

Installation Note

Agilent Technologies N5162A/82A MXG Signal Generators LO In/Out for Phase Coherency Option 012 Upgrade Kit

NOTE

For the latest revision of this installation note, go to the following website:

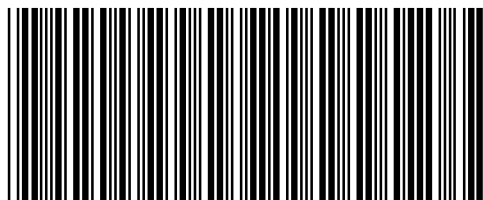
<http://www.agilent.com/find/mxg>



Agilent Technologies

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N5180-90043

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LO In/Out for Phase Coherency

Option 012 Upgrade Kit

Products Affected:	N5162A and N5182A
Serial Numbers:	All
Options:	All
To Be Performed By:	(X) Agilent Technologies Service Center (X) Personnel Qualified by Agilent Technologies (X) Customer
Estimated Installation Time:	1.5 hours
Estimated Verification Time:	0.75 hours

Introduction

This upgrade kit provides the necessary installation instructions and hardware for updating an MXG in the field with the ability to be phase coherent.

This upgrade kit requires firmware revision \geq A.01.44.

NOTE	This upgrade kit contains hardware and an option activation license. A PC or UNIX computer with LAN access is also required.
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Installation includes completing the following major steps, in the order given.

1. Check signal generation operation.
2. Run the self tests.
3. Install the latest revision of firmware.
4. Remove the outer cover.
5. Remove the inner top cover.
6. Remove and replace the rear panel (instruments with serial prefixes <US/MY/SG4818 only).
7. Move Serial Prefix Label to the New Rear Panel (instruments with serial prefixes <US/MY/SG4818 only).
8. Install the new hardware and cables.
9. Replace the Inner Top Cover.
10. Replace the Outer Cover.
11. Run the I/Q calibration.
12. Run the self test.
13. Redeem and install the Option 012 license.

Installation Kit Parts List

Item	Quantity	Description	Part Number
1	2	Adapter-coax STR F-SM ^a	1250-1753
2	1	Holder-OPT FBR 2MM Dia. Nylon 66 NAT	1400-3385
3	1	Cable Assembly, RF, Semi-Rigid, LB Jumper	E8251-20364
4	1	Cable, RF, Semi-Rigid, LO OUT	N5180-20139
5	1	Cable, RF, Semi-Rigid, LO IN	N5180-20140
6	1	Rear Panel, Vector	N5180-00017
7	1	Media Binder ^b	5010-7769
8	1	Installation Note	N5180-90043

- a. The adapter-coax comes with an o-ring, flat lock washer, and nut.
- b. The Entitlement Certificate (included in the binder) requires redemption and installation of the license key to enable Option 012 in the MXG option string.

Tools Required

- TORX T-10 driver
- TORX T-15 driver
- TORX T-20 driver
- 9/16" nut driver
- 5 mm nut driver
- Torque Wrench (9-21 in-lb.)
- Small Phillips screw driver
- Long-nose pliers

Safety Considerations

WARNING	Before you disassemble the signal generator, turn the power switch off and unplug the power cord. Failure to unplug the signal generator 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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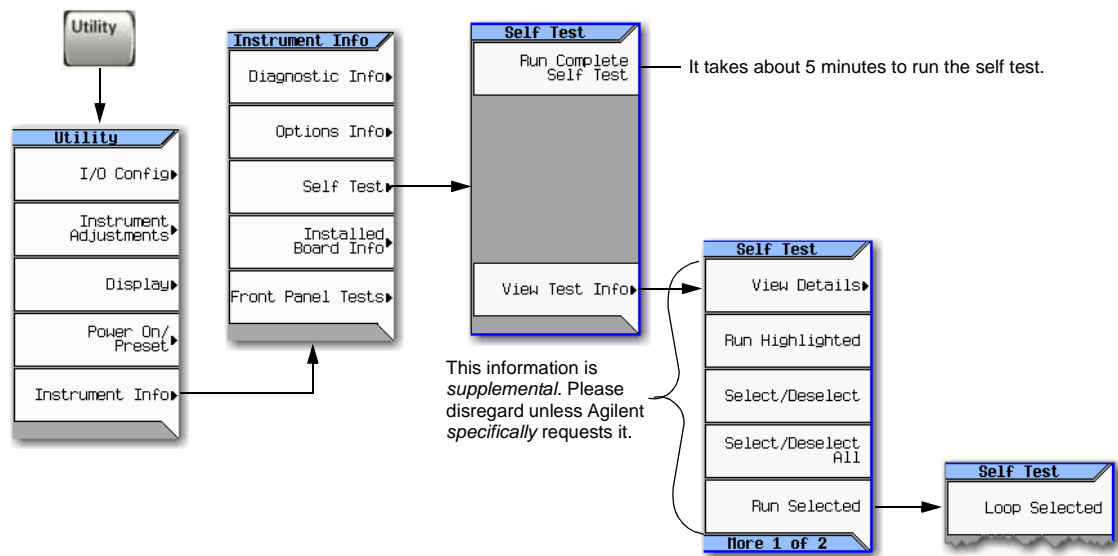
Check Signal Generator Operation

