



- Six foot (1.8 m), Multi band, six port antenna with a 65° azimuth beamwidth covering 698-896 MHz and 1695-2180 MHz frequencies.
- Four wide high band ports covering 1695-2180 MHz and two wide low band ports covering 698-896 MHz in a single antenna
- New enclosure with <12" (305 mm) width, narrowest enclosure in the industry
- Full Spectrum Compliance for 698-896 MHz / 1695-2180 MHz, including AWS-3 and upcoming Band 14 Operations
- LTE Optimized FBR and SPR performance, providing for an efficient use of valuable radio capacity
- LTE Optimized Boresight and Sector XPD and USL performance, essential for LTE Performance
- Exceeds minimum PIM performance requirements
- Ordering options for 7/16 DIN connector or the new 4.3-10 connector, which is 40% smaller than traditional 7/16 DIN connector

Overview

The CCI HexPort multiband array is a six port antenna, with four wide high band ports covering 1695-2180 MHz and two wide low band ports covering 698-896 MHz. The CCI HexPort provides the capability to deploy 4x4 Multiple-input Multiple-output (MIMO) in the high band and 2x2 Multiple-input Multiple-output in the low band. The CCI HexPort allows separate tilt control between the low band ports and high band ports.

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

Applications

- 4x4 MIMO for the high band and 2x2 MIMO for the low band
- Ready for Network Standardization on 4.3-10 connectors
- With CCI's Multi-Band antennas, wireless providers can connect multiple platforms to a single antenna, reducing tower load, lease expense, deployment time and installation costs



HexPort Multi-Band Antenna

HPA65R-BW6A

SPECIFICATIONS

Electrical

Ports	2 x Low Band Ports for 698-896 MHz		4 x High Band Ports for 1695-2180 MHz		
Frequency Range	698-806 MHz	824-896 MHz	1850-1990 MHz	1695-1780/2110-2180 MHz	
Gain	14.6 dBi	14.4 dBi	18.1 dBi	17.5 dBi	18.7 dBi
Azimuth Beamwidth (-3dB)	66°	68°	60°	63°	58°
Elevation Beamwidth (-3dB)	12.8°	11.1°	5.1°	5.8°	4.5°
Electrical Downtilt	2° to 12°	2° to 12°	0° to 8°	0° to 8°	0° to 8°
Elevation Sidelobes (1st Upper)	< -19 dB	< -19 dB	< -19 dB	< -17 dB	< -18 dB
Front-to-Back Ratio @180°	> 35 dB	> 35 dB	> 35 dB	> 35 dB	> 35 dB
Cross-Polar Discrimination at Peak	> 25 dB	> 25 dB	> 18 dB	> 22 dB	> 19 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 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	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	500 watts	500 watts	500 watts	500 watts	500 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

BASTA Electrical Specifications*					
Frequency Range	698-806 MHz	824-896 MHz	1850-1990 MHz	1695-1780/2110-2180 MHz	
Gain over all Tilts (dBi)	14.1	14.0	17.3	16.8	17.9
Gain over all Tilts Tolerance (dB)	0.5	0.5	0.8	0.5	0.8
Gain at Low-Tilt (dBi)	14.3	14.2	16.9	16.6	17.3
Gain at Mid-Tilt (dBi)	14.1	14.1	17.5	16.8	18.2
Gain at High-Tilt (dBi)	13.8	13.8	17.6	16.8	18.2
Azimuth Beamwidth Tolerance (°)	3.3	6.0	3.0	3.3	2.1
Elevation Beamwidth Tolerance (°)	1.1	0.6	0.3	0.3	0.3
Electrical Downtilt Deviation (°)	0.7	0.7	0.6	0.7	0.6
First Upper Sidelobe Suppression (dB)	-15.0	-17.1	-16.0	-13.9	-15.5
Upper Sidelobe Suppression Peak to 20° (dB)	-16.8	-17.9	-14.1	-12.6	-13.6
Front-to-Back Ratio over ±20° (dB)	25.2	27.5	29.6	28.1	31.6
Cross-polar Discrimination at ±60° (dB)	11.2	11.7	7.9	9.9	6.6

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

Mechanical

Dimensions (LxWxD)	71.1x11.7x7.7 in (1807x297x196 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	201 lbs (894 N) @ 100 mph (161 kph)
Side Wind Load	144 lbs (639 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	7.9 ft ² (0.7 m ²)
Weight *	45.2 lbs (20.5 kg)
Connector	6x 7-16 DIN long neck female or 6x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

