User Guide

Keysight N6850A Broadband Omnidirectional Antenna

KEYSIGHT TECHNOLOGIES

Notices

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N6850-90001

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Warranty

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Safety Notices

CAUTION

A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, 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.

WARNING

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

Safety Summary

The following general safety precautions must be observed during all phases of operation of this instrument. Failure to comply with these precautions or with specific warnings or operating instructions in the product manuals violates safety standards of design, manufacture, and intended use of the instrument. Keysight Technologies assumes no liability for the customer's failure to comply with these requirements. Product manuals are provided with your instrument on CD-ROM and/or in printed form. Printed manuals are an option for many products. Manuals may also be available on the Web. Go to www.keysight.com and type in your product number in the Search field at the top of the page.

General This product is a passive, receive-only antenna. Do not remove instrument shell – there are no user serviceable parts within.

Environment Conditions This instrument is intended for indoor or outdoor use. Refer to the specifications tables for ambient operating temperature range.

Safety Symbols

Table 1. Safety Symbol

Symbol	Description
	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.
	Indicates the time period during which no hazardous or toxic substance elements are expected to leak or deteriorate during normal use. Forty years is the expected useful life of the product.

Compliance and Environmental Information

Table 2. Compliance and Environmental Information

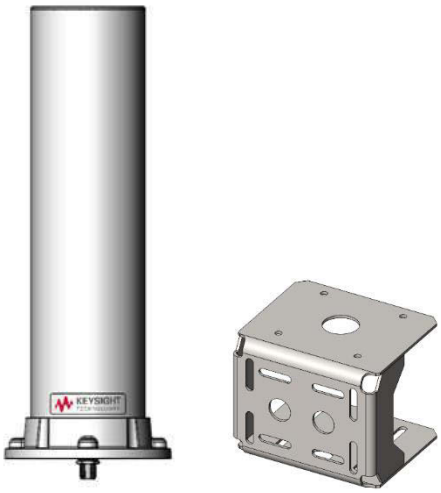
Safety Symbol	Description
	This product complies with WEEE Directive (2002/96/EC) marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste. Product Category: With reference to the equipment types in WEEE Directive Annex I, this product is classed as a “Monitoring and Control instrumentation” product. Do not dispose in domestic household waste. To return unwanted products, contact your local Keysight office for more information.

Product Description

For your spectrum monitoring or interference detection applications, having an antenna that covers the entire frequency range of interest would be most convenient. Assembling discone antennas is time-consuming and usually has to be done on-site as they are hard to transport without damaging the elements and may require multiple antennas to cover the full frequency range of the receiver. Other antennas may not have uniform gain patterns that are required by received signal strength geolocation algorithms.

The Keysight N6850A Broadband Omni Antenna is a passive, omnidirectional antenna designed for receivers that operate up to 6 GHz. With this antenna, you can minimize mounting complexity by mounting only one very compact antenna. Its low profile design makes it ideal for inconspicuous spectrum monitoring applications. Its uniform gain pattern makes it ideal for time difference of arrival or for received signal strength geolocation techniques.

Industries where they antenna may be useful include spectrum monitoring and signal location, outdoor and indoor and interference detection and location. Its use may be fixed-site, vehicle-mounted, or handheld operation. It is for use with Keysight N6841A RF Sensor, Keysight N99XX handheld spectrum analyzers, Keysight spectrum analyzers, or any commercial spectrum analyzer or receiver with 6 GHz operation.



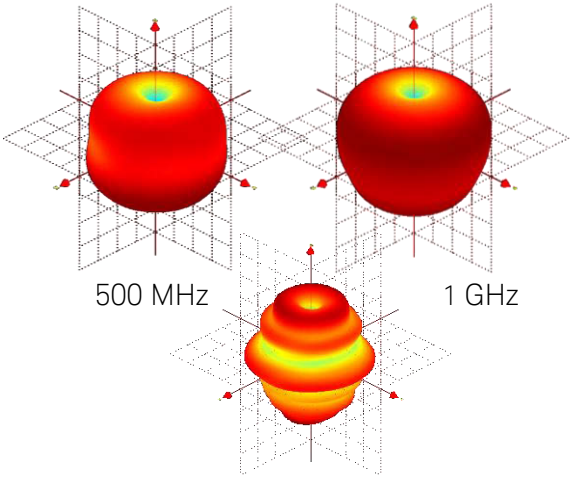
Main Features and Benefits

Product features	Your benefits
Wide frequency range	Covers 20 MHz to 6 GHz, meaning you only need only 1 antenna with your RF sensor or other receiver
Uniform gain pattern	Suitable for indoor or outdoor geolocation
Mounting adapter	Suitable for post or rail mounting, or handheld use. Easily adapted for vehicle mounting.
Compact design, low wind loading	Suitable for signal monitoring from tower or vehicle. Easy to transport, easy to mount.

