

**APXVLL19P_43-C-A20**

Dual Slant Polarized Dual Band (4 Port) Antenna, x2 1695-2690MHz, 65deg, 1.9m (6.5ft), RET, 0-12°

A combination of two X-Polarized antennas in a single radome, the RFS Quad-Pol antennas are designed for applications requiring a minimum number of antennas at a cell site and reduced tower loading. They offer the rugged construction of our new series of high band antennas that feature both high RF performance and energy efficiency. They are ideal for 1800 & 2100 & 2600 networks where high gain is required. These antennas are especially well suited for MIMO applications.

FEATURES / BENEFITS

- Ultra-broadband design
- Best-in-the-industry gain values
- Two x-polarized broadband panels in a single narrow radome - reduced tower loading & lower profile
- Variable electrical downtilt - provides enhanced precision in controlling intercell interference
- Single ACU-A20-S RET drives both arrays
- High suppression of all upper sidelobes
- High front-to-back ratio

**Technical features****ELECTRICAL SPECIFICATIONS**

Electrical Specification Header		High Band Arrays (1695-2690 MHz) Ports 1-4				
Frequency Band	MHz	1695-1880	1850-1990	1920-2200	2300-2500	2500-2690
Gain	dBi	18.3	18.7	19.4	19.2	19.3
Azimuth Beamwidth 3dB	Deg	66 +/-4	65 +/-4	65 +/-4	63 +/-5	59 +/-3
Elevation Beamwidth 3dB	Deg	5.9 +/--.7	5.3 +/--.6	4.9 +/-0.4	4.2 +/-0.3	4.0 +/-0.1
Cross-Pol at Boresight	dB	29	28	23	26	23
F/B at 180 Copolar	dB	34	35	35	33	33
Electrical Downtilt	Deg	2 to 12	2 to 12	2 to 12	2 to 12	2 to 12
First Upper Side Lobe	dB	17	18	22	23	18
VSWR	-	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1
Return Loss	dB	-14	-14	-14	-14	-14
Cross Polar Isolation	dB	28	28	28	28	28
3rd Order PIM 2 x 43dBm	dBc	-153	-153	-153	-153	-153
Maximum CW Power per Port	Watt	300	300	300	300	300
Gain Over All Tilts	dBi	17.7 +/-0.6	18.2 +/-0.5	18.9 +/-0.5	18.7 +/-0.5	18.9 +/-0.4
Cross-Pol over Sector	dB	13	12	10	11	12
F/B at +/-30 total Power	dB	26	28	27	26	27
Upper Side Lobe Peak to +20	dB	17	18	20	20	18

ELECTRICAL SPECIFICATIONS

Impedance	Ohm	50
Polarization	Deg	+/- 45

**MECHANICAL SPECIFICATIONS**

Dimensions - H x W x D	mm (in)	1925 x 288 x 118 (75.8 x 11.3 x 4.6)
Weight (Antenna Only)	kg (lb)	18.6 (40.9)
Weight (Mounting Hardware only)	kg (lb)	3.8 (8.4)
Packing size- HxWxD	mm (in)	2120 x 380 x 295 (83.5 x 15 x 11.6)
Shipping Weight	kg (lb)	29.4 (65.1)
Connector type		4 x 4.3-10 female/bottom + 2 AISG connectors (1 male, 1 female)
Radome Material / Color		ASA / Light Grey RAL7035

TESTING AND ENVIRONMENTAL

Temperature Range	°C (°F)	-40 to 60 (-40 to 140)
Lightning protection		Direct Ground
Survival/Rated Wind Velocity	km/h	241 (160)
Wind Load @Rated Wind Front	N	1000
Wind Load @Rated Wind Side	N	420
Wind Load @Rated Wind Rear	N	1100

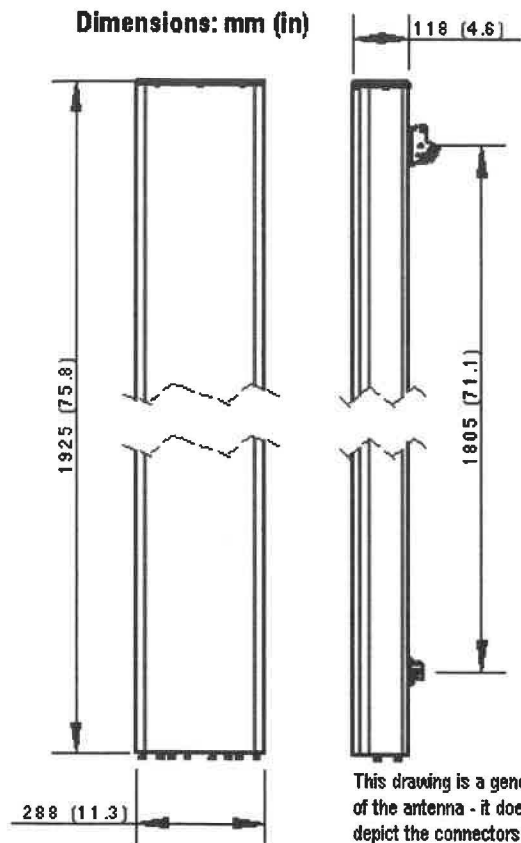
ORDERING INFORMATION

Order No.	Configuration	Mounting Hardware	Mounting pipe Diameter	Shipping Weight
APXVLL19P_43-C-A20	x1 ACU-A20-S External RET included	APM40-2	50-120mm	29.6 Kg