* Weight excludes mounting



SPECIFICATIONS

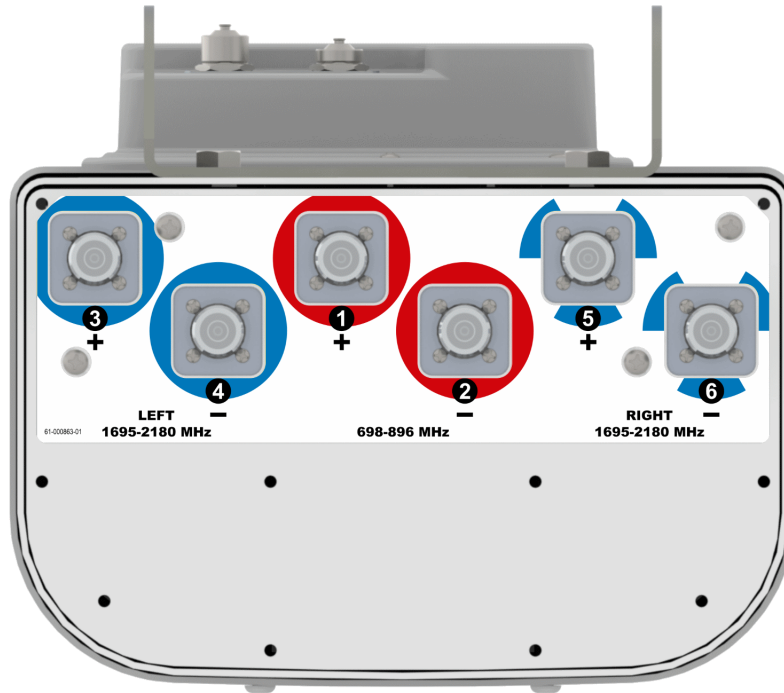
HexPort Multi-Band Antenna

HPA65R-BW6A

Mechanical

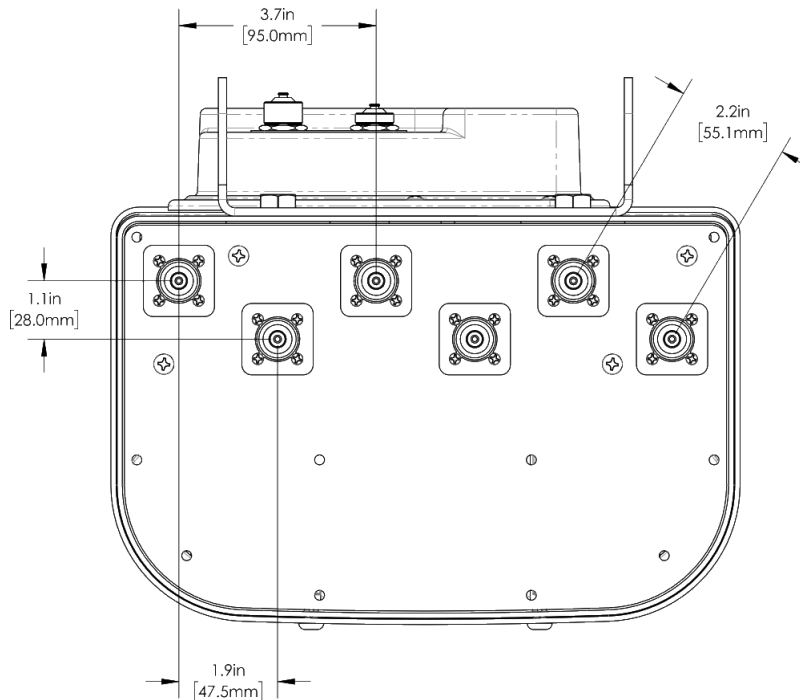
Bottom View

HPA65R-BW6AA



Connector Spacing Diagram

HPA65R-BW6AA





HexPort Multi-Band Antenna

HPA65R-BW6A

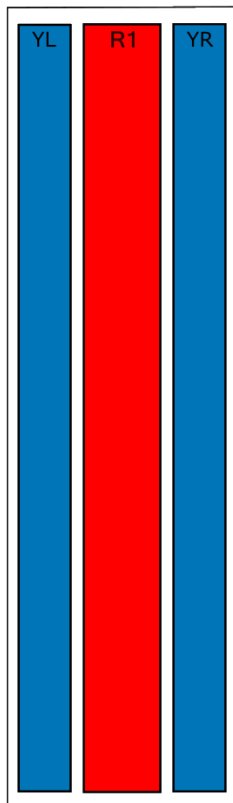
SPECIFICATIONS

Mechanical

RET to Element Configuration

HPA65R-BW6AA Element to RET configuration

**Top of antenna
Viewed from rear**



**RET placement
as view from rear
of antenna**

Top of antenna



698-896
Ports 1, 2
(R1)



