

**Agilent Technologies**  
**Z5623A Option K12**

User's and Service Guide



# **Agilent Technologies Z5623A Option K12**

## **User's and Service Guide**



**Agilent Technologies**

**Manufacturing Part Number: U3035-90001**

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## Safety Notes

The following safety notes are used throughout this document. Familiarize yourself with each of these notes and its meaning before performing any of the procedures in this document.

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<b>WARNING</b>	<b>Warning denotes a hazard. It calls attention to a procedure which, if not correctly performed or adhered to, could result in injury or loss of life. Do not proceed beyond a warning note until the indicated conditions are fully understood and met.</b>
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<b>CAUTION</b>	Caution denotes a hazard. It calls attention to a procedure that, if not correctly performed or adhered to, could result in damage to or destruction of the instrument. Do not proceed beyond a caution sign until the indicated conditions are fully understood and met.
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## Definitions

- *Specifications* describe the performance of parameters covered by the product warranty (temperature –0 to 55 °C, unless otherwise noted.)
- *Typical* describes additional product performance information that is not covered by the product warranty. It is performance beyond specification that 80% of the units exhibit with a 95% confidence level over the temperature range 20 to 30 °C. Typical performance does not include measurement uncertainty.
- *Nominal* values indicate expected performance or describe product performance that is useful in the application of the product, but is not covered by the product warranty.
- *Characteristic Performance* describes performance parameter that the product is expected to meet before it leaves the factory, but is not verified in the field and is not covered by the product warranty. A characteristic includes the same guard bands as a specification.



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# **Z5623A Option K12**

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## Description

The Agilent Z5623A Option K12 Distribution Network is designed for use with the E8257/67D Options HCC. The test set provides the capability to phase lock four signal sources of the same family.

The test set has two modes of operation, Coherent Mode and Independent Mode.

The test set is controlled thru a 9 pin connector on the rear panel via an external switch controller, or by a switch on the front panel.

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## Verifying the Shipment

After the test set has been unpacked, keep the original packaging materials so they can be used if you need to transport the instrument. Inspect the test set and all accessories for any signs of damage that may have occurred during shipment. If your test set or any accessories appear to be damaged or missing refer to [“Contacting Agilent Sales and Service Offices”](#) on page 23.

**Table 1 Content List**

Description	Agilent Part Number	Qty
Power Cord	See <a href="#">Figure 1 on page 5</a>	1
Kit-Front Handle	5062-9226	1
Kit-Rack Mount	5063-9232	1
User’s and Service Guide	Z5623-90072	1

---

## General Specifications

### Electrical Requirements

The alternating-current (AC) power that is supplied to the test set must meet the following requirements:

Voltage: 110/120/220/240 Vac

Frequency: 50 to 60 Hz

Available power: 40 watts minimum

### Environmental Requirements

The environmental requirements of the Z5623A are listed in [Table 2](#).

---

**CAUTION** Ventilation Requirements: When installing the instrument in a cabinet, the convection into and out of the instrument must not be restricted. The ambient temperature (outside the cabinet) must be less than the maximum operating temperature of the instrument by 4 °C for every 100 watts dissipated in the cabinet. If the total power dissipated in the cabinet is greater than 800 watts, forced convection must be used.

---

**Table 2 Operating Environment**

Temperature	
Operation	0 °C to 40 °C (32 °F to 104 °F)
Storage	−40 °C to +70 °C (−40 °F to +158 °F)
Measurement Calibration	20 °C to 26 °C (68 °F to 79 °F)
Performance Verification	Temperature must be within 1 °C (1.8 °F) of the temperature at which the measurement calibration was performed.
Pressure Altitude (Operation or Storage)	0 to 4600 meters (~ 15,000 feet)
Enclosure Protection	IP 2 0, according to IEC 529

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**CAUTION** This product is designed for use in INSTALLATION CATEGORY II, and POLLUTION DEGREE 2, per IEC 101 and 664 respectively.

