Antennas

MultiPort Series

DATA SHEET

Quad Port High-Band Antenna

QPA65R-W4B

- Four foot (1.3 m) tall, 12.1" (306 mm) wide, four port antenna with a 65° azimuth beamwidth covering 1710-1880 MHz frequencies
- Innovative RF Connector design which allows for blind mate connections with an IP67 rating on all connections. Ideal for Integrated Antenna/Radio attachments
- Blind Mate connector design allows for easy RRU field replacements, without taking down the antenna or replacing the whole assembly
- Integrated Blind Mate Connector design is RRU specific
- 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 an internally integrated PHS Filter
- Equipped with new Blind Mate 4.3-10
- Equipped with one Internally Integrated RET Controller (Type 17)

Overview

The CCI Integrated Radio Series Antenna is a four port antenna, with four mid-band ports covering 1710-1880 MHz. The CCI Integrated Radio Series Antenna provides the capability to deploy 4x4 Multiple-Input Multiple-Output (MIMO). The CCI Integrated Radio Series antenna single RET configuration tilts all four ports together, allowing for electrical downtilt uniformity across all four 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
- Integrated Blind Mate 4.3-10 DIN connectors, with IP67 rating
- With CCI's Integrated Radio Series Antenna, wireless providers can reduce tower load, lease expense, deployment time and installation costs

SPECIFICATIONS

Quad Port High-Band Antenna

QPA65R-W4B

Electrical Antenna

Ports	4 x High Band Ports for 1710-1880 MHz
Frequency Range	1710-1880 MHz
Gain	17.2 dBi
Gain (Average)	16.6 dBi
Azimuth Beamwidth (-3dB)	65°
Elevation Beamwidth (-3dB)	7.2°
Electrical Downtilt	0° to 10°
Elevation Sidelobes (1st Upper)	< -18 dB
Front-to-Back Ratio @180°	> 35 dB
Cross-Polar Discrimination (at Peak)	> 20 dB
Cross-Polar Port-to-Port Isolation	> 25 dB
Voltage Standing Wave Ratio(VSWR)	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc
Input Power Continuous Wave (CW)	300 watts
Polarization	Dual Pol 45°
Input Impedance	50 ohms
Lightning Protection	DC Ground

Electrical Filter

Specification	Frequency	Value
Pass Band Loss	1710-1785 MHz	< 0.2 dB
	1805-1860 MHz	< 0.25 dB
	1860-1880 MHz	0.6 dB average (< 1.5±0.3 dB @1880)
Rejection Band*	1884.5-1915.85 MHz	70 dB
Pass Band Return Loss	1710-1880 MHz	> 18 dB
Isolations between Filters	1710-1880 MHz	> 40 dB
Group Delay Distortion	1710-1785 MHz	10 nS Max
	1805-1880 MHz	15 nS average (200 nS Max @1880)
Passive Intermodulation (2x20W)		≤ -153 dBc
Input Impedance		50 ohms
Operating Temperature		-40° C to +55° C

** When Cascaded with Nokia RRU Filter*

SPECIFICATIONS

Quad Port High-Band Antenna

QPA65R-W4B

Mechanical

Dimensions (LxWxD)	51.4x12.1x5.6 in (1306x306x143 mm)
Survival Wind Speed	> 201 mph (> 90 m/s)
Front Wind Load	141 lbs (627 N) @ 100 mph (161 kph)
Side Wind Load	76 lbs (337 N) @ 100 mph (161 kph)
Front Wind Load	569 lbs (2530 N) @ 201 mph (324 kph)
Side Wind Load	306 lbs (1361 N) @ 201 mph (324 kph)
Equivalent Flat Plate Area	5.5 ft^2 (0.5 m^2)
QPA65R-W4B Weight*	69.0 lbs (31.3 kg)
QPA65R-W4B Weight**	34.2 lbs (15.5 kg)
Connector	4 x custom blind-mate IP67 4.3-10 connectors
Mounting Pole	3.5 to 4.5 in (89.1 to 115 mm)

