P4-BBRRMMUU15-N0

P4-BBRRMMUU15-N0N, P4-BBRRMMUU15-S0, P4-BBRRMMUU15-S0N

Features

- Low profile for low visual impact and enhanced wind load for minimizing tower wind loading
- 4 ports / 2 cross pol systems in low band (694-960 MHz)
- 4 ports / 2 cross pol systems in high band (1427-2690 MHz)
- 2 cross pol systems in high band (1695-2690 MHz), diplexed, resulting in 4 ports 1695-2200 MHz and 4 ports 2490-2690 MHz
- Supporting 4x4 MIMO
- Integrated and field replaceable SRET
- Optional with Site Sharing feature (Model name suffix -S0, -S0N)
- Optional with Direct Pipe No Tilt mounting hardware (Model name suffix -N0N, -S0N)
- Compliant with AISG v2.0 and 3GPP
- Optimized radome for low windload

PRODUCT OVERVIEW									
	Frequency Range (MHz)	(2x) 694-960		(2x) 1695-2200		(2x) 2490-2690		(2x) 1427-2690	
	Array	R1	R2	B1	B2	Y1	Y4	Y2	Y3
	Connector	1-2	3-4	5-6	7-8	9-10	15-16	11-12	13-14
		16 PORTS							
	Polarization	XPOL							
	Azimuth Beamwidth (avg)	65°		65°		65°		65°	
	Electrical Downtilt	2-12°		2-12°				2-12°	
	Dimensions	1498 x 499 x 215 mm (59.0 x 19.6 x 8.4 in)							

ORDERING OPTIONS Select from the following ordering options

ANTENNA MODEL NUMBER	CONFIGURATION	MOUNTING HARDWARE	MOUNTING PIPE DIAMETER	SHIPPING WEIGHT	MOUNTING HARDWARE WEIGHT
P4-BBRRMMUU15-N0	ACU-I20-H12K Internal RET Included	APM50-H2 Beam Tilt Kit Included	50-125 mm (2.0-4.9 in)	44 kg (97 lbs)	5.5 kg (12.1 lbs)
P4-BBRRMMUU15-N0N	ACU-I20-H12K Internal RET Included	APM50-H2N Direct Pipe No Tilt Mounting Kit Included	50-125 mm (2.0-4.9 in)	42.5 kg (93.7 lbs)	4 kg (8.8 lbs)
P4-BBRRMMUU15-S0	ACU-X20 Internal RET for Site Sharing Included	APM50-H2 Beam Tilt Kit Included	50-125 mm (2.0-4.9 in)	44 kg (97 lbs)	5.5 kg (12.1 lbs)
P4-BBRRMMUU15-S0N	ACU-X20 Internal RET for Site Sharing Included	APM50-H2N Direct Pipe No Tilt Mounting Kit Included	50-125 mm (2.0-4.9 in)	42.5 kg (93.7 lbs)	4 kg (8.8 lbs)

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P4-BBRRMMUU15-N0

P4-BBRRMMUU15-N0N, P4-BBRRMMUU15-S0, P4-BBRRMMUU15-S0N

ELECTRICAL SPECIFICATIONS

■ **R1**

Frequency Range		MHz	694-960		
		MHz	694-806	790-894	880-960
Polarization		---	±45°		
Gain	Over all Tilts	dBi	13.3 ± 0.8	14.1 ± 0.5	14.4 ± 0.5
	Max Gain	dBi	14.1	14.6	14.9
Azimuth Beamwidth (3 dB)		degrees	63.3° ± 6.7°	58.6° ± 4.2°	54.6° ± 4.3°
Elevation Beamwidth (3 dB)		degrees	15.7° ± 1.2°	14.1° ± 1.2°	12.3° ± 1.1°
Electrical Downtilt		degrees	2-12°		
Impedance		Ohms	50Ω		
VSWR (Return Loss)		---	1.5:1 (-14 dB)		
Passive Intermodulation 3rd Order for 2x20 W Carriers		dBc	-153		
Front-to-Back Ratio, Total Power, ± 30°		dB	18.5	21.1	20.2
First Upper Side Lobe Suppression		dB	15.2	14.9	13.8
Cross Polar Discrimination Over Sector		dB	8.6	8	8.8
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	23.7	25.7	27.2
Maximum Effective Power Per Port		Watts	250 W		
Cross Polar Isolation		dB	26		
Interband Isolation		dB	26		

Specifications follow BASTA guidelines.

