

# Endurance 500w Ka-Wideband Block Upconverter

WBAM-500G3 / WBAK-500G3

## Field-Proven Performance

Wavestream's Endurance 500W Ka Wideband Solid State Block Upconverter leads the industry in linear power in this Gateway-Ready Redundant design, ensuring the maximum available power for multiple carrier inputs.

This Wideband BUC covers both Military Ka and Commercial Ka frequency bands.

The Ka Wideband Block Upconverter offers forward power monitoring, 30 dB of hitless step attenuation, dual-Ethernet ports for control interface, and AC input power.

## Features

- Designed for Gateway Applications
- Solid State Gallium Arsenide (GaN) Transistor Technology
- Ka-band BUC providing > 200W multicarrier linear power
- Covers Military and All Commercial Ka Frequency Bands
- Built-In Redundancy
  - 1:1 Redundancy for Power Supplies
  - 1:1 Redundancy for Block Up Converters
- Ruggedized package with Hot Swappable Modules
- Automatically Aligns Gain and Phase of the RF Modules utilizing WaveAlign™ Technology

## Wavestream Advantages

What sets Wavestream products apart from traditional amplifier solutions is the innovative Spatial advantEdge™ technology. This unique patented technology allows for generation of higher output power in more efficient, and more compact product packages that are more reliable. Wavestream products are optimized for Linear operation, drawing less power when backed off to help save valuable energy resources. They generate less heat, and have superior heat sinking ensuring a higher Mean Time Between Failures (MTBF) for greater reliability and lower lifecycle maintenance costs.

## Benefits

- All Solid State GaN Amplifier Designed With Graceful Degredation
- Built-in Full Redundancy For Power Supply and Upconverter
- Hot Swappable Modules with WaveAlign™ Technology for Automatic Alignment
- High Reliability Design, Always-On Solution Ensures Minimal Downtime and High Availability
- Low Cost of Ownership



(Unit Shown With Optional Rack)

## Technical Specifications

### RF Specifications

**Transmit Frequency:**

30.0 – 31.0 GHz (Option1)  
27.5 GHz – 30.0 GHz (Option 2)  
(Custom frequency plans available)

**IF Frequency Bands:**

1000 – 2000 MHz (Option 1)  
950 – 1950 MHz (Option 2)

**LO Frequency:**

29.0 GHz (Option 1)  
26.55 GHz, 27.3 GHz, 28.0 GHz,  
29.0 GHz (Option 2)

**Reference Frequency:**

10 MHz on a dedicated connector

**Small Signal Gain:**

70 dB  $\pm$ 1.5dB (Nominal)

**Gain Adjustment:**

30 dB in 0.25 dB linear steps  
(nominal)

**Gain Variation:**

– Over full band at fixed temp:  
<4 dB  
– Over temp and fixed frequency:  
4 dB p-p over operating range

**Peak Envelope Power:**

57 dBm (500W) (Nominal)

**Linear Output Power**

53 dBm (200W)

– **Intermodulation** (Third order intermodulation product relative to combined power of two carriers at Output Power):  
–25dBc

– **Spectral Regrowth** (For OQPSK at 1.0x offset from 2Msym/s with  $\alpha = 0.35$ ):  
–30dBc

– **AM/PM Conversion** (Output power at which AM-PM conversion reaches 2.0°/dB)

**Phase Noise:**

– 10 Hz: –35 dBc/Hz  
– 100 Hz: –65 dBc/Hz  
– 1 kHz: –75 dBc/Hz  
– 10 kHz: –85 dBc/Hz  
– 100 kHz: –97 dBc/Hz  
– 1 MHz: –115 dBc/Hz  
– 10 MHz: –120 dBc/Hz

**Noise Power Density****In Tx Band:**

–76 dBm/Hz  
(at Linear Output Power)

**All Output Spurious and**

**Products:** < 60 dBc

### Physical

**Envelope Size:**

11U Rack  
20.0"L x 19.0"W x 19.16"H  
(50.8 x 48.26 x 48.67 cm)

**Weight:** 325 lbs (147.4 kg)

**Operating Temperature**

**(Ambient Air):**

–40°C to + 60°C  
(–40°F to + 140°F)

**Relative Humidity:**

Up to 100%

**Shock & Vibration:**

MIL-STD-810G

**Altitude:**

10,000 ft above sea level  
(operating)

### Interfaces

**Input Connector:**

SMA Female

**IF Input Impedance:** 50 Ohms

**IF Input VSWR:** 1.5:1

**RF Output Connector:**

WR-28

**RF Output VSWR:**

1.3:1 maximum

**AC Connector and M&C****Connector:**

MIL Circular

**M&C Connectivity:** Ethernet –

Dual Channel (10/100 MB/s)

**M&C Protocol:**

SNMP and UDP

### Power

**AC Power:** 189 to 264 VAC

**AC Power Draw:**

– 2800W (typical) (at Linear Output Power)  
– Power Factor: > 96%

### Base Model

WBAM-500G30 (Option 1)

WBAK-500G30 (Option 2)

## About Gilat Wavestream

Gilat Wavestream sets the standard in the design and manufacture of next generation high power solid state amplifiers. Wavestream's Family of Ka, Ku and X-band Solid State Power Amplifiers (SSPAs), Block Upconverters (BUCs) and transceivers provide systems integrators with field-proven, high performance solutions designed for ground mobile and fixed, gateway and airborne satellite communication systems worldwide.

These items are subject to the Export Administration Regulations (EAR), 15 C.F.R. Parts 730–774, and may not be exported or transferred to any non-U.S. person, except as authorized by the U. S. Department of Commerce.

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