

- Six foot (1.8 m), six port antenna with a 45° azimuth beamwidth covering 698-896 MHz and 1695-2180 MHz
- Four high band and two low band ports in a single antenna
- Sharp elevation beamwidth aids in network planning
- Optimal elevation sidelobe performance
- Enhanced array spacing ensures optimal MIMO performance
- Exceeds minimum PIM performance requirements
- Multi-network solution in one radome with six ports
- Reduces tower load and increases space for tower mounted remote radio heads
- Multi-band design improves site radio resource management
- Field replaceable, AISG 2.0 compliant Remote Electrical Tilt (RET) system with independent tilt control for each paired port

Overview

The CCI HexPort multi-band array is a six port antenna, with four high band ports covering 1695-2180 MHz and two low band ports covering 698-896 MHz. This six foot (1.8 m) CCI HexPort provides the capability to deploy 4x4 Multiple-input Multiple-output (MIMO) in the high band. The HexPort allows separate tilt control for each pair of ports enabling maximum flexibility in network deployment.

CCI has engineered its antennas using new and innovative design techniques to provide optimal sidelobe performance, sharp elevation beams, and high front to back ratio.

Multiple technologies can now be connected to a single antenna, reducing tower load, lease expense, deployment time and installation cost.

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
- Increase capacity without adding antennas
- High sector count sites
- Densely populated macro sites
- Cosite current, and next-generation basestation technologies on the same antenna



HexPort Multi-Band Antenna

HPA-45R-BWW-H6

SPECIFICATIONS

Electrical

| Ports | 2 × Low Band Ports for 698-896 MHz | | 4 × High Band Ports for 1695-2180 MHz | | |
|---|------------------------------------|--------------|---------------------------------------|-------------------------|--------------|
| Frequency Range | 698-806 MHz | 824-896 MHz | 1850-1990 MHz | 1695-1755/2110-2180 MHz | |
| Gain (dBi) | 15.3 | 15.5 | 18.0 | 17.6 | 18.0 |
| Azimuth Beamwidth (-3dB) (°) | 51 | 44 | 49 | 49 | 49 |
| Elevation Beamwidth (-3dB) (°) | 13.2 | 11.1 | 5.7 | 6.2 | 5.1 |
| Electrical Downtilt (°) | 0 to 10 | 0 to 10 | 0 to 8 | 0 to 8 | 0 to 8 |
| Elevation Sidelobes (1st Upper) (dB) | < -18 | < -18 | < -20 | < -20 | < -20 |
| Front-to-Back Ratio @180° (dB) | > 30 | > 30 | > 30 | > 30 | > 30 |
| Cross-Polar Discrimination (at Peak) (dB) | > 25 | > 25 | > 20 | > 20 | > 20 |
| Cross-Polar Port-to-Port Isolation (dB) | > 25 | > 25 | > 25 | > 25 | > 25 |
| Voltage Standing Wave Ratio (VSWR) | < 1.5:1 | < 1.5:1 | < 1.5:1 | < 1.5:1 | < 1.5:1 |
| Passive Intermodulation (2x20W) (dBc) | ≤ -153 | ≤ -153 | ≤ -153 | ≤ -153 | ≤ -153 |
| Input Power Continuous Wave (CW) | 500 watts | 500 watts | 300 watts | 300 watts | 300 watts |
| Polarization | 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 |
| 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 | 1695-1755/2110-2180 MHz | |
|--|-------------|-------------|---------------|-------------------------|------|
| Gain over all Tilts (dBi) | 15.3 | 15.5 | 18.0 | 17.6 | 18.0 |
| Gain over all Tilts Tolerance (dB) | 0.3 | 0.4 | 0.3 | 0.4 | 0.5 |
| Gain at Low-tilt (dBi) | 15.4 | 15.5 | 18.0 | 17.7 | 18.0 |
| Gain at Mid-tilt (dBi) | 15.4 | 15.7 | 18.1 | 17.7 | 18.2 |
| Gain at High-tilt (dBi) | 15.1 | 15.2 | 17.8 | 17.5 | 17.8 |
| Azimuth Beamwidth Tolerance (°) | 1.8 | 3.0 | 2.6 | 3.3 | 3.6 |
| Elevation Beamwidth Tolerance (°) | 1.1 | 0.9 | 0.3 | 0.2 | 0.2 |
| Electrical Downtilt Deviation (°) | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 |
| Front-to-Back Ratio over ± 20° (dB) | 25.8 | 26.6 | 25.9 | 22.4 | 24.3 |
| First Upper Sidelobe Suppression (dB) | 15.5 | 16.0 | 18.0 | 17.6 | 16.4 |
| Upper Sidelobe Suppression peak to 20°(dB) | 17.1 | 17.4 | 17.3 | 17.2 | 16.1 |

