

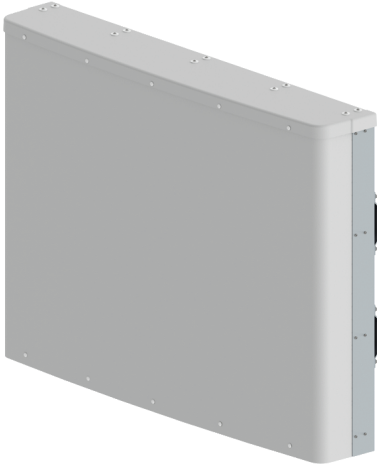


Antennas

DATA SHEET

Six/Three-Beam Special Events Antenna

MBA9F-KE3A



- Three low-band beams optimized for maximum throughput over the 694-960 MHz frequency band; Six high-band beams optimized for maximum throughput over the 1695-2690 MHz frequency band
- Separate beams support three low-band and six high-band sub-sectors
- Dual +/- 45° cross-polarization for each beam pair
- Six low-band ports simultaneously covering LTE 700 MHz, 800 MHz, Cellular 850 MHz and GSM 900 MHz bands
- Twelve high-band ports simultaneously covering DCS 1800 MHz, PCS 1900 MHz, AWS & AWS-3, UMTS 2100 MHz, WCS 2300 MHz and BRS 2600 MHz bands
- Excellent PIM performance
- Increases site capacity through higher order sectorization
- Optimized interbeam azimuth crossover and azimuth offsets for maximum throughput
- Boosts data throughput by lowering interference

Overview

The CCI Six/Three Beam Special Events Antenna 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 DCS 1800 MHz, PCS 1900 MHz, AWS and AWS-3 1695/2180 MHz, UMTS 2100 MHz, WCS 2300 MHz and BRS 2600 MHz bands while the low band ports provide LTE 700 MHz, 800 MHz, Cellular 850 MHz and GSM 900 MHz band capability in a compact, 3.4 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 as much as nine times increase in 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
- Spectrum limited markets
- Deferral of CDMA/EVDO or UMTS/HSPA+ carrier adds



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SPECIFICATIONS

Electrical

Ports	6 × Low Band Ports for 694-960 MHz			
Frequency Range	694-806 MHz	790-862 MHz	824-896 MHz	880-960 MHz
Gain	16.7 dBi	17.6 dBi	18.0 dBi	18.3 dBi
Azimuth Beamwidth (-3dB)	18.8°	16.9°	16.2°	15.0°
Azimuth Beam Crossover	10.2°	10.0°	10.0°	10.2°
Elevation Beamwidth (-3dB)	24.0°	21.6°	20.7°	19.8°
Electrical Downtilt	6°	6°	6°	6°
Elevation Sidelobes (1st Upper)	< -28 dB	< -22 dB	< -22 dB	< -24 dB
Front-to-Back Ratio @180°	> 40 dB	> 40 dB	> 40 dB	> 40 dB
Cross-Polar Port-to-Port Isolation	> 24 dB	> 24 dB	> 24 dB	> 24 dB
Interbeam Co-Pol Isolation (Adjacent Beams) (Worst Case)	> 10 dB	> 10 dB	> 10 dB	> 10 dB
Voltage Standing Wave Ratio (VSWR)	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2×20W)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	200 watts	200 watts	200 watts	200 watts
Polarization	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°
Input Impedance	50 ohms	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground

Ports	12 × 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	19.7 dBi	20.7 dBi	21.1 dBi	21.6 dBi	22.4 dBi
Azimuth Beamwidth (-3dB)	10.0°	9.2°	8.5°	7.2°	6.3°
Azimuth Beam Crossover	10.9°	10.5°	10.4°	10.3°	11.0°
Elevation Beamwidth (-3dB)	13.4°	12.5°	11.4°	10.6°	9.2°
Electrical Downtilt	4°	4°	4°	4°	4°
Elevation Sidelobes (1st Upper)	< -15 dB	< -17 dB	< -17 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	> 28 dB	> 28 dB	> 28 dB	> 28 dB	> 28 dB
Interbeam Co-Pol Isolation (Adjacent Beams) (Worst Case)	> 10 dB	> 10 dB	> 10 dB	> 10 dB	> 10 dB
Voltage Standing Wave Ratio (VSWR)	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2×20W)	≤ -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 Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 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