Use the following procedure to confirm that the signal generator powers up and that the internal check does not identify any errors. The internal check evaluates the operation of the signal generator and returns an error message if it detects a problem. Self test will confirm that the signal generator is operating properly or isolate detected problems to a specific faulty assembly.

1. Turn on the signal generator and let it warm up for at least five minutes.
2. Check to see if the ERR annunciator is on. If it is on, proceed with the following steps:
 - a. Review the error message in the error queue. Press **Error**. The first error message in the error queue appears in the display text area. (Refer to the signal generator error messages document for information about each error message.)
 - b. Resolve all of the errors and then press **Clear Error Queue(s)**.

Run the Self Tests

The self test is a series of internal tests of signal generator functions. Run the complete self tests when initially setting up a signal generator, after an assembly repair, or to verify signal generator performance. Also run self test prior to performing manual or automated Performance Verification tests. The self test will confirm the signal generator is operating properly or isolate problems to a specific faulty assembly.



Install the Latest Revision of Firmware

Use the firmware CD provided or go to the Agilent web, <http://www.agilent.com/find/mxg>, to obtain the most recent firmware revision. Follow the instructions provided with the firmware to install the latest firmware onto the MXG.

Remove the Outer Cover

Tools Required

- T-20 driver

Removal Procedure

Refer to [Figure 1](#) for this procedure.

1. Disconnect the power cord.
2. Using the T-20 driver, loosen the two screws (1) and remove the strap handle (2).
3. Using the T-20 driver, remove the two hole plugs (not shown in photo) from the opposite side of the instrument.
4. Using the T-20 driver, remove the center screws from the four rear-panel feet (3).
5. Remove the four bottom feet (4) from the cover by lifting the tab and sliding the foot toward the tab.
6. Place the signal generator on its side.
7. Place one hand on the front panel, use the other hand to lift the rear of the signal generator and slide the outer cover (5) off to remove it from the frame.

CAUTION The RF connector can be easily damaged. Use extreme caution to not damage the RF connector when lifting the rear of the signal generator.

