



# Antennas

DATA SHEET

## Wideband Six Beam Antenna

MBA6F-W3A



- Three foot (0.7 m) tall, single band, twelve port multibeam array. Containing Six Independent Asymmetrical Shaped Beams covering 1695-2180 MHz frequencies
- Twelve wide high band Dual-Pol +45°/-45° ports covering 1695-2180 MHz in a single antenna
- Full Spectrum Compliance for AWS3 Frequencies
- LTE Optimized Asymmetric Shaped Beams for improved LTE data throughput by minimizing beam crossover, providing for an efficient use of valuable radio capacity and frequency spectrum
- LTE Optimized FBR, USLS and Co-Pol Beam Isolation Performance. Essential for today's LTE Data Driven Networks
- Ordering options for 7/16 DIN connector or 4.3-10 connector, which is 40% smaller than traditional 7/16 DIN connector
- Exceeds minimum PIM performance requirements

### Overview

The CCI Six-Beam Special Events Antenna is an LTE ready multi-beam antenna that supports multiple sectors (6) from a single antenna. This Six-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. This Six-beam antenna has one row of six dual +45° and -45° cross-polarized beam pairs, each roughly 15 degrees apart that are used to segment large audiences into multiple sectors. The antenna enables maximum spectrum re-use by sectorization, greatly increasing 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 ratio (CINR) and lowering soft handover losses in LTE networks. Such an approach enhances data transfer rates within LTE network sectors and addresses "hotspots" in mobile wireless operator networks.

The single panel design of the CCI Six-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
- Antenna intended for use at sporting and entertainment venues



# Antennas

## SPECIFICATIONS

### Wideband Six Beam Antenna

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#### Electrical

	Ports		
	12 x High Band Ports which cover the full range from 1695-2180 MHz		
Frequency Range	1850-1990 MHz	1695-1780/2110-2180 MHz	
Gain (Peak)	20.8 dBi	21.5 dBi	22.0 dBi
Azimuth Beamwidth (-3dB)	6 x 10.1°	6 x 11.5°	6 x 8.7°
Azimuth Beam Crossover	10.0 dB	10.5 dB	10.5 dB
Elevation Beamwidth (-3dB)	13.0°	14.9°	11.7°
Electrical Downtilt	6°	6°	6°
Elevation Sidelobes (1st Upper) (Typ.)	< -19 dB	< -21 dB	< -24 dB
Front-to-Back Ratio @180° (Tpy.)	> 40 dB	> 38 dB	> 40 dB
Cross-Polar Port-to-Port Isolation	> 30 dB	> 30 dB	> 30 dB
Co-Polar Isolation <sup>1</sup> (Adjacent Beams)	> 20 dB <sup>2</sup>	> 19 dB	> 25 dB
Co-Polar Isolation (Non-Adjacent Beams)	> 12.5 dB	> 12.5 dB	> 12.5 dB
Voltage Standing Wave Ratio(VSWR)	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	200 watts	200 watts	200 watts
Polarization	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°
Input Impedance	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground

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

<sup>2</sup> 20 dB for 1930-1990 MHz, 18 dB elsewhere.

BASTA Electrical Specifications*			
	1850-1990 MHz	1695-1780/2110-2180 MHz	
Frequency Range	1850-1990 MHz	1695-1780/2110-2180 MHz	
Gain (dBi)	20.2	21.0	21.2
Gain Tolerance (dB)	0.8	1.1	0.3
Azimuth Beamwidth Tolerance (°)	2.0	2.7	1.4
Elevation Beamwidth Tolerance (°)	0.5	0.8	0.6
Electrical Downtilt Deviation (°)	0.6	1.1	1.2
Front-to-Back Ratio over ± 20° (dB)	33.3	31.8	32.5
First Upper Sidelobe Suppression (dB)	-16.4	-17.6	-17.8
Upper Sidelobe Suppression peak to 20°(dB)	-16.7	-18.6	-21.3

