
909A dc-18 GHz
909D dc-26.5 GHz
Coaxial Terminations

Operating Note

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In This Manual...

- **Overview**, page 1
- **Specifications**, page 2
- **Environmental Requirements**, page 3

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This Agilent Technologies system product is warranted against defects in materials and workmanship for a period corresponding to the individual warranty periods of its component products. Instruments are warranted for a period of one year. During the warranty period, Agilent Technologies will, at its option, either repair or replace products that prove to be defective.

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Assistance

Product maintenance agreements and other customer assistance agreements are available for Agilent Technologies products.

For assistance, call your local Agilent Technologies Sales and Service Office (refer to [“Service and Support”](#) on page vi).

Service and Support

By internet, phone, or fax, get assistance with all your test and measurement needs.

Online assistance: www.agilent.com/find/assist

United States (tel) 1 800 452 4844	Latin America (tel) (305) 269 7500 (fax) (305) 269 7599	Canada (tel) 1 877 894 4414 (fax) (905) 282-6495	Europe (tel) (+31) 20 547 2323 (fax) (+31) 20 547 2390
New Zealand (tel) 0 800 738 378 (fax) (+64) 4 495 8950	Japan (tel) (+81) 426 56 7832 (fax) (+81) 426 56 7840	Australia (tel) 1 800 629 485 (fax) (+61) 3 9210 5947	

Asia Call Center Numbers

Country	Phone Number	Fax Number
Singapore	1-800-375-8100	(65) 836-0252
Malaysia	1-800-828-848	1-800-801664
Philippines	(632) 8426802 1-800-16510170 (PLDT Subscriber Only)	(632) 8426809 1-800-16510288 (PLDT Subscriber Only)
Thailand	(088) 226-008 (outside Bangkok) (662) 661-3999 (within Bangkok)	(66) 1-661-3714
Hong Kong	800-930-871	(852) 2506 9233
Taiwan	0800-047-866	(886) 2 25456723
People's Republic of China	800-810-0189 (preferred) 10800-650-0021	10800-650-0121
India	1-600-11-2929	000-800-650-1101

Safety and Regulatory Information

Review this product and related documentation to familiarize yourself with safety markings and instructions before you operate the instrument. This product has been designed and tested in accordance with international standards.







WARNING




The **WARNING** notice denotes a hazard. It calls attention to a procedure, practice, or the like, that, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

CAUTION

The **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

Instrument Markings

	When you see this symbol on your instrument, you should refer to the instrument's instruction manual for important information.
	This symbol indicates hazardous voltages.
	This symbol indicates that the instrument requires alternating current (ac) input.
	The CE mark is a registered trademark of the European Community. If it is accompanied by a year, it indicates the year the design was proven.
 N10149	The C-Tick mark is a registered trademark of the Australian Spectrum Management Community.
	The CSA mark is a registered trademark of the Canadian Standards Association.

1SM1-A	This text indicates that the instrument is an Industrial Scientific and Medical Group 1 Class A product (CISPER 11, Clause 4).
	This symbol indicates that the power line switch is ON.
	This symbol indicates that the power line switch is in STANDBY position.
	This symbol indicates that the power line switch is OFF

Safety Earth Ground



This is a Safety Class I product (provided with a protective earthing terminal). An uninterruptible safety earth ground must be provided from the main power source to the product input wiring terminals, power cord, or supplied power cord set. Whenever it is likely that the protection has been impaired, the product must be made inoperative and secured against any unintended operation.

Before Applying Power

Verify that the product is configured to match the available main power source as described in the input power configuration instructions in this manual. 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.

Overview

Description

The Agilent 909A and 909D terminations are low-reflection loads for terminating 50 SZ coaxial systems in their characteristic impedance. The Agilent 909A is extremely broadband, covering the frequency range from dc to 18 GHz. The Agilent 909D is specified to 26.5 GHz, and mode free to 34 GHz. Both terminations find wide use as accessories for broadband measuring instrument and for coaxial instrumentation.