Figure 1

Outer Cover Removal



Remove the Inner Top Cover

Tools Required

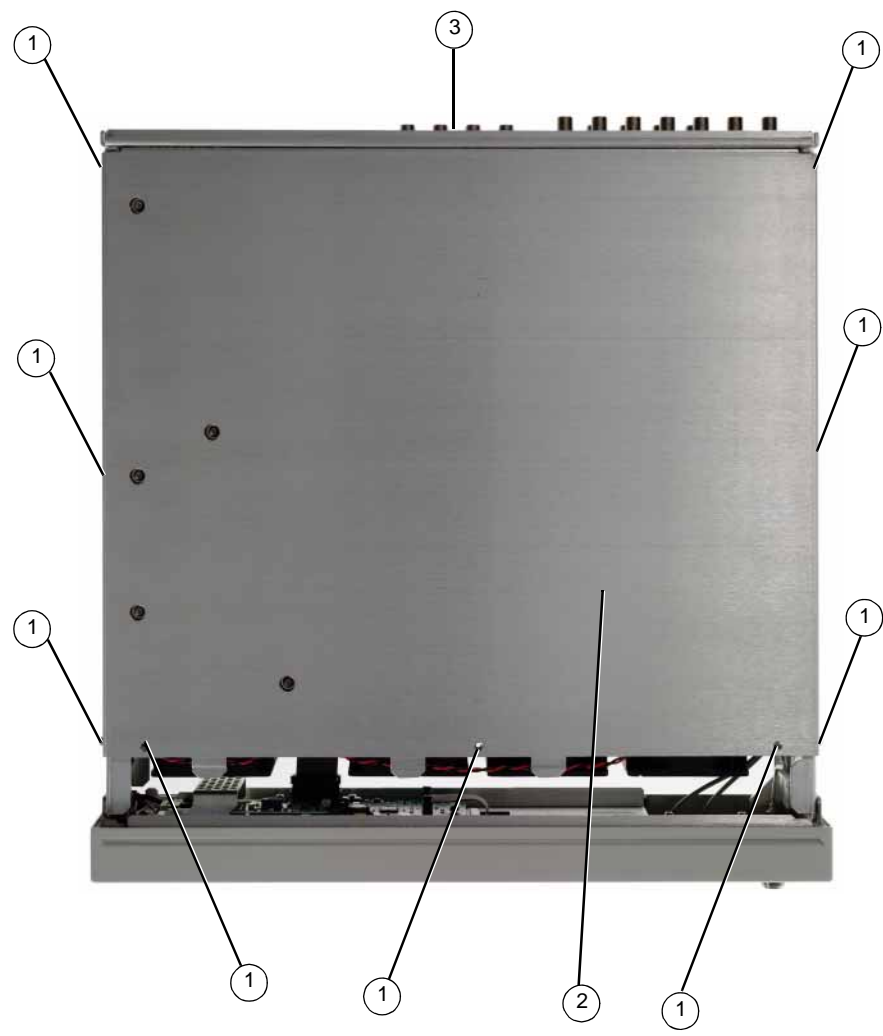
- T-10 driver

Removal Procedure

Refer to [Figure 2](#) for this procedure.

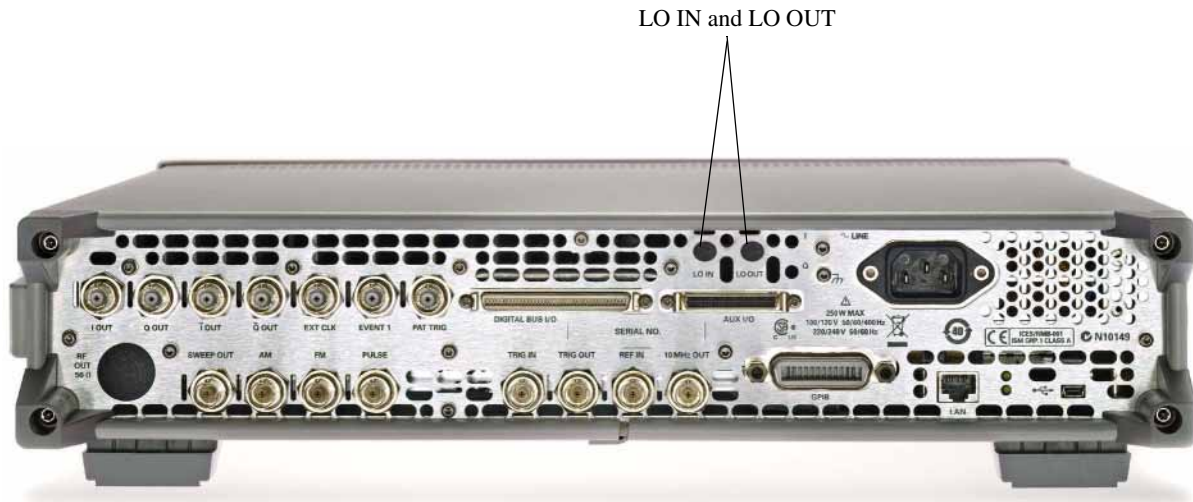
1. Place the signal generator flat with the front-panel facing you. (The power cord should have been disconnected in the previous procedure and the outer cover removed.)
2. Using the T-10 driver, remove the nine flat-top screws (1) from the inner top cover (2).
3. Using the T-10 driver, remove the screw (3) from the rear panel.
4. Remove the inner top cover.

