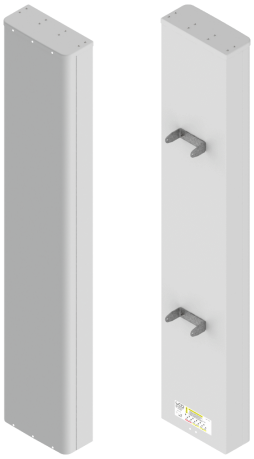
Antennas

MultiPort Series

DATA SHEET

TriBand Twelve-Port Antenna

TPA65R-TE9E



- Nine foot (2.7 m) MultiBand, twelve port antenna with a 65° azimuth beamwidth covering 614-960 MHz and 1695-2690 MHz frequencies
- Eight wide Mid Band ports covering 1695-2690 MHz and four wide Low Band ports covering 614-960 MHz in a single antenna enclosure
- Full Spectrum Compliance 614-960 MHz / 1695-2690 MHz
- Innovative design allows for very high isolation between low band arrays along with improved Squint, Azimuth beamwidth and SPR in the 600 MHz band
- Unique architecture provides >5° of elevation beamwidth with high gain in the 2500MHz Band
- 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
- Equipped with 4.3-10 connectors
- Equipped with (3) RET-T17iG3-M, internal integrated AISG 2.0 compliant Remote Electrical Tilt (RET) Controllers

Overview

The CCI 12-Port 65° TriBand array is a twelve-port antenna, with eight wide mid band ports covering 1695-2690 MHz and four wide low band ports covering 614-960 MHz. The antenna provides the capability to deploy Dual 4x4 Multiple-input Multiple-output (MIMO) in the MB and 4X4 MIMO across low band ports. The CCI 12-Port 65° MB ports have independent tilt control between first and second set of 4X4 MIMO MB antenna arrays.

In this three RET configuration, the 1st RET is dedicated for the four Low Band (LB) ports. The 2nd RET is dedicated to the 1st 4X4 MIMO Mid Band (MB) ports and the 3rd RET is dedicated to the second 4X4 MIMO MB ports. This RET arrangement allows for complete flexibility in coverage control between left and right mid band antenna arrays.

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

Applications

- Dual 4x4 MIMO for the MB and 4X4 MIMO LB ports
- With CCI's TriBand antennas, wireless providers can connect multiple platforms to a single antenna, reducing tower load, lease expense, deployment time and installation costs

© 2025 CCI All rights reserved. Specifications are subject to change.

TriBand Twelve-Port Antenna

SPECIFICATIONS

TPA65R-TE9E

Electrical

Ports	4 x Low Band Ports for 614-960 MHz			
Frequency Range	614-698 MHz	698-806 MHz	824-896 MHz	880-960 MHz
Gain	15.8 dBi	16.3 dBi	16.8 dBi	16.8 dBi
Azimuth Beamwidth (-3dB)	68°	59°	60°	63°
Elevation Beamwidth (-3dB)	8.9°	7.9°	7.0°	6.7°
Electrical Downtilt	2° to 12°	2° to 12°	2° to 12°	2° to 12°
Elevation Sidelobes (1st Upper)	<-16 dB	<-18 dB	<-17 dB	<-16 dB
Front-to-Back Ratio @180°	> 28 dB	> 28 dB	> 33 dB	> 35 dB
Cross-Polar Discrimination at Peak	> 26 dB	> 31 dB	> 25 dB	> 22 dB
Cross-Polar Port-to-Port Isolation	> 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
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	300 watts	300 watts	300 watts	300 watts
Polarization	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°
Input Impedance	50 ohms	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground

BASTA Electrical Specifications				
Frequency Range	614-698 MHz	698-806 MHz	824-896 MHz	880-960 MHz
Gain over all Tilts (dBi)	14.7	15.7	15.8	15.8
Gain over all Tilts Tolerance (dB)	0.6	0.4	0.5	0.6
Gain at Low-Tilt (dBi)	14.8	15.7	15.9	15.9
Gain at Mid-Tilt (dBi)	14.8	15.7	15.9	16.0
Gain at High-Tilt (dBi)	14.7	15.5	15.6	15.5
Azimuth Beamwidth Tolerance (°)	10.6	6.7	10.4	11.7
Elevation Beamwidth Tolerance (°)	0.6	0.6	0.5	0.4
Electrical Downtilt Deviation (°)	0.7	0.5	0.6	0.6
First Upper Sidelobe Suppression (dB)	11.6	14.1	14.0	13.9
Upper Sidelobe Suppression Peak to 20°(dB)	11.9	12.7	12.7	12.2
Front-to-Back Ratio over ±30° (dB)	17.7	19.5	21.9	21.9
Cross-polar Discrimination at ±60° (dB)	9.9	10.2	7.3	5.3

** Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V12.0.*
All specifications are subject to change without notice.

© 2025 CCI All rights reserved. Specifications are subject to change.

