

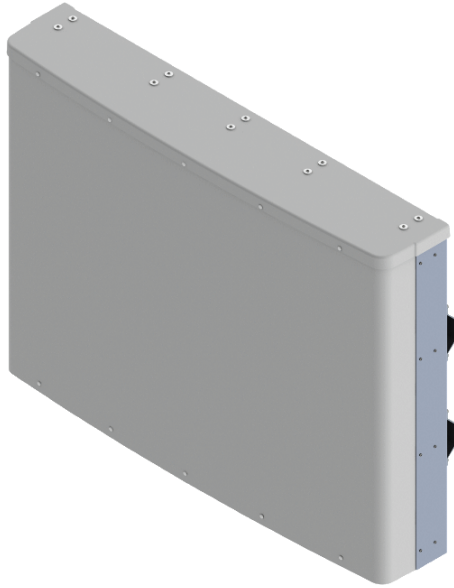


Antennas

DATA SHEET

Six/Three Beam Special Events Antenna

MBA6-9F-BW-H3



- Three low band beams optimized for maximum throughput over frequency bands (698-896 MHz); six high band beams optimized for maximum throughput over frequency bands (1695-2180 MHz)
- Three and a half foot (1.0 m), single panel, nine beam design without mount changes
- Dual +/- 45° cross-polarization for each beam pair
- Separate beams support 3 low band and 6 high-band sub-sectors
- Simultaneous High Band PCS 1900 MHz, AWS 1695/2180 and Low Band LTE 700 MHz, SMR 850 MHz and Cellular 850 coverage
- Enables efficient evolution of wireless networks
- Increases site capacity through high order sectorization
- Avoid carrier-adds and building of new capacity sites
- Boosts data throughput by lowering interference
- Patented beam shaping technology maximizes coverage
- Optimized beam crossover and spacing for maximum throughput

Overview

The CCI Six/Three-Beam Special Events Antenna is an LTE ready multi-beam, multi-band antenna that simultaneously supports (6) high band and (3) low band sectors from a single antenna. This Six/Three-Beam Antenna is intended for use at sporting and entertainment venues where social media and the ability to share photos and videos demand high capacity and high data rates. The high band ports provide coverage for PCS 1900 MHz and AWS 1695/2180 MHz bands while the low band ports provide LTE 700 MHz, SMR 800 and Cellular 850 MHz capability in a compact, 3.5 ft (1.0 m) high single enclosure. Each beam is fed by a pair of +45° and -45° cross-polarized ports. The high band beams are each roughly 15 degrees apart and each pair are evenly juxtaposed on the three low band beams. This antenna segments large audiences into multiple sectors thus enabling maximum spectrum re-use by sectorization, providing greatly increased network capacity. Our unique beam shaping technology provides fast roll off between beams, minimizing interference between sectors thus increasing the carrier to interference plus noise (CINR) ratio and lowering soft handover losses in LTE, UMTS/HSPA+ and CDMA/EVDO networks. Such an approach enhances data transfer rates within LTE, UMTS and EVDO network sectors and addresses "hotspots" in mobile wireless operator networks.

The single panel design of the CCI Six/Three-Beam Special Event Antenna offers the opportunity to reduce antenna count and directly replaces multiple narrow beam antennas. The antenna minimizes the need for optimization as each beam is spaced optimally for maximum throughput thus providing significant CAPEX and OPEX cost savings.

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

Applications

- Upgrade of data-throughput or capacity constrained sites
- For use at sporting and entertainment venues



Antennas

SPECIFICATIONS Six/Three Beam Special Events Antenna

MBA6-9F-BW-H3

Electrical

Ports	6 × Low Band Ports for 698-896 MHz		12 × High Band Ports for 1695-2180 MHz		
Frequency Range	698-806 MHz	824-896 MHz	1850-1990 MHz	1695-1780/2110-2180 MHz	
Gain	17.5 dBi	18.4 dBi	22.4 dBi	21.1 dBi	22.8 dBi
Azimuth Beamwidth (-3dB)	3 x 17.5°	3 x 15.0°	6 x 8.3°	6 x 9.5°	6 x 7.3°
Azimuth Beam Crossover (Typ.)	-10 dB	-10 dB	-10.5 dB	-10.5 dB	-10.5 dB
Elevation Beamwidth (-3dB)	22.3°	19.6°	11.4°	12.6°	10.1°
Electrical Downtilt	6°	6°	4°	4°	4°
Elevation Sidelobes (1st Upper)	< -24 dB	< -22 dB	< -20 dB	< -18 dB	< -18 dB
Front-to-Back Ratio @180°	> 40 dB	> 40 dB	> 40 dB	> 40 dB	> 40 dB
Cross-Polar Port-to-Port Isolation	> 24 dB	> 24 dB	> 25 dB	> 25 dB	> 25 dB
Co-Polar Isolation ¹ (Adjacent Beams)	20 dB ²	20 dB	20 dB	20 dB	20 dB
Co-Polar Isolation (Non-Adjacent Beams)	> 13 dB	> 13 dB	> 11 dB	> 15 dB	> 15 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)	200 watts	200 watts	200 watts	200 watts	200 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

¹ Worst-case between any pair of Adjacent Beams, averaged over frequency band.

