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WLAN Antennas

Laird Technologies is the world leader in the design and supply of customized performance-critical products for wireless and other advanced electronic applications. Laird Technologies partners with its customers to help find solutions for applications in various industries such as:

Aerospace
Automotive Electronics
Computers
Consumer Electronics
Data Communications
Medical Equipment
Military
Network Equipment
Telecommunications

Laird Technologies offers its customers unique product solutions, dedication to research and development and a seamless network of manufacturing and customer support facilities located all across the globe.

global solutions :
local support™

Contents

Laird Technologies' WLAN Antennas

Laird Technologies' WLAN Antennas Catalog is an ideal resource for WLAN 802.11 antenna requirements. The catalog includes specifications and application notes for a multitude of antenna variables that span the industry's most productive, broad-based product offering for WLAN access point system applications.

In several instances, the core part number and specifications for an antenna are provided, as well as several alternatives differentiated by the part number suffix. In these cases, the part is a custom product built as a result of long-standing relationships with the industry's most prominent WLAN radio OEMs.
Please contact Laird Technologies if an alternative part is needed.

A note is included when a mounting hardware package is included with the antenna. The catalog also provides some guidance relative to the most common applications for a particular antenna. Many of the antennas presented were Cushcraft, Centurion and Antenex antennas but are now proud members of the Laird Technologies' family of products.

The goal of the WLAN Antenna Catalog is to provide the antenna products that are now part of the Laird Technologies family. As new products are developed, they will be added to the catalog to provide the most comprehensive reference guide possible.

Please contact Laird Technologies with questions or comments.

OMNIDIRECTIONAL COLLINEAR ANTENNAS

Laird Technologies' WLAN omnidirectional collinear antennas are available in frequency ranges of 2400-2500 MHz and 4900-5850 MHz. There are also several dual-band antennas available. This range of antennas includes models for indoor, outdoor, and indoor/outdoor applications. A wide selection of gain and mounting styles ensures that virtually every omnidirectional application can be covered.

Mounting hardware is included with each antenna. Mounting styles include ceiling hanging from a drop ceiling, pole mount and I-beam clamp. These antennas are available with a variety of coax pigtail lengths and connector types. These antennas are an excellent choice for superior RF coverage in warehouses, auditoriums, shopping malls, industrial complex.

In addition, for applications where outdoor access points are used, a series of direct mount antennas are available. All antennas are weatherproof and can withstand constant exposure to UV and temperature extremes. Input impedance is 50 ohms.

2.4 GHz 5.2 dBi Omni Antenna

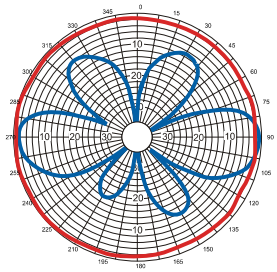
This 2.4 GHz indoor/outdoor omnidirectional antenna includes all of the mounting hardware for inverted ceiling mount, inverted I-beam mount or standard mast mounting.

Specifications:	Part Number S2403BPX
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	5.2 (nominal)
VSWR	<1.5:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	32°
Mounting Style	Beam / Mast, Ceiling
Power (Watts)	50
Dimensions (mm)	11.5" x 1" (292 x 25)

Antennas in this series

S2403BPX12NF	Antenna with 12" pigtail and type N female
S2403BPX36RTN	Antenna with 36" pigtail and reverse TNC male
S2403BPX48RBN	Antenna with 48" pigtail and reverse BNC male
S2403BPX36RSM	Antenna with 36" pigtail and reverse SMA male

Additional configurations also available



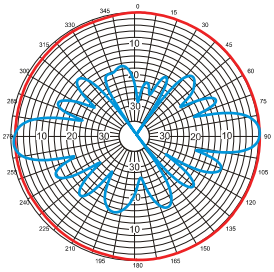
2.4 GHz 8 dBi High-Gain Omni Antenna

This high-gain collinear outdoor omnidirectional antenna is designed to be directly mounted to radio chassis or NEMA boxes that have mating connectors.

Specifications:	Part Number S2406BFNM
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	8 (nominal)
VSWR	<1.5:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	14°
Mounting Style	Pole / Mast, direct mount
Power (Watts)	50
Dimensions (mm)	20.24" x .90"(514 x 23)

Antennas in this series

S2406BFNM	Antenna with type N male



2.45 GHz H-Plane E-Plane

2.4 GHz 5.2 dBi Outdoor Pole Mount Omni Antenna

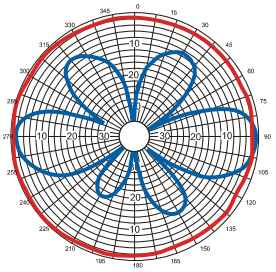
The original and still the most widely deployed outdoor omnidirectional antenna in the 2.4 GHz band..

Specifications:	Part Number S2403BP
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	5.2 (nominal)
VSWR	<1.5:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	38°
Mounting Style	Pole / Mast
Power (Watts)	50
Dimensions (mm)	11.5" x 1" (292 x 25)

Antennas in this series

S2403BP12NF	Antenna with 12" pigtail and type N female
S2403BP36RTN	Antenna with 36" pigtail and reverse TNC male
S2403BP48RBN	Antenna with 48" pigtail and reverse BNC male
S2403BP36RSM	Antenna with 36" pigtail and reverse SMA male

Additional configurations also available



2.4 GHz H-Plane E-Plane

2.4 GHz 5.2 dBi Outdoor Pole Mount Omni Antenna

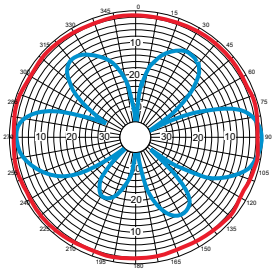
The original and still the most widely deployed outdoor omnidirectional antenna in the 2.4 GHz band.

Specifications:	Part Number S2403BH
Frequency Range (GHz)	2.4 - 2.5
Gain (dBi)	5.2 (nominal)
VSWR	<1.5:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	38°
Mounting Style	Ceiling
Power (Watts)	20
Dimensions (mm)	11.5" x 1" (292 x 25)

Antennas in this series

S2403BH12NF	Antenna with 12" pigtail and type N female
S2403BH36RTN	Antenna with 36" pigtail and reverse TNC male
S2403BH48RBN	Antenna with 48" pigtail and reverse BNC male
S2403BH36RSM	Antenna with 36" pigtail and reverse SMA male

Additional configurations also available



2.4 GHz H-Plane E-Plane

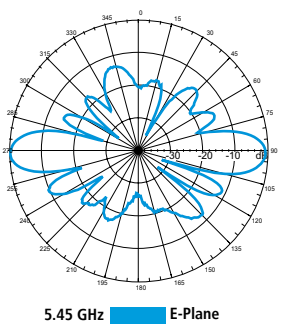
Wide-Band 5 GHz 8 dBi Omni Antenna

This high-performance outdoor omnidirectional antenna comes with a directly mounted N connector at the base for direct chassis mounting. The antenna can also be mast mounted using a separate coax jumper (not included).

Specifications:	Part Number S4906BF
Frequency Range (GHz)	4.90 - 5.85
Gain (dBi)	8 (nominal)
VSWR	<2.0:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	16°
Mounting Style	Direct
Power (Watts)	10
Dimensions (mm)	12" x 1" (305 x 25)

Antennas in this series

S4906BFNM	Antenna with type N male
S4906BFNF	Antenna with type N female



5.45 GHz E-Plane

2.4 and 5.5 GHz 6.5 dBi Dual-Band Omni Antenna

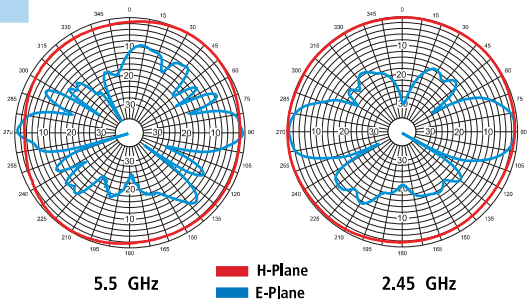
This omnidirectional indoor/outdoor antenna is dual-band covering both 2.4 GHz and wide-band 5 GHz. Like all other BPX antennas it includes inverted ceiling, inverted I-beam and standard mast mounting.

Specifications:	Part Number S24513BPX
Frequency Range (GHz)	2.4-2.5 / 5.15-5.875
Gain (dBi)	6.5 (nominal)
VSWR	<2:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	25° (2.4 GHz) / 17° (5.5 GHz)
Mounting Style	Beam / Mast , Ceiling
Power (Watts)	10
Dimensions (mm)	25.5" x 1" (647 x 25)

Antennas in this series

S24513BPX12SMF	Antenna with 12" pigtail and SMA female
S24513BPX36RTN	Antenna with 36" pigtail and reverse TNC male
S24513BPX48RBN	Antenna with 48" pigtail and reverse BNC male
S24513BPX36RSM	Antenna wtih 36" pigtail and reverse SMA male

Additional configurations also available



Wide-Band 5 GHz 10 dBi Omni Antenna

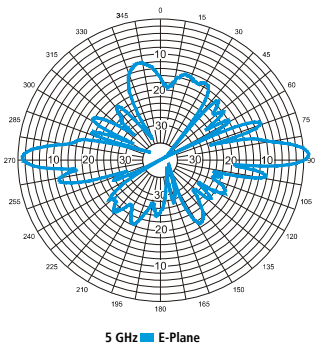
This high-gain outdoor omnidirectional antenna comes with a directly mounted N connector at the base for direct to chassis mounting. The antenna can also be mast mounted using a separate coax jumper (not included).

Specifications:	Part Number S4908BF
Frequency Range (GHz)	4.90 - 5.85
Gain (dBi)	10 (nominal)
VSWR	<2:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	8°
Mounting Style	Direct
Power (Watts)	10
Dimensions (mm	19.7" x 1" (508 x 25)

Antennas in this series

S4908BFNM	Antenna with N male
S4908BFNF	Antenna with N female

Additional configurations also available



5.15-5.875 GHz 6 dBi Wide-Band Omni Antenna

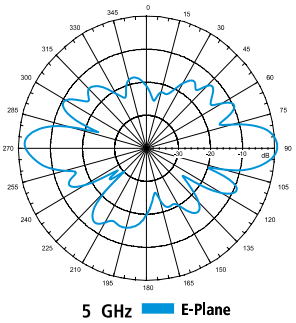
This high-performance indoor/outdoor omnidirectional antenna covers the entire 5 GHz band and is rugged enough for outdoor mounting with a clean aesthetic for indoor mounting. Ceiling, I-beam clamp and mast mount hardware are all included in the package.

