



# Antennas

DATA SHEET

## Three-Beam Special Events Antenna

MBA3F-K3A



- Three low-band beams optimized for maximum throughput over the 694-960 MHz frequency band
- Separate beams support three low-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
- 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 Three Beam Special Events Antenna simultaneously supports (3) low-band sectors from a single antenna. This 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 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. This antenna segments large audiences into multiple sectors thus enabling maximum spectrum re-use by sectorization, providing as much as three 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 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 UTM/HSPA+ carrier adds



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## SPECIFICATIONS

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#### Electrical

Ports	6 x Low Band Ports for 694-960 MHz			
	694-806 MHz	790-862 MHz	824-896 MHz	880-960 MHz
Frequency Range	694-806 MHz	790-862 MHz	824-896 MHz	880-960 MHz
Gain	17.1 dBi	18.1 dBi	18.4 dBi	18.8 dBi
Azimuth Beamwidth (-3dB)	18.5°	16.7°	16.0°	14.8°
Azimuth Beam Crossover	10.4°	10.3°	10.5°	10.6°
Elevation Beamwidth (-3dB)	23.7°	21.4°	20.6°	19.6°
Electrical Downtilt	6°	6°	6°	6°
Elevation Sidelobes (1st Upper)	< -26 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)	> 15 dB	> 15 dB	> 15 dB	> 15 dB
Interbeam Co-Pol Isolation (Non 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 (2x20W)	≤ -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

#### Mechanical

Dimensions (LxWxD)	38.9x53.0x8.6 in (988x1345x220 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	439 lbs (1955 N) @ 100 mph (161 kph)
Side Wind Load	77 lbs (343 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	17.2 ft <sup>2</sup> (1.6 m <sup>2</sup> )
Weight*	83.3 lbs (37.8 kg)
Packaging Dimensions (LxWxD)	63.0x45.2x16.1 in (1601x1148x410 mm)
Packaged Weight ~	135.6 lbs (61.5 kg)
Connector	6 x 7-16 DIN female long neck or 4.3-10 female
Mounting Poles	2x 2 to 5 in (5 to 12 cm)
Mounting Pole Spacing	31.5 in (800 mm)