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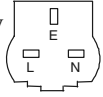
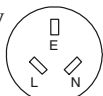
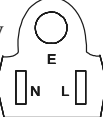
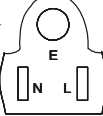
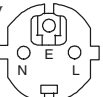
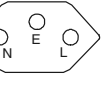

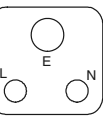

**Environmental Tests**

The Z5623AK12 complies with all applicable safety and regulatory requirements for the intended location of use and have been evaluated to assure that they are consistent with Agilent quality and reliability goals. On the basis of that evaluation, the following environmental tests have been deemed unnecessary and have not been performed: temperature, humidity, shock, vibration, altitude and power line conditions.

**Equipment Heating and Cooling**

If necessary, install air conditioning and heating to maintain the ambient temperature within the appropriate range. Air conditioning capacity must be consistent with the BTU ratings given in [Table 2](#).

**Figure 1 Power Cables**

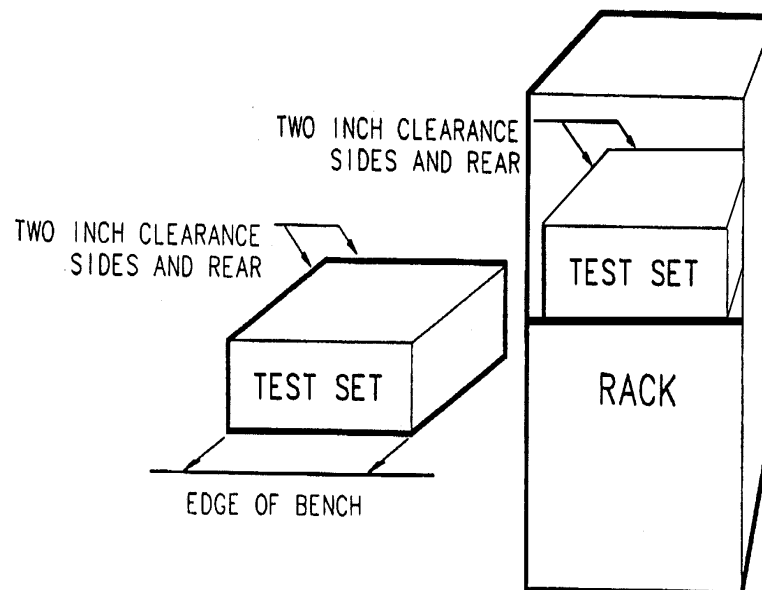
Plug Type <sup>a</sup>	Cable Part Number	Plug <sup>b</sup> Description	Length cm (in.)	Cable Color	For Use in Country
250V 	8120-8705	Straight BS 1363A	229 (90)	Mint Gray	Option 900 United Kingdom, Hong Kong, Cyprus, Nigeria, Singapore, Zimbabwe
	8120-8709	90°	229 (90)	Mint Gray	
250V 	8120-1369	Straight AS 3112	210 (79)	Gray	Option 901 Argentina, Australia, New Zealand, Mainland China
	8120-0696	90°	200 (78)	Gray	
125V 	8120-1378	Straight NEMA 5-15P	203 (80)	Jade Gray	Option 903 United States, Canada, Brazil, Colombia, Mexico, Philippines, Saudi Arabia, Taiwan
	8120-1521	90°	203 (80)	Jade Gray	
125V 	8120-4753	Straight NEMA 5-15P	229 (90)	Gray	Option 918 Japan
	8120-4754	90°	229 (90)	Gray	
250V 	8120-1689	Straight CEE 7/VII	200 (78)	Mint Gray	Option 902 Continental Europe, Central African Republic, United Arab Republic
	8120-1692	90°	200 (78)	Mint Gray	
230V 	8120-2104	Straight SEV Type 12	200 (78)	Gray	Option 906 Switzerland
	8120-2296	90°	200 (78)	Gray	
220V 	8120-2956	Straight SR 107-2-D	200 (78)	Gray	Option 912 Denmark
	8120-2957	90°	200 (78)	Gray	
250V 	8120-4211	Straight IEC 83-B1	200 (78)	Mint Gray	Option 917 South Africa, India
	8120-4600	90°	200 (78)	Mint Gray	
250V 	8120-5182	Straight SI 32	200 (78)	Jade Gray	Option 919 Israel
	8120-5181	90°	200 (78)	Jade Gray	

a. E =earth ground, L = line, and N = neutral.  
b. Plug identifier numbers describe the plug only. The Agilent Technologies part number is for the complete cable assembly.

