DATA SHEET

Bi-Sector™ Antenna

BSA33R-K5A

- Five foot (1.4 m), Singleband, four port Bi-Sector™ antenna. Deploying a pair of CCI's Patented Asymmetrical 33° Shaped Beams covering 698-960 MHz frequencies
- New innovative design reduces width from 28.0" (723 mm) to 22.2" (565 mm)
- Full Spectrum Compliance for 698-960 MHz
- LTE Optimized Asymmetric Shaped 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 Networks
- Exceeds minimum PIM performance requirements
- Equipped with 4.3-10 connector which is 40% smaller than traditional 7/16 DIN connector
- Equipped with Two Field Replaceable, Type 17 integrated AISG 2.0 compliant Remote Electrical Tilt (RET)

Overview

This version of the CCI Bi-Sector™ Singleband Array is a four port antenna, with four wideband ports covering 698-960 MHz. The CCI Bi-Sector™ array uses a pair of CCI's Patented Asymmetric 33° Shaped Beams. The CCI Bi-Sector™ Array provides the capability to deploy 2x2 Multiple-input Multiple-output (MIMO) in the low band array. The CCI Bi-Sector™ Array utilizes two Type 17 RET controllers, with a separate RET control for each pair of CCI's Patented Asymmetric Shaped Beams.
The CCI Bi-Sector™ Singleband Array, allow operators to reduce antenna count and replace existing 65° networks, while increasing cell site capacity and LTE data throughput by minimizing overlap between CCI's Patented Asymmetric 33° Shaped Beams. This design approach lowers interference between sectors. All of this is achieved through a single panel array, producing significant CAPEX and OPEX cost savings for the operator.

CCI antennas are designed and produced to ISO 9001 certification standards for reliability and quality in our state-of-the-art manufacturing facilities.

Applications

- Ready for Network Standardization on 4.3-10 connectors
- Ideal Antenna Solution for structurally constrained sites, where data throughput, capacity and limited spectrum is a concern
- With CCI's Bi-Sector™ Antenna, wireless operators can connect multiple platforms to a single antenna, reducing tower load, lease expense, deployment time and installation cost

SPECIFICATIONS

Bi-Sector™ Antenna

BSA33R-K5A

Electrical

Ports	4 x Low Band Ports for 698-960 MHz			
Frequency Range	698-806 MHz	790-862 MHz	824-896 MHz	880-960 MHz
Gain[1]	16.3 dBi	16.7 dBi	16.8 dBi	17.2 dBi
Gain (Average)[2]	15.4 dBi	16.1 dBi	16.4 dBi	16.5 dBi
Azimuth Beamwidth (-3dB)	40°	38°	37°	36°
Elevation Beamwidth (-3dB)	14.9°	13.4°	12.8°	12.0°
Electrical Downtilt	2° to 14°	2° to 14°	2° to 14°	2° to 14°
Elevation Sidelobes (1st Upper)	< -20 dB	< -18 dB	< -19 dB	< -18 dB
Front-to-Back Ratio @180°	> 33 dB	> 35 dB	> 35 dB	> 33 dB
Front-to-Back Ratio over ± 20°	> 28 dB	> 31 dB	> 32 dB	> 32 dB
Cross-Polar Discrimination (at Peak)	> 25 dB	> 25 dB	> 25 dB	> 24 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Voltage Standing Wave Ratio(VSWR)	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	500 watts	500 watts	500 watts	500 watts
Polarization	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°
Input Impedance	50 ohms	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground

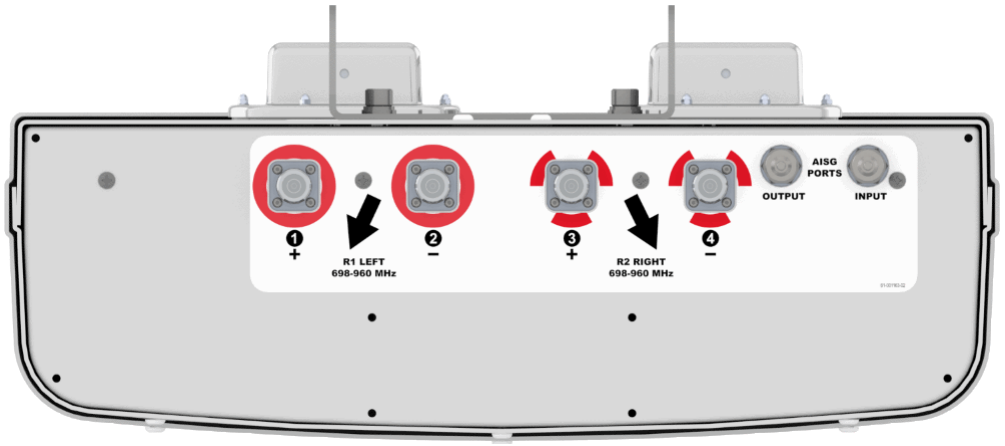
[1]Peak gain across sub-bands.
[2]Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V9.6.

Mechanical

Dimensions (LxWxD)	56.6x22.2x7.1 in (1439x565x180 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	269 lbs (1197 N) @ 100 mph (161 kph)
Side Wind Load	102 lbs (455 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	10.5 ft^2 (1.0 m^2)
Weight*	52.5 lbs (23.8 kg)
Connector	4 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

**Weight excludes mounting*

Bottom View *BSA33R-K5A*



SPECIFICATIONS

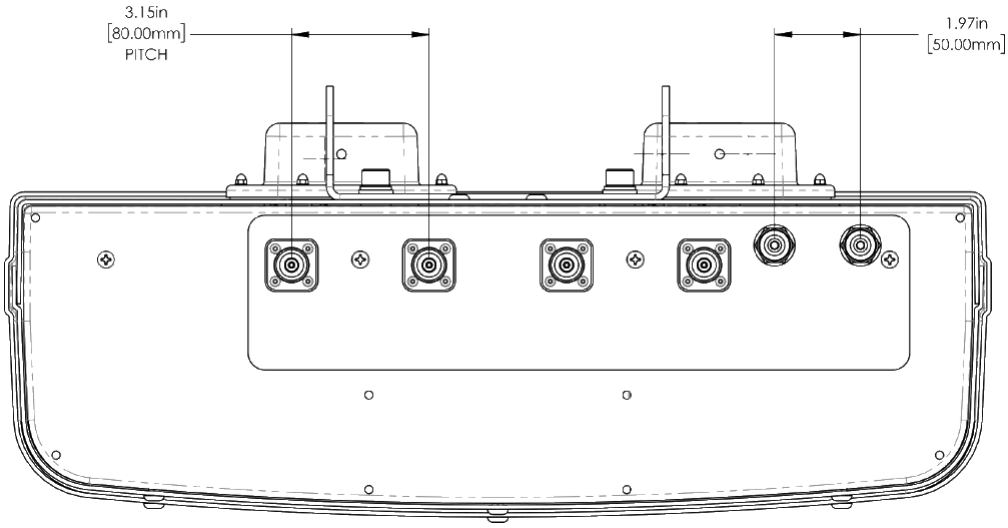
Bi-Sector™ Antenna

BSA33R-K5A

Mechanical

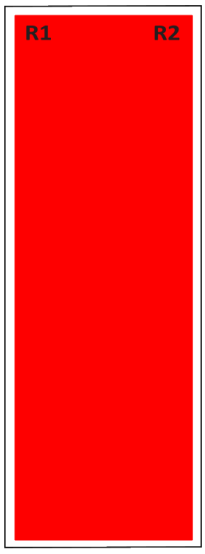
Connector Spacing

BSA33R-K5A



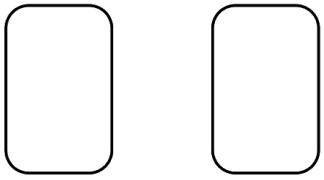
BSA33R-K5A Element and RET configuation (Type 17 Internal RET)