Specifications:	Part Number S5153WBPX
Frequency Range (GHz)	5.150 - 5.875
Gain (dBi)	6 (nominal)
VSWR	2:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	17°
Mounting Style	Beam, Mast, Ceiling
Power (Watts)	10
Dimensions (mm)	11.5" x 1" (292 x 25)

Antennas in this series

S5153WBPX12SMF	Antenna with 12" pigtail and type SMA female
S5153WBPX36RTN	Antenna with 36" pigtail and reverse TNC male
S5153WBPX36RSM	Antenna with 36" pigtail and reverse SMA male
S5153WBPX36NM	Antenna with 36" pigtail and type N male

Additional configurations also available



5.150-5.875 GHz 9 dBi Wide-Band Omni Antenna

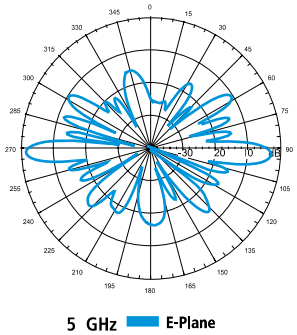
This high-gain indoor/outdoor omnidirectional antenna covers the entire 5 GHz band and is rugged enough for outdoor mounting with a clean aesthetic for indoor mounting. Ceiling, I-beam clamp and mast mount hardware are all included in the package.

Specifications:	Part Number S5158WBPX
Frequency Range (GHz)	5.150-5.875
Gain (dBi)	9 (nominal)
VSWR	2:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	8°
Mounting Style	Beam, Mast, Ceiling
Power (Watts)	10
Dimensions (mm)	19.3" x 1" (490 x 25)

Antennas in this series

S5158WBPX12SMF	Antenna with 12" pigtail and SMF female
S5158WBPX36RTN	Antenna with 36" pigtail and reverse TNC male
S5158WBPX36RSM	Antenna with 48" pigtail and reverse SMA male

Additional configurations also available



OMNIDIRECTIONAL PANEL ANTENNAS

Laird Technologies' WLAN omnidirectional panel antennas are available in frequency ranges of 2400-2500 MHz and 4900-5850 MHz. There are also a number of dual-band antennas availalbe. Many models of these antennas are designed primarily for indoor applications and are mounted to the ceiling. There are also more rugged models available for vehicular mounting and outdoor applications.

Mounting styles include flush mount antennas and grid mount antennas. Flush mount antennas mount directly to a surface such as a finished ceiling or a vehicle. Grid mount antennas have integrated spring clips for mounting to the grid bars of a drop ceiling. The ceiling mount antennas provide a low profile for minimum visual impact.

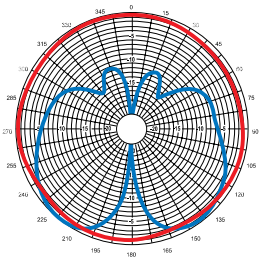
The omnidirectional coverage patterns include a standard omni pattern and "squint" pattern. The "squint" pattern provides an electrical 45-degree vertical down tilt that is ideal for such applications as wireless telephone booths, industrial complexes, office environments, shopping malls, parking garages, airports, hospitals and campus settings.

A variety of coax lengths and connector types are available. The coax used for ceiling mount antennas is plenum rated. Antennas with bulkhead connectors are also available. Input impedance is 50 ohms. Operating temperature is -40 to +65 degrees C.

2.4 GHz 3.5 dBi Omnidirectional Ceiling Mount Antenna

The 4"x 4"x 1" indoor Mini-Squint provides 3.5 dBi gain and antenna can be mounted to ceiling tiles or to I-beams using an added hardware kit.

Specifications:	Part Number SQ2403PG
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	3.5 (nominal)
VSWR	<1.5:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	50° (peak @45°)
Mounting Style	Ceiling mount
Power (Watts)	10
Dimensions (mm)	11.5" x 1" (292 x 25)



Antennas in this series

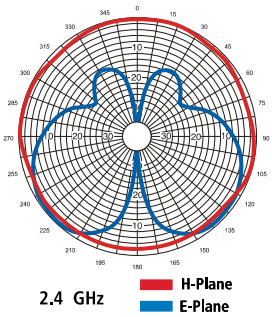
SQ2403PG12NF	Antenna with 12" pigtail and N female
SQ2403PG36RTN	Antenna with 36" pigtail and reverse TNC male
SQ2403PG48RBN	Antenna with 48" pigtail and reverse BNC male
SQ2403PG36RSM	Antenna with 36" pigtail and reverse SMA male

Additional configurations also available

2.3-2.5 GHz 3.5 dBi Omnidirectional Ceiling Panel Antenna

The original indoor ceiling panel design provides the same gain as the "mini" and can be mounted to flat surfaces.

Specifications:	Part Number SQ2303P
Frequency Range (GHz)	2.3-2.5
Gain (dBi)	3.5 (nominal)
VSWR	<1.5:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	45° (peak @53°)
Mounting Style	Ceiling
Power (Watts)	10
Dimensions (mm)	6" x 6" x 1.26" (15.2 x 15.2 x 3.2)



Antennas in this series

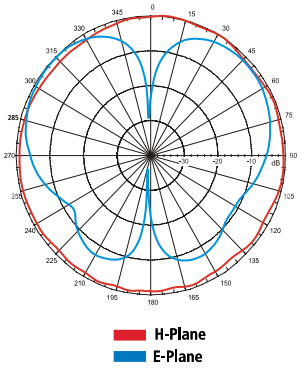
SQ2302P12NF	Antenna with 12" pigtail and N female
SQ2303P36RTN	Antenna with 36" pigtail and reverse TNC male
SQ2303P36RSM	Antenna with 36" pigtail and reverse SMA male
SQ2303P36NM	Antenna with 36" pigtail and N male

Additional configurations also available

5.150-5.875 GHz 3 dBi Omnidirectional Wide-Band Ceiling Mount Squint Antenna

This Laird Technologies' low-profile indoor ceiling mount omni panel covers the entire 5 GHz band and is the industry's most popular design. The 36" integrated coax pigtail option allows for making a direct connection to radio.

Specifications:	Part Number SQ5153WP
Frequency Range (GHz)	5.150-5.875
Gain (dBi)	3 (nominal)
VSWR	2:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	50°
Mounting Style	Ceiling
Power (Watts)	5
Dimensions (mm)	2" x 2" x .75" (5.1 x 5.1 x 1.9)



Antennas in this series

S2403BPX12NF	Antenna with 12" pigtail and type N female
SQ5153WP12SMF	Antenna with 12" pigtail and SMA female
SQ5153WP36RTN	Antenna with 36" pigtail and reverse TNC male
SQ5153WP36RSM	Antenna with 36" pigtail and reverse SMA male

Additional configurations also available

802.11n MIMO OMNIDIRECTIONAL PANEL ANTENNAS

802.11n is the latest WLAN standard. This technology takes advantage of the multi path nature of microwave signal propagation to provide greatly increased data throughput. This is achieved by using MIMO (multiple input multiple out) signal processing in the access point. The MIMO configuration makes use of multiple transmitters and receivers, and, therefore, requires antennas with multiple antenna elements. MIMO antennas must be designed to have good coverage properties, as well as proper electrical isolation between the multiple elements.

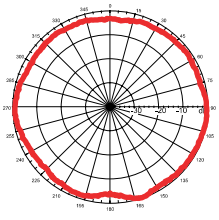
Dual-Band MIMO Panel Antenna

The radiation patterns are uniform and symmetrical, providing high levels of signal density into defined coverage zones. This antenna will greatly enhance the performance of 802.11n systems

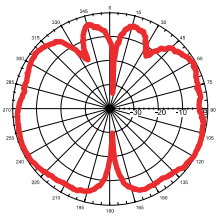
Specifications:	Part Number S24493TS
Frequency Range (GHz)	2.4-2.5 & 4.9-5.9
Gain (dBi)	3.0 / 4.0
VSWR	2.0:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	60°
Mounting Style	Ceiling grid / Suspension tile
Power (Watts)	2
Dimensions (mm)	12.1" x 8.6" x 3.6" (308 x 22 x 92)

Antennas in this series

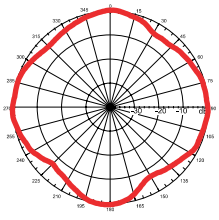
S24493TS	Antenna with 3 x 36" pigtail and reverse SMA



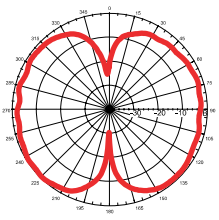
5.47 GHz H-Plane



5.47 GHz E-Plane



2.5 GHz H-Plane



2.5 GHz E-Plane

INTEGRATED DIVERSITY OMNIDIRECTIONAL PANEL ANTENNAS

Laird Technologies' WLAN omnidirectional panel antennas are available in frequency ranges of 2400-2500 MHz and 4900-5850 MHz. There are also a number of dual-band antennas available. These antennas are designed primarily for indoor applications and are mounted to the ceiling.

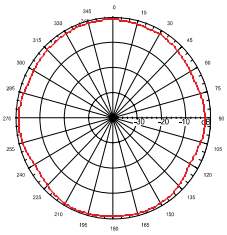
The key feature of these antennas is to provide, in a single housing, two identical antennas for wireless environments in which multi-path fading is a contributing factor to system impairment. The combination of the "squint" coverage pattern and space diversity ensures enhanced WLAN system performance. Typical multi-path rich environments include offices, warehouses, hospitals and large freezers/containers.

A variety of coax lengths and connector types are available. The coax used is plenum rated. Input impedance is 50 ohms. Operating temperature is -40 to +65 degrees C.

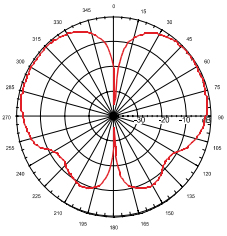
4.90-5.87 GHz 3 dBi Integrated Spatial Diversity Omnidirectional Antenna

This 2.4 GHz indoor/outdoor omnidirectional antenna includes all of the mounting hardware for inverted ceiling mount, inverted I-beam mount or standard mast mounting.

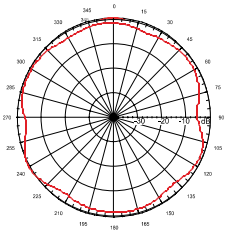
Specifications:	Part Number S4903WDS
Frequency Range (GHz)	4.90-5.87
Gain (dBi)	3 (nominal)
VSWR	2:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	50°
Mounting Style	Ceiling clips
Power (Watts)	2
Dimensions (mm)	5.25" x 2.75" x .75" (133 x 70 x 19)



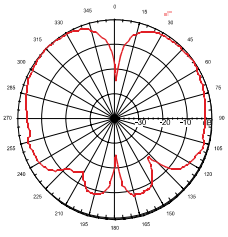
H- PLANE 4.9 GHz



E- PLANE 4.9 GHz



H- PLANE 5.9 GHz



E- PLANE 5.9 GHz

Antennas in this series

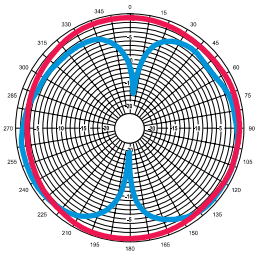
S4903WDS36TNM	Antenna with 36" pigtail and N male
S4903WDS36RTN	Antenna with 36" pigtail and reverse TNC male
S4903WDS36RSM	Antenna with 36" pigtail and reverse SMA male

Additional configurations also available

Dual-Band Integrated Spatial Diversity Omnidirectional Antenna

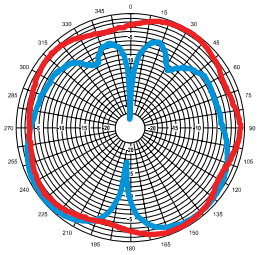
The industry standard for indoor dual-band multimode integrated omnidirectional diversity offers multiple elements and two ports with both bands available on each port. Antenna mounts to drop ceiling tile supports.