## Cabinet Requirements

1. If you are installing the test set into a cabinet, ensure there are at least two inches of clearance around the sides and back of the test set and the system cabinet. See [Figure 2](#). The convection into and out of the test set must not be restricted. The ambient temperature (outside the cabinet) must be less than the maximum operating temperature of the test set by 4 °C for every 100 watts dissipated in the cabinet.

**Figure 2** Ventilation Clearance Requirements



---

**CAUTION**

If the total power dissipated in the cabinet is greater than 800 watts, forced convection must be used.

---

**Required Conditions for Accuracy Enhanced Measurement**

Accuracy-enhanced (error-corrected) measurements require the ambient temperature of the Test Set to be maintained within  $\pm 1$  °C of the ambient temperature at calibration.

**Dimensions and Space Requirements**

Standard installation of the Z5623AK12 includes configuration and installation on a customer provided lab bench or table top of adequate size and strength.

**Table 3 System Dimensions**

Item	Measurement
Required Bench Top Dimension:	
Clearance above the bench	8.9 cm (3.5 in)
Width	42.5 cm (16.75 in)
Depth	50 cm (19.7 in)
Weight	9 kg (20 lb)

## Frequency Range and Maximum Power Levels

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**CAUTION** It is recommend that you do not operate components near damage levels (+25 dBm). The power levels must be 3 dB below maximum level to ensure no damage. See [Table 4](#).

---

**Table 4 Maximum Power Levels**

Test Setup	Power Level
Master Source In:	
0.25 to 3.2 GHz	+15 dBm
3.2 to 10 GHz	+25 dBm
Slave Source In	+25 dBm

---

**NOTE** Damage and maximum levels are not necessarily the optimum level.

---

**Table 5 Typical Performance**

Frequency Band	0.25 to 3.2 GHz
Power Out at Output Ports <sup>1</sup>	+12 dbm ( $\pm$ 3 dBm)
Insertion Loss	$\leq$ 1.5 dB
Frequency Band	3.2 to 10 GHz
Power Out at Output Ports <sup>2</sup>	+15 dbm ( $\pm$ 2.5 dBm)
Insertion Loss	$\leq$ 2.5 dBm

1. Input power level set to 8 dBm and the test set in coherent mode.
2. Input power level set to 12 dBm and the test set in coherent mode.



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## Introduction to Phase Coherency

The phase coherent simulation system developed by Agilent provides a more repeatable, configurable alternative that can be used in the laboratory or the flight line. It is comprised solely of commercially available equipment and requires only the addition of waveforms used to stimulate the receivers.

The E8267D Option HCC and the Z5623A Option K12 distribution network allows a master to deliver a fundamental LO signal to the distribution network. The distribution network distributes this signal back to the master and all of the slaves as a common reference. The system provides the full-phase coherency that is mandatory for testing multi-receiver systems, as well as full control over time, phase, amplitude and frequency.

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**NOTE** When changing the frequency of the master, the slave unit must have the same frequency setting or the slave unit will be unlevel and no RF output power will be detected.

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**NOTE** When the instrument is in independent mode there is no phase coherency lock and all instruments will operate independently. The user may perform a unit calibration as often as desired to produce reliable measurements.

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## System Connections

### Connecting to the Master Source

<b>Z5623A K12 Port</b>	<b>E8267D Port</b>
Master 0.25 to 3.2 GHz LO RF IN	Freq 0.25 to 3.2 GHz OUT
Master 0.25 to 3.2 GHz LO RF OUT	Freq 0.25 to 3.2 GHz IN
Master 3.2 to 10 GHz LO RF IN	Freq 3.2 to 10 GHz OUT
Master 3.2 to 10 GHz LO RF OUT	Freq 3.2 to 10 GHz IN

### Connecting to the Slave Source

<b>Z5623A K12 Port</b>	<b>E8267D Port</b>
Slave 0.25 to 3.2 GHz LO RF IN	Freq 0.25 to 3.2 GHz OUT
Slave 0.25 to 3.2 GHz LO RF OUT	Freq 0.25 to 3.2 GHz IN
Slave 3.2 to 10 GHz LO RF IN	Freq 3.2 to 10 GHz OUT
Slave 3.2 to 10 GHz LO RF OUT	Freq 3.2 to 10 GHz IN

---

## Front and Rear Panel Features

### Power On Switch

The Power On switch turns the AC power to the test set on and off. The switch is located at the bottom left corner of the front panel.