** Weight excludes mounting*

*** Weight excludes mounting, radio interconnect parts and radio*

Rear View

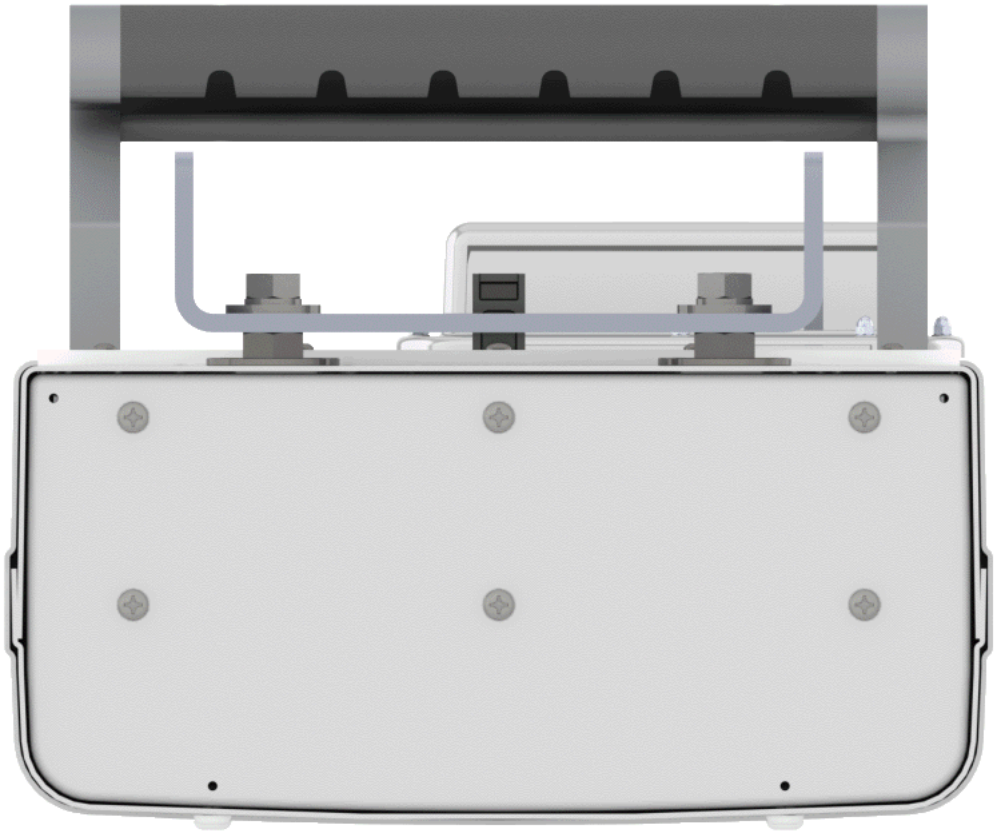
QPA65R-W4B w/RRH

QPA65R-W4B w/o RRH

Mechanical

Bottom View

QPA65R-W4B w/o RRH

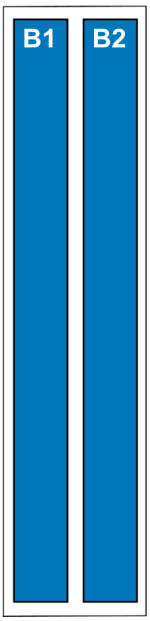


Mechanical

RET/Element Configuration

QPA65R-W4B

Element arrays as viewed from rear of antenna

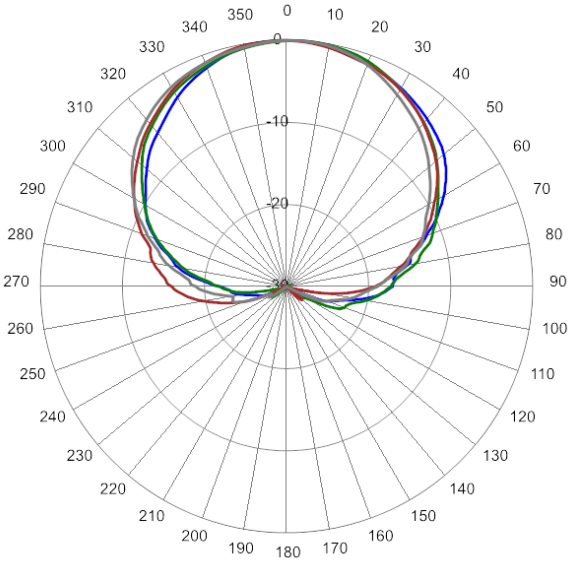


RET placement as viewed from rear of antenna

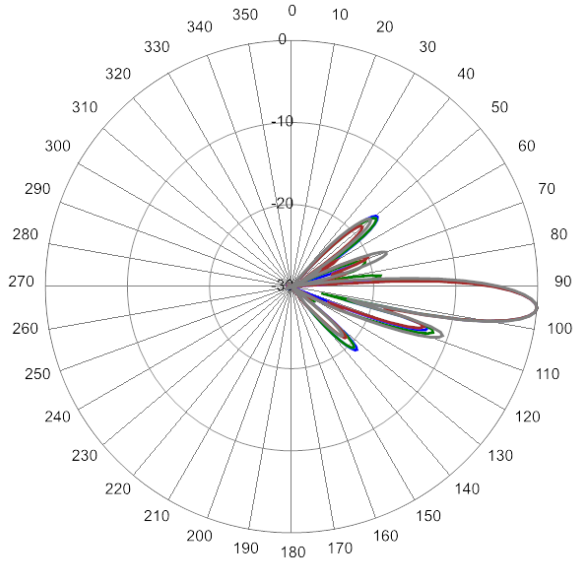
Array	Ports	Freq (MHz)	Ports controlled by common RET	AISG RET UID
B1	1, 2	1710-1880	1, 2, 3, 4	CIxxxxxxMM.1
B2	3, 4	1710-1880		

Typical Antenna Patterns

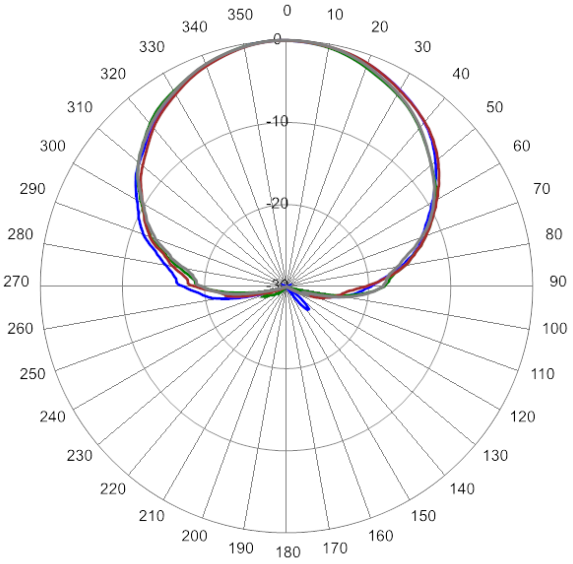
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



