

SpacePath Ultralinear 250W V-Band Antenna Mount HPA

The STA5725P series V-Band HPA provides ultra linear, high efficiency performance in a compact, lightweight, rugged, weatherproof, antenna mount enclosure. The advanced packaging and cooling techniques enable the unit to operate in extreme environmental conditions from direct rain to direct sunlight. The amplifiers can be simply deployed anywhere in the world, are user-friendly and incorporate a comprehensive remote control facility as standard, including RS485, RS232 and Ethernet options.

The HPA incorporates a high efficiency multi-collector TWT powered by an advanced power supply built on over 30 years of experience in the design and manufacture of satellite amplifiers.

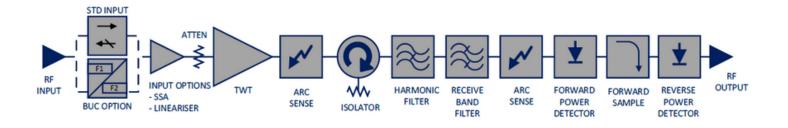
The company's products have an enviable reputation for performance, robust quality and reliable service. The STA5725P V-Band is available with a wide range of options and accessories, backed by worldwide technical support.

Features

- Provides up to 80W of Linear Power at the flange
- Advanced cooling design enables operation at +60°C and in direct sunlight
- Weatherproof antenna mount construction allows exposed mounting
- Ethernet/SMP/Webpage GUI interfaces
- Broadband high efficiency operation
- Wide input voltage range can operate from mains supplies worldwide
- Redundant control contains control and drive circuits for 1:1 redundancy
- Stand-alone setting automatically sequences to transmit mode
- Wide range of accessories including: Controllers, waveguide networks, cable assemblies



