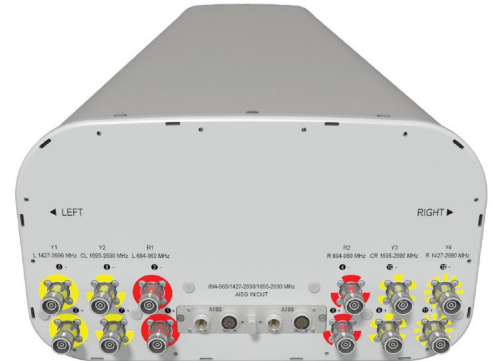


## P4-BBUULL20-J1

P4-BBUULL20-J1N, P4-BBUULL20-I1, P4-BBUULL20-I1N

### Features

- 4 ports / 2 cross pol systems in low band (694-960 MHz)
- 4 ports / 4 cross pol systems in very wide mid band (1427-2690 MHz)
- 4 ports / 2 cross pol systems in mid band (1695-2690 MHz)
- Integrated and field replaceable SRET
- Optional with Site Sharing feature (Model name suffix -I1, -I1N)
- Optional with Direct Pipe No Tilt mounting hardware (Model name suffix -J1N, -I1N)
- Compliant with AISG v2.0 and 3GPP



<b>PRODUCT OVERVIEW</b>	Frequency Range (MHz)	(2x) 694-960		(2x) 1427-2690		(2x) 1695-2690	
	Array	■ R1	■ R2	■ Y1	■ Y4	■ Y2	■ Y3
	Connector	1-2	3-4	5-6	11-12	7-8	9-10
		12 PORTS					
	Polarization	XPOL					
	Azimuth Beamwidth (avg)	65°		65°		65°	
	Electrical Downtilt	2-12°		2-12°		2-12°	
Dimensions	2050 x 430 x 245 mm (80.7 x 16.9 x 9.6 in)						

### ORDERING OPTIONS

Select from the following ordering options

ANTENNA MODEL NUMBER	CONFIGURATION	MOUNTING HARDWARE	MOUNTING PIPE DIAMETER	SHIPPING WEIGHT	MOUNTING HARDWARE WEIGHT
P4-BBUULL20-J1	ACU-X20N Internal RET Included	APM40-2 Beam Tilt Kit Included	60-120 mm (2.4-4.7 in)	44.5 kg (98.1 lbs)	3.9 kg (8.6 lbs)
P4-BBUULL20-J1N	ACU-X20N Internal RET Included	APM40-1 Direct Pipe No Tilt Mounting Kit Included	60-120 mm (2.4-4.7 in)	43.8 kg (96.6 lbs)	3.2 kg (7 lbs)
P4-BBUULL20-I1	ACU-X20 Internal RET for Site Sharing Included	APM40-2 Beam Tilt Kit Included	60-120 mm (2.4-4.7 in)	44.5 kg (98.1 lbs)	3.9 kg (8.6 lbs)
P4-BBUULL20-I1N	ACU-X20 Internal RET for Site Sharing Included	APM40-1 Direct Pipe No Tilt Mounting Kit Included	60-120 mm (2.4-4.7 in)	43.8 kg (96.6 lbs)	3.2 kg (7 lbs)



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## P4-BBUULL20-J1

P4-BBUULL20-J1N, P4-BBUULL20-I1, P4-BBUULL20-I1N

### ELECTRICAL SPECIFICATIONS

■ R1

Frequency Range		MHz	694-960		
		MHz	694-806	790-894	880-960
Polarization		---	±45°		
Gain	Over all Tilts	dBi	14.5 ± 0.5	15.2 ± 0.8	15.8 ± 0.4
	Max Gain	dBi	15	16	16.2
Azimuth Beamwidth (3 dB)		degrees	71.8° ± 8.6°	63.8° ± 7.8°	61.6° ± 4.8°
Elevation Beamwidth (3 dB)		degrees	11.8° ± 1.4°	10.7° ± 0.7°	9.9° ± 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	21	21.5	20.8
First Upper Side Lobe Suppression		dB	13.4	14.7	17.1
Cross Polar Discrimination Over Sector		dB	5	4.9	4.2
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	17.4	16.8	21.7
Maximum Effective Power Per Port		Watts	250 W		
Cross Polar Isolation		dB	25		
Interband Isolation		dB	25		

