

APXVAA4L9TY24-U-J20

APXVAA4L9TY24-V-J20

Features

- Narrow 499 mm radome for reduced windloading and easier zoning
- MIMO 4x4 in low-band and mid-band x2 (L/LC and RC/R)
- TDD beamforming 8T8R 3300-4200 (Horizontal spacing 42mm)
- Integrated and field replaceable mRET
- ACU model number: ACU-X20-N4
- Compliant with AISG v2.0 and 3GPP
- Mechanical downtilt kit included
- Optional with Direct Pipe No Tilt mounting hardware (Model name suffix -V-J20)



PRODUCT OVERVIEW		FDD						TDD			
	Frequency Range (MHz)	(2x) 617-894		(4x) 1695-2690				(8T8R) 3300-4200			
	Array	<div><div></div> R1</div>	<div><div></div> R2</div>	<div><div></div> Y1</div>	<div><div></div> Y2</div>	<div><div></div> Y3</div>	<div><div></div> Y4</div>	<div><div></div> P1</div>	<div><div></div> P2</div>	<div><div></div> P3</div>	<div><div></div> P4</div>
	Connector	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20
		4 PORTS		8 PORTS				8 PORTS			
	Polarization	XPOL		XPOL				XPOL			
	Azimuth Beamwidth (avg)	65°		65°				90° Unit Beam			
	Electrical Downtilt	2-12°		2-12°				2-12°			
	Dimensions	2432 x 499 x 215 mm (95.8 x 19.7 x 8.5 in)									

ORDERING OPTIONS

Select from the following ordering options

ANTENNA MODEL NUMBER	CONFIGURATION	MOUNTING HARDWARE	MOUNTING PIPE DIAMETER	SHIPPING WEIGHT	MOUNTING HARDWARE WEIGHT
APXVAA4L9TY24-U-J20	ACU-X20-N4 Field Replaceable RET Included	APM40-5E Beam Tilt Kit and APM40-E10T Included	60-120 mm (2.4-4.7 in)	55.5 kg (122 lbs)	8.5 kg (19 lbs)
APXVAA4L9TY24-V-J20	ACU-X20-N4 Field Replaceable RET Included	APM40-1E Direct Pipe No Tilt and APM40-E10T Included	60-120 mm (2.4-4.7 in)	53.3 kg (117 lbs)	6.3 kg (14 lbs)

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ELECTRICAL SPECIFICATIONS Low Band

■ R1 ■ R2

Frequency Range		MHz	(2x) 617-894		
		MHz	617-698	698-806	806-894
Polarization		---	±45°		
Gain	Over all Tilts	dBi	15.1 ± 0.7	15.5 ± 0.8	15.2 ± 0.6
	Max Gain	dBi	15.8	16.3	15.8
Azimuth Beamwidth (3 dB)		degrees	67° ± 6°	65° ± 8°	62° ± 11°
Elevation Beamwidth (3 dB)		degrees	9.9° ± 0.7°	9.0° ± 0.6°	8.2° ± 0.6°
Electrical Downtilt		degrees	2-12°		
Impedance		Ohms	50Ω		
VSWR (Return Loss)		---	1.5:1 (-14 dB)		
Passive Intermodulation		dBc	-153 (3rd Order for 2x20 W Carriers)		
Front-to-Back Ratio, Total Power, ± 30°		dB	20	21	19
Front-to-Back at 180° Copolar		dB	28	26	28
Upper Side Lobe Suppression, Peak to +20°		dB	18	17	15
First Upper Side Lobe		dB	19	22	23
Cross-Pol Over Sector		dB	7	6	1
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	18	19	21
Maximum Effective Power Per Port		Watts	300 W		
Cross Polar Isolation		dB	25	25	25
Interband Isolation		dB	20	20	20

