

FWX-614RSXXX-514 SPECIFICATIONS

MANUFACTURER: JOYMAX INDUSTRIES

T-2.4+5.xGHz		
FWX-614RSXXX-514	Impedance:	50Ω
Swivel Type, Replacement Antenna	SWR:	≤2.0
	Gain:	4 dBi

<http://www.joymax-antenna.com/antenna-wifi.asp?select=T-2.4%2B5.xGHz>

1/11/2010

Antenna

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Indoor



Radiation:	Omni-directional
Connector:	SMA Plug (Reverse Polarity)
Length:	136mm
Weight:	28g

Stock: 9000 ± 0.5 / ± 0.5 誼:9000

# Z2081

## Sector Panel Antenna



The Z2081 sector panel antenna covers the 2.4 GHz ISM band and is designed for use in sectorized WISP applications using a single sector or multiple sector antennas and multiple radios. It offers cost conscious WISPs and systems engineers an alternative to wall mounted omnidirectional antennas that can be susceptible to multipath interference and reduced coverage caused by wall-obstructed radiated signals. The Z2081 is ideal for use in apartment complexes, offices, medical facilities, schools, industrial parks and shopping centers.

### General Specifications:

2.4 GHz sector panel antennas

### Radome Material:

UV resistant ASA plastic

### Termination:

18" LMR195 cable with reverse polarity N female jack

### Polarization:

Vertical

### Lighting Protection:

DC grounded

### Mounting Method:

Adjustable steel bracket, +/- 11 degrees of uptilt or downtilt  
Pipe diameter: 0.75 thru 2.4" OD (19-60 mm)

### Nominal Impedance:

50 Ohms

### VSWR:

<1.5:1



**Z2081**

### Feature and Benefits

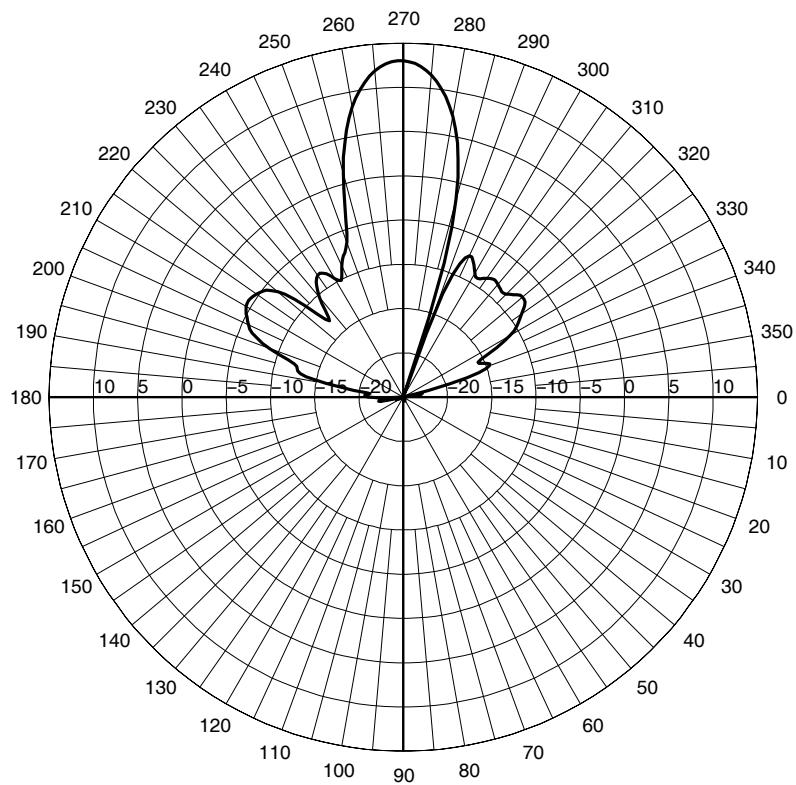
- Industry leading front-to-back ratio ensures that the radiated energy is focused towards its target, and not to the back or sides of the antennas.
- Attractive, streamline design reduces wind loading for easier handling during installation.