Specifications:	Part Number S24493DS
Frequency Range (GHz)	2.4-2.5 / 4.9-5.9
Gain (dBi)	3 (nominal)
VSWR	<2:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	60°
Mounting Style	Ceiling clip
Power (Watts)	2
Dimensions (mm)	6.1" x 3.6" x .9" (156 x 93 x 23)



2.4 GHz

H-Plane
E-Plane



5.5 GHz

Antennas in this series

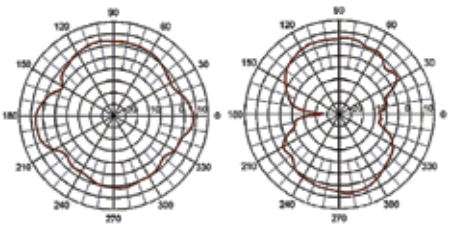
S24493DS36TNM	Antenna with 36" pigtail and TNC male
S24493DS36RTN	Antenna with 36" pigtail and reverse TNC male
S24493DS36RSM	Antenna with 36" pigtail and reverse SMA male

Additional configurations also available

2.4-2.5 GHz 3 dBi Axial Diversity Wall-Mount Omnidirectional In-Building Antenna

The 2.4 GHz MicroSphere™ axial diversity offers an economical solution for In-building omnidirectional coverage.

Specifications:	Part Number IFD2450
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	3 (nominal)
VSWR	<2:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	80° (nominal)
Mounting Style	Wall-mount
Power (Watts)	50
Dimensions (mm)	4.8" x 1.7" x .4" (123 x 44 x 11)



H-Plane 2.4 GHz E-Plane

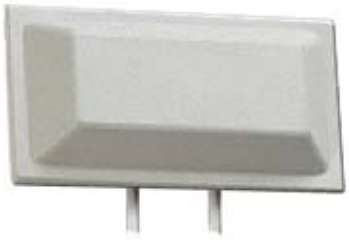
Antennas in this series

IDF2450-RB36	Antenna with 36" pigtail and RP-BNC X 2
IDF2450-RT36	Antenna with 36" pigtail and RP-TNC X 2
IDF2450-RT60	Antenna with 60" pigtail and RP-TNC X 2

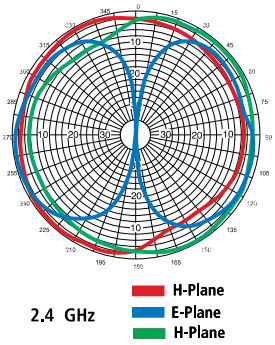
Additional configurations also available

2.4 GHz 2 dBi Integrated Diversity Omnidirectional Antenna

The industry's first and best indoor 2.4 GHz integrated diversity omnidirectional antenna offers two separate elements and two ports in one package. Antenna comes with drop ceiling support hardware.



Specifications:	Part Number S2402DS
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	2 (nominal)
VSWR	<1.7:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	80°
Mounting Style	Ceiling clip
Power (Watts)	5
Dimensions (mm)	5.25 x 2.75 x .75 (133 x 70 x 19)



2.4 GHz

Antennas in this series

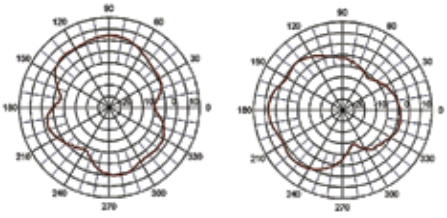
S2402DS12NF	Antenna with 12" pigtail and N female
S2402DS36RTN	Antenna with 36" pigtail and reverse TNC male
S2402DS36RSM	Antenna with 36" pigtail and reverse SMA male

Additional configurations also available

2.4-2.5 GHz 3 dBi Axial Diversity Ceiling-Mount Omnidirectional In-Building Antenna

The 2.4 GHz Sphere™ axial diversity provides low profile ceiling mounting for In-building omnidirectional coverage.

Specifications:	Part Number IOD2450
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	3 (nominal)
VSWR	<2:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	120° (nominal)
Mounting Style	Ceiling clip
Power (Watts)	50
Dimensions (mm)	7.2" x 2.7" x 1" (183 x 69 x 25)



H-Plane 2.4 GHz E-Plane

Antennas in this series

IOD2450-RT36	Antenna with 36" pigtail and RP-TNC X 2
IOD2450-RN12	Antenna with 12" pigtail and RP-N female X 2
IOD2450-NF12	Antenna with 12" pigtail and N femal X 2

Additional configurations also available

DIRECTIONAL PANEL ANTENNAS

Laird Technologies' WLAN directional panel antennas are available in frequency ranges of 2400-2500 MHz and 4900-5850 MHz. There are also a number of dual-band antennas available. This range of antennas includes models for indoor, outdoor, and indoor/outdoor applications. A wide selection of gain and mounting styles ensures that virtually every application can be covered when a directional pattern is required.

Mounting hardware is included with each antenna. Mounting styles include flush mount and articulating mount. The articulating mounts allow the antenna to be aimed for optimum coverage and can be used for either flush or mast mounting. These antennas are available with a variety of coax pigtail lengths and connector types.

Some models, such as the DirectLink ™ series, are designed to be visually appealing for office applications.
All antennas are weatherproof and can withstand constant exposure to UV and temperature extremes.
A variety of coax lengths and connector types are available. Input impedance is 50 ohms. Operating temperature is -40 to +65 degrees C.

2.4 GHz 6 dBi Directional Omni Antenna

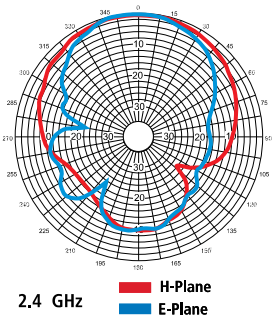
This indoor panel antenna provides a slim low profile aesthetic that is easy to conceal.

Specifications:	Part Number S2406P
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	6 (nominal)
VSWR	<1.8:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	70°
Elevation (3dB beamwidth)	65°
Mounting Style	Wall/Surface
Power (Watts)	10
Dimensions (mm)	5.2" x 3.8" x .5" (132 x 97 x 14)

Antennas in this series

S2406P12NF	Antenna with 12" pigtail and N female

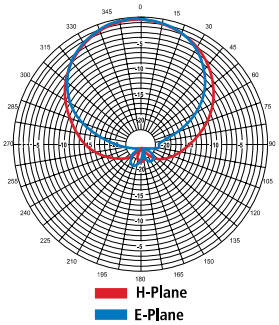
Additional configurations also available



2.5 GHz 8 dBi Directional Panel Antenna

This indoor/outdoor, 2.4 GHz panel antenna provides wide beamwidths in an attractive easy to install package.

Specifications:	Part Number S2408P12NF
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	8 (nominal)
VSWR	<1.5:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	65°
Elevation (3dB beamwidth)	60°
Mounting Style	Beam / Mast, Ceiling
Power (Watts)	50
Dimensions (mm)	6" x 6" x 1.25" (152 x 152 x 32)



Antennas in this series

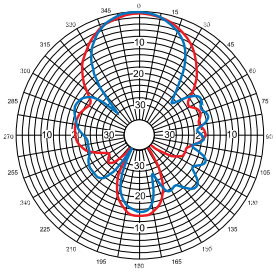
S2408P12NF	Antenna with 12" pigtail and N female

Additional configurations also available

2.4 GHz 12 dBi Directional Panel Antenna

This indoor/outdoor 2.4 GHz, 12 dBi directional antenna features close spaced elements offering high-gain in a relatively small package.

Specifications:	Part Number S2401240P
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	12 (nominal)
VSWR	<1.5:1
Polarization	Linear
Azimuth (3dB beamwidth)	40°
Elevation (3dB beamwidth)	35°
Mounting Style	Surface/Wall
Power (Watts)	25
Dimensions (mm)	6" x 6" x 1.25" (152 x 152 x 32)



Antennas in this series

S2401240P12NF	Antenna with 12" pigtail and type N female
S2401240P36RTN	Antenna with 36" pigtail and reverse TNC male
S2401240P12NM	Antenna with 12" pigtail and reverse BNC male
S2401240P36RSM	Antenna with 36" pigtail and reverse SMA male

Additional configurations also available

2.5 GHz 15 dBi High-Gain Directional Panel Antenna

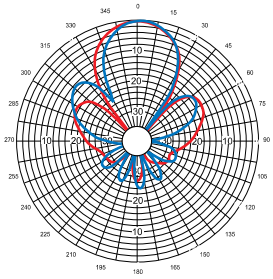
This outdoor, 15 dBi high-gain directional antenna can provide point-to-point service or narrow coverage service and comes in a rugged enclosure with an articulating mount.

Specifications:	Part Number S24015P
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	15 (nominal)
VSWR	<1.5:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	31°
Elevation (3dB beamwidth)	29°
Mounting Style	Wall / Mast
Power (Watts)	50
Dimensions (mm)	10" x 10" x 1.5" (254 x 254 x 38)

Antennas in this series

S24015P12NF	Antenna with 12" pigtail and N female

Additional configurations also available



2.4 GHz H-Plane E-Plane

DIRECTLINK™ 5150-5350 MHz Antenna

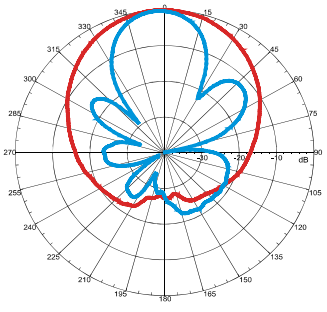
This indoor/outdoor 5.15-5.35 ,12 dBi, Wall Mount can be wall or mast mounted.

Specifications:	Part Number S51512MP
Frequency Range (MHz)	5150-5350
Gain (dBi)	12 (nominal)
VSWR	1.5:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	58°
Elevation (3dB beamwidth)	30°
Mounting Style	Wall / Mast
Power (Watts)	75
Dimensions (mm)	5.7" x 3.8" x 1.5" (144 x 97 x 38)

Antennas in this series

S51512MP10SMF	Antenna with 10" pigtail and SMA female
S51512MP36RTN	Antenna with 36" pigtail and reverse TNC male
S51512MP36RSM	Antenna with 36" pigtail and reverse SMA male

Additional configurations also available

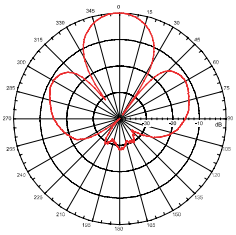


5.25 GHz H-Plane E-Plane

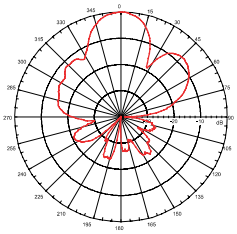
5.15-5.875 GHz 14 dBi Directional Wide-Band Antenna

This indoor/outdoor high performance panel covers the entire 5 GHz band and includes an articulating mount kit that will accommodate wall and mast mounts.