TriBand Twelve-Port Antenna

SPECIFICATIONS

TPA65R-TE9E

Electrical

Ports	8 x Mid Band Ports for 1695-2690 MHz				
Frequency Range	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2300-2400 MHz	2496-2690 MHz
Gain	16.7 dBi	17.0 dBi	17.7 dBi	18.1 dBi	18.3 dBi
Azimuth Beamwidth (-3dB)	75°	71°	66°	59°	59°
Elevation Beamwidth (-3dB)	7.3°	6.7°	6.4°	5.8°	5.3°
Electrical Downtilt	0° to 10°	0° to 10°	0° to 10°	0° to 10°	0° to 10°
Elevation Sidelobes (1st Upper)	<-17 dB	<-18 dB	<-18 dB	<-18 dB	<-18 dB
Front-to-Back Ratio @180°	> 34 dB	> 35 dB	> 35 dB	> 35 dB	> 35 dB
Cross-Polar Discrimination at Peak	> 18 dB	> 20 dB	> 21 dB	> 21 dB	> 22 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)	250 watts	250 watts	250 watts	200 watts	200 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	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2300-2400 MHz	2496-2690 MHz
Gain over all Tilts (dBi)	15.9	16.4	16.8	17.3	17.3
Gain over all Tilts Tolerance (dB)	0.5	0.5	0.6	0.7	0.8
Gain at Low-Tilt (dBi)	16.0	16.3	16.8	17.5	17.4
Gain at Mid-Tilt (dBi)	16.1	16.6	17.0	17.5	17.7
Gain at High-Tilt (dBi)	15.8	16.4	16.6	16.9	16.7
Azimuth Beamwidth Tolerance (°)	5.8	6.1	7.2	7.0	6.8
Elevation Beamwidth Tolerance (°)	0.5	0.4	0.4	0.3	0.3
Electrical Downtilt Deviation (°)	0.3	0.5	0.5	0.5	0.5
First Upper Sidelobes Suppression (dB)	12.7	13.1	13.3	15.1	13.8
Upper Sidelobe Suppression Peak to 20°(dB)	11.9	13.1	15.9	15.3	14.9
Front-to-Back Ratio over ±20° (dB)	23.1	25.3	28.8	26.2	25.8
Cross-polar Discrimination at ±60° (dB)	7.6	7.3	8.3	5.2	6.6

** Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V12.0.*
All specifications are subject to change without notice.

© 2025 CCI All rights reserved. Specifications are subject to change.

