



Wireless Accessories



SUBCATEGORY	FEATURE	WALL-MOUNT	COAX CABLES			
		AT-WR4501	AT-TQ0001	AT-TQ0003	AT-TQ0041	AT-TQ0045
ENVIRONMENTAL	In/outdoor usage	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor
ANTENNA / CABLE TYPE			HDF200	HDF200	HDF400	HDF400
ANTENNA GAIN (dBi)	@ 2.4GHz					
	@ 5GHz					
INSERTION LOSS (dB)	@ 2.4GHz		-0.5	-1.7	-0.3	-1.2
	@ 5GHz		-0.7	-2.7	-0.5	-2.1
CONNECTOR			1 x N plug 1 x RP-SMA plug	1 x N plug 1 x RP-SMA plug	2 x N plug	2 x N plug
COMPATIBLE EQUIPMENT	AT-WR4541a / AT-WR4541g				■	■
	AT-WR4542					
	AT-WR4561 / AT-WR4562	■			■	■
	AT-TQ2403		■	■		
DIMENSIONS	(W x D x H) / Length	18.9 x 8.9 x 3.7cm 7.4 x 3.5 x 1.5in	.5m 1ft 7.7in	3m 9ft 10in	.5m 1ft 7.7in	5m 16ft 4.9in
	Weight	.48kg / 1.06lbs	.10kg / .22lbs	.20kg / .44lbs	.12kg / .26lbs	.6kg / 1.32lbs
IDEAL ENVIRONMENT		» WISP, enterprise	» WISP, enterprise	» WISP, enterprise	» WISP, enterprise	» WISP, enterprise
CUSTOMER'S NEEDS		» Wall-mount	» Higher gain or directional antenna	» Higher gain or directional antenna	» External antenna	» External antenna

Glossary

Gain

The only reason for designing and using special antennas is to modify the 'radiation pattern'. In fact, an antenna works as a lens or a parabolic reflector concentrating the radiated power into a narrow beam and enhancing the received signals like a telescope. Therefore, the Gain expresses how much the antenna enhances the transmitted and received signals relative to simple radiators like a dipole or a dot shaped one, called 'isotropic'. In the first case the antenna gain is expressed in dBd (decibels over dipole) while in the latter it is expressed in dBi (decibels over isotropic).

Since a dipole's gain is 2.15 dBi and dB are logarithmic quantities, the antenna gain in dBi is equal to the gain in dBd plus 2.15.

Loss

WISP

The attenuation of the cable or device. In dB.

Wireless Internet Service Provider.

Using high gain antennas is not always a good idea!

Antennas have on electromagnetic waves the same effect that lenses have on light.

A high gain antenna does not increase the radiated power but simply concentrates the power fed by the transmitter in a certain area and 'magnifies' the received signal from the same area. Therefore choosing the right antenna is very important and largely affects the performances of every wireless network.

The various antenna types differ from each other in their footprint shape. Increasing the gain has the effect of reducing their footprint size.

An Omni-directional antenna concentrates the signal in a 360° belt around it. The higher the gain the thinner the belt is. The result is a better signal far from the antenna and a signal so low below the antenna that it can be impossible to communicate.

Panel and Parabolic antennas have a nearly circular footprint. Low gain panels can be used for both short distance point-to-point and point-to-multipoint links but can be successfully used for straight roads coverage too. High gain Panel and Parabolic antennas produce such a small spot that can be deployed only in medium to long distance point-to-point links.

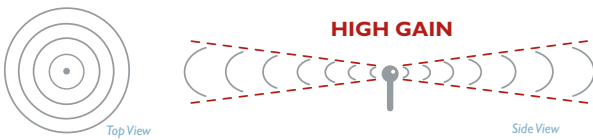
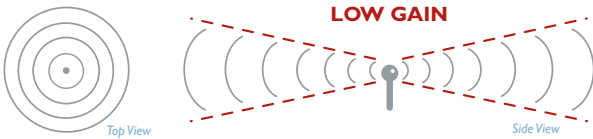
A Sector antenna footprint is a horizontal ellipse whose width is usually 30°, 60°, 90° or 120°, therefore higher gain sector antennas have a vertically thinner footprint while keeping the same horizontal width. This allows for using Sector antennas in the central site of a point-to-multipoint link or for coverage of a certain 'sector' in mobile networks.

Choosing the right antenna is like choosing the best lighting system between various types of streetlamps and lighthouses. You will never choose the latter for lighting a yard.



CAT5 CABLES		ANTENNA	RF SPLITTERS		SURGE PROTECTOR
AT-TQ0051	AT-TQ0053	AT-TQ0500	AT-TQ0292	AT-TQ0592	AT-TQ0591
Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor
CAT5 UTP	CAT5 UTP	Omni			
		2			
		5			
			-0.6	-0.5	-1.5
				-0.5	-1.5
1 x RJ-45 plug 1 x waterproof RJ-45 plug	1 x RJ-45 plug 1 x waterproof RJ-45 plug	1 x N plug	3 x N socket	3 x N socket	1 x N plug 1 x N socket
■	■	■	■	■	■
■	■	■	■	■	■
■	■	■	■	■	■
10m 32ft 9.6in	30m 98ft 5.1in	2.2 x 2.2 x 19cm .9 x .9 x 7.5in	7.7 x 5.5 x 4.2cm 3 x 2.2 x 1.7in	8 x 3 x 8cm 3.1 x 1.2 x 3.1in	6.5 x 3.4 x 2.5cm 2.6 x 1.3 x 1in
.5kg / 1.10lbs	1.5kg / 3.31lbs	.07kg / .15lbs	.33kg / .72lbs	.33kg / .72lbs	.14kg / .31lbs
» WISP, enterprise	» WISP, enterprise	» WISP, enterprise	» WISP, enterprise	» WISP, enterprise	» WISP, enterprise
» Achieve IP67 protection level for AT-WR4500 equipments		» HotSpot » AP	» Two antennas on one radio I/F	» Two antennas on one radio I/F	» Equipment lightning protection

Omni Antenna Radiation Lobes



Panel and Sector Antenna Radiation Lobes



Notes