Left & Right
1695-2180
Ports 3, 4, 5, 6
(YL & YR)

Array	Ports	Freq (MHz)	Ports controlled by common RET
R1	1, 2	698-896	1, 2
YL	3, 4	1695-2180	3, 4, 5, 6
YR	5, 6	1695-2180	



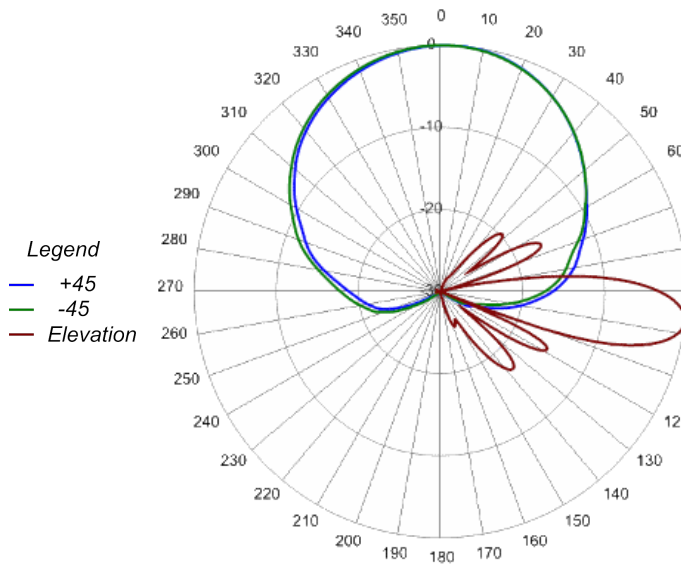
HexPort Multi-Band Antenna

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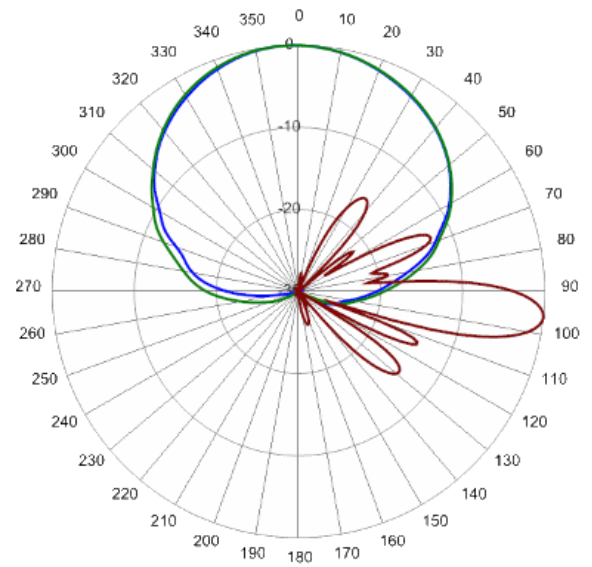
SPECIFICATIONS

Typical Antenna Patterns

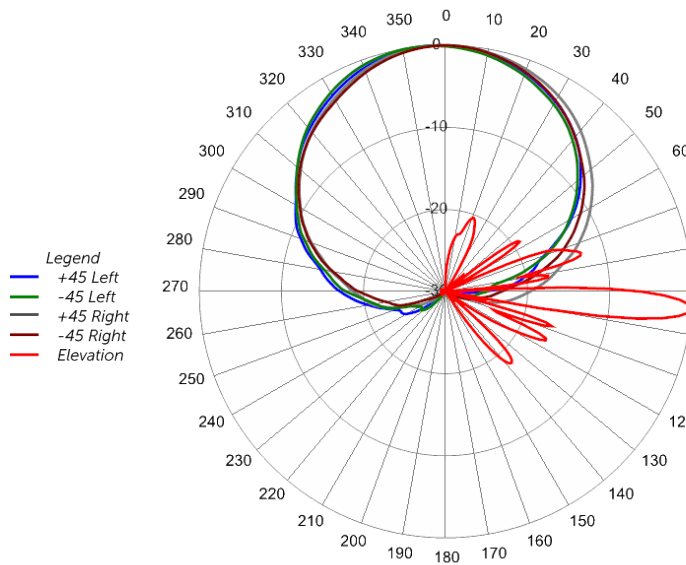
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