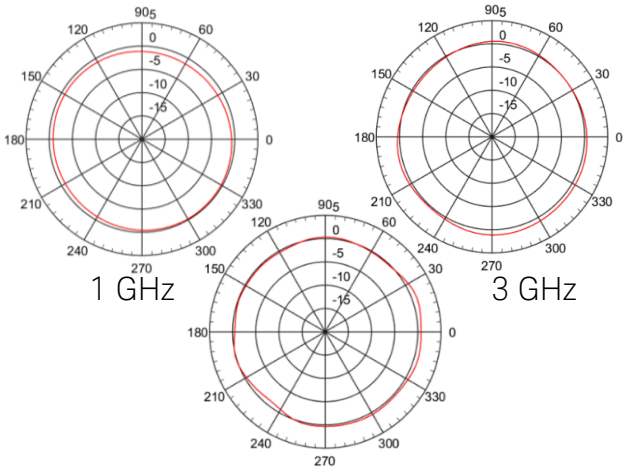
Specifications and Characteristics

All specs and plots are Typical unless otherwise stated.

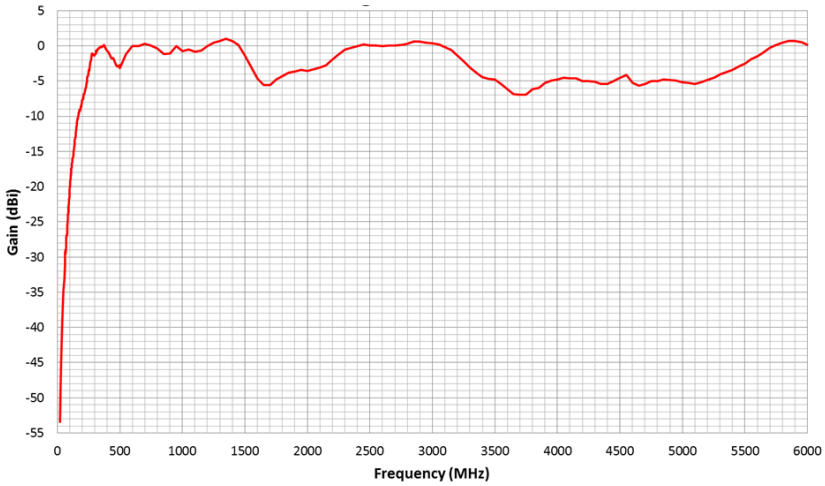
Hardware	
Frequency range	20 MHz to 6 GHz
Type	Omni-directional, Passive
Size	16.5 inch high x 6.14 inch wide
Connector	Type N
Polarization	Vertical
Impedance	50 ohms
VSWR	< 2.5 for 450 MHz to 6 GHz
Operating Temperature	-50 to +70°C
Ingress	IP67
Wind Survivability	100 miles/hr (160 km/hr)
ROHS	Compliant
Antenna weight	Approx. 1.15 kg
Mounting bracket weight	Approx 1.54 kg
Shipping weight	Approx 6.1 kg



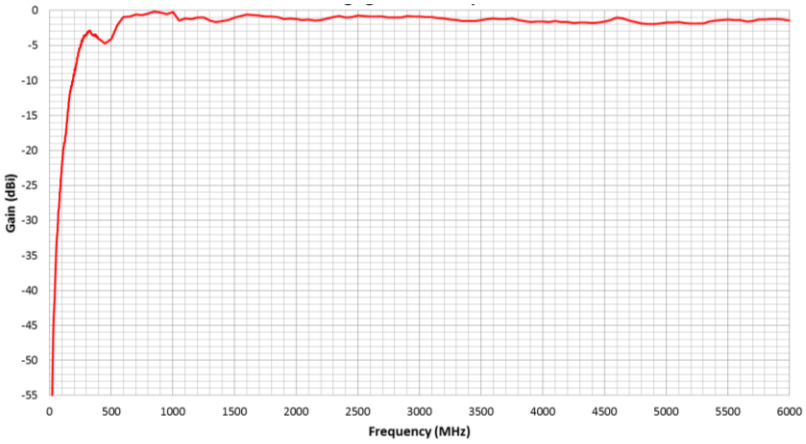
3D gain plot of a representative unit at ambient temperature