- The Agilent 909A is furnished with a Precision 7 mm connector. This is a sexless connector with low RF leakage and clearly defined reference plane. As an option, the Agilent 909A can be furnished with either male or female Type-N connector interfaces per MIL-STD-348A and IEEE standard 287. The outer conductors of these Type-N interfaces are made of passivated stainless steel.
- The Agilent 909D has Precision 3.5 mm connector interfaces per IEEE standard 287.

It is essential that the Agilent 909D be kept in top operating form as it is used for precise measurements. It is recommended that the Agilent 909D be calibrated once a year or after 1000 connections. Due to the simplicity of this product there are no field replaceable parts.

Receiving Inspection

Inspect the packaging and all parts for damage. Keep all packaging materials for return shipment, if necessary. If any part is missing or damaged, notify the carrier and your nearest Agilent Technologies office immediately.

Maintenance

Agilent recommends that the connectors be periodically inspected and cleaned if necessary.

NOTE

This manual assumes you know the proper connector care. If not, refer to "Principles of Microwave Connector Care-Quick Reference Card", (part number 08510-90360). Or, contact your nearest Agilent Technologies sales office for the customer training course: "Understanding Connectors Used With Network Analyzers".

- Agilent 85050A + 24A (on site)
 - Agilent 85050A + 24D (at Agilent Technologies sales office)
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Specifications

Table 1 *Agilent 909A Specifications*

Specification	Value
Frequency range	dc to 18 GHz
Impedance	50 Ω
Connectors	Precision 7 mm Option 012 Type N (m) Option 013 Type N (f)
Reflection coefficient	<ul style="list-style-type: none"> • 0 to 4 GHz: 0.024 (1.05 SWR) • 4 to 12.4 GHz: 0.048 (1.1 SWR) • 12.4 to 18 GHz: 0.11 (1.25 SWR) Options 012 and 013 ¹ <ul style="list-style-type: none"> • 0 to 4 GHz: 0.029 (1.06 SWR) • 4 to 12.4 GHz: 0.052 (1.11 SWR) • 12.4 to 18 GHz: 0.13 (1.30 SWR)
Power rating	2 W average 300 W peak
Weight	net 80g (3 oz) shipping 2008 (8 oz)
Length	51 mm (2 in)

1. Option 012 furnished with Type N (m) connector. Option 013 furnished with Type N (f) connector.

Table 2 *Agilent 909D Specifications*

Specification	Value
Frequency range	dc to 26.5 GHz
Impedance	500
Connectors	3.5 mm (m) Option 011 3.5 mm (f)
SWR ¹	1.02: (Standard) dc to 3 GHz, (Option 040) dc to 4 GHz 1.036: (Standard) 3 to 6 GHz, (Option 040) 4 to 6 GHz 1.12: (Standard) 6 to 26.5 GHz, (Option 040) 6 to 26.5 GHz
Power rating	2 W average, 20 °C, ² 100 W peak (10 ps max. pulse width) at 20 °C.
Dimensions	23 mm x 4 mm diameter. (0.91 in x 0.16 in)

1. The typical VSWR is 1.1 at 26.5 GHz. Statistically, 90% of the units produced will meet this performance.

2. Derated to 1W average at 75 °C.

Environmental Requirements

Table 3 *Environmental Requirements*

Parameter	Required Values/Ranges
Operating Temperature	
Type-N	20° to 26°C (68° to 79°F)
3.5 mm	15° to 35°C (59° to 95°F)
Storage Temperature	-40° to +75 °C (-40° to +167 °F)
Altitude	
Operation	< 4,500 m (15,000 ft)
Storage	< 15,000 m (50,000 ft)
Relative humidity	Always non-condensing
Operation	0 to 80% (26°C maximum dry bulb)
Storage	
Type-N	0 to 90%
3.5 mm	0 to 95%