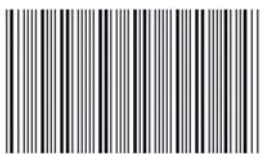


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909A dc-18 GHz  
909D dc-26.5 GHz  
Coaxial Terminations

Operating Note

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## Warranty

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## Certification

*Agilent Technologies, Inc., certifies that this product met its published specifications at the time of shipment from the factory. Agilent Technologies further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology (NIST, formerly NBS), to the extent allowed by the Institute's calibration facility, and to the calibration facilities of other International Standards Organization members.*

## Assistance

Product maintenance agreements and other customer assistance agreements are available for Agilent Technologies products. Any adjustment, maintenance, or repair of this product must be performed by qualified personnel. Contact your customer engineer after referring to “Contacting Agilent” on the following page.

## Contacting Agilent

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<b>France</b> (tel) 0825 010 700* (alt) (+33) (0)1 6453 5623 (fax) 0825 010 701*	<b>Germany</b> (tel) 01805 24 6333* (alt) 01805 24 6330* (fax) 01805 24 6336*	<b>Ireland</b> (tel) (+353) (0)1 890 924 204 (alt) (+353) (0)1 890 924 206 (fax) (+353) (0)1 890 924 024	<b>Israel</b> (tel) (+972) 3 9288 500 (fax) (+972) 3 9288 501
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(tel) = primary telephone number; (alt) = alternate telephone number; (fax) = FAX number; * = in country number 11/16/04			

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## 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.

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### WARNING

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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.

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### CAUTION

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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.

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## Instrument Markings



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When you see this symbol on your instrument, you should refer to the instrument's instruction manual for important information.



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This symbol indicates hazardous voltages.



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



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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.



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The C-Tick mark is a registered trademark of the Australian Spectrum Management Community.



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The CSA mark is a registered trademark of the Canadian Standards Association.

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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.





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## 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 GPC. 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 GPC.

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.

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#### 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 $\Omega$
Connectors	Precision 7 mm Option 012 Type N (m) Option 013 Type N (f)
Reflection coefficient	<ul style="list-style-type: none"> <li>• 0 to 4 GHz: 0.024 (1.05 SWR)</li> <li>• 4 to 12.4 GHz: 0.048 (1.1 SWR)</li> <li>• 12.4 to 18 GHz: 0.11 (1.25 SWR)</li> </ul> Options 012 and 013 <sup>1</sup> <ul style="list-style-type: none"> <li>• 0 to 4 GHz: 0.029 (1.06 SWR)</li> <li>• 4 to 12.4 GHz: 0.052 (1.11 SWR)</li> <li>• 12.4 to 18 GHz: 0.13 (1.30 SWR)</li> </ul>
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 <sup>1</sup>	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, <sup>2</sup> 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.

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## 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%

## Environmental Requirements