



# Antennas

DATA SHEET

## Ultra-Wideband Bi-Sector™™ Array

BSA-M65R-UV-H8



- Eight foot (2.3 m), eight port, dual beam antenna with patented asymmetrical beam shapes optimized for LTE
- Four wideband 33° beams to match existing 65° patterns; one pair of beams covering 1695-2400 MHz and the other pair covering 2300-2690 MHz
- Ultra-wideband performance yields uncompromised antenna patterns in each of the 1695-2400 MHz and 2300-2690 MHz bands while eliminating the need for diplexing to deploy both bands simultaneously
- One pair of +45° and -45° cross-polarized ports for each beam
- Slim and low weight single panel design supporting two beams in a single antenna
- Field replaceable, integrated AISG 2.0 compliant Remote Electrical Tilt (RET) system with independent tilt control for each beam
- Dramatic increase in site capacity through higher order sectorization which offsets the need to build new sites
- Boosts data throughput by minimizing interference and optimizing coverage
- Sharp elevation beamwidth aides in network planning
- Optimal elevation sidelobe performance
- Exceeds minimum PIM performance requirements

### Overview

The CCI ultra-wideband Bi-Sector™™ array is a dual beam antenna with full DCS, PCS, 2100 UMTS, AWS and WCS band coverage. With two pairs of wideband ports covering 1710-2400 MHz and another two pairs covering 2300-2690 MHz, this eight foot (2.3 m) CCI Bi-Sector™™ provides the capability to deploy not only two beams (sectors) in a single antenna but two beams for multiple frequency bands without the need for diplexing. The antenna allows separate tilt control for each beam individually, enabling maximum flexibility in network deployment.

CCI's unique patented bi-sector technology provides optimized overlap between the pairs of asymmetric beams, lowers soft handover losses in LTE, UMTS/HSPA+ and CDMA/EVDO systems, while minimizing interference between sectors. Fast roll-off of each of the outer beams and high front-to-back ratios ensure reduced interference. This patented 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 Bi-Sector™™ Array offers the opportunity to reduce antenna count and directly replaces an existing 65° antenna without mount changes and avoids costly leasing and zoning changes. The enhanced coverage matches the existing sector footprint and minimizes the need for optimization and adjacent site changes, providing operators with 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

- Delivers increased capacity and data-throughput for sites that are performance or capacity constrained
- Provides a higher level of spectrum reuse making it an ideal solution for spectrum limited markets
- Increase capacity without the need for new site builds or carrier adds and without using valuable spectrum resources
- Efficient use of spectrum make it ideally suited for spectrum clearing and refarming



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## SPECIFICATIONS

### Ultra-Wideband Bi-Sector™™ Array

BSA-M65R-UV-H8

#### Electrical

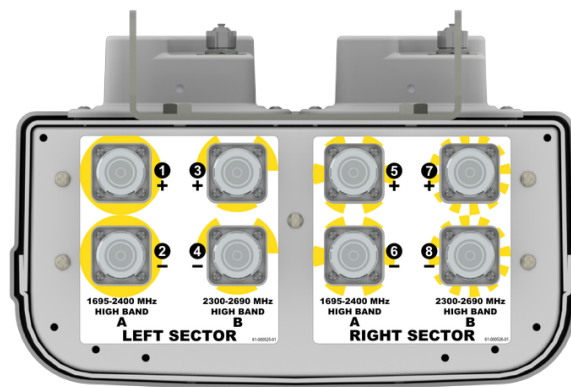
Ports	4 High Band Ports for 1695-2400 MHz				4 High Band Ports for 2300-2690 MHz	
Frequency Range	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2300-2400 MHz	2300-2400 MHz	2496-2690 MHz
Gain	17.9 dBi	18.5 dBi	19.0 dBi	19.3 dBi	18.6 dBi	19.0 dBi
Azimuth Beamwidth (-3dB)	35°	33°	31°	26°	33°	30°
Elevation Beamwidth (-3dB)	7.3°	6.6°	6.3°	5.8°	6.5°	6.2°
Electrical Downtilt	0° to 10°	0° to 10°	0° to 10°	0° to 10°	0° to 9°	0° to 9°
Elevation Sidelobes (1st Upper)	< -19 dB	< -19 dB	< -19 dB	< -19 dB	< -19 dB	< -19 dB
Front-to-Back Ratio @180°	> 35 dB	> 35 dB	> 35 dB	> 33 dB	> 35 dB	> 35 dB
Front-to-Back Ratio over ± 20°	> 35 dB	> 33 dB	> 33 dB	> 33 dB	> 33 dB	> 33 dB
Cross-Polar Discrimination (at Peak)	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross-Polar Port-to-Port Isolation	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Voltage Standing Wave Ratio(VSWR)	< 1.4:1	< 1.4:1	< 1.4:1	< 1.5:1	< 1.4:1	< 1.4:1
Passive Intermodulation (2x20W)	≤ -150 dBc	≤ -150 dBc	≤ -150 dBc	≤ -150 dBc	≤ -150 dBc	≤ -150 dBc
Input Power Continuous Wave (CW)	300 watts	300 watts	300 watts	300 watts	300 watts	300 watts
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