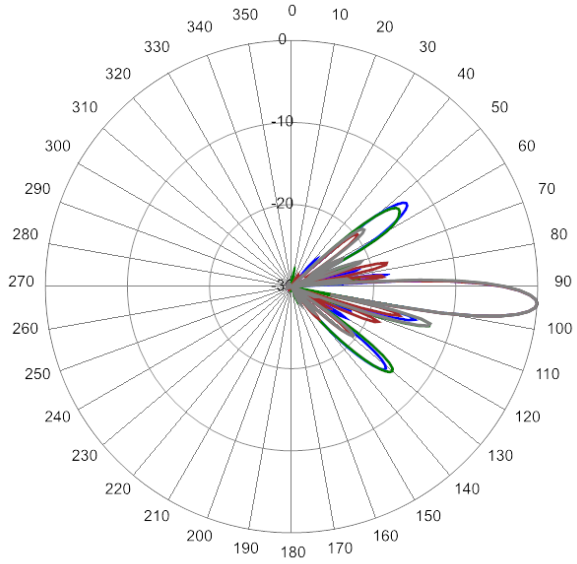
1720 MHz Azimuth



1720 MHz Elevation 5°



1850 MHz Azimuth & Elevation 5°



1850 MHz Azimuth & Elevation 5°

Parts & Accessories

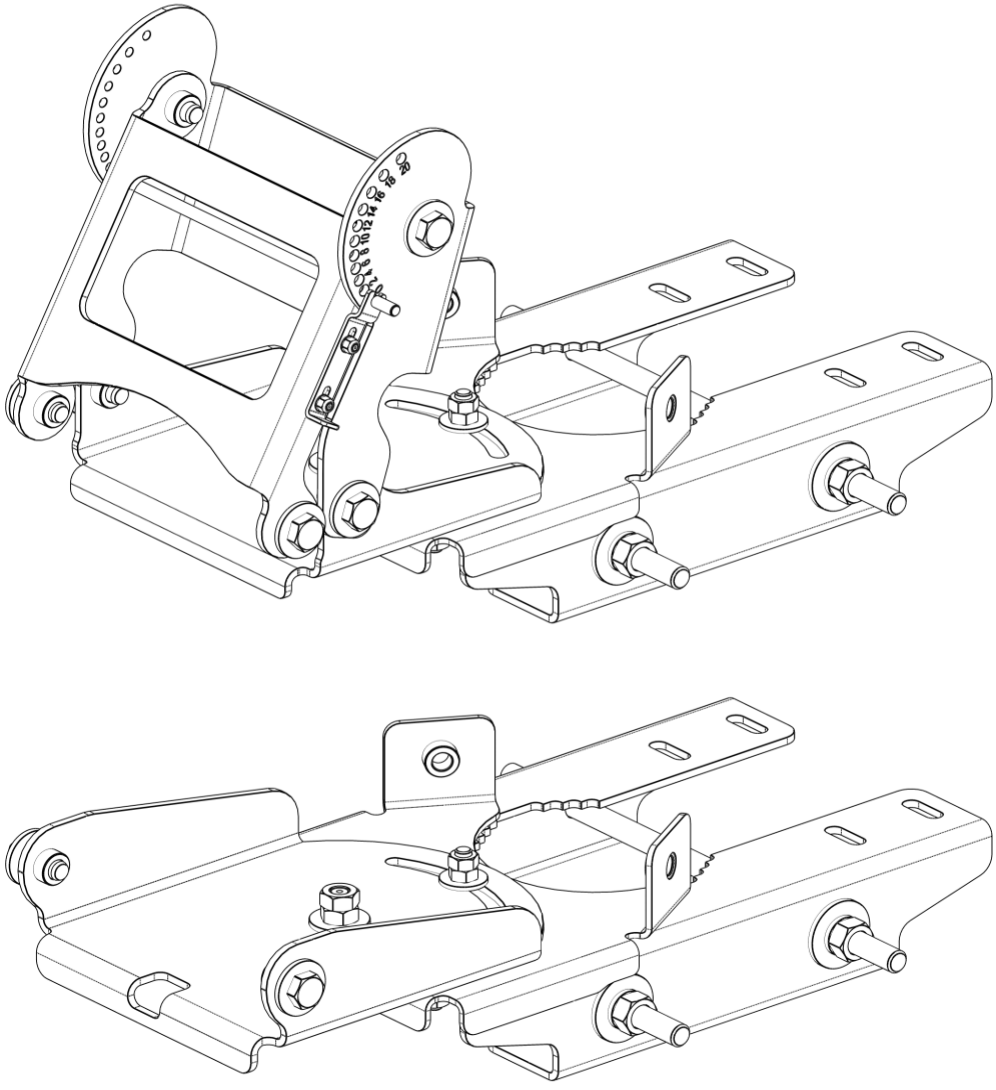
QPA65R-W4BA	Four foot (1.3m) Quadport antenna, with 65° azimuth beamwidth, equipped with an internally integrated PHS filter, 4x custom blind mate IP67 RF connectors and 1 factory installed BSA-RET400 RET actuator (Type 17 Internal)
MBK-19	Single antenna mounting bracket kit (top and bottom) with 0° to 20° mechanical downtilt adjustment and ±30° of azimuth swing adjustment
MBK-20	Dual antenna mounting bracket kit (top and bottom) with 0° to 20° mechanical downtilt adjustment and ±30° of azimuth swing adjustment