Figure 2 **Inner Top Cover Removal**



5. Verify that the LO IN and LO OUT holes are on the rear panel (refer to [Figure 3](#)). If the holes exist, proceed to “[Install the New Hardware and Cables](#)” on page 12. Older versions of the rear panel (instruments with serial prefixes < US/MY/SG4818) will not have the LO IN and LO OUT holes. If your rear panel does not have these holes, go to “[Remove and Replace the Rear Panel \(Instruments with Serial Prefixes <US/MY/SG4818 Only\)](#)”.

Figure 3 **Rear Panel with LO IN and LO OUT Holes**



Remove and Replace the Rear Panel (Instruments with Serial Prefixes <US/MY/SG4818 Only)

Tools Required

- T-10 driver
- 5/8" hex-nut driver
- 5/16" open-ended wrench
- 1/4" hex-nut driver
- Small Phillips screwdriver

Removal Procedure

Refer to [Figure 4](#) for this procedure.

1. Place the signal generator flat with the rear panel facing you. (The power cord should have been disconnected in the previous procedure and the outer and inner top covers removed.)
2. Using the 5/8" hex-nut driver, remove the fifteen nuts and washers (1) securing the A2 Vector Module and A3 RF assembly BNCs to the rear panel.
3. Using the T-10 driver, remove the ten screws (2) securing the rear panel to the signal generators chassis.
4. Using a small Phillips screwdriver, remove the four Phillips screws (3) securing the DIGITAL BUS I/O and the AUX I/O connectors to the rear panel.
5. Pull the rear panel away from the signal generator's chassis.

N5162A/82A Disassembled Rear Panel View



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Move Serial Label to the New Rear Panel (For instruments with Serial Prefixes <US/MY/SG4818)

Refer to [Figure 5](#) and [Figure 6](#) for this procedure.

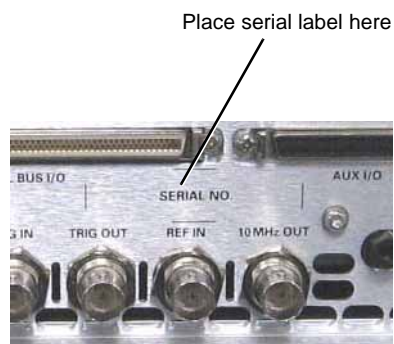
1. Use a sharp knife, (i.e Exacto knife), to lift one end of the serial label on the old rear panel.

Figure 5



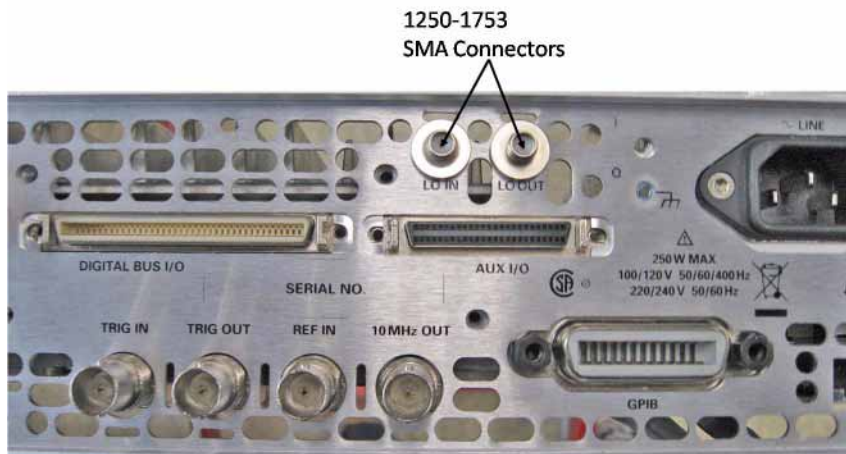
2. Pull the lifted end and remove the serial label.
3. Place the serial label in the “SERIAL NO” area on the new rear panel.