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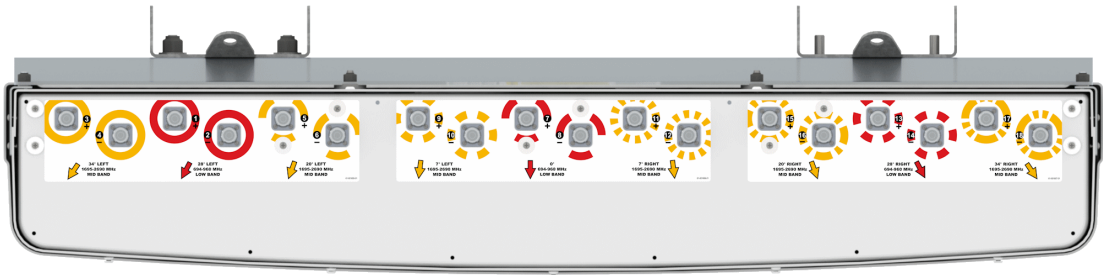
SPECIFICATIONS

Mechanical

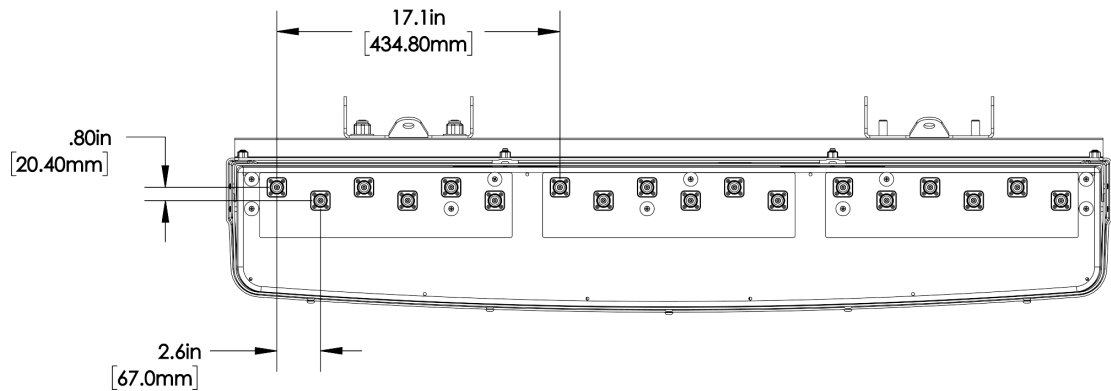
Dimensions (LxWxD)	38.9x53.0x9.0 in (988x1345x228 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load¹	392 lbf @ 100 mph 1745 N @ 161 kph
Side Wind Load¹	18 lbf @ 100 mph 78 N @ 161 kph
Effective Projective Area (EPA), Front¹	16.1 ft ² (1.5 m ²)
Weight *	90.4 lbs (41.0 kg)
RF Connector	18 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)
Mounting Pole Spacing	31.5 in (800 mm)

