

APXV9TM13_CL-C-I20

Features

- TDD beamforming 8T8R
- Integrated RET
- ACU-A20-S, ACU HW version HW05
- Compliant with AISG v2.0 and 3GPP
- Mechanical downtilt kit included
- 58 mm column spacing - 0.5 wavelength @ 2.6 GHz



PRODUCT OVERVIEW	Frequency Range (MHz)	TDD 8T8R			
	Array	■ Y1	■ Y2	■ Y3	■ Y4
	Connector	1-2	3-4	5-6	7-8
		Cluster Connector MLOC4		Cluster Connector MLOC5	
		8 PORTS			
	Polarization	XPOL			
	Azimuth Beamwidth (avg)	90° Unit Beam			
	Electrical Downtilt	0-9°			
	Dimensions	1395 x 320 x 160 mm (55.0 x 12.6 x 6.3 in)			

ORDERING OPTIONS

Select from the following ordering options

ANTENNA MODEL NUMBER	CONFIGURATION	MOUNTING HARDWARE	MOUNTING PIPE DIAMETER	SHIPPING WEIGHT
APXV9TM13_CL-C-I20	ACU-A20-S Integrated RET Included	APM40-2 Beam Tilt Kit Included	60-120 mm (2.4-4.7 in)	32 kg (70.5 lbs)



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■ Y1 ■ Y2 ■ Y3 ■ Y4
Unit Beam

ELECTRICAL SPECIFICATIONS

Frequency Range	MHz	(4x) 2496-2690	
Polarization	---	±45°	
Gain	Over all Tilts	dBi	16.5 ± 0.5
	Max Gain	dBi	17.0
Azimuth Beamwidth (3 dB)	degrees	82° ± 10°	
Elevation Beamwidth (3 dB)	degrees	5.0° ± 0.3°	
Electrical Downtilt	degrees	0-9°	
Impedance	Ohms	50Ω	
VSWR (Return Loss)	---	1.5:1 (-14 dB)	
Passive Intermodulation	dBc	-150 (3rd Order for 2x20 W Carriers)	
Front-to-Back Ratio, Total Power, ± 30°	dB	22	
Front-to-Back at 180° Copolar	dB	29	
Upper Side Lobe Suppression, Peak to +20°	dB	15	
First Upper Side Lobe	dB	15	
Cross-Pol Over Sector	dB	9	
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)	dB	17	
Cross Polar Isolation	dB	25	

ELECTRICAL SPECIFICATIONS

Broadcast Beam 65°

Frequency Range	MHz	2496-2690	
Polarization	---	±45°	
Gain	Over all Tilts	dBi	17.9 ± 0.5
	Max Gain	dBi	18.4
Azimuth Beamwidth (3 dB)	degrees	60° ± 6°	
Elevation Beamwidth (3 dB)	degrees	5.0° ± 0.3°	
Electrical Downtilt	degrees	0-9°	
Impedance	Ohms	50Ω	
Front-to-Back Ratio, Total Power, ± 30°	dB	25	
Front-to-Back at 180° Copolar	dB	36	
Upper Side Lobe Suppression, Peak to +20°	dB	16	
First Upper Side Lobe	dB	15	
Cross-Pol Over Sector	dB	11	
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)	dB	22	

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ELECTRICAL SPECIFICATIONS

Broadcast Beam 90°

Frequency Range	MHz	2496-2690	
Polarization	---	±45°	
Gain	Over all Tilts	dBi	17.0 ± 0.5
	Max Gain	dBi	17.5
Azimuth Beamwidth (3 dB)	degrees	91° ± 4°	
Elevation Beamwidth (3 dB)	degrees	5.0° ± 0.3°	
Electrical Downtilt	degrees	0-9°	
Impedance	Ohms	50Ω	
Front-to-Back Ratio, Total Power, ± 30°	dB	25	
Front-to-Back at 180° Copolar	dB	31	
Upper Side Lobe Suppression, Peak to +20°	dB	15	
First Upper Side Lobe	dB	17	
Cross-Pol Over Sector	dB	10	
Cross Polar Discrimination (XPD) at Mechanical Boresight (0°)	dB	21	

ELECTRICAL SPECIFICATIONS

Service Beam at 0°

Frequency Range	MHz	2496-2690	
Polarization	---	±45°	
Gain	Over all Tilts	dBi	21.4 ± 0.5
	Max Gain	dBi	21.9
Azimuth Beamwidth (3 dB)	degrees	28° ± 1°	
Elevation Beamwidth (3 dB)	degrees	5.0° ± 0.3°	
Electrical Downtilt	degrees	0-9°	
Impedance	Ohms	50Ω	
Front-to-Back Ratio, Total Power, ± 30°	dB	31	
Front-to-Back at 180° Copolar	dB	36	
Upper Side Lobe Suppression, Peak to +20°	dB	16	
First Upper Side Lobe	dB	16	
Cross-Pol Over 3dB	dB	19	
Cross Polar Discrimination (XPD) at Beam Peak	dB	20	