SPECIFICATIONS

TriBand Twelve-Port Antenna

TPA65R-TE9E

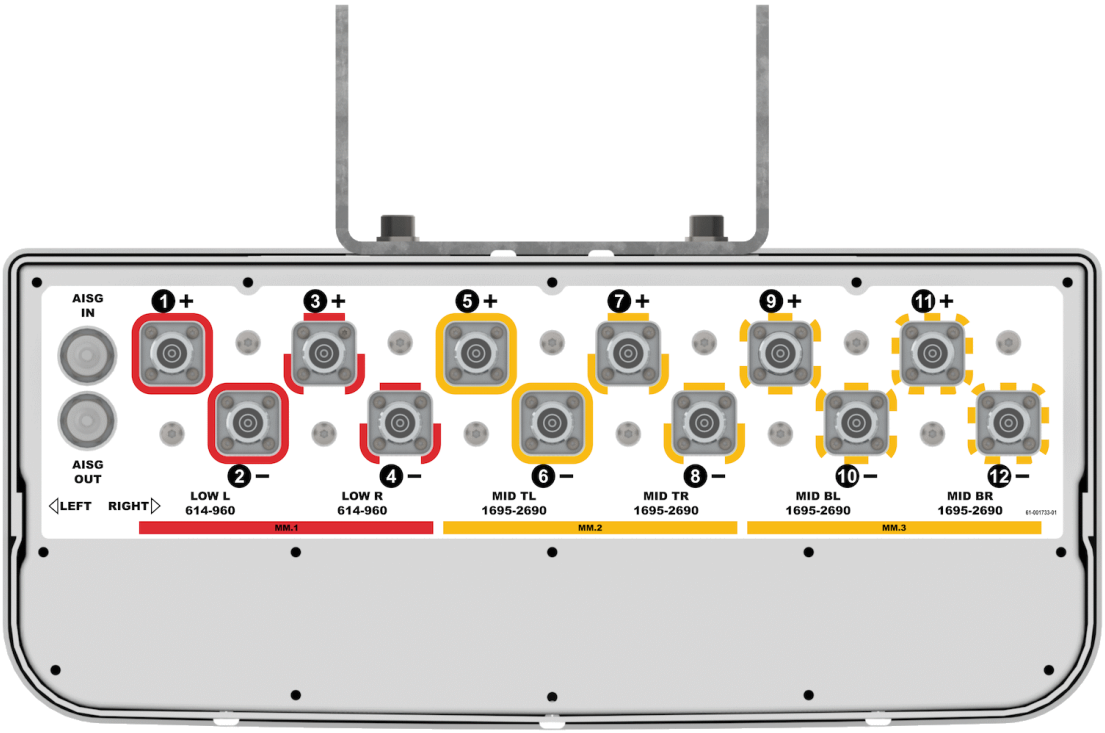
Mechanical

Dimensions (L×W×D)	105.5×19.6×8.4 in (2680×498×214 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load[1]	364 lbf @ 100 mph 1621 N @ 161 kph
Side Wind Load[1]	105 lbf @ 100 mph 468 N @ 161 kph
Effective Projective Area (EPA), Front[1]	14.5 ft^2 (1.3 m^2)
Weight *	100.1 lbs (45.4 kg)
RF Connector	12 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

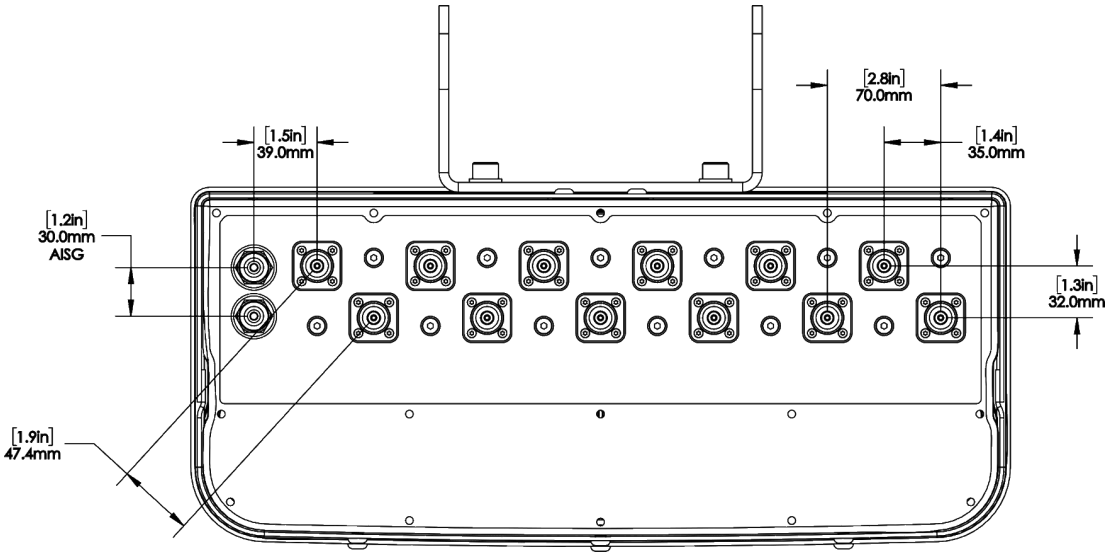
[1]Windload values calculated using CFD analysis
** Weight excludes mounting*

© 2025 CCI All rights reserved. Specifications are subject to change.