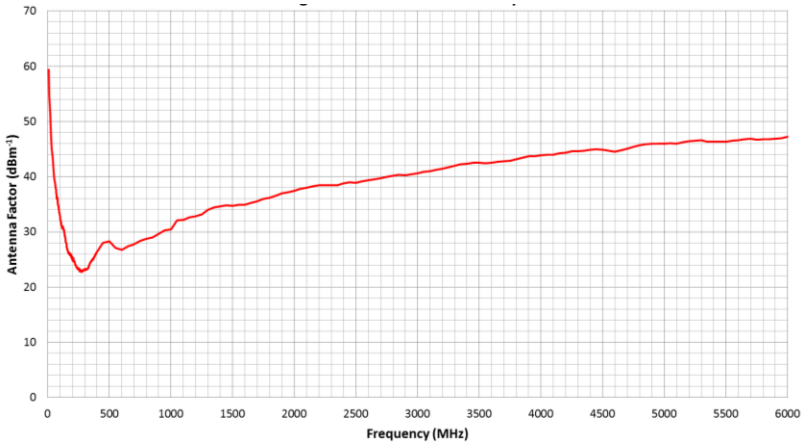
Radial gain pattern at the horizon of a representative unit at ambient temperature



Average gain at the horizon at ambient temperature



Average gain over all space at ambient temperature



Average antenna factor over all space at ambient temperature

Note that signals below 350 MHz will require greater signal strength for antenna reception.

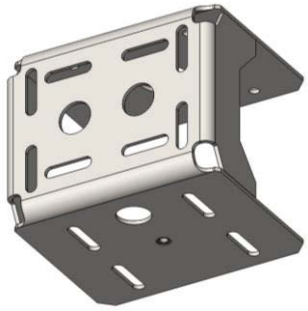
Mounting

There are 4 threaded inserts and 4 through-holes for mounting the antenna. You may use the enclosed mounting bracket or devise your own mount.

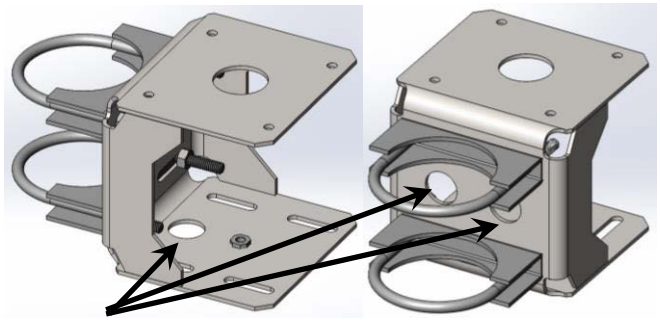
The 4 threaded inserts will accept 1/4”-20 x 0.5” (inch) length machine screws with ¼” washer. The through-holes will accept 1/4”-20 x 1” (inch) bolt and nut. When used with our mounting bracket, you may mount with either the 4 through-holes or the 4 threaded inserts.

Through-hole mounting (quantity 4, not included)
1/4”-20 x 1 inch (minimum length)

Threaded insert mounting (quantity 4, not included)
¼”-20 x 0.5 inch (max 5/8 inch).

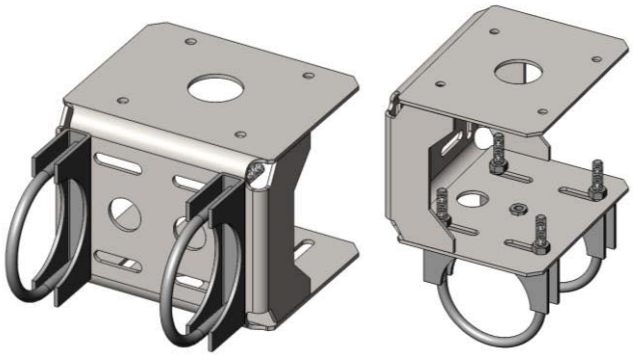


The mounting bracket can be vertical pole or horizontal rail mounted with 2 U-bolts (not included). All slots accommodate U-bolts for 1” to 3” diameter pipe. Mount designed for 5/16” diameter U-bolts.