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ELECTRICAL SPECIFICATIONS

Service Beam at 30°

Frequency Range	MHz	2496-2690	
Polarization	---	±45°	
Gain	Over all Tilts	dBi	20.1 ± 0.4
	Max Gain	dBi	20.5
Azimuth Beamwidth (3 dB)	degrees	32° ± 1°	
Elevation Beamwidth (3 dB)	degrees	5.0° ± 0.4°	
Electrical Downtilt	degrees	0-9°	
Impedance	Ohms	50Ω	
Front-to-Back Ratio, Total Power, ± 30°	dB	28	
Front-to-Back at 180° Copolar	dB	30	
Upper Side Lobe Suppression, Peak to +20°	dB	17	
First Upper Side Lobe	dB	17	
Cross-Pol Over 3dB	dB	14	
Cross Polar Discrimination (XPD) at Beam Peak	dB	15	

ELECTRICAL SPECIFICATIONS

Calibration & Electrical Parameters

Frequency Range	MHz	2496-2690
Transmission from Antenna Ports to CAL Port	dB	26 ± 2
Amplitude Diff Between Antenna Port and CAL Port	dB	< 0.7
Phase Diff Between Antenna Port and CAL Port	degrees	< 5°
Same Polarization Isolation	dB	> 20 (typical)
Different Polarization Isolation	dB	25

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RET ACTUATOR

Frequency	MHz	2496-2690	
Model Number	---	ACU-A20-S	
Number of RET Actuators	---	1	
RET ID	---	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	---	No	
Location	---	Integrated	

BOTTOM VIEW - LABELING

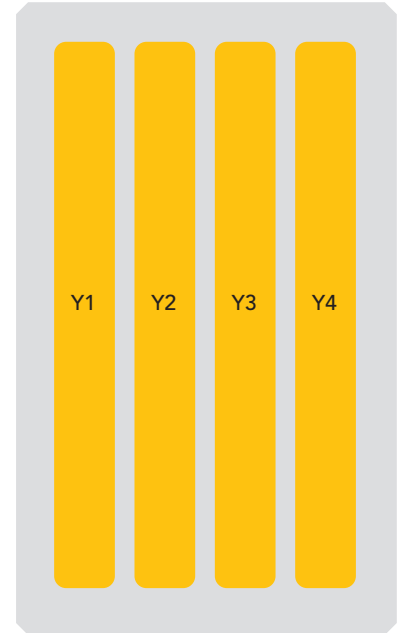


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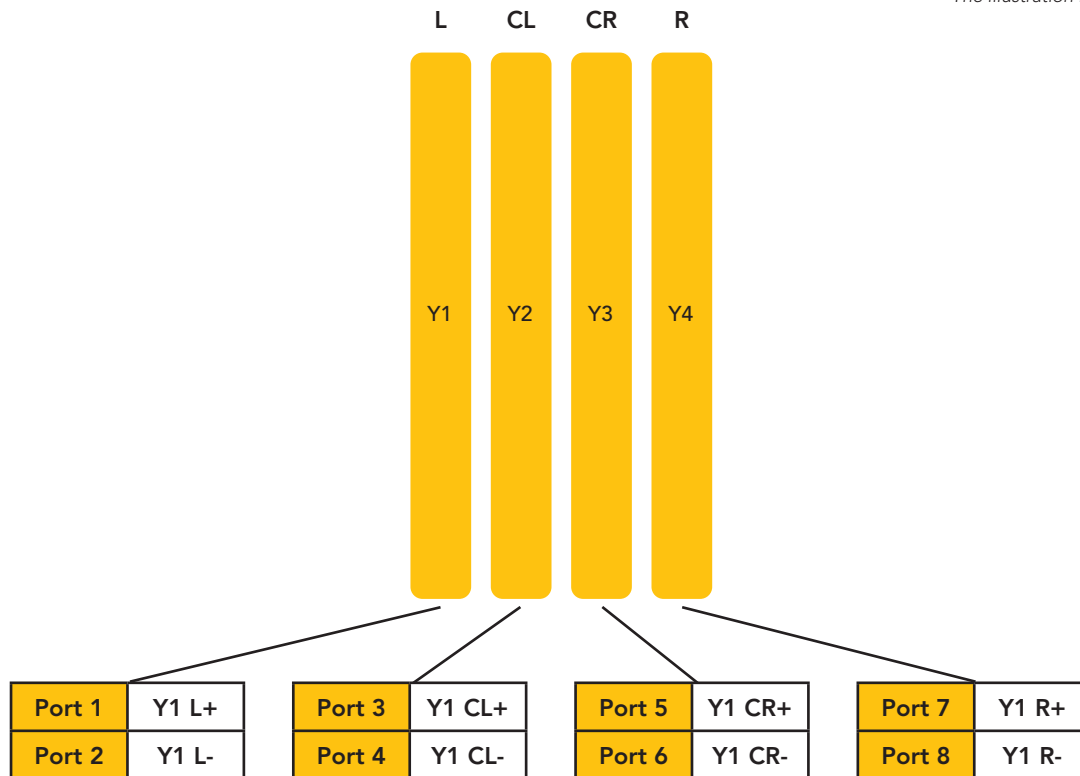
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ARRAY LAYOUT

