

- Six foot (1.7 m) TriBand, six port antenna with a 65° azimuth beamwidth covering 698-960 MHz and 1710-2690 MHz frequencies
- Four wide mid band ports covering 1695-2690 MHz and two wide low band ports covering 698-960 MHz in a single antenna enclosure
- Full Spectrum Compliance 698-960 MHz / 1710-2690 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
- Equipped with new 4.3-10 connector, which is 40% smaller than traditional 7/16 DIN connector
- Equipped with 2 field replaceable, integrated AISG 2.0 compliant Remote Electrical Tilt (RET) Controllers (Type 1 External)

Overview

The CCI TriBand array is a six port antenna, with four wide mid band ports covering 1710-2690 MHz and two wide low band ports covering 698-960 MHz. The antenna provides the capability to deploy 4x4 Multiple-input Multiple-output (MIMO) in the high band and 2X2 MIMO across low band ports.

In this two RET configuration, the 1st RET is dedicated for the two Low Band ports. The 2nd RET is dedicated for the four Mid Band ports.

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 Low Band ports
- Ready for Network Standardization on 4.3-10 DIN 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



TriBand Six-Port Antenna

HPA65R-KE6B

SPECIFICATIONS

Electrical

Ports	2 × Low Band Ports for 698-960 MHz			
Frequency Range	698-806 MHz	791-832 MHz	832-862 MHz	862-960 MHz
Gain	14.3 dBi	14.2 dBi	14.3 dBi	14.6 dBi
Azimuth Beamwidth (-3dB)	67°	71°	71°	62°
Elevation Beamwidth (-3dB)	13.7°	12.6°	12.0°	11.1°
Electrical Downtilt	2° to 12°	2° to 12°	2° to 12°	2° to 12°
Elevation Sidelobes (1st Upper)	< -19 dB	< -19 dB	< -19 dB	< -18 dB
Front-to-Back Ratio @180°	> 35 dB	> 35 dB	> 35 dB	> 35 dB
Cross-Polar Discrimination at Peak	> 25 dB	> 30 dB	> 30 dB	> 28 dB
Cross-Polar Port-to-Port Isolation	> 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
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	500 watts	500 watts	500 watts	500 watts
Polarization	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°
Input Impedance	50 ohms	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground

BASTA Electrical Specifications				
Frequency Range	698-806 MHz	791-832 MHz	832-862 MHz	862-960 MHz
Gain over all Tilts (dBi)	13.9	13.8	14.0	14.2
Gain over all Tilts Tolerance (dB)	0.3	0.3	0.3	0.4
Gain at Low-Tilt (dBi)	14.1	14.0	14.1	14.4
Gain at Mid-Tilt (dBi)	14.0	13.9	14.0	14.3
Gain at High-Tilt (dBi)	13.7	13.7	13.7	13.9
Azimuth Beamwidth Tolerance (°)	2.1	2.8	3.0	3.1
Elevation Beamwidth Tolerance (°)	1.0	0.6	0.4	0.6
Electrical Downtilt Deviation (°)	0.8	0.6	0.8	0.9
First Upper Sidelobe Suppression (dB)	17.1	17.6	17.8	16.0
Upper Sidelobe Suppression Peak to 20°(dB)	17.8	17.6	17.8	18.4
Front-to-Back Ratio over ±20° (dB)	26.0	27.2	27.5	27.1
Cross-polar Discrimination at ±60° (dB)	10.7	10.7	10.7	9.8

* Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V11.1.
All specifications are subject to change without notice.