Top of antenna
Viewed from rear



RET placement as view from rear of antenna

Top of antenna

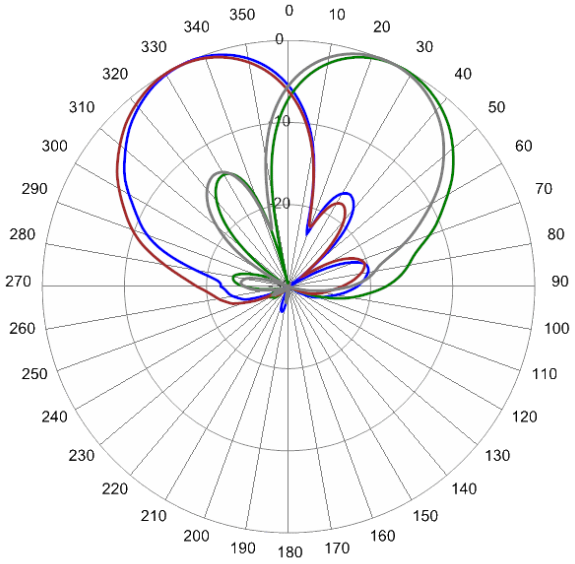


MM.1 **MM.2**

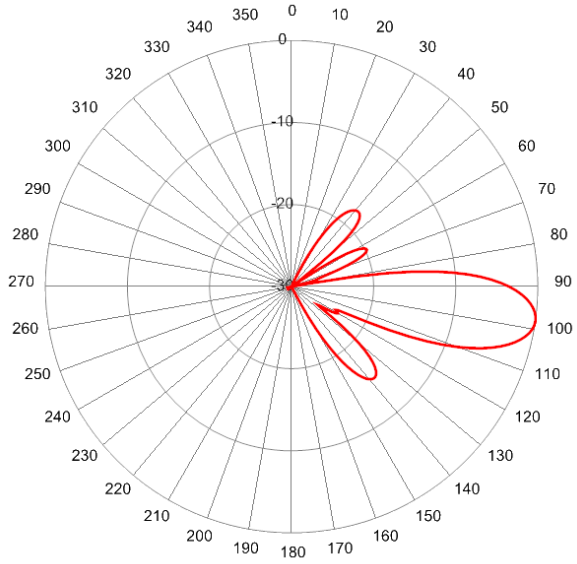
Array	Ports	Freq (MHz)	Beam	Ports controlled by common RET	AISG RET UID
R1	1, 2	698-960	Left	1, 2	CIxxxxxxMM.1
R2	3, 4	698-960	Right	3, 4	CIxxxxxxMM.2

Typical Antenna Patterns

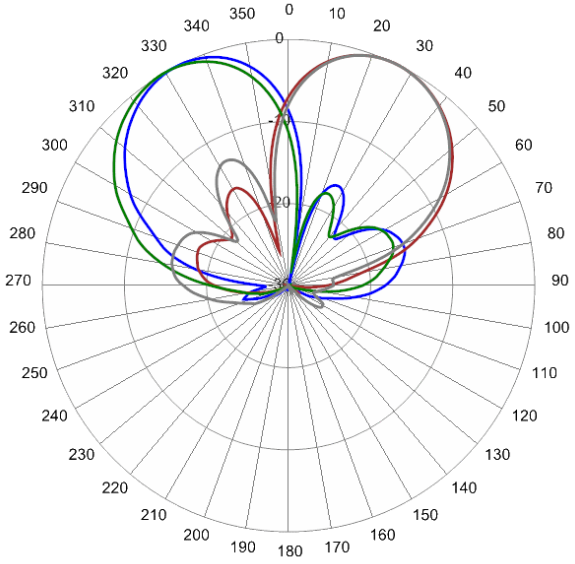
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



