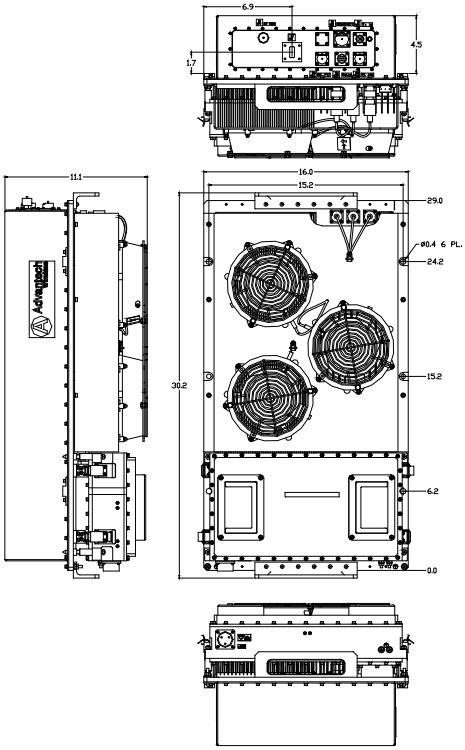
600W Ku-Band BUC/ SSPB/ SSPA
Second Generation GaN Technology

SSPA	AWMAg-K	4200-SapphireBlu™ series
SSPB (BUC)	SSPBMg-K	4200-SapphireBlu™ series

UltraLinear™ SapphireBlu™

- High power density in a compact, rugged, weatherproof package
- UltraLinear™, designed for Multi Carrier Operations
- High Performance GaN Technology SSPA Outdoor design concept
- High Reliability, High Linearity, Low Energy Consumption



The Ultimate Solution for Direct to Home TV

- Save 8 to 10 dB power compared to Indoor Klystron
- Save Millions of dollars in Energy Cost, Satellite Bandwidth, CAPEX
- Can cover multiple transponders, full DVB-S2 enabled
- Rugged, Weatherproof Outdoor Package,
- MIL-STD-188-164A Compliant
- Redundant Ready, Power Expandable to
- 3 kW by phase combining

- Exceeds all barriers between Klystrons, TWTs and SSPAs
- We can now saturate all transponders of an entire satellite and obtain maximum bandwidth/power efficiency (using modular RF concept)
- 2 years warranty, due to increased GaN Technology reliability
- Backed by over 25 years of Outdoor SSPA design and manufacturing

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Specifications	KS	KX
Operating Frequency	14.0 – 14.5 GHz	13.75 – 14.5 GHz
L-Band input (BUC)	950 – 1450 MHz	950 – 1700 MHz
Output Power	600W	
PSAT, PA Module	+57.7 dBm nominal	
P_{SAT}, at Flange	+56.5 dBm nominal	
P_{LINEAR}	+54.7 dBm minimum	
	P_{LINEAR} is the power at which the IMD=-25 dBc for two CW signals 5 MHz apart versus total power, and the spectral regrowth is <-30 dBc @ 1.0 x symbol rate for a single QPSK/OQPSK/8PSK signal.	
Gain SSPA SSPB (BUC)	68 ± 3 dB 73 ± 3 dB	
Gain adjustment range	20 dB in 0.1 dB steps	
Gain flatness over full band	SSPA 2dB p-p max SSPB (BUC) 4 dB p-p max (KS); 4dB p-p (KX)	
Gain slope over 40 MHz	± 0.3 dB max SSPB (BUC) ± 0.5 dB max	
Gain variation over temperature	± 1.5 dB max	
Input Impedance and VSWR	50 Ω SSPA 1.3:1 SSPB (BUC) 1.4:1	
Output VSWR	1.25:1	
Noise power density	-70 dBm/Hz in Transmit Band, -145 dBm/Hz in Receive Band (10.95 GHz – 12.75 GHz)	
Spurious at P_{LINEAR}	SSPA: -65 dBc max SSPB (BUC): -55 dBc max	
Harmonics	-50 dBc @ P_{LINEAR}	
AM/PM conversion	<1.0°/dB P_{LINEAR}	
Third order intermod (two tones)	-25 dBc two signals 5 MHz apart at total +53 dBm Plinear	
Group delay	Ripple 1 nsec p-p max over any 40 MHz band	
Residual AM Noise	0 – 10 kHz-45 dBc 10 kHz – 500 kHz -20 (1.25 + log F) dBc F = Frequency in kHz 500 kHz – 1 MHz -80 dBc	
SSPB (BUC)		
Local Oscillator freq.	13.05 GHz	12.8 GHz
Internal Reference frequency (optional)	10 MHz Aging/day $\pm 2 \times 10^{-10}$ Aging/year $\pm 5 \times 10^{-8}$ Stability $\pm 2 \times 10^{-8}$ over temp range	
Phase Noise	-53 dBc/Hz at 10Hz -83 dBc/Hz at 10 kHz -63 dBc/Hz at 100Hz -93 dBc/Hz at 100 kHz -73 dBc/Hz at 1000Hz	
External Reference Frequency phase noise (max)	10 MHz -120 dBc/Hz at 10Hz -155 dBc/Hz at 10 kHz -135 dBc/Hz at 100Hz -160 dBc/Hz at 100 kHz -150 dBc/Hz at 1000Hz	
Weight & Dimensions		
Dimensions	L x W x H 30.2" x 16.0" x 11.1" (767 x 406 x 282 mm)	
Weight	119 lbs (54 kg)	
AC input voltage	190 – 265 VAC (47-63 Hz)	
Power consumption	2500W at P_{LINEAR} 3300W at P_{SAT}	
Interfaces	Input (RF or L-Band) - N type female AC line - MS3102 type Output Sample Port - N type female RF output - WR75 Cover RS485/Ethernet MS3112 type	
Environmental	Temperature Operating -30°C to +55 °C Option 1 -40°C to +55 °C Option 2 -50°C to +50 °C Storage -55°C to +85 °C Humidity 100% condensing Altitude 10,000' AMSL, derated by 2 °C/1000> from AMSL	

Ref.: PB-SAPPH-2G-Ku-600W-19016

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