











## 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	 R1	 R2	 Y1	 Y2	 Y3	 Y4	 P1	 P2	 P3	 P4
	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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## APXVAA4L9TY24-U-J20

## APXVAA4L9TY24-V-J20

### 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

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## APXVAA4L9TY24-U-J20

## APXVAA4L9TY24-V-J20

■ P1 ■ P2 ■ P3 ■ P4  
Unit Beam

### ELECTRICAL SPECIFICATIONS High Band

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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## APXVAA4L9TY24-U-J20

## APXVAA4L9TY24-V-J20

### 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

## APXVAA4L9TY24-U-J20

## APXVAA4L9TY24-V-J20

### 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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## APXVAA4L9TY24-V-J20

### BOTTOM VIEW - LABELING

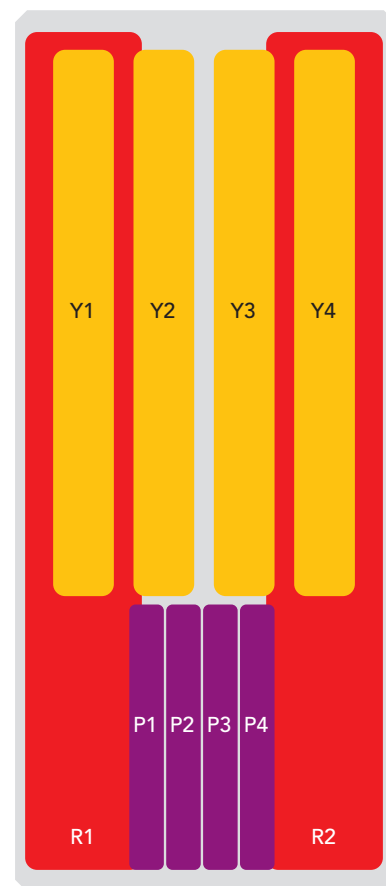


## APXVAA4L9TY24-U-J20

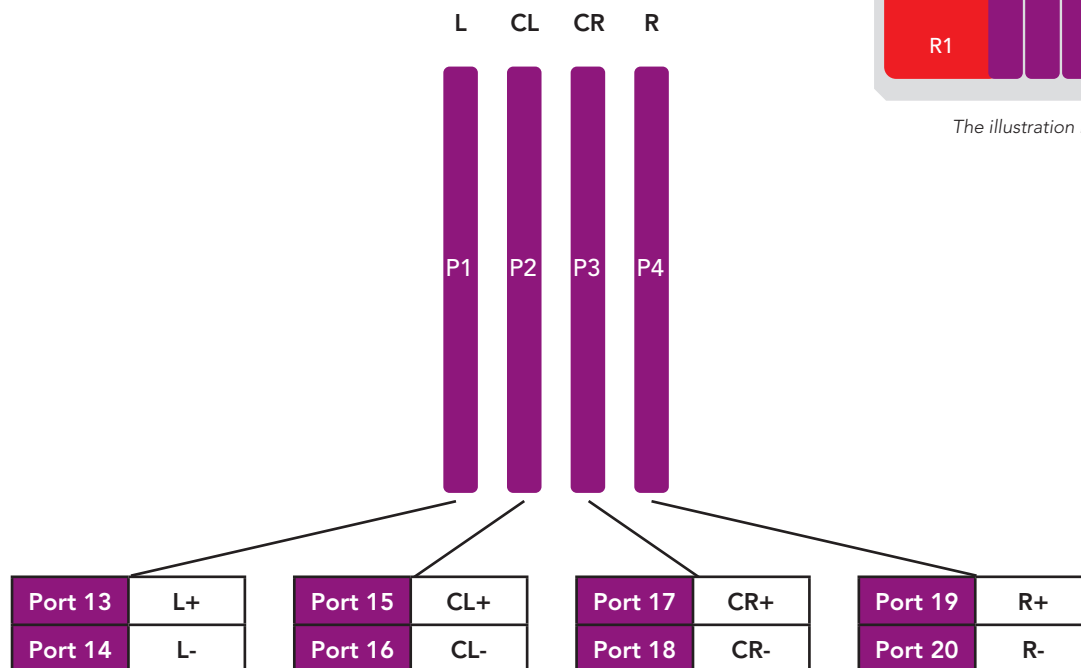
## APXVAA4L9TY24-V-J20

### ARRAY LAYOUT

ARRAY	FREQUENCY	CONNECTOR	CONNECTOR TYPE	RET	AISG RET UID
<span style="color: red;">■</span> R1	617-894 MHz	1-2	(2x) 4.3-10 Female	R1	RFxxxxxxxxxx-2R1
