

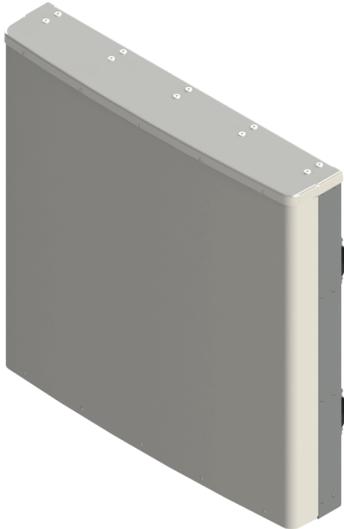


Antennas

DATA SHEET

Three-Beam Special Events Antenna

MBA3R-K4A



- Four foot (1.3 m) tall, single band, six port multibeam array. Containing three Independent LTE Optimized Beams covering 694-960 MHz frequencies
- This multibeam array contains three multibeam, each with Independent AISG RET control. Each Independent LTE Optimized Beam has an electrical downtilt range of 4°-16°, an Industry First for this type of Multibeam Array.
- Six Low Band Dual-Pol +45°/-45°ports (two ports per beam) covering 694-960 MHz in a single antenna
- Full Spectrum Compliance for 694-960 MHz Frequencies and upcoming Band 14 Operations
- LTE Optimized Beams for improved LTE data throughput by minimizing beam crossover, providing for an efficient use of valuable radio capacity and frequency spectrum
- 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 Three-Beam Antenna contains Three Independent LTE Optimized Beams and each LTE Optimized Beam has an Independent AISG RET control. This is an Industry First, for this type of Multibeam Array. Independent RET control for each beam will allow operators tremendous flexibility in the optimization and management of their high speed data cellular networks. This Three-Beam 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 Three-Beam antenna enables maximum spectrum re-use by sectorization, greatly increasing network capacity. 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 Three-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 where data throughput and capacity needs are paramount



Antennas

SPECIFICATIONS

Three-Beam Special Events Antenna

MBA3R-K4A

Electrical

Ports	6 × Low Band Ports for 694-960 MHz			
	694-806 MHz	790-862 MHz	824-896 MHz	880-960 MHz
Frequency Range	694-806 MHz	790-862 MHz	824-896 MHz	880-960 MHz
Gain	18.0 dBi	18.9 dBi	19.1 dBi	19.3 dBi
Azimuth Beamwidth (-3dB)	18.6°	16.8°	16.1°	15.0°
Azimuth Beam Crossover	10.4°	10.5°	10.4°	10.5°
Elevation Beamwidth (-3dB)	17.7°	15.9°	15.2°	14.1°
Electrical Downtilt	4° to 16°	4° to 16°	4° to 16°	4° to 16°
Elevation Sidelobes (1st Upper)	< -19 dB	< -20 dB	< -20 dB	< -20 dB
Front-to-Back Ratio @180°	> 38 dB	> 38 dB	> 38 dB	> 38 dB
Cross-Polar Port-to-Port Isolation	> 24 dB	> 24 dB	> 24 dB	> 24 dB
Interbeam Co-Pol Isolation (Adjacent Beams) (Worst Case)	> 15 dB	> 15 dB	> 15 dB	> 15 dB
Interbeam Co-Pol Isolation (Non Adjacent Beams) (Worst Case)	> 12 dB	> 12 dB	> 12 dB	> 12 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)	200 watts	200 watts	200 watts	200 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

Mechanical

Dimensions (LxWxD)	52.3x53.1x9.8 in (1329x1384x250 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	592 lbs (2634 N) @ 100 mph (161 kph)
Side Wind Load	121 lbs (539 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	23.1 ft ² (2.1 m ²)
Weight*	124.1 lbs (56.3 kg)
RET Weight	5.0 lbs (2.3 kg)
Connector	6 × 7-16 DIN female long neck or 4.3-10 female
Mounting Poles	2x 2 to 5 in (5 to 12 cm)
Mounting Pole Spacing	31.5 in (800 mm)