Figure 6

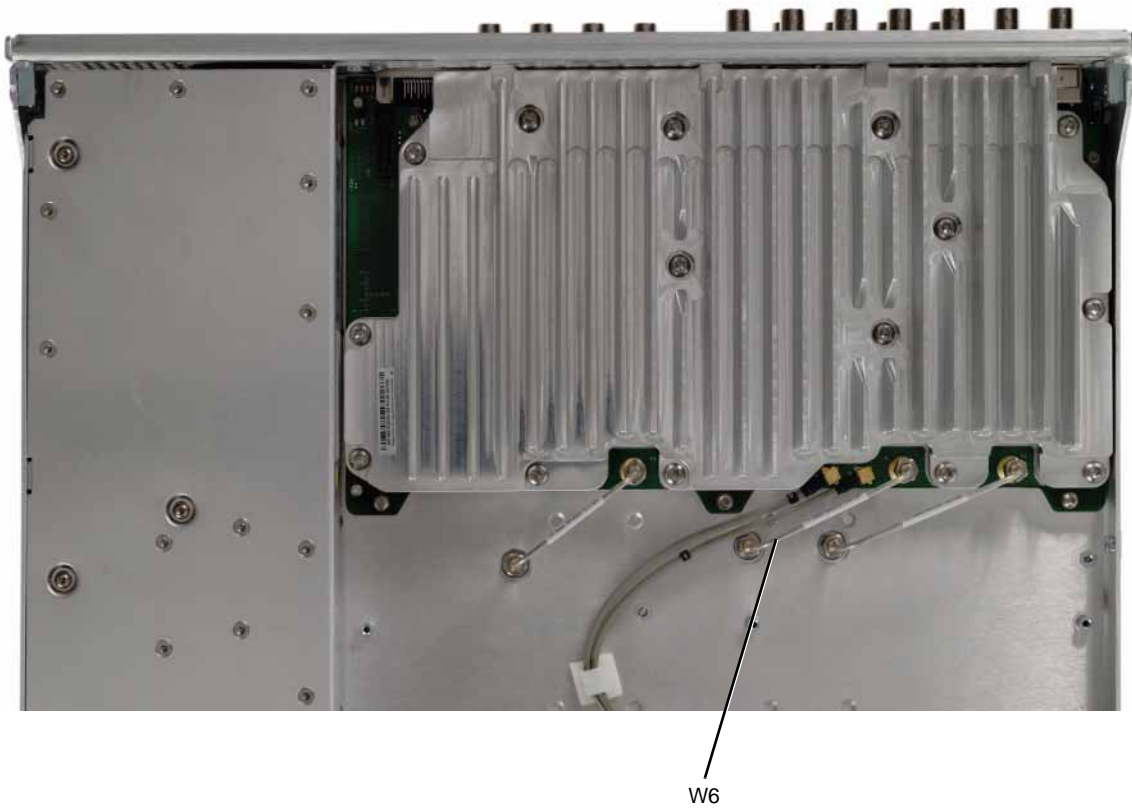


Install the New Hardware and Cables

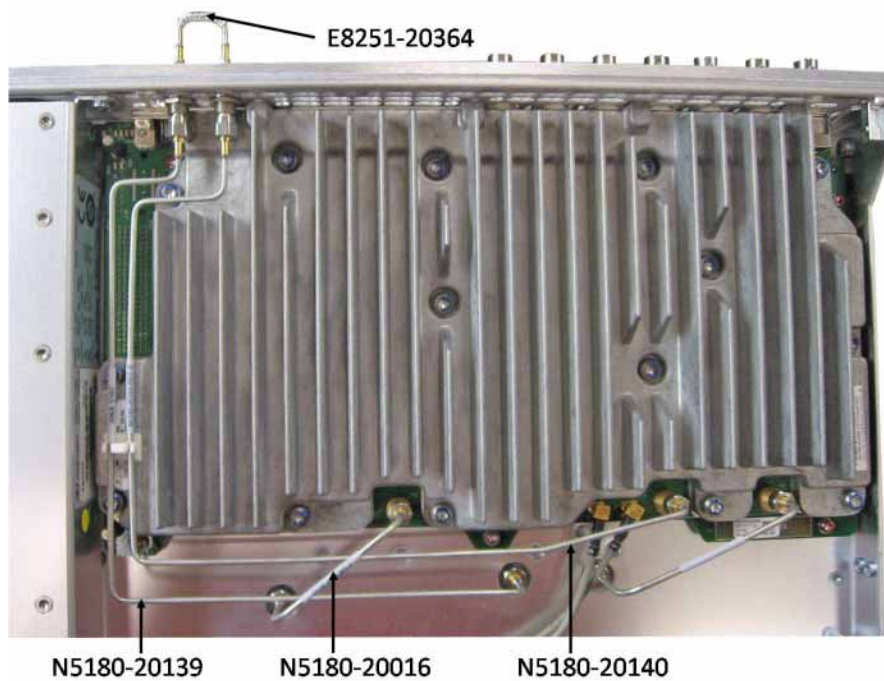
1. Place one O-ring onto each connector (1250-1753) and insert the connectors into the LO IN and LO OUT holes from the silk-screened side of the rear panel. Add the flat washer (3050-2244), a lock washer, and a nut to each connector. Torque each to 9 in-lbs.