Dimensions (LxWxD)	91.4x12.9x6.2 in (2322x328x158 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	294 lbs (1309 N) @ 100 mph (161 kph)
Side Wind Load	167 lbs (745 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	11.5 ft <sup>2</sup> (1.1 m <sup>2</sup> )
Weight*	51.8 lbs (23.5 kg)
RET System Weight	6.6 lbs (3.0 kg)
Connector	8 x 7-16 DIN female long neck
Mounting Pole	2 to 5 in (5 to 12 cm)

\* Weight excludes mounting and RET

Bottom View



RET Connection Diagram

**CONNECT RET ACTUATORS AS SHOWN BELOW**





# Antennas

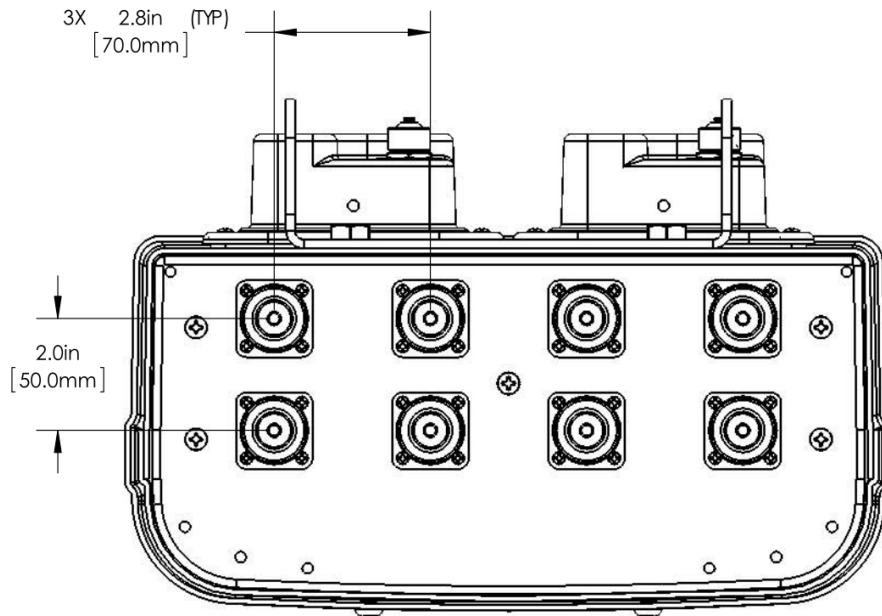
## SPECIFICATIONS

### Ultra-Wideband Bi-Sector™™ Array

BSA-M65R-UV-H8

#### Mechanical

##### Connector Spacing





# Antennas

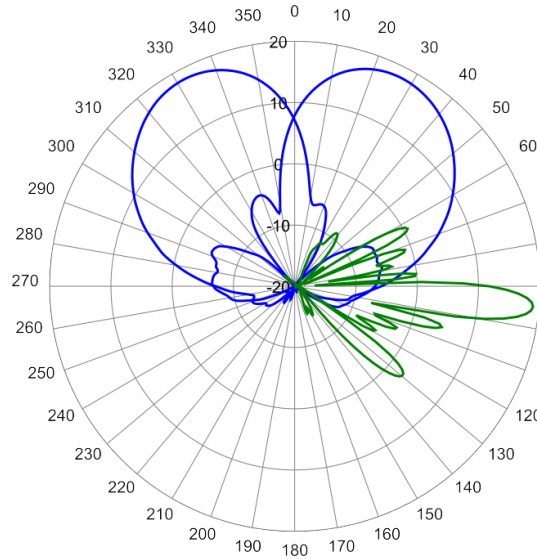
## SPECIFICATIONS

### Ultra-Wideband Bi-Sector™™ Array

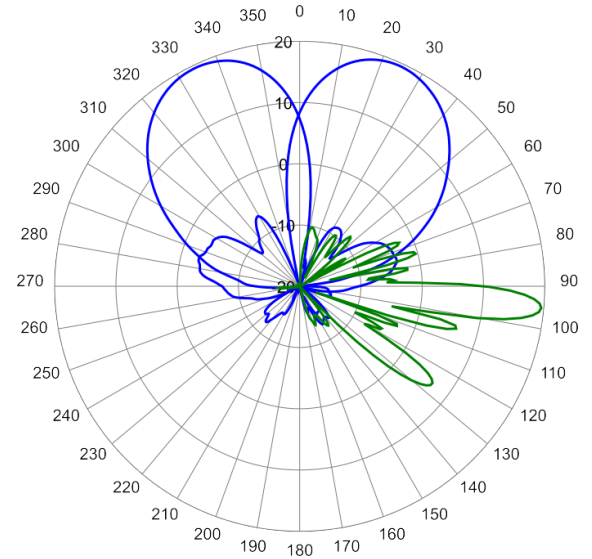
BSA-M65R-UV-H8

#### Typical Antenna Patterns

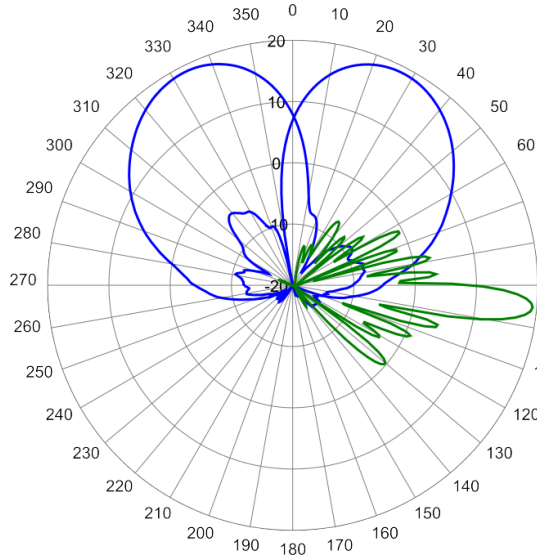
For detailed information on additional antenna patterns, contact customer support at [support@cciproducts.com](mailto:support@cciproducts.com)



