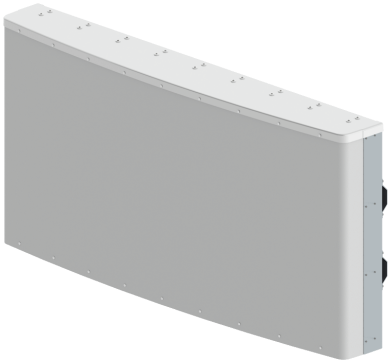
DATA SHEET

Ten/Five Beam Special Events Antenna

MBA10-5F-BW-H3



- Five low band beams optimized for maximum throughput over frequency bands (698-896 MHz); Ten mid band beams optimized for maximum throughput over frequency bands (1695-2180 MHz)
- Three foot (1.0 m), single panel, fifteen beam design without mount changes
- Dual +/- 45° cross-polarization for each beam pair
- Separate beams support 5 low band and 10 mid-band sub-sectors
- Simultaneous Mid Band PCS 1900 MHz, AWS 1695/2180 and Low Band LTE 700 MHz, SMR 850 MHz and Cellular 850 Coverage.
- Enables efficient evolution of wireless networks.
- Increases site capacity through high 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 Ten/Five-Beam Special Events Antenna is an LTE ready multi-beam, multi-band antenna that simultaneously supports (10) mid band and (5) low band sectors from a single antenna. This Ten/Five-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 mid band ports provide coverage for PCS 1900 MHz and AWS 1695/2180 MHz bands while the low band ports provide LTE 700 MHz, SMR 800 and Cellular 850 MHz capability in a compact, 3 ft (1.0 m) high single enclosure. Each beam is fed by a pair of +45° and -45° cross-polarized ports. The mid band beams are each roughly 15 degrees apart and each pair are evenly juxtaposed on the five low band beams. This antenna segments large audiences into multiple sectors thus enabling 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, 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 Ten/Five-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

SPECIFICATIONS

Ten/Five Beam Special Events Antenna

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Electrical

Ports	10 x Low Band Ports for 698-896 MHz		20 x Mid Band Ports for 1695-2180 MHz		
Frequency Range	698-806 MHz	824-896 MHz	1850-1990 MHz	1695-1780/2110-2180 MHz	
Gain	19.0 dBi	19.7 dBi	23.9 dBi	22.8 dBi	24.4 dBi
Azimuth Beamwidth (-3dB)	5 x 11.6°	5 x 9.9°	10 x 5.3°	10 x 5.9°	10 x 4.6°
Azimuth Beam Crossover (Typ.)	-10 dB	-10 dB	-10 dB	-10 dB	-10 dB
Elevation Beamwidth (-3dB)	22.2°	19.7°	11.4°	12.6°	10.3°
Electrical Downtilt	6°	6°	4°	4°	4°
Elevation Sidelobes (1st Upper)	< -26 dB	< -24 dB	< -20 dB	< -20 dB	< -18 dB
Front-to-Back Ratio @180°	> 40 dB	> 40 dB	> 40 dB	> 40 dB	> 40 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Co-Polar Isolation[1] (Adjacent Beams)	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Co-Polar Isolation (Non-Adjacent Beams)	> 15 dB	> 15 dB	> 11 dB	> 15 dB	> 15 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	≤ -153 dBc
Input Power Continuous Wave per Port	200 watts	200 watts	200 watts	200 watts	200 watts
Polarization	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°	Dual Linear 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

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

BASTA Electrical Specifications*					
Frequency Range	698-806 MHz	824-896 MHz	1850-1990 MHz	1695-1780/2110-2180 MHz	
Gain (dBi)	18.8	19.6	23.8	22.7	24.4
Gain Tolerance (dBi)	1.0	0.9	1.0	1.0	0.7
Azimuth Beamwidth Tolerance (°)	2.0	1.3	0.8	1.2	0.5
Elevation Beamwidth Tolerance (°)	1.4	1.4	0.6	0.4	0.4
Electrical Downtilt Deviation (°)	1.3	1.6	0.7	0.9	0.6
Front-to-Back Ratio over ± 20° (dB)	31.1	30.9	34.4	35.4	35.4
First Upper Sidelobe Suppression (dB)	20.0	22.0	17.9	16.9	17.1
Upper Sidelobe Suppression peak to 20°(dB)	NA	NA	18.5	18.5	17.6

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

Mechanical

Dimensions (LxWxD)	40.8x83.0x11.6 in (1036x2109x295 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load[1]	641 lbf @ 100 mph 2853 N @ 161 kph
Side Wind Load[1]	38 lbf @ 100 mph 170 N @ 161 kph
Effective Projective Area (EPA), Front[1]	28.0 ft^2 (2.6 m^2)
Weight *	157.4 lbs (71.4 kg)
RF Connector	30 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)
Mounting Pole Spacing	38.4 in (976 mm)