\* Weight excludes mounting



# Antennas

## SPECIFICATIONS

### Three-Beam Special Events Antenna

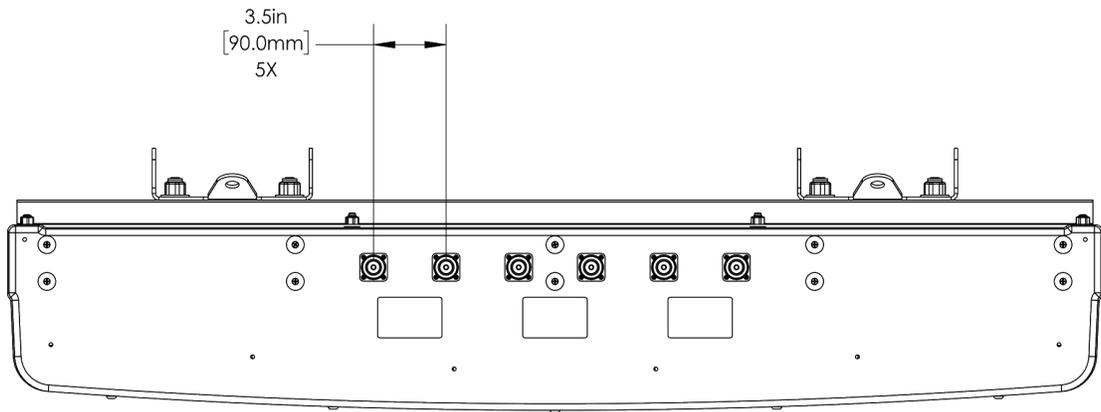
MBA3F-K3A

#### Mechanical

Bottom View



Connector Spacing





# Antennas

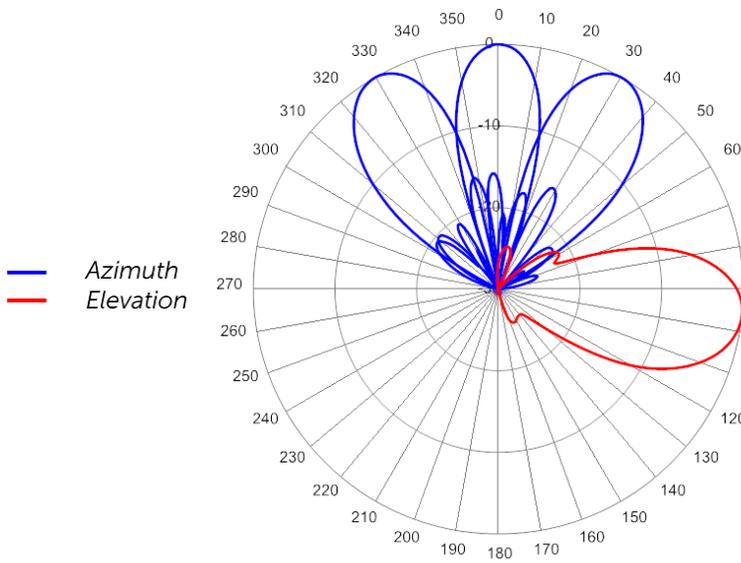
## SPECIFICATIONS

### Three-Beam Special Events Antenna

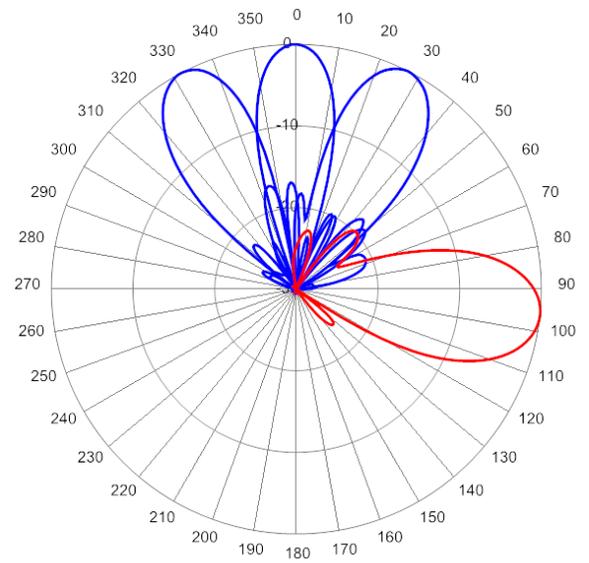
MBA3F-K3A

#### Typical Antenna Patterns

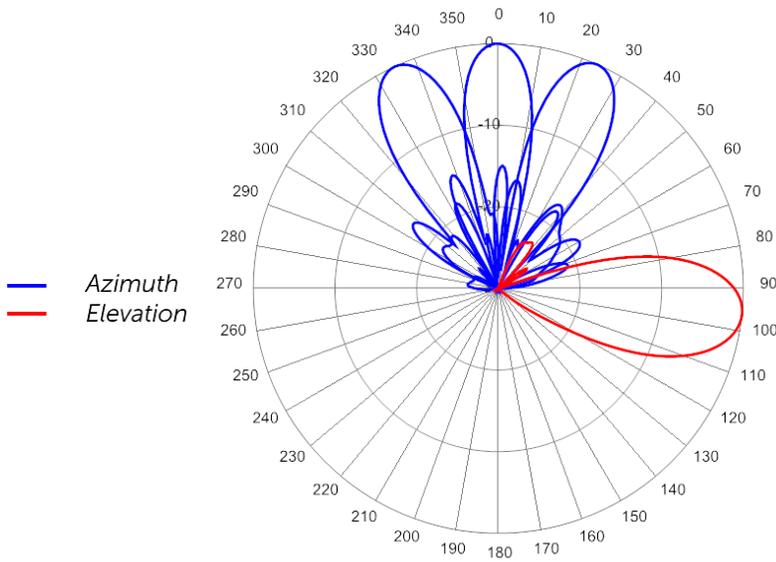
For detailed information on additional antenna patterns, contact customer support at [support@cciproducts.com](mailto:support@cciproducts.com)



734 MHz Azimuth with Elevation 6°



806 MHz Azimuth with Elevation 6°



925 MHz Azimuth with Elevation 6°



# Antennas

ORDERING

## Three-Beam Special Events Antenna

MBA3F-K3A

### Parts & Accessories

**MBA3F-K3AA-K** 3 foot (0.7 m) Special Events 3-Beam Antenna with fixed electrical tilt, 7-16 DIN connectors and 2x MBK-03 mounting bracket.

**MBA3F-K3AB-K** 3 foot (0.7 m) Special Events 3-Beam Antenna with fixed electrical tilt, 4.3-10 connectors and 2x MBK-03 mounting bracket.

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



# Antennas

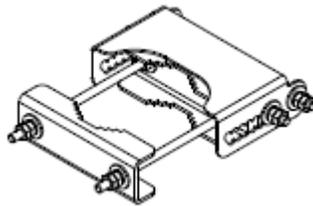
ACCESSORIES

## Mounting Bracket Kit

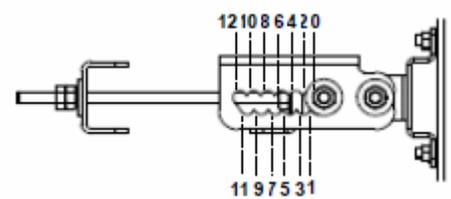
MBK-03

### Mechanical

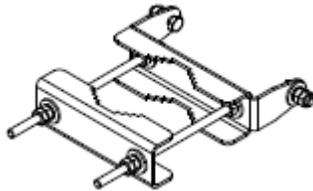
<b>Weight</b>	9.8 lbs (4.4 kg)
<b>Hinge Pitch</b>	13 in (330 mm)
<b>Mounting Pole Dimension</b>	2 to 5 in (5 to 12 cm)
<b>Fastener Size</b>	M10
<b>Installation Torque</b>	15 ft-lbs (20 N·m)
<b>Mechanical Tilt Adjustment</b>	0° - 12°



MBK-03 Top Adjustable Bracket



MBK-03 Top Adjustable Bracket Side View



MBK-03 Bottom Fixed Bracket



# Antennas

## STANDARDS & CERTIFICATIONS

### Three-Beam Special Events Antenna

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#### 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