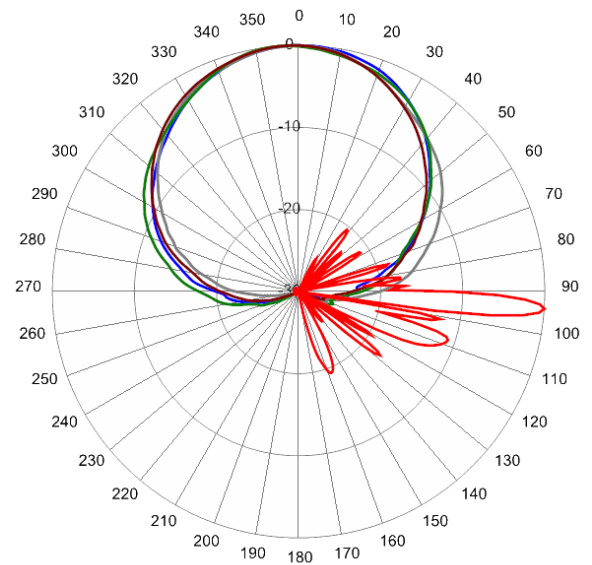
734 MHz Azimuth with Elevation 7°



806 MHz Azimuth with Elevation 7°



1780 MHz Azimuth with Elevation 4°



2155 MHz Azimuth with Elevation 4°



HexPort Multi-Band Antenna

HPA65R-BW6A

Parts & Accessories

HPA65R-BW6AA-K	Six foot (1.8 m) Muilt-Band antenna with 65° azimuth beamwidth, 4.3-10 female connectors, 2 factory installed BSA-RET200 RET actuators and MBK-01 mounting bracket
HPA65R-BW6AB-K	Six foot (1.8 m) Muilt-Band antenna with 65° azimuth beamwidth, 7-16 DIN long neck female connectors, 2 factory installed BSA-RET200 RET actuators and MBK-01 mounting bracket
MBK-01	Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment
BSA-RET200	Remote electrical tilt actuator
CBK-AG-RRU-001	Multi-Band antenna with 2 RET to RRU AISG cable kit
CBK-RA-AG-RRU-001	Multi-Band antenna with 2 RET to RRU AISG right angle cable kit

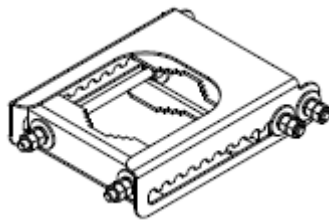


Mounting Bracket Kit

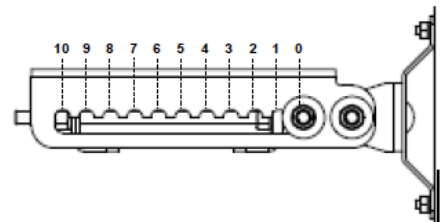
MBK-01

Mechanical

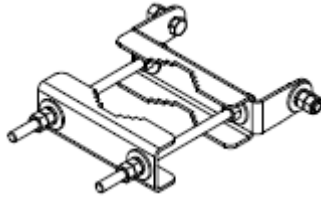
Weight	12.6 lbs (5.7 kg)
Hinge Pitch	47.25 in (1200 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lb (54 N·m)
Mechanical Tilt Adjustment	0° - 10°



MBK-01 Top Adjustable Bracket



MBK-01 Top Adjustable Bracket Side View



MBK-01 Bottom Fixed Bracket



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

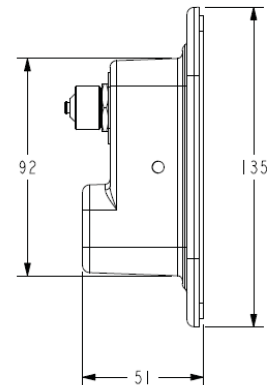
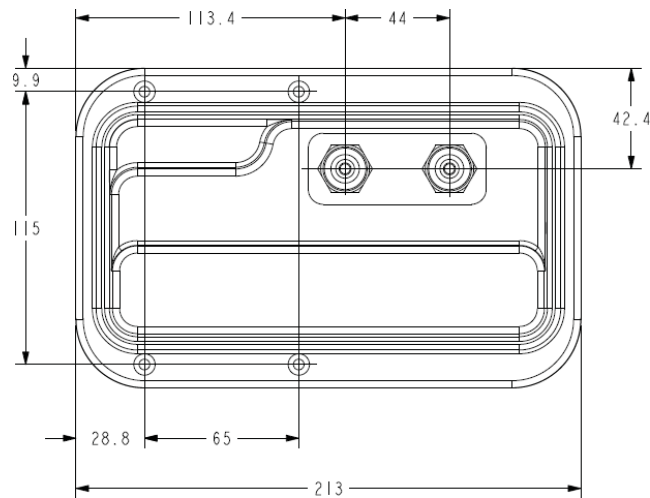
Electrical

