

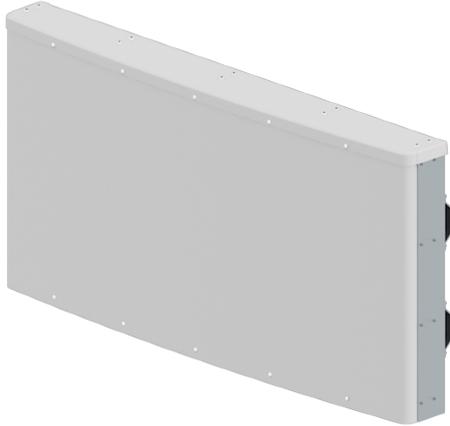


# Antennas

DATA SHEET

## Nine-Beam Special Events Antenna

MBA9-6F-W-H3



- Each of nine dual beams optimised for maximum throughput over an impressive range of frequency bands (1695-2180 MHz)
- Three-foot (0.8m), single-panel design supports nine beams - without mount changes
- Each beam is dual +45°/-45° polarized
- Separate beams support 9 sub-sectors
- Rugged, weather resistant, highly reliable design
- Ultra wideband applications: PCS 1900 MHz and AWS 1695/2180 MHz
- Enables efficient evolution of wireless networks
- Increases site capacity through higher 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
- Equipped with 4.3-10 connectors

### Overview

The CCI Nine-Beam Special Events Antenna is an LTE ready multi-beam antenna that supports multiple sectors (9) from a single antenna. This Nine-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 antenna provides capability for PCS 1900 MHz and AWS 1695/2180 MHz coverage in a compact, 3 ft (0.8m) high single enclosure. This nine beam antenna has one row of nine dual +45° and -45° cross-polarized beam pairs, each roughly 10 degrees apart that are used to segment large audiences into multiple sectors. The antenna enables maximum spectrum re-use by sectorization, providing greatly increased 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 Nine-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

### Nine-Beam Special Events Antenna

MBA9-6F-W-H3

#### Electrical

Ports	18 x High-Band Ports for 1695-2180 MHz		
	1850-1990 MHz	1695-1780/2110-2180 MHz	
Frequency Range	1850-1990 MHz	1695-1780/2110-2180 MHz	
Gain	24.0 dBi	23.0 dBi	24.7 dBi
Azimuth Beamwidth (-3dB)	9 x 6.0°	9 x 6.8°	9 x 5.2°
Azimuth Beam Crossover	-10 dB	-10 dB	-10 dB
Elevation Beamwidth (-3dB)	11.2°	12.5°	10.4°
Electrical Downtilt	6°	6°	6°
Elevation Sidelobes (1st Upper)	< -20 dB	< -17 dB	< -17 dB
Front-to-Back Ratio @180°	> 40 dB	> 40 dB	> 40 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 25 dB
Co-Polar Isolation <sup>1</sup> (Adjacent Beams)	20 dB	24 dB	24 dB
Co-Polar Isolation (Non-Adjacent Beams)	> 13 dB	> 13 dB	> 13 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.

BASTA Electrical Specifications*			
Frequency Range	1850-1990 MHz	1695-1780/2110-2180 MHz	
	Gain (dBi)	24.0	23.0
Gain Tolerance (dB)	0.9	0.8	0.3
Azimuth Beamwidth Tolerance (°)	1.0	1.4	0.6
Elevation Beamwidth Tolerance (°)	0.6	0.2	0.3
Electrical Downtilt Deviation (°)	0.3	0.6	0.3
Front-to-Back Ratio over ± 20° (dB)	34.0	33.8	34.7
First Upper Sidelobe Suppression (dB)	18.2	15.7	26.8
Upper Sidelobe Suppression peak to 20°(dB)	19.4	23.3	18.6

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



# Antennas

## SPECIFICATIONS

### Nine-Beam Special Events Antenna

MBA9-6F-W-H3

#### Mechanical

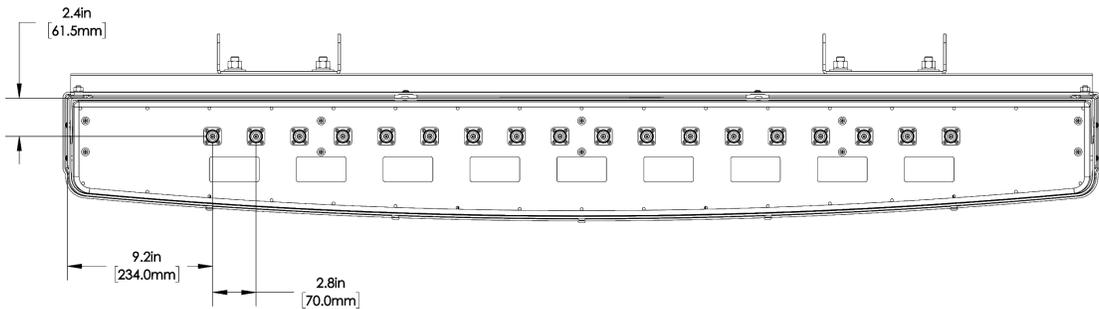
<b>Dimensions (LxWxD)</b>	33.1x65.3x7.8 in (840x1658x197 mm)
<b>Survival Wind Speed</b>	> 150 mph (> 241 kph)
<b>Front Wind Load<sup>1</sup></b>	442 lbf @ 100 mph 1967 N @ 161 kph
<b>Side Wind Load<sup>1</sup></b>	23 lbf @ 100 mph 104 N @ 161 kph
<b>Effective Projective Area (EPA), Front<sup>1</sup></b>	17.2 ft <sup>2</sup> (1.6 m <sup>2</sup> )
<b>Weight *</b>	99.2 lbs (45.0 kg)
<b>RF Connector</b>	18 x 4.3-10 female
<b>Mounting Pole</b>	2x 2 to 5 in (5 to 12 cm)
<b>Mounting Pole Spacing</b>	38.4 in (976 mm) Center to Center