ELECTRICAL SPECIFICATIONS Mid Band

■ Y1 ■ Y2 ■ Y3 ■ Y4

Frequency Range		MHz	(4x) 1695-2690				
		MHz	1695-1880	1850-1990	1995-2200	2200-2500	2500-2690
Polarization		---	±45°				
Gain	Over all Tilts	dBi	16.8 ± 0.9	17.3 ± 0.5	17.7 ± 0.7	17.7 ± 0.6	17.6 ± 0.4
	Max Gain	dBi	17.7	17.8	18.4	18.3	18.0
Azimuth Beamwidth (3 dB)		degrees	71° ± 8°	64° ± 6°	60° ± 8°	55° ± 5°	55° ± 7°
Elevation Beamwidth (3 dB)		degrees	6.2° ± 0.5°	5.8° ± 0.3°	5.3° ± 0.4°	4.8° ± 0.3°	4.6° ± 0.3°
Electrical Downtilt		degrees	2-12°				
Impedance		Ohms	50Ω				
VSWR (Return Loss)		---	1.5:1 (-14 dB)				
Passive Intermodulation		dBc	-153 (3rd Order for 2x20 W Carriers)				
Front-to-Back Ratio, Total Power, ± 30°		dB	23	22	22	24	24
Front-to-Back at 180° Copolar		dB	30	29	30	32	31
Upper Side Lobe Suppression, Peak to +20°		dB	14	16	16	16	15
First Upper Side Lobe		dB	18	19	20	20	20
Cross-Pol Over Sector		dB	7	6	3	2	2
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	20	22	21	19	16
Maximum Effective Power Per Port		Watts	200 W				
Cross Polar Isolation		dB	25	25	25	25	25
Interband Isolation		dB	20	20	20	20	20

Quoted performance parameters are provided to offer typical, peak or range values only and may vary as a result of normal testing, manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to products may be made without notice.

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■ P1 ■ P2 ■ P3 ■ P4

ELECTRICAL SPECIFICATIONS High Band

Unit Beam

Frequency Range		MHz	(4x) 3300-4200		
		MHz	3300-3600	3600-3800	3800-4200
Polarization		---	±45°		
Gain	Over all Tilts	dBi	15.9 ± 0.7	15.7 ± 0.7	15.9 ± 0.8
	Max Gain	dBi	16.6	16.4	16.7
Azimuth Beamwidth (3 dB)		degrees	91° ± 12°	88° ± 11°	79° ± 12°
Elevation Beamwidth (3 dB)		degrees	6.2° ± 0.4°	6.2° ± 0.4°	6.0° ± 0.3°
Electrical Downtilt		degrees	2-12°		
Impedance		Ohms	50Ω		
VSWR (Return Loss)		---	1.5:1 (-14 dB)		
Passive Intermodulation		dBc	-153 (3rd Order for 2x20 W Carriers)		
Front-to-Back Ratio, Total Power, ± 30°		dB	22	22	22
Front-to-Back at 180° Copolar		dB	30	30	31
Upper Side Lobe Suppression, Peak to +20°		dB	14	14	15
First Upper Side Lobe		dB	16	15	16
Cross-Pol Over Sector		dB	12	7	5
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	21	17	16
Maximum Effective Power Per Port		Watts	100 W		
Cross Polar Isolation		dB	25	25	25
Interband Isolation		dB	20	20	20

ELECTRICAL SPECIFICATIONS High Band

Broadcast Beam

Frequency Range		MHz	3300-4200		
		MHz	3300-3600	3600-3800	3800-4200
Polarization		---	±45°		
Gain	Over all Tilts	dBi	17.3 ± 0.5	17.0 ± 0.5	17.3 ± 0.7
	Max Gain	dBi	17.8	17.5	18.0
Azimuth Beamwidth (3 dB)		degrees	65° ± 6°	65° ± 4°	62° ± 4°
Elevation Beamwidth (3 dB)		degrees	6.6° ± 0.5°	6.2° ± 0.3°	5.9° ± 0.3°
Electrical Downtilt		degrees	2-12°		
Impedance		Ohms	50Ω		
Front-to-Back Ratio, Total Power, ± 30°		dB	25	25	25
Front-to-Back at 180° Copolar		dB	33	33	33
Upper Side Lobe Suppression, Peak to +20°		dB	15	14	15
First Upper Side Lobe		dB	20	20	18
Cross-Pol Over Sector		dB	10	5	1
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	21	25	21