¹Windload values calculated using CFD analysis
* Weight excludes mounting

Bottom View



Connector Spacing





Antennas

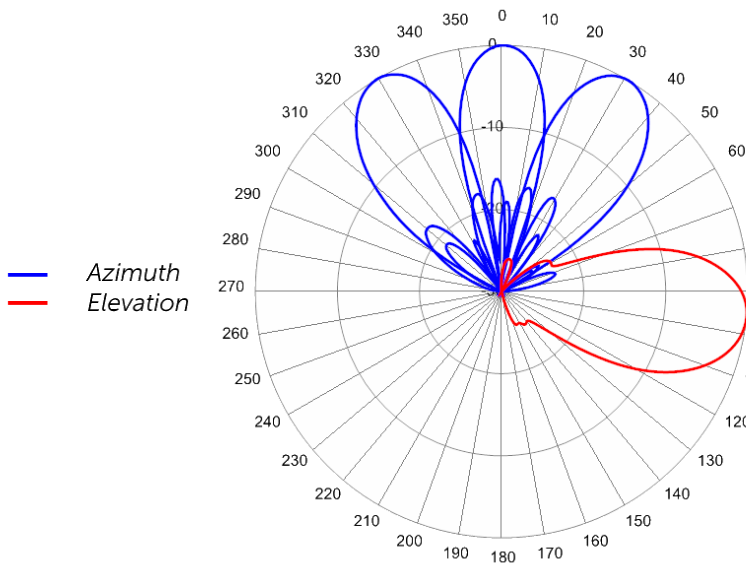
SPECIFICATIONS

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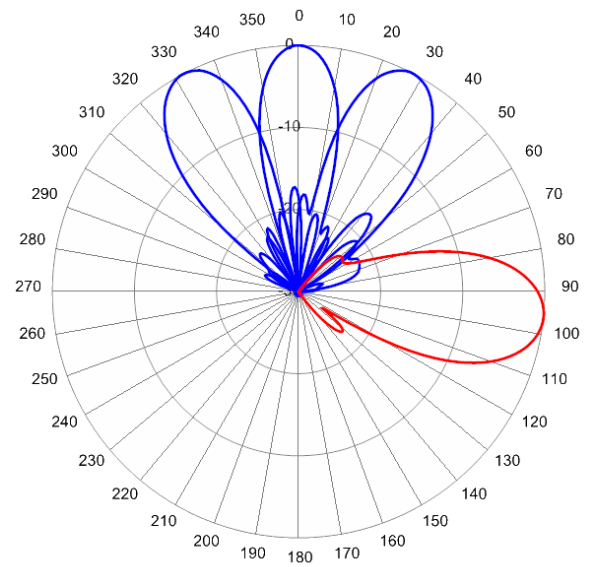
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Typical Antenna Patterns

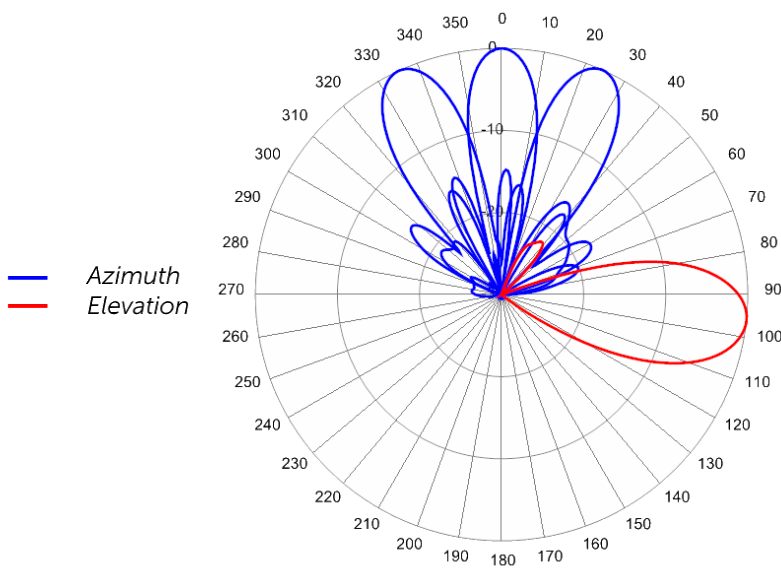
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



