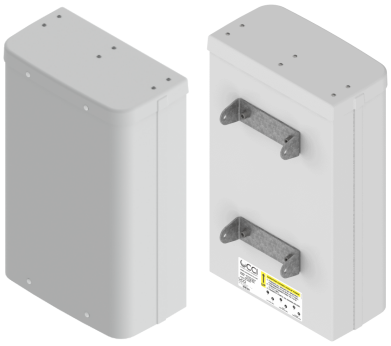
Antennas

MultiPort Series

DATA SHEET

TriBand Antenna

HPA45F-TE2A



- Two foot (0.6 m), TriBand, six port antenna with a 45° azimuth beamwidth covering 614-960 MHz and 1695-2690 MHz frequencies
- Four wide high band ports covering 1695-2690 MHz and two wide low band ports covering 614-960 MHz in a single antenna
- Full Spectrum Compliance 614-960 MHZ / 1695-2690 MHz
- LTE Optimized FBR and SPR performance, providing for an efficient use of valuable radio capacity
- LTE Optimized Boresight and Sector XPD and USL performance, essential for LTE Performance
- Exceeds minimum PIM performance requirements
- 4.3-10 connector, which is 40% smaller than traditional 7/16 DIN connector

Overview

The CCI TriBand is a six port antenna, with four wide high band ports covering 1695-2690 MHz and two wide low band ports covering 614-960 MHz. The CCI TriBand antenna provides the capability to deploy 4x4 Multiple-input Multiple-output (MIMO) in the high band and 2x2 Multiple-input Multiple-output in the low band.

CCI antennas are designed and produced to ISO 9001 certification standards for reliability and quality in our state-of-the-art manufacturing facilities.

Applications

- 4x4 MIMO for the high band and 2x2 MIMO for the low band
- Ready for Network Standardization on 4.3-10 connectors
- With CCI's TriBand antennas, wireless providers can connect multiple platforms to a single antenna, reducing tower load, lease expense, deployment time and installation costs

MultiPort Series

SPECIFICATIONS

TriBand Antenna

HPA45F-TE2A

Electrical

Ports	2 x Low Band Ports for 614-960 MHz				
Frequency Range	614-698 MHz	698-806 MHz	790-862 MHz	824-896 MHz	880-960 MHz
Gain	12.0 dBi	12.6 dBi	13.3 dBi	13.4 dBi	13.5 dBi
Azimuth Beamwidth (-3dB)	56°	50°	48°	44°	41°
Elevation Beamwidth (-3dB)	33.8°	31.6°	29.0°	27.5°	26.4°
Electrical Downtilt	4°	4°	4°	4°	4°
Elevation Sidelobes (1st Upper)	< -18 dB	< -20 dB	< -20 dB	< -20 dB	< -20 dB
Front-to-Back Ratio @180°	> 30 dB	> 30 dB	> 35 dB	> 35 dB	> 35 dB
Cross-Polar Discrimination at Peak	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 22 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Voltage Standing Wave Ratio (VSWR)	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	500 watts	500 watts	500 watts	500 watts	500 watts
Polarization	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°
Input Impedance	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground

BASTA Electrical Specifications*					
Frequency Range	614-698 MHz	698-806 MHz	790-862 MHz	824-896 MHz	880-960 MHz
Gain over sub band (dBi)	11.4	12.4	12.9	13.2	13.3
Gain over sub band Tolerance (dB)	0.7	0.3	0.4	0.3	0.2
Azimuth Beamwidth Tolerance (°)	5.9	0.6	3.2	5.1	1.6
Elevation Beamwidth Tolerance (°)	1.5	1.5	1.8	1.4	1.2
Electrical Downtilt Deviation (°)	3.1	2.1	1.0	0.6	0.7
First Upper Sidelobe Suppression (dB)	17.2	19.1	18.4	18.3	16.5
Front-to-Back Ratio over ±20° (dB)	21.8	24.5	26.9	24.8	23.7
Cross-polar Discrimination at 3 dB (dB)	19.6	23.8	25.0	18.9	16.1

** Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V9.6.*
All specifications are subject to change without notice.

MultiPort Series

SPECIFICATIONS

TriBand Antenna

HPA45F-TE2A

Electrical

Ports	4 x High Band Ports for 1695-2690 MHz				
Frequency Range	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2300-2400 MHz	2496-2690 MHz
Gain	14.2 dBi	14.3 dBi	14.7 dBi	15.4 dBi	16.2 dBi
Azimuth Beamwidth (-3dB)	43°	40°	40°	42°	34°
Elevation Beamwidth (-3dB)	19.0°	18.4°	17.7°	15.1°	14.1°
Electrical Downtilt	4°	4°	4°	4°	4°
Elevation Sidelobes (1st Upper)	<-14 dB	<-15 dB	<-16 dB	<-16 dB	<-15 dB
Front-to-Back Ratio @180°	> 32 dB	> 34 dB	> 35 dB	> 35 dB	> 35 dB
Cross-Polar Discrimination at Peak	> 19 dB	> 18 dB	> 20 dB	> 25 dB	> 25 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Voltage Standing Wave Ratio (VSWR)	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	300 watts	300 watts	300 watts	300 watts	300 watts
Polarization	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°
Input Impedance	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground

BASTA Electrical Specifications*					
Frequency Range	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2300-2400 MHz	2496-2690 MHz
Gain over sub band (dBi)	13.5	14.0	14.3	15.1	15.6
Gain Tolerance over sub band (dB)	0.4	0.4	0.3	0.2	0.5
Azimuth Beamwidth Tolerance (°)	4.1	3.7	3.6	1.7	5.8
Elevation Beamwidth Tolerance (°)	0.6	1.0	1.3	0.6	1.5
Electrical Downtilt Deviation (°)	2.1	1.2	1.5	1.6	1.3
First Upper Sidelobes Suppression (dB)	11.5	12.3	12.8	12.9	9.9
Upper Sidelobe Suppression Peak to 20° (dB)	20.0	18.8	19.1	16.2	10.6
Front-to-Back Ratio over ±20° (dB)	20.4	23.3	25.1	29.4	26.8
Cross-polar Discrimination at 3 dB (dB)	14.1	14.1	15.1	18.0	18.7

** Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V9.6.*
All specifications are subject to change without notice.

Mechanical

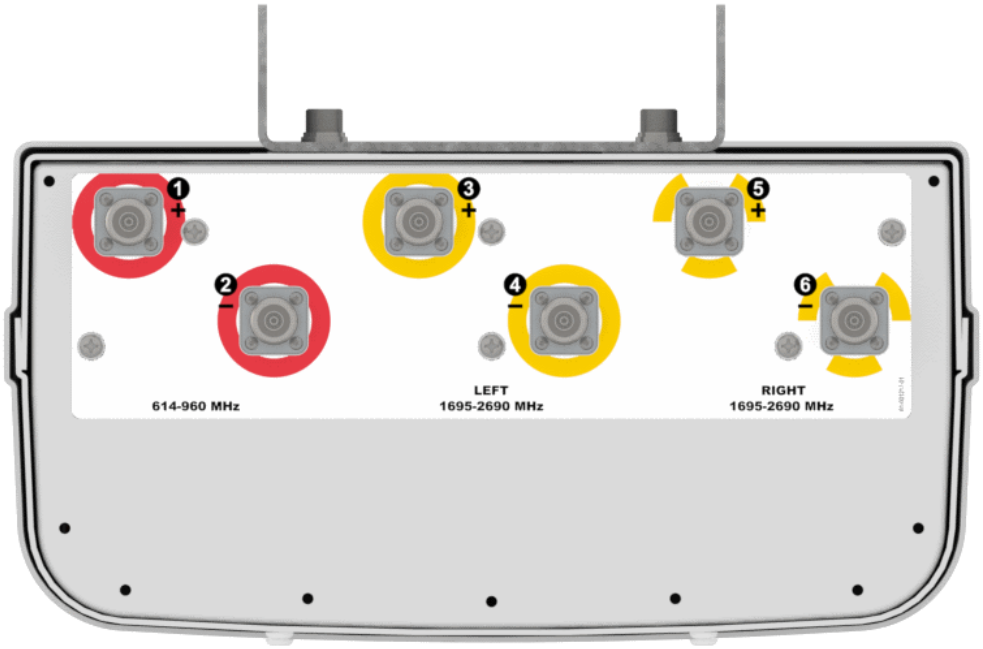
Dimensions (LxWxD)	25.9x15.9x8.1 in (658x405x205 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	88 lbs (391 N) @ 100 mph (161 kph)
Side Wind Load	46 lbs (203 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	3.4 ft^2 (0.3 m^2)
Weight*	18.3 lbs (8.3 kg)
Connector	6x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

** Weight excludes mounting*

Mechanical

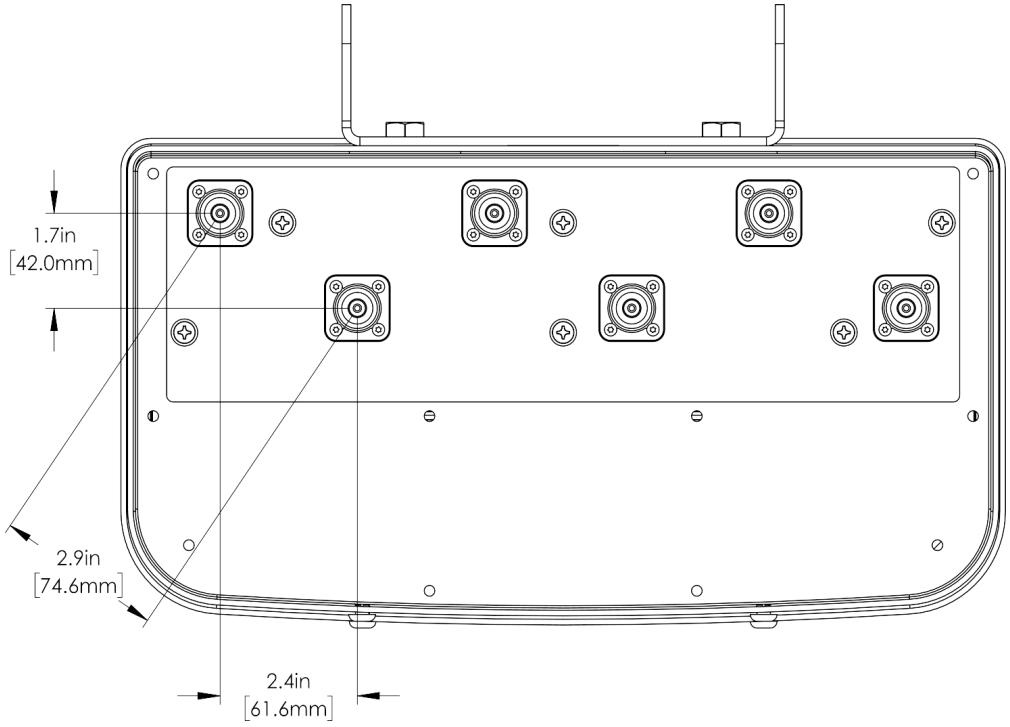
Bottom View

HPA45F-TE2AA



Connection Spacing Diagram

HPA45F-TE2AA

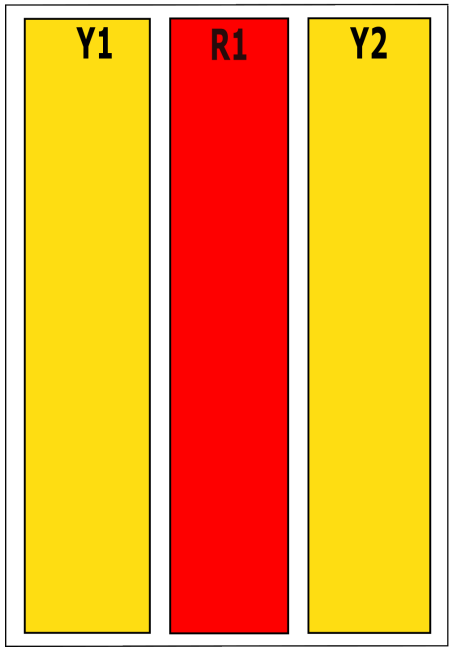


Mechanical

Antenna Array Configuration

HPA45F-TE2AA

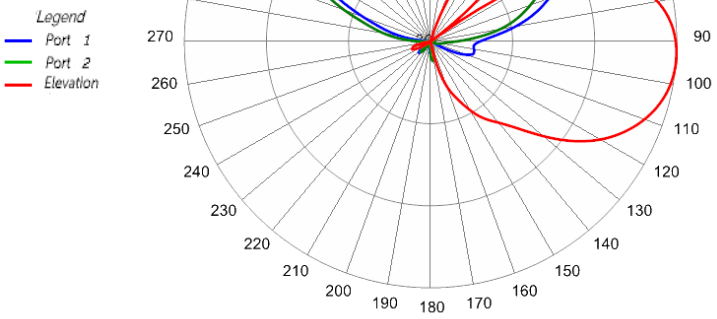
Top of antenna
Viewed from rear



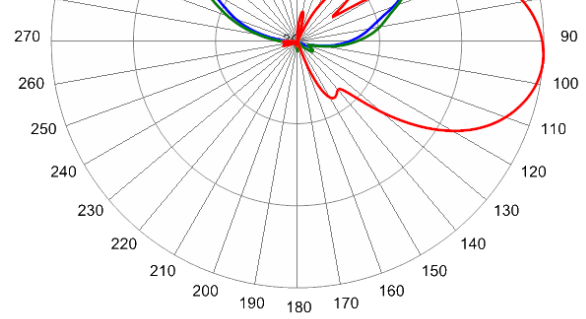
Array	Ports	Freq (MHz)
R1	1, 2	614-960
Y1	3, 4	1695-2690
Y2	5, 6	1695-2690

Typical Antenna Patterns

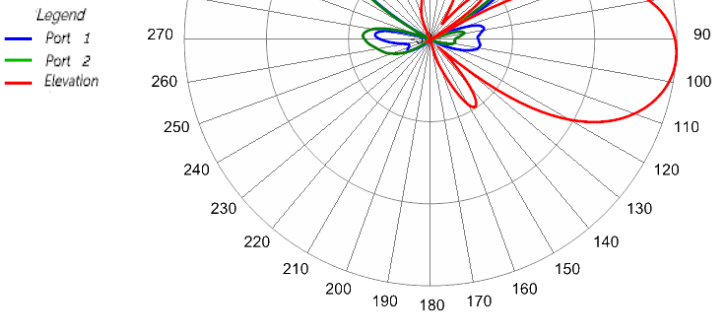
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



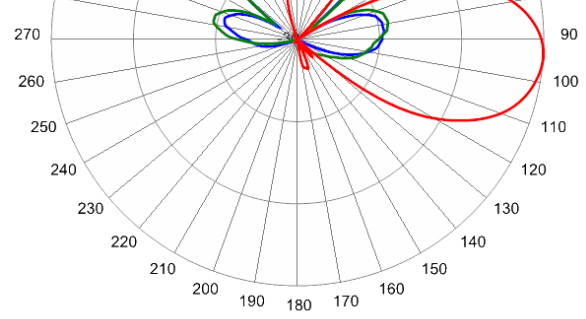
614 MHz Azimuth with Elevation 4°



704 MHz Azimuth with Elevation 4°

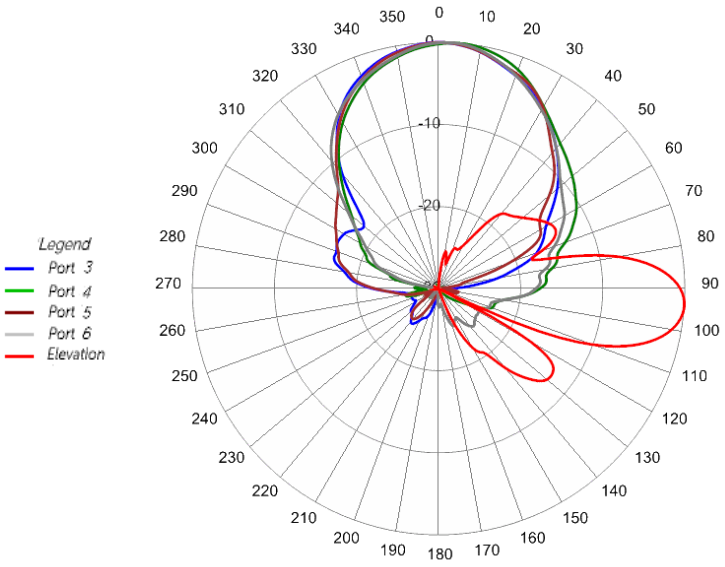


824 MHz Azimuth with Elevation 4°

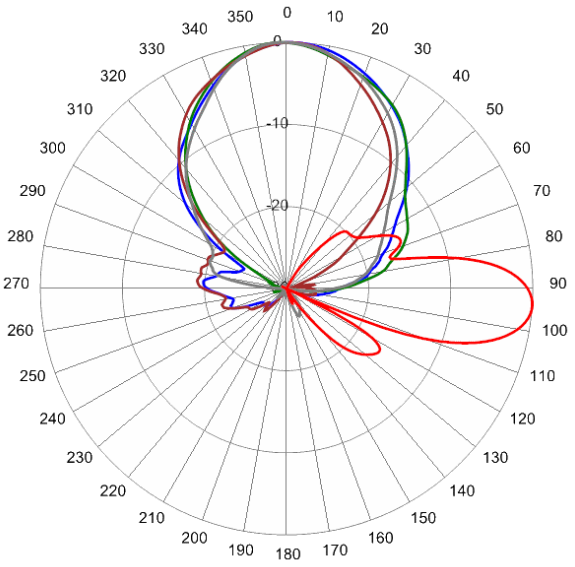


945 MHz Azimuth with Elevation 4°

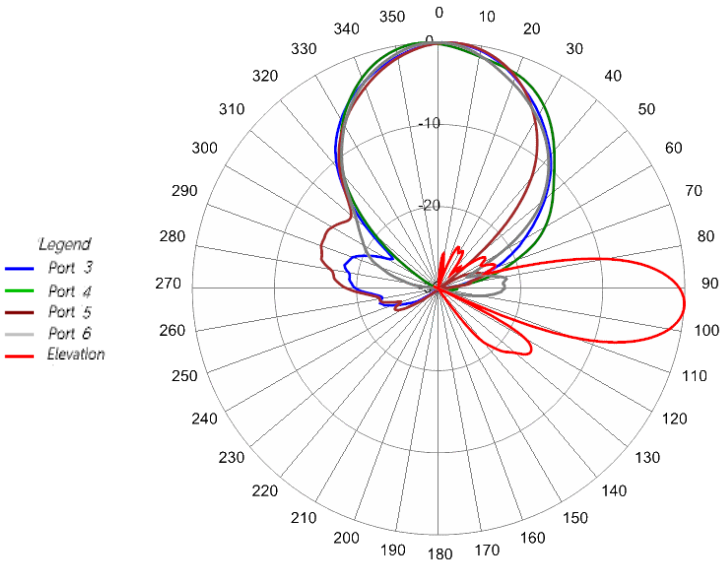
Typical Antenna Patterns



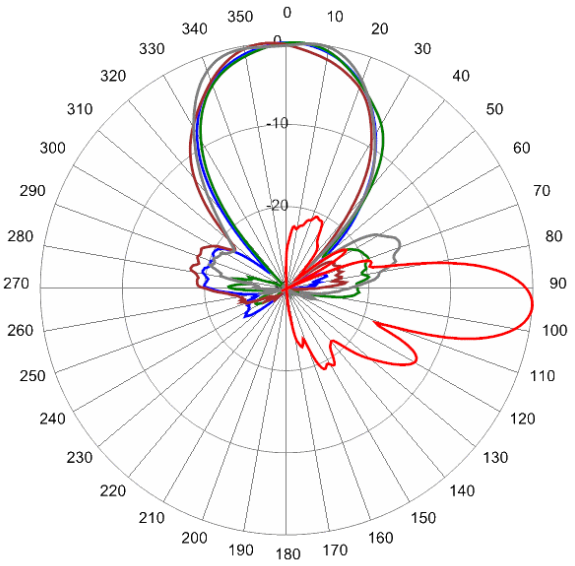
1710 MHz Azimuth with Elevation 4°



1970 MHz Azimuth with Elevation 4°



2155 MHz Azimuth with Elevation 4°



2500 MHz Azimuth with Elevation 4°

Parts & Accessories

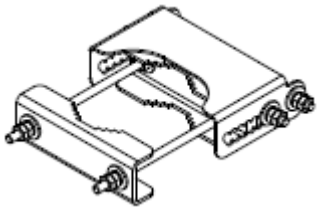
HPA45F-TE2AA-K	Two foot (0.6 m) TriBand antenna with 45° azimuth beamwidth, 4.3-10 female connectors and MBK-03 mounting bracket
MBK-03	Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment
TM-01	Triple Pole Mounting Bracket (top and bottom) with fixed 0° mechanical tilt

Mounting Bracket Kit

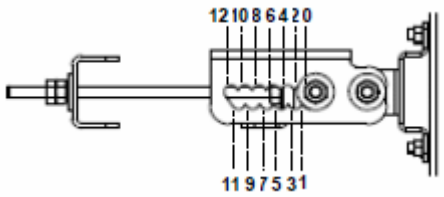
MBK-03

Mechanical

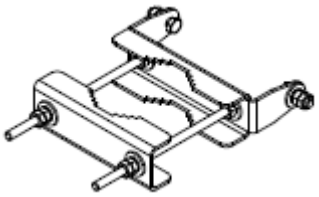
Weight	9.8 lbs (4.4 kg)
Hinge Pitch	13 in (330 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M10
Installation Torque	15 ft·lbs (20 N·m)
Mechanical Tilt Adjustment	0° - 12°



MBK-03 Top Adjustable Bracket



MBK-03 Top Adjustable Bracket Side View



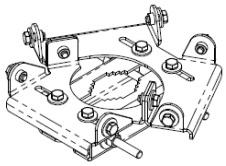
MBK-03 Bottom Fixed Bracket

Triple Mount Cluster Bracket

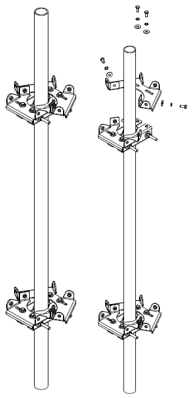
TM-01

Mechanical

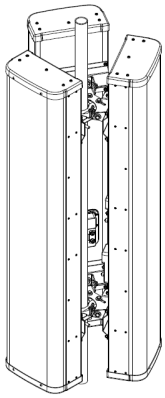
Weight	21.6 lbs (9.8 kg)
Fastener Size	M10
Installation Torque	40 ft·lb (54 N·m)
Hinge Pitch (Vertical)	13.0 in (330 mm) or 31.5 in (800 mm) or 47.2 in (1200 mm)
Mechanical Tilt Adjustment	None

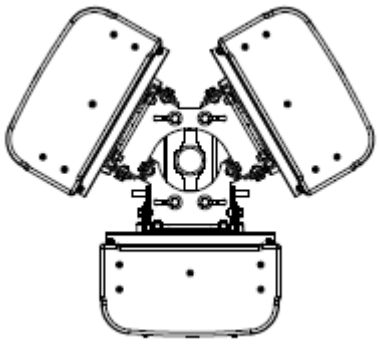


TM-01 Bracket



TM-01 Mounting Brackets (on Pole)





3 - 65° Antennas Mounted on Pole using TM-01 Brackets (Iso and Top Views)

STANDARDS & CERTIFICATIONS

Standards & Compliance

Environmental	IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-5, IEC 60068-2-6, IEC-60068-2-11, IEC 60068-2-14, IEC 60068-2-18, IEC 60068-2-27, IEC 60068-2-29, IEC 60068-02-30, IEC 60068-2-52, IEC 60068-2-64, GR-63-CORE 4.3.1, EN 60529, IP 24

Certifications

Federal Communication Commission (FCC) Part 15 Class B, ISO 9001