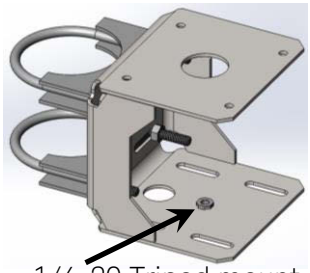


Cable feed through

U-bolts for vertical pole mounting (U-bolts not included)



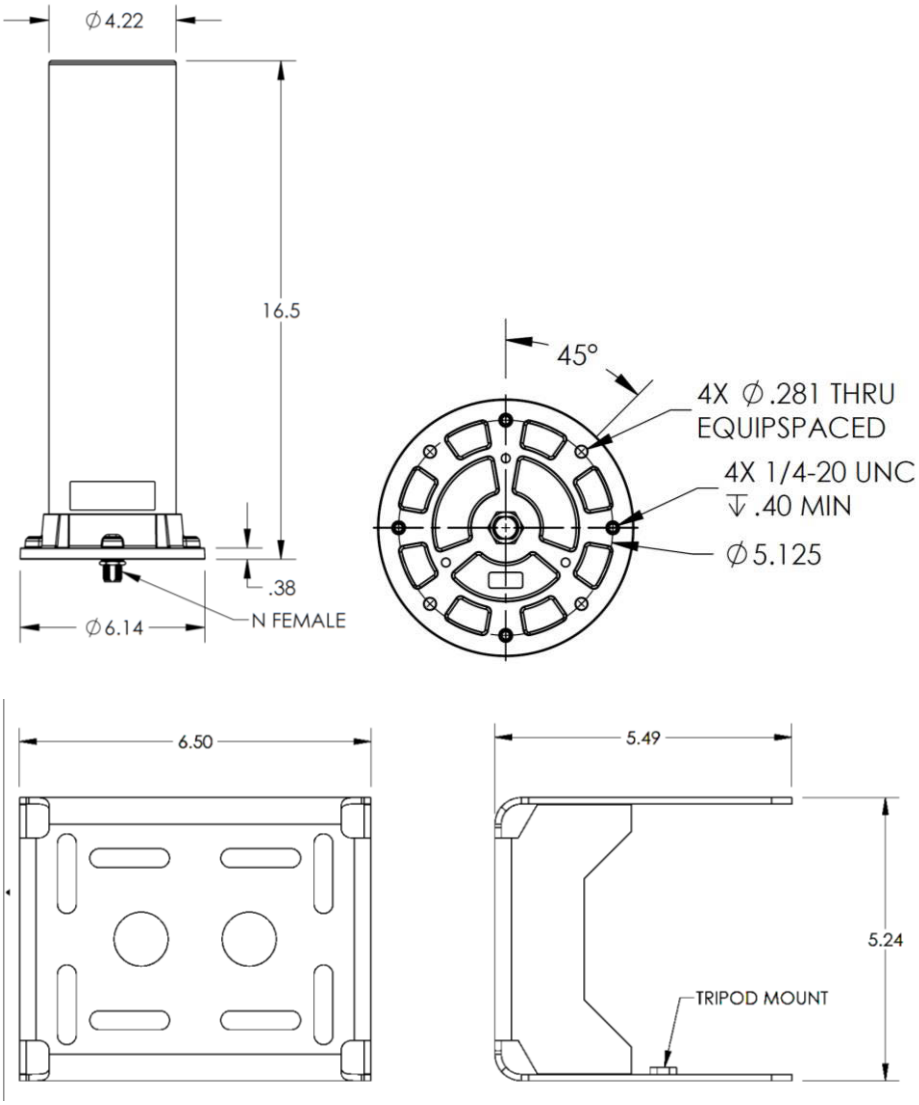
U-bolts for horizontal rail mounting (U-bolts not included)



1/4-20 Tripod mount

Vehicle mounting can be done by purchasing a magnetic mount with a 1/4-20 tripod screw.

Dimensions



Ordering Information

Model	Description
N6850A	Broadband omni antenna (6 GHz) Includes post/rail mounting adapter N-type antenna cable (5 ft) Mounting instructions Return-to-Keysight Warranty: 1 year

(Note: vehicle mount and mounting hardware not included)

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www.keysight.com