TriBand Six-Port Antenna

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SPECIFICATIONS

Electrical

Ports	4 x Mid Band Ports for 1710-2690 MHz				
Frequency Range	1710-1880 MHz	1920-1980 MHz	2110-2170 MHz	2500-2570 MHz	2620-2690 MHz
Gain	17.4 dBi	17.7 dBi	17.4 dBi	18.0 dBi	17.8 dBi
Azimuth Beamwidth (-3dB)	63°	63°	68°	65°	64°
Elevation Beamwidth (-3dB)	6.0°	5.3°	4.8°	4.1°	4.1°
Electrical Downtilt	0° to 8°	0° to 8°	0° to 8°	0° to 8°	0° to 8°
Elevation Sidelobes (1st Upper)	< -17 dB	< -17 dB	< -17 dB	< -18 dB	< -19 dB
Front-to-Back Ratio @180°	> 38 dB	> 38 dB	> 38 dB	> 38 dB	> 38 dB
Cross-Polar Discrimination at Peak	> 17 dB	> 18 dB	> 20 dB	> 20 dB	> 18 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	1710-1880 MHz	1920-1980 MHz	2110-2170 MHz	2500-2570 MHz	2620-2690 MHz
Gain over all Tilts (dBi)	16.8	17.1	17.0	17.3	17.3
Gain over all Tilts Tolerance (dB)	0.5	0.5	0.5	0.6	0.5
Gain at Low-Tilt (dBi)	16.9	17.0	16.7	17.6	17.3
Gain at Mid-Tilt (dBi)	16.9	17.2	17.1	17.4	17.5
Gain at High-Tilt (dBi)	16.6	17.0	17.1	16.9	16.9
Azimuth Beamwidth Tolerance (°)	3.6	2.7	3.5	5.1	4.2
Elevation Beamwidth Tolerance (°)	0.4	0.2	0.3	0.1	0.2
Electrical Downtilt Deviation (°)	0.3	0.3	0.4	0.5	0.5
First Upper Sidelobes Suppression (dB)	13.7	13.3	13.0	12.3	12.1
Upper Sidelobe Suppression Peak to 20°(dB)	14.0	13.6	12.6	11.0	11.7
Front-to-Back Ratio over ±20° (dB)	27.6	27.9	29.1	30.2	26.8
Cross-polar Discrimination at ±60° (dB)	9.3	9.2	9.7	9.9	9.7

* Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V11.1. All specifications are subject to change without notice.

Mechanical

Dimensions (LxWxD)	67.2x11.7x7.7 in (1707x297x196 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load ¹	115 lbf @ 100 mph 510 N @ 161 kph
Side Wind Load ¹	60 lbf @ 100 mph 269 N @ 161 kph
Effective Projective Area (EPA), Front ¹	4.3 ft ² (0.4 m ²)
Weight *	41.0 lbs (18.6 kg)
Connector	6 x 4.3-10 female
Mounting Pole	3 to 6 in (76 to 152 mm)