MBK-21	Tri antenna mounting bracket kit (top and bottom) with 0° to 20° mechanical downtilt adjustment and ±30° of azimuth swing adjustment
RM-02	Radio Interconnect Manifold and Mounting components
BSA-RET400	Type 17 Internal Remote Electrical Tilt System (RET)

Mounting Bracket Kit

MBK-19

Mechanical

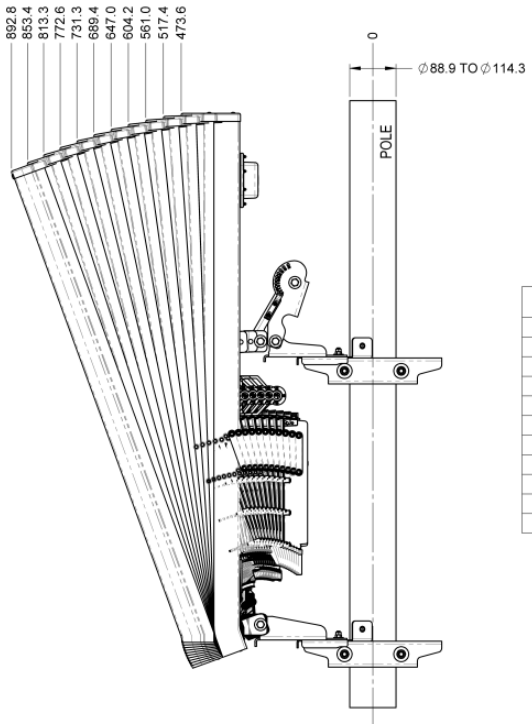
Weight	26.5 lbs (12.0 kg)
Hinge Pitch	27.6 in (700 mm)
Mounting Pole Dimension	3.5 to 4.5 in (89.1 to 115 mm)
Fastener Size	M10 HHC Screw, DIN 933, ISO 4017 M12 Hex Nut, DIN 934, ISO 4032
Installation Torque	M10-18 ft·lbs (25 N·m), M12-40 ft·lbs (54 N·m)
Maximum Static Load	170.9 lbs (77.5kg)
Mechanical Tilt	0° to 20°