Specifications:	Part Number S51514WP
Frequency Range (GHz)	5.150-5.875
Gain (dBi)	14 (nominal)
VSWR	2:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	31°
Elevation (3dB beamwidth)	27°
Mounting Style	Wall / Mast
Power (Watts)	10
Dimensions (mm)	4" x 4" x 1.4" (102 x 102 x 35)



5.5 GHz H-Plane



5.5 GHz E-Plane

Antennas in this series

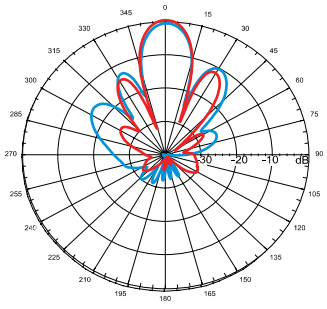
S51514WP36NM	Antenna with 12" pigtail and N male
S51514WP36RTN	Antenna with 36" pigtail and reverse TNC male
S51514WP36RSM	Antenna with 36" pigtail and reverse SMA male
S51514WP12SMF	Antenna with 12" pigtail and SMA female

Additional configurations also available

5.47-5.85 GHz 17 dBi Wide-Band Directional Panel Antenna

This outdoor 5.47-5.9 GHz rugged panel antenna is perfect for point-to-point applications or client antennas.

Specifications:	Part Number S54717P
Frequency Range (GHz)	5.47-5.85
Gain (dBi)	17 (nominal)
VSWR	1.5:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	17°
Elevation (3dB beamwidth)	17°
Mounting Style	Wall / Mast
Power (Watts)	10
Dimensions (mm)	6.7" x 6.7" x 1.9" (171 x 171 x 48)



5.66 GHz H-Plane E-Plane

Antennas in this series

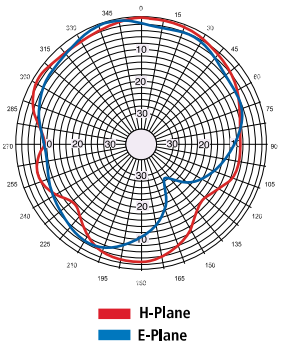
S54717PNM	Antenna with 12" pigtail and N male
S54717P36NM	Antenna with 36" pigtail and N male

Additional configurations also available

DIRECTLINK™ 2300 - 2500 MHz 7.5 dB Directional Antenna

Indoor/outdoor 2.3-2.5 GHz, 7.5 dBi Wall Mount, 10" coax.

Specifications:	Part Number S2307MP
Frequency Range (MHz)	2300-2500
Gain (dBi)	7.5 (nominal)
VSWR	1.5:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	65°
Elevation (3dB beamwidth)	60°
Mounting Style	Wall / Mast
Power (Watts)	75
Dimensions (mm)	5.7" x 3.8" x 1.5" (144 x 97 x 38)



Antennas in this series

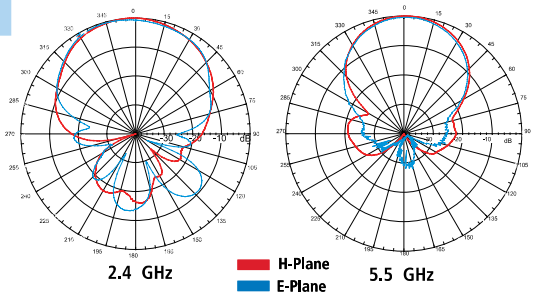
S2307MP36RSM	Antenna with 36" pigtail and reverse SMA male
S2307MP36RTN	Antenna with 36" pigtail and reverse TNC male
S2307MP10SMF	Antenna with 10" pigtail and SMA female

Additional configurations also available

2.4 and 5.9 GHz 7 dBi Dual-Band Panel Antenna

This is an indoor/outdoor high-performance dual-band multimode directional panel antenna. The antenna comes standard with a wall / mast articulating mount.

Specifications:	Part Number S24497P
Frequency Range (GHz)	2.4-2.5 / 4.9-5.9
Gain (dBi)	7 (nominal)
VSWR	<2.5:1
Polarization	Linear
Azimuth (3dB beamwidth)	68° (2.5GHz) /52° (5.0GHz)
Elevation (3dB beamwidth)	66° (2.5 GHz) / 60° (5.0 GHz)
Mounting Style	Wall
Power (Watts)	10
Dimensions (mm)	4" x 4" x 1.8" (10.4 x 10.4 x 4.5)



Antennas in this series

S24497P36TNM	Antenna with 36" pigtail and TNC male
S24497P36RTN	Antenna with 36" pigtail and reverse TNC male
S24497P36RSM	Antenna with 36" pigtail and reverse SMA male

Additional configurations also available

2.4-2.5 GHz 8.5 dBi Directional Antenna

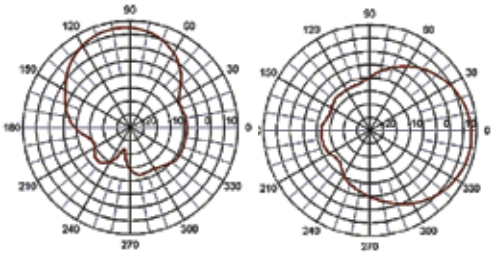
This antenna comes in both an in-building and outdoor marine rated radome.

Specifications:	Part Number IDO2450
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	8.5 (peak)
VSWR	<1.8:1
Polarization	Linear
Azimuth (3dB beamwidth)	80°
Elevation (3dB beamwidth)	60°
Mounting Style	Wall mount
Power (Watts)	50
Dimensions (mm)	4.1" x 5.3" x 1.4" (104 x 135 x 36)

Antennas in this series

IDM2450-RT36	Marine Antenna with 36" pigtail and RP-TNC
IDO2450-NF12	Antenna with 12" pigtail and N female
IDO2450-RT12	Antenna with 12" pigtail and RP-TNC
IDO2450-RT36	Antenna with 36" pigtail and RP-TNC

Additional configurations also available



H-Plane 2.4 GHz E-Plane

5.0 GHz 9 dBi In-Building Directional Antenna

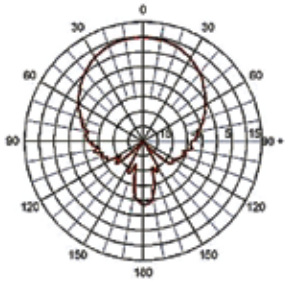
The 2.5"x 2.5"x .7" indoor Whisper™ provides 9 dBi gain and can be mounted to an articulated mount with an optional added hardware kit.

Specifications:	Part Number ID5250
Frequency Range (GHz)	5.15-5.35
Gain (dBi)	9 (nominal)
VSWR	<2.0:1
Polarization	Linear
Azimuth (3dB beamwidth)	60°
Elevation (3dB beamwidth)	60°
Mounting Style	Wall mount
Power (Watts)	50
Dimensions (mm)	2.5" x 2.5" x .7" (64 x 64 x 17)

Antennas in this series

ID5250-SM36	Antenna with 36" pigtail and SMA male

Additional configurations also available



5.25 GHz E-Plane

INTEGRATED DIVERSITY DIRECTIONAL PANEL ANTENNAS

Laird Technologies' integrated diversity WLAN directional panel antennas are available in the frequency range of 2400-2500 MHz. Mounting hardware is included with each antenna for flush mounting. An optional articulating mount allows the antenna to be aimed for optimum coverage and can be used for either flush or mast mounting.

The key feature of these antennas is to provide, in a single housing, two identical antennas for wireless environments in which multi-path fading is a contributing factor to system impairment. Typical multi-path rich environments include offices, warehouses, hospitals and large freezers/containers.

A variety of coax lengths and connector types are available. Input impedance is 50 ohms. Operating temperature is -40 to +65 degrees C.

2.4 GHz 6.5 dBi Spatial Diversity Directional Antenna

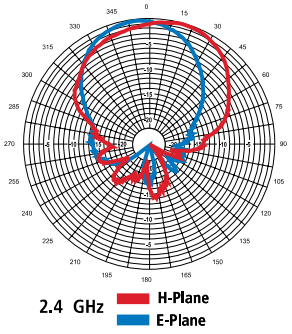
The industry's first and best indoor 2.4 GHz integrated diversity directional antenna offers two separate elements and two ports in one package. Antenna comes with wall mount hardware. Articulating mount available.

Specifications:	Part Number S2406DSP
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	56.5 (nominal)
VSWR	<1.7:1
Polarization	Linear
Azimuth (3dB beamwidth)	80°
Elevation (3dB beamwidth)	55°
Mounting Style	Wall / Surface
Power (Watts)	10
Dimensions (mm)	6.5" x 4.7" x .8" (165 x 12 x 2)

Antennas in this series

S2406DSP12NF	Antenna with 12" pigtail and type N female
S2406DSP36RTN	Antenna with 36" pigtail and reverse TNC male
S2406DSP36RSM	Antenna with 36" pigtail and reverse SMA male

Additional configurations also available



DIRECTIONAL YAGI ANTENNAS

Laird Technologies' WLAN directional Yagi antennas are available in the frequency range of 2400-2500 MHz. One outdoor model and one indoor model are available. These antennas are rugged, and easy to install in the deployment of point to point bridges, they can also be used as an access point antenna for long narrow coverage environments such as tunnels.

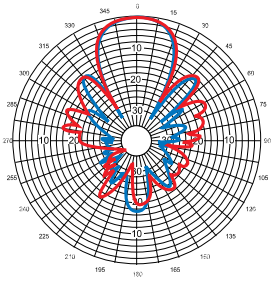
The outdoor model is available with either a non-adjustable or adjustable articulating mount and can be installed either horizontally or vertically. The indoor model is designed to be flush mounted to a flat surface.

All antennas are weatherproof and can withstand constant exposure to UV and temperature extremes. A variety of coax lengths and connector types are available. Input impedance is 50 ohms. Operating temperature is-40 to +65 degrees C.

2.4 GHz 13.9 dBi Directional Antenna

Lairds Technologies' indoor/outdoor high-gain 2.4 GHz Yagi antenna is completely enclosed and terminates in a short flexible pigtail to accommodate transitions to heavier coax jumpers. Antenna comes complete with mast mounting hardware, and an optional articulating mount is available.

Specifications:	Part Number PC2415N
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	13.9 (nominal)
VSWR	<1.5:1
Polarization	Linear
Azimuth (3dB beamwidth)	34°
Elevation (3dB beamwidth)	30°
Mounting Style	Wall / Mast
Power (Watts)	50
Dimensions (mm)	25" x 3.7" x 1.7" (633 x 95 38)



Antennas in this series

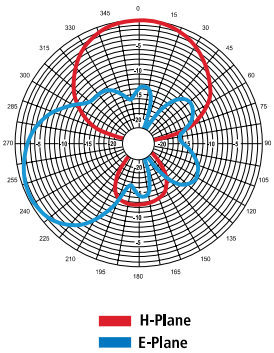
PC2415N	Antenna with 12" pigtail and N female
PC2415NA	Antenna with 12" pigtail, N female and articulating mount

Additional configurations also available

2.5 GHz Directional Ceiling Mount 8 dBi Array

This indoor 8 dBi yagi antenna is designed to be mounted to ceiling tiles and can be used to direct signal down long narrow coverage areas like airport concourses.

