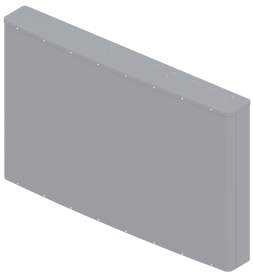
DATA SHEET

Nine Beam Special Events Antenna

MBMD9F-BW4A



- Dual Band Multibeam Antenna, with six (6) Independent 4x4 MIMO Mid-Band (MB) Beams (or twelve (12) 2x2 MIMO MB beams) and three (3) independent 2X2 Low-Band Beams for high capacity, large venue or special event deployments
- CCI's Innovative Array Compensated Butler Matrices, allows for Near Zero dispersion in both Az/El Peak and Az/El BW across the mid band spectrum (1695-2200 MHz)
- CCI's Innovative Array Compensated Butler Matrices provide stabilized Beam Crossover, across both the LB (698-896MHz) and the MB (1695-2200 MHz)
- Coupled with Near Zero Az Peak/BW Dispersion and stable Beam Crossover in the mid band, this solution is ideal for Carrier Aggregation (CA), providing for excellent traffic loading decisions over traditional Blass Matrices and large Luneburg lens based multibeam products
- CCI's Innovative Array Compensated Butler Matrices solution provides superior Az SLL Suppression (improved CINR), which greatly enhances Data Throughput speeds over traditional Blass Matrices and large Luneburg lens based multibeam products
- Six Low Band Dual-Pol +45°/-45°ports covering 698-896 MHz in a single antenna
- Twenty-four Mid Band Dual-Pol +45°/-45°ports (Two or Four ports per Beam) covering 1695-2200 MHz in a single antenna
- Full Spectrum Compliance for 698-896 MHz and 1695-2200 MHz Frequencies
- Exceeds minimum PIM performance requirements

Overview

This CCI Dual Band low dispersion Multibeam Antenna contains six Independent Mid Band LTE Optimized Beams with 4x4 MIMO capability or twelve Independent LTE Optimized Beams with 2x2 MIMO capability covering 1695-2200 MHz and three independent Low Band LTE Optimized Beams with 2x2 MIMO capability. This dual Band low dispersion Multibeam Antenna is intended for use at data hotspots and other congested locals, where social media and the ability to share photos and videos and other high demand applications require high capacity and high data rates.

This Dual Band low dispersion Multibeam Antenna enables maximum spectrum re-use by sectorization, greatly increasing network capacity. With deployment of the mid band low dispersion 4x4 MIMO (on any of the mid band beams available), capacity and data throughput is greatly enhanced, over a conventional 2x2 MIMO beam deployment. Our LTE Optimized Beam Design approach 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 Dual Band low dispersion Multibeam 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.

SPECIFICATIONS

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Applications

- Upgrade of data-throughput and capacity, through the use of our low dispersion technology and 4x4 MIMO deployment
- Antenna intended for use where data throughput and capacity needs are paramount
- Ready for Network Standardization on 4.3-10 connectors

SPECIFICATIONS

Nine Beam Special Events Antenna

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Electrical

Ports	6 x Low Band Ports for 698-896 MHz	
Frequency Range	698-806 MHz	824-896 MHz
Gain (Peak)	17.1 dBi	17.3 dBi
Gain (Average)*	16.0 dBi	16.7 dBi
Azimuth Beamwidth (-3dB)	22.5°	19.3°
Azimuth Beam Crossover	8.0 dB	8.0 dB
Elevation Beamwidth (-3dB)	27.0°	23.1°
Electrical Downtilt	6°	6°
Azimuth Side Lobe Suppression	< -18 dB	< -17 dB
Elevation Side Lobe Suppression (SLL) (1st Upper)	< -22 dB	< -17 dB
Front-to-Back Ratio @180°	> 40 dB	> 40 dB
Cross-Polar Discrimination at Peak	> 20 dB	> 20 dB
Cross-Polar Port-to-Port Isolation	> 20 dB	> 20 dB
Interbeam Co-Pol Isolation (Adjacent Beams)	> 18 dB	> 18 dB
Interbeam Co-Pol Isolation (Non-Adjacent Beams) (Worse Case)	> 14 dB	> 14 dB
Voltage Standing Wave Ratio (VSWR)	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	300 watts	300 watts
Polarization	Dual Pol 45°	Dual Pol 45°
Input Impedance	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground

** Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V11.1.*
All specifications are subject to change without notice.

Dispersion Related Electrical Specifications (Average)		
Frequency Range	698-806 MHz	824-896 MHz
Gain over all Tilts Tolerance	0.6 dBi	0.5 dBi
Azimuth Beamwidth Tolerance at 3 dB	1.5°	1.0°
Elevation Beamwidth Tolerance at 3 dB	2.3°	1.1°
Azimuth Beam Peak Tolerance	1.7°	0.5°
Azimuth Beam Crossover Tolerance average across all beams	0.8 dB	0.4 dB
Front-to-Back Ratio, Total Power, @±20°	30.3 dB	30.1 dB

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Electrical

Ports	24 x Mid Band Ports for 1695-2200 MHz		
Frequency Range	1695-1780 MHz	1850-1995 MHz	2110-2200 MHz
Gain (Peak)	19.8 dBi	18.7 dBi	18.7 dBi
Gain (Average)*	18.8 dBi	18.0 dBi	17.9 dBi
Azimuth Beamwidth (-3dB)	11.7°	11.6°	11.5°
Azimuth Beam Crossover	8.0 dB	8.0 dB	8.0 dB
Elevation Beamwidth (-3dB)	21.2°	19.6°	19.9°
Electrical Downtilt	6°	6°	6°
Azimuth Side Lobe Suppression	< -18 dB	< -18 dB	< -17 dB
Elevation Side Lobe Suppression (SLL) (1st Upper)	< -25 dB	< -19 dB	< -19 dB
Front-to-Back Ratio @180°	> 40 dB	> 37 dB	> 37 dB
Cross-Polar Discrimination at Peak	> 21 dB	> 21 dB	> 20 dB
Cross-Polar Port-to-Port Isolation	> 20 dB	> 30 dB	> 28 dB
Interbeam Co-Pol Isolation (Adjacent Beams)	> 18 dB	> 20 dB	> 20 dB
Interbeam Co-Pol Isolation (Non-Adjacent Beams) (Worse Case)	> 13 dB	> 14 dB	> 11 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

** Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V11.1.*
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Dispersion Related Electrical Specifications			
Frequency Range	1695-1780 MHz	1850-1995 MHz	2110-2200 MHz
Gain over all Tilts Tolerance	0.4 dBi	0.4 dBi	0.3 dBi
Azimuth Beamwidth Tolerance at 3 dB	0.4°	0.6°	0.5°
Elevation Beamwidth Tolerance at 3 dB	0.5°	0.8°	0.4°
Azimuth Beam Peak Tolerance	0.7°	1.0°	0.7°
Azimuth Beam Crossover Tolerance average across all beams	0.3 dB	0.4 dB	0.6 dB
Front-to-Back Ratio, Total Power, @±20°	31.1 dB	26.9 dB	26.3 dB

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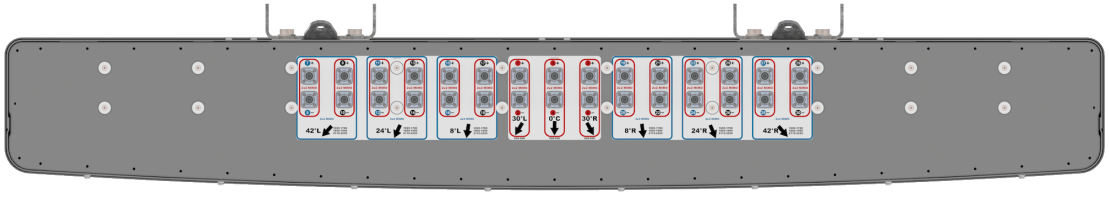
Mechanical

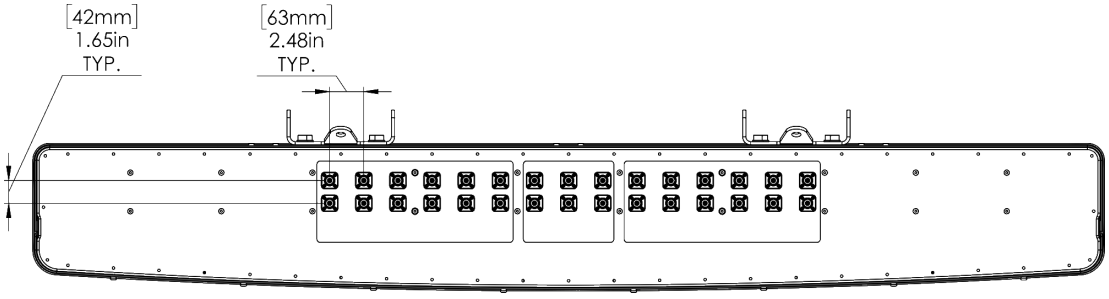
Dimensions (L×W×D)	48.3x77.6x10.4 in (1226x1970x265 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load[1]	780 lbf @ 100 mph 3471 N @ 161 kph
Side Wind Load[1]	15 lbf @ 100 mph 68 N @ 161 kph
Effective Projective Area (EPA), Front[1]	31 ft² (3.0 m²)
Weight *	176.4 lbs (80.0 kg)
Connector	30 x 4.3-10 female
Mounting Pole	2x 2 to 5 in (5 to 12 cm)
Mounting Pole Spacing	33.1 in (841 mm)