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

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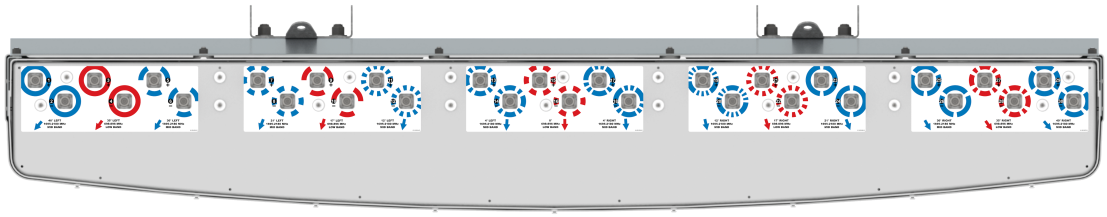
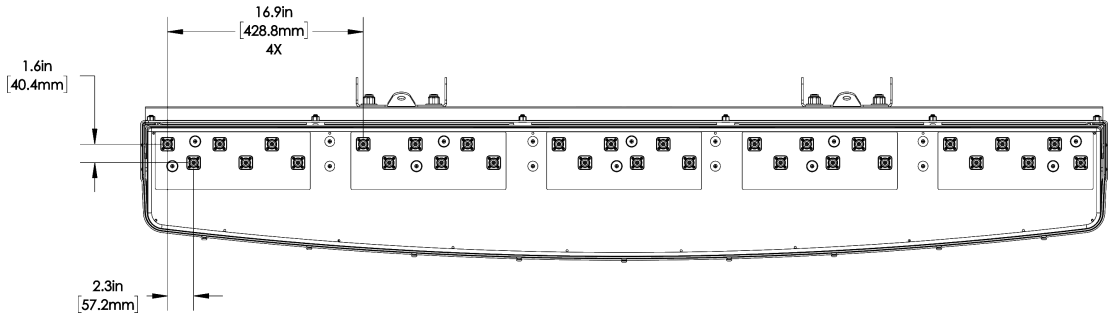
Bottom View

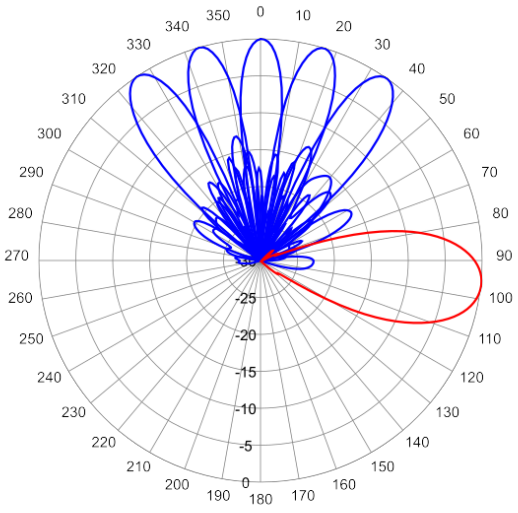


Connector Spacing

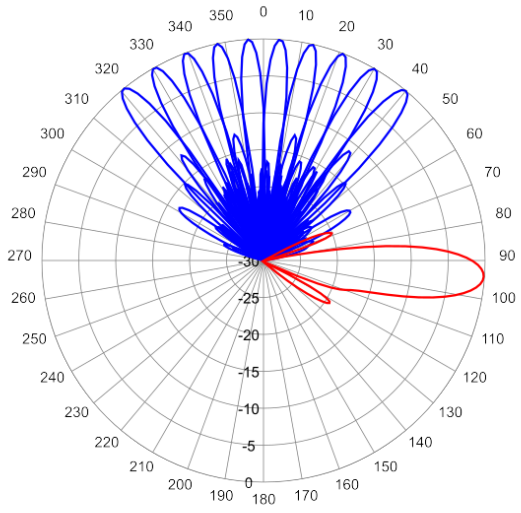


Typical Antenna Patterns

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



824 MHz Azimuth / Elevation 6°



1930 MHz Azimuth / Elevation 4°

ORDERING

Ten/Five Beam Special Events Antenna

MBA10-5F-BW-H3

Parts & Accessories

MBA10-5F-BW-H3-K	Three foot (1.0 m) Antenna, Ten-Five Beam Special Events Antenna with fixed electrical tilt and 4.3-10 female connectors and two MBK-03 Mounting Brackets
MBK-03 x 2	Mounting bracket kit (top and bottom) with 0° to 12° mechanical tilt adjustment

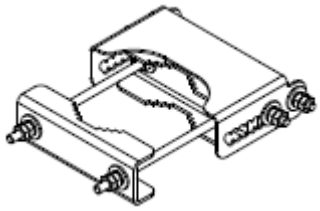
ACCESSORIES

Mounting Bracket Kit

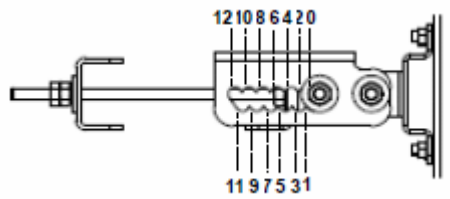
MBK-03

Mechanical

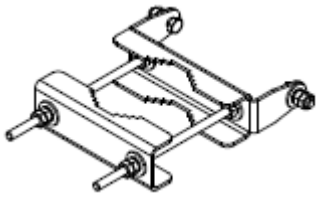
Weight	9.8 lbs (4.4 kg)
Hinge Pitch	13 in (330 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M10
Installation Torque	15 ft·lbs (20 N·m)
Mechanical Tilt Adjustment	0° - 12°



MBK-03 Top Adjustable Bracket



MBK-03 Top Adjustable Bracket Side View



MBK-03 Bottom Fixed Bracket

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