Specifications:	Part Number S2408MD
Frequency Range (GHz)	2.4 - 2.5
Gain (dBi)	8 (nominal)
VSWR	<1.5:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	66°
Elevation (3dB beamwidth)	56°
Mounting Style	Ceiling / Surface
Power (Watts)	50
Dimensions (mm)	7.2" x 3.7" x 2" (184 x 95 x 51)



Antennas in this series

S2408MD12NF	Antenna with 12" pigtail and N female

Additional configurations also available

Notes

SECTOR DIRECTIONAL PANEL ANTENNAS

Laird Technologies' WLAN sector directional panel antennas are available in frequency ranges of 2400-2500 MHz and 4900-5850 MHz. There are also a number of dual-band antennas available. This range of antennas includes models for indoor, outdoor, and indoor/outdoor applications. A wide selection of horizontal sector beamwidths, gain and mounting styles ensures that virtually every application can be covered when a sector coverage pattern is required.

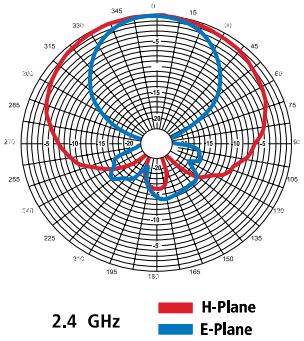
Mounting hardware is included with each antenna. Mounting styles include flush mount, articulating mount, and tilt mount. The articulating mounts allow the antenna to be aimed horizontally and vertically for optimum coverage and can be used for either flush or mast mounting. Tilt mounts are available for high-gain antennas in order to provide a mechanical down tilt capability, when required. These antennas are available with a variety of coax pigtail lengths and connector types.

High-gain sectors are used when a combination of long range and wide-angle access are required. Lower gain sectors are typically used indoors when a combination of wall mounting wide-angle access is required. Horizontal sector beamwidths range from 40 degrees to 135 degrees. All antennas are weatherproof and can withstand constant exposure to UV and temperature extremes. A variety of coax lengths and connector types are available. Input impedance is 50 ohms. Operating temperature is -40 to +65 degrees C.

2.4 GHz 5 dBi Wide Angle Panel Antenna

DA option with articulating mount included.

Specifications:	Part Number SR2405135D
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	5 (nominal)
VSWR	<1.5:1
Polarization	Linear
Azimuth (3dB beamwidth)	135°
Elevation (3dB beamwidth)	55°
Mounting Style	Wall
Power (Watts)	25
Dimensions (mm)	6"x 3"x 2" (152 x 76 x 50)



Antennas in this series

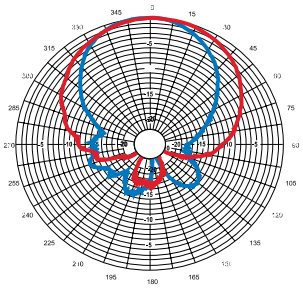
SR2405135DA12NF	Antenna with 12" pigtail and type N female
SR2405135DA36RTN	Antenna with 36" pigtail and reverse TNC male
SR2405135DA72RBN	Antenna with 72" pigtail and reverse BNC male
SR2405135DA72NM	Antenna with 72" pigtail and N male

Additional configurations also available

2.4 GHz 7 dBi Wide Angle Antenna

This indoor/outdoor 2.4 GHz 90 degree sector antenna offers wide angle coverage from a wall mount location.

Specifications:	Part Number S240790P
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	7 (nominal)
VSWR	<1.5:1
Polarization	Linear
Azimuth (3dB beamwidth)	90°
Elevation (3dB beamwidth)	60°
Mounting Style	Wall
Power (Watts)	25
Dimensions (mm)	6" x 4.6" x 1" (155 x 118 x 25)



2.4 GHz H-Plane E-Plane

Antennas in this series

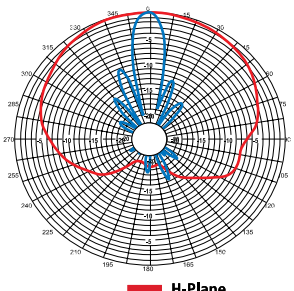
S240790P12NF	Antenna with 12" pigtail and type N female
S240790P36RTN	Antenna with 36" pigtail and reverse TNC male
S240790P36RBN	Antenna with 36" pigtail and reverse BNC male
S240790P36RSM	Antenna with 36" pigtail and reverse SMA male

Additional configurations also available

2.4 GHz 11 dBi Wide Angle Directional Sector Antenna

This indoor/outdoor 2.4 GHz 120 degree sector antenna can either be used as an outdoor mast mount sector antenna or a wall mount wide area coverage directional antenna from a wall mount location.

Specifications:	Part Number SR24011120D
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	11 (nominal)
VSWR	<1.5:1
Polarization	Linear
Azimuth (3dB beamwidth)	120°
Elevation (3dB beamwidth)	13°
Mounting Style	Wall / mast mount
Power (Watts)	25
Dimensions (mm)	3" x 23" x 2"(76 x 584 x 51)



2.4 GHz H-Plane E-Plane

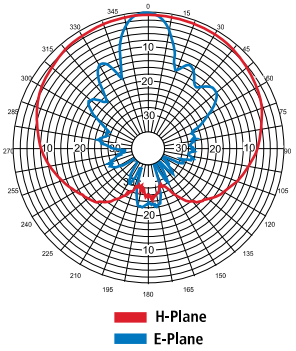
Antennas in this series

SR24011120D12NF	Antenna with 12" pigtail and type N female
SR24011120D36NM	Antenna with 36" pigtail and N male

Additional configurations also available

5.15-5.35 GHz 120° 11 dBi Sector Antenna

This outdoor high-gain sector antenna covers the entire 5 GHz band and is available with tilt hardware for sector coverage from a mast location (WDA option). The WD option is the antenna only without tilt hardware providing a flush wall mounting option for wide H-plane coverage applications.



Specifications:	Part Number SR5120WD
Frequency Range (GHz)	5.15-5.875
Gain (dBi)	11 (nominal)
VSWR	<1.5:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	120°
Elevation (3dB beamwidth)	15°
Mounting Style	Wall/ Mast
Power (Watts)	10
Dimensions (mm)	9.5" x 1.0" x 2.4" (242 x 26 x 61)

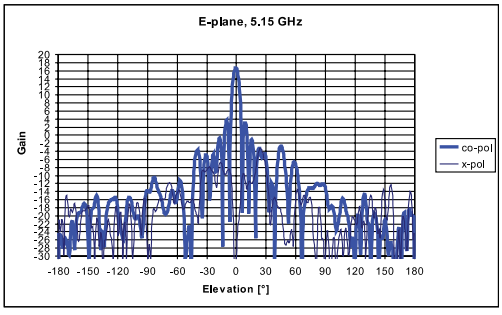
Antennas in this series

SR5120WDA12NF	Antenna with 12" pigtail and N female
SR5120WD12NF	Antenna with 12" pigtail and reverse N female

Additional configurations also available

ETSI CS1 VPOL 5 GHz 16.5 dBi Sector Antenna

This high-gain wide-band 4.9-5.87 GHz 90 degree sector comes with tilt mount hardware and a directly mounted (no pigtail option) N-Female connector.



Specifications:	Part Number S4901790PNF
Frequency Range (GHz)	4.9-5.8
Gain (dBi)	16.5 (nominal)
VSWR	<2.0:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	90°
Elevation (3dB beamwidth)	5.5°
Null Fill	Down to -25°
Sidelobe Suppression	>20dB
Dimensions (mm)	25" x 2" x 3" (635 x 51 x 76)

Antennas in this series

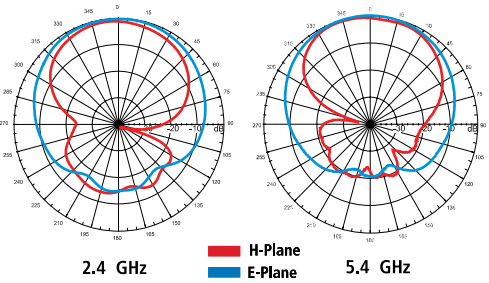
S4901790PNF	Antenna N female

Additional configurations also available

2.4 and 5.0 GHz 5 dBi Dual-Band 120˚ Sector Antenna

Laird Technologies' dual-directional, ceiling mount panel is perfect for indoors with multiple rooms off a hallway. This antenna is well suited to hotel applications for example.

Specifications:	Part Number S249120D
Frequency Range (GHz)	2.4-2.5 / 4.9-5.9
Gain (dBi)	5 (nominal)
VSWR	<1.5:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	120°
Elevation (3dB beamwidth)	120°
Mounting Style	Wall/mast mount
Power (Watts)	5
Dimensions (mm)	5.1" x 2.1" x 1.4" (131 x 55 x 35)



Antennas in this series

SR249120D12NF	Antenna with 12" pigtail and N female
SR249120D36RTN	Antenna with 36" pigtail and reverse TNC male
SR249120D36NM	Antenna with 36" pigtail and N male

Additional configurations also available

Notes

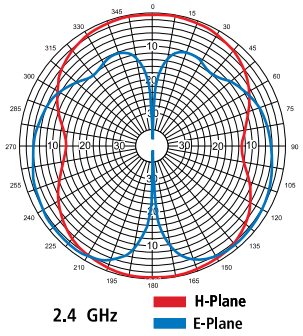
DUAL-DIRECTIONAL ANTENNAS

Laird Technologies' WLAN dual-directional panel antennas are available in the frequency range of 2400-2500 MHz. This antenna is designed to offer a bi-directional coverage pattern in a low profile, ceiling mountable housing. A variety of coax lengths and connector types are available. Input impedance is 50 ohms. Operating temperature is -40 to +65 degrees C.

2.4 GHz 4 dBi Bi-Directional Ceiling Mount Antenna

Laird Technologies indoor dual-directional ceiling mount panel antenna is perfect for hallways with multiple rooms off the hallway. This antenna is well suited to hotel applications, for example.

