

# Model 1.35m AN/TSC-246 (V)1 (X and Ka)

AvL's 1.35m Tri-Band X, Ku, Ka antenna is full-featured with a two or three-case pack-up. When equipped with AvL's power supply and customer choice of modem this rugged and sturdy antenna transforms into a complete terminal ideal for C4I, ISR backhaul and other missions. Various outdoor modem types are available and the user can bring their own modem as the antenna operation is modem and ODU agnostic. The antenna controller will automatically acquire and track a satellite beacon with internal receiver. Easy to use hand wheels allow for smooth, zero backlash manual positioning as well. Very quick set up combined with intuitive graphical user interfaces allow the user to be on the air within minutes. Built-in flexibility allows users to change satellites, polarity, frequency and modems in just a few minutes.

## FEATURES

- ◆ 1.35m tri-band: X, Ku and Ka wideband (commercial & Mil)
- ◆ Axisymmetric 12 piece carbon fiber reflector
- ◆ AvL's lightweight cable drive pedestal
- ◆ AvL auto-acquisition (AAQ) with built-in broadband receiver receives beacon signals without external beacon receiver
  - \* Modem agnostic
  - \* Built-in navigation sensors include inclinometer, compass and GPS
  - \* Web-based GUI resides on controller
- ◆ Easy to use manual point features included
- ◆ Pre-configured SSPA/LNB kits (X-80W, Ku-55W, Ka-25W standard) matching configuration
- ◆ Frequency band swap less than one minute
- ◆ Optional 3-port Ka feed for Tx/Rx via WGS and simultaneous GBS Rx on opposite polarity. Left Hand and Right Hand switchable
- ◆ Optional outdoor rated dual GBS receivers with standard demodulation DVBS and DVB-S2
  - \* Single RF input
  - \* Embedded Cisco switch and router with multiple enclave LAN connections
- ◆ SMCD ARSTRAT certified at X and Ka bands built in high-stability 10MHz reference oscillator, Rx gain amplifier and Tx attenuator integrated into feed
- ◆ Optional FDMA Comtech 1050TS modem. Full-color UI display, push-button terminal control with full M&C access
- ◆ Optional Comtech 5650C Protected Satcom Modem
- ◆ Optional iDirect 950mp outdoor modem
- ◆ Web based full terminal M&C resides on antenna
- ◆ Two case IATA transport case for antenna, optional pack up configurations for electronics-includes one band
- ◆ MIL-STD-810G (in process)

## Specifications

## Mechanical

Reflector construction	Segmented carbon fiber with 12 panels	
Axis travel	Polarization	+/- 95 degrees
	Azimuth	+/-95 degrees
	Elevation	+5 to 95 degrees
RF interface	RF kit mounting	Rear of reflector
	2- or 4-port Ka, X and Ku	ARSTRAT certified package
Electrical interface	Power, Ethernet, coax	
Set-up time	10 minutes	
Assembled weight	< 40 lbs. (< 18 kg)	
Antenna-only cases – 2 including one feed	32L x 21W x 13H (reflector case 70 lbs, positioner case 79 lbs)	

## Specifications

## Environmental

Wind – survival (anchored)	45 mph (72 km/h)	
Wind – operational		
	Without anchoring	15 mph (24 km/h)
	With anchoring	30 mph (48 km/h) gusting to 45 mph (72)
Pointing loss in wind:		
	Ku-band receive, operational winds	1 dB typical, 2 dB max (in operational wind Ka band)
Temperature:	Operational	-22°F to 125°F (-30°C to 52°C)
	Survival	-40°F to 140°F (-40°C to 60°C)

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RF Parameters	Standard 2-Port X-Band		Standard 2-Port Ku-Band		Standard 2- or 3-Port Ka-Band	
	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency range (GHz)	7.25 - 7.75	7.90 - 8.40	10.95 - 12.75	13.75-14.50	19.2 - 21.2	29.0 - 31.0
Polarization configuration	RHCP or LHCP		Linear orthogonal standard, optional co-pol		Circular or Linear	
Gain (mid-band)	38.7 dBi	39.1 dBi	41.9 dBi	43.9 dBi	46.5 dBi	49.3 dBi
-3dB Beamwidth (mid-band)	2.2°	2.0°	1.4°	1.1°	0.8°	0.5°
Radiation pattern compliance	MIL-STD-188-164C		FCC 25.209, ITU-R S.580-6, IESS 208		FCC, ITU, MIL-STD-188-164C	
EIRP X-band SSPA 44.6W linear	-	55.5 dBW	-	-	-	-
EIRP Ku-band SSPA 34.6W linear	-	-	-	59 dBW	-	-
EIRP Ka-band SSPA 12.6W linear	-	-	-	-	-	60 dBW
Power handling capacity	-	100W	-	75W	-	50W
G/T, clear horizon, 23°C	-	-	-	-	-	-
10° Elevation	16.8 dB/°K	-	21.4 dB/°K	-	22.1 dB/°K	-
20° Elevation	17.3 dB/°K	-	21.6 dB/°K	-	22.6 dB/°K	-
VSWR	1.30:1	1.30:1	1.30:1	1.30:1	1.30:1	1.30:1
Axial ratio CP only, within pointing cone (dB)	2.0	2.0	-	-	1.5	1.0
Cross-polarization isolation (dB)	-	-	-	-	-	-
On Axis (minimum)	-	-	35 dB	35 dB	-	-
Within pointing cone	-	-	35 dB	35 dB	-	-
Feed port isolation (Tx to Rx, dB)	115 dB (incl. opt. filter)	115 dB (incl. opt. filter)	35 dB	80 dB (incl. filter)	>85 dB	85 dB (incl. filter)

