

# Installation Note

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## **Agilent Technologies E8257D PSG Signal Generators Add Option 1E1 (Attenuator)**

### **Kit Part Numbers:**

**E8251-60384 - For Option 520**

**E8251-60385 - For Option 540**

**E8251-60383 - For Options 550 and 567**

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

*<http://www.agilent.com/find/psg>*

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**Agilent Technologies**

Part Number E8251-90302  
Printed in USA September 2004



E8251-90302

**Notice**

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## Add Option 1E1 (Attenuator)

### Kit Part Numbers: E8251-60384, E8251-60385, and E8251-60383

Product Affected: .....	E8257D
Serial Numbers: .....	All
Options: .....	
To Be Performed By: .....	(X) Agilent Technologies Service Center ( ) Personnel Qualified by Agilent Technologies ( ) Customer
Estimated Installation Time: .....	1.5 hours
Estimated Verification Time: .....	Option 520 = 8 hours Option 540 = 15 hours Option 550 = 16 hours Option 567 = 12 hours

## Introduction

This upgrade kit adds Option 1E1 (Attenuator) to the E8257D (Analog) PSG Signal Generators.

Installation includes the following major steps, starting on page 6:

1. Check signal generator functionality.
2. Remove the outer and inner signal generator covers.
3. Install Option 1E1.
4. Activate Option 1E1.
5. Re-assemble the signal generator.
6. Verify signal generator calibration.

## Installation Kit Parts List

**Table 1 E8251-60384, for Option 520**

Item	Quantity	Description	Part Number
1	1	Installation Note	E8251-90302
2	1	Attenuator 115 dB	E8251-60070
3	1	Semi-Rigid Cable	E8251-20094
4	1	Semi-Rigid Cable	E8251-20026
5	1	Semi-Rigid Cable	E8251-20027
6	1	Semi-Rigid Cable	E8251-20095
7	2	Mounting Screw	0515-1035
8	1	Entitlement Certificate	5964-5143
9	1	Entitlement Certificate Envelope	5967-7169

**Table 2 E8251-60385, for Option 540**

Item	Quantity	Description	Part Number
1	1	Installation Note	E8251-90302
2	1	Attenuator 115 dB	E8251-60070
3	1	Semi-Rigid Cable	E8251-20025
4	1	Semi-Rigid Cable	E8251-20071
5	1	Semi-Rigid Cable	E8251-20072
6	1	Semi-Rigid Cable	E8251-20028
7	2	Mounting Screw	0515-1035
8	1	Entitlement Certificate	5964-5143
9	1	Entitlement Certificate Envelope	5967-7169

**Table 3 E8251-60383, for Options 550 and 567**

<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
1	1	Installation Note	E8251-90302
2	1	Attenuator 90 dB	E8251-60393
3	1	Semi-Rigid Cable	E8251-20319
4	1	Semi-Rigid Cable	E8251-20320
5	1	Semi-Rigid Cable	E8251-20322
6	1	Semi-Rigid Cable	E8251-20321
7	2	Mounting Screw	0515-1035
8	1	Entitlement Certificate	5964-5143
9	1	Entitlement Certificate Envelope	5967-7169

**Tools Required**

- TORX T-10 driver
- TORX T-15 driver
- TORX T-20 driver
- 5/16" open-ended wrench
- Needle-nose pliers
- Scissors

**Safety Considerations**

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**WARNING**            **Before you disassemble the instrument, turn the power switch off and unplug the signal generator. 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 Functionality

Use the following procedure to confirm that the signal generator powers up and the internal check identifies no errors. The internal check evaluates the operation of the signal generator and returns an error message if it detects a problem.

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**NOTE** When the signal generator is first connected to ac line power, the error message `ERROR 514, Reference Oven Cold` occurs which causes both the `OVEN COLD` annunciator and the `ERR` annunciator to turn on.

After approximately five minutes, the `OVEN COLD` annunciator automatically clears, but the `ERR` annunciator remains on until all errors are cleared from the error queue.

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1. Turn on the signal generator and let it warm up for at least five minutes.
2. Run the signal generator self-test by pressing **Utility > Instrument Info/Help Mode > Self Test > Run Complete Self Test**. Upon completion a summary of the self-test will be displayed. Use the *E8257D/67D PSG Service Guide* to troubleshoot any failures detected by the test.

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**NOTE** Some circuits may require up to 50 minutes to warm up before passing the self-test. If self-tests continue to fail after 50 minutes of warm up, troubleshoot the instrument.