### Electrical Specifications

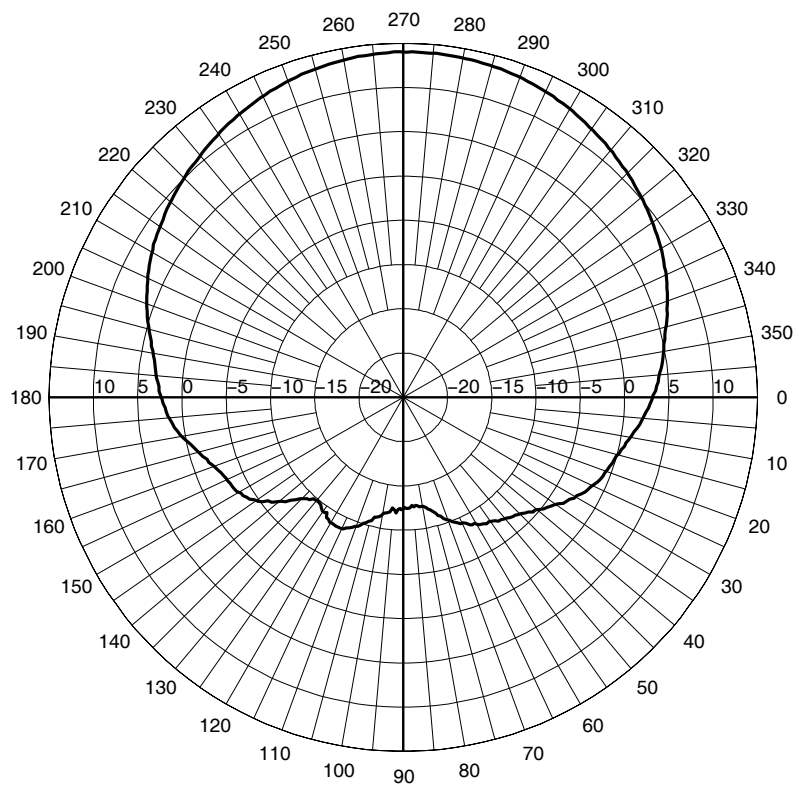
Model #	Frequency Range	Nominal Gain	Front-to-Back Ratio	Horizontal Plane Beamwidth	E-Plane Beamwidth
Z2081	2400-2485 MHz	14 dBi	23 dB	90°	14°

### Mechanical Specifications

Model #	Wind Survival	Dimensions	Weight	Cable
Z2081	125 mph	19.8" L x 3.1" W x 1.5" D	2.5 lbs.	18" LMR195 PVC, Black



**Z2081 Elevation Cut**



**Z2081 Azimuth Cut**



WISP Directional Panels



## Technical Data

<b>General Specifications:</b> Directional panel antennas
<b>Maximum Power Input:</b> 20 watts
<b>Polarization:</b> Linear, vertical/horizontal
<b>Nominal Impedance:</b> 50 ohms
<b>Nominal SWR:</b> < 1.8
<b>Radome Material:</b> UV stable plastic
<b>Cable:</b> 12" RG58/U with attached female N connector
<b>Temperature Range:</b> -40°C to +70°C

## WISP Directional Panel Antennas

The directional panel antennas are designed to provide maximum gain at 2.4 GHz frequencies. With a SWR of less than 1.8, all models provide efficient and stable performance across the band. These robust antennas are designed for outdoor applications.

### Features

- Patented printed circuit board design. Best performance-to-price ratio.
- Attractive, low profile UV stable housing. Blends well with indoor and outdoor environments where aesthetic considerations are important.
- Corner exit RG-58/U pigtail design. Permits the panel to be mounted in vertical or horizontal polarity.
- Adjustable mounting brackets for outdoor mounting. Provide maximum flexibility for outdoor installations.

## Antenna Electrical Specifications

Model	Frequency Range	Nominal Gain	3 dB Horizontal Beamwidth	3 dB Vertical Beamwidth	Front-to-Back Ratio
WISP24009PTNF	2.3-2.7 GHz	9.0 dBi	60°	60°	> 15 dB
WISP24013PTNF	2.3-2.7 GHz	13.0 dBi	35°	35°	> 18 dB
WISP24018PTNF	2.3-2.7 GHz	18.0 dBi	18°	19°	> 25 dB

## Mechanical Specifications

Model	Dimensions Range	Weight (Mass)	Temperature Range	Frontal Wind Loading @100 mph
WISP24009PTNF	5.1" x 4.7" x 1.5"	0.5 lbs	-40°C to +70°C	9.3 lbs
WISP24013PTNF	8.8" x 8.1" x 1.6"	1.2 lbs	-40°C to +70°C	27.9 lbs
WISP24018PTNF	15.1" x 13.9" x 1.9"	3.9 lbs	-40°C to +70°C	85 lbs