Block Diagram



V1.0 www.etlsystems.com



HPA Rated, CW			RF Performance
Output Power TWT Power, CW HPA Rated, CW 150W (51.8 dBm) Gain Rated Output ≥ 65 dB Gain Small Signal (SSG) ≥ 65 dB SSG Variation, over 4.2 GHz ≤ 4.0 dB pk-pk SSG Variation, over 500 MHz ≥ 2.0 dB pk-pk SSG Variation, over 250 MHz ≤ 1.0 dB pk-pk SIOpe, AGroes ± 0.04 dB/MHz max Gain Stability vs. Time ± 0.25 dB max / 24hrs @ constant drive and temperature Gain Stability vs. Temperature ± 1.0 dB max / °C @ constant drive and frequency Adjustment range, Gasq 30.0 dB typical Adjustment step size 0.1 dB AM/PM ≤ 2.5°/dB @ 46.55 dBm (45W) with Linearizer / No Linearizer up to 47.0 dbM (50W) Inter-modulations (IMD) 2-tone ≤ 2.5°/dB @ 46.55 dBm (45W) with Linearizer Noise power ratio (NPR) ≤ 1.9 dBc at 49.0 dBm (80W) with Linearizer Spectral Re-growth (SR) ≤ -30 dBc at 49.0 dBm (80W) with Linearizer Spectral Re-growth (SR) ≤ -30 dBc at 50.0 dBm (100W) Fransmit band ≤ -70 dBw/4 kHz / 37.5 - 42.5 GHz: ≤ -150 dBW/4 kHz Spurious @ Po ≤ MLP ≤ -60 dBc max, Sum of all spurs / ≤ -60 dBc Residual AM ≤ -20(1.5+LOG(Frequency KHz))dBc, f = 1	Frequency range*		VV1: 47.2 - 51.4 GHz VV2: 47.2 - 52.4 GHz
HPA Rated, CW		TWT Power, Peak	250W (54.0 dBm)
Gain Rated Output	Output Power	TWT Power, CW	150W (51.8 dBm)
Gain Small Signal (SSG) ≥ 65 dB SSG Variation, over 4.2 GHz ≤ 4.0 dB pk·pk SSG Variation, over 1 GHz ≤ 2.5 dB pk-pk SSG Variation, over 500 MHz ≤ 2.0 dB pk-pk SSG Variation, over 250 MHz ≤ 1.0 dB pk-pk SSG Variation, over 250 MHz ≤ 1.0 dB pk-pk SSG Variation, over 250 MHz ≤ 1.0 dB pk-pk SSG Variation, over 250 MHz ≤ 1.0 dB pk-pk Slope, ΔG _{score} ± 0.04 dB/MHz max Gain Stability vs. Time ± 0.25 dB max / 24hrs @ constant drive and temperature Gain Stability vs. Temperature ± 1.0 dB max / °C @ constant drive and frequency Adjustment range, G _{scq} 30.0 dB typical Adjustment step size 0.1 dB AMM/PM ≤ 2.5°/dB @ 46.55 dBm (45W) with Linearizer / No Linearizer up to 47.0 dbM (50W) Inter-modulations (IMD) 2-tone ≤ 2.5°/dB @ 46.55 dBm (45W) with Linearizer / No Linearizer up to 47.0 dbM (50W) Inter-modulations (IMD) 2-tone ≤ -25 dBc at 49.0 dBm (80W) with Linearizer Noise power ratio (NPR) ≤ -19 dBc at 49.0 dBm (80W) with Linearizer Spectral Re-growth (SR) ≤ -30 dBc at 50.0 dBm (100W) Transmit band Receive band Below 31.4 GHz: ≤ -150 dBW/4 kHz Spurious @ Po ≤ MLP ≤ -60 dBc Spurious @ Po ≤ MLP ≤ -60 dBc max, Sum of all spurs / ≤ -60 dBc Spurious @ Po ≤ MLP ≤ -60 dBc max, Sum of all spurs / ≤ -60 dBc max, Harmonic 2 rd Coup Delay (any 80 MHz) Receive Loss) ≤ -60 dBc max, Sum of all spurs / ≤ -60 dBc max, Harmonic 2 rd Coup Delay (any 80 MHz) Receive Loss) ≤ 1.3:1 (17.7 dB) Spurious VSWR (Return Loss) ≤ 1.3:1 (17.7 dB) Spurious VSWR (Felli perf) ≤ 1.5:1 (14.0 dB)		HPA Rated, CW	100W (51.0 dBm)
SSG Variation, over 4.2 GHz	Gain Rated Outpu	t	≥ 65 dB
SSG Variation, over 1 GHz S 2.5 dB pk-pk	Gain Small Signal (SSG)		≥ 65 dB
\$2.0 dB pk-pk	SSG Variation, over 4.2 GHz		≤ 4.0 dB pk-pk
SSG Variation, over 250 MHz	SSG Variation, ove	er 1 GHz	≤ 2.5 dB pk-pk
Slope, ∆G _{Sk3PE}	SSG Variation, ove	er 500 MHz	≤ 2.0 dB pk-pk
### ### #############################	SSG Variation, ove	er 250 MHz	≤ 1.0 dB pk-pk
Sain Stability vs. Temperature	Slope, ΔG _{SLOPE}		± 0.04 dB/MHz max
Adjustment range, G _{AD3} Adjustment step size Adjustment step size Adjustment step size 0.1 dB 30.0 dB typical 0.1 dB 30.0 dB typical 30.0 dB typical	Gain Stability vs. T	ime	± 0.25 dB max / 24hrs @ constant drive and temperature
Adjustment step size 0.1 dB AM/PM ≤ 2.5°/dB @ 46.55 dBm (45W) with Linearizer / No Linearizer up to 47.0 dbM (50W) Inter-modulations (IMD) 2-tone ≤ -25 dBc at 49.0 dBm (80W) with Linearizer Noise power ratio (NPR) ≤ -19 dBc at 49.0 dBm (80W) with Linearizer Spectral Re-growth (SR) ≤ -30 dBc at 50.0 dBm (100W) Transmit band	Gain Stability vs. Temperature		± 1.0 dB max / °C @ constant drive and frequency
AM/PM	Adjustment range, G _{ADJ}		30.0 dB typical