¹Windload values calculated using CFD analysis
* Weight excludes mounting



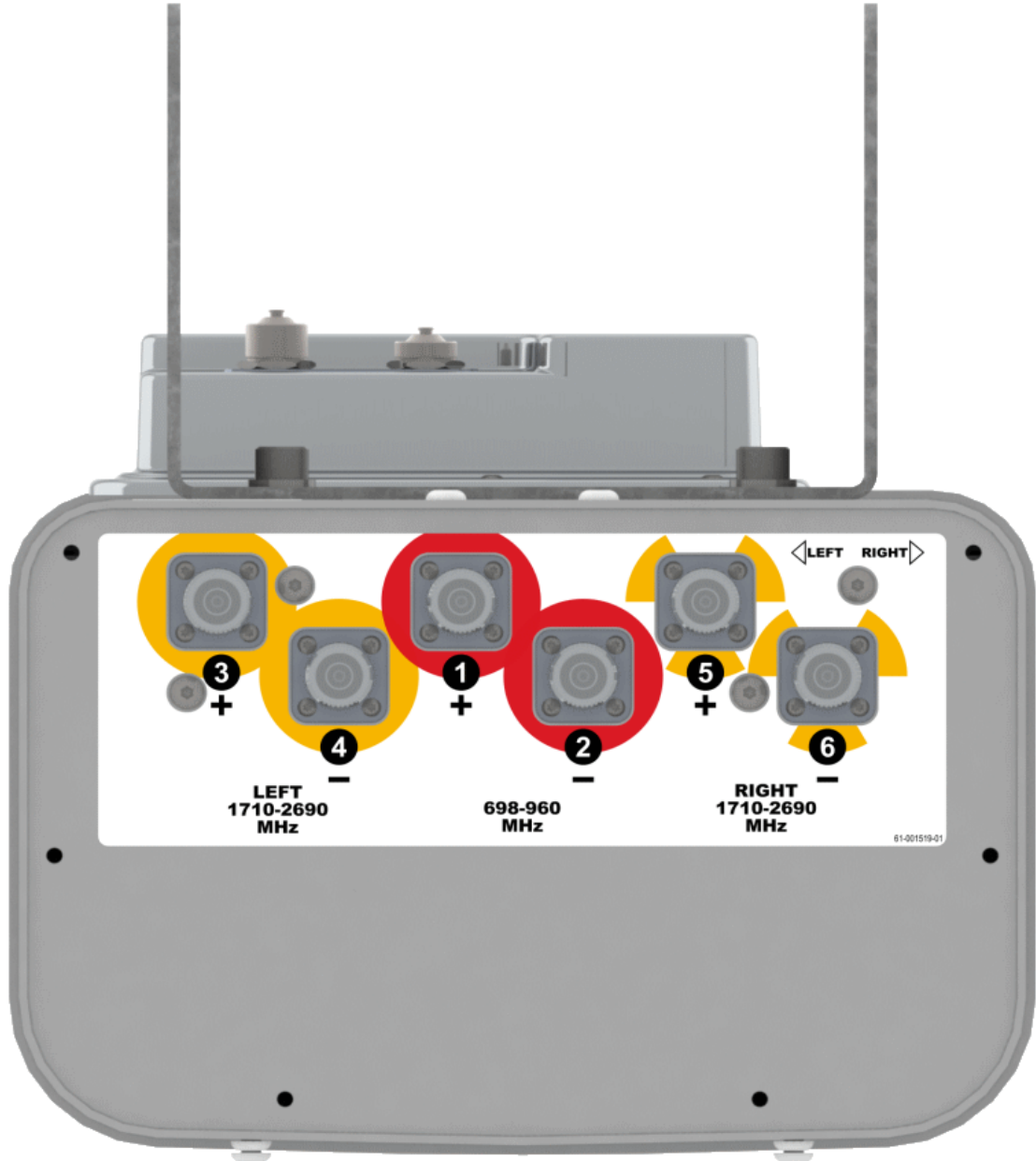
SPECIFICATIONS

TriBand Six-Port Antenna

HPA65R-KE6B

Mechanical

Bottom View





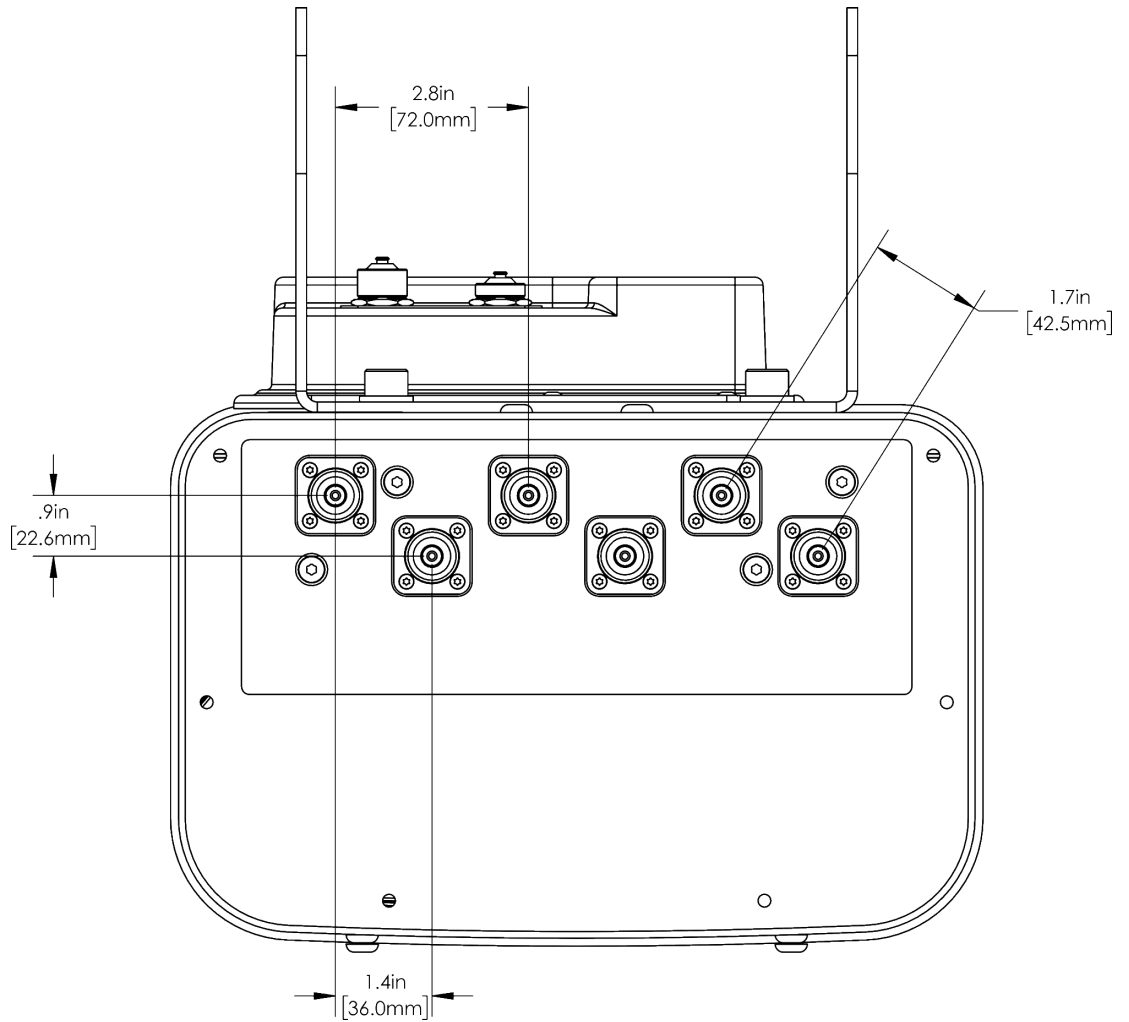
SPECIFICATIONS

TriBand Six-Port Antenna

HPA65R-KE6B

Mechanical

Connector Spacing





TriBand Six-Port Antenna

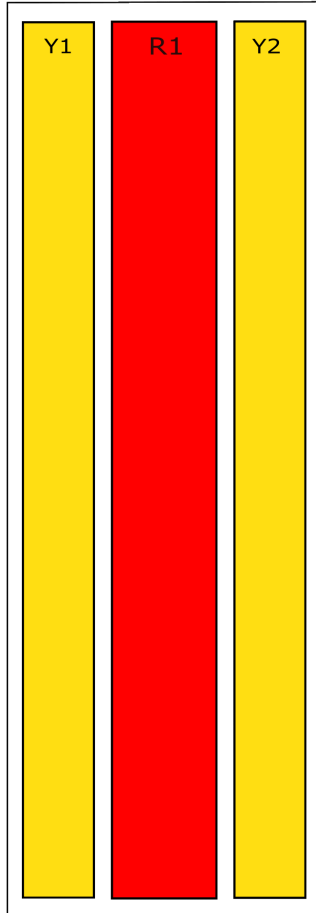
HPA65R-KE6B

SPECIFICATIONS

Mechanical

RET to Element Configuration TPA65R-KE6BA Element and RET configuration (Type 1 External RET)

**Top of antenna
Viewed from rear**



Mechanical

**RET placement
as view from rear
of antenna**

Top of antenna



CENTER
698-960
Ports 1, 2
(R1)



LEFT & RIGHT
1710-2690
Ports 3, 4, 5, 6
(Y1 & Y2)

Array	Ports	Freq (MHz)	Ports controlled by VET knob
R1	1, 2	698-960	1, 2
Y1	3, 4	1710-2690	3, 4, 5, 6
Y2	5, 6	1710-2690	

