice:**

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

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E5515-90367

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# Agilent Technologies 8960 Wireless Communication Test Set RFIO Upgrade 2

## Kit Part Number: E5515CU-609

<b>Product Affected:</b> .....	E5515B/C
<b>Replaces Board:</b> .....	E5515-61298 or below
<b>Applications Supported:</b> .....	All current applications
<b>To Be Performed By:</b> .....	(X) Agilent Technologies Service Center (X) Personnel Qualified by Agilent Technologies
<b>Estimated Installation Time:</b> .....	1.0 hours
<b>Estimated Verification Time:</b> .....	0.5 hours

### ***Introduction***

This kit provides the instructions for installing the E5515CU-609 RFIO into the E5515 Wireless Test Set. This module will enable the latest E5515 capabilities and features.

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**NOTE:** It is assumed that the E5515 is fully operational prior to a HW upgrade. Installing HW upgrades in a non-operational instrument may complicate a successful installation and verification process.

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If this kit is one of several HW options being installed, the following installation sequence is recommended. The actual installation will depend on the specific HW option kit(s) being installed:

- 1) Bottom section RF modules (RFIO, Attenuators)
- 2) Top section RF modules (Vector, Synth Doubler, BBG)
- 3) Digital modules (ADC, DSP, RTI, LSS, Protocol)
- 4) Rear section modules (HDD, Host Processor, Rear Panel)

### ***Installation Kit Parts List***

<b>Item</b>	<b>Qty</b>	<b>Description</b>
1	1	RF Interface Assembly
2	1	Installation Instructions (this document)
3	2	RF SMA 50 Ohm Connector

### ***Tools Required***

- TORX T-15 and T-20 drivers
- 3/4" Socket
- 5/16" Open-End Wrench
- PC with LAN capabilities

### ***Safety Considerations***

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**WARNING:** Before disassembling the test set, turn the power switch off and unplug the power cord. Failure to unplug the test set can result in personal injury.

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**CAUTION:** Electrostatic discharge (ESD) can damage or destroy electronic components. All work on electronic assemblies should be performed at a static-safe workstation.

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### ***Install Compatible Versions of Existing Applications:***

Upgrade all existing compatible applications to the latest revision.

- HW compatibility info is available at: [www.agilent.com/find/e5515releasenotes](http://www.agilent.com/find/e5515releasenotes)
- Test Application downloads are available at: [www.agilent.com/find/8960TA](http://www.agilent.com/find/8960TA)
- Lab Application downloads are available at: [www.agilent.com/find/8960upgrades](http://www.agilent.com/find/8960upgrades)
  1. Make active one of the new application versions. This will ensure the instrument will boot to a compatible application after the HW installation.
  2. Follow the Firmware installation instructions that come with the Applications

### ***Remove Non-compatible Applications:***

1. Remove all non-compatible applications from the test set. Removing older application revisions prevents improper operation of the test set. The test set must be connected to a PC using a cross-over cable via the test set's LAN port.
  - a. Run the Agilent 8960 File Utility
  - b. Select the Direct Connection (Single test set) button.
  - c. Select the Test Application tab.
  - d. Highlight the old revision(s) of application(s) and select the Delete From test set button. All licenses should remain on the instrument. Removing an application does not remove the license for that application.

### ***HW Disassembly:***

#### ***Remove outer cover and top cover for the 8960***

1. Remove handles and rear bumpers.
2. Remove the screws on the rear panel holding outer cover.
3. Slide outer cover off.
4. Remove the 16 screws holding the bottom module cover on and remove the cover.

#### ***Remove the old RFIO Assembly***

1. On the bottom, remove the old RFIO Assembly. Refer to the Replaceable Parts List (E5515A/B/C/T) in the Troubleshooting and Repair section of the 8960 Assembly Level Repair area at: [www.agilent.com/find/8960toolbox](http://www.agilent.com/find/8960toolbox) for board location.

### ***HW Assembly:***

#### ***Install New RF Interface Module***

1. Install the RFIO Assembly per diagram on page 15 of the Replaceable Parts List document, referred to above.

#### ***Replace covers:***

1. Replace the bottom cover and secure it with the 16 screws.
2. Slide the outer cover on.

3. Replace the outer cover screws on the rear panel.
4. Attach the rear bumpers and handles.

### **Verification Test after all HW Upgrades are Installed**

1. Turn on the E5515. The unit should boot to the new Application.
2. Check for boot up and/or error messages. If any error message are displayed, re-check installation process for errors. Let the instrument warm up for at least 30 minutes.
3. Perform the Baseline RFIO Self-Test Calibration. This will set the proper calibration reference for the internal RFIO Self-Test. This procedure is required to be performed only once, after a new RFIO Assembly is installed.
  - a. Required equipment: Computer that supports USB devices and Agilent 82357A USB/GPIB Interface or Controller with GPIB card.
  - b. Activation is sent via the GPIB bus using the following command:  
"PL13:INST:SELFTEST:CAL1?".
  - c. Failure to run this calibration after RFIO replacement may result in false "Self-Test" failure.
4. Perform the following User Calibrations.

#### Calibration Procedure for Instruments with Option 003

	Calibration Interval = 1 year				Calibration Interval = 1 month		
Application Or Format	IQ Calibrations (See Note 1)	Burst Mod Offset 1 Calibration	Thermal Power Null Adjust	Digital Average Power Calibration	Spectrum Monitor Calibration	Channel Power Calibration	Calibrate Measurements
Cdma2000/IS-95/AMPS	Step 1 Perform IQ1 and IQ2 once from one of these applications or formats	Step 2 Perform once from one of these applications or formats	Step 3 Perform once from one of these applications or formats	Step 4A Perform once from one of these applications or formats	Step 5 Perform once from one of these applications or formats	Covered by Step 5 (See Note 2)	
1xEV-DO				Step 4B Cycle Power			
W-CDMA					Step 6 Perform once from this application	Covered by Step 6 (See Note 2)	
GSM/GPRS/EGPRS					Step 7 Perform once from one of these applications or formats		
AMPS/136							

Note 1 – Calibrate Second IQ Modulator only applies to instruments with Option 002: RF Source 2.  
Note 2 – You do not need to run this calibration if Spectrum Monitor calibration is run first.

#### Calibration Procedure for Instruments without Option 003

	Calibration Interval = 1 year	Calibration Interval = 1 month
Application or Format	IQ Calibrations (See Note 1)	Spectrum Monitor Calibration
GSM/GPRS/EGPRS	Step 1 Perform IQ1 and IQ2 once from one of these applications or formats	Step 2 Perform once from one of these applications or formats
AMPS/136		

Note 1 – Calibrate Second IQ Modulator only applies to instruments with Option 002: RF Source 2

1. If additional verification testing is desired, tools are available from Agilent to verify the functional and parametric performance of the instrument.
  - a. Self Test software – requires no external test equipment. Good for functional verification if traceable parametric measurements are not required. For more information, see <http://wireless.marketing.agilent.com/docloader.asp?did=12376>
  - b. Test Set Verify software and system – requires external test equipment. Best for traceable functional verification parametric measurements. For more information, see <http://www.spk.agilent.com/~yerxa/Upgrades/index.htm>

**Questions contact Agilent Support:**

Phone: (800) 827-3848 (U.S. & Canada)

Web: [www.agilent.com/find/8960support](http://www.agilent.com/find/8960support)