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ELECTRICAL SPECIFICATIONS High Band

Service Beam at 0°

Frequency Range		MHz	3300-4200		
		MHz	3300-3600	3600-3800	3800-4200
Polarization		---	±45°		
Gain	Over all Tilts	dBi	21.2 ± 0.3	21.0 ± 0.5	21.1 ± 0.5
	Max Gain	dBi	21.5	21.5	21.6
Azimuth Beamwidth (3 dB)		degrees	25° ± 1°	25° ± 1°	24° ± 2°
Elevation Beamwidth (3 dB)		degrees	6.6° ± 0.4°	6.2° ± 0.3°	5.9° ± 0.3°
Electrical Downtilt		degrees	2-12°		
Impedance		Ohms	50Ω		
Front-to-Back Ratio, Total Power, ± 30°		dB	29	28	28
Front-to-Back at 180° Copolar		dB	35	32	34
Upper Side Lobe Suppression, Peak to +20°		dB	17	17	17
First Upper Side Lobe		dB	17	17	17
Cross-Pol Over 3dB		dB	23	20	18
Cross Polar Discrimination (XPD) at Beam Peak		dB	25	22	19

ELECTRICAL SPECIFICATIONS High Band

Service Beam at 30°

Frequency Range		MHz	3300-4200		
		MHz	3300-3600	3600-3800	3800-4200
Polarization		---	±45°		
Gain	Over all Tilts	dBi	20.2 ± 0.4	20.0 ± 0.4	20.5 ± 1.0
	Max Gain	dBi	20.6	20.4	21.5
Azimuth Beamwidth (3 dB)		degrees	32° ± 2°	30° ± 2°	24° ± 5°
Elevation Beamwidth (3 dB)		degrees	6.6° ± 0.3°	6.2° ± 0.2°	6.0° ± 0.4°
Electrical Downtilt		degrees	2-12°		
Impedance		Ohms	50Ω		
Front-to-Back Ratio, Total Power, ± 30°		dB	25	25	25
Front-to-Back at 180° Copolar		dB	32	32	32
Upper Side Lobe Suppression, Peak to +20°		dB	17	16	17
First Upper Side Lobe		dB	17	18	21
Cross-Pol Over 3dB		dB	18	17	14
Cross Polar Discrimination (XPD) at Beam Peak		dB	21	20	15

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ELECTRICAL SPECIFICATIONS High Band

Calibration & Electrical Parameters

Frequency Range	MHz	3300-4200		
	MHz	3300-3600	3600-3800	3800-4200
Horizontal Spacing	mm	42		
Transmission from Antenna Ports to CAL Port	dB	-26 ± 2	-26 ± 2	-26 ± 2
Amplitude Diff Between Antenna Port and CAL Port	dB	< 0.9	< 0.9	< 0.9
Phase Diff Between Antenna Port and CAL Port	degrees	< 7°	< 7°	< 7°
Same Polarization Isolation	dB	20	20	20
Different Polarization Isolation	dB	25	25	25

RET ACTUATOR

Frequency	MHz	617-894	1695-2690	3300-4200
Model Number	---	ACU-X20-N4		
Number of RET Actuators	---	1		
RET ID	---	R1	Y1 and Y2	P1
Input Voltage	Vdc	10-30V		
Power Consumption	Idle State, maximum	Watts	0.5W @ 10V, 1.5W @ 30V	
	Normal Conditions, maximum	Watts	4W @ 10V, 9W @ 30V	
Protocol	---	3GPP / AISG v2.0		
Tilt Change Duration	---	Less than 15 seconds, typical (may vary depending on antenna type and outdoor temperature)		
Precision	degrees	± 0.1°		
Tilt Change Capability	---	18,000 minimum		
RET Interface	---	One AISG Male and One AISG Female		
Field Replaceable Unit	---	Yes		
Location	---	Semi-internal		

