



Antennas

Nine Beam 4 x 4 MIMO Special Events Antenna

MBM9F-E3C

DATA SHEET



- Three foot (1.0 m) tall, single band, thirty-six port Multifunction Multibeam array. Containing Nine Independent LTE Optimized Beams with 4x4 MIMO capability or Eighteen Independent LTE Optimized Beams with 2x2 MIMO capability covering 1695-2690 MHz frequencies, an Industry First
- Thirty-six High Band Dual-Pol +45°/-45°ports (Two or Four ports per Beam) covering 1695-2690 MHz in a single antenna
- Full Spectrum Compliance for 1695-2690 MHz Frequencies
- Unique Antenna Configuration provides the end user with complete flexibility with both the MIMO Configuration and High Band Frequency Configuration of each beam, an Industry First
- Deployment of a 4x4 MIMO LTE Optimized Beam allows for greater capacity and data throughput over a conventional 2x2 MIMO LTE Optimized Beam deployment. Essential for today's LTE Data Driven Networks
- LTE Optimized Beams for improved LTE data throughput by minimizing beam crossover, providing for an efficient use of valuable radio capacity and frequency spectrum. Essential for today's LTE Data Driven Networks
- LTE Optimized FBR, USLS and Co-Pol Beam Isolation Performance. Essential for today's LTE Data Driven Networks
- Exceeds minimum PIM performance requirements

Overview

This CCI Multifunction Multibeam Antenna contains Nine Independent LTE Optimized Beams with 4x4 MIMO capability or Eighteen Independent LTE Optimized Beams with 2x2 MIMO capability. This Multifunction 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 Multifunction Multibeam Antenna enables maximum spectrum re-use by sectorization, greatly increasing network capacity. With deployment of 4x4 MIMO (on any of the 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 Multifunction 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.

Applications

- Upgrade of data-throughput and capacity, through the use of 4x4 MIMO deployment
- Antenna intended for use where data throughput and capacity needs are paramount



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Specifications

Nine Beam 4 x 4 MIMO Special Events Antenna

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Electrical

Ports	36 x High Band Ports for 1695-2690 MHz				
Frequency Range	1695-1880 MHz	1850-1995 MHz	1920-2180 MHz	2300-2400 MHz	2496-2690 MHz
Gain (Peak)	21.8 dBi	22.5 dBi	22.8 dBi	23.5 dBi	24.2 dBi
Gain (Average)*	20.0 dBi	21.3 dBi	21.6 dBi	22.5 dBi	23.4 dBi
Azimuth Beamwidth (-3dB)	8.1°	7.1°	6.7°	5.6°	5.0°
Azimuth Beam Crossover	9.8 dB	10.1 dB	10.0 dB	10.5 dB	9.9 dB
Elevation Beamwidth (-3dB)	18.1°	16.5°	15.7°	15.1°	11.9°
Electrical Downtilt	6°	6°	6°	6°	6°
Elevation Sidelobes (1st Upper) (Typ.)	< -20 dB	< -17 dB	< -17 dB	< -22 dB	< -16 dB
Front-to-Back Ratio @180° (Typ.)	> 40 dB	> 40 dB	> 40 dB	> 40 dB	> 40 dB
Cross-Polar Discrimination (at Peak)	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 22 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Interbeam Co-Pol Isolation (Adjacent Beams) (Worse Case)	> 15 dB	> 15 dB	> 15 dB	> 15 dB	> 15 dB
Interbeam Co-Pol isolation (Non-Adjacent Beams) (Worse Case)	> 10 dB	> 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	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -150 dBc
Input Power Continuous Wave (CW)	200 watts	200 watts	200 watts	200 watts	200 watts
Polarization	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°
Input Impedance	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground

BASTA Electrical Specifications					
Frequency Range	1695-1880 MHz	1850-1995 MHz	1920-2180 MHz	2300-2400 MHz	2496-2690 MHz
Gain over all Tilts (dBi)	20.0	21.3	21.7	22.5	23.4
Gain over all Tilts Tolerance (dB)	1.6	1.0	1.0	0.6	0.6
Azimuth Beam Peak Tolerance (°)	1.8	1.0	1.5	0.5	0.7
Azimuth Beamwidth Tolerance (°)	2.2	1.5	1.5	0.8	0.6
Elevation Beamwidth Tolerance (°)	1.0	1.5	0.8	0.9	0.9
First Upper Sidelobes Suppression (dB)	16.6	12.7	11.5	16.8	13.6
Upper Sidelobe Suppression Peak to 20°(dB)	NA	NA	NA	NA	13.4
Front-to-Back Ratio over ±20° (dB)	31.9	33.2	33.1	32.5	31.0
Cross-Polar Discrimination at 3dB (dB)	17.8	21.5	18.8	17.2	19.0