* Weight excludes mounting and RET



Antennas

SPECIFICATIONS

Three-Beam Special Events Antenna

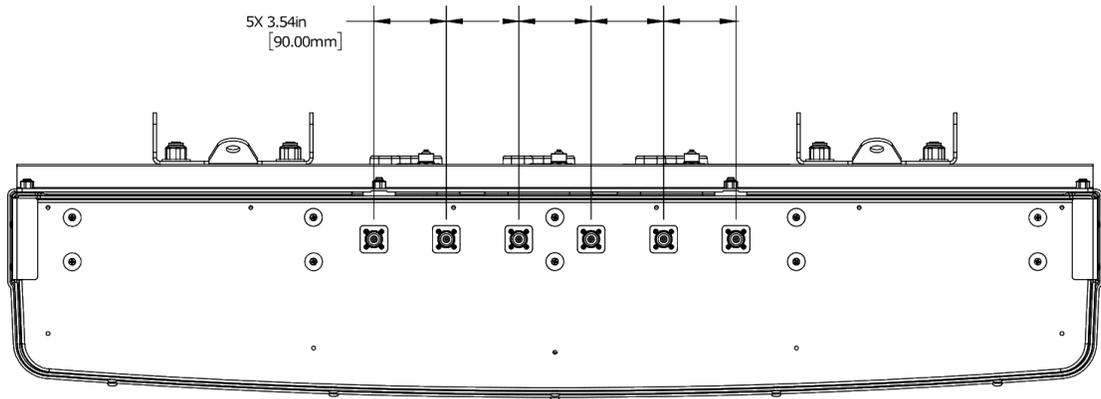
MBA3R-K4A

Mechanical

Bottom View

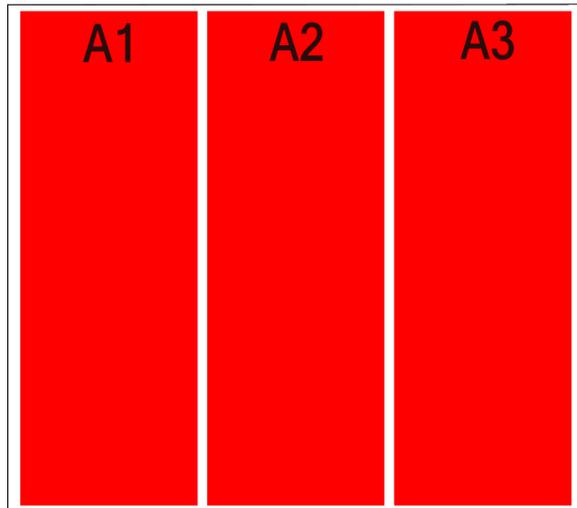


Connector Spacing



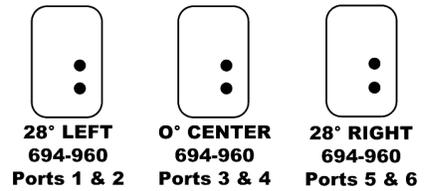
RET to Element Configuration

Element arrays as viewed from rear of antenna



RET placement as view from rear of antenna

Top of antenna



Array	Ports	Freq (MHz)	Beam	Ports controlled by common RET
A1	1, 2	694-960	28° Left	1, 2
A2	3, 4	694-960	0°	3, 4
A3	5, 6	694-960	28° Right	5, 6



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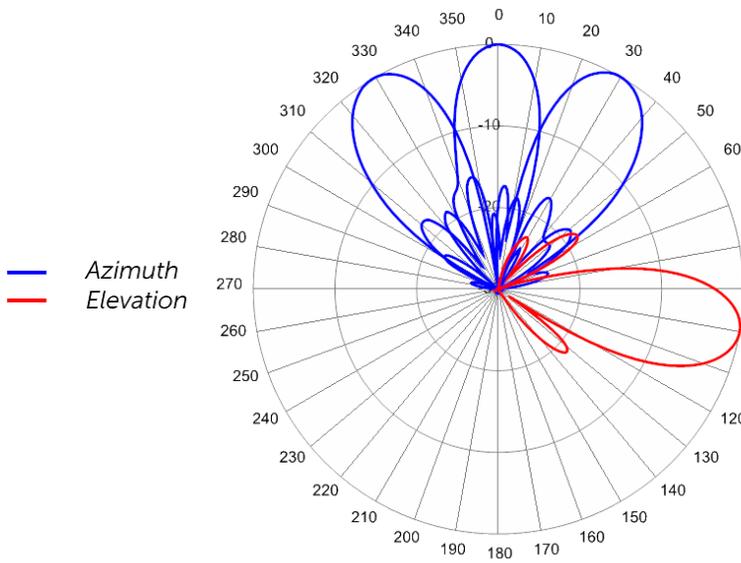
SPECIFICATIONS

