

# Technical Support

PLEASE REFER TO THE SUPPORT INFORMATION CARD THAT SHIPPED WITH YOUR PRODUCT.

By registering your product at [www.NETGEAR.com/register](http://www.NETGEAR.com/register), we can provide you with faster expert technical support and timely notices of product and software upgrades.

NETGEAR, INC.

## Support Information

Phone: 1-888-NETGEAR (For US & Canada only) - 24x7 phone support

See Support Information card for other countries.

E-mail: [support@NETGEAR.com](mailto:support@NETGEAR.com) (24x7 online support)

[www.NETGEAR.com](http://www.NETGEAR.com)

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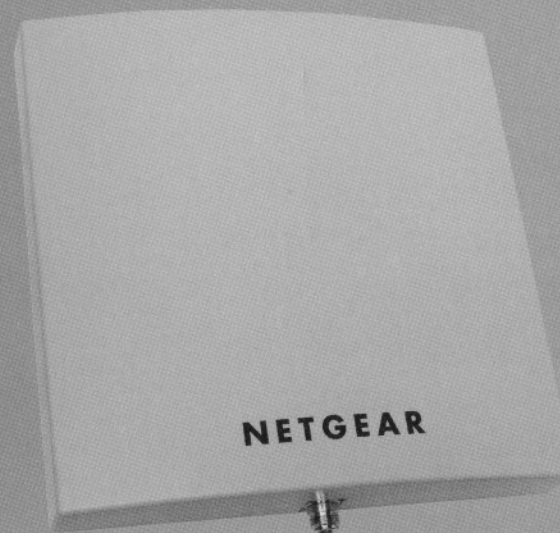
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July 2003



# NETGEAR®

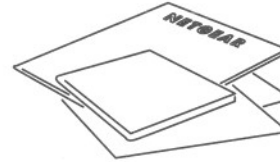
## 18 dBi Patch Panel Directional Antenna ANT24D18



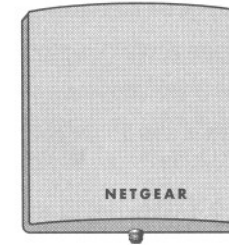
## Installation Guide

# Introduction

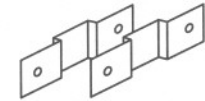
## Package Contents



Installation Guide,  
Warranty card and  
Support information card



18 dBi Patch Panel Directional  
Antenna ANT24D18



Wall, pole, and ceiling  
mount brackets and hardware



Screws and  
plastic anchors

The package should contain:

- NETGEAR 18 dBi Patch Panel Directional Antenna ANT24D18
- Reverse N/SMA Adapter
- Wall, pole, and ceiling mount brackets and hardware
- Screws and plastic anchors
- Installation Guide
- Warranty card
- Support information card

If any of the parts are incorrect, missing, or damaged, contact your NETGEAR dealer. Keep the carton, including the original packing materials, in case you need to return the product for repair.

**NOTE:** To obtain optimal results in extending wireless range with antenna installations, it is recommended that a qualified professional installer service is consulted for site survey and proper installation.

To comply with FCC rules the ANT24D18 antenna should only be used with devices that have been FCC approved for use with the ANT24D18. Please check the NETGEAR web site at [http://www.NETGEAR.com/go/antennas\\_fcc](http://www.NETGEAR.com/go/antennas_fcc) for an updated list of FCC approved devices.

In the U.S., use of the ANT24D18 18 dBi antenna with the NETGEAR Booster ANT24BNA can only be used for point-to-point applications and the antenna and booster must be fixed mounted on a permanent structure. For EU compliance, see page 8.

For EU, use of any antenna requires careful planning and extra consideration to comply with EU emissions and health standards and regulations. Antenna installation must comply with the maximum level authorized by each country.

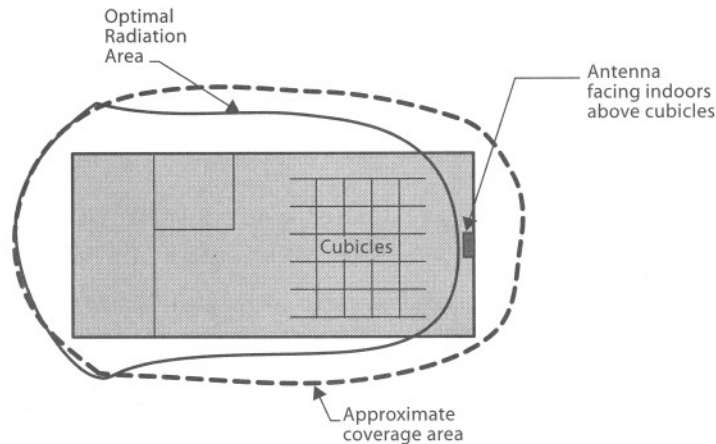
## Placement and Other Important Considerations