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



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Nine Beam 4 x 4 MIMO Special Events Antenna SPECIFICATIONS

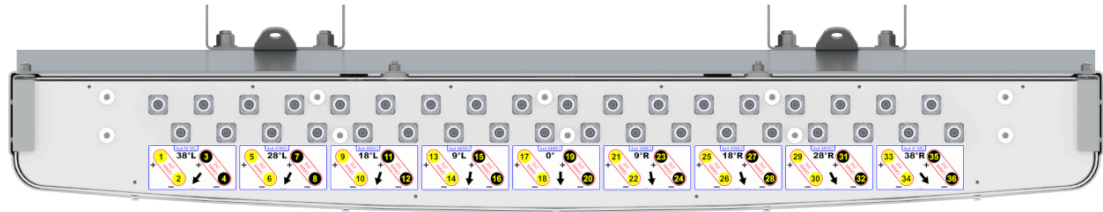
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Mechanical

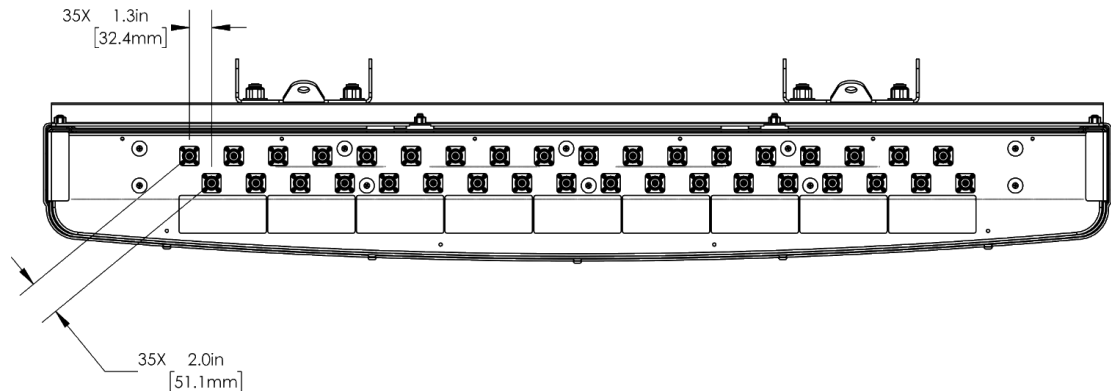
Dimensions (LxWxD)	40.0x60.9x7.5 in (1017x1548x191 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	521 lbs (2316 N) @ 100 mph (161 kph)
Side Wind Load	71 lbs (316 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	20.3 ft ² (1.9 m ²)
Weight *	119.8 lbs (54.3 kg)
Package Dimensions (LxWxD)	49.1x71.5x15.1 in (1246x1816x384 mm)
Package Weight~	197.3 lbs (89.5 kg)
Connector	36x 4.3-10 female
Mounting Pole	2x 2 to 5 in (5 to 12 cm)
Mounting Pole Spacing	31.5 in (800 mm)

* Weight excludes mounting

Bottom View

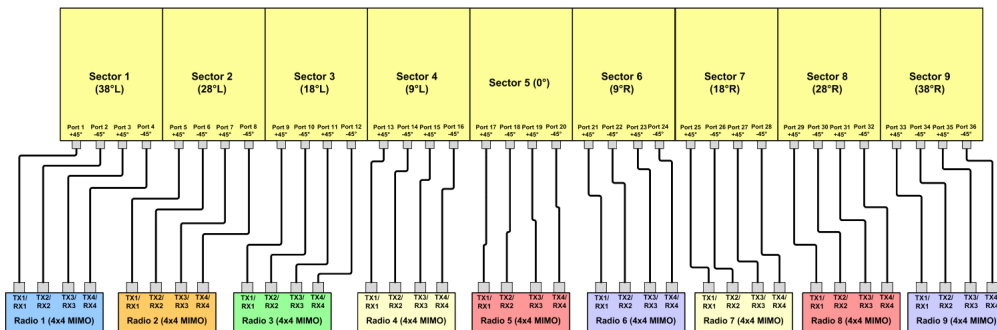


Connector Spacing



Radio Connects Options

CCI Nine Sector MBM Series (4x4 MIMO Capable) Antenna



MBM Series "E Band" Multisector Antenna (4x4 Connection)