The switch disconnects the mains circuits from the mains supply after the EMC filters and before other parts of the instrument.

### Power LED

- When the Power Switch is On, the LED is illuminated.
- When the Power Switch is in Standby, the LED is Off.

### Distribution Switch

The Distribution Switch selects Independent or Coherent mode.

### Ext Control Connector

9-Pin female D connector.

### Line Module

The line fuse, as well as a spare, reside within the line module. [Figure 3](#) illustrates the fuses locations and how to access them.

### RF Connectors

All of the RF connectors are 50  $\Omega$  SMA female connectors.

### Power Cables

The line power cable is supplied in one of several configurations, depending on the destination of the original shipment.

Each instrument is equipped with a three-wire power cable. When connected to an appropriate ac power receptacle, this cable grounds the instrument chassis. The type of power cable shipped with each instrument depends on the country of destination. See [Figure 1 on page 5](#) for the part numbers of these power cables.

---

**WARNING**     **This is a Safety Class I product (provided with a protective earthing ground incorporated in the power cord). The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. Any interruption of the protective conductor, inside or outside the instrument, is likely to make the instrument dangerous. Intentional interruption is prohibited.**

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## Available Fuses

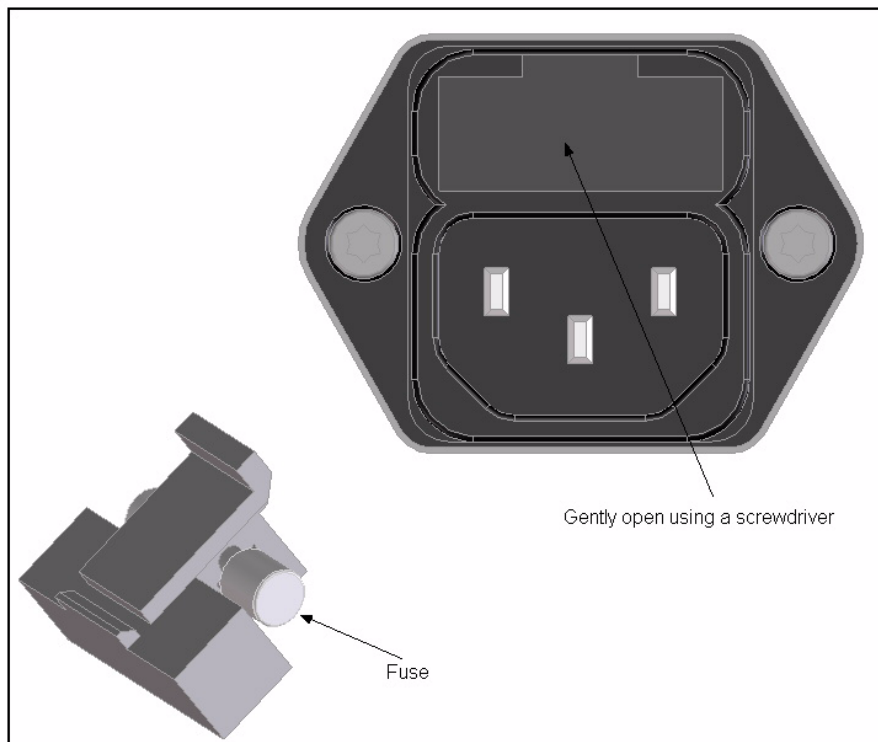
- **United States (115 V orientation)**  
Fuse (F 3 A/250V, 2110-0780) U.L. listed and CSA certified

---

**WARNING** For continued protection against fire hazard replace line fuse only with same type and rating: Fuse 5A/250V, Part Number 2110-0709  
The use of other fuses or material is prohibited.

---

**Figure 3** Line Fuse



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## Operation

The Agilent Z5623AK12 has two modes of operation, Independent and Coherent. The operation of the Z5623AK12 is via an external controller or via switch on the front panel. The external controller can read the status of the mode.