## Mounting Method

Model	Included Mount
WISP24009PTNF	Indoor/outdoor articulating mount
WISP24013PTNF	Heavy duty outdoor adjustable mount
WISP24018PTNF	Heavy duty outdoor adjustable mount

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

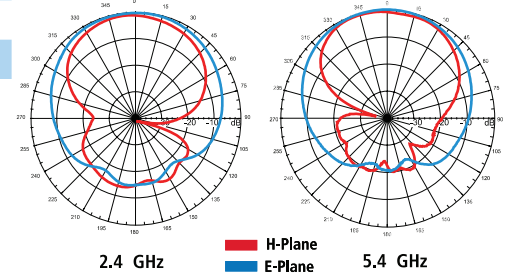
Laird Technologies' dual-directional, ceiling mount panel is perfect for indoors with multiple rooms off a hallway. This antenna is well suited to hotel applications for example.

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

## 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. 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

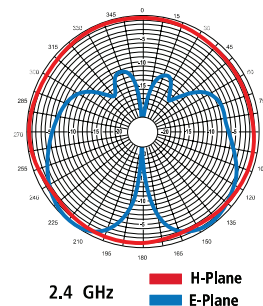
The 4" x 4" x 1" indoor Mini-Squint provides 3.5 dBi gain and antenna can be mounted to ceiling tiles or to I-beams using an added hardware kit.

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

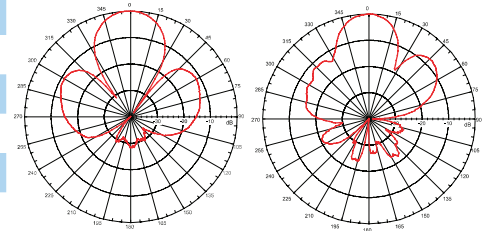
Additional configurations also available



### 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)



#### Antennas in this series

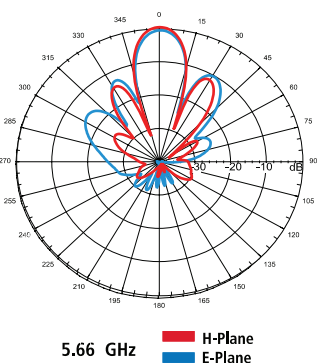
S51514WP36NM	Antenna with 12" pigtail and N male
S51514WP36RTN	Antenna with 36" pigtail and reverse TNC male
S51514WP36RSM	Antenna with 36" pigtail and reverse SMA male
S51514WP12SMF	Antenna with 12" pigtail and SMA female

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)



#### Antennas in this series

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

Additional configurations also available



## 2.5 GHz 15 dBi High-Gain Directional Panel Antenna

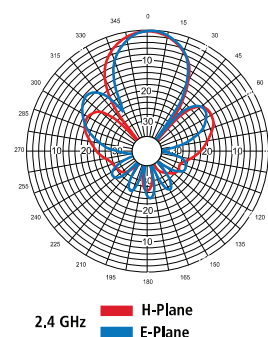
This outdoor, 15 dBi high-gain directional antenna can provide point-to-point service or narrow coverage service and comes in a rugged enclosure with an articulating mount.

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
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Additional configurations also available



## DIRECTLINK™ 5150-5350 MHz Antenna

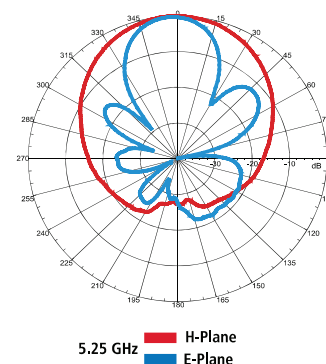
This indoor/outdoor 5.15-5.35 ,12 dBi, Wall Mount can be wall or mast mounted.

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







### DUAL BAND, VERTICALLY POLARIZED OMNI

The wide band S24493BPX antenna offers full band coverage over 802.11b/a/g and includes all hardware required to mount indoors or outdoors. Achieve the no compromise performance expected from a single band radio system in a dual band radio. While many dual band antennas are a compromise between the two operating bands, the Laird Technologies S24493BPX provides full band coverage and omni-directional coverage in necessary GHz. With a design assisted by Laird Technologies' proprietary optimization tools, performance and value are unparalleled.