Antenna placement dramatically affects potential coverage. In order to maximize coverage try to:

- Minimize obstructions in front of the antenna
- Consider placing the antenna on a wall above cubicles a minimum of 2m high, facing the area to cover

Antenna cables have intrinsic loss at 2.4 GHz, which can decrease range performance. The best performance is achieved with a short cable between the antenna and the wireless device. The shortest FCC approved antenna cable is the NETGEAR 1.5 M (ACC-10314-01) cable, except when using the ANT24BNA booster which requires the NETGEAR 3 m cable (ACC-10314-02) as a minimum length.

If the wireless access point, router, or gateway is in a IT room, place the antenna outside of the room close to the ceiling against a wall for optimal range. Use a NETGEAR antenna cable of up to 10 m length to connect the antenna to the wireless access point.



The image above shows where one could place the ANT24D18 for best coverage in an office. The ANT24D18 is placed in an elevated location on an interior wall, above and facing the indoor area to be covered. Notice that the area close to the antenna, behind or beside it, will still be covered because the dynamic range of the WLAN transmitter/receiver and antenna is approximately 100dB. So, even with 20 dB to 40 dB of attenuation, the signal strength is still strong and communication is maintained.

For indoor “hot spot” applications in a narrow building, place antenna on the highest floor’s ceiling in the middle of the area to cover. One to several floors can be covered, depending on the building material. The propagation loss increases as follows: wood building (relatively little loss), floors in concrete (some loss), reinforced concrete (more loss), and metal floor or reinforced concrete with a lot of metal pipes, metal air conditioning channel, etc. (most loss).

For building-to-building bridge applications, place the antenna indoors behind a window or on a wall behind a window. Alternatively the antenna can be placed outdoors facing the direction of the antenna of the other buildings. For optimal communication, the window must be clean and not metal coated, with no partial obstruction (trees, buildings, etc.) in the line of sight between the 2 antennas.

## Installing the Antenna

The instructions below cover these three scenarios:

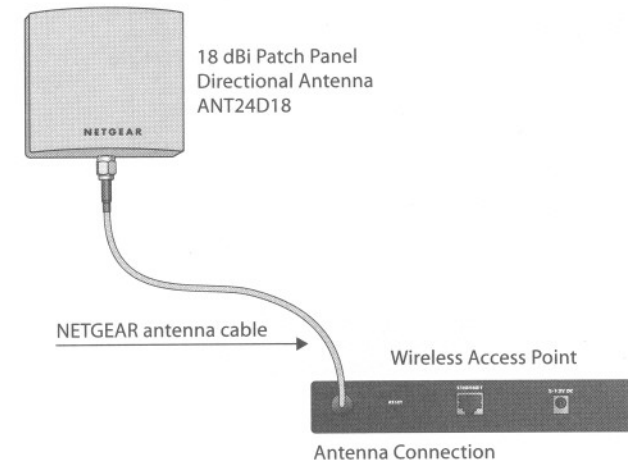
- Wireless device with single antenna
- Wireless device with two antennas, but replacing only the primary antenna
- Wireless device with two antennas, but replacing both the primary and secondary antennas

Turn off your wireless unit, locate the scenario below that fits your equipment, and connect your Patch Panel Directional Antenna according to the illustration. After attaching your new antenna, reconnect your wireless device to the network and turn it on.

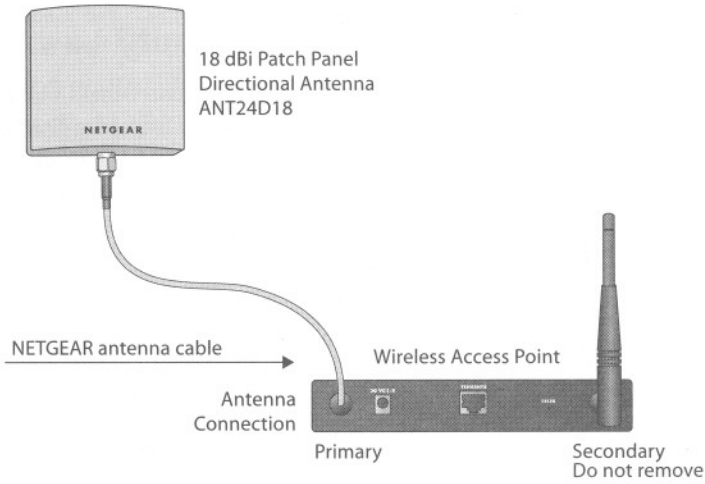
In order to attach the antenna cable to the antenna, you must first remove the plastic cap from N connector of the antenna. Then screw the N/SMA Reverse Adapter on (clockwise).