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

Mechanical

| | |
|----------------------------|--|
| Dimensions (LxWxD) | 72.1x18.6x8.2 in (1833x472x210 mm) |
| Survival Wind Speed | > 150 mph (> 241 kph) |
| Front Wind Load | 301 lbs (1337 N) @ 100 mph (161 kph) |
| Side Wind Load | 154 lbs (686 N) @ 100 mph (161 kph) |
| Equivalent Flat Plate Area | 11.7 ft ² (1.1 m ²) |
| Weight * | 49.2 lbs (22.3 kg) |
| RET System Weight | 5.0 lbs (2.3 kg) |
| Connector | 6 × 7-16 DIN female long neck |
| Mounting Pole | 2 to 5 in (5 to 12 cm) |

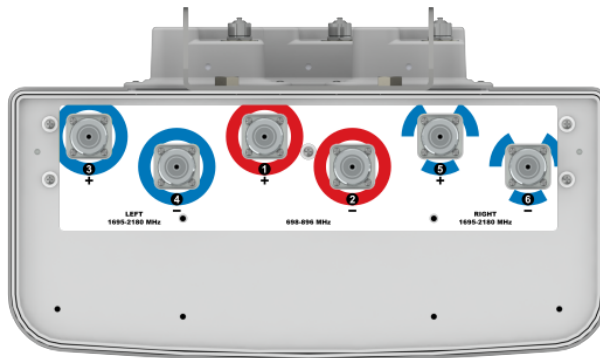
* Weight excludes mounting and RET

SPECIFICATIONS

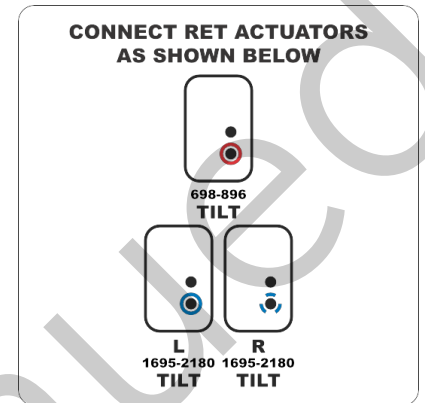
HexPort Multi-Band Antenna

HPA-45R-BWW-H6

Bottom View

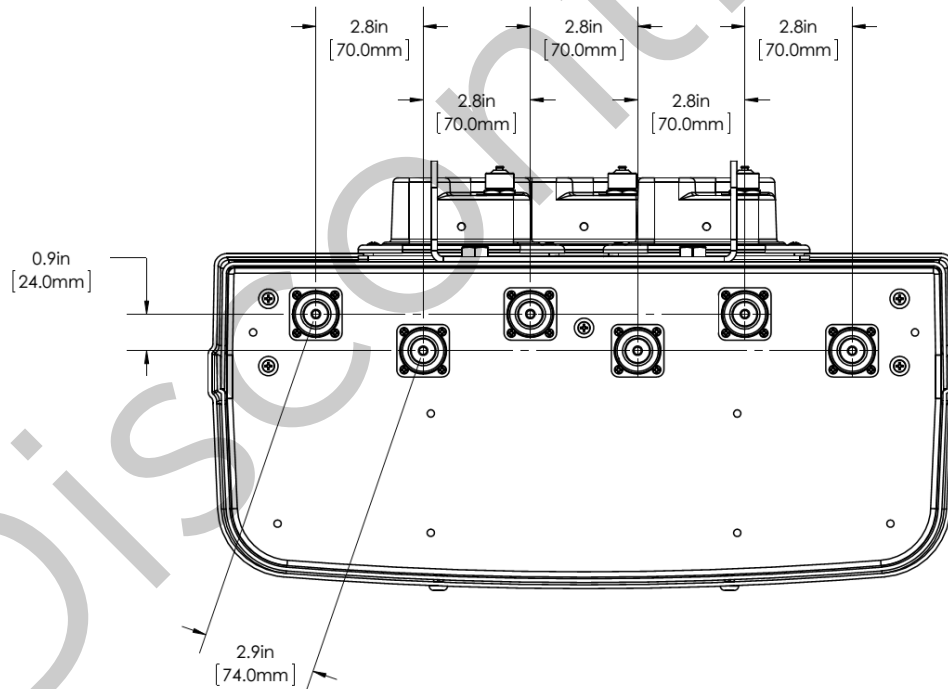


RET Connection Diagram



Mechanical

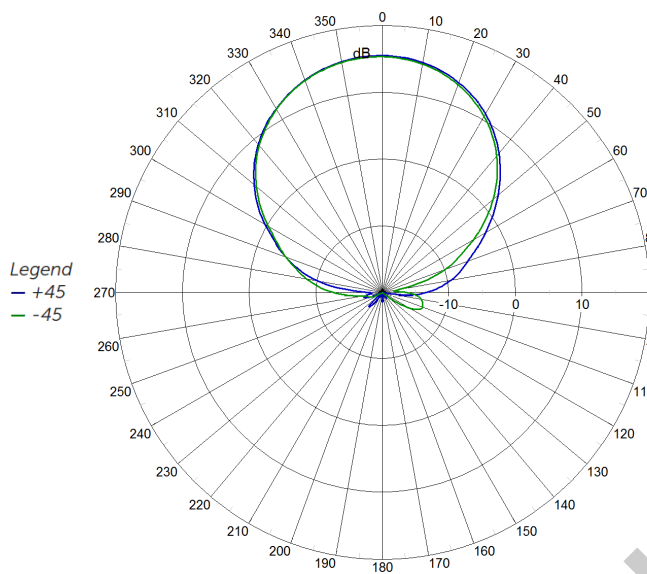
Connector Spacing



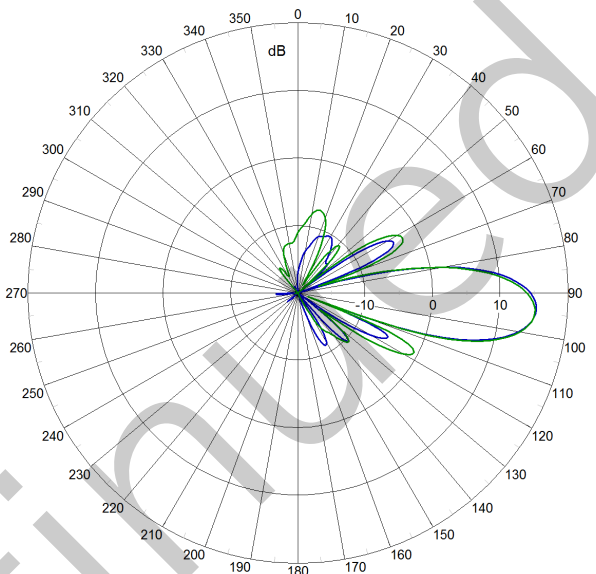


Typical Antenna Patterns

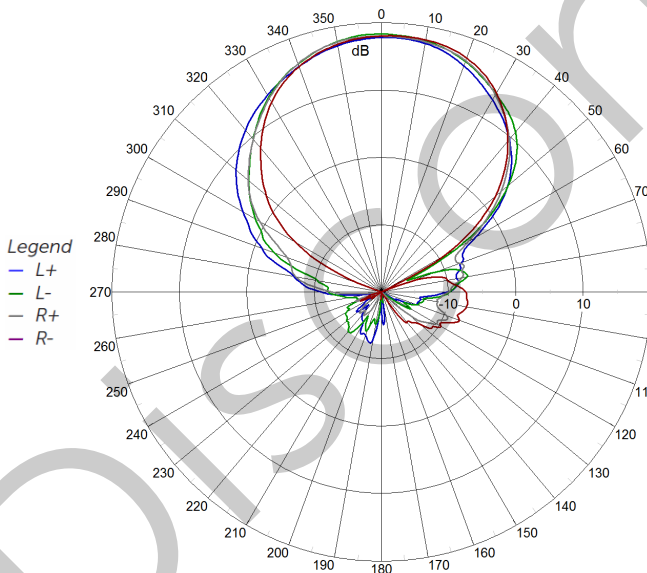
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