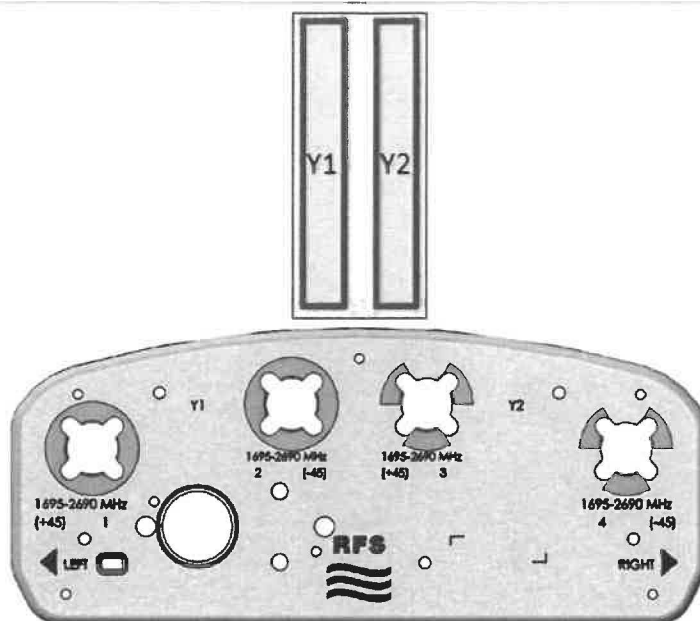
Port	Array	Frequency	RET	AISG RET UID
1	Y1	1695-2690	Y1	RFxxxxxxxxxx-2Y1
2		1695-2690		
3	Y2	1695-2690		
4		1695-2690		

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Dimensions: mm (in)

This drawing is a general representation of the antenna - it does **NOT** accurately depict the connectors or radome shape.



External Document Links

[APM40_Series_Installation_Instructions](#)

RET Information	
Frequency	1695-2690
Model	ACU-A20-S
Location	External
Field Replaceable	Yes
Quantity	1
RET ID	Y1

Notes

- All electrical parameters are compliant with BASTA NGMN 11.1 requirements.
- For additional mounting information please click ""External Document Links"".

- Radiating patterns: [Request pattern files](#)

APXVAALL24M-U-J20

Features

- Narrow 499 mm radome for reduced windloading and easier zoning
- MIMO 4x4 in low-band and mid-band
- Integrated and field replaceable RET
- ACU model number: ACU-X20-N2
- Ships in VSRET mode
- Compliant with AISG v2.0 and 3GPP
- Mechanical downtilt kit included



PRODUCT OVERVIEW

Frequency Range (MHz)	(2x) 617-894		(2x) 1695-2690	
Array	 R1	 R2	 Y1	 Y2
Connector	1-2	3-4	5-6	7-8
	4 PORTS		4 PORTS	
Polarization	XPOL		XPOL	
Azimuth Beamwidth (avg)	65°		65°	
Electrical Downtilt	2-12°		2-12°	
Dimensions	2432 x 499 x 215 mm (95.7 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
APXVAALL24M-U-J20	ACU-X20-N2 Field Replaceable RET Included	APM40-5E Beam Tilt Kit and APM40-E10T Included	60-120 mm (2.4-4.7 in)	56 kg (123 lbs)



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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ELECTRICAL SPECIFICATIONS

■ R1 ■ R2

Frequency Range		MHz	(2x) 617-894		
		MHz	617-698	698-806	806-894
Polarization		---	±45°		
Gain	Over all Tilts	dBi	15.4 ± 0.5	16.0 ± 0.4	15.9 ± 0.5
	Max Gain	dBi	15.9	16.4	16.4
Azimuth Beamwidth (3 dB)		degrees	69° ± 8°	60° ± 7°	55° ± 6°
Elevation Beamwidth (3 dB)		degrees	9.8° ± 0.6°	9.1° ± 0.6°	7.9° ± 0.5°
Electrical Downtilt		degrees	2-12°		
Impedance		Ohms	50Ω		
VSWR (Return Loss)		---	1.5:1 (-14 dB)		
Passive Intermodulation		dBc	-153 (3rd Order for 2x40 W Carriers)		
Front-to-Back Ratio, Total Power, ± 30°		dB	20	22	24
Front-to-Back at 180° Copolar		dB	28	27	31
Upper Side Lobe Suppression, Peak to +20°		dB	17	16	15
First Upper Side Lobe		dB	17	19	18
Cross-Pol Over Sector		dB	10	8	6
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	17	20	19
Maximum Effective Power Per Port		Watts	300 W		
Cross Polar Isolation		dB	25	25	25
Interband Isolation		dB	22	22	22

