



Antennas

DATA SHEET

Six Beam Special Events Antenna

MBA6-9F-W-H3



- Each of six dual beams optimised for maximum throughput over an impressive range of frequency bands (1695-2180 MHz)
- 3 ft (0.8 m) tall, single panel design supporting six beams without mount changes
- Dual +45° and -45° cross-polarization for each beam pair
- Separate beams support 6 sub-sectors
- Rugged, weather resistant and highly reliable internal design
- Enables efficient evolution of wireless networks
- Increase 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

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, 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 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 9001:2008 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



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SPECIFICATIONS

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	21.8 dBi	20.9 dBi	22.4 dBi
Azimuth Beamwidth (-3dB)	6 x 10.5°	6 x 10.9°	6 x 8.3°
Azimuth Beam Crossover	10.5 dB	10.5 dB	10.5 dB
Elevation Beamwidth (-3dB)	13.0°	14.8°	11.7°
Electrical Downtilt	6°	6°	6°
Elevation Sidelobes (1st Upper) (Typ.)	< -20 dB	< -22 dB	< -19 dB
Front-to-Back Ratio @180° (Typ.)	> 40 dB	> 40 dB	> 40 dB
Cross-Polar Port-to-Port Isolation	> 30 dB	> 30 dB	> 30 dB
Co-Polar Isolation ¹ (Adjacent Beams)	20 dB ²	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

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

²20 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)	21.8	20.9	22.4
Gain Tolerance (dB)	0.8	1.0	0.6
Azimuth Beamwidth Tolerance (°)	1.7	2.4	1.2
Elevation Beamwidth Tolerance (°)	0.4	0.6	0.6
Electrical Downtilt Deviation (°)	0.4	0.4	0.5
Front-to-Back Ratio over ± 20° (dB)	34.9	33.3	33.7
First Upper Sidelobe Suppression (dB)	17.0	19.4	17.7
Upper Sidelobe Suppression peak to 20°(dB)	17.2	18.3	20.6

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

All specifications are subject to change without notice.

Mechanical

Dimensions (LxWxD)	30.5x45.9x6.6 in (775x1165x168 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	299 lbs (1328 N) @ 100 mph (161 kph)
Side Wind Load	46 lbs (206 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	11.7 ft ² (1.1 m ²)
Weight *	69.9 lbs (31.7 kg)
Connector	12 x 7-16 DIN female long neck
Mounting Pole	2 x 2 to 5 in (5 to 12 cm)
Mounting Pole spacing	31.5 in (800 mm) Center to Center

* Weight excludes mounting



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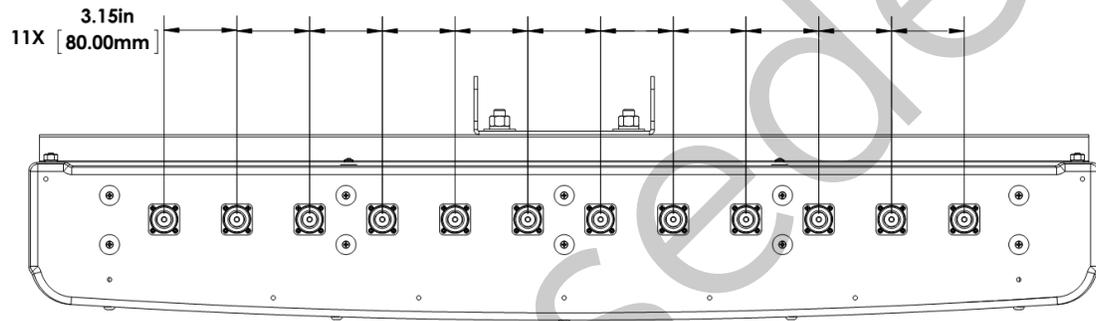
SPECIFICATIONS

Bottom View



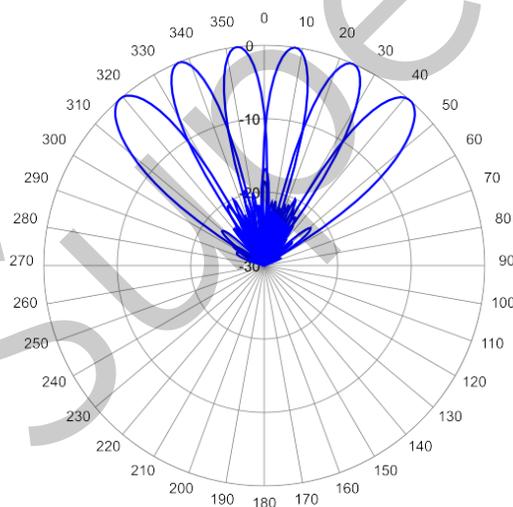
Mechanical

Connector Spacing

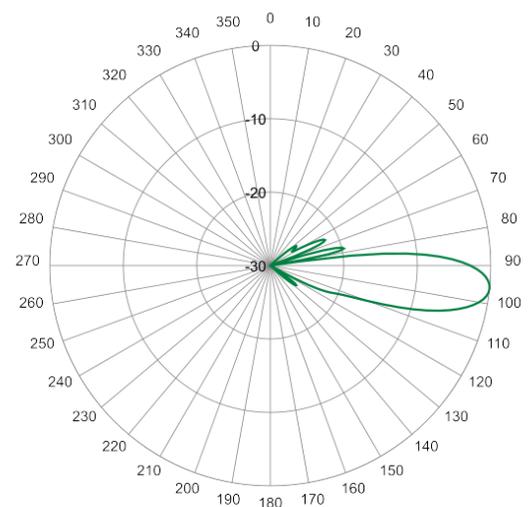


Typical Antenna Patterns

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



1930 MHz Azimuth



1930 MHz Elevation 6°



Antennas

ORDERING

Six Beam Special Events Antenna

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Parts & Accessories

MBA6-9F-W-H3	3 foot (0.8 m) Special Events Six-Beam Antenna with Fixed Electrical Tilt
MBA6-9F-W-H3-K	Antenna and 2X MBK-03 mounting bracket
MBK-03(x2)	Mounting bracket kit (top and bottom) with 0° to 12° mechanical tilt adjustment

Superseded



Antennas

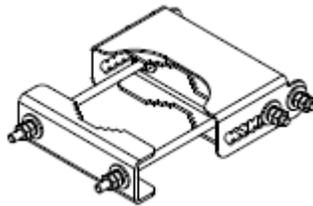
ACCESSORIES

Mounting Bracket Kit

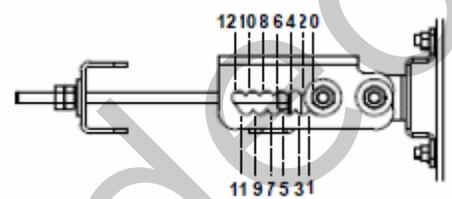
MBK-03

Mechanical

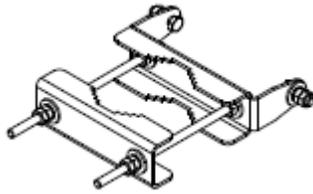
Weight	9.8 lbs (4.4 kg)
Hinge Pitch	13 in (330 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M10
Installation Torque	20 ft-lbs (27 Nm)
Mechanical Tilt Adjustment	0° - 12°



MBK-03 Top Adjustable Bracket



MBK-03 Top Adjustable Bracket Side View



MBK-03 Bottom Fixed Bracket



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STANDARDS & CERTIFICATIONS

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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 9001:2008



Superseded



CCI Communication Components Inc.
EXTENDING WIRELESS PERFORMANCE