MBK-19

Mechanical

QPA65R-W4B ANTENNA DISTANCE FROM POLE BASED ON THE MECHANICAL TILT SETTING



MECHANICAL TILT (°)	DISTANCE FROM POLE ℄
0	473.6
2	517.4
4	561.0
6	604.2
8	647.0
10	689.4
12	731.3
14	772.6
16	813.3
18	853.4
20	892.8

NOTE: ALL MEASUREMENTS BASED ON MM (MILLIMETER)

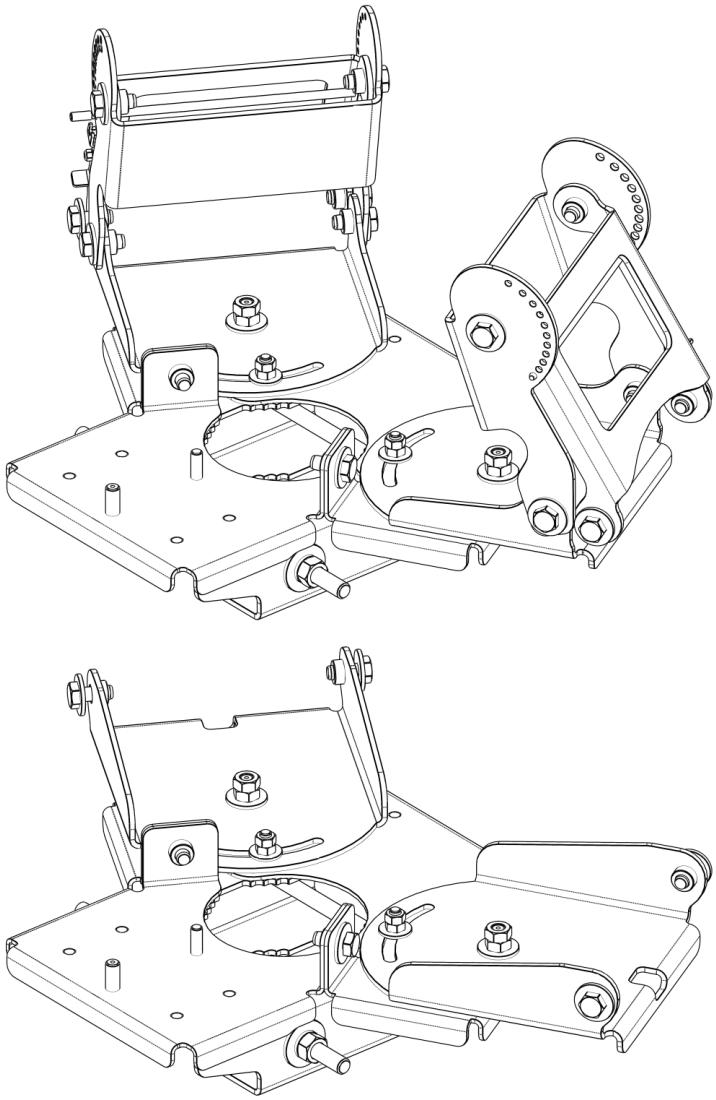
Mechanical Tilt Setting Chart For QPA65R-W4BA

Mounting Bracket Kit

MBK-20

Mechanical

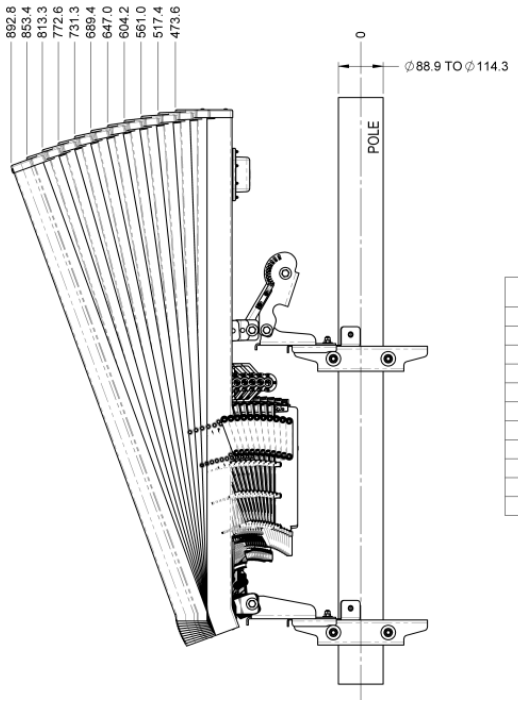
Weight	40.6 lbs (18.4 kg)
Hinge Pitch	27.6 in (700 mm)
Mounting Pole Dimension	3.5 to 4.5 in (89.1 to 115 mm)
Fastener Size	M10 HHC Screw, DIN 933, ISO 4017 M12 Hex Nut, DIN 934, ISO 4032
Installation Torque	M10-18 ft·lbs (25 N·m), M12-40 ft·lbs (54 N·m)
Maximum Static Load per Sector	170.9 lbs (77.5 kg)
Mechanical Tilt	0° to 20°