Bottom View



Connector Spacing



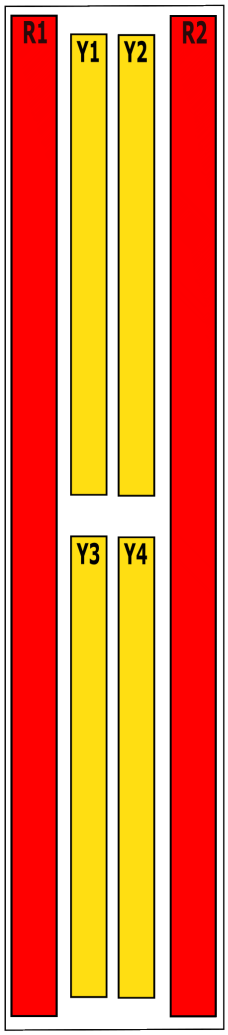
© 2025 CCI All rights reserved. Specifications are subject to change.

Mechanical

RET to Element Configuration

TPA65R-TE9EA Element and RET configuration

Top of antenna
Viewed from rear

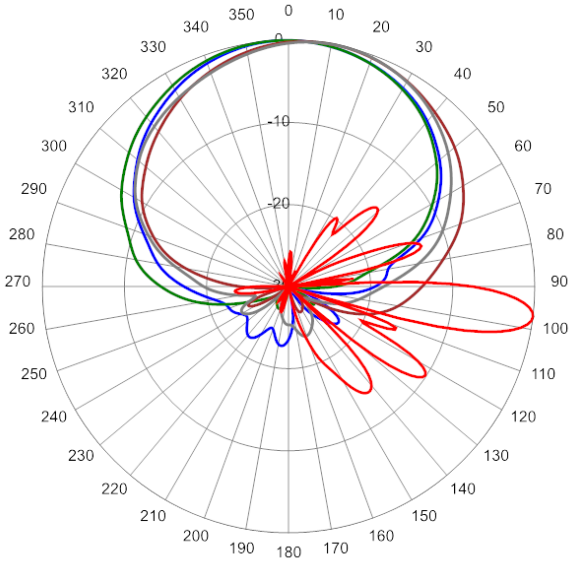


Array	Ports	Freq (MHz)	Ports controlled by common RET	AISG RET UID
R1	1, 2	614-960	1, 2, 3, 4	CIxxxxxxMM.1
R2	3, 4	614-960		
Y1	5, 6	1695-2690	5, 6, 7, 8	CIxxxxxxMM.2
Y2	7, 8	1695-2690		
Y3	9, 10	1695-2690	9, 10, 11, 12	CIxxxxxxMM.3
Y4	11, 12	1695-2690		

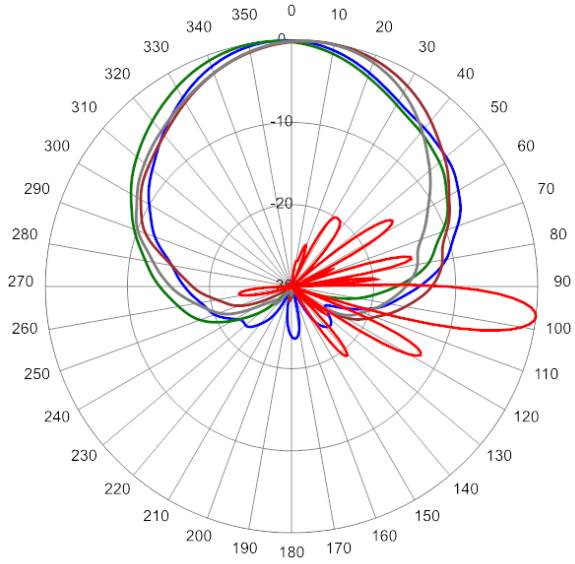
© 2025 CCI All rights reserved. Specifications are subject to change.

Typical Antenna Patterns

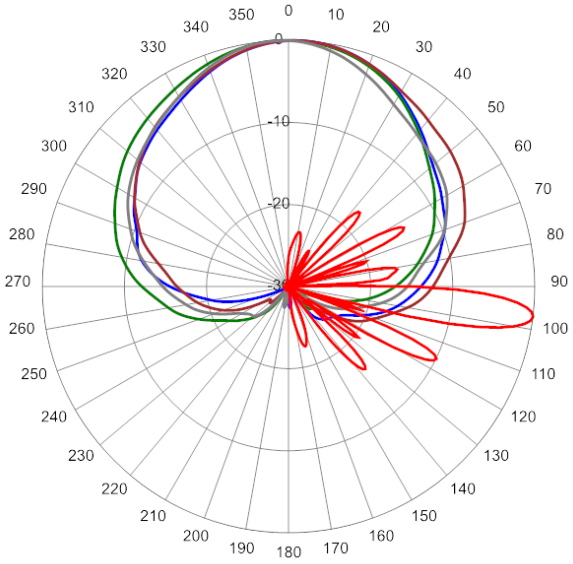
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