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3. Check to see if the `ERR` annunciator is on.
  - If the `ERR` annunciator is on, review the error messages in the error queue by pressing **Utility > Error Info**. The first page of error messages in the error queue appears in the display text area. (Refer to the signal generator error messages document for information about each error message.)

After resolving all problems causing errors, press **Clear Error Queue(s)**.

  - If the `ERR` annunciator is off, the signal generator functionality check has passed.

## **Remove the Outer and Inner Signal Generator Covers**

### **Remove the Outer Cover**

Refer to Figure 1.

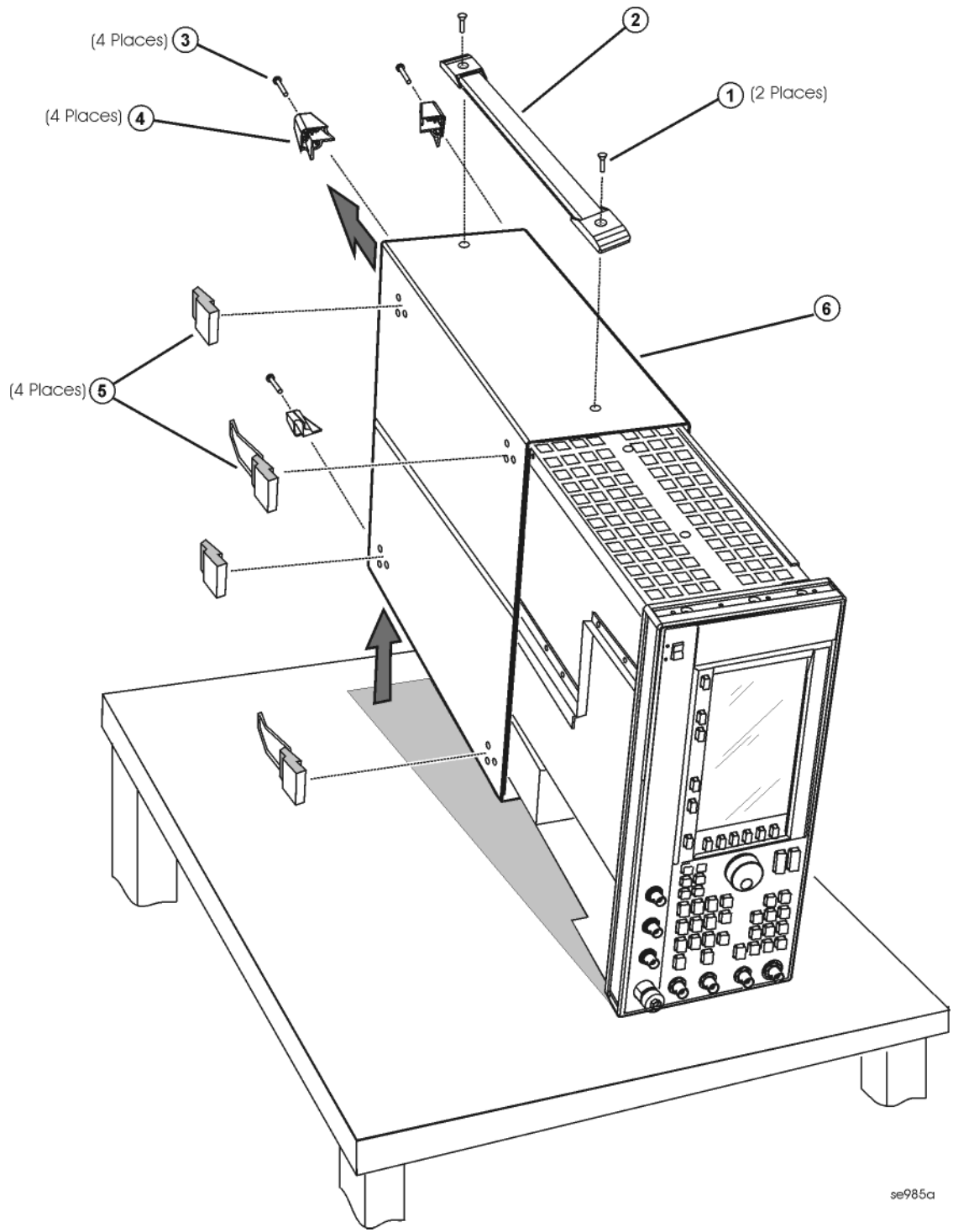
1. Disconnect the power cord.
2. Using a T-20 driver, loosen the two screws (1) and remove the strap handle (2).
3. Using a T-15 driver, remove the center screws (3) on the four rear-panel feet (4).
4. Remove the four bottom feet (5) from the cover by lifting the tab and sliding the foot toward the tab.
5. Place the signal generator on its side.
6. Tilt the signal generator forward and slide the outer cover (6) back to remove it from the frame.