ARRAY	FREQUENCY	CONNECTOR	CONNECTOR TYPE	RET	AISG RET UID
■ Y1	2496-2690 MHz	1-2	Cluster Connector MLOC4	Y1	RFxxxxxxxxxx-2Y1
■ Y2	2496-2690 MHz	3-4			
■ Y3	2496-2690 MHz	5-6	Cluster Connector MLOC5		
■ Y4	2496-2690 MHz	7-8			



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)	1395 (55.0)
Width	mm (in)	320 (12.6)
Depth	mm (in)	160 (6.3)
Mechanical Distance Between Mounting Points	mm (in)	907 (35.7)
Net Weight - Antenna Only	kg (lbs)	25 (55)
Net Weight - Mounting Hardware Only	kg (lbs)	3.5 (7.7)
Wind Load Rated at 150 km/h (93 mph)	Front	N (lbf) 616 (138)
	Side	N (lbf) 473 (106)
	Rear	N (lbf) 572 (129)
Survival Wind Speed / Rated Wind Speed	km/h (mph)	200 (160)
Connector Type	--	(2x) Cluster Connectors MLOC4/MLOC5, (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) 1540 x 400 x 360 (60.6 x 15.7 x 14.2)
	Shipping Weight	kg (lbs) 32 (70.5)

ENVIRONMENTAL SPECIFICATIONS

Environmental Standard	---	ETSI 300-019-2-4 Class 4.1E
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 for Pole Diameter 60-120 mm (2.4-4.7 in) <i>Shipped with antenna</i>	APM40-2	3.5 kg (7.7 lbs)

INSTALLATION

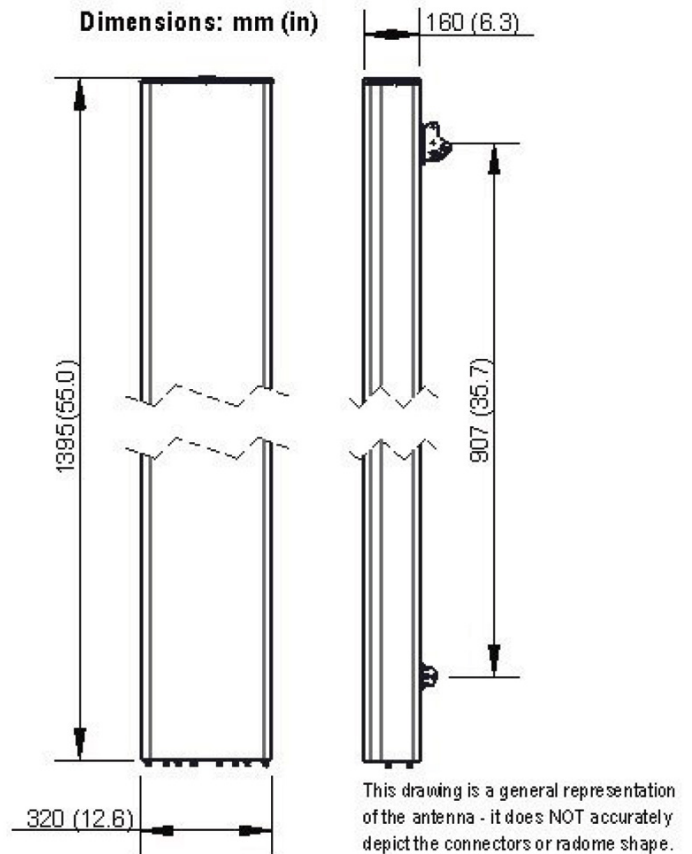
Please read all installation notes before installing product.



- 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](#)