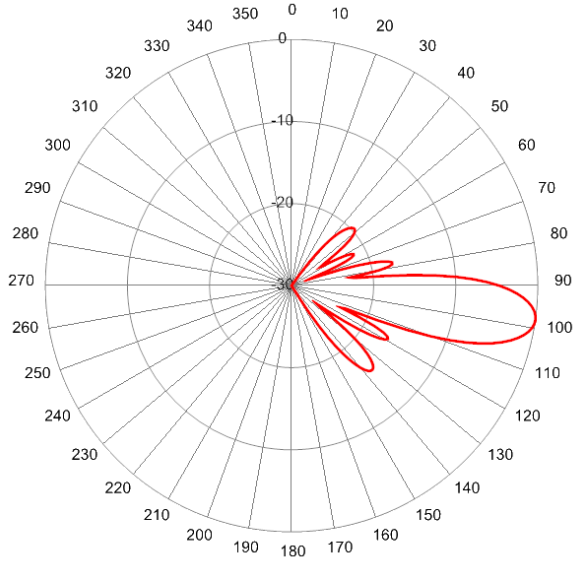
758 MHz Azimuths



758 MHz Elevation 8°



824 MHz Azimuths



824 MHz Elevation 8°

ORDERING

Bi-Sector™ Antenna

BSA33R-K5A

Parts & Accessories

BSA33R-K5AA-K	Five foot (1.4 m) Bi-Sector™ Antenna Array with 4.3-10 female connectors, 2 factory installed BSA-RET400 RET actuators (Type 17 Internal) and MBK-01 mounting brackets
MBK-01	Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment
MBK-16	Mounting bracket kit (top and bottom) with fixed 0° mechanical tilt
BSA-RET400	Type 17 Internal Remote Electrical Tilt System (RET)
AISGC-M-F-10FT	10 Ft (3 m) Male/Female RRU to Antenna AISG cable

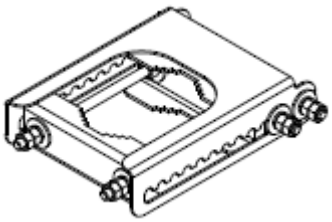
ACCESSORIES

Mounting Bracket Kit

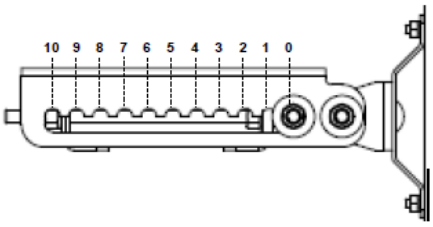
MBK-01

Mechanical

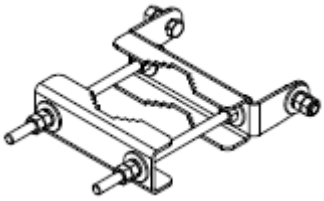
Weight	12.6 lbs (5.7 kg)
Hinge Pitch	47.25 in (1200 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lb (54 N·m)
Mechanical Tilt Adjustment	0° - 10°