### Control Mode

Pin 1 of the external control connector is normally +5 V. In this condition the manual control mode is selected. When the control mode pin is grounded, external control is selected.

### Coherent Mode

This mode distributes the master sources LO outputs to the master and slave sources LO inputs. The mode control line (pin 2) is high (5V). The status of the mode control line can be read on pin 4, high equals coherent mode and low equals independent mode.

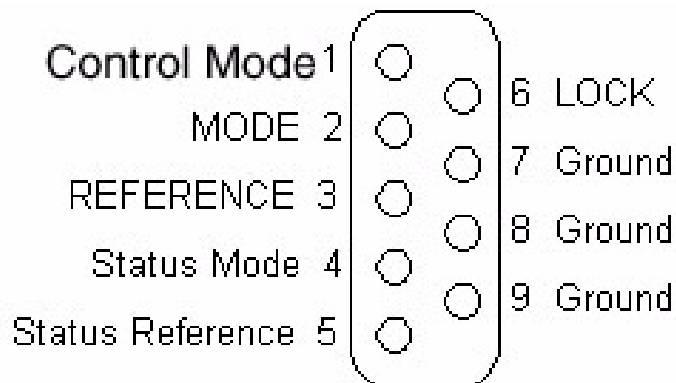
### Independent Mode

This mode routes the LO outputs of each source to the LO inputs of the same source. This mode is used to calibrate the individual sources. To select this, the mode control line (pin 2) is grounded (0V).

### External Control Connector

The external control connector is a 9 pin D-Sub connector.

**Figure 4 9 Pin D-Sub Connector**



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## Performance Verification

It is assumed that the user is familiar with the operation of the equipment listed below.

### Equipment Required

- E8267D Signal Source 250 kHz to 20 GHz *or equivalent*
- E4417A Power Meter *or equivalent*
- 8485A Power Sensor 0.5 to 26.5 GHz *or equivalent*
- RF Cable SMA mm 36 inch *or equivalent*
- two 50  $\Omega$  SMA Terminations

## Test Procedures

### Independent Mode Insertion Loss Test

It is suggested that you make copies of the following tables to enter the results.

**Table 4 Independent Mode Insertion Loss**

Master Source				
Test	Path	Freq	Insertion Loss	Spec (typical)
1	0.25 to 3.2 GHz Input to Output	250 MHz		≤ 1.5 dB
2	0.25 to 3.2 GHz Input to Output	3.2 GHz		≤ 1.5 dB
3	3.2 to 10 GHz Input to Output	> 3.2 GHz		≤ 2.5 dB
4	3.2 to 10 GHz Input to Output	10 GHz		≤ 2.5 dB
Slave Source				
5	0.25 to 3.2 GHz Input to Output	250 MHz		≤ 1.5 dB
6	0.25 to 3.2 GHz Input to Output	3.2 GHz		≤ 1.5 dB
7	3.2 to 10 GHz Input to Output	> 3.2 GHz		≤ 2.5 dB
8	3.2 to 10 GHz Input to Output	10 GHz		≤ 2.5 dB

1. Ground pin 2 on the rear panel 9-pin connector. (pins 7,8 and 9 are ground)
2. Connect the RF cable to the source output.
3. Set the source to the frequency listed in [Table 4](#). (Test 1 = 250 MHz)
4. Set the source amplitude to 0 dBm.
5. Zero and calibrate the power meter/power sensor.
6. Connect the power sensor to the RF cable attached to the source output.
7. Adjust the source amplitude to 0 dBm on the power meter.
8. Disconnect the power sensor from the RF cable. Connect the RF cable to the input port of the path being tested.
9. Connect the power sensor to the output port of the path being tested.
10. Measure the insertion loss of the path and record the results in [Table 4](#).
11. Repeat step 5 through 11 for the 9 remaining paths.