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	14.7 ± 0.6	15.1 ± 0.4	15.7 ± 0.3
	Max Gain	dBi	15.3	15.5	16
Azimuth Beamwidth (3 dB)		degrees	70.6° ± 8.2°	65.1° ± 5.3°	62.1° ± 2.9°
Elevation Beamwidth (3 dB)		degrees	11.7° ± 1.1°	10.5° ± 0.7°	9.7° ± 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	21.9	21.5	20.5
First Upper Side Lobe Suppression		dB	16.3	17.3	17.5
Cross Polar Discrimination Over Sector		dB	5.3	5.9	4.2
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	17.9	20.5	22.8
Maximum Effective Power Per Port		Watts	250 W		
Cross Polar Isolation		dB	25		
Interband Isolation		dB	25		

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## P4-BBUULL20-J1

P4-BBUULL20-J1N, P4-BBUULL20-I1, P4-BBUULL20-I1N

### ELECTRICAL SPECIFICATIONS

■ Y1

Frequency Range		MHz	1427-2690					
		MHz	1427-1518	1695-1880	1850-1990	1920-2170	2300-2400	2490-2690
Polarization		---	±45°					
Gain	Over all Tilts	dBi	15.7 ± 0.6	17 ± 0.9	17.9 ± 0.3	18.1 ± 0.5	18.4 ± 0.4	18.5 ± 0.5
	Max Gain	dBi	16.3	17.9	18.2	18.6	18.8	19
Azimuth Beamwidth (3 dB)		degrees	68.6° ± 7.2°	68.1° ± 7.8°	64.6° ± 6°	60.4° ± 8°	55.9° ± 4.1°	56.1° ± 7.4°
Elevation Beamwidth (3 dB)		degrees	7.3° ± 0.4°	6.6° ± 0.5°	6.1° ± 0.4°	5.7° ± 0.6°	4.9° ± 0.4°	4.6° ± 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	21.9	23.5	19.6	22.2	20.5
First Upper Side Lobe Suppression		dB	16	16.3	18.1	17	20.8	21.2
Cross Polar Discrimination Over Sector		dB	7.9	5.3	9.2	4.6	1.5	1.1
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	20.4	22.5	23.3	23.1	21.1	18.1
Maximum Effective Power Per Port		Watts	250 W					
Cross Polar Isolation		dB	25					
Interband Isolation		dB	25					

Specifications follow BASTA guidelines.

### ELECTRICAL SPECIFICATIONS

■ Y2

Frequency Range		MHz	1695-2690				
		MHz	1695-1880	1850-1990	1920-2170	2300-2400	2490-2690
Polarization		---	±45°				
Gain	Over all Tilts	dBi	16.7 ± 0.9	17.4 ± 0.6	17.9 ± 0.8	17.9 ± 0.6	17.7 ± 0.7
	Max Gain	dBi	17.6	18	18.7	18.5	18.4
Azimuth Beamwidth (3 dB)		degrees	63.3° ± 11.3°	59.5° ± 7.1°	52.6° ± 9.1°	52.6° ± 4.8°	55° ± 5.9°
Elevation Beamwidth (3 dB)		degrees	6.6° ± 0.6°	6° ± 0.6°	5.6° ± 0.7°	4.7° ± 0.3°	4.4° ± 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	23.4	24.4	23.9	24.4	23.4
First Upper Side Lobe Suppression		dB	15.1	13.8	13.4	14.4	14.8
Cross Polar Discrimination Over Sector		dB	5.6	6.1	5.5	1.8	1.4
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	20.4	21.1	21.9	21.1	20.8
Maximum Effective Power Per Port		Watts	250 W				
Cross Polar Isolation		dB	25				
Interband Isolation		dB	25				

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65°

2050 mm

INTEGRATED RET

SITE SHARING OPTIONAL

## P4-BBUULL20-J1

P4-BBUULL20-J1N, P4-BBUULL20-I1, P4-BBUULL20-I1N

### ELECTRICAL SPECIFICATIONS

■ Y3

Frequency Range		MHz	1695-2690				
		MHz	1695-1880	1850-1990	1920-2170	2300-2400	2490-2690
Polarization		---	±45°				
Gain	Over all Tilts	dBi	16.2 ± 1	17.2 ± 0.5	17.6 ± 0.8	17.9 ± 0.4	17.6 ± 0.6
	Max Gain	dBi	17.2	17.7	18.4	18.3	18.2
Azimuth Beamwidth (3 dB)		degrees	67° ± 10.1°	62.5° ± 6.8°	54.5° ± 10.9°	54.8° ± 7.4°	57.2° ± 6.6°
Elevation Beamwidth (3 dB)		degrees	6.5° ± 0.6°	5.9° ± 0.6°	5.6° ± 0.6°	4.9° ± 0.4°	4.5° ± 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	21.7	23.7	22.9	23.9	23.5
First Upper Side Lobe Suppression		dB	15.7	14.6	14.7	17.3	17.1
Cross Polar Discrimination Over Sector		dB	3.4	2.8	3.5	1.2	0.7
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	22.1	24.4	20.5	19.2	18.9
Maximum Effective Power Per Port		Watts	250 W				
Cross Polar Isolation		dB	25				
Interband Isolation		dB	25				

Specifications follow BASTA guidelines.