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

Bottom View



Connector Spacing





# Antennas

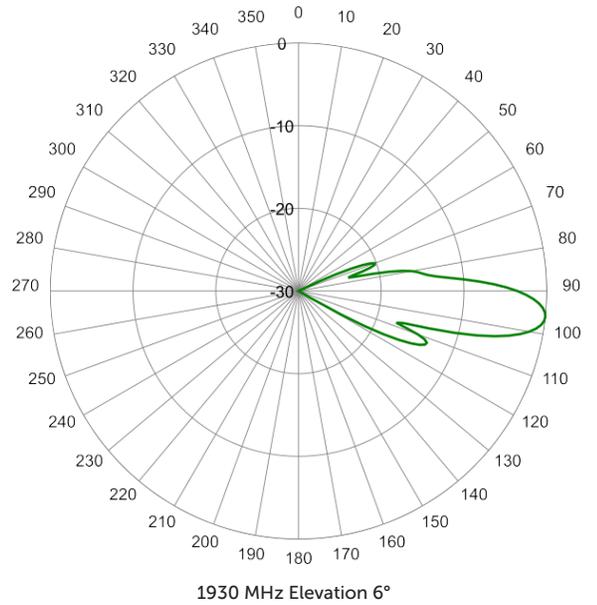
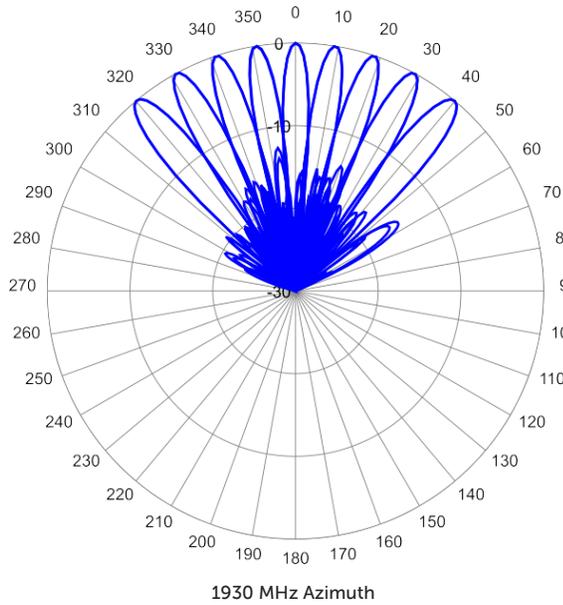
## SPECIFICATIONS

### Nine-Beam Special Events Antenna

MBA9-6F-W-H3

#### Typical Antenna Patterns

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





# Antennas

ORDERING

Nine-Beam Special Events Antenna

MBA9-6F-W-H3

Parts & Accessories

---

**MBA9-6F-W-H3-K** 3 foot (0.8 m) antenna, Nine-Beam Special Events Ultra-Wideband with 4.3-10 female connectors and two MBK-03 mounting brackets

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

---



# Antennas

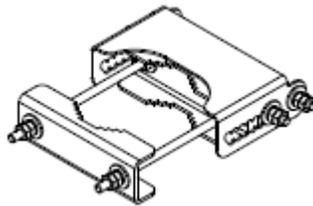
ACCESSORIES

## Mounting Bracket Kit

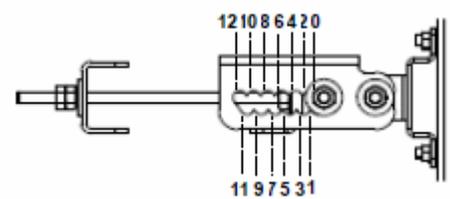
MBK-03

### Mechanical

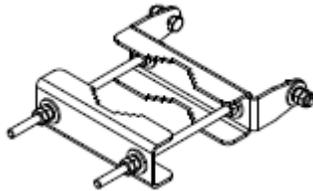
<b>Weight</b>	9.8 lbs (4.4 kg)
<b>Hinge Pitch</b>	13 in (330 mm)
<b>Mounting Pole Dimension</b>	2 to 5 in (5 to 12 cm)
<b>Fastener Size</b>	M10
<b>Installation Torque</b>	15 ft-lbs (20 N·m)
<b>Mechanical Tilt Adjustment</b>	0° - 12°



MBK-03 Top Adjustable Bracket



MBK-03 Top Adjustable Bracket Side View



MBK-03 Bottom Fixed Bracket



# Antennas

## STANDARDS & CERTIFICATIONS

### Nine-Beam Special Events Antenna

MBA9-6F-W-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, CE, CSA US, ISO 9001



# CCI

## Communication Components Inc.

EXTENDING WIRELESS PERFORMANCE