<span style="color: red;">■</span> R2	617-894 MHz	3-4	(2x) 4.3-10 Female		
<span style="color: orange;">■</span> Y1	1695-2690 MHz	5-6	(2x) 4.3-10 Female	Y1	RFxxxxxxxxxx-2Y1
<span style="color: orange;">■</span> Y2	1695-2700 MHz	7-8	(2x) 4.3-10 Female		
<span style="color: orange;">■</span> Y3	1695-2690 MHz	9-10	(2x) 4.3-10 Female	Y2	RFxxxxxxxxxx-2Y2
<span style="color: orange;">■</span> Y4	1695-2690 MHz	11-12	(2x) 4.3-10 Female		
<span style="color: purple;">■</span> P1	3300-4200 MHz	13-14	(2x) 4.3-10 Female	P1	RFxxxxxxxxxx-2P1
<span style="color: purple;">■</span> P2	3300-4200 MHz	15-16	(2x) 4.3-10 Female		
<span style="color: purple;">■</span> P3	3300-4200 MHz	17-18	(2x) 4.3-10 Female		
<span style="color: purple;">■</span> 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)

## APXVAA4L9TY24-U-J20

### APXVAA4L9TY24-V-J20

#### 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
<b>Shipping</b>	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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APXVAA4L9TY24-V-J20

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

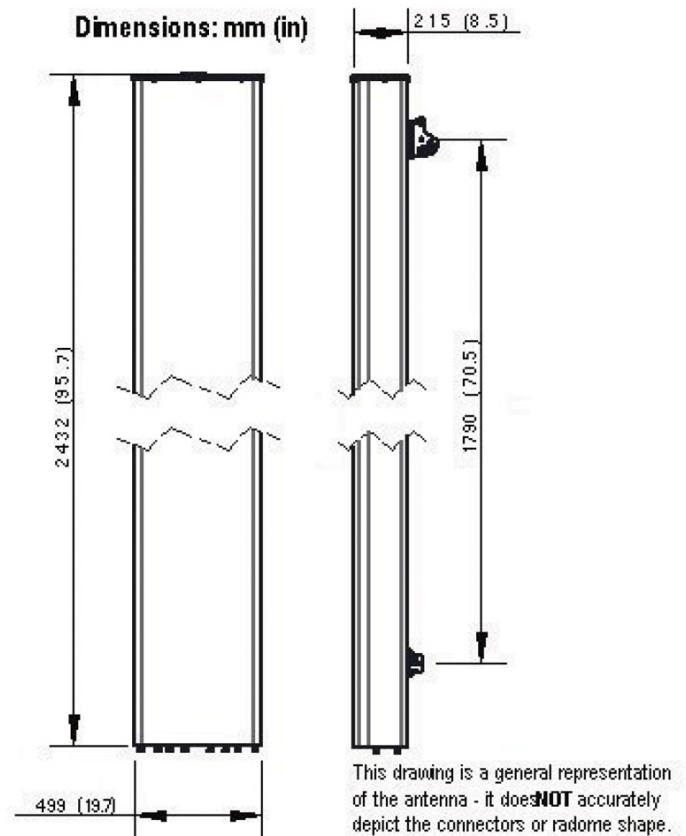
Please read all installation notes before installing product.



- 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](#)