### ELECTRICAL SPECIFICATIONS

■ Y4

Frequency Range		MHz	1427-2690					
		MHz	1427-1518	1695-1880	1850-1990	1920-2170	2300-2400	2490-2690
Polarization		---	±45°					
Gain	Over all Tilts	dBi	15.5 ± 0.9	17 ± 1	17.8 ± 0.4	17.9 ± 0.6	18.6 ± 0.6	18.6 ± 0.6
	Max Gain	dBi	16.4	18	18.2	18.5	19.2	19.2
Azimuth Beamwidth (3 dB)		degrees	69.9° ± 11.2°	67.7° ± 6.1°	65.8° ± 4.8°	61.7° ± 8.2°	53.9° ± 4.6°	55° ± 5.6°
Elevation Beamwidth (3 dB)		degrees	7.7° ± 1.4°	6.7° ± 0.8°	6.2° ± 0.4°	5.7° ± 0.7°	4.9° ± 0.4°	4.6° ± 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	21.3	23.3	22.2	19.4	19.4	20.3
First Upper Side Lobe Suppression		dB	13.5	19.9	23.2	18.6	20.9	20.4
Cross Polar Discrimination Over Sector		dB	9.1	7.6	6	3.9	1.4	0.3
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	20.8	21.8	20.9	20.8	21.4	19.2
Maximum Effective Power Per Port		Watts	250 W					
Cross Polar Isolation		dB	25					
Interband Isolation		dB	25					

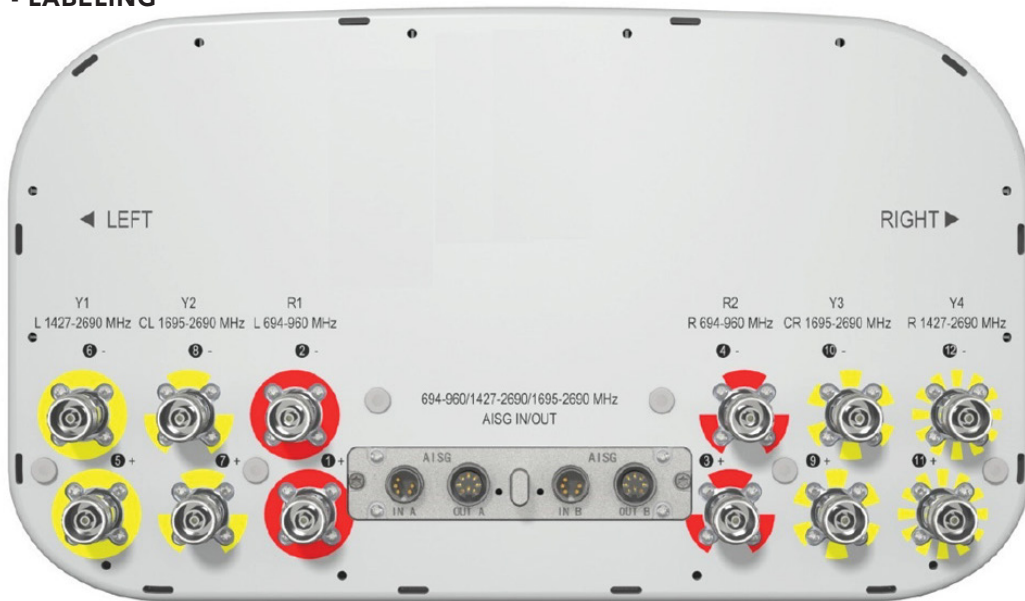
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## P4-BBUULL20-J1