² 20.0 dB for 746-787 MHz, 19 dB elsewhere.

BASTA Electrical Specifications*					
Frequency Range	698-806 MHz	824-896 MHz	1850-1990 MHz	1695-1780/2110-2180 MHz	
Gain (dBi)	17.5	18.4	22.4	21.1	22.8
Gain Tolerance (dB)	0.8	0.6	0.6	0.8	0.5
Azimuth Beamwidth Tolerance (°)	2.0	1.2	1.2	1.6	0.7
Elevation Beamwidth Tolerance (°)	1.3	1.2	0.6	0.4	0.4
Electrical Downtilt Deviation (°)	1.2	1.2	0.7	0.7	0.6
Front-to-Back Ratio over ± 20° (dB)	29.8	32.6	35.0	35.2	36.3
First Upper Sidelobe Suppression (dB)	19.8	21.5	18.0	15.0	15.6
Upper Sidelobe Suppression peak to 20°(dB)	NA	NA	18.8	19.2	16.0

* Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V9.6.

All specifications are subject to change without notice.

Mechanical

Dimensions (LxWxD)	40.8x55.0x10.2 in (1036x1398x259 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load ¹	425 lbf @ 100 mph 1892 N @ 161 kph
Side Wind Load ¹	37 lbf @ 100 mph 166 N @ 161 kph
Effective Projective Area (EPA), Front ¹	17.2 ft ² (1.6 m ²)
Weight *	115 lbs (52 kg)
Connector	18 × 7-16 DIN female long neck
Mounting Pole	2x 2 to 5 in (5 to 12 cm)
Mounting Pole Spacing	38.4 in (976 mm)

