

# **User's Guide**

## **Agilent Technologies N6314A and N6315A Type-N 50 Ohm RF Cables**



**Agilent Technologies**

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## Product Description

The N6314A and N6315A are type-N 50  $\Omega$  RF cables, with a specified range of DC to 12.4 GHz. These cables provide the shielded RF connections required when using network analyzers with various test devices and equipment.

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## Model Number N6314A

	
Connector Type	Type-N 50Ω cable / male to male
Part Number	8120-8862
Impedance	50Ω (nominal)
Return Loss	≥ 24 dB (DC to 3 GHz) ≥ 18 dB (3 GHz to 12.4 GHz)
Length	61 cm (24 inches)
Net Weight	0.14 kg (0.31 lbs)
Shipping Weight	0.59 kg (1.30 lbs)

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## Model Number N6315A



Connector Type	Type-N 50Ω cable / male to female
Part Number	8121-0027
Impedance	50Ω (nominal)
Return Loss	≥ 24 dB (DC to 3 GHz) ≥ 18 dB (3 GHz to 12.4 GHz)
Length	61.0 cm (24 inches)
Net Weight	0.12 kg (0.26 lbs)
Shipping Weight	0.57 kg (1.26 lbs)

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## Care and Maintenance

To obtain optimum performance from RF cables, observe these precautions:

- Flex and straighten the cables as little and seldom as possible.
- Make connections carefully to avoid misalignment, connector damage, or inaccurate measurements.
- Keep the connectors free of dirt and metallic particles by periodic inspection and cleaning.

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**CAUTION** Cotton swabs may leave fibers on the connector that can cause inaccurate measurement results.

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- When you clean the connectors, apply clean compressed air or nitrogen. Do not use abrasives. With a foam-tipped plastic swab, apply isopropyl alcohol to clean the connector surfaces.
- Type-N (male) outer conductor shoulder, dielectric recession, or center conductor step should be 0.208 inch minimum.

## Visual Inspection

Visual inspection and, if necessary, cleaning should be done every time a connection is made. Metal particles from the connector threads may fall onto the mating plane surface of the connector when it is disconnected. One connection made with a dirty or damaged connector can damage both connectors beyond repair.

Magnification is helpful when inspecting connectors, but it is not required and may actually be misleading. Defects and damage that cannot be seen without magnification generally have no effect on electrical or mechanical performance. Magnification is of great use in analyzing the nature and cause of the damage and in cleaning connectors, but it is not required for inspection. Use the following guidelines when evaluating the integrity of a connector.

### Look for Obvious Defects and Damage First

Examine the connector first for obvious defects and damage: badly worn plating on the connector interface, deformed threads, or bent, broken, or misaligned center conductors. Connector nuts should move smoothly and be free of burrs, loose metal particles, and rough spots.

**What Causes Connector Wear?** Connector wear is caused by connecting and disconnecting the cable. The more use a connector gets, the faster it wears and degrades. The wear is greatly accelerated when connectors are not kept clean, or are connected incorrectly.

Connector wear eventually degrades performance of the cable. Replace cables with worn connectors.

The test port connectors on the network analyzer test set may have many connections each day, and are therefore also subject to wear. It is recommended that an adapter be used as a test port saver to minimize the wear on the test set's test port connectors.

### **Inspect the Mating Plane Surfaces**

Flat contact between the connectors at all points on their mating plane surfaces is required for a good connection. Look especially for deep scratches or dents, and for dirt and metal particles on the connector mating plane surfaces. Also look for signs of damage due to excessive or uneven wear or misalignment.

Light burnishing of the mating plane surfaces is normal, and is evident as light scratches or shallow circular marks distributed more or less uniformly over the mating plane surface. Other small defects and cosmetic imperfections are also normal. None of these affect electrical or mechanical performance.

If a connector shows deep scratches or dents, particles clinging to the mating plane surfaces, or uneven wear, clean and inspect it again. Cables with damaged connectors should be repaired or discarded. Determine the cause of damage before connecting a new, undamaged connector in the same configuration.