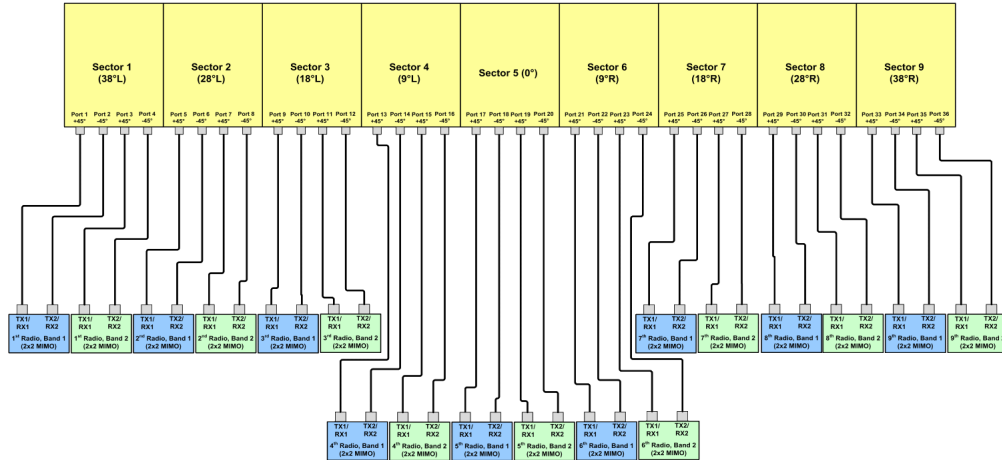
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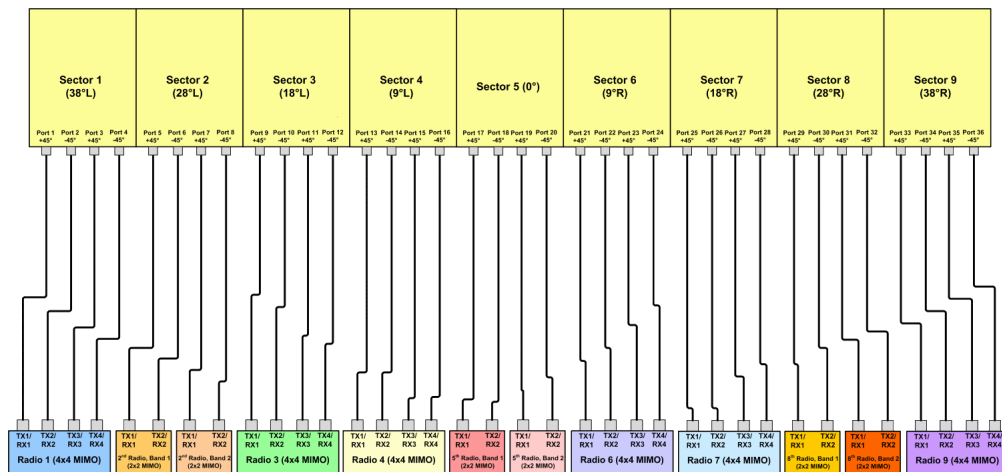
Mechanical

CCI Nine Sector MBM Series (4x4 MIMO Capable) Antenna



MBM Series "E Band" Multisector Antenna (2x2_Two Band Connection)

CCI Nine Sector MBM Series (4x4 MIMO Capable) Antenna



MBM Series "E Band" Multisector Antenna (4x4_and_2x2 Mixed Connection)



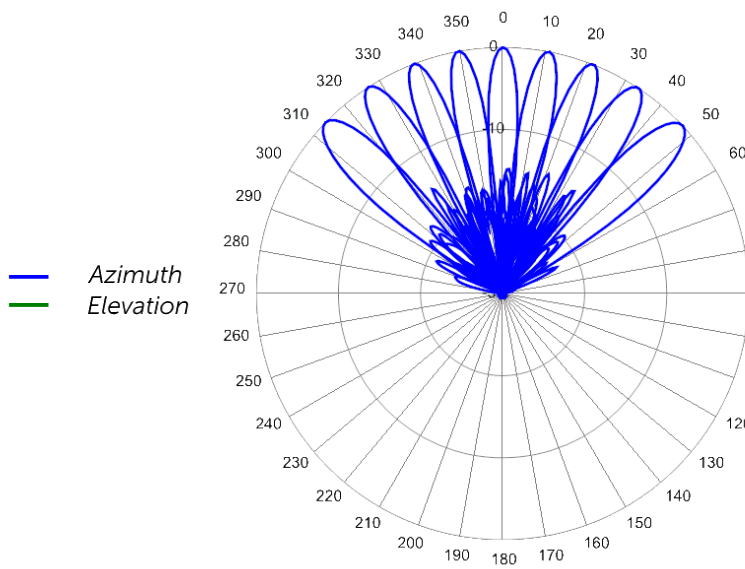
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Nine Beam 4 x 4 MIMO Special Events Antenna SPECIFICATIONS