ELECTRICAL SPECIFICATIONS

■ **R2**

Frequency Range		MHz	694-960		
		MHz	694-806	790-894	880-960
Polarization		---	±45°		
Gain	Over all Tilts	dBi	13.5 ± 0.7	14 ± 0.4	14.1 ± 0.4
	Max Gain	dBi	14.2	14.4	14.5
Azimuth Beamwidth (3 dB)		degrees	62.1° ± 4.4°	62.9° ± 5.9°	71° ± 7.9°
Elevation Beamwidth (3 dB)		degrees	15.4° ± 1.2°	14.3° ± 0.9°	13° ± 0.6°
Electrical Downtilt		degrees	2-12°		
Impedance		Ohms	50Ω		
VSWR (Return Loss)		---	1.5:1 (-14 dB)		
Passive Intermodulation 3rd Order for 2x20 W Carriers		dBc	-153		
Front-to-Back Ratio, Total Power, ± 30°		dB	19.4	20.1	21.5
First Upper Side Lobe Suppression		dB	14.2	17.2	20.5
Cross Polar Discrimination Over Sector		dB	9	9.3	7.7
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	24.3	26.8	23.3
Maximum Effective Power Per Port		Watts	250 W		
Cross Polar Isolation		dB	26		
Interband Isolation		dB	26		

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P4-BBRRMMUU15-N0

P4-BBRRMMUU15-N0N, P4-BBRRMMUU15-S0, P4-BBRRMMUU15-S0N

ELECTRICAL SPECIFICATIONS

■ **B1**

Frequency Range		MHz	1695-2200		
		MHz	1695-1880	1850-1990	1920-2200
Polarization		---	±45°		
Gain	Over all Tilts	dBi	16.4 ± 0.6	16.7 ± 0.3	16.6 ± 0.4
	Max Gain	dBi	17	17	17
Azimuth Beamwidth (3 dB)		degrees	63.9° ± 5.6°	64.4° ± 5.3°	63° ± 5.3°
Elevation Beamwidth (3 dB)		degrees	6.7° ± 0.4°	6.3° ± 0.3°	5.8° ± 0.5°
Electrical Downtilt		degrees	2-12°		
Impedance		Ohms	50Ω		
VSWR (Return Loss)		---	1.5:1 (-14 dB)		
Passive Intermodulation 3rd Order for 2x20 W Carriers		dBc	-153		
Front-to-Back Ratio, Total Power, ± 30°		dB	22.2	20.8	19.6
First Upper Side Lobe Suppression		dB	13.4	14	15.9
Cross Polar Discrimination Over Sector		dB	8.7	7.9	2
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	20.6	18.7	19.6
Maximum Effective Power Per Port		Watts	200 W		
Cross Polar Isolation		dB	26		
Interband Isolation		dB	26		

Specifications follow BASTA guidelines.

ELECTRICAL SPECIFICATIONS

■ **B2**

Frequency Range		MHz	1695-2200		
		MHz	1695-1880	1850-1990	1920-2200
Polarization		---	±45°		
Gain	Over all Tilts	dBi	16.3 ± 0.6	16.9 ± 0.4	16.6 ± 0.5
	Max Gain	dBi	16.9	17.3	17.1
Azimuth Beamwidth (3 dB)		degrees	65.9° ± 6.6°	64° ± 5.3°	61.5° ± 6.5°
Elevation Beamwidth (3 dB)		degrees	6.6° ± 0.5°	6.1° ± 0.2°	5.8° ± 0.4°
Electrical Downtilt		degrees	2-12°		
Impedance		Ohms	50Ω		
VSWR (Return Loss)		---	1.5:1 (-14 dB)		
Passive Intermodulation 3rd Order for 2x20 W Carriers		dBc	-153		
Front-to-Back Ratio, Total Power, ± 30°		dB	23.2	22.9	20.9
First Upper Side Lobe Suppression		dB	13.5	14	15.9
Cross Polar Discrimination Over Sector		dB	7.4	7.6	1.4
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	23.5	21.6	21.4
Maximum Effective Power Per Port		Watts	200 W		
Cross Polar Isolation		dB	26		
Interband Isolation		dB	26		