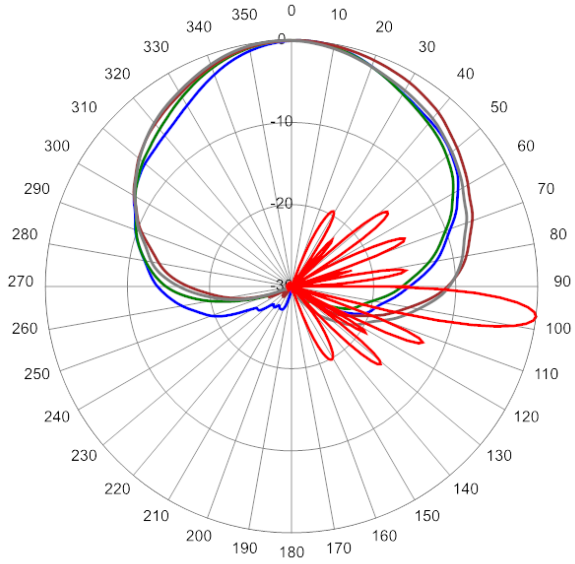
617 MHz Azimuth with Elevation 7°



734 MHz Azimuth with Elevation 7°



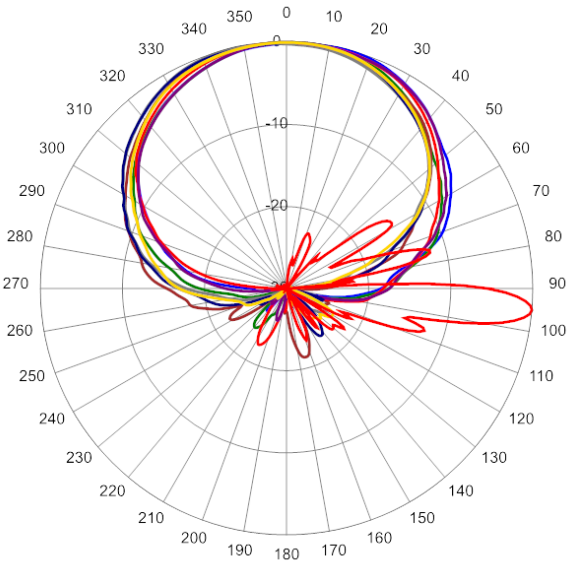
824 MHz Azimuth with Elevation 7°



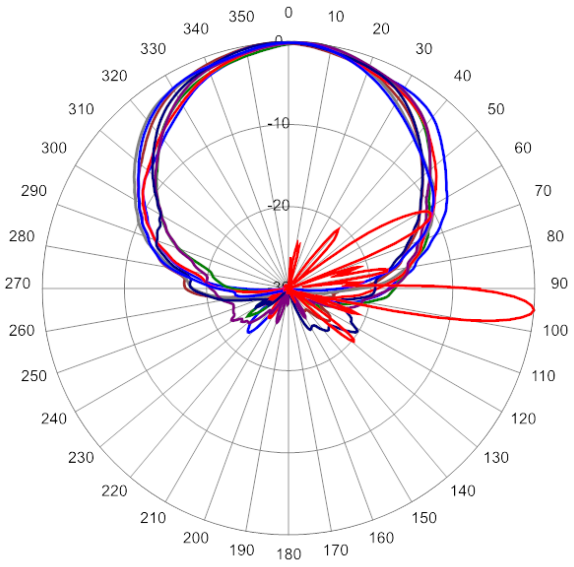
945 MHz Azimuth with Elevation 7°

© 2025 CCI All rights reserved. Specifications are subject to change.