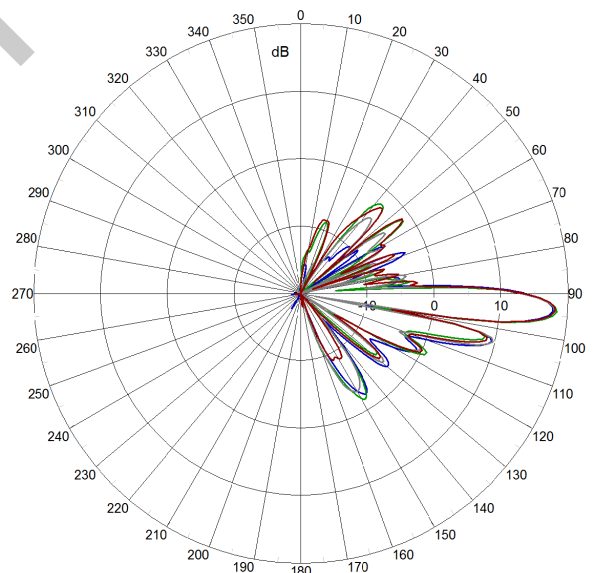
719 MHz Azimuth



719 MHz Elevation 5°



1930 MHz Azimuth



1930 MHz Elevation 4°



ORDERING

HexPort Multi-Band Antenna

HPA-45R-BWW-H6

Parts & Accessories

| | |
|--------------------------|---|
| HPA-45R-BWW-H6 | Six foot (1.8 m) HexPort antenna with 45° azimuth beamwidth and 3 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 |
| HPA-CBK-AG-RRU | HexPort antenna to RRU AISG cable kit |
| HPA-CBK-RA-AG-RRU | HexPort antenna to RRU AISG right angle cable kit |

Discontinued

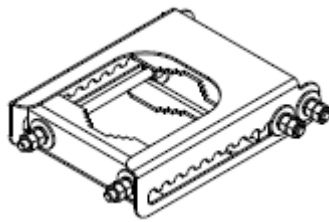


Mounting Bracket Kit

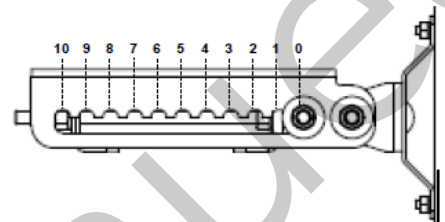
MBK-01

Mechanical

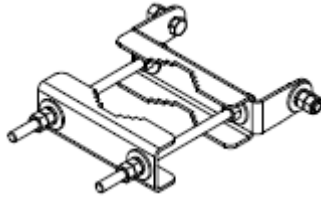
| | |
|-----------------------------------|------------------------|
| Weight | 12.6 lbs (5.7 kg) |
| Hinge Pitch | 47.25 in (1200 mm) |
| Mounting Pole Dimension | 2 to 5 in (5 to 12 cm) |
| Fastener Size | M12 |
| Installation Torque | 40 ft·lb (54 N·m) |
| Mechanical Tilt Adjustment | 0° - 10° |