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





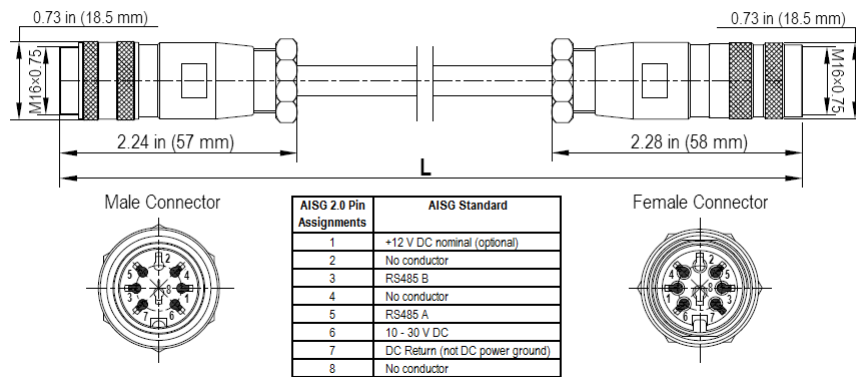
AISG Cable Kit

CBK-AG-RRU-001

Electrical/Mechanical/Environmental Specifications

	RET to RET Cables	RRU to Antenna Cables
Individual Cable Part Number	AISGC-M-F-27	AISGC-M-F-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 Straight male/straight female	
Length	27 in (686 mm)	120 in (3048 mm)
Weight	0.33 lbs (0.15 kg)	0.69 lbs (0.31 kg)
Cables per kit	1	2

Mechanical Specifications



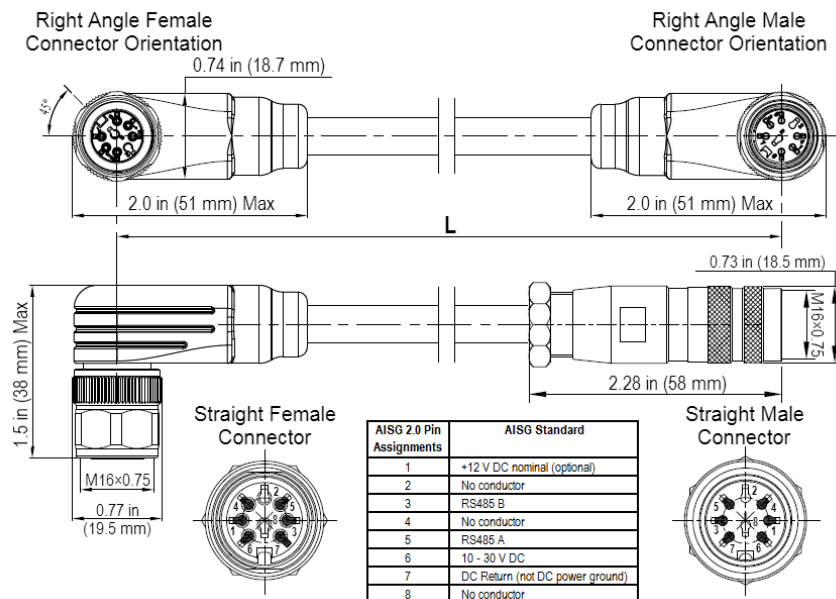
AISG-Male to AISG-Female Jumper Cable



Electrical/Mechanical/Environmental Specifications

	RET to RET Cables	RRU to Antenna Cables
Individual Cable Part Number	AISGC-MRA-FRA-27	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	27 in (686 mm)	120 in (3048 mm)
Weight	0.20 lbs (0.09 kg)	0.77 lbs (0.35 kg)
Cables per kit	1	2

Mechanical Specifications



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



STANDARDS & CERTIFICATIONS

HexPort Multi-Band Antenna

HPA65R-BW6A

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