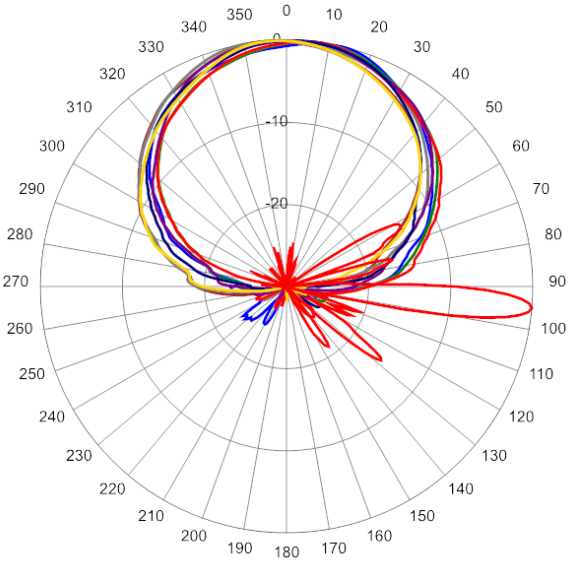
Typical Antenna Patterns



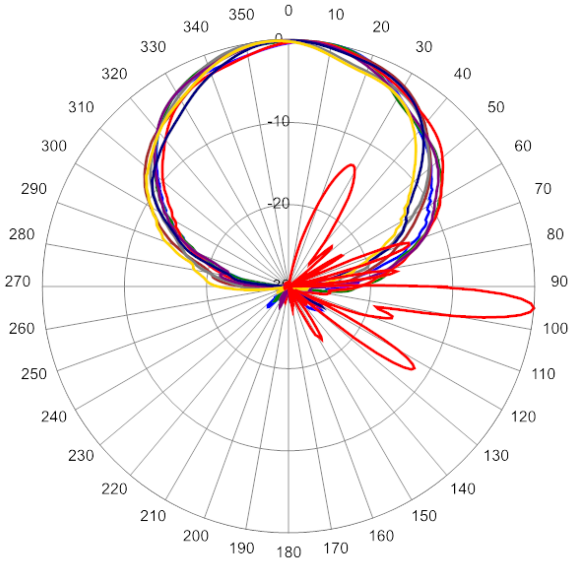
1720 MHz Azimuth with Elevation 5°



2110 MHz Azimuth with Elevation 5°



2360 MHz Azimuth with Elevation 5°



2650 MHz Azimuth with Elevation 5°

© 2025 CCI All rights reserved. Specifications are subject to change.

ORDERING

TriBand Twelve-Port Antenna

TPA65R-TE9E

Parts & Accessories

TPA65R-TE9EA-K	Nine foot (2.7 m) TriBand antenna with 65° azimuth beamwidth, 4.3-10 female connectors, 3 factory installed T17iG3-M RET actuators and MBK-01 mounting bracket
MBK-01	Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment
MBK-16	Mounting bracket kit (top and bottom) with fixed 0° mechanical tilt
AISGC-M-F-10FT	10 Foot (3 M) Male/Female AISG cable
SCU-AISG-P	Portable AISG 2.0 Site Control Unit
T17iG3-M	(This is an internal part and is not orderable) Click link for datasheet and Firmware

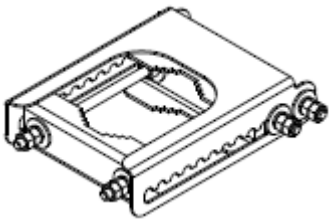
© 2025 CCI All rights reserved. Specifications are subject to change.

Mounting Bracket Kit

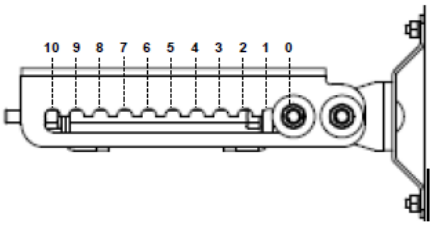
MBK-01

Mechanical

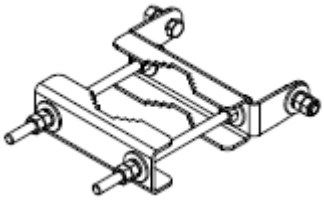
Weight	12.6 lbs (5.7 kg)
Hinge Pitch	47.25 in (1200 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lb (54 N·m)
Mechanical Tilt Adjustment	0° - 10°