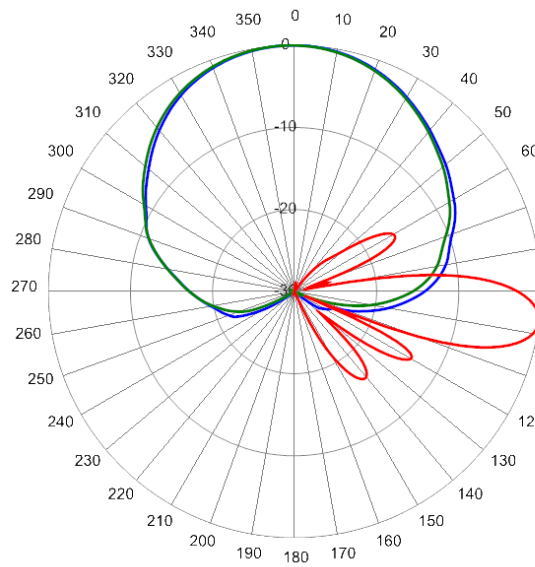


TriBand Six-Port Antenna

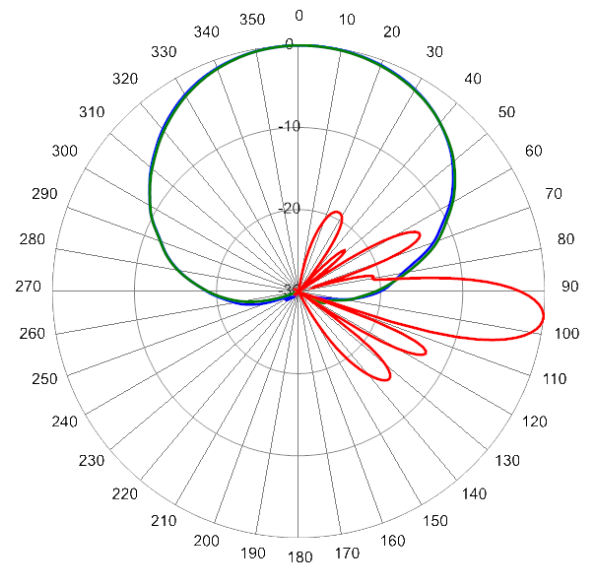
HPA65R-KE6B

Typical Antenna Patterns

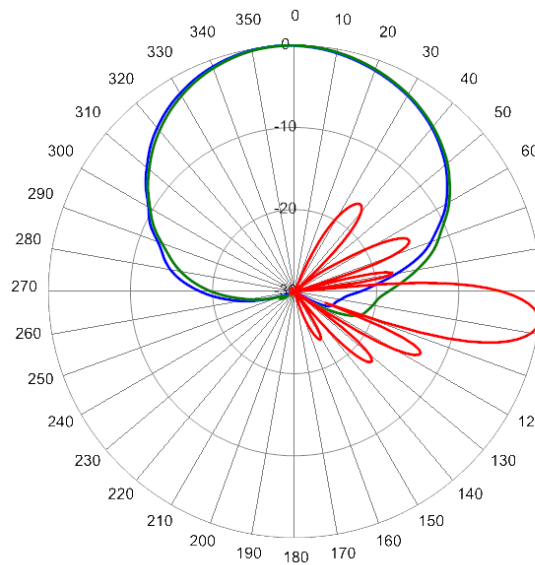
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