[1]Windload values calculated using CFD analysis
** Weight excludes mounting*

Bottom View

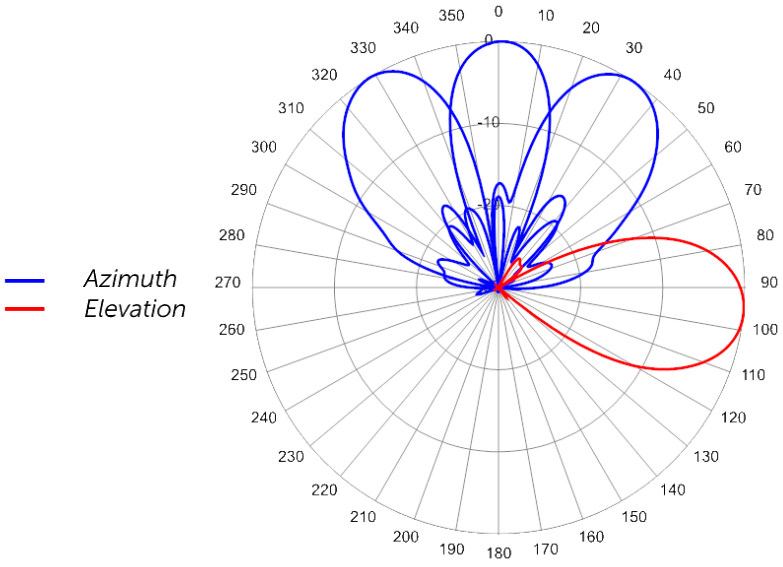


Connector Spacing

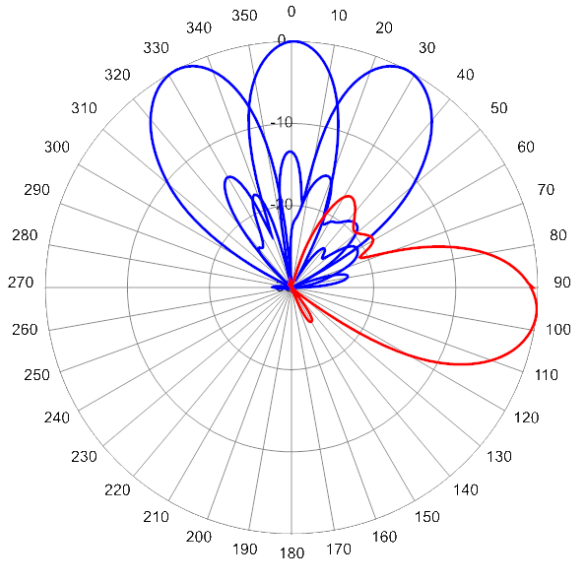


Typical Antenna Patterns

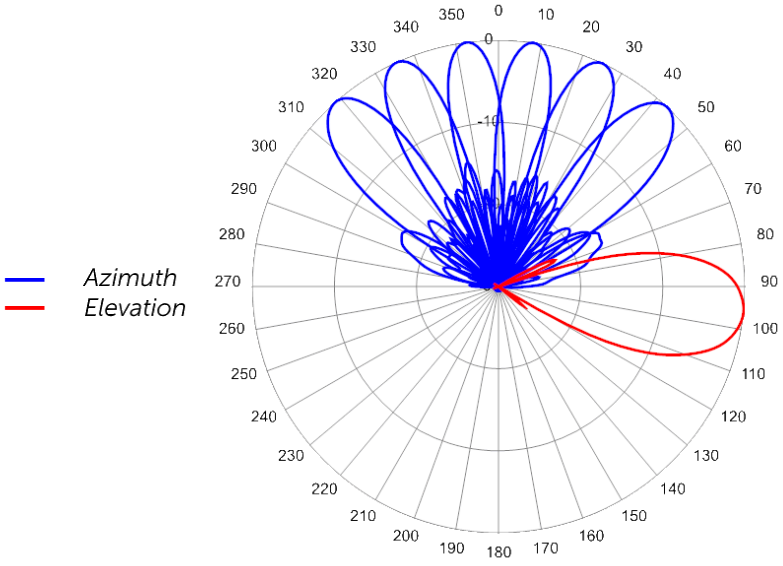
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