Three-Beam Special Events Antenna

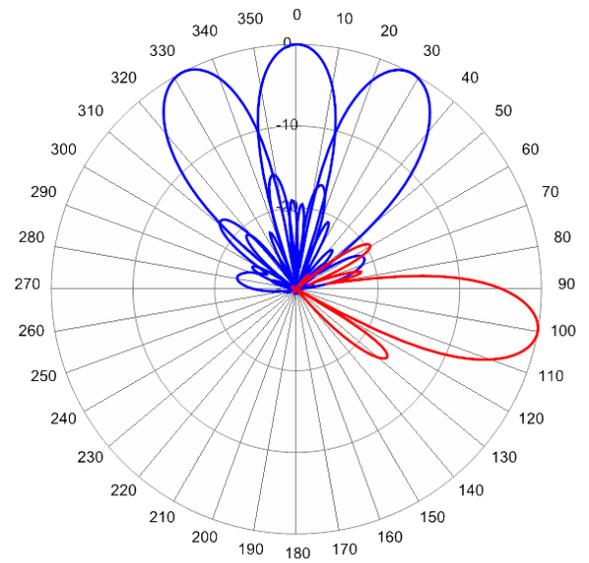
MBA3R-K4A

Typical Antenna Patterns

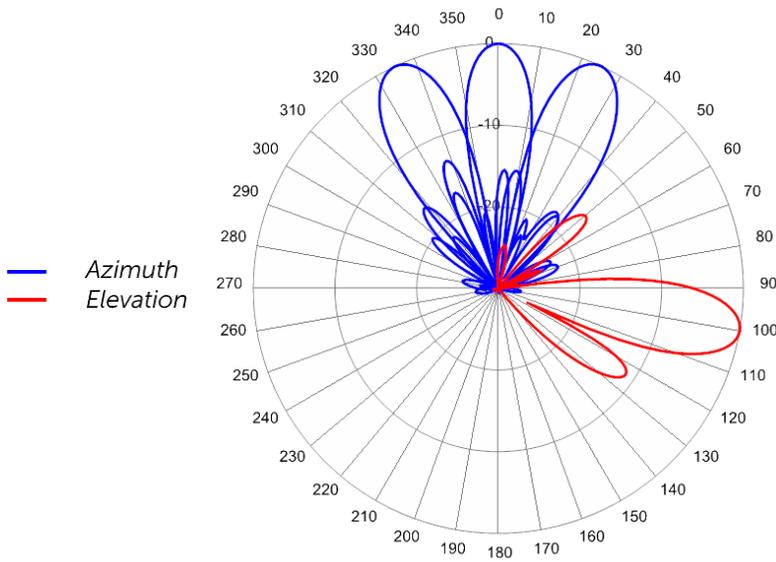
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



734 MHz Azimuth with Elevation 10°



806 MHz Azimuth with Elevation 10°



925 MHz Azimuth with Elevation 10°



Antennas

ORDERING

Three-Beam Special Events Antenna

MBA3R-K4A

Parts & Accessories

MBA3R-K4AA-K	4 foot (1.3 m) Special Events 3-Beam Antenna with 4.3-10 female connectors, 3 factory installed BSA-RET200 actuators and 2x MBK-10 mounting bracket
MBA3R-K4AB-K	4 foot (1.3 m) Special Events 3-Beam Antenna with 7-16 DIN female long neck connectors, 3 factory installed BSA-RET200 actuators and 2x MBK-10 mounting bracket
MBK-10	Mounting bracket kit (top and bottom) with 0° to 12° mechanical tilt adjustment
BSA-RET200	Remote electrical tilt actuator
HPA-CBK-AG-RRU	RRU AISG cable kit for a 3 RET antenna
HPA-CBK-RA-AG-RRU	RRU AISG right angle cable kit for a 3 RET antenna



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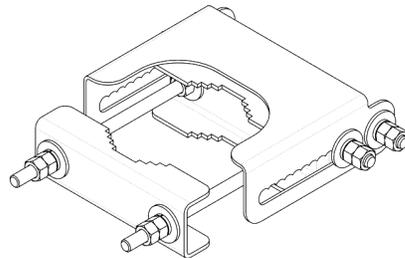
ACCESSORIES