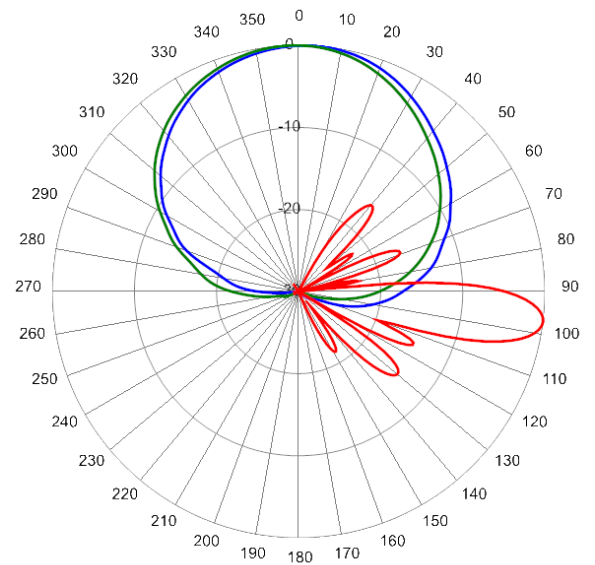
710 MHz Azimuth with Elevation 7°



824 MHz Azimuth with Elevation 7°



860 MHz Azimuth with Elevation 7°



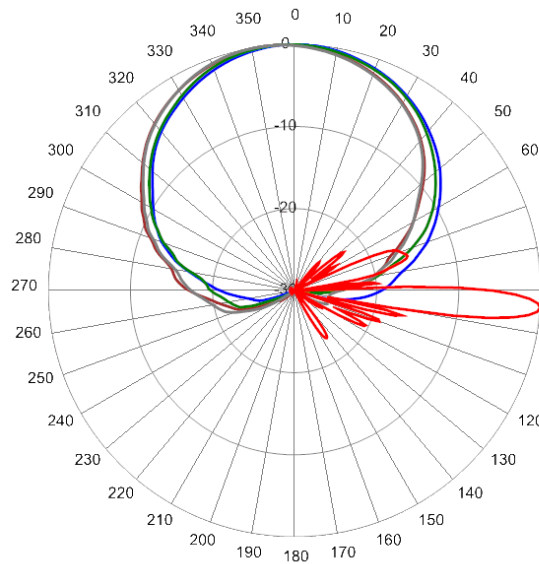
915 MHz Azimuth with Elevation 7°



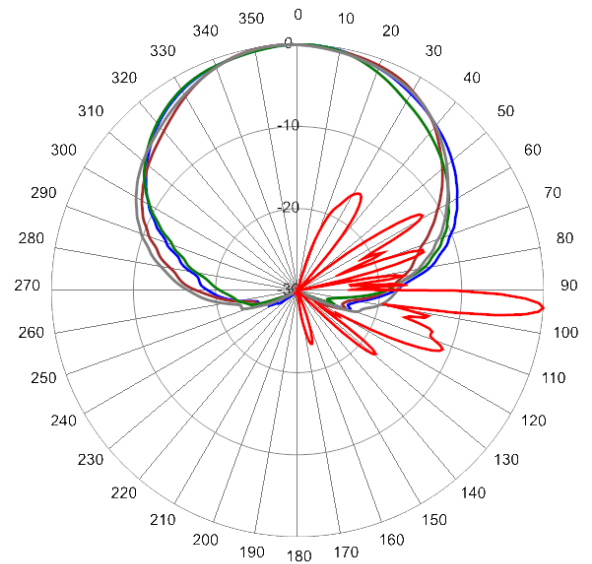
TriBand Six-Port Antenna

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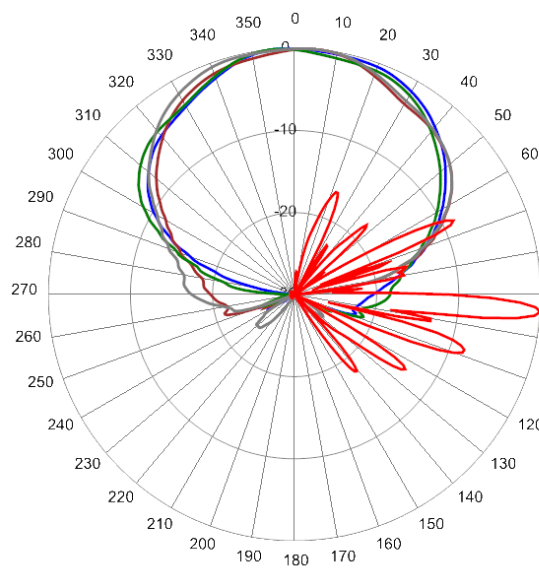
Typical Antenna Patterns