MBK-01 Top Adjustable Bracket



MBK-01 Top Adjustable Bracket Side View



MBK-01 Bottom Fixed Bracket

Discontinued



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 |

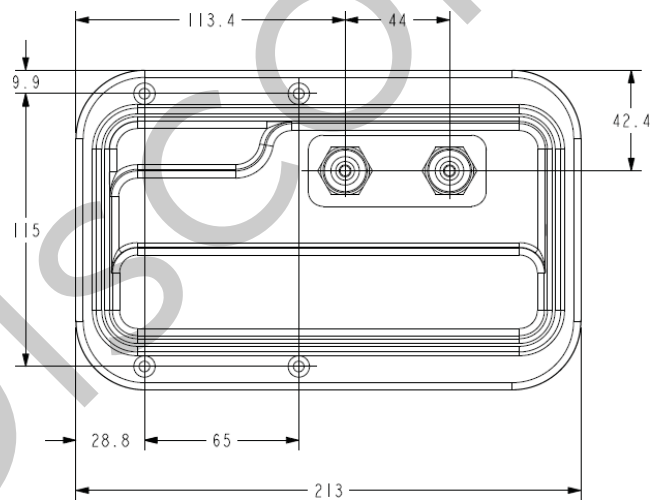
Electrical

| | |
|--------------------------|------------------------------|
| 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



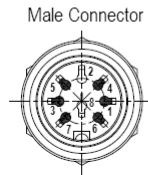
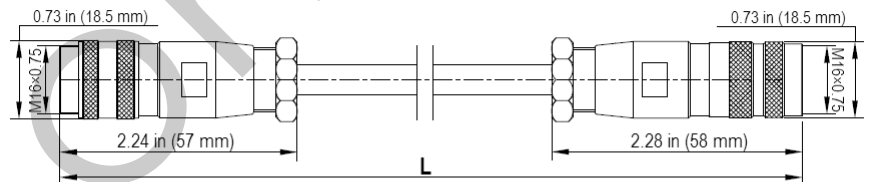


Electrical Specifications

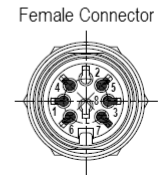
| | | |
|-------------------------------------|-----------------------|-----------------------|
| Individual Cable Part Number | AISGC-M-F-18 | AISGC-M-F-10FT |
| Cable style | UL2464 | UL2464 |
| Protocol | AISG 1.1 and AISG 2.0 | AISG 1.1 and AISG 2.0 |
| Maximum voltage | 300 V | 300 V |
| Rated current | 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 ≈ 1.84 ft-lbs (2.5 N-m) | Hand tighten only ≈ 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 2.0 Pin Assignments | AISG Standard |
|--------------------------|---------------------------------|
| 1 | +12 V DC nominal (optional) |
| 2 | No conductor |
| 3 | RS485 B |
| 4 | RS 485 Ground |
| 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

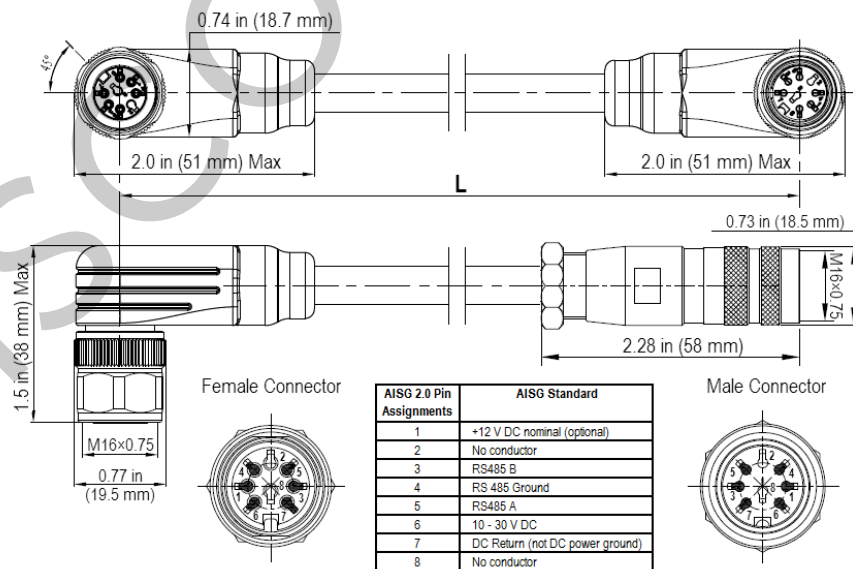
Environmental Specifications

| | | |
|-------------------------------------|----------------------|----------------------|
| Individual Cable Part Number | AISGC-M-F-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 |

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



STANDARDS & CERTIFICATIONS

HexPort Multi-Band Antenna

HPA-45R-BWW-H6

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



DISCONTINUED