Inter-modulations (IMD) 2-tone ≤ -25 dBc at 49.0 dBm (80W) with Linearizer	Adjustment step size		0.1 dB
Noise power ratio (NPR) ≤ -19 dBc at 49.0 dBm (80W) with Linearizer Spectral Re-growth (SR) ≤ -30 dBc at 50.0 dBm (100W) Noise power Transmit band ≤ -70 dBW/4 kHz Receive band Below 31.4 GHz: ≤ -150 dBW/4 kHz / 37.5 - 42.5 GHz: ≤ -150 dBW/4 kHz Spurious @ Po ≤ MLP ≤ -60 dBc Residual AM ≤ -20(1.5+LOG(frequency KHz))dBc, f = 10KHz to 500KHz ≤ -85 dBc >500KHz 10dB below IESS requirement ≤ -47 dBc max, Continuous ≤ -50 dBc max, AC fundamental ≤ -50 dBc max, AC fundamental ≤ -60 dBc max, Sum of all spurs / ≤ -60 dBc max, Harmonic 2 nd Group Delay (any 80 MHz) Linear 0.01 nsec/MHz, max Parabolic 0.05 nsec/Peak-Peak, max Ripple 0.5 nsec/Peak-Peak, max Input VSWR (Return Loss) ≤ 1.3:1 (17.7 dB) Output VSWR (Full perf.) ≤ 1.5:1 (14.0 dB)	AM/PM		≤ 2.5°/dB @ 46.55 dBm (45W) with Linearizer / No Linearizer up to 47.0 dbM (50W)
Spectral Re-growth (SR) ≤ -30 dBc at 50.0 dBm (100W) Noise power Transmit band ≤ -70 dBW/4 kHz Receive band Below 31.4 GHz: ≤ -150 dBW/4 kHz / 37.5 - 42.5 GHz: ≤ -150 dBW/4 kHz Spurious @ P₀ ≤ MLP ≤ -60 dBc Residual AM ≤ -50 dBc, f < 10kHz	Inter-modulations (IMD) 2-tone		≤ -25 dBc at 49.0 dBm (80W) with Linearizer
Transmit band Receive band Below 31.4 GHz: ≤ -150 dBW/4 kHz 37.5 - 42.5 GHz: ≤ -150 dBW/4 kHz	Noise power ratio (NPR)		≤ -19 dBc at 49.0 dBm (80W) with Linearizer
Noise power Receive band Below 31.4 GHz: ≤ −150 dBW/4 kHz / 37.5 - 42.5 GHz: ≤ −150 dBW/4 kHz Spurious @ Po ≤ MLP ≤ -60 dBc Residual AM ≤ -50 dBc, f < 10kHz	Spectral Re-growth (SR)		≤ -30 dBc at 50.0 dBm (100W)
Receive band Below 31.4 GHz: ≤ -150 dBW/4 kHz / 37.5 - 42.5 GHz: ≤ -150 dBW/4 kHz	NI=:	Transmit band	≤ -70 dBW/4 kHz
S=-50 dBc, f < 10kHz	Noise power	Receive band	Below 31.4 GHz: ≤ –150 dBW/4 kHz / 37.5 - 42.5 GHz: ≤ –150 dBW/4 kHz
Residual AM ≤ -20(1.5+LOG(frequency KHz))dBc, f = 10KHz to 500KHz ≤ -85 dBc >500KHz 10dB below IESS requirement ≤ -47 dBc max, Continuous ≤ -47 dBc max, AC fundamental ≤ -50 dBc max, AC fundamental ≤ -60 dBc max, Sum of all spurs / ≤ -60 dBc max, Harmonic 2 nd 0.01 nsec/MHz, max Parabolic Ripple 0.5 nsec/Peak-Peak, max Input VSWR (Return Loss) S 1.3:1 (17.7 dB) Coutput VSWR (Return Loss) ≤ 1.3:1 (17.7 dB) Load VSWR (Full perf.) ≤ 1.5:1 (14.0 dB)	Spurious @ P ₀ ≤ MLP		≤ -60 dBc
Phase Noise ≤ -47 dBc max, Continuous ≤ -50 dBc max, AC fundamental ≤ -60 dBc max, Sum of all spurs / ≤ -60 dBc max, Harmonic 2 nd Linear Parabolic Ripple Duput VSWR (Return Loss) Cutput VSWR (Return Loss) Load VSWR (Full perf.) Sum of all spurs / ≤ -60 dBc max, Harmonic 2 nd 0.01 nsec/MHz, max 0.005 nsec/MHz², max 0.5 nsec/Peak-Peak, max ≤ 1.3:1 (17.7 dB) ≤ 1.3:1 (17.7 dB) ≤ 1.5:1 (14.0 dB)	Residual AM		\leq -20(1.5+LOG(frequency KHz))dBc, f = 10KHz to 500KHz
Group Delay (any 80 MHz) Parabolic Ripple 0.005 nsec/MHz², max 0.5 nsec/Peak-Peak, max Input VSWR (Return Loss) $\leq 1.3:1 (17.7 dB)$ Output VSWR (Return Loss) $\leq 1.3:1 (17.7 dB)$ Load VSWR (Full perf.) $\leq 1.5:1 (14.0 dB)$	Phase Noise		≤ -47 dBc max, Continuous ≤ -50 dBc max, AC fundamental
(any 80 MHz) Parabolic 0.005 nsec/MHz , max Ripple 0.5 nsec/Peak-Peak, max Input VSWR (Return Loss) ≤ 1.3:1 (17.7 dB) Output VSWR (Return Loss) ≤ 1.3:1 (17.7 dB) Load VSWR (Full perf.) ≤ 1.5:1 (14.0 dB)	Group Delay (any 80 MHz)	Linear	0.01 nsec/MHz, max
Ripple 0.5 nsec/Peak-Peak, max Input VSWR (Return Loss) ≤ 1.3:1 (17.7 dB) Output VSWR (Return Loss) ≤ 1.3:1 (17.7 dB) Load VSWR (Full perf.) ≤ 1.5:1 (14.0 dB)		Parabolic	0.005 nsec/MHz², max
Output VSWR (Return Loss) ≤ 1.3:1 (17.7 dB) Load VSWR (Full perf.) ≤ 1.5:1 (14.0 dB)		Ripple	0.5 nsec/Peak-Peak, max
Load VSWR (Full perf.) ≤ 1.5:1 (14.0 dB)	Input VSWR (Return Loss)		≤ 1.3:1 (17.7 dB)
	Output VSWR (Return Loss)		≤ 1.3:1 (17.7 dB)
Load VSWR (no damage) ≤ 2.0:1 (9.5 dB)	Load VSWR (Full perf.)		≤ 1.5:1 (14.0 dB)
· · ·	Load VSWR (no damage)		≤ 2.0:1 (9.5 dB)