### **Remove the Inner Top Cover**

Refer to Figure 2.

1. Using a T-10 driver, remove the twelve screws (1) from the inner-top cover (2).
2. Remove the inner-top cover.

**Figure 1**      **Outer Cover Removal**

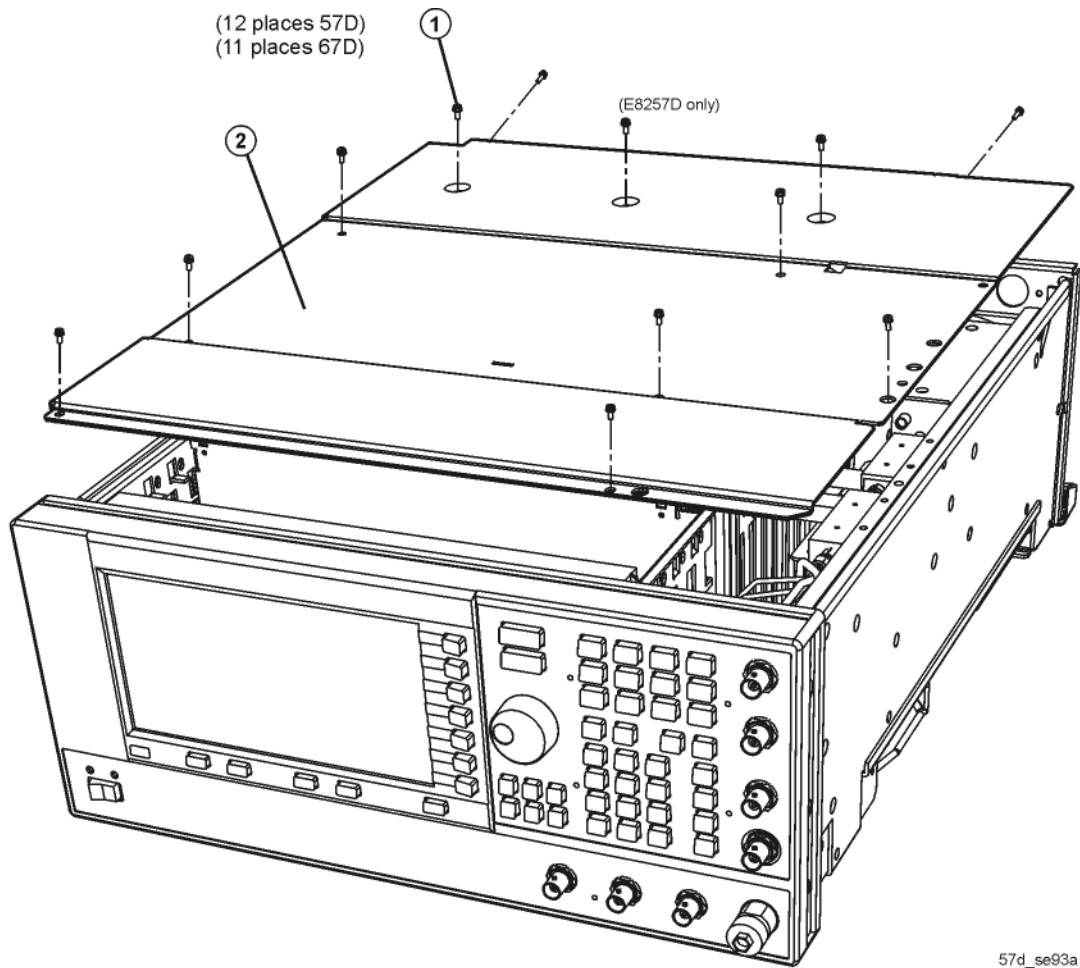


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**Figure 2**

**Inner Top Cover Removal**



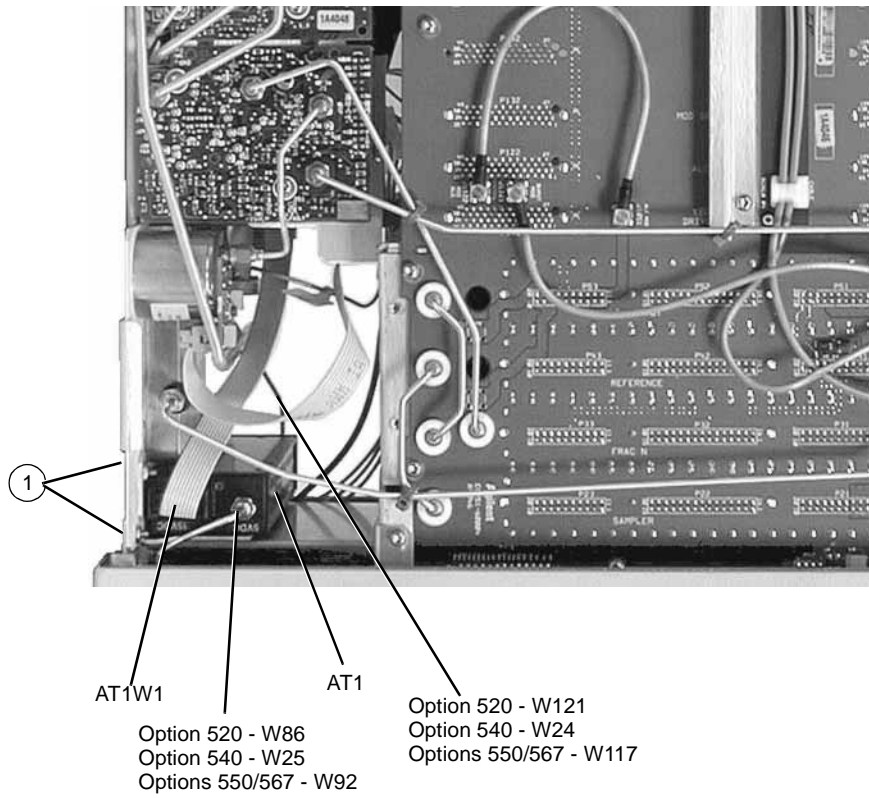
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## **Install Option 1E1 (Instruments with Front Panel RF Output)**

1. Position the signal generator with the A31 Motherboard facing you and the RF deck on top.
2. Using a 5/16" open wrench, remove the semi-rigid RF cable connecting the A23 Coupler Detector to the RF output connector.
3. Refer to Figure 3. Position the attenuator so it can be attached to the RF deck.
4. Using the T-10 driver, insert the two screws (1) through the side deck into the metal bracket that is attached to the attenuator. Torque these screws to 9 in-lbs.
5. Using the 5/16" open ended wrench, attach the semi-rigid cable, according to the signal generator you have, between the A23 Coupler Detector output connector and the attenuator input connector; torque to 8 in-lbs.
  - Option 520: W121 (E8251-20026)
  - Option 540: W24 (E8251-20025)
  - Options 550/567: W117 (E8251-20319)
6. Using the 5/16" open ended wrench, attach the semi-rigid cable, according to the signal generator you have, between the attenuator and the RF Output connector; torque to 8 in-lbs.
  - Option 520: W86 (E8251-20027)
  - Option 540: W25 (E8251-20028)
  - Options 550/567: W92 (E9251-20321)
7. Install AT1W1 ribbon cable to A26J13.