## Coherent Mode Output Power Test

**Table 5** Coherent Mode Output Power

Test	Output Path	Power In	Freq	Power Out	Spec (typical)
<b>0.25 to 3.2 GHz Coherent Path</b>					
Source Input to Master 0.25 to 3.2 GHz RF Input					
9	Master 0.25 to 3.2 GHz RF Output	+8 dBm	250 MHz		+12 ( $\pm 3$ dBm)
10	Master 0.25 to 3.2 GHz RF Output	+8 dBm	3.2 GHz		+12 ( $\pm 3$ dBm)
11	Slave 0.25 to 3.2 GHz RF Output	+8 dBm	250 MHz		+12 ( $\pm 3$ dBm)
12	Slave 0.25 to 3.2 GHz RF Output	+8 dBm	3.2 GHz		+12 ( $\pm 3$ dBm)
<b>3.2 to 10 GHz Coherent Path</b>					
Source Input to Master 3.2 to 10 GHz RF Input					
13	Master 3.2 to 10 GHz RF Output	+12 dBm	3.2 GHz		+15.5 ( $\pm 2.5$ dBm)
14	Master 3.2 to 10 GHz RF Output	+12 dBm	10 GHz		+15.5 ( $\pm 2.5$ dBm)
15	Slave 3.2 to 10 GHz RF Output	+12 dBm	3.2GHz		+15.5 ( $\pm 2.5$ dBm)
16	Slave 3.2 to 10 GHz RF Output	+12 dBm	10 GHz		+15.5 ( $\pm 2.5$ dBm)

1. Verify that Pin 2 on the rear panel 9-pin connector is not grounded.
2. Connect the RF cable to the source output.
3. Set the Source to the frequency listed in [Table 5](#) (Test 9 = 250 MHz).
4. Set the Source to the amplitude listed in [Table 5](#) (Test 9 = +8 dBm).
5. Zero and calibrate the power meter/power sensor.
6. Connect the Power Sensor to the RF cable that is attached to the source output.
7. Adjust the Source for the amplitude listed in [Table 5](#) (Test 9 = +8 dBm).
8. Disconnect the Power Sensor from the RF cable and connect the RF cable to the master RF Input port of the path being tested.
9. Connect the Power Sensor to the output port of the path being tested.
10. Measure the output power of the path and record the results in [Table 5](#).
11. Repeat steps 5 through 11 for the 9 remaining paths.



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## Safety and Regulatory Information

### Introduction

Review this product and related documentation to familiarize yourself with safety markings and instructions before you operate the instrument. The documentation contains information and warnings that must be followed by the user to ensure safe operation and to maintain the product in a safe condition.

### Connector Care and Cleaning

If alcohol is used to clean the connectors, the power cord to the instrument must be removed. All cleaning should take place in a well ventilated area. Allow adequate time for the fumes to disperse and moist alcohol to evaporate prior to energizing the instrument.

---

**WARNING**     **To prevent electrical shock, disconnect the Agilent Technologies model product from mains before cleaning. Use a dry cloth or one slightly dampened with water to clean the external case parts. Do not attempt to clean internally.**

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### Declaration of Conformity

For a copy of the manufacturer's Declaration of Conformity for this apparatus, contact your local Agilent Technologies office or sales representative. Refer to [“Contacting Agilent Sales and Service Offices”](#) on page 23.

### Statement of Compliance

This instrument has been designed and tested in accordance with IEC Publication 1010, Safety Requirements for Electronic Measuring Apparatus, and has been supplied in a safe condition. The instruction documentation contains information and warnings which must be followed by the user to ensure safe operation and to maintain the instrument in a safe condition.

### Shipping Instructions

You must always call the Agilent Technologies Instrument Support Center to initiate service before retuning your instrument to a service office. See [“Contacting Agilent Sales and Service Offices”](#) on page 23. Always transport or ship the instrument using the original packaging if possible. If not, comparable packaging must be used. Attach a complete description of the failure symptoms.

## General Safety Considerations

### Safety Earth Ground

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**WARNING** This is a Safety Class I product (provided with a protective earthing ground incorporated in the power cord). The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. Any interruption of the protective conductor, inside or outside of the instrument, will make the instrument dangerous. Intentional interruption is prohibited.

---

### Before Applying Power

Verify that the product is configured to match the available main power source. If this product is to be powered by autotransformer, make sure the common terminal is connected to the neutral (grounded) side of the ac power supply.

Cautions applicable to this instrument.

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**CAUTION** Always use the three-prong ac power cord supplied with this instrument. Failure to ensure adequate earth grounding (by not using this cord) can cause instrument damage.