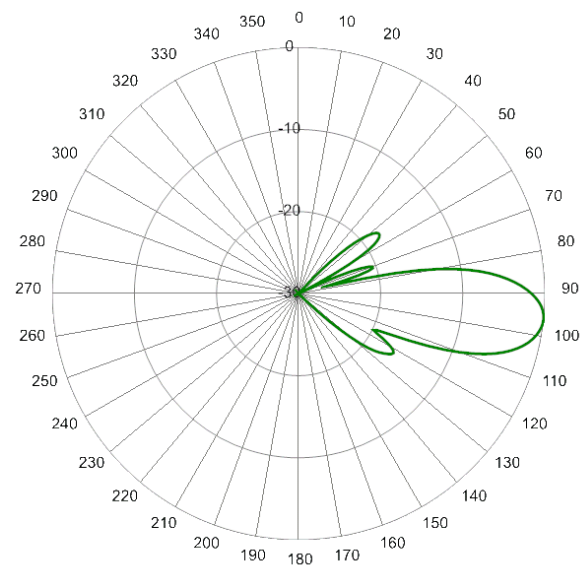
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Typical Antenna Patterns

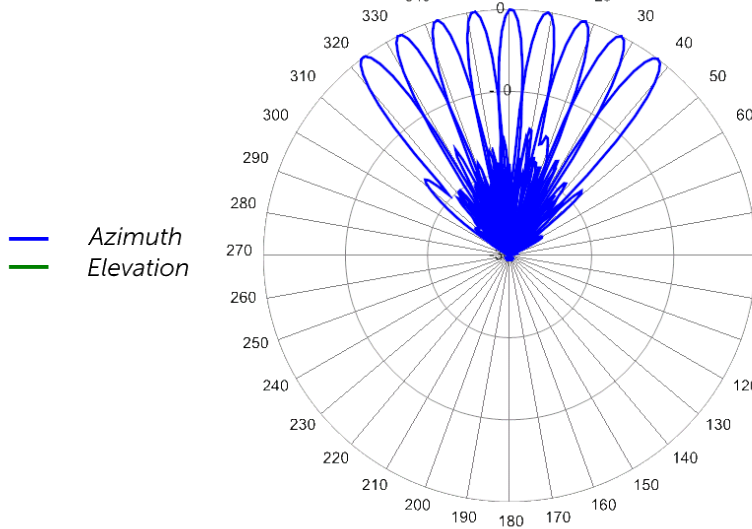
For detailed information on additional antenna patterns, contact customer support at support@cciprducts.com



