

HYBRID MULTI BAND ANTENNA ARRAY

Model HBSA-M65-19R010-63



**Hybrid Multi Band
Antenna Array**

The CCI RET Series Hybrid Multi Band Antenna Array is an industry first LTE ready hybrid phased array that supports multiple sectors (one low band, two high bands) from a single antenna and provides capability for 700 MHz, SMR 800 MHz, Cellular 850 MHz, PCS 1900 MHz, AWS 1710/2155 MHz and WCS 2300 MHz coverage in a single, compact enclosure. Our unique hybrid design, 6 ft high and 12.9 inches wide, combining standard 65° and patented bi-sector technology, maximizes coverage in a standard tri-sector cell plan, provides optimized overlap between pairs of asymmetric beams, lowers soft handover losses in UMTS/HSPA+ and CDMA/EVDO systems, and minimizes interference between sectors. Such an approach enhances data transfer rates within UMTS/LTE and EVDO network sectors and addresses “hotspots” in mobile wireless operator networks for SMR, GSM, CDMA, UMTS and LTE technologies.

The remote electrical tilt (RET) Series Multi Band Hybrid Bi-Sector Array enables operators to remotely control the electrical down-tilt of the antenna in the field with sealed AISG compliant RET actuators. The CCI RET system is designed to meet the reliability, flexibility and efficiency requirements in a wide range of environments. The RET actuators are fully AISG compliant, software upgradeable, daisy chaining capable and fully weather resistant. The remote electrical capability allows independent adjustment of sub-beams for easier optimization.

The single panel design of the hybrid phased array offers the opportunity to reduce antenna count and directly replaces an existing 65° antenna. The new coverage that matches the existing footprint minimizes the need for optimization and adjacent site changes, and allows for significant CAPEX and OPEX cost savings.

All CCI antennas are manufactured under ISO 9001.

Benefits

Multi band applications – 700 MHz, SMR 800 MHz, Cellular 850 MHz, PCS 1900 MHz, AWS 1710/2155 MHz, WCS 2305/2360 MHz

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

Unique hybrid phased array design, maximizes coverage in a standard tri-sector cell plan

Provides remote control of electrical downtilt of antenna for easier optimization

Features

- ◆ Unique hybrid phase array combining standard 65° over a frequency range of (698-894 MHz) and asymmetric 33° Bi-Sector array over a frequency range of (1710-2360 MHz), optimized to match existing cloverleaf (65°) deployments.
- ◆ Slim and low weight single panel design supporting 3 beams without mount changes
- ◆ Independent adjustable beams provide unmatched optimization flexibility
- ◆ Separate Low-band and High-band ports
- ◆ 3GPP/AISG 2.0 compliant
- ◆ Daisy chaining capability
- ◆ Software upgradeable
- ◆ Rugged, weather resistant and highly reliable internal design

Applications

- ◆ Upgrade of data-throughput or capacity constrained sites
- ◆ Spectrum limited markets
- ◆ Deferral of CDMA/EVDO or UMTS/HSPA+ carrier adds
- ◆ Spectrum clearing and refarming



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HBSA-M65 Antenna Array

Electrical Specifications

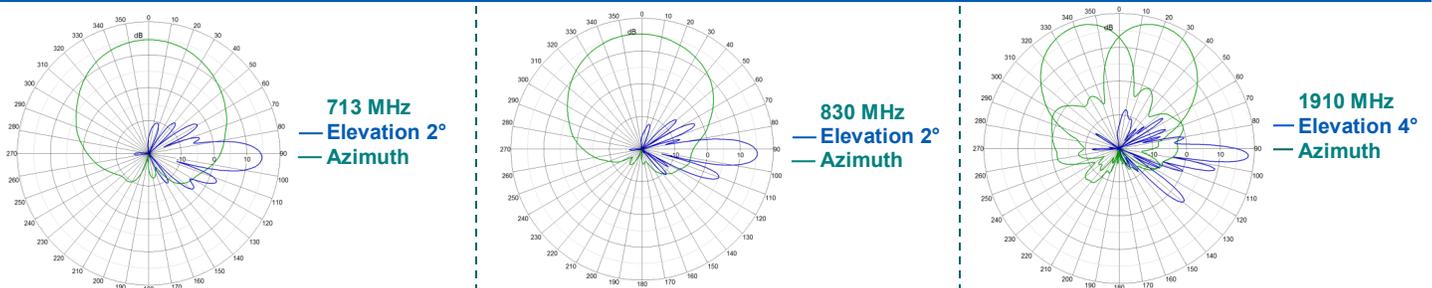
Frequency Range	2 X Low Band Ports which cover the full range from 698-894 MHz		4 X High Band Ports which cover the full range from 1710-2360 MHz			
	698-806 MHz	824-894 MHz	1850-1990 MHz	1710-1755/2110-2155 MHz	2305-2360 MHz	
Gain	14.5 dBi	15.2 dBi	18.3 dBi	17.3 dBi	19.1 dBi	19.2 dBi
Azimuth Beamwidth (-3dB)	68°	65°	33°	36°	28.5°	27°
Elevation Beamwidth (-3dB)	12.0°	10.5°	5.7°	6.2°	5.1°	4.5°
Electrical Downtilt	2° to 10°	2° to 10°	0° to 8°	0° to 8°	0° to 8°	0° to 8°
Elevation Sidelobes (1st Upper)	< -18 dB	< -18 dB	< -18 dB	< -18 dB	< -18 dB	< -16 dB
Front-to-Back Ratio @180°	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Front-to-Back Ratio over ± 20°	> 25 dB	> 25 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Cross-Polar Discrimination (at Peak)	> 25 dB	> 25 dB	> 22 dB	> 22 dB	> 22 dB	> 20 dB
Cross-Polar Discrimination (at ± 30°)	> 22 dB	> 20 dB	> 20 dB	> 20 dB	> 20 dB	> 19 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
VSWR	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc
Input Power	500 Watts CW	500 Watts CW	300 Watts CW	300 Watts CW	300 Watts CW	300 Watts CW
Polarization	Dual Pol 45°	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	50 Ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground

Mechanical Specifications

Dimensions (LxWxD)	72.0 x 12.9 x 9.0 inches (1828 x 328 x 229 mm)
Survival Wind Speed	> 125 mph (> 193 km/hr)
Front Wind Load	221 lbs (982 N) @ 100 mph (161 kph)
Side Wind Load	165 lbs (735 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	8.6 ft ² (0.8 m ²)
Weight (without Mounting)	57.0 lbs (26 kg)
RET System Weight	5.0 lbs (2.3 kg)
Connector	6; 7-16 DIN female
Mounting Pole	2-5 inches (5-12 cm)



Antenna Patterns*



*Typical antenna patterns. For detail information on antenna pattern, please contact us at info@cciproducts.com. All specifications are subject to change without notice.

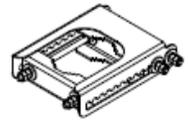
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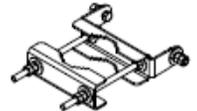
Ordering Information:

HBSA-M65-19R010-63	Antenna (6'), Hybrid Bi-Sector Array, Multi-band (700/800/850, and 1710/2360), with Factory Installed Actuators (3)
HBSA-M65-19R010-63-K	Complete Kit with Antenna, Factory Installed Actuators (3) and MBK-01 Mounting Bracket
BSA-RET200	RET Actuator
MBK-01	Mounting Bracket (Top & Bottom) with 0° through 10° Mechanical tilt Adjustment: See Installation Guide 50-000036-01 for Details: Weight 13.6 Lbs. (6.2 kg)

MBK-01 Top Mounting Bracket



MBK-01 Bottom Mounting Bracket



RET [Remote Electrical Tilt] System

General Specification

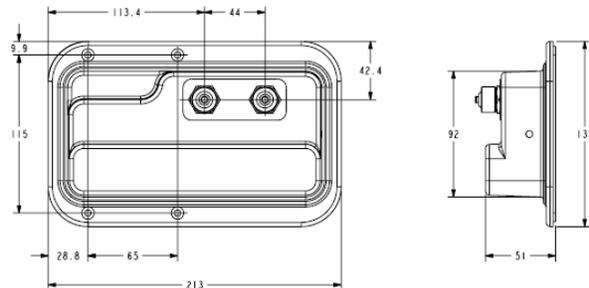
Part Number	BSA-RET200
Protocols	AISG 2.0
RET Type (Reference AISG 1.1)	Type 1
Adjustment Cycles	>10,000 cycles
Tilt Accuracy	±0.1°
Temperature Range	-40°C ... +70°C

Electrical Specification

Interface Signal	Data dc
Input Voltage Range	10-30 Vdc
Current consumption during tilting	120mA at Vin = 24V
Current consumption idle	55mA at Vin=24V
Hardware Interface	AISG - RS 485 A/B
Input Connector	1x8-pin Daisy Chain In Male
Output Connector	1x8-pin Daisy Chain Out Female

Mechanical Specification and Dimensions

Housing Material	ASA / ABS / Aluminum
Dimensions (H x W x D)	8 x 5 x 2 inches (213 x 135 x 51 mm)
Weight	1.5 lbs (0.68 kg)



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 60068-2-30, IEC 60068-2-52, IEC 60068-2-64, GR-63-CORE 4.3.1, EN60529 IP24

Regulatory Certification

AISG, FCC Part 15 Class B, CE, CSA US