Specifications:	Part Number SQ2405DD
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	4 (nominal)
VSWR	<1.5:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	87°
Elevation (3dB beamwidth)	58°
Mounting Style	Ceiling
Power (Watts)	10
Dimensions (mm)	6" x 6" x 1.25" (155 x 155 x 35))



Antennas in this series

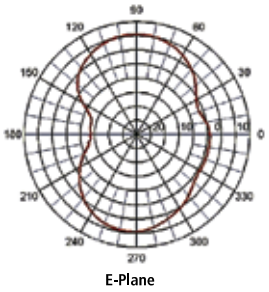
SQ2405DD12NF	Antenna with 12" pigtail and N female
SQ2405DD36RTN	Antenna with 36" pigtail and reverse TNC male
SQ2405DD36RSM	Antenna with 36" pigtail and reverse SMA male

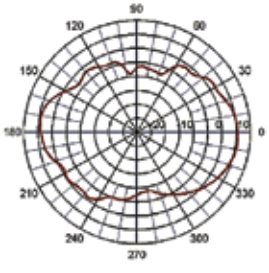
Additional configurations also available

2.4 GHz 5 dBi Bi-Directional Wall Mount Antenna

This Laird Technologies dual-directional wall mount series is also available in 5 GHz and with an optional marine rated radome.

Specifications:	Part Number IDD2450
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	5 (nominal)
VSWR	<2.0:1
Polarization	Linear
Azimuth (3dB beamwidth)	60°
Elevation (3dB beamwidth)	60°
Mounting Style	Wall
Power (Watts)	50
Dimensions (mm)	7.2" x 2.7" x 1" (183 x 69 x 25)





Antennas in this series

IDD2450- RT36	Antenna with 36" pigtail and RP-TNC X 2
IDD2450-NF36	Antenna with 12" pigtail and N-Female X 2
IDDN2450-RT07	Antenna with 7" pigtail and RP-TNC X 2

Additional configurations also available

2.4 GHz 5 dBi Bi-Directional In-Building Antenna

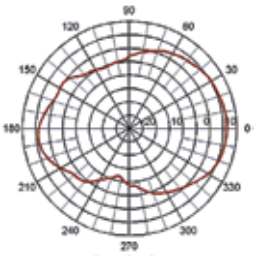
This versatile indoor antenna can be orientated in any axis to provide service.

Specifications:	Part Number IB2450
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	5 (peak)
VSWR	<1.8:1
Polarization	Linear
Azimuth (3dB beamwidth)	60°
Elevation (3dB beamwidth)	60°
Mounting Style	Ceiling clip
Power (Watts)	50
Dimensions (mm)	2.7" x 2.5" x .8" (69 x 64 x 20)

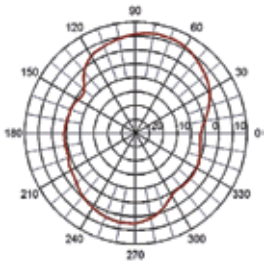
Antennas in this series

IB2450-RT36	Antenna with 36" pigtail and RP-TNC
IB2450-NF12	Antenna with 12" pigtail and N female
IB2450-RT12	Antenna with 12" pigtail and RP- TNC

Additional configurations also available



2.4 GHz H-Plane



2.4 GHz E-Plane

Notes

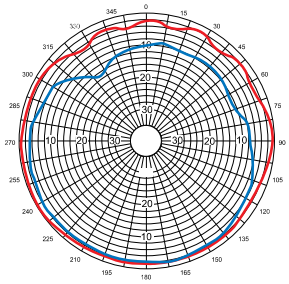
VARIABLE DIRECTIVITY SPECIAL PURPOSE ANTENNAS

Laird Technologies' WLAN Variable Directivity and Special Purpose antennas are available in frequency ranges of 2400-2500 MHz and 4900-5850 MHz. These antennas are designed for specialized applications that may involve unusual mounting requirements for mobile and in-building environments. Input impedance is 50 ohms.

2.4 GHz 2.5 dBi Omnidirectional Ceiling Mount Antenna

This versatile indoor antenna can be orientated in any axis to provide service. Spring clip mounting is standard but the antenna can be modified for hook and loop as well.

Specifications:	Part Number SL2402P
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	2.5 (nominal)
VSWR	<1.7:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	160°
Mounting Style	Ceiling Clip
Power (Watts)	10
Dimensions (mm)	2" x 2" x .71" (51 x 51 x 18)



2.4 GHz H-Plane E-Plane

Antennas in this series

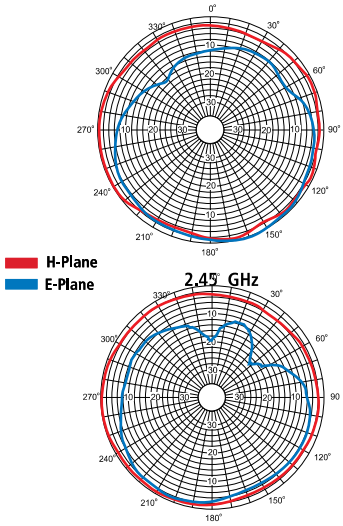
SL2402PX12MMX	Antenna with dual 12" pigtail and MMX male
SL2402PX36RTN	Antenna with 36" pigtail and reverse TNC male

Additional configurations also available

2.4 & 5.0 GHz Dual-Band Omni Squint Antenna

This antenna is an excellent choice for multimode 802.11b/a/g applications and is often used for health-care monitors, portable printers and in any limited range multimode requirement where size is an issue.

Specifications:	Part Number SL24513P
Frequency Range (GHz)	2.4-2.5, 5.15-5.35
Gain (dBi)	3 (nominal)
VSWR	<2.0:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	120°/80°
Mounting Style	Ceiling grid
Power (Watts)	10
Dimensions (mm)	2" x 2" x .71" (51 x 51 x 18)



5.25 GHz

Antennas in this series

SL24513P12MMX	Antenna with dual 12" pigtail and MMX
SL24513P12SMF	Antenna with 36" pigtail and SMA female

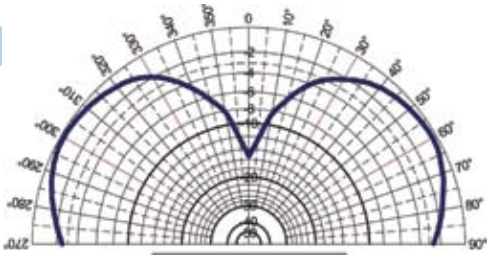
Additional configurations also available

2.4 GHz 3 dBi Mobile Antenna

These low profile Phantom® mobile antennas are a perfect choice for all sorts of applications, from low profile ceiling mounts to WLAN vehicular mounts.

Patented Field Diversity™

Specifications:	Part Number TRA24003
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	4 (nominal)
VSWR	<2.0:1
Polarization	Vertical & Horizontal
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	130°
Mounting Style	Hole, magnetic and ceiling mount
Power (Watts)	150 (max)
Dimensions (mm)	2.3' x 1.4" (58 x 35)



Antennas in this series

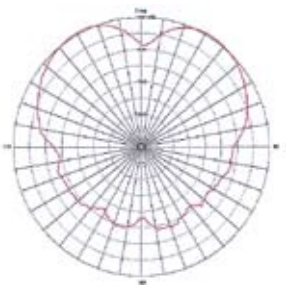
TRA24003	White radome, 2.4-2.5 GHz, 3 dB with .75" NMO mount
TRA58003	White radome, 4.9-6.0 GHz, 3 dB with .75" NMO mount

Additional configurations also available

5 GHz 5 dBi Omni In-Building Antenna

Small in aspect, this Laird Technologlies' 5 GHz access point antenna, can be mounted in any orientation to provide coverage.

Specifications:	Part Number IO5250
Frequency Range (GHz)	5.15-5.35
Gain (dBi)	5 (nominal)
VSWR	<2.5:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Impedance	50 ohms
Mounting Style	Ceiling/surface
Power (Watts)	50
Dimensions (mm)	4" x 4.1" x 1.6" (102 x 104 x 42)



5 GHz E-Plane

Antennas in this series

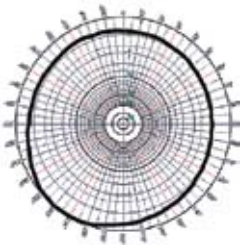
IO5250-RT36	Antenna with 36" pigtail reverse TMC male

Additional configurations also available

Multi-Band In-Building Ceiling Mount Omni Antenna

This versatile multi-band omni covers a wide range of applications.

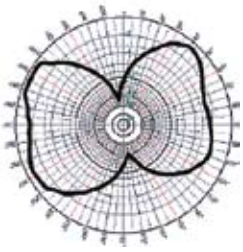
Specifications:	Part Number IN800/5900
Frequency Range (MHz)	806-960, 1710-1990, 2300-2700, 3300-3800, 5150-5850
Gain (dBi) typical	2.2(806-960), 2.2(1710-1990), 5(2300-2700), 3.5(3300-3800), 3.5(5150-5850)
VSWR	<1.5:1
Polarization	Linear vertical
Azimuth (3dB beamwidth)	Omnidirectional
Impedance	50 ohms
Mounting Style	Ceiling/surface
Power (Watts)	50 (max)
Dimensions (mm)	7.25" x 4.25" (184 x 108)



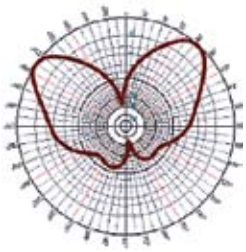
Typical Azimuth-Plane

Antennas in this series

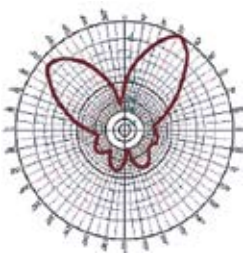
IN800/2500-5	Type N female



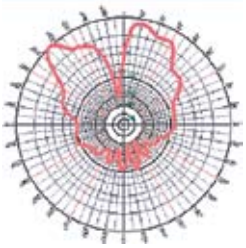
806-960 MHz E-Plane



1710-1990 MHz E-Plane



2300-2700 MHz E-Plane

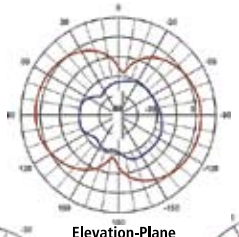


5100-5850 MHz E-Plane

2.4 GHz 3 dBi In-Building Omni Antenna

The smallest of the Laird Technologies' 2.4 GHz access point antennas, the Microsphere™ can be mounted in any orientation to provide coverage.

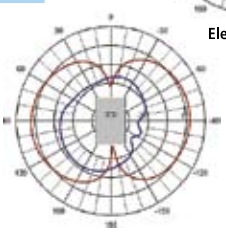
Specifications:	Part Number IF2450-SF00
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	3 (nominal)
VSWR	<1.5:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Impedance	50 ohms
Mounting Style	Ceiling/surface
Power (Watts)	50 (max)
Dimensions (mm)	1.8" x 1.2" x .1" (46 x 3 x 2.5)



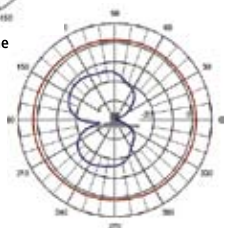
Elevation-Plane

Antennas in this series

IF2450-SF00	Panel antenna with SMA female



Omni-Plane

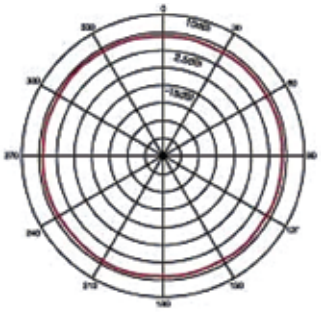


Azimuth-Plane

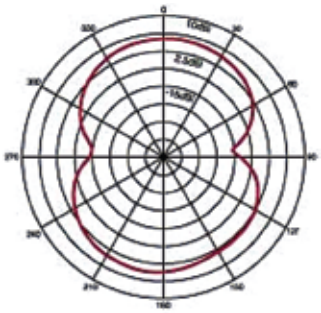
2.4 GHz Omnidirectional Ceiling Tile Antenna

Produced through a partnership with Armstrong World Industries, this omnidirectional antenna is specifically tuned to perform in suspended panel ceilings.

