



25W Ku-Band AeroStream™ Transceiver

WAVESTREAM ABT-KUS025 // ABT-KUE025

Field-Proven Performance

Wavestream's AeroStream™ Transceiver offers unmatched efficiency and performance for the challenging airborne environment. AeroStream™ products meet the requirements of RTCA/DO-160G, Boeing, Airbus and ARINC specifications for commercial aircraft as well as MIL-STD requirements for military aircraft.

AeroStream™ incorporates Wavestream's next generation Spatial Power Advantage™ technology to provide high power output with greater efficiency and reliability for airborne satellite communications system applications.

Features

- Airborne Qualified Commercial and Military
- Compact Package
- Transceiver Available in 25W Transmit Output and Full Ku-band Receive
- Integrated High Performance Reference
- Available for Pressurized and Non-Pressurized Environments

Wavestream Advantages

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



Benefits

- Higher output power with less energy usage
- Proven reliability and efficiency
- Reduced lifecycle maintenance costs
- Compact footprint to meet critical space and space and weight limitations



Technical Specifications

RF Specifications

- **Transmit Frequency:**
 - 14.0 GHz - 14.5 GHz
 - 13.75 GHz - 14.5 GHz
- **IF Frequency:**
 - 950 - 1450 MHz
 - 950 - 1700 MHz
- **IF Input VSWR:** 1.5:1
- **Small Signal Gain:** 61 dB (nominal)
- **Gain Adjustment:** 20 dB
- **Gain Variation:**
 - **Over frequency at fixed temp:** 3 dB p-p over full band
 - **Over temp at