MBK-20

Mechanical

QPA65R-W4B ANTENNA DISTANCE FROM POLE BASED ON THE MECHANICAL TILT SETTING



MECHANICAL TILT (°)	DISTANCE FROM POLE ℄
0	473.6
2	517.4
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6	604.2
8	647.0
10	689.4
12	731.3
14	772.6
16	813.3
18	853.4
20	892.8

NOTE: ALL MEASUREMENTS BASED ON MM (MILLIMETER)

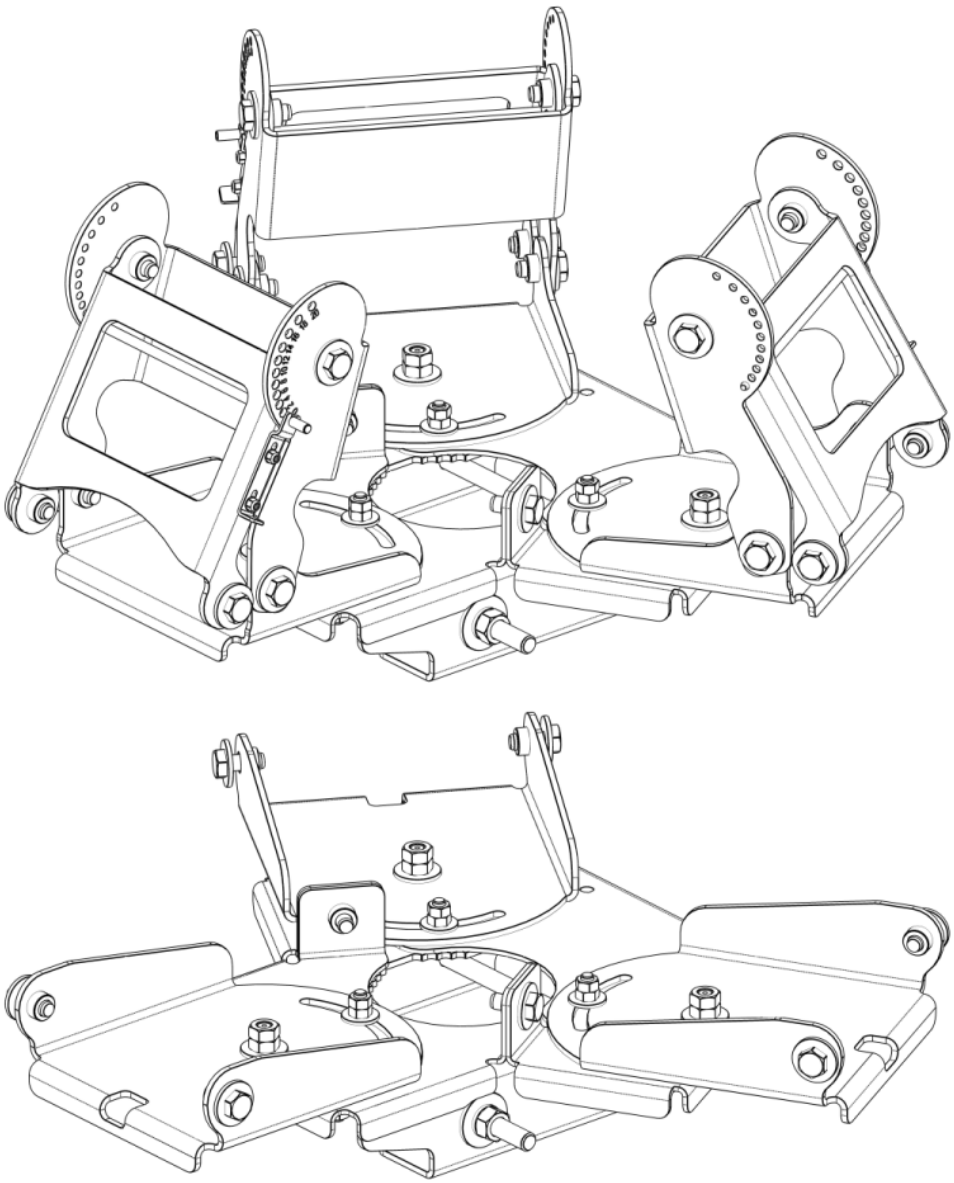
Mechanical Tilt Setting Chart For QPA65R-W4BA