### Wireless device with single antenna

Antenna executes both the transmit and receive function.

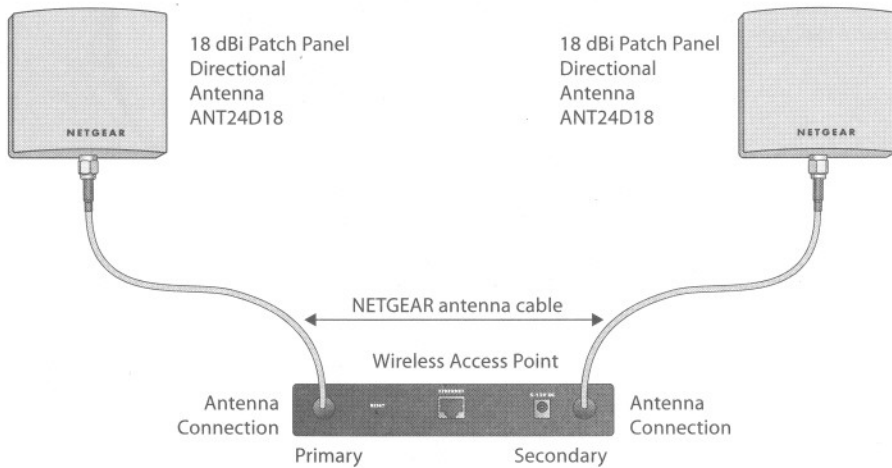


## Wireless device with two antennas, but replacing only the primary antenna

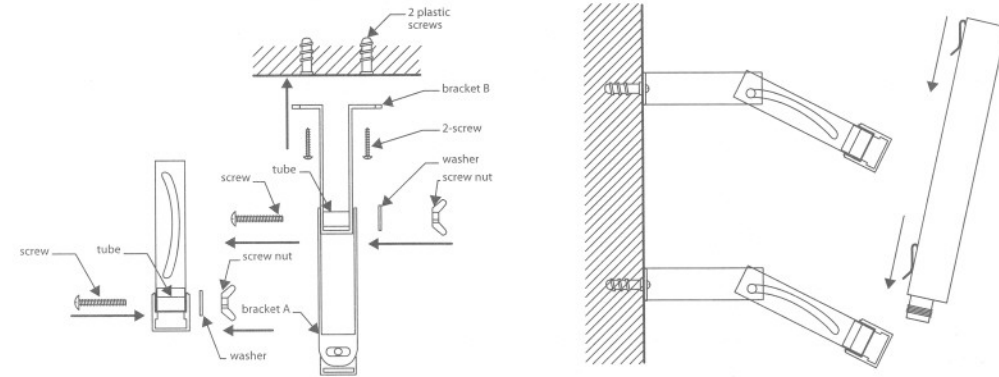


Antenna executes both the transmit and receive function.

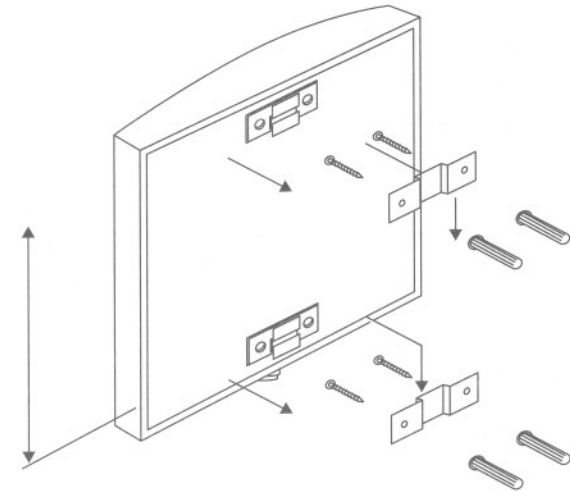
## Wireless device with two antennas, but replacing both the primary and secondary antennas