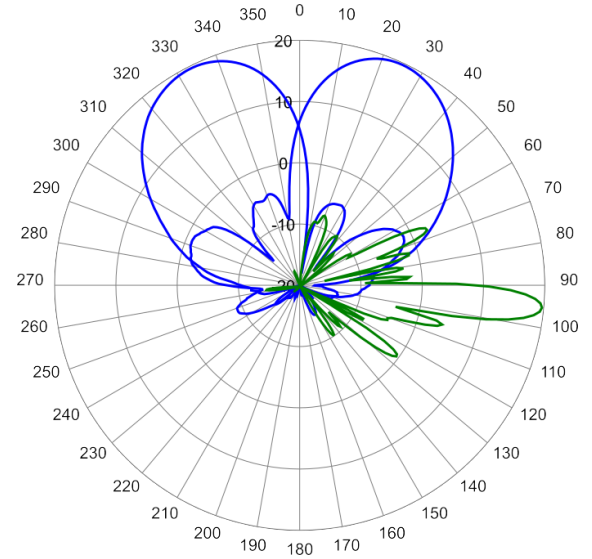
1878 MHz Azimuth and 5° Elevation



2110 MHz Azimuth and 5° Elevation



2350 MHz Azimuth and 5° Elevation



2600 MHz Azimuth and 5° Elevation



# Antennas

ORDERING

Ultra-Wideband Bi-Sector™™ Array

BSA-M65R-UV-H8

Parts & Accessories

<b>BSA-M65R-UV-H8</b>	8 foot (2.3 m) Bi-Sector™ Multi-band Antenna with 4 factory installed BSA-RET200 RET actuators
<b>BSA-M65V-UV-H8</b>	8 foot (2.3 m) Bi-Sector™ Multi-band Antenna with 4 factory installed manual knobs
<b>BSA-M65R-UV-H8-K</b>	Antenna kit with 4 factory installed RET actuators and MBK-01 mounting bracket
<b>BSA-M65V-UV-H8-K</b>	Antenna kit with 4 factory installed manual knobs and MBK-01 mounting bracket
<b>MBK-01</b>	Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment
<b>BSA-RET200</b>	Remote electrical tilt actuator
<b>OPA-CBK-AG-RRU</b>	OctoPort antenna to RRU AISG cable kit
<b>OPA-CBK-RA-AG-RRU</b>	OctoPort antenna to RRU AISG right angle cable kit