**Figure 3**

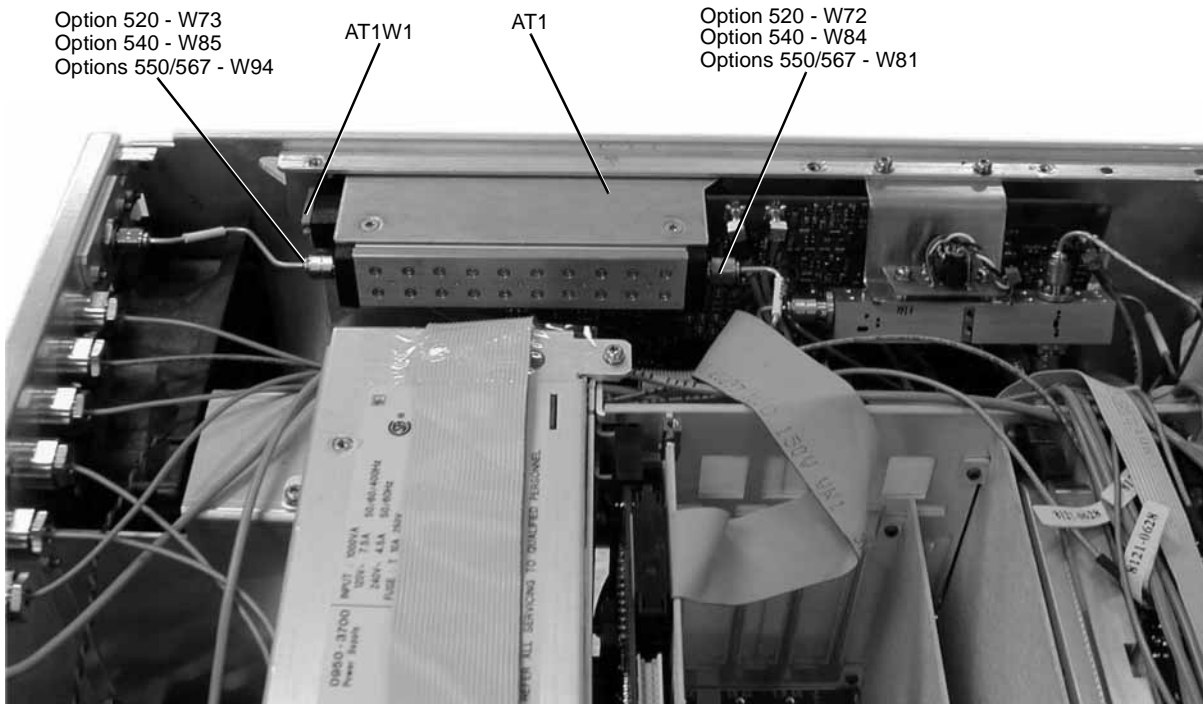
**Option 1E1 (Front Panel RF Output)**



## Install Option 1E1 (Instruments with Rear Panel RF Output)

1. Position the signal generator with the RF deck on top.
2. Using a 5/16" open wrench, remove the semi-rigid RF cable connecting the A23 Coupler Detector to the RF output connector.
3. Refer to Figure 4. Position the attenuator so it can be attached to the RF deck.
4. Using the T-10 driver, insert the two screws through the side deck into the metal bracket that is attached to the attenuator. Torque these screws to 9 in-lbs.
5. Using the 5/16" open ended wrench, attach the semi-rigid cable, according to the signal generator you have, between the A23 Coupler Detector output connector and the AT1 Attenuator input connector; torque to 8 in-lbs.
  - Option 520: W72 (E8251-20094)
  - Option 540: W84 (E8251-20071)
  - Options 550/567: W81 (E8251-20320)
6. Using the 5/16" open ended wrench, attach the semi-rigid cable, according to the signal generator you have, between the attenuator and the RF Output connector; torque to 8 in-lbs.
  - Option 520: W73 (E8251-20095)
  - Option 540: W85 (E8251-20072)
  - Options 550/567: W94 (E9251-20322)
7. Install AT1W1 ribbon cable to A26J13.

**Figure 4**                      **Option 1E1 (Rear Panel RF Output)**



## Activate Option 1E1

1. Turn the signal generator on and allow it to warm up for 5 minutes.
2. Connect the instrument to the LAN, using the instructions in the E8257D/67D PSG Programming Guide.
3. Load the IP address into the instrument, by pressing **Utility > GPIB/RS-232/LAN > LAN Setup > IP Address**. Enter the IP address.
4. Using the web browser on your PC enter the following URL, replacing <ip-address> with the actual IP address you entered into the instrument in step 3: <http://<ip-address>/update>.
5. Scroll to “Update optional ATTENUATOR”.
6. For Options 520 and 540 select, “add:33328-60001”.  
For Option 550 and 567 select, “add:84908-60002”.
7. Follow the instructions on the Entitlement Certificate to redeem Option 1E1.

## Verify Proper Installation of Option 1E1

1. Press: **Utility > Instrument Info > Help Info > Options Info**.
2. Make sure Option 1E1 is listed.

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**NOTE** If you enable an option that does not have the required hardware installed, the menus for that option will be activated but the option *cannot* operate.

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## Re-Assembling the Instrument

Refer to Figure 1 and Figure 2.

1. Reinstall the inner and outer instrument covers by reversing the order for removal.
2. Torque all T-10 screws to 9 in-lbs.
3. Torque all T-15 and T-20 screws to 21 in-lbs.
4. Cut out an Option 1E1 label and attach it to the rear panel, near the original serial number label.

## Verify Signal Generator Calibration

1. Turn the signal generator on and allow it to warm up for 30 minutes.
2. Perform the following adjustment and performance tests, in the order listed, to verify signal generator calibration. Refer to the PSG Family Signal Generators Service Software.
  - Power Flatness Calibration
  - Lowband Attenuator Calibration (<3.2GHz)
  - High Band Attenuator Calibration (>3.2GHz)
  - V-Band Attenuator Calibration (>50GHz)
  - Self Tests
  - Maximum Leveled Output Power
  - Power Level Accuracy