Mounting Bracket Kit

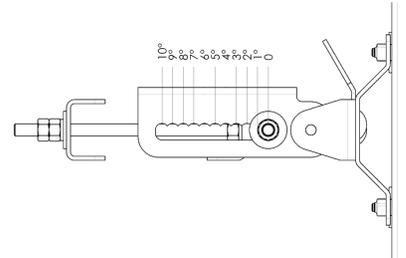
MBK-10

Mechanical

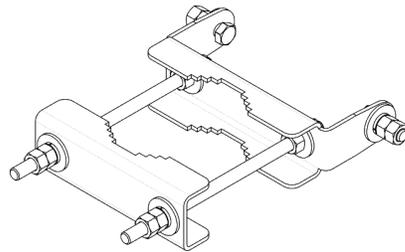
Weight	14.0 lbs (6.4 kg)
Hinge Pitch	23.6 in (600 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lb (54 N·m)
Mechanical Tilt Adjustment	0° - 10°



MBK-10 Top Adjustable Bracket



MBK-10 Top Adjustable Bracket Side View



MBK-10 Bottom Fixed Bracket



Antennas

ACCESSORIES

Remote Electrical Tilt Actuator (RET)

BSA-RET200

General Specifications

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

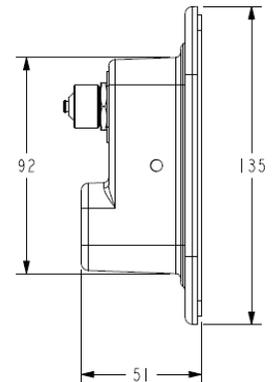
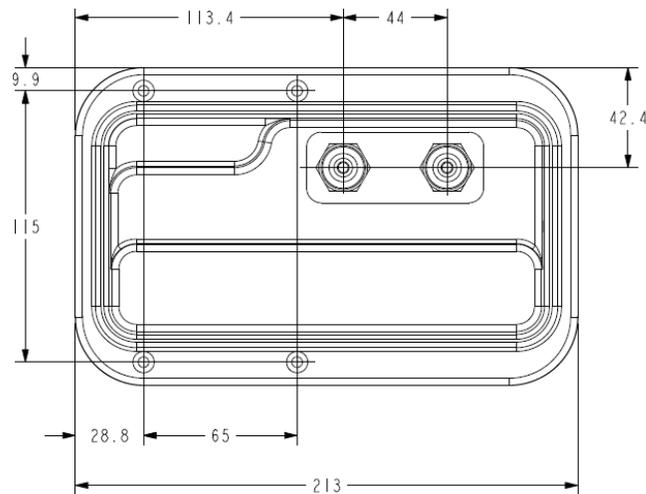
Electrical

Data Interface Signal	DC
Input Voltage	10-30 Vdc
Current Consumption Tilt	120 mA at $V_{in}=24$
Current Consumption Idle	55 mA at $V_{in}=24$
Hardware Interface	AISG-RS 485 A/B
Input Connector	Male 1 × 8 pin Daisy Chain
Output Connector	Female 1 × 8 pin Daisy Chain

Mechanical

Dimensions (LxWxD)	8.0x5.0x2.0 in. (213x135x51 mm)
Housing	ASA/ABS/Aluminum
Weight	1.7 lbs (0.75 kg)

ASA= Acrylic Styrene Acrylonitrile
ABS=Acrylonitrile Butadiene Styrene





Antennas

ACCESSORIES

AISG Cable Kit

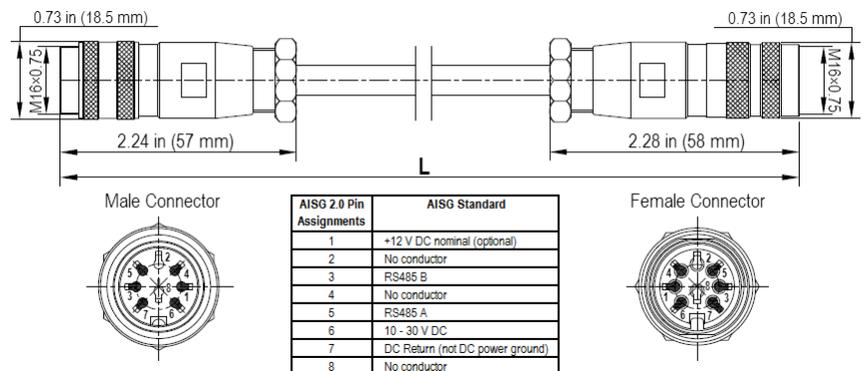
HPA-CBK-AG-RRU

Electrical Specifications

Individual Cable Part Number	AISGC-M-F-18	AISGC-M-F-10FT
Cable style	UL2464	UL2464
Protocol	AISG 1.1 and AISG 2.0	AISG 1.1 and AISG 2.0
Maximum voltage	300 V	300 V
Rated current	5 A at 104° F (40° C)	5 A at 104° F (40° C)

Mechanical Specifications

Individual Cable Part Number	AISGC-M-F-18	AISGC-M-F-10FT
Cables per kit	2	2
Connectors	2 x 8 pin IEC 60130-9 Straight male/straight female	2 x 8 pin IEC 60130-9 Straight male/straight female
Tightening torque	Hand tighten only \approx 1.84 ft-lbs (2.5 N-m)	Hand tighten only \approx 1.84 ft-lbs (2.5 N-m)
Construction	Shielded (Tinned Copper Braid)	Shielded (Tinned Copper Braid)
Braid coverage	85%	85%
Jacket Material	Matte Polyurethane (Black)	Matte Polyurethane (Black)
Conductors	1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464	1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464
Cable Diameter	0.307 in (7.8 mm)	0.307 in (7.8 mm)
Length	18 - 20 in (457 - 508 mm)	120 in (3048 mm)
Weight	0.27 lbs (0.12 kg)	0.69 lbs (.31 kg)
Minimum bend radius	3.9 in (100 mm)	3.9 in (100 mm)



AISG-Male to AISG-Female Jumper Cable

Environmental Specifications

Individual Cable Part Number	AISGC-M-F-18	AISGC-M-F-10FT
Temperature Range	-40° to 80° C	-40° to 80° C
Flammability	UL 1581 VW-1	UL 1581 VW-1
Ingress Protection	IEC 60529:2001, IP67	IEC 60529:2001, IP67



Antennas

ACCESSORIES

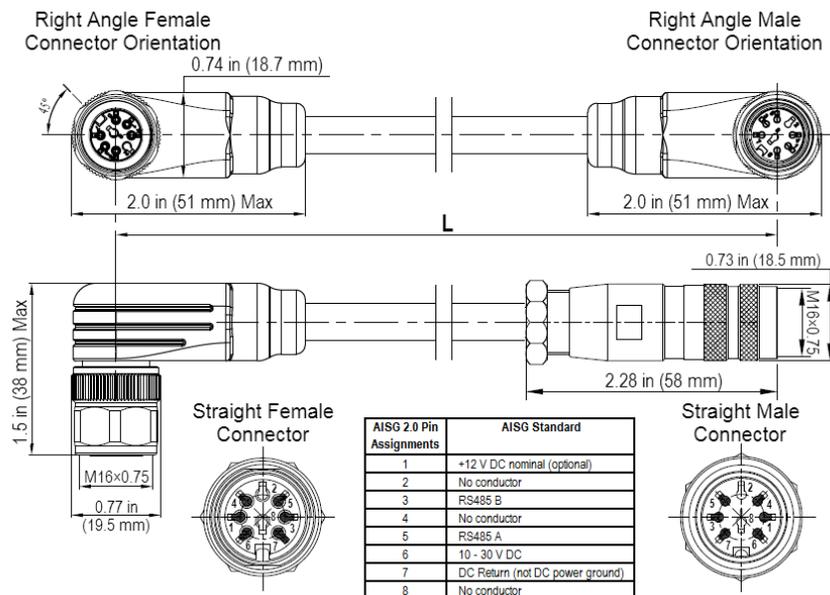
AISG Cable Kit

HPA-CBK-RA-AG-RRU

Electrical/Mechanical/Environmental Specifications

	RET to RET Cables	RRU to Antenna Cables
Individual Cable Part Number	AISGC-MRA-FRA-20	AISGC-M-FRA-10FT
Cable style	UL2464	
Protocol	AISG 1.1 and AISG 2.0	
Maximum voltage	300 V	
Rated current	5 A at 104° F (40° C)	
Temperature Range	-40° to 80° C	
Flammability	UL 1581 VW-1	
Ingress Protection	IEC 60529:2001, IP67	
Tightening torque	Hand tighten only ≈ 1.84 ft-lbs (2.5 N·m)	
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)	
Minimum bend radius	3.9 in (100 mm)	
Connectors	2 x 8 pin IEC 60130-9 Right angle male/right angle female	2 x 8 pin IEC 60130-9 Straight male/right angle female
Length	20 in (508 mm)	120 in (3048 mm)
Weight	0.23 lbs (0.10 kg)	0.77 lbs (0.35 kg)
Cables per kit	2	2

Mechanical Specifications



Right Angle to Right Angle and Right Angle to Straight Jumper Cable



Antennas

STANDARDS & CERTIFICATIONS

Three-Beam Special Events Antenna

MBA3R-K4A

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