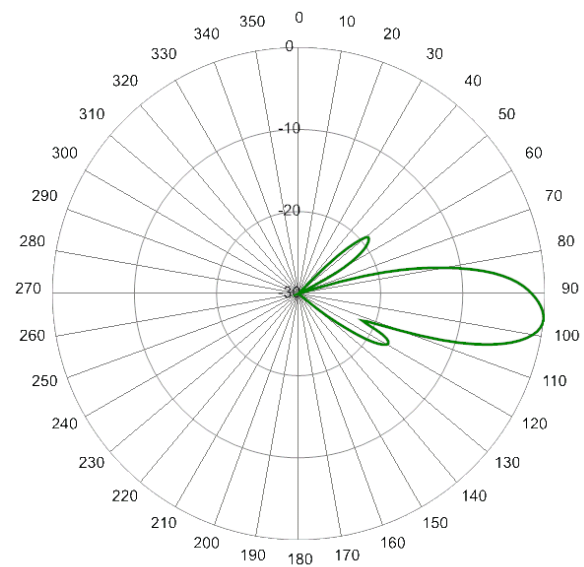
1930 MHz Azimuths



1930 MHz Elevation 6°



2360 MHz Azimuths



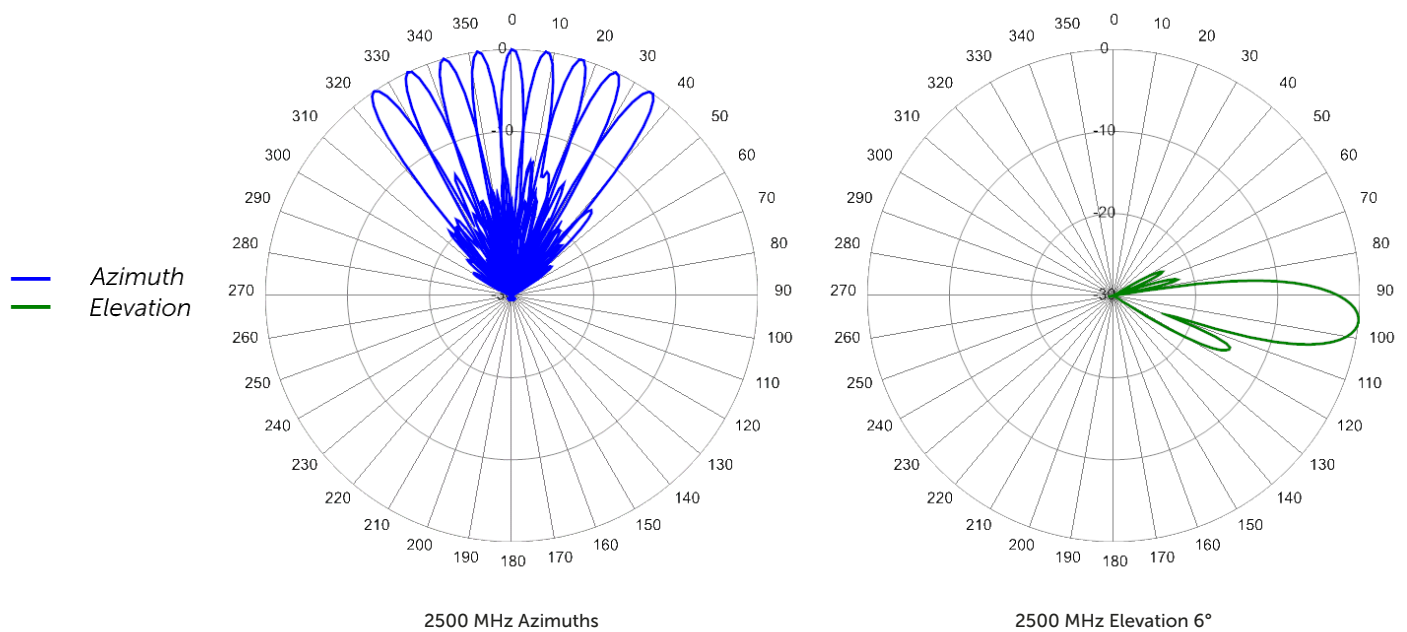
2360 MHz Elevation 6°



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ORDERING **Nine Beam 4 x 4 MIMO Special Events Antenna**

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Parts & Accessories

MBM9F-E3CA-K 3 foot (1.0 m) Special Events 9-Beam MIMO Antenna with fixed electrical tilt, 4.3-10 connectors and (2x) MBK-10 mounting brackets.

MBK-10 Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment (x2)



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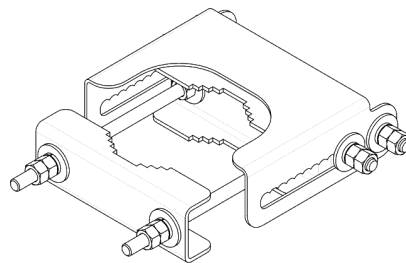
ACCESSORIES

Mounting Bracket Kit

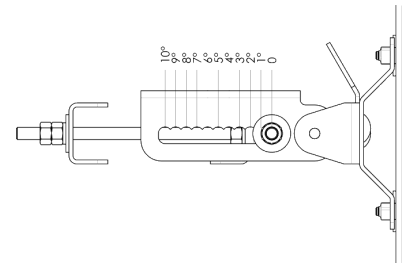
MBK-10

Mechanical

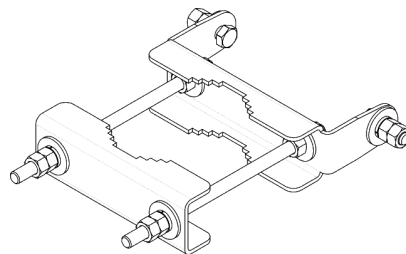
Weight	14.0 lbs (6.4 kg)
Hinge Pitch	23.6 in (600 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lb (54 N·m)
Mechanical Tilt Adjustment	0° - 10°



MBK-10 Top Adjustable Bracket



MBK-10 Top Adjustable Bracket Side View



MBK-10 Bottom Fixed Bracket



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STANDARDS & CERTIFICATIONS

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



CCI Communication Components Inc.
EXTENDING WIRELESS PERFORMANCE