MBK-01 Top Adjustable Bracket



MBK-01 Top Adjustable Bracket Side View



MBK-01 Bottom Fixed Bracket

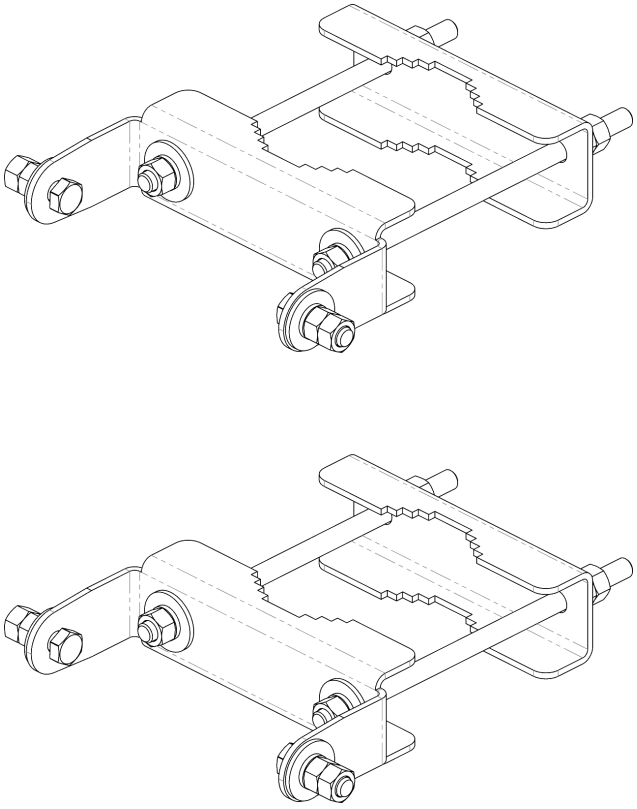
ACCESSORIES

Mounting Bracket Kit

MBK-16

Mechanical

Weight	9.9 lbs (4.5 kg)
Hinge Pitch	47.25 in (1200 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lbs (54 N·m)
Mechanical Tilt	0°



MBK-16 Top and Bottom Bracket

Internal Remote Electrical Tilt (iRET)

BSA-RET400

General Specifications

Part Number	BSA-RET400
Protocols	AISG 2.0
RET Type	Type 17
Adjustment Cycles	>10,000 cycles
Tilt Accuracy	±0.1°
Temperature Range	-40° C to 70° C

Electrical

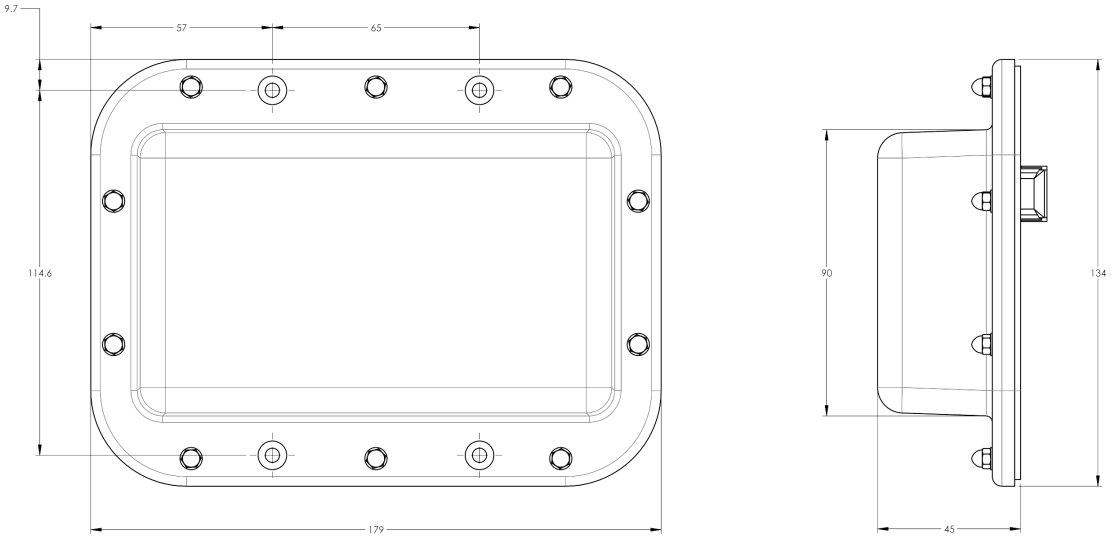
Data Interface Signal	DC
Input Voltage	10-30 Vdc
Current Consumption Tilt	100 mA at V_{in}=24 (500 mA MAX)
Current Consumption Idle	10 mA at V_{in}=24