MBK-01 Top Adjustable Bracket



MBK-01 Top Adjustable Bracket Side View



MBK-01 Bottom Fixed Bracket

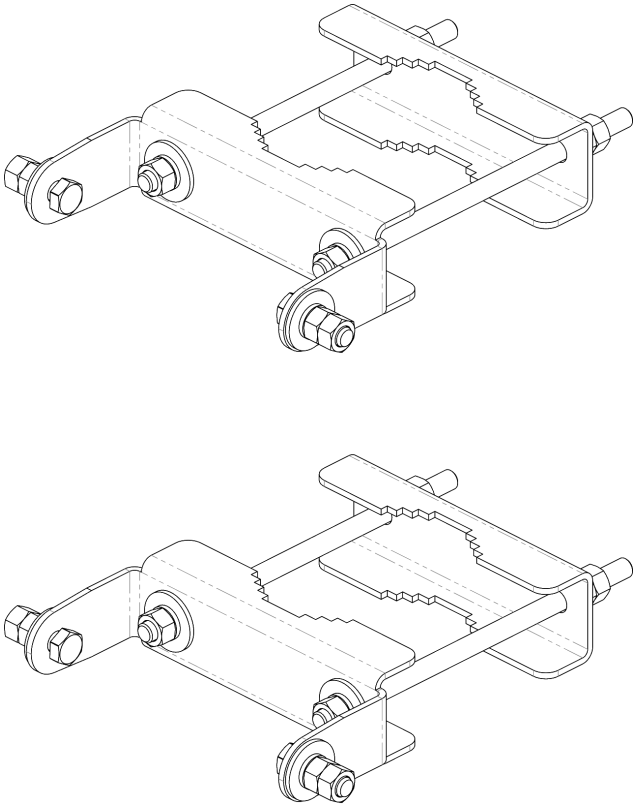
© 2025 CCI All rights reserved. Specifications are subject to change.

Mounting Bracket Kit

MBK-16

Mechanical

Weight	9.9 lbs (4.5 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·lbs (54 N·m)
Mechanical Tilt	0°



MBK-16 Top and Bottom Bracket

© 2025 CCI All rights reserved. Specifications are subject to change.

AISG Cable

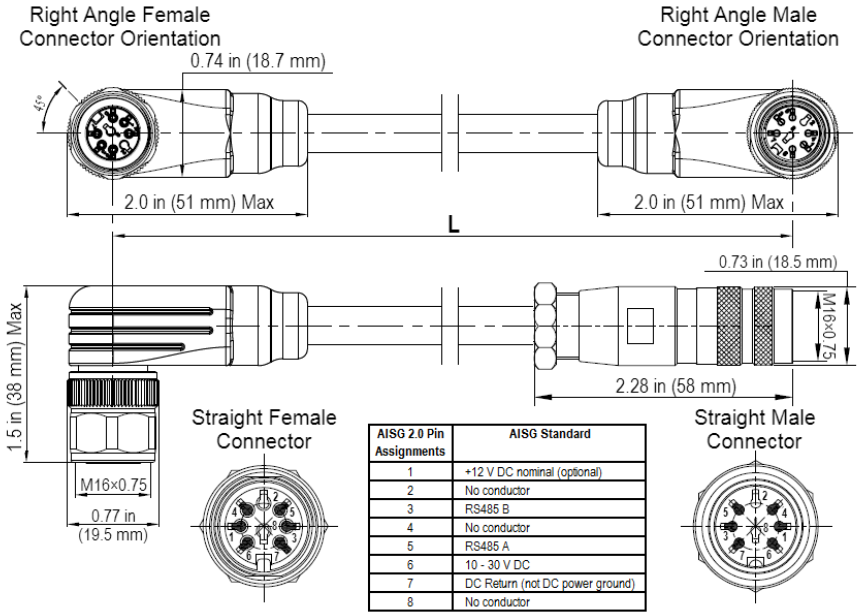
AISGC-M-F-xFT

Electrical Specifications

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

Mechanical Specifications

Individual Cable Part Number	AISGC-M-F-x(FT)
Cables per kit	1
Connectors	2 x 8 pin IEC 60130-9 Straight male/straight female
Tightening torque	Hand tighten only ≈ 1.84 ft-lbs (2.5 Nm)
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)
Length	See order details
Minimum bend radius	3.15 in (80 mm)



AISG 2.0 Pin Assignments	AISG Standard
1	+12 V DC nominal (optional)
2	No conductor
3	RS485 B
4	No conductor
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

© 2025 CCI All rights reserved. Specifications are subject to change.

Environmental Specifications

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

© 2025 CCI All rights reserved. Specifications are subject to change.

STANDARDS & CERTIFICATIONS

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

© 2025 CCI All rights reserved. Specifications are subject to change.