734 MHz Azimuth with Elevation 6°



806 MHz Azimuth with Elevation 6°



925 MHz Azimuth with Elevation 6°

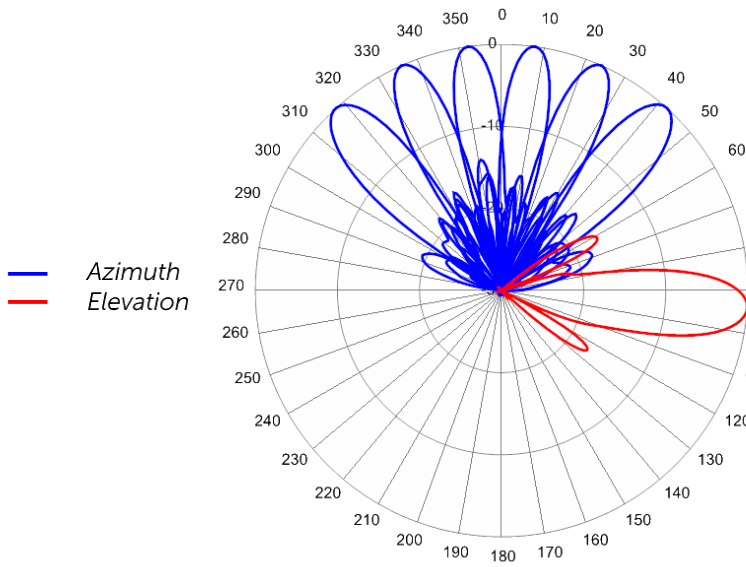


Antennas

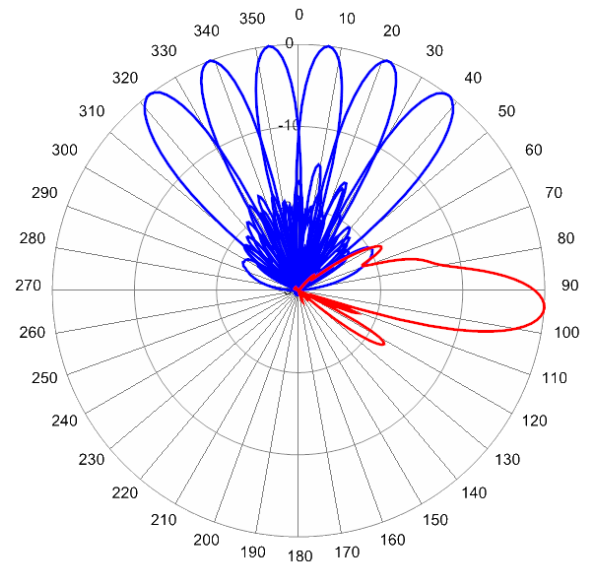
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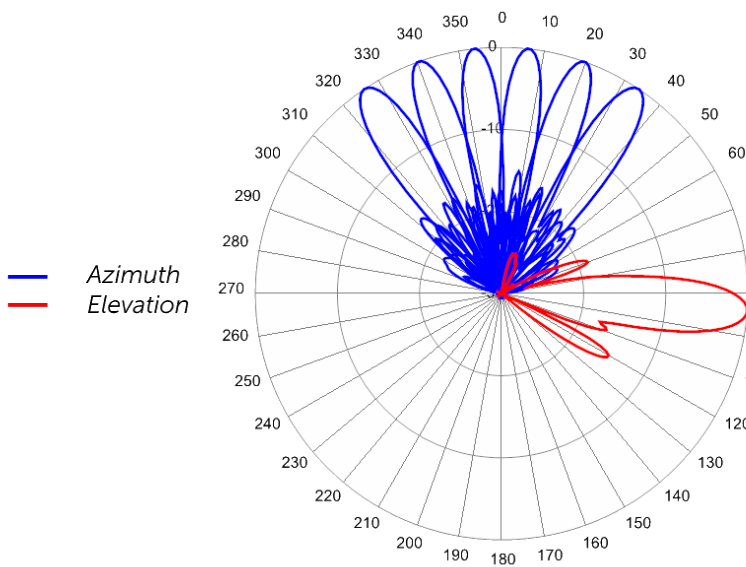
MBA9F-KE3A



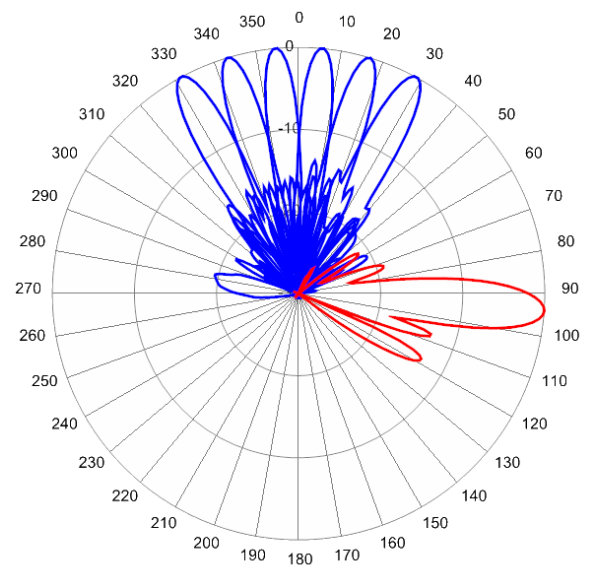
1780 MHz Azimuths with Elevation 4°



1960 MHz Azimuths with Elevation 4°



2155 MHz Azimuths with Elevation 4°



2500 MHz Azimuths with Elevation 4°



Antennas

ORDERING

Six/Three-Beam Special Events Antenna

MBA9F-KE3A

Parts & Accessories

MBA9F-KE3AA-K 3 foot (0.7 m) Special Events 9-Beam Antenna with fixed electrical tilt, 4.3-10 connectors and 2x MBK-03 mounting bracket.

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



Antennas

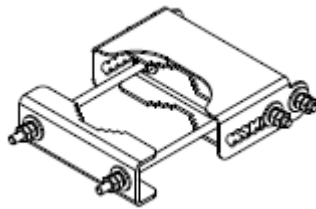
ACCESSORIES

Mounting Bracket Kit

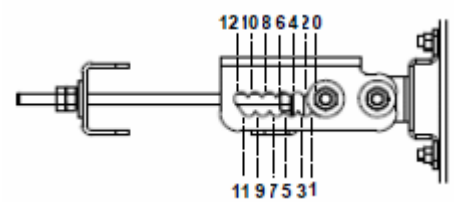
MBK-03

Mechanical

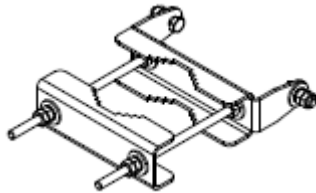
Weight	9.8 lbs (4.4 kg)
Hinge Pitch	13 in (330 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M10
Installation Torque	15 ft-lbs (20 N·m)
Mechanical Tilt Adjustment	0° - 12°



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

MBA9F-KE3A

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