2. Remove the semi-rigid cable, W6 (N5180-20025), from the A2 Vector Assembly to the A3 RF Assembly.



3. Install the semi-rigid cable (N5180-20140) from the A2 Vector Assembly to the LO IN on the rear panel feed through cable under the semi-rigid cable (N5180-20016).



4. Install the cable holder (1400-3785).



5. Install the cable (N5180-20139) from the A3 RF Assembly to the LO OUT connector on the rear panel.
6. Install the jumper cable (E8251-20364) to the rear panel.

Replace the Inner Top Cover

1. Reverse the order of the removal procedures.
2. Torque all screws to 9 in-lbs.

Replace the Outer Cover

1. Reverse the order of the removal procedures.

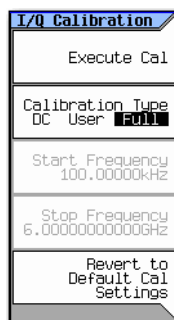
CAUTION When sliding the outer cover back on the signal generator, keep your fingers away from the back of the front panel. They can get pinched.

2. Torque all screws to 21 in-lbs.

Run the I/Q Calibration

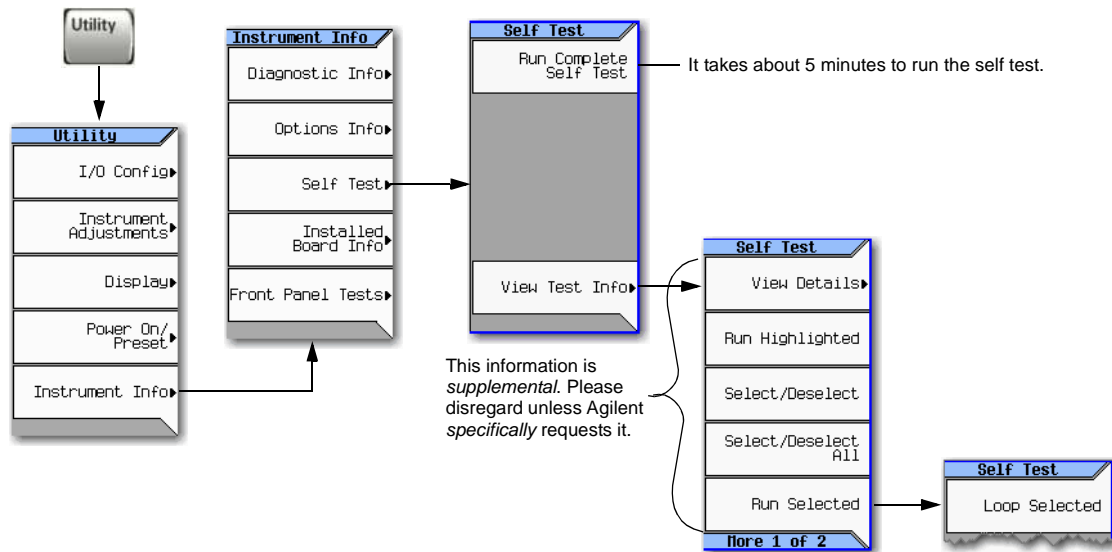
When you perform an I/Q calibration, that calibration data takes precedence over the factory-supplied calibration data. The calibration routines improves performance that may degrade over time or due to temperature changes.

Press **I/Q > I/Q Calibration > Calibration Type Full**



Run the Self Test

The self test is a series of internal tests of signal generator functions. Run the complete self test when initially setting up a signal generator, after an assembly repair, or to verify signal generator performance. Also run self test prior to performing manual or automated Performance Verification tests. The self test will confirm the signal generator is operating properly or isolate problems to a specific faulty assembly.



Redeem and Install the Option 012 License

Redeem and install the Option 012 license key by following the instructions provided on the Entitlement Certificate.