Mounting Bracket Kit

MBK-21

Mechanical

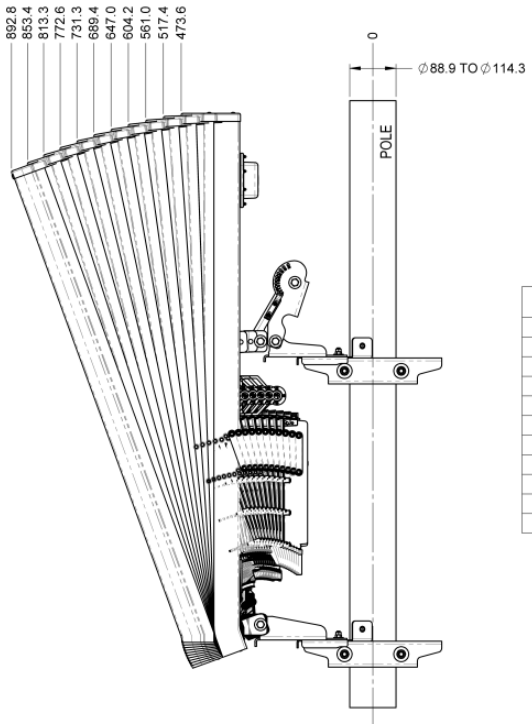
Weight	45.6 lbs (20.7 kg)
Hinge Pitch	27.6 in (700 mm)
Mounting Pole Dimension	3.5 to 4.5 in (89.1 to 115 mm)
Fastener Size	M10 HHC Screw, DIN 933, ISO 4017 M12 Hex Nut, DIN 934, ISO 4032
Installation Torque	M10-18 ft·lbs (25 N·m), M12-40 ft·lbs (54 N·m)
Maximum Static Load per Sector	170.9 lbs (77.5 kg)
Mechanical Tilt	0° to 20°



MBK-21

Mechanical

QPA65R-W4B ANTENNA DISTANCE FROM POLE BASED ON THE MECHANICAL TILT SETTING



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NOTE: ALL MEASUREMENTS BASED ON MM (MILLIMETER)

Mechanical Tilt Setting Chart For QPA65R-W4BA

Radio Interconnect and Manifold

RM-02

Electrical

Parameter	Ports	Frequency	Value*
Return Loss	INPUT FROM RADIO / OUTPUT TO FILTER	1710-1880 MHz	> 25 dB
	SMA MONITOR PORT	1805-1880 MHz	> 16 dB
Insertion Loss	INPUT FROM RADIO / OUTPUT TO FILTER	1710-1880 MHz	< 0.3 dB
Coupling	INPUT FROM RADIO / SMA MONITOR PORT	1805-1880 MHz	39.0-41.0 dB
Isolation	OUTPUT TO FILTER / SMA MONITOR PORT	1805-1880 MHz	> 55 dB

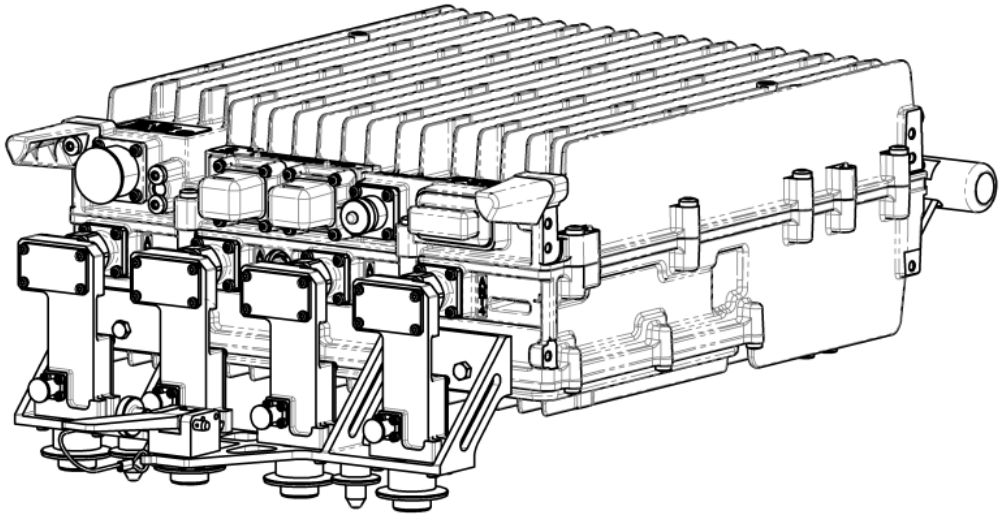
**Requirements above must use a 50 Ohm load that has a Return Loss >35 dB from 1805 – 1880 MHz.*