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BOTTOM VIEW - LABELING

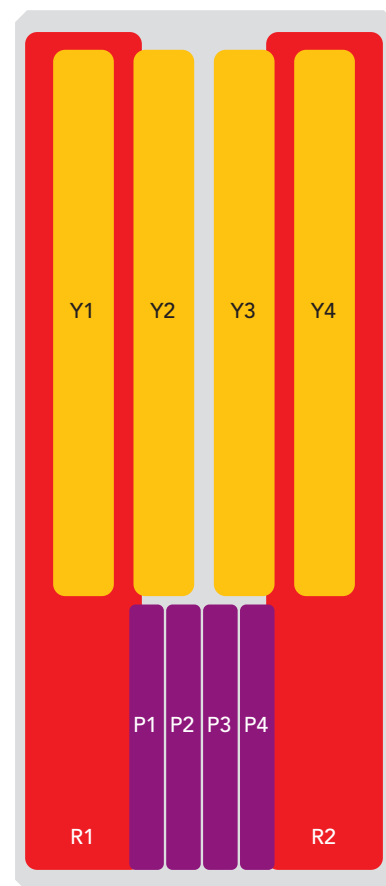


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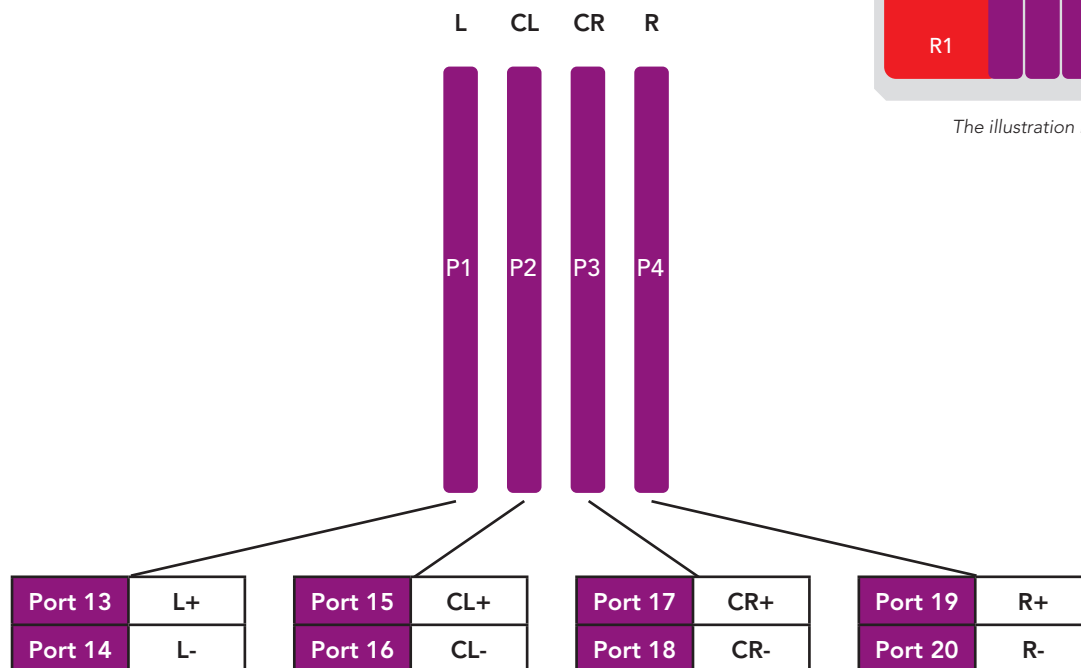
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ARRAY LAYOUT

ARRAY	FREQUENCY	CONNECTOR	CONNECTOR TYPE	RET	AISG RET UID
■ R1	617-894 MHz	1-2	(2x) 4.3-10 Female	R1	RFxxxxxxxxxx-2R1
■ R2	617-894 MHz	3-4	(2x) 4.3-10 Female		
■ Y1	1695-2690 MHz	5-6	(2x) 4.3-10 Female	Y1	RFxxxxxxxxxx-2Y1
■ Y2	1695-2700 MHz	7-8	(2x) 4.3-10 Female		
■ Y3	1695-2690 MHz	9-10	(2x) 4.3-10 Female	Y2	RFxxxxxxxxxx-2Y2
■ Y4	1695-2690 MHz	11-12	(2x) 4.3-10 Female		
■ P1	3300-4200 MHz	13-14	(2x) 4.3-10 Female	P1	RFxxxxxxxxxx-2P1
■ P2	3300-4200 MHz	15-16	(2x) 4.3-10 Female		
■ P3	3300-4200 MHz	17-18	(2x) 4.3-10 Female		
■ P4	3300-4200 MHz	19-20	(2x) 4.3-10 Female		



The illustration is not shown to scale.