^{*}Note: Other frequency bands are available including BUC options covering 1GHz, consult ETL Systems for details. Peak/output power and frequency range must be selected at time of purchase, as these options are TWT dependent and cannot be changed in the field.



Electrical		
AC Input Voltage	100-240 VAC ± 10%, single phase 47-63 Hz	
Power consumption	1200 VA maximum, 1100 VA typical	
Power factor	0.98 typical 0.96 minimum	

Physical			
Dimensions (request outline)	52 cm deep x 25.4 cm width x 25.4 cm height		
Weight	21 kg typical		
Cooling	Forced air with integral blower		
RF Input	WR-22		
RF Output	WR-22		
RF Sample port	1.85mm Female		
AC Input	Amphenol C016 20C003 200 12		
Ethernet	RJF71B (IP67 RJ45 Connector)		
M&C Connector	PT07E18-32S (MS3114E-18-32S)		

Environmental		
Operating temperature	-40°C to +60°C (out of direct sunlight) -40°C to +55°C (direct sunlight)	
Storage temperature	-54°C to +71°C	
Relative humidity	100% condensing	
Altitude	12,000 ft. with standard adiabatic de-rating of 2°C/1000 ft., operating 50,000 ft., non-operating	
Shock	15 g peak, 11mSec, 1/2 sine	
Vibration	3.2 g rms, 10-500 Hz	
Acoustic Noise	65 dBA @ ≥ 3 ft. from amplifier	

Specifications are subject to change without notice