Specifications:	Part Number IFC2450-SF00
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	3.0
VSWR	<1.5:1
Polarization	Horizontal
Azimuth (3dB beamwidth)	Omnidirectional
Impedance	50 ohms
Mounting Style	Ceiling tile*
Power (Watts)	50



2.4 GHz H Plane



2.4 GHz E Plane

Antennas in this series

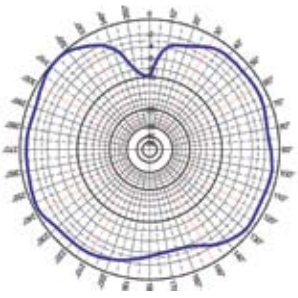
IFC2450-SF00	2 x 2.4 GHz antennas per panel with type SMA female
IFCMULT-SF00	2 x 2.4 GHZ, 850-1900 Mhz, 1900 MHz with type SMA female
IFC8519-SF00	850-1900 MHz Dual Band with type SMA female
IFE8519-SF00	850-1900 MHz Dual Band, 1900 MHz with type SMA female

* These antennas come embedded in Armstrong tiles. When ordering, please have Armstrong tile number (on back of tile) available

2.4-2.5 GHz 3 dBi Dipole In-Building Antenna

With its slim profile, this Laird Technologies' 2.5 GHz dipole antenna can be mounted in any orientation to provide clear communications.

Specifications:	Part Number MIA24003
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	3
VSWR	<1.5:1
Polarization	Dual pole field diversity
Field coverage pattern	Omnidirectional
Impedance	50 ohms
Mounting Style	Ceiling/surface
Power (Watts)	100
Dimensions (mm)	4.125" (104) Diameter



2.5 GHz H Plane

Antennas in this series

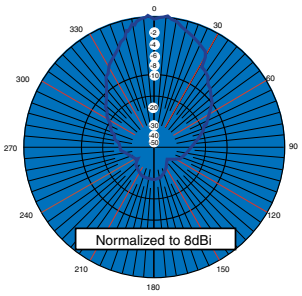
MIA8063	806-869 Mhz Wall Mount with 12" pigtail and type N female
MIA8063ST	806-869 Mhz Ceiling mount with 12" pigtail and N female
MIA24003	2.4-2.5 Ghz Wall Mount with 12" pigtail and N female
MIA24003ST	2.4-2.5 Ghz Wall mount with 12" pigtail and N female

Additional configurations also available

2.4 GHz 8 dBi High-Gain Panel Antenna

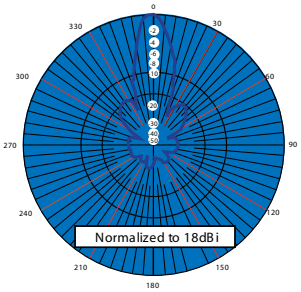
These high-gain directional panels are available in 8, 12 and 18 dBi.

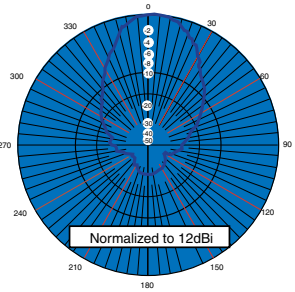
Specifications:	Part Number PNL24008
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	8
VSWR	<1.5:1
Polarization	Linear vertical
Impedance	50 ohms
Elevation Plane (3dB beamwidth)	30°
Mounting Style	Wall
Dimensions (mm)	4.2" x 3.7" x 1.2" (107 x 93 x 30)



Antennas in this series

PNL 24008	Antenna with 8 dBi gain and N female
PNL 240012	Antenna with 12 dBi gain and N female
PNL 240018	Antenna with 18 dBi gain and N female

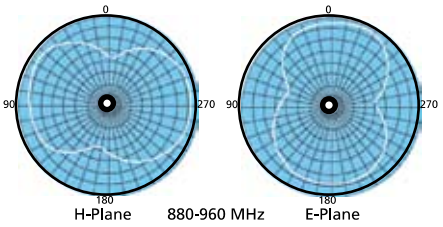


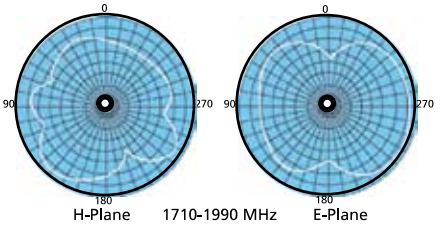


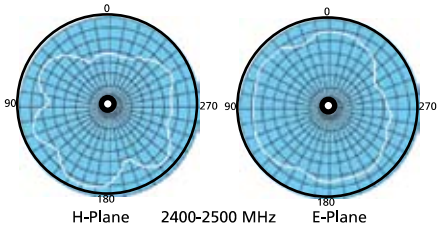
Multi-Band In-Building Omnidirectional Antenna

Ultra-small aspect for placement in confined spaces.

Specifications:	Part Number IFULTRA -SF00
Frequency Range (GHz)	806-896, 880-960, 1850-1990, 1710-1880, 1920-2170, 2400-2500
Gain (dBi) Peak Gain	1.8(806-896), 1.6(880-960), 3.6(1850-1990), 2.9(2400-2500)
VSWR	<2.5:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Impedance	50 ohms
Mounting Style	Ceiling/surface
Power (Watts)	50 (max)
Dimensions (mm)	7" x 3" x .6" (179 x 80x 1.7))







Antennas in this series

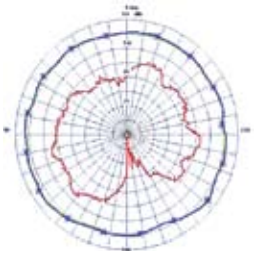
IFULTRA-SF00	Type SMA female

Additional configurations also available

2.4 and 5 GHz Omni In-Building Antenna

These adjustable right angle antennas cover 2.4-2.5 and 4.9-6.0 GHz and are available with a number of connector options including reverse polarity TNC and reverse polarity SMA.

Specifications:	Part Number WTS2450
Frequency Range (GHz)	2.4-2.5 / 4.9-5.8
Gain (dBi)	2.1/2.6
VSWR	<2.0:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Impedance	50 ohms
Mounting Style	RPSMA
Dimensions (mm)	3.7" x .36" (95.9 x 9.3)

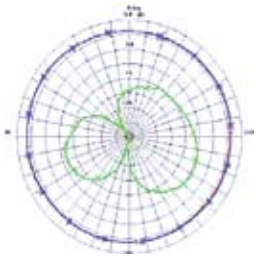


5.8 GHz

Antennas in this series

WTS2450-RPSMA	Right angle with reverse SMA male

Additional configurations also available

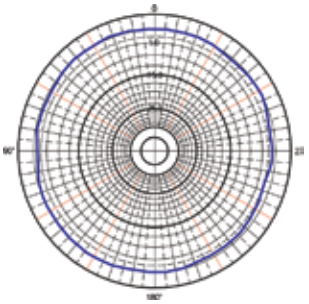


2.4 GHz

2.4 GHz 3 dBi Mobile Dipole Antenna

These antennas are available with a number of connector options including reverse polarity TNC and reverse polarity SMA in the 2.4 GHz band and also in the 5 GHz band.

Specifications:	Part Number WXE2400
Frequency Range (GHz)	2.4-2.5
Gain (dBi)	3 (nominal)
VSWR	<1.5:1
Polarization	Vertical
Azimuth (3dB beamwidth)	Omnidirectional
Impedance	50 ohms
Mounting Style	Direct
Power (Watts)	50 (max)
Length	5.5" (139)



2.5 GHz H Plane

Antennas in this series

WXE2400-SM	Flexible Antenna with flush SMA male
WXE2400-SMLH	Flexible Antenna with flush SMLH male

Additional configurations also available

Tri-Band 2.4, 5.3 and 5.8 GHz Indoor Omni Antenna

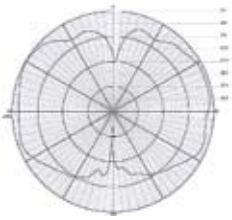
These antennas are available with a number of connector options including reverse polarity TNC and reverse polarity SMA. For 2.4,5.3 and 5.8 GHz.

Specifications:	Part Number RD2458-5
Frequency Range (GHz)	2.4, 5.3, 5.8
Gain (dBi)	3 (2.4 GHz), 5 (5.15 GHz), 5 (5.7 GHz)
VSWR	<1.5:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Impedance	50 ohms
Mounting Style	RPSMA
Dimensions mm	6.1" x 5"(155 x 12.7)

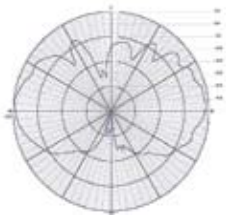
Antennas in this series

RD2458-5-SMA	Antenna with SMA male
RD2458-5-RSMA	Antenna with reverse SMA male
RD2458-5-RTNC	Antenna with reverse TNC male

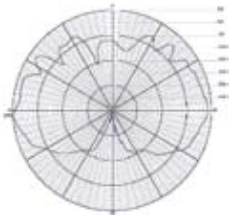
Additional configurations also available



2.4 GHz E-Plane



5.15 GHz E-Plane



5.7 GHz E-Plane

2.4 and 5 GHz Omni Internal Dual-Band Antenna

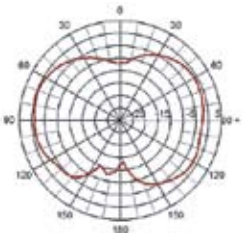
These dual-band antennas cover 2.4-2.5 and 4.9-6.0 GHz for all 802.11a WLAN applications.