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



# Antennas

## Wideband Six Beam Antenna

MBA6F-W3A

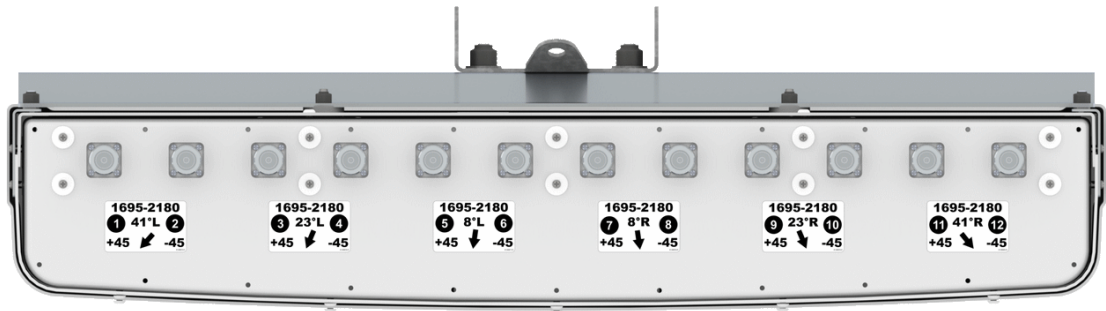
### SPECIFICATIONS

#### Mechanical

<b>Dimensions (LxWxD)</b>	27.9x41.7x7.5 in (708x1058x191 mm)
<b>Survival Wind Speed</b>	> 150 mph (> 241 kph)
<b>Front Wind Load<sup>1</sup></b>	214 lbf @ 100 mph    953 N @ 161 kph
<b>Side Wind Load<sup>1</sup></b>	13 lbf @ 100 mph    60 N @ 161 kph
<b>Effective Projective Area (EPA), Front<sup>1</sup></b>	8.6 ft <sup>2</sup> (0.8 m <sup>2</sup> )
<b>Weight *</b>	58.6 lbs (26.6 kg)
<b>Package Dimensions (LxWxD)</b>	35.1x51.5x15.0 in (891x1307x380 mm)
<b>Package Weight</b>	93.0 lbs (42.2 kg)
<b>RF Connector</b>	12 x 7-16 DIN female long neck or 12 x 4.3-10 female
<b>Mounting Pole</b>	2 to 5 in (5 to 12 cm)

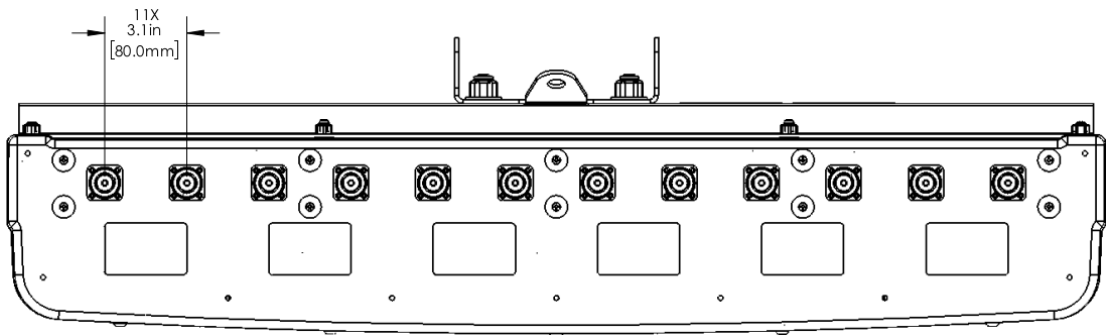
<sup>1</sup>Windload values calculated using CFD analysis  
 \* Weight excludes mounting kit