¹Windload values calculated using CFD analysis

* Weight excludes mounting



Antennas

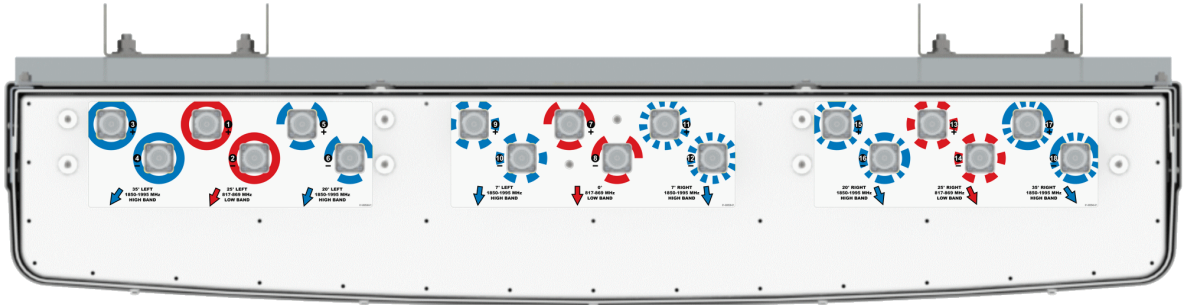
SPECIFICATIONS

Six/Three Beam Special Events Antenna

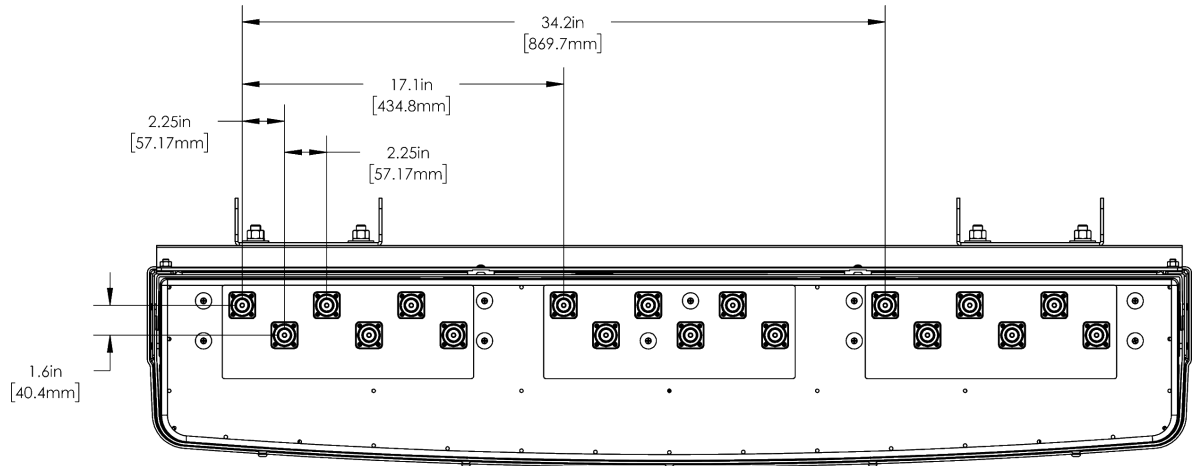
MBA6-9F-BW-H3

Mechanical

Bottom View



Connector Spacing





Antennas

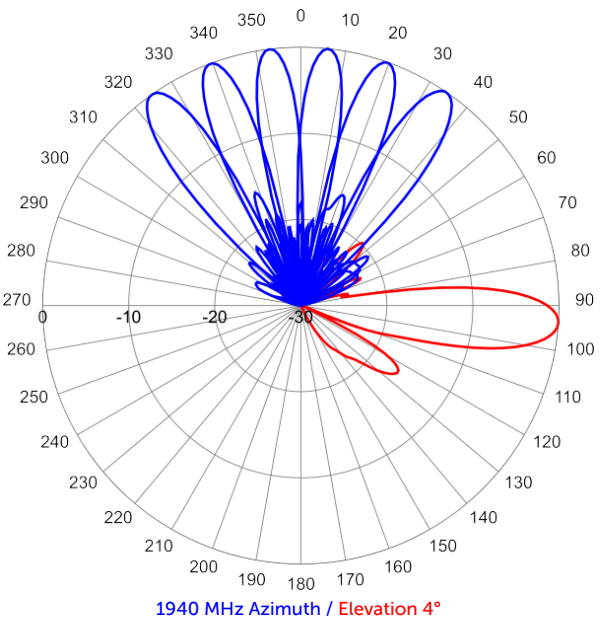
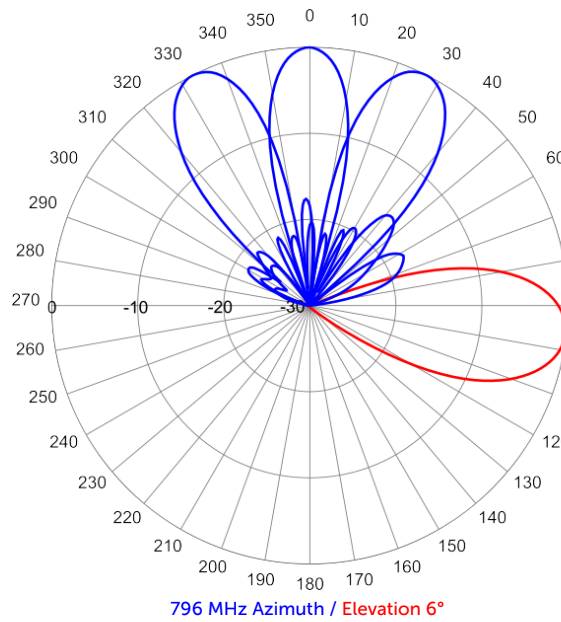
SPECIFICATIONS

Six/Three Beam Special Events Antenna

MBA6-9F-BW-H3

Typical Antenna Patterns

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





Antennas

ORDERING

Six/Three Beam Special Events Antenna

MBA6-9F-BW-H3

Parts & Accessories

MBA6-9F-BW-H3-K Three and a half foot (1.0 m) Antenna, Six-Three Beam Special Events Antenna with fixed electrical tilt, 7-16 DIN connectors and two MBK-03 Mounting Brackets

MBK-03 (x2) Mounting bracket kit (top and bottom) with 0° to 12° mechanical tilt adjustment



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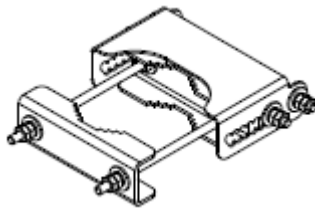
ACCESSORIES

Mounting Bracket Kit

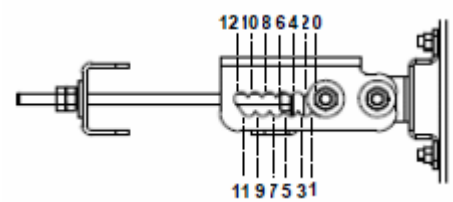
MBK-03

Mechanical

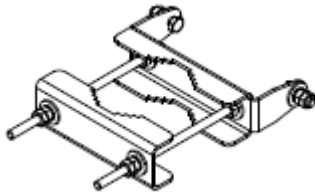
Weight	9.8 lbs (4.4 kg)
Hinge Pitch	13 in (330 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M10
Installation Torque	15 ft·lbs (20 N·m)
Mechanical Tilt Adjustment	0° - 12°



MBK-03 Top Adjustable Bracket



MBK-03 Top Adjustable Bracket Side View



MBK-03 Bottom Fixed Bracket



Antennas

STANDARDS & CERTIFICATIONS

Six/Three Beam Special Events Antenna

MBA6-9F-BW-H3

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