Specifications:	Part Number NanoBlade
Frequency Range (GHz)	2.4-2.5 / 4.9 - 6.0
Gain (dBi)	3.8 / 4.5
VSWR	<2.0:1
Polarization	Linear Vertical
Azimuth (3dB beamwidth)	Omnidirectional
Impedance	50 ohms
Mounting Style	Internal
Dimensions (mm)	2.0" x .65"(51 x 16)

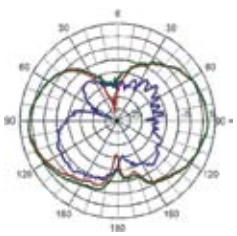
Antennas in this series

NanoBlade-IPO4	Antenna with IPEX MHF

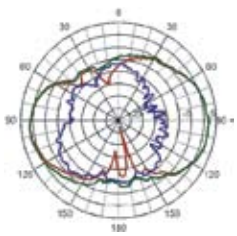
Additional configurations also available



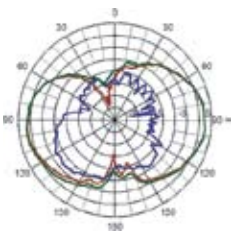
2.45 GHz E-Plane



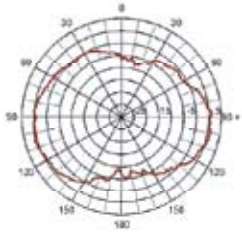
4.9 GHz E-Plane



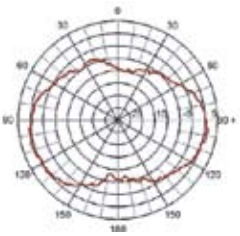
5.87 GHz E-Plane



5.19 GHz E-Plane



5.58 GHz E-Plane



5.29 GHz E-Plane

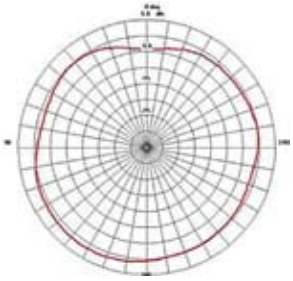
Tri-Band Omni External Antenna

These adjustable right angle antennas cover 2.4-2.5 / 4.9-6.0 GHz and are available with fixed or flexible knuckle for snap-in/captive applications.

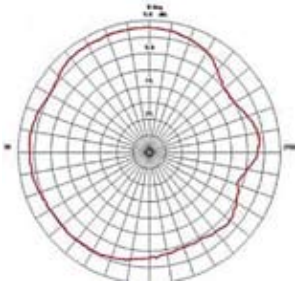
Specifications:	Part Number WTBP2450
Frequency Range (GHz)	2.4 - 2.5 & 4.9 - 6.0
Gain (dBi)	2.0 / 3.6
VSWR	<2.0:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Elevation (3dB beamwidth)	50 ohms
Mounting Style	Snap-in/ captive
Dimensions (mm)	4.6" x .36"(117 x 9.3)

Antennas in this series

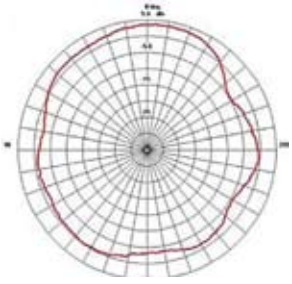
WTBP2450-IP04-F	Fixed IPEX MHF
WTBP2450-IP04-K	Knuckle IPEX MHF
WTBP2450-FL04-F	Fixed Flying lead
WTBP2450-FL04-K	Knuckle Flying lead



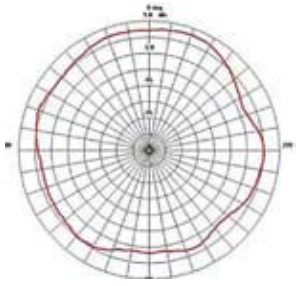
2.45 GHz H-Plane



5.75 GHz H-Plane



5.25 GHz H-Plane



4.9 GHz H-Plane

Notes

Hepta-Band Omni External Antenna

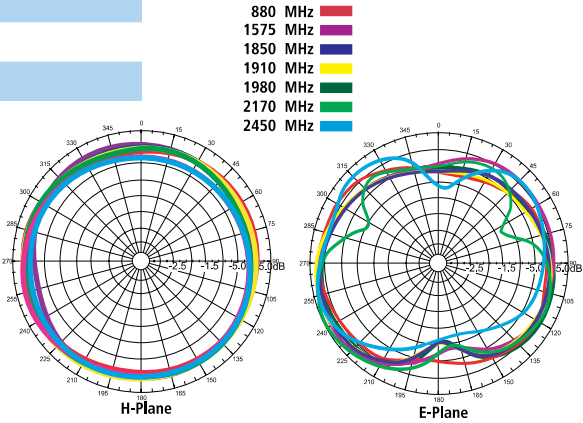
These adjustable right angle antennas cover 824-894, 880-960, 1575, 1710-1880, 1850-1990, 1920-2170 and 2400-2500 MHz.

Specifications:	Part Number WTBHEPTA-TN
Frequency Range (GHz)	824-894, 880-960, 1575, 1710-1880, 1850-1990, 1920-2170, 2400-2500
Gain (dBi)	1.0 / 3.0 (typical)
VSWR	<2.5:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Impedance	50 ohms
Mounting Style	Snap-in/ captive
Power (Watts)	10
Dimensions (mm)	6.3" x .36"(161 x 9.3)

Antennas in this series

MAF94300	SMA
MAF94301	PRSMA
MAF94302	TNC (grey)
MAF94307	TNC (black)

Additional configurations also available



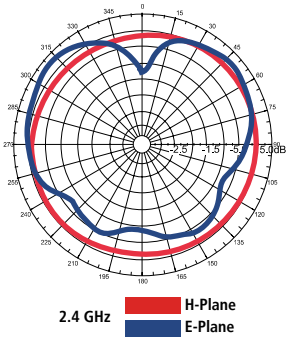
2.4-2.5 and 5.15-5.875 GHz Internal Surface Mount

This planar Inverted F antenna (PIFA) is tape and reel packaged for high-volume pick-and-place manufacturing processes.

Specifications:	Part Number CAF94400
Frequency Range (GHz)	2.4-2.5 & 5.15-5.875
Gain (dBi)	3.0 / 4.0
VSWR	2.5:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Impedance	50 ohms
Mounting Style	Internal surface mount
Weight	2g
Dimensions (mm)	.406" x .406" x .152" (16 x 16 x 6)

Antennas in this series

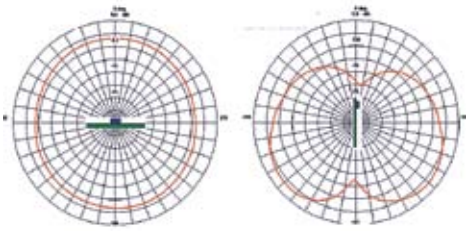
WID2452	CAF94400	Tape and Reel
WID2452-SM	CAF94377	Board mounted PCBA SMA-female Panel



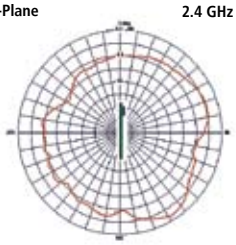
2.4-2.5 and 4.9 GHz Blackchip™ Internal Antenna

This miniature internal antenna design provides exceptional size to performance ratio.

Specifications:	Part Number MAF95029
Frequency Range (GHz)	2.4-2.5 / 4.9-6.0
Gain (dBi)	>2.0 / >3.0
VSWR	2.0:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Nominal Impedance	50 ohms
Mounting Style	Internal
Weight (grams)	0.21
Dimensions (mm)	.47"x .24" x .1" (12 x 6 x 2.5)



2.4 GHz H-Plane 2.4 GHz E-Plane



5.8 GHz E-Plane

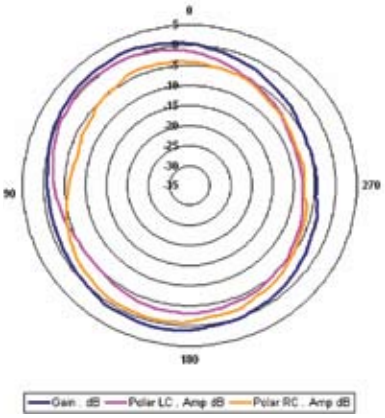
Antennas in this series

WIC2450-A	Antenna in tape and reel w/no connector
WIC2450-A-SM	Antenna mounted to Eval board w/ SMA (female)

2.4-2.48 GHz 3 dBI NanoAnt™ Internal Antenna

This micro-sized antenna can be used in 802.11b applications requiring a small presence on the ground plane.

Specifications:	Part Number CAF94889
Frequency Range (GHz)	2.3-2.48
Gain (dBi)	3.0 (Peak)
VSWR	2.0:1
Polarization	Linear
Azimuth (3dB beamwidth)	Omnidirectional
Impedance	50 ohms
Mounting Style	Surface
Dimensions (mm)	.39" x .12" x .16" (10 x 3 x 4)



2.4 GHz H-Plane

Antennas in this series

IO2450-NF06	Antenna with 6" pigtail and N female
IO2450-NF12	Antenna with 12" pigtail and N female

Additional configurations also available

WiMAX Antennas

Laird Technologies offers a comprehensive line of WiMax base station antennas that easily meet the ETSI's most stringent compliance standards while still being competitively priced.

- Most uniform energy distribution across the coverage area
- Maximum null fill below the horizon
- Extraordinary low side lobe performance
- Maximum spectral efficiency
- Reduced crosstalk

Vehicular Antennas

Laird Technologies offers a comprehensive line of vehicular antennas for almost any frequency range. The antennas are rugged and aerodynamic and perfectly suited for commercial, public safety and military applications. Types are available that do not require a vehicle ground plane.

- Mobile antennas from 100 MHz to 6 GHz
- Dual-band and tri-band models
- Phantom®, Phantom Elite® and traditional mounts
- GPS antennas
- Typically 3 dBi gain
- NMO mounts, magnetic or permanent mounts

Patented Field Diversity™

Accessories

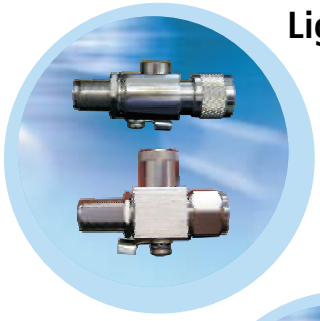
Laird Technologies' accessories are the perfect compliment to its antenna systems. Cable assemblies, surge suppressors, lightning arrestors, POE inserters and splitters, wall and roof-top antenna mounts, connector adapters and die-cast aluminum enclosures are available.

Patented Field Replaceable Ethernet Connector System

- Part number RJ45-ECS
- IP67 rated

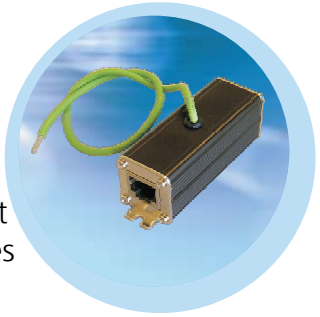
Power Over Ethernet (POE) Inserters and Splitters

- 16W to 50W models, many different voltages available
- Built in surge suppression
- 802.3af compatible



Lightning Arrestors

- Gas discharge and 1/4 wave DC ground
- Multiple Strike Capacity
- Wide-Band models DC - 6000 MHz
- Insertion loss 0.3dB max



Ethernet Surge Suppressors

- Compatible with POE equipment
- Protects data and DC power lines

Cable Assemblies

- Standard and custom assemblies
- Low insertion loss
- Qualifies to 6 GHz

Wall and Roof Antenna Mounts

- Perfect for CPE mounting
- Fixed wall mount
- Adjustable angle roof/wall mount

Die-Cast Enclosures

- Perfect for housing outdoor electronics
- Multiple engineered knockouts for flexibility
- NEMA 6 rated

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local **support**™

global solutions : local support™

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