Parameter	Input Frequency	Input Power	Measured Port	Measured Frequency	Requirement
IMD 1800 MHz 3rd Order	1880 MHz	43 dBm	SMA MONITOR PORT	1730-1785 MHz	< -120 dBm
	1805-1832.5 MHz	43 dBm			

**Perform test as described in 740-0003-01 IMD Test Procedure for Inline Passive Device Setup For Couplers & Power Dividers.*

Mechanical

Model Number	RM-02
Fits Radio	Nokia AHEB Radio
For Antenna Models	QPA65R-W3B and QPA65R-W4B
Overall Weight	3.5 lbs. (1.6 kg) not including radio



Radio installed to Manifold and Mount

Environmental Specifications

Model Number	RM-02
Temperature Range	-45° to 70° C

MultiPort Series

Internal Remote Electrical Tilt (iRET)

BSA-RET400

General Specifications

Part Number	BSA-RET400
Protocols	AISG 2.0
RET Type	Type 17
Adjustment Cycles	>10,000 cycles
Tilt Accuracy	±0.1°
Temperature Range	-40° C to 70° C

Electrical

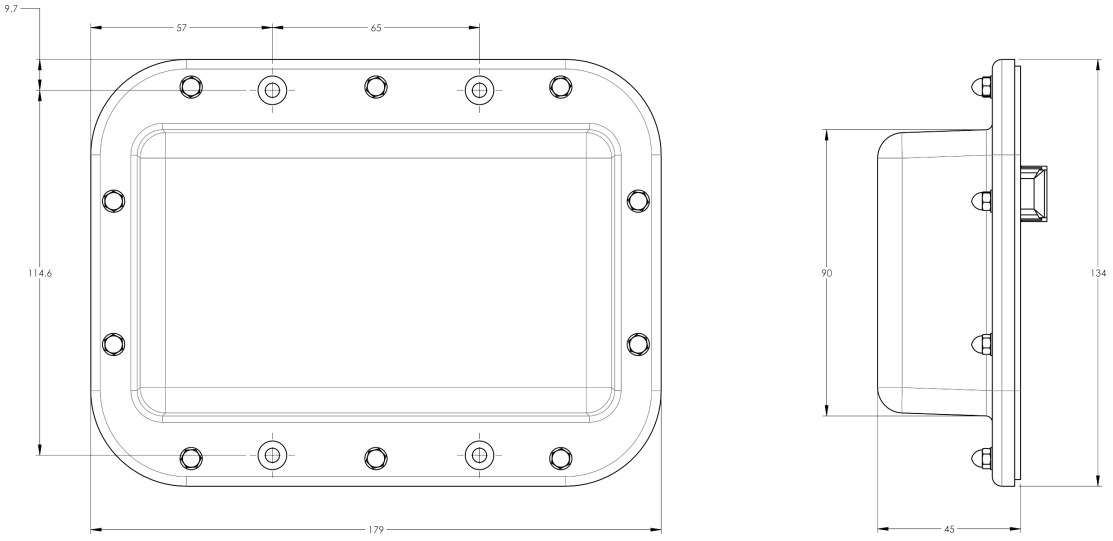
Data Interface Signal	DC
Input Voltage	10-30 Vdc
Current Consumption Tilt	100 mA at V_{in}=24 (500 mA MAX)
Current Consumption Idle	10 mA at V_{in}=24

Mechanical

Dimensions (LxWxD)	7.0x5.3x1.8 in. (179x134x45 mm)
Housing	ASA/ABS/Aluminum
Weight	1.3 lbs (0.6 kg)

ASA= Acrylic Styrene Acrylonitrile

ABS=Acrylanitrile Butadiene Styrene



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

Certifications

Antenna Interface Standards Group (AISG), Federal Communication Commission (FCC) Part 15 Class B, CE, CSA US, ISO 9001