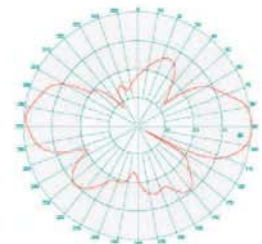
### FEATURES

- Vertically polarized omni-directional
- Rugged, lightweight and water resistant
- 2.4-2.9/4.9-5.9 GHz, full 802.11b/a/g wide band performance
- Reverse type SMA connector

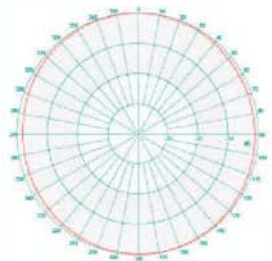
### MARKETS

- Outdoor metropolitan mesh networks
- Indoor/outdoor mast mounts
- Point-to-point links supporting broadband wireless systems access
- High to medium density customer premise locations

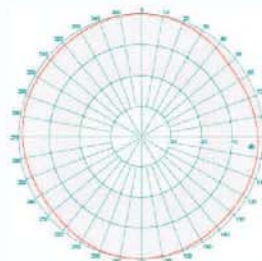
PARAMETER	SPECIFICATION
Frequency Range	2.4-2.5 / 4.9-5.9 GHz
Gain	5 dBi (typical with 3' cable)
3 dB E-Plane low-band/hi-band	25°/ 17°
3 dB Azimuth plane	Omni-directional
Maximum VSWR	2.0:1
Polarization	Linear Vertical
Input Impedance	50 ohm
Weight	0.4 lbs (0.18 kg) antenna only
Mechanical Size	24.75" x 1.0" (62.86 x 2.54 cm)
Dimensions	91.2 x 16.3 x 10.2 cm
Wind Survival Rating	Operation 100 mph / Survival 136 mph
Antenna Connection	Reverse SMA
Radome	White UV Polycarbonate
Mount Style	BPXHK pole mount kit
Temperature	Operational -30°C to +65°C; Storage -40°C to +80°C



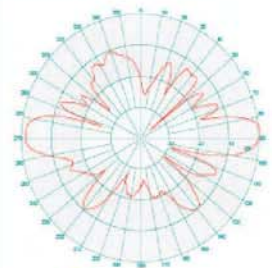
E-Plane 2.45 GHz



H-Plane 2.45 GHz



H-Plane 5.47 GHz



E-Plane 5.47 GHz

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ANT-DS-S24493BPX 0609

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### CAMPUS AND IN-BUILDING DIRECTIONAL ANTENNAS

DirectLink™ is a series of wall and mast mount directional antennas that has been designed to meet the most demanding needs of the contemporary wireless environment. DirectLink's attractive, UV resistant housings and mounts allow the antennas to be mounted anywhere in the campus or in-building environment. The antennas offer very precise and controllable pattern characteristics in frequencies starting with the 1710 MHz DCS band and continuing through the 5.725 GHz ISM band. All popular contemporary wireless system applications are covered with gain characteristics varying with the frequency.

All antennas in the series may be wall or mast mounted and all are available with a variety of flush and articulating mounts. Flush mounts allow the antenna to hug the wall for minimal visual impact. There are two available articulating mounts that allow the pattern to be directed while still maintaining minimal visual impact.

Standard antennas come with either TNC, SMA, or N female connectors and an integrated coaxial pigtail. Other connector and pigtail combinations are available upon request.

### FEATURES

- Indoor / outdoor
- Attractive styling
- Articulating
- Wall mountable

### APPLICATIONS

- Campuses
- In-building environments

### global solutions: local support™

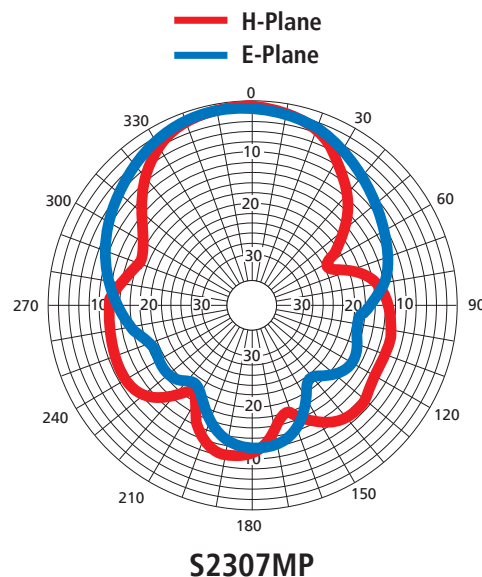
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[www.lairdtech.com](http://www.lairdtech.com)