Bottom View



#### Mechanical

Connector Spacing





# Antennas

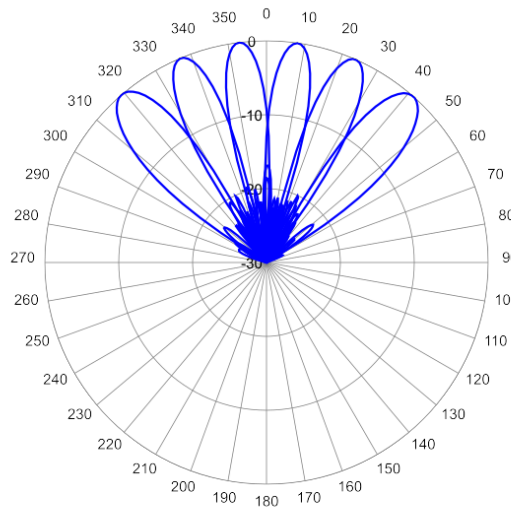
## SPECIFICATIONS

### Wideband Six Beam Antenna

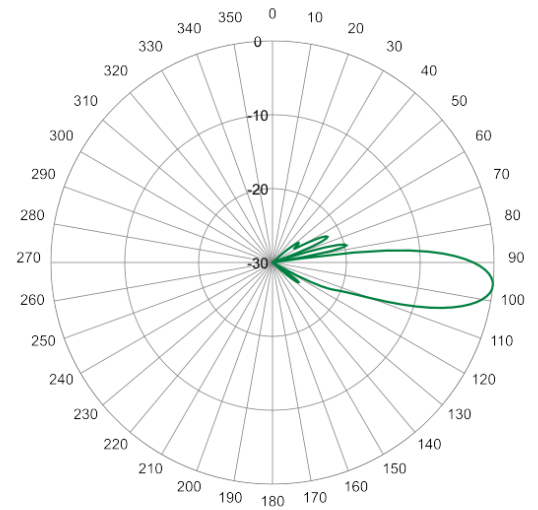
MBA6F-W3A

Typical Antenna Patterns

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



1930 MHz Azimuth



1930 MHz Elevation 6°



# Antennas

ORDERING

## Wideband Six Beam Antenna

MBA6F-W3A

### Parts & Accessories

<b>MBA6F-W3AA-K</b>	Five foot (0.7 m) Special Events Six-Beam Antenna with Fixed Electrical Tilt, 7-16 DIN female connectors and MBK-03 mounting bracket
<b>MBA6F-W3AB-K</b>	Five foot (0.7 m) Special Events Six-Beam Antenna with Fixed Electrical Tilt, 4.3-10 female connectors and MBK-03 mounting bracket
<b>MBK-03</b>	Mounting bracket kit (top and bottom) with 0° to 12° mechanical tilt adjustment



# Antennas

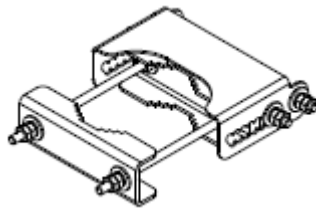
ACCESSORIES

## Mounting Bracket Kit

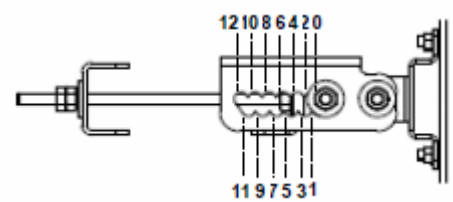
MBK-03

### Mechanical

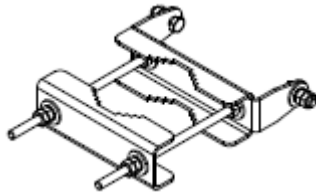
<b>Weight</b>	9.8 lbs (4.4 kg)
<b>Hinge Pitch</b>	13 in (330 mm)
<b>Mounting Pole Dimension</b>	2 to 5 in (5 to 12 cm)
<b>Fastener Size</b>	M10
<b>Installation Torque</b>	15 ft-lbs (20 N·m)
<b>Mechanical Tilt Adjustment</b>	0° - 12°



MBK-03 Top Adjustable Bracket



MBK-03 Top Adjustable Bracket Side View



MBK-03 Bottom Fixed Bracket



# Antennas

## STANDARDS & CERTIFICATIONS

### Wideband Six Beam 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, CE, CSA US, ISO 9001



# CCI

## Communication Components Inc.

EXTENDING WIRELESS PERFORMANCE