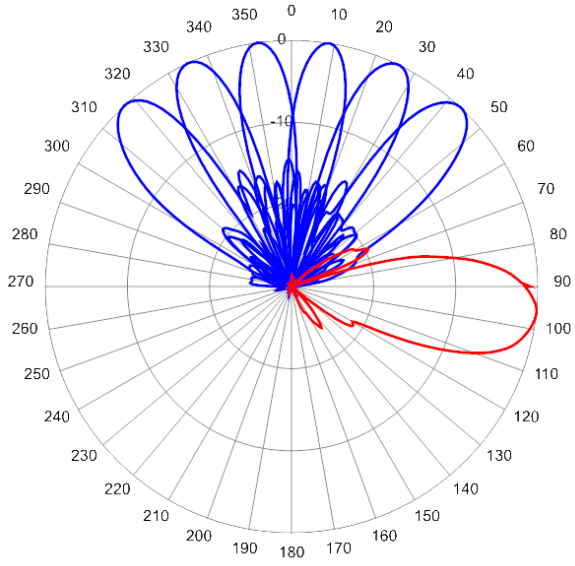
740 MHz Azimuth with Elevation 6°



840 MHz Azimuth with Elevation 6°



1710 MHz Azimuth with Elevation 6°



1880 MHz Azimuth with Elevation 6°

SPECIFICATIONS

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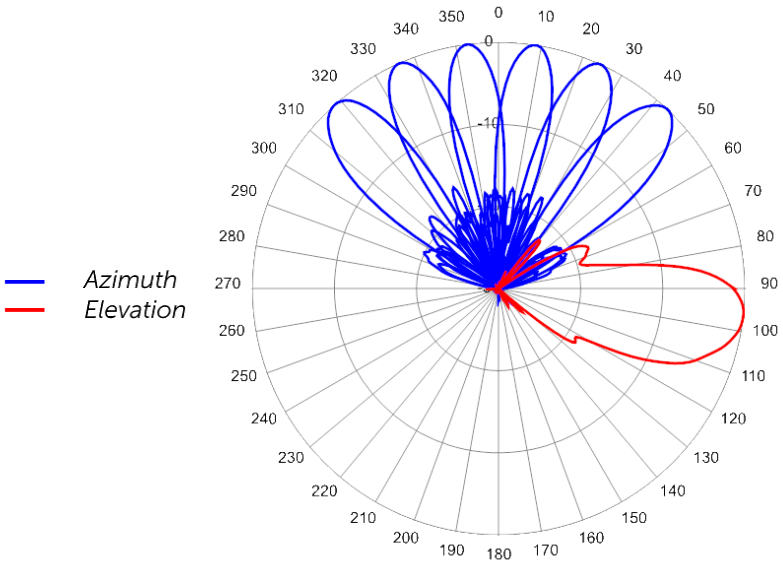
MBMD9F-BW4A

Typical Antenna



2155 MHz Azimuth with Elevation 6°

ORDERING

Nine Beam Special Events Antenna

MBMD9F-BW4A

Parts & Accessories

MBMD9F-BW4AA-K	4 foot (1.2 m) Special Events Mid Band 9-Beam Antenna with fixed electrical tilt, 4.3-10 connectors and 2x MBK-02 mounting bracket.
MBK-02(x2)	Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment

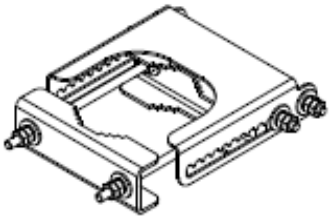
ACCESSORIES

Mounting Bracket Kit

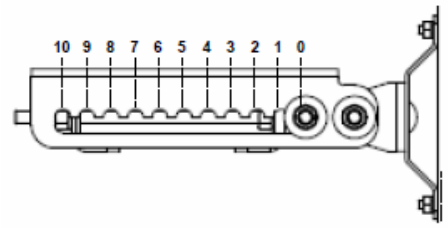
MBK-02

Mechanical

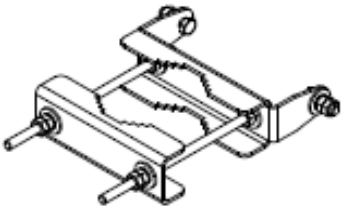
Weight	9.8 lbs (4.4 kg)
Hinge Pitch	31.5 in (800 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M10
Installation Torque	15 ft·lbs (20 N·m)
Mechanical Tilt Adjustment	0° - 10°



MBK-02 Top Adjustable Bracket



MBK-02 Top Adjustable Bracket Side View



MBK-02 Bottom Fixed Bracket

STANDARDS & CERTIFICATIONS

Nine Beam Special Events Antenna

MBMD9F-BW4A

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 60068-2-27:2008, 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