PARAMETERS	SPECIFICATIONS
Power	75 Watts (25 Watts at 5 GHz)
Polarization	Linear
Dimensions and Weight	
Standard wall mount –	5.70 x 3.81 x 1.50 in (14,48 x 9,68 x 3,80 cm) 5 oz (.14kg)
Articulating wall mount –	5.80 x 3.81 x 2.26 in (14,73 x 9,68 x 5,74 cm) 8 oz (.23 kg)
Connectors	SMA and TNC. Other connector types available on special request.
Mounting	Standard units for wall mounting. Mast mount bracket kits available. Custom mount configurations for volume users.
Cable	Low loss pigtail provided.



MODEL	FREQUENCY MHz	GAIN dBi	3dB BWWIDTH		VSWR	F/B dB	CONNECTOR (FEMALE)	ARTICULATING VERSION
			E-PLANE	H-PLANE				
S2406MPC10NF*	2400-2500	6.5 dBi	65°	65°	1.5:1	20	N	Yes
S2307AMP10TNF	2300-2500	7.5	60°	65°	1.5:1	12	TNC	Yes
S2307MP10TNF	2300-2500	7.5	60°	65°	1.5:1	12	TNC	No
S2307AMP10SMF	2300-2500	7.5	60°	65°	1.5:1	12	SMA	Yes
S2307MP10SMF	2300-2500	7.5	60°	65°	1.5:1	12	SMA	No
S2307AMP10NF	2300-2500	7.5	60°	65°	1.5:1	12	N	Yes
S2307MP10NF	2300-2500	7.5	60°	65°	1.5:1	12	N	No

\*Right hand circular polarization



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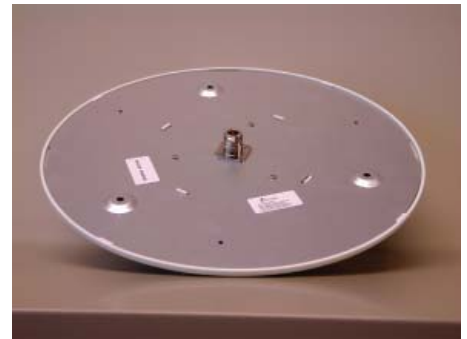
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## Multi-band Ceiling Mount Omnidirectional Antenna-698 MHz-6GHz

The PCTCMB in-building antenna offers great value for OEMs, VARs and Systems Integrators looking for multi-band coverage, performance reliability and an attractive “consumer oriented” housing at an affordable price. Ideal applications include in-building public safety, retail establishments, enterprise networks, public “hot spots” and facilities management.

### Features

- No tune, multi-band platform covers the most widely used in-building frequencies
- N female flange connector termination provides a single cable exit for easier installation and/or antenna replacement
- Attractive low profile design addresses aesthetic considerations and overhead clearance requirements
- UL 94V-0 plastics and PC boards for compliance with strict building safety code requirements
- Aluminum backplate template with drill guiding screw holes for faster, easier installation and labor cost optimization
- Outstanding value: PCTEL world-known antenna quality and reliability, a competitive price; and a single antenna covering multiple frequency applications



### Antenna Electrical Specifications

Model	Frequency Range	Nominal Gain	Return Loss
PCTCMB7058NF	698-850 MHz	1.5 dBi	≥9.5dB
	850-960 MHz	2 dBi	≥9.5dB
	1710-2170 MHz	4 dBi	≥9.5dB
	2300-2700 MHz	5 dBi	≥9.5dB
	3400-3700 MHz	5 dBi	≥9.5dB
	4900-6000 MHz	6 dBi	≥9.5dB

### Mechanical Specifications

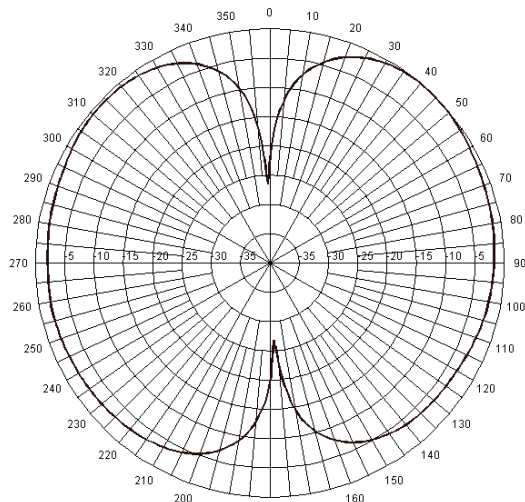
Model	Dimensions (Height x Diameter)	Weight (Mass)	Temperature Range
PCTCMB7058NF	3.2 x 12 inches (82 x 305 millimeters)	1.1 lbs (0.5 kg)	-40°C to 80°C

### Technical Data

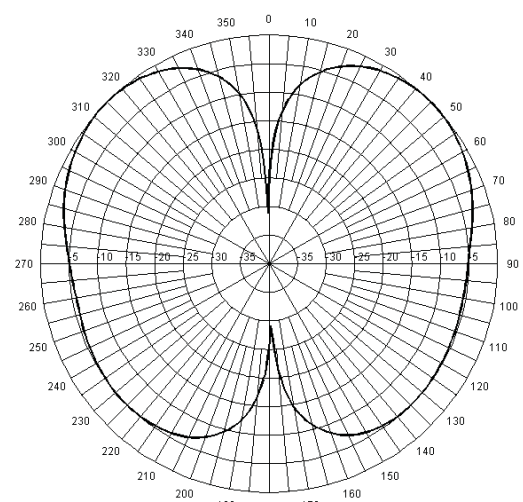
Maximum Power: 50 watts
Polarization: Vertical, linear
Nominal Impedance: 50 ohms
VSWR: < 2.0:1 across the band
Housing Material: White, UL 94V-0, UV resistant plastic
Connector Termination: N female bulkhead standard*
*Please order cable assembly with mating N male termination separately
Mounting Method: Screw mount (screws provided)



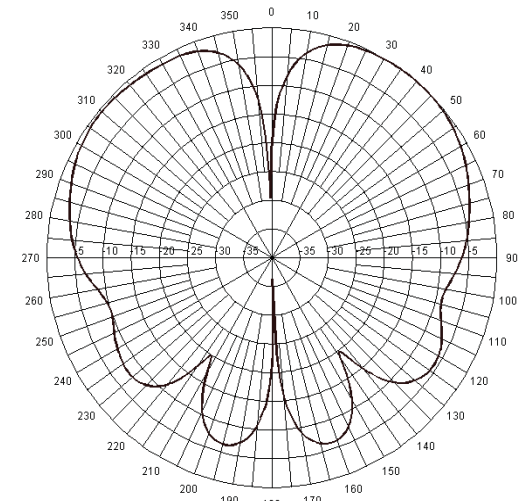
## Radiation Patterns



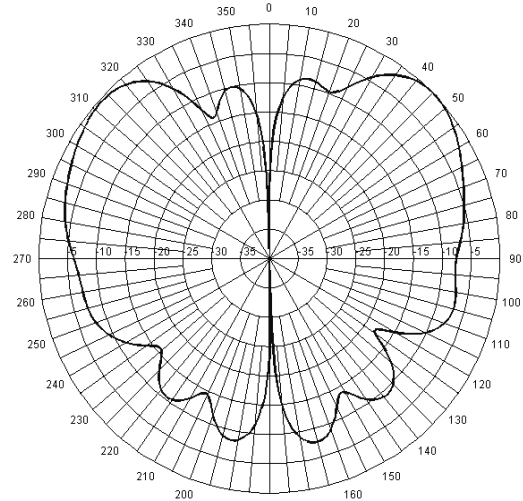
Elevation Cut at 776 MHz



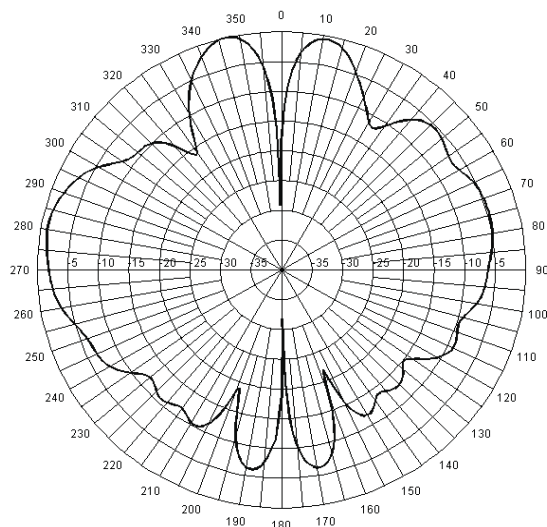
Elevation Cut at 905 MHz



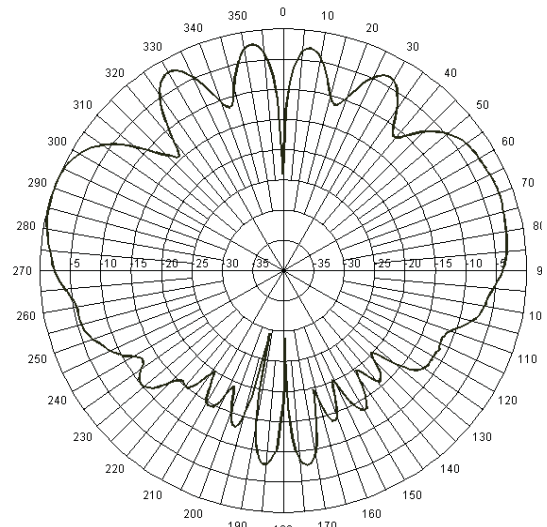
Elevation Cut at 1940 MHz



Elevation Cut at 2450 MHz



Elevation Cut at 3550 MHz



Elevation Cut at 5450 MHz

# WISPerformance Series

## 4.9 GHz - 6 GHz Adjustable Sectors



The WISP4959018MBV sector panel antenna provides wideband coverage of 4.9 GHz to 6 GHz frequencies with a VSWR performance of less than 1.7:1. Its compact design provides outstanding front-to-back ratio performance and extremely stable antenna gain across the full bandwidth.

This sector panel provides field adjustable horizontal beamwidths of 60° and 90° and 16 dBi or 15 dBi of gain respectively. An adjustable pipe mount permits +/-15° vertical uptilt or downtilt.

### General Specifications:

4.9 GHz to 6 GHz adjustable sector panel antenna

### Radome Material:

White UV resistant plastic

### Backplane:

High strength aluminum extrusion

### Termination:

N, female bulkhead

### Polarization:

Vertical

### Lighting Protection:

DC grounded

### Mounting Method:

Adjustable pipe mount (included)

### Nominal Impedance:

50 Ohms



### Feature and Benefits:

- Wideband coverage of 4.9 GHz to 6 GHz frequencies with excellent performance stability - gain, VSWR and beamwidth.
- User adjustable horizontal beamwidths of 60° or 90°
- Outstanding front-to-back ratio in a compact design ensures that the radiated energy is targeted towards the area of coverage.
- Included adjustable pipe mount permits uptilt or downtilt adjustment of +/-15 degrees for more precise coverage of the geographic area.

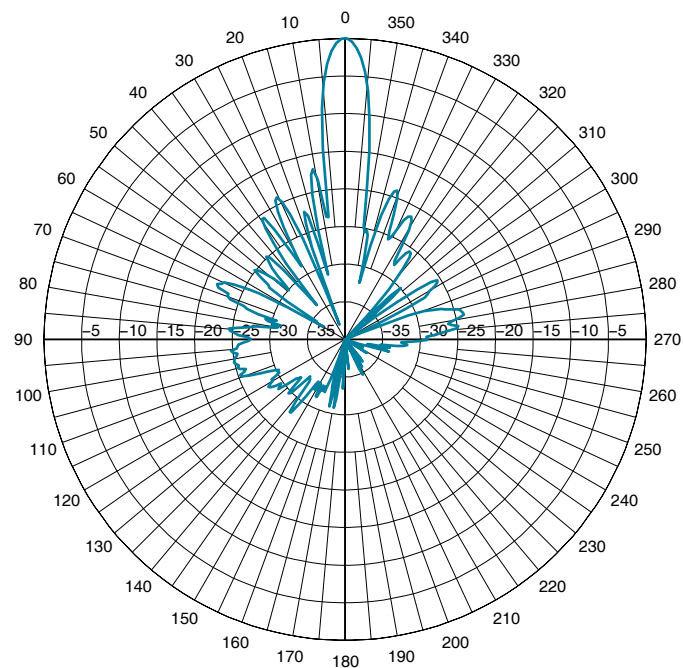
## Electrical Specifications

Model #	Frequency Range	Nominal Gain	Front-to-Back Ratio	Horizontal Plane Beamwidth	E-Plane Beamwidth	Typical Cross Poll Discrimination	VSWR	Maximum Power Input
WISP4959018MBV	4.9 GHz to 6.0 GHz	16 dBi at 60° 15 dBi at 90°	> 32 dB	60° or 90° (adjustable)	8°	> 20 dB	< 1.7:1	10 Watts

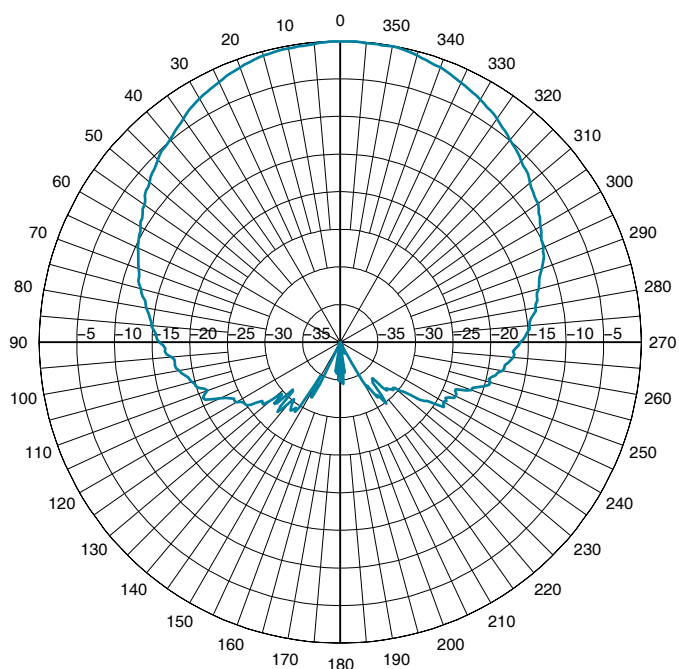
## Mechanical Specifications

Model #	Rated Wind Velocity	Lateral Thrust at Rated Wind	Equivalent Flat Plate Area	Temperature Range	Dimensions	Weight
WISP4959018MBV	125 mph	60 lbf without flaps 120 lbf with flaps	.44 ft² without flaps 1.36 ft² with flaps	-30°C to 75° C	24" L x 6" W x 3" D (609 mm L x 152 mm W x 76 mm D)	4.5 lbs (2.1 Kg)

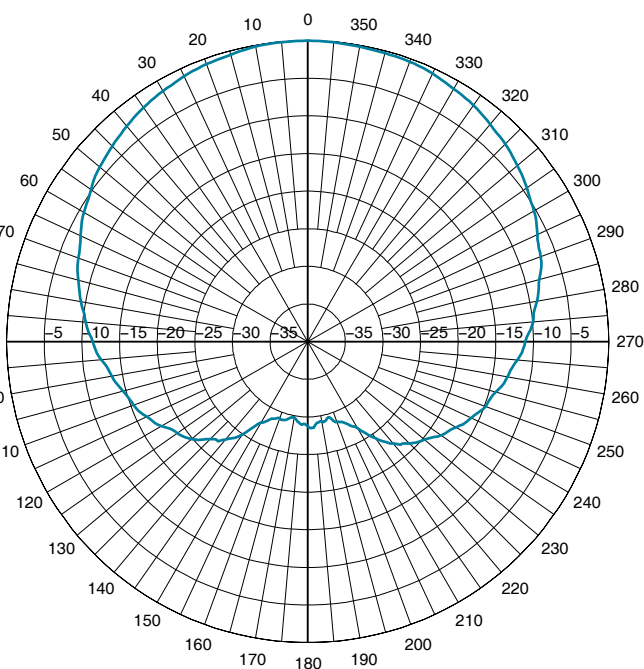
# Patterns



WISP4959018MBV Elevation Cut



WISP4959018MBV - 60° Azimuth Cut



WISP4959018MBV - 90° Azimuth Cut