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**CAUTION** This product is designed for use in Installation Category II and Pollution Degree 2 per IEC 61010 Second Edition and 664 respectively.

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**CAUTION** This instrument has autoranging line voltage input; be sure the supply voltage is within the specified range.

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**CAUTION** Ventilation Requirements: When installing the instrument in a cabinet, the convection into and out of the instrument must not be restricted. The ambient temperature (outside the cabinet) must be less than the maximum operating temperature of the instrument by 4 °C for every 100 watts dissipated in the cabinet. If the total power dissipated in the cabinet is greater than 800 watts, forced convection must be used.

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## Servicing

Warnings applicable to this instrument.

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**WARNING** To prevent electrical shock, disconnect the **Agilent Technologies Z5623A Option K12** from the mains before cleaning. Use a dry cloth or one slightly dampened with water to clean the external case parts. Do not attempt to clean internally.

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**WARNING** For continued protection against fire hazard replace line fuse only with same type and rating: F 3.0A/250V, Part Number 2110-0780  
The use of other fuses or material is prohibited.

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**WARNING** This is a Safety Class I product (provided with a protective earthing ground incorporated in the power cord). The mains plug shall be inserted only into a socket outlet provided with a protective earth contact. Any interruption of the protective conductor, inside or outside the product is likely to make the product dangerous. Intentional interruption is prohibited.

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**WARNING** These servicing instructions are for use by qualified personnel only.

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**WARNING** The opening of covers or removal of parts is likely to expose dangerous voltages. Disconnect the instrument from all voltage sources while it is being opened.

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**WARNING** This product is designed for use in Installation Category II and Pollution Degree 2 per IEC 61010-1: 2001.

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**WARNING** No operator serviceable parts inside. Refer servicing to qualified personnel.

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**WARNING** If this product is not used as specified, the protection provided by the equipment could be impaired. This product must be used in a normal condition (in which all means for protection are intact) only.

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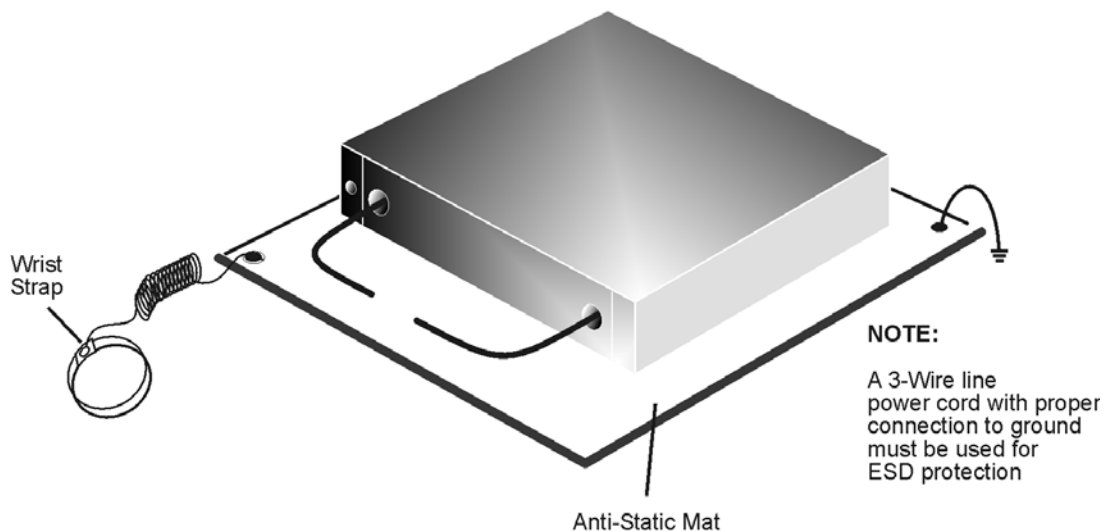
## Electrostatic Discharge Protection

Protection against electrostatic discharge (ESD) is essential while removing assemblies from or connecting cables to the network analyzer. Static electricity can build up on your body and can easily damage sensitive internal circuit elements when discharged. Static discharges too small to be felt can cause permanent damage. To prevent damage to the instrument:

- *always* have a grounded, conductive table mat (9300-0797) in front of your test equipment.
- *always* wear a grounded wrist strap (9300-1367) with grounding cord (9300-0980), connected to a grounded conductive table mat, having a 1 M $\Omega$  resistor in series with it, when handling components and assemblies or when making connections.
- *always* wear a heel strap (9300-1126) when working in an area with a conductive floor. If you are uncertain about the conductivity of your floor, wear a heel strap.
- *always* ground yourself before you clean, inspect, or make a connection to a static-sensitive device or test port. You can, for example, grasp the grounded outer shell of the test port or cable connector briefly.
- *always* ground the center conductor of a test cable before making a connection to the analyzer test port or other static-sensitive device. This can be done as follows:
  1. Connect a short (from your calibration kit) to one end of the cable to short the center conductor to the outer conductor.
  2. While wearing a grounded wrist strap, grasp the outer shell of the cable connector.
  3. Connect the other end of the cable to the test port and remove the short from the cable.

Figure 6 shows a typical ESD protection setup using a grounded mat and wrist strap.

**Figure 6** ESD Protection Setup



## Regulatory Information

### Instrument Markings



The instruction documentation symbol. The product is marked with this symbol when it is necessary for the user to refer to the instructions in the documentation.



This symbol indicates that the instrument requires alternating current (ac) input.



This symbol indicates separate collection for electrical and electronic equipment, mandated under EU law as of August 13, 2005. All electric and electronic equipment are required to be separated from normal waste for disposal (Reference WEEE Directive, 2002/96/EC).



This symbol indicates that the power line switch is ON.



This symbol indicates that the power line switch is in the STANDBY position.



This symbol indicates that the power line switch is in the OFF position.



This symbol is used to identify a terminal which is internally connected to the product frame or chassis.



The CE mark is a registered trademark of the European Community. (If accompanied by a year, it is when the design was proven.)



The CSA mark is a registered trademark of the Canadian Standards Association. This instrument complies with Canada: CSA 22.2 No. 000000061010-1, Second Edition.

ISM1-A

This is a symbol of an Industrial Scientific and Medical Group 1 Class A product.

ICES/NMB-001

This is a marking to indicate product compliance with the Canadian Interference-Causing Equipment Standard (ICES-001).



Direct Current.



This is a required mark signifying compliance with an EMC requirement. The C-Tick mark is a registered trademark of the Australian Spectrum Management Agency.



China RoHS regulations include requirements related to packaging, and require compliance to China standard GB18455-2001.



This symbol indicates compliance with the China RoHS regulations for paper/fiberboard packaging.

## Lithium Battery Disposal

If the battery on the A15 CPU board assembly needs to be disposed of, dispose of it in accordance with your country's requirements. If required, you may return the battery to Agilent Technologies for disposal. Refer to [“Contacting Agilent Sales and Service Offices” on page 23](#) for assistance.



DO NOT THROW BATTERIES AWAY BUT  
COLLECT AS SMALL CHEMICAL WASTE.

## Compliance with Canadian EMC Requirements

This ISM device complies with Canadian ICES-001.  
Cet appareil ISM est conforme a la norme NMB du Canada.

## Compliance with German FTZ Emissions Requirements

This product complies with the German FTZ 526/527 Radiated Emissions and Conducted Emission requirements.

## Compliance with German Noise Requirements

This is to declare that this instrument is in conformance with the German Regulation on Noise Declaration for Machines (Laermangabe nach der Maschinenlaermrrerordnung-3. GSGV Deutschland).

Acoustic Noise Emission/Geraeuschemission	
LpA<70 dB	Lpa<70 dB
Operator Position	am Arbeitsplatz
Normal Operation	normaler Betrieb
per ISO 7779	nach DIN 45635 t. 19

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## Contacting Agilent Sales and Service Offices

Assistance with test and measurement needs, and information on finding a local Agilent office are available on the Internet at:

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

You can also purchase accessories or documentation items on the Internet at:

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

If you do not have access to the Internet, contact your field engineer.

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**NOTE** In any correspondence or telephone conversation, refer to the product by its model number and full serial number. With this information, the Agilent representative can determine whether your unit is still within its warranty period.

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