# Antennas

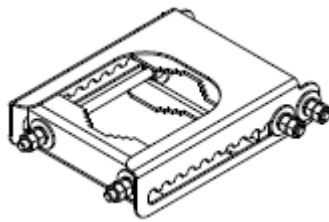
ACCESSORIES

## Mounting Bracket Kit

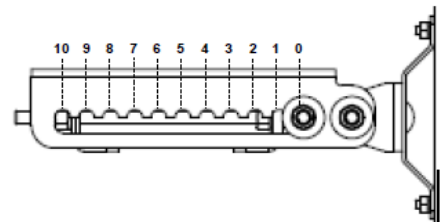
MBK-01

Mechanical

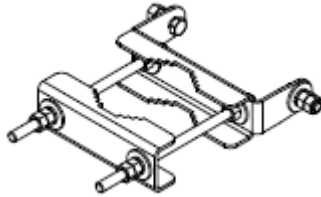
<b>Weight</b>	12.6 lbs (5.7 kg)
<b>Hinge Pitch</b>	47.25 in (1200 mm)
<b>Mounting Pole Dimension</b>	2 to 5 in (5 to 12 cm)
<b>Fastener Size</b>	M12
<b>Installation Torque</b>	40 ft·lb (54 N·m)
<b>Mechanical Tilt Adjustment</b>	0° - 10°



MBK-01 Top Adjustable Bracket



MBK-01 Top Adjustable Bracket Side View



MBK-01 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

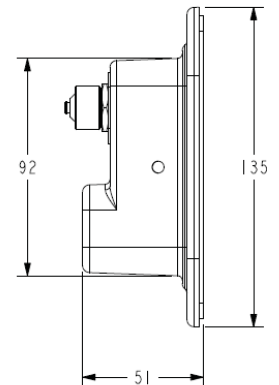
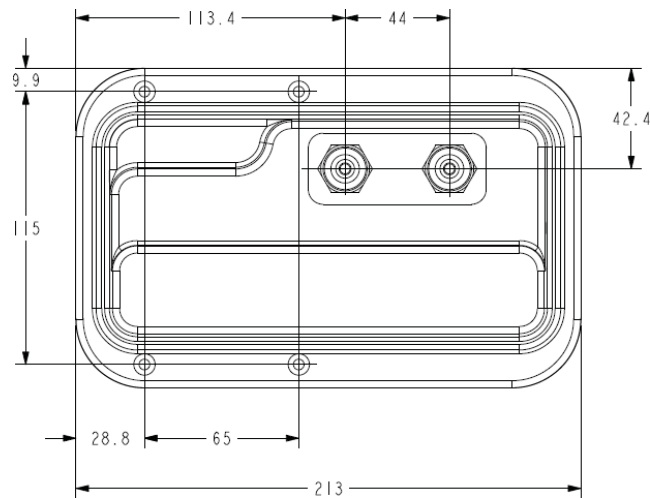
### Electrical