P4-BBUULL20-J1N, P4-BBUULL20-I1, P4-BBUULL20-I1N

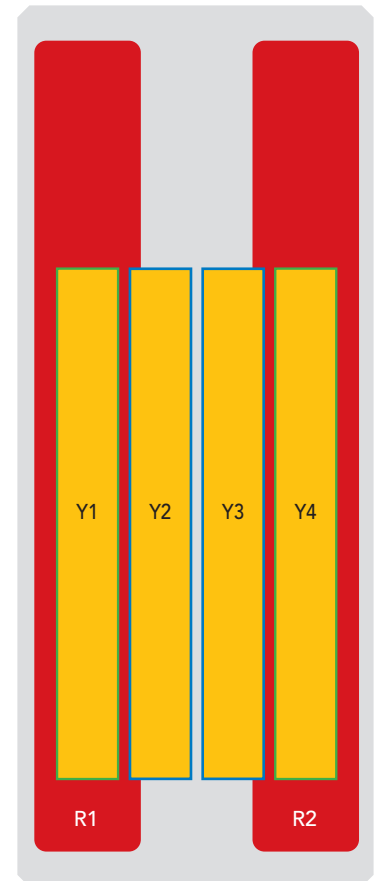
### BOTTOM VIEW - LABELING



### ARRAY LAYOUT

ARRAY	FREQUENCY	CONNECTOR	CONNECTOR TYPE	RET	AISG RET UID
■ R1	694-960 MHz	1-2	(2x) 4.3-10 Female	R1	RFxxxxxxxxxx-R1
■ R2	694-960 MHz	3-4	(2x) 4.3-10 Female	R2	RFxxxxxxxxxx-R2
■ Y1	1427-2690 MHz	5-6	(2x) 4.3-10 Female	Y1	RFxxxxxxxxxx-Y1
■ Y2	1695-2690 MHz	7-8	(2x) 4.3-10 Female	Y2	RFxxxxxxxxxx-Y2
■ Y3	1695-2690 MHz	9-10	(2x) 4.3-10 Female	Y3	RFxxxxxxxxxx-Y3
■ Y4	1427-2690 MHz	11-12	(2x) 4.3-10 Female	Y4	RFxxxxxxxxxx-Y4

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



*The illustration is not shown to scale.*

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65°

2050 mm

INTEGRATED RET

SITE SHARING OPTIONAL

## P4-BBUULL20-J1

P4-BBUULL20-J1N, P4-BBUULL20-I1, P4-BBUULL20-I1N

### MECHANICAL SPECIFICATIONS

Length	mm (in)	2050 (80.7)
Width	mm (in)	430 (16.9)
Depth	mm (in)	245 (9.6)
Net Weight - Antenna Only	kg (lbs)	32 (70.5)
Wind Load Rated at 150 km/h (93 mph)	Frontal, Resultant	N (lbf) 433 (97)
	Side, Resultant	N (lbf) 548 (123)
	Rear, Resultant	N (lbf) 549 (123)
	Maximum, Resultant	N (lbf) 877 (197)
Survival Wind Speed	km/h (mph)	240 (150)
Connector Type	--	(12x) 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
<b>Shipping</b>	Packing Size (Length x Width x Depth)	mm (in) 2265 x 540 x 368 (89.2 x 21.2 x 14.5)

### 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-BBUULL20-J1

P4-BBUULL20-J1N, P4-BBUULL20-I1, P4-BBUULL20-I1N

### ACCESSORIES

Accessories may be ordered separately unless otherwise indicated.

ITEM	MODEL NUMBER	WEIGHT
Beam Tilt Mounting Bracket Kit for Pole Diameter 60-120 mm (2.4-4.7 in) <i>Refer to ordering options</i>	APM40-2	3.9 kg (8.6 lbs)
Direct Pipe No Tilt Bracket Kit for Pole Diameter 60-120 mm (2.4-4.7 in) <i>Refer to ordering options</i>	APM40-1	3.2 kg (7 lbs)

### INSTALLATION

Please read all installation notes before installing product.

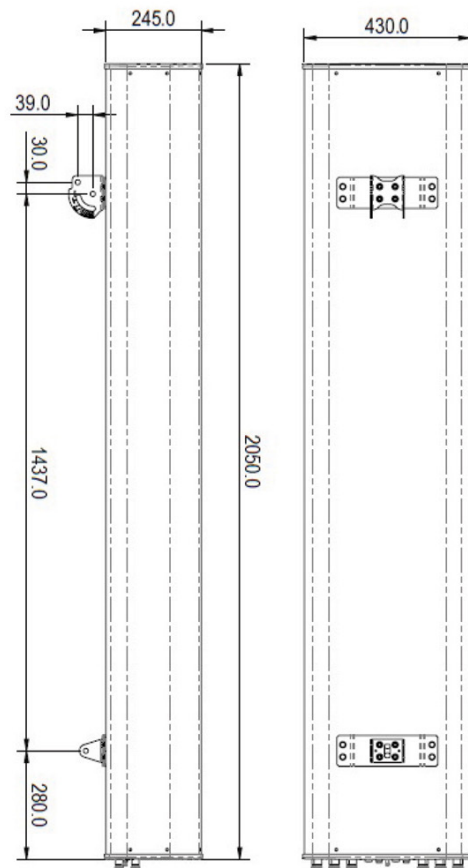


Always attach the antenna using all mounting points.

Do not install antenna with the connectors facing upwards.

### EXTERNAL DOCUMENT LINKS

[APM40 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](#)