Mechanical

Dimensions (LxWxD)	7.0x5.3x1.8 in. (179x134x45 mm)
Housing	ASA/ABS/Aluminum
Weight	1.3 lbs (0.6 kg)

ASA= Acrylic Styrene Acrylonitrile

ABS=Acrylonitrile Butadiene Styrene



AISG Cable

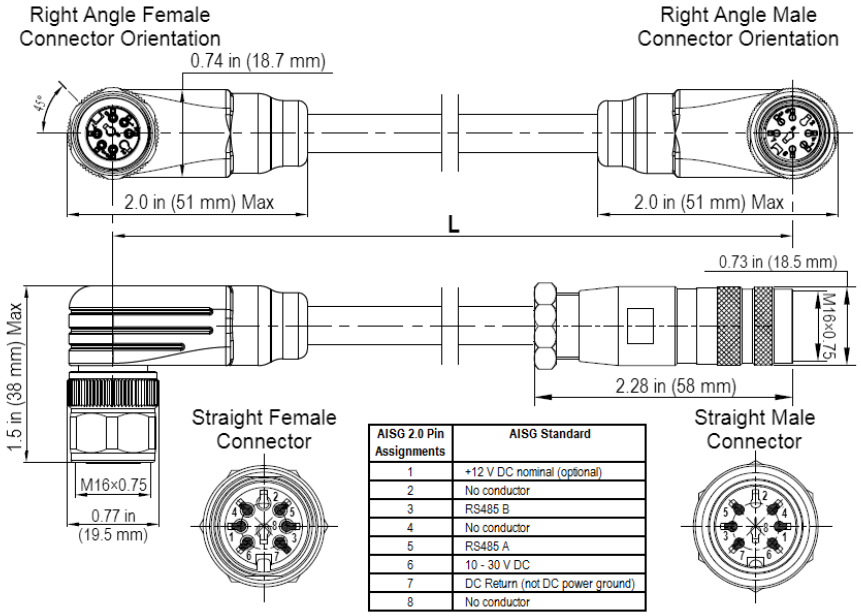
AISGC-M-F-xFT

Electrical Specifications

Individual Cable Part Number	AISGC-M-F-x(FT)
Cable style	UL2464
Protocol	AISG 1.1 and AISG 2.0
Maximum voltage	300 V
Rated current	5 A at 104° F (40° C)

Mechanical Specifications

Individual Cable Part Number	AISGC-M-F-x(FT)
Cables per kit	1
Connectors	2 x 8 pin IEC 60130-9 Straight male/straight female
Tightening torque	Hand tighten only ≈ 1.84 ft-lbs (2.5 Nm)
Construction	Shielded (Tinned Copper Braid)
Braid coverage	85%
Jacket Material	Matte Polyurethane (Black)
Conductors	1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464
Cable Diameter	0.307 in (7.8 mm)
Length	See order details
Minimum bend radius	3.15 in (80 mm)



AISG 2.0 Pin Assignments	AISG Standard
1	+12 V DC nominal (optional)
2	No conductor
3	RS485 B
4	No conductor
5	RS485 A
6	10 - 30 V DC
7	DC Return (not DC power ground)
8	No conductor

AISG-Male to AISG-Female Jumper Cable

Environmental Specifications

Individual Cable Part Number	AISGC-M-F-xFT
Temperature Range	-40° to 80° C
Flammability	UL 1581 VW-1
Ingress Protection	IEC 60529:2001, IP67

STANDARDS & CERTIFICATIONS

Bi-Sector™ Antenna

BSA33R-K5A

Standards & Compliance

Safety	EN 60950-1, UL 60950-1
Emission	EN 55022
Immunity	EN 55024
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

Antenna Interface Standards Group (AISG), Federal Communication Commission (FCC) Part 15 Class B, CE, CSA US, ISO 9001