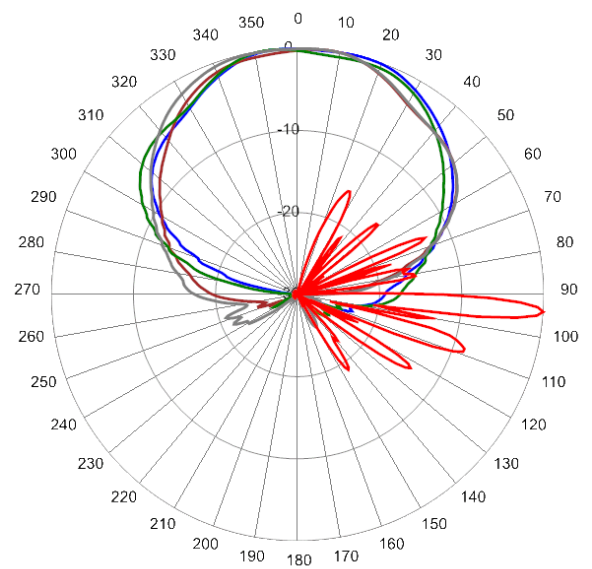
1780 MHz Azimuth with Elevation 4°



2155 MHz Azimuth with Elevation 4°



2560 MHz Azimuth with Elevation 4°



2650 MHz Azimuth with Elevation 4°



TriBand Six-Port Antenna

HPA65R-KE6B

Parts & Accessories

HPA65R-KE6BA-K Six foot (1.7 m) TriBand antenna with 65° azimuth beamwidth, 4,3-10 female connectors, 2 factory installed BSA-RET200 RET actuators and MBK-32 fixed mounting bracket