ELECTRICAL SPECIFICATIONS

■ Y1 ■ Y2

Frequency Range		MHz	(2x) 1695-2690			
		MHz	1695-1880	1850-1990	1995-2200	2200-2690
Polarization		---	±45°			
Gain	Over all Tilts	dBi	17.8 ± 0.7	18.2 ± 0.4	18.8 ± 0.7	18.5 ± 0.5
	Max Gain	dBi	18.5	18.6	19.5	19.0
Azimuth Beamwidth (3 dB)		degrees	61° ± 5°	60° ± 4°	59° ± 4°	56° ± 6°
Elevation Beamwidth (3 dB)		degrees	5.7° ± 0.3°	5.3° ± 0.3°	4.8° ± 0.5°	4.2° ± 0.4°
Electrical Downtilt		degrees	2-12°			
Impedance		Ohms	50Ω			
VSWR (Return Loss)		---	1.5:1 (-14 dB)			
Passive Intermodulation		dBc	-153 (3rd Order for 2x40 W Carriers)			
Front-to-Back Ratio, Total Power, ± 30°		dB	25	24	25	24
Front-to-Back at 180° Copolar		dB	31	31	31	30
Upper Side Lobe Suppression, Peak to +20°		dB	16	16	14	14
First Upper Side Lobe		dB	19	17	18	20
Cross-Pol Over Sector		dB	11	10	7	2
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)		dB	20	22	15	17
Maximum Effective Power Per Port		Watts	250 W			
Cross Polar Isolation		dB	25	25	25	25
Interband Isolation		dB	25	25	25	25

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RET ACTUATOR

Frequency	MHz	617-894	1695-2690
Model Number	---	ACU-X20-N2	
Number of RET Actuators	---	1	
RET ID	---	R1	Y1
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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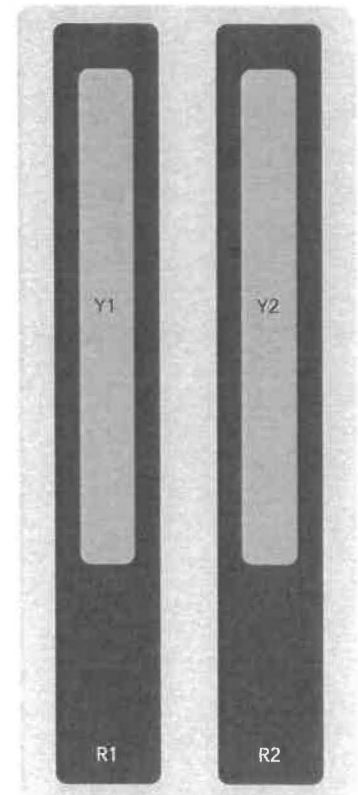
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BOTTOM VIEW - LABELING



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		



The illustration is not shown to scale.

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MECHANICAL SPECIFICATIONS

Length		mm (in)	2432 (95.7)
Width		mm (in)	499 (19.7)
Depth		mm (in)	215 (8.5)
Net Weight - Antenna Only		kg (lbs)	39 (86)
Net Weight - Mounting Hardware Only		kg (lbs)	8.8 (19.4)
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		--	(8x) 4.3-10 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)
	Shipping Weight	kg (lbs)	56 (123)

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>Shipped with antenna</i>	APM40-5E and APM40-E10T	8.8 kg (19.4 lbs)

INSTALLATION

Please read all installation notes before installing product.

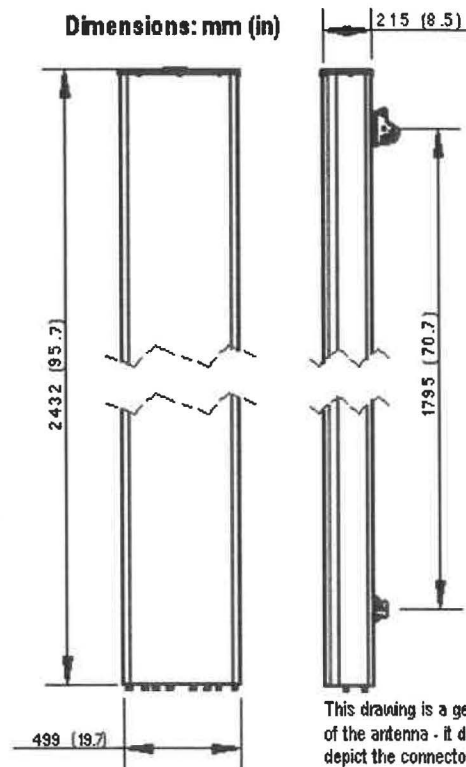


Always attach the antenna using all mounting points.

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

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