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P4-BBRRMMUU15-N0

P4-BBRRMMUU15-N0N, P4-BBRRMMUU15-S0, P4-BBRRMMUU15-S0N

ELECTRICAL SPECIFICATIONS			Y1
Frequency Range		MHz	2490-2690
Polarization		---	±45°
Gain	Over all Tilts	dBi	17.5 ± 0.7
	Max Gain	dBi	18.2
Azimuth Beamwidth (3 dB)		degrees	55.2° ± 8.2°
Elevation Beamwidth (3 dB)		degrees	4.8° ± 0.2°
Electrical Downtilt		degrees	2-12°
Impedance		Ohms	50Ω
VSWR (Return Loss)		---	1.5:1 (-14 dB)
Passive Intermodulation 3rd Order for 2x20 W Carriers		dBc	-153
Front-to-Back Ratio, Total Power, ± 30°		dB	18.1
First Upper Side Lobe Suppression		dB	17.7
Cross Polar Discrimination Over Sector		dB	3
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	23.5
Maximum Effective Power Per Port		Watts	200 W
Cross Polar Isolation		dB	26
Interband Isolation		dB	26

Specifications follow BASTA guidelines.

ELECTRICAL SPECIFICATIONS			Y4
Frequency Range		MHz	2490-2690
Polarization		---	±45°
Gain	Over all Tilts	dBi	17.6 ± 0.6
	Max Gain	dBi	18.2
Azimuth Beamwidth (3 dB)		degrees	57.4° ± 5°
Elevation Beamwidth (3 dB)		degrees	4.8° ± 0.3°
Electrical Downtilt		degrees	2-12°
Impedance		Ohms	50Ω
VSWR (Return Loss)		---	1.5:1 (-14 dB)
Passive Intermodulation 3rd Order for 2x20 W Carriers		dBc	-153
Front-to-Back Ratio, Total Power, ± 30°		dB	19.3
First Upper Side Lobe Suppression		dB	18.2
Cross Polar Discrimination Over Sector		dB	1.3
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	25.2
Maximum Effective Power Per Port		Watts	200 W
Cross Polar Isolation		dB	26
Interband Isolation		dB	26

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P4-BBRRMMUU15-N0

P4-BBRRMMUU15-N0N, P4-BBRRMMUU15-S0, P4-BBRRMMUU15-S0N

ELECTRICAL SPECIFICATIONS

■ **Y2**

Frequency Range		MHz	1427-2690				
		MHz	1427-1518	1695-1880	1920-2170	2300-2400	2490-2690
Polarization		---	±45°				
Gain	Over all Tilts	dBi	15.3 ± 0.4	16.5 ± 1	17.2 ± 0.4	17.2 ± 0.5	17.6 ± 0.4
	Max Gain	dBi	15.7	17.5	17.6	17.7	18
Azimuth Beamwidth (3 dB)		degrees	66.8° ± 9°	67.7° ± 11.9°	59.4° ± 5.3°	62.4° ± 6.8°	55.3° ± 6.9°
Elevation Beamwidth (3 dB)		degrees	7.6° ± 0.3°	6.5° ± 0.5°	5.8° ± 0.4°	5.3° ± 0.3°	5° ± 0.3°
Electrical Downtilt		degrees	2-12°				
Impedance		Ohms	50Ω				
VSWR (Return Loss)		---	1.5:1 (-14 dB)				
Passive Intermodulation 3rd Order for 2x20 W Carriers		dBc	-153				
Front-to-Back Ratio, Total Power, ± 30°		dB	21.2	24.3	25.3	24.8	25.3
First Upper Side Lobe Suppression		dB	14.8	14.3	14.6	15.8	14.8
Cross Polar Discrimination Over Sector		dB	4.8	9.3	1.9	2.5	0.7
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	18.8	19	17.9	21.4	23.5
Maximum Effective Power Per Port		Watts	200 W				
Cross Polar Isolation		dB	26				
Interband Isolation		dB	26				

Specifications follow BASTA guidelines.