Physical array and port mapping according to AISG naming convention:
Left - Center Left - Center Right - Right (seen from front of antenna)

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MECHANICAL SPECIFICATIONS

Length		mm (in)	2432 (95.8)
Width		mm (in)	499 (19.7)
Depth		mm (in)	215 (8.5)
Net Weight - Antenna Only		kg (lbs)	39 (86)
Wind Load Rated at 150 km/h (93 mph)	Front	N (lbf)	816 (183)
	Side	N (lbf)	701 (158)
	Rear	N (lbf)	969 (218)
	Maximum	N (lbf)	1627 (366)
Survival Wind Speed		km/h (mph)	240 (150)
Connector Type		--	(20x) 4.3-10 Female, (1x) 4.3-10 Female CAL, (2x) AISG Connectors (1 Male, 1 Female) at Bottom
Radome Color		---	Light Grey RAL7035
Radome Material		---	ASA
Lightning Protection		---	Direct Ground
Shipping	Packing Size (Length x Width x Depth)	mm (in)	2642 x 560 x 285 (104.0 x 22.0 x 11.2)

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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ACCESSORIES Accessories may be ordered separately unless otherwise indicated.

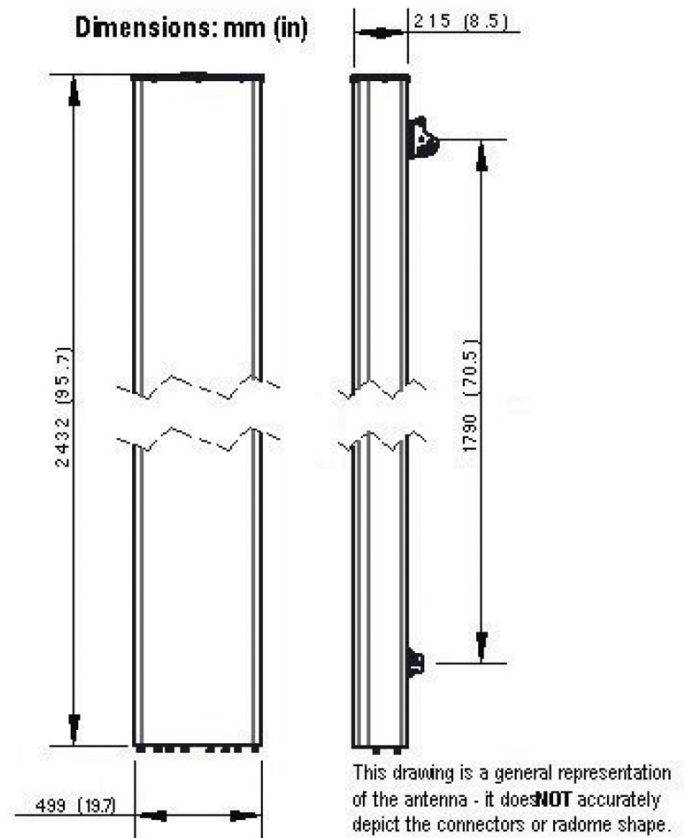
ITEM	MODEL NUMBER	WEIGHT
Beam Tilt Mounting Bracket Kit and Interface Bracket for Pole Diameter 60-120 mm (2.4-4.7 in) <i>Refer to ordering options</i>	APM40-5E and APM40-E10T	8.5 kg (19 lbs)
Direct Pipe No Tilt Bracket Kit and Interface Bracket for Pole Diameter 60-120 mm (2.4-4.7 in) <i>Refer to ordering options</i>	APM40-1E and APM40-E10T	6.3 kg (14 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](#)