## Mount Antenna Using the Bracket Mount Option



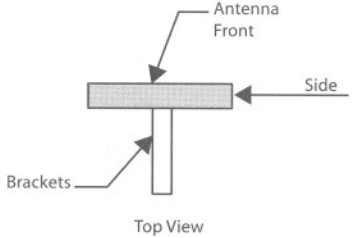
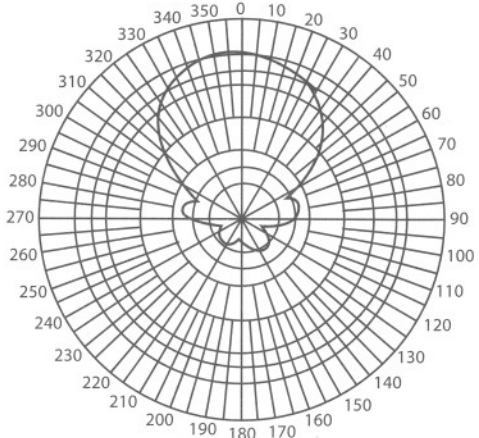
## Mount Antenna Using the Wall Mount Option



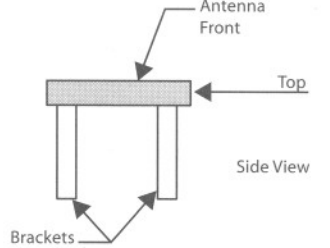
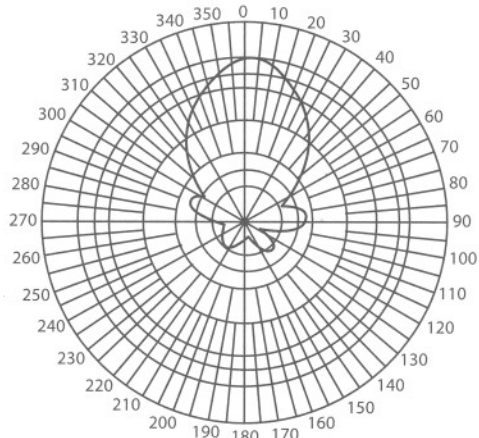
# Specifications

<b>Description</b>	<b>ANT24D18, 18 dBi Patch antenna with a reverse N female jack and a reverse N to reverse SMA adapter</b>
Frequency Range	2450 ± 50MHz
Type	Patch Directional
Impedance	50 ± 5 Ohms
Maximum Input Power	20W (without N/SMA adapter)
SWR	1.5 maximum
Return Loss	-15dB
Gain	18dBi
Radiation	Directional
Polarization	Vertical
Beam Degree	HORZ 60 ° VERT 30 °
Connector Type	Reverse N FEMALE
Material	PC+ABS
Color	WHITE
Mounting Base	STEEL
Operation Temperature	-30 to 80° C (-22 to 176° F)
Storage Temperature	-30 to 80° C (-22 to 176° F)
Device Size (l x w x h)	262.8 x 262.8 x 40 mm (10.35 x 10.35 x 1.58 in)
Weight	1520 g/3.35 lbs.
Warranty	2 years

## H Plane Radiation Pattern



## E Plane Radiation Pattern



## Statement of Conditions

In the interest of improving internal design, operational function, and/or reliability, NETGEAR reserves the right to make changes to the products described in this document without notice. NETGEAR does not assume any liability that may occur due to the use or application of the product(s) or circuit layout(s) described herein.

## Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

To comply with FCC regulations, the ANT24D18 should only be used with devices that have been FCC approved for use with the ANT24D18. Please check the NETGEAR web site at [http://www.NETGEAR.com/go/antennas\\_fcc](http://www.NETGEAR.com/go/antennas_fcc) for the latest information.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: (1) Reorient or relocate the receiving antenna, (2) Increase the separation between the equipment and receiver, (3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected, (4) Consult the dealer or an experienced radio/TV technician for help.

## Federal Communications Commission (FCC) and EU Radiation Exposure Statements

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 50 cm (19.7 inches) during normal operation.

This device should not be co-located with other transmitters.

In the U.S., use of the ANT24D18 18 dBi antenna with the NETGEAR Booster ANT24BNA can only be used for point-to-point applications and the antenna and booster must be fixed mounted on a permanent structure.

For EU, use of any antenna requires careful planning and extra consideration to comply with EU emissions and health standards and regulations. It is recommended that a qualified professional installer service is consulted for site survey and proper installation. Antenna installation must comply with the maximum level authorized by each country. The ANT24D18 should only be used with devices that comply with EU regulations for use with the ANT24D18. Please check the NETGEAR web site at [http://www.NETGEAR.com/go/antennas\\_eu](http://www.NETGEAR.com/go/antennas_eu) for the latest information.