ELECTRICAL SPECIFICATIONS

■ **Y3**

Frequency Range		MHz	1427-2690				
		MHz	1427-1518	1695-1880	1920-2170	2300-2400	2490-2690
Polarization		---	±45°				
Gain	Over all Tilts	dBi	15.6 ± 0.6	16.5 ± 1.2	17.1 ± 0.4	16.9 ± 0.5	17.4 ± 0.4
	Max Gain	dBi	16.2	17.7	17.5	17.4	17.8
Azimuth Beamwidth (3 dB)		degrees	66.5° ± 9.1°	65.1° ± 7.7°	60.3° ± 6.8°	66.9° ± 5.1°	58.3° ± 6.4°
Elevation Beamwidth (3 dB)		degrees	7.7° ± 0.2°	6.5° ± 0.5°	6° ± 0.4°	5.4° ± 0.3°	5° ± 0.3°
Electrical Downtilt		degrees	2-12°				
Impedance		Ohms	50Ω				
VSWR (Return Loss)		---	1.5:1 (-14 dB)				
Passive Intermodulation 3rd Order for 2x20 W Carriers		dBc	-153				
Front-to-Back Ratio, Total Power, ± 30°		dB	22.5	24.6	25	24.8	24.8
First Upper Side Lobe Suppression		dB	13.6	16.4	15.9	16.1	16
Cross Polar Discrimination Over Sector		dB	5.5	9.6	4.2	4.9	1
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	21.5	19.4	17.4	22.7	21.6
Maximum Effective Power Per Port		Watts	200 W				
Cross Polar Isolation		dB	26				
Interband Isolation		dB	26				

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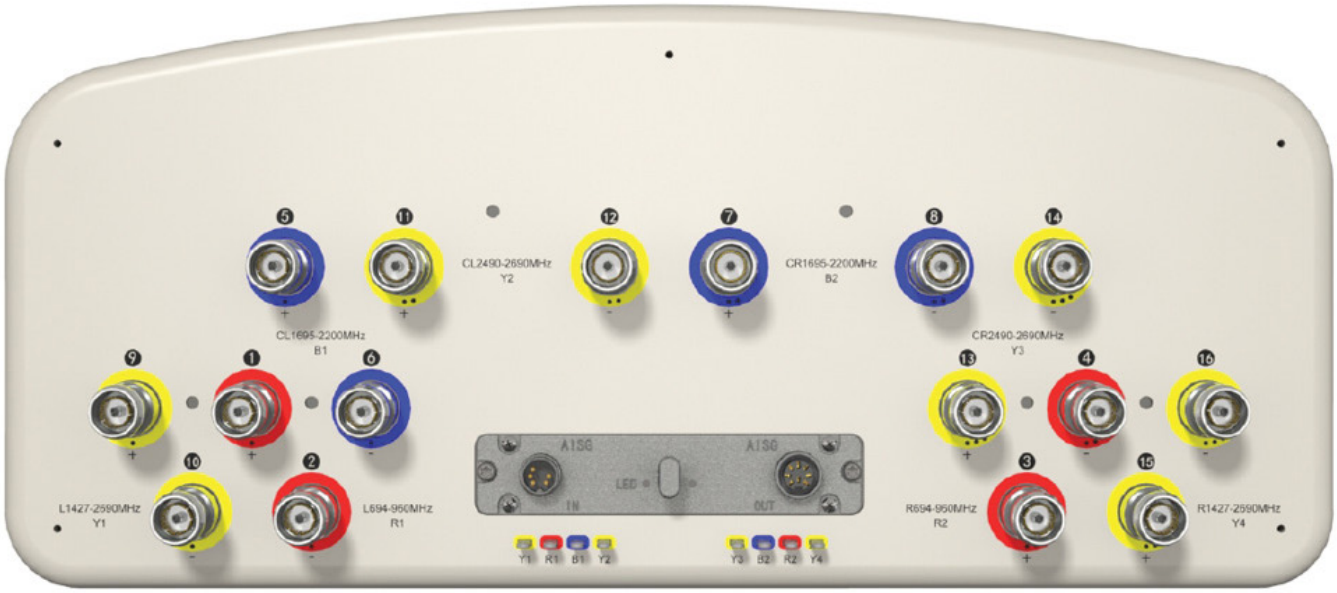
P4-BBRRMMUU15-N0