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

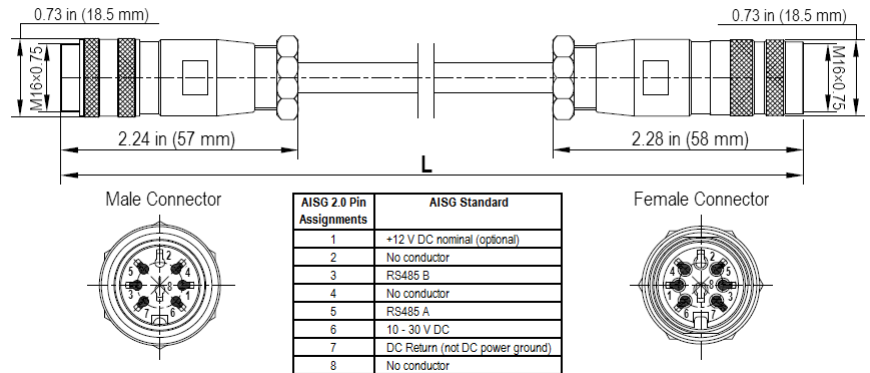
OPA-CBK-AG-RRU

## Electrical Specifications

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

## Mechanical Specifications

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



AISG-Male to AISG-Female Jumper Cable

## Environmental Specifications

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



# Antennas

ACCESSORIES

AISG Cable Kit

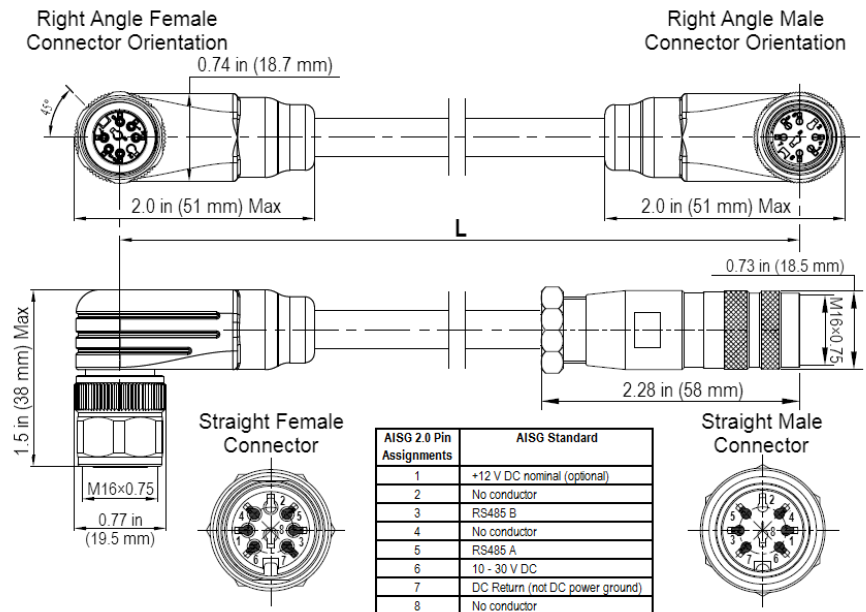
OPA-CBK-RA-AG-RRU

## Electrical Specifications

<b>Individual Cable Part Number</b>	AISGC-MRA-FRA-20	AISGC-M-FRA-10FT
<b>Cable style</b>	UL2464	UL2464
<b>Protocol</b>	AISG 1.1 and AISG 2.0	AISG 1.1 and AISG 2.0
<b>Maximum voltage</b>	300 V	300 V
<b>Rated current</b>	5 A at 104° F (40° C)	5 A at 104° F (40° C)

## Mechanical Specifications

<b>Individual Cable Part Number</b>	AISGC-MRA-FRA-20	AISGC-M-FRA-10FT
<b>Cables per kit</b>	3	2
<b>Connectors</b>	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
<b>Tightening torque</b>	Hand tighten only $\approx$ 1.84 ft-lbs (2.5 N-m)	Hand tighten only $\approx$ 1.84 ft-lbs (2.5 N-m)
<b>Construction</b>	Shielded (Tinned Copper Braid)	Shielded (Tinned Copper Braid)
<b>Braid coverage</b>	85%	85%
<b>Jacket Material</b>	Matte Polyurethane (Black)	Matte Polyurethane (Black)
<b>Conductors</b>	1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464	1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464
<b>Cable Diameter</b>	0.307 in (7.8 mm)	0.307 in (7.8 mm)
<b>Length</b>	20 in (508 mm)	120 in (3048 mm)
<b>Weight</b>	0.23 lbs (0.10 kg)	0.77 lbs (0.35 kg)
<b>Minimum bend radius</b>	3.9 in (100 mm)	3.9 in (100 mm)



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



# Antennas

ACCESSORIES

AISG Cable Kit

OPA-CBK-RA-AG-RRU

## Environmental Specifications

<b>Individual Cable Part Number</b>	AISGC-MRA-FRA-20	AISGC-M-FRA-10FT
<b>Temperature Range</b>	-40° to 80° C	-40° to 80° C
<b>Flammability</b>	UL 1581 VW-1	UL 1581 VW-1
<b>Ingress Protection</b>	IEC 60529:2001, IP67	IEC 60529:2001, IP67



# Antennas

## STANDARDS & CERTIFICATIONS

### Ultra-Wideband Bi-Sector™™ Array

BSA-M65R-UV-H8

#### Standards & Compliance

<b>Safety</b>	EN 60950-1, UL 60950-1
<b>Emission</b>	EN 55022
<b>Immunity</b>	EN 55024
<b>Environmental</b>	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