MBK-32 Mounting Kit with either 0 or 5 degrees of mechanical tilt

BSA-RET200 Remote electrical tilt actuator

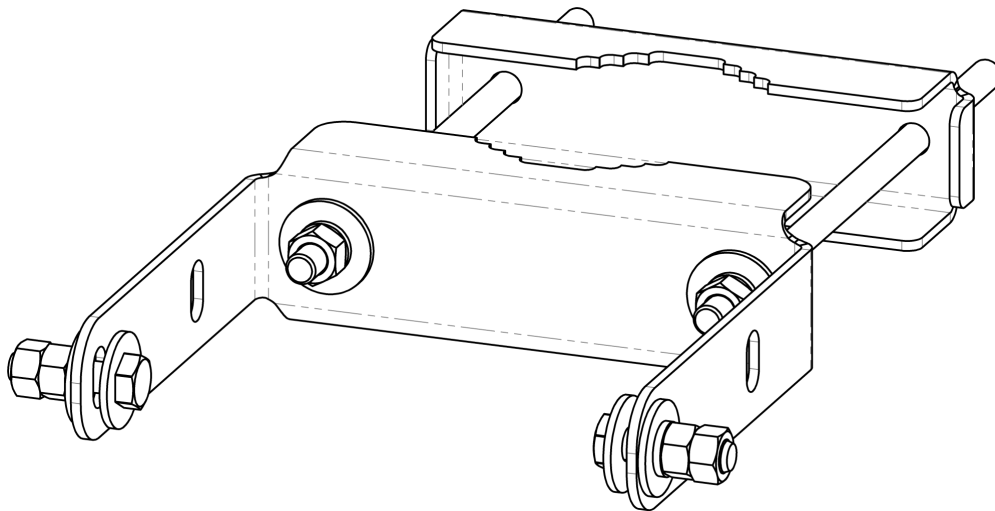


Mounting Bracket Kit

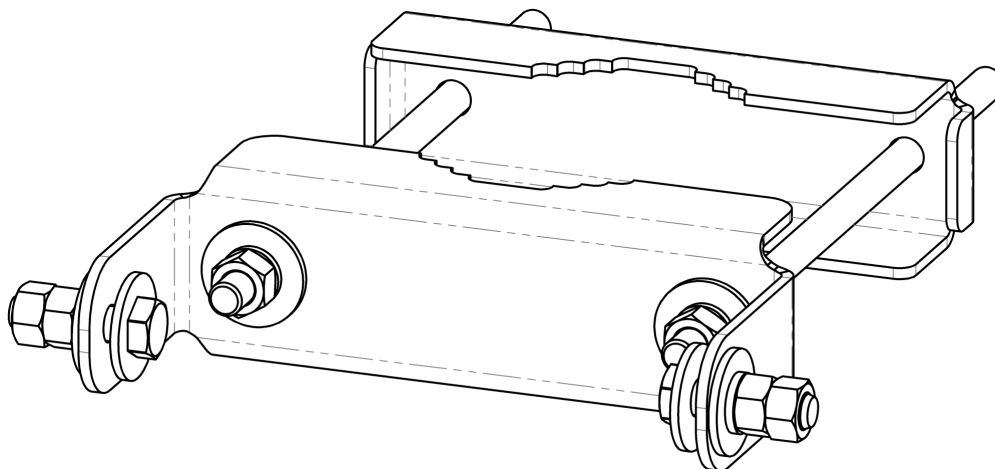
MBK-32

Mechanical

Weight	6.0 kg (13.2 lbs)
Hinge Pitch	1200 mm (37.25 in)
Mounting Pole Dimension	76 to 152 mm (3 to 6 in) (OD by measurement)
Fastener Size	M12
Installation Torque	54 N·m (40 ft·lbs)
Mechanical Tilt	0°, 5°



MBK-32 Tilt Bracket



MBK-32 Fixed Bracket



Remote Electrical Tilt Actuator (RET)

BSA-RET200

General Specifications

Part Number	BSA-RET200
Protocols	AISG 2.0
RET Type	Type 1
Adjustment Cycles	>10,000 cycles
Tilt Accuracy	±0.1°
Temperature Range	-40° C to 70° C

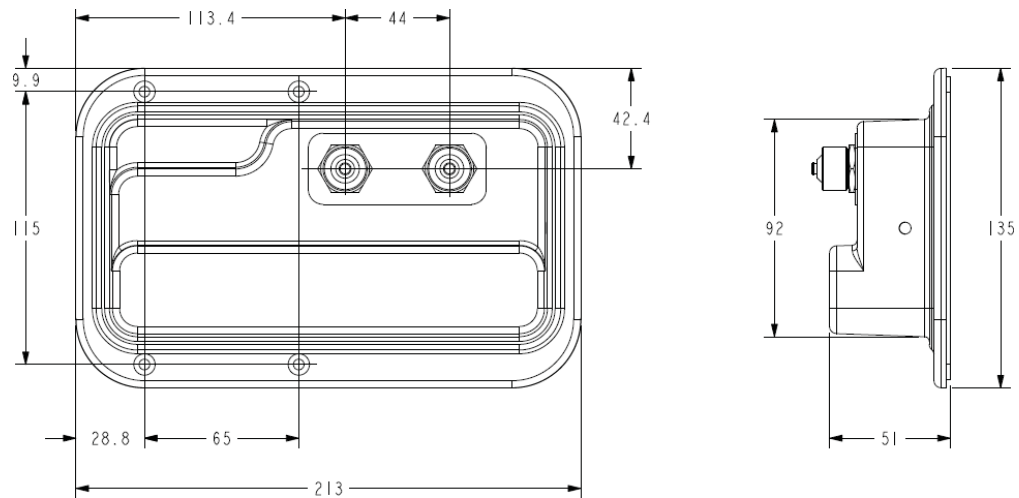
Electrical

Data Interface Signal	DC
Input Voltage	10-30 Vdc
Current Consumption Tilt	120 mA at $V_{in}=24$
Current Consumption Idle	55 mA at $V_{in}=24$
Hardware Interface	AISG-RS 485 A/B
Input Connector	Male 1 × 8 pin Daisy Chain
Output Connector	Female 1 × 8 pin Daisy Chain

Mechanical

Dimensions (LxWxD)	8.0x5.0x2.0 in. (213x135x51 mm)
Housing	ASA/ABS/Aluminum
Weight	1.7 lbs (0.75 kg)

ASA= Acrylic Styrene Acrylonitrile
ABS=Acrylonitrile Butadiene Styrene





STANDARDS & CERTIFICATIONS

TriBand Six-Port Antenna

HPA65R-KE6B

Standards & Compliance

Safety	EN 60950-1, UL 60950-1
Emission	EN 55022
Immunity	EN 55024
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

Antenna Interface Standards Group (AISG), Federal Communication Commission (FCC) Part 15 Class B, CE, CSA US, ISO 9001