P4-BBRRMMUU15-N0N, P4-BBRRMMUU15-S0, P4-BBRRMMUU15-S0N

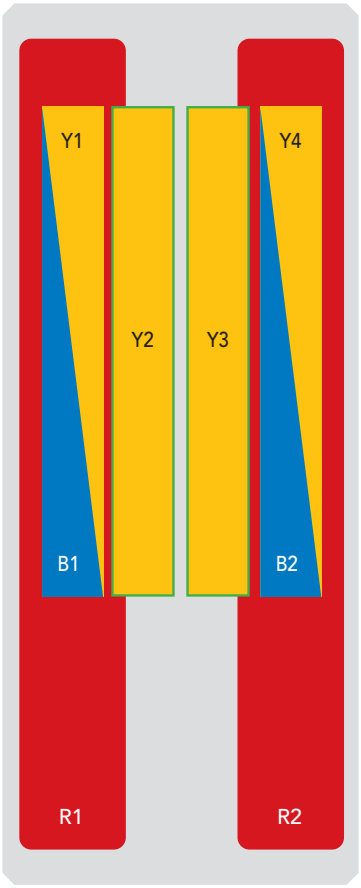
BOTTOM VIEW - LABELING



ARRAY LAYOUT

ARRAY	FREQUENCY	CONNECTOR	CONNECTOR TYPE	RET	AISG RET UID
R1	694-960 MHz	1-2	(2x) 4.3-10 Female	R1	RFxxxxxxxxxxx-R1
R2	694-960 MHz	3-4	(2x) 4.3-10 Female	R2	RFxxxxxxxxxxx-R2
B1	1695-2200 MHz	5-6	(2x) 4.3-10 Female	B1	RFxxxxxxxxxxx-B1
B2	1695-2200 MHz	7-8	(2x) 4.3-10 Female	B2	RFxxxxxxxxxxx-B2
Y1	2490-2690 MHz	9-10	(2x) 4.3-10 Female	Y1	RFxxxxxxxxxxx-Y1
Y2	1427-2690 MHz	13-14	(2x) 4.3-10 Female	Y2	RFxxxxxxxxxxx-Y2
Y3	1427-2690 MHz	15-16	(2x) 4.3-10 Female	Y3	RFxxxxxxxxxxx-Y3
Y4	2490-2690 MHz	11-12	(2x) 4.3-10 Female	Y4	RFxxxxxxxxxxx-Y4

NOTE: RET motors will tilt one at a time, not simultaneously



The illustration is not shown to scale.

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P4-BBRRMMUU15-N0

P4-BBRRMMUU15-N0N, P4-BBRRMMUU15-S0, P4-BBRRMMUU15-S0N

MECHANICAL SPECIFICATIONS

Length		mm (in)	1498 (59.0)
Width		mm (in)	499 (19.6)
Depth		mm (in)	215 (8.5)
Net Weight - Antenna Only		kg (lbs)	32 (70.5)
Wind Load Rated at 150 km/h (93 mph)	Front	N (lbf)	393 (88)
	Side	N (lbf)	343 (77)
	Rear	N (lbf)	413 (93)
	Maximum, Resultant	N (lbf)	986 (222)
Survival Wind Speed / Rated Wind Speed		km/h (mph)	200 (150)
Connector Type		--	(16x) 4.3-10 Female, (2x) AISG Connectors (1 Male, 1 Female) at Bottom Site Sharing: (4x) AISG Connectors (2 Male, 2 Female) at Bottom
Radome Color		---	Light Grey RAL7035
Radome Material		---	Fiberglass
Lightning Protection		---	Direct Ground
Shipping	Packing Size (Length x Width x Depth)	mm (in)	1698 x 594 x 335 (66.8 x 23.4 x 13.2)

ENVIRONMENTAL SPECIFICATIONS

Environmental Standard	---	ETS 300 019
Operating Temperature	degrees	-40° to +60° C (-40° to +140° F)
Product Environmental Compliance	---	Product is RoHS Compliant

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P4-BBRRMMUU15-N0

P4-BBRRMMUU15-N0N, P4-BBRRMMUU15-S0, P4-BBRRMMUU15-S0N

ACCESSORIES

Accessories may be ordered separately unless otherwise indicated.

ITEM	MODEL NUMBER	WEIGHT
Beam Tilt Mounting Bracket Kit for Pole Diameter 50-125 mm (2.0-4.9 in) *Refer to ordering options*	APM50-H2	5.5 kg (12.1 lbs)
Direct Pipe No Tilt Bracket Kit for Pole Diameter 50-125 mm (2.0-4.9 in) *Refer to ordering options*	APM50-H2N	4 kg (8.8 lbs)

INSTALLATION

Please read all installation notes before installing product.

	Always attach the antenna using all mounting points.
	Do not install antenna with the connectors facing upwards.

EXTERNAL DOCUMENT LINKS

APM50 Mounting Kit Series Installation Instructions

NOTES

Specifications follow BASTA guidelines.

For additional mounting information, please check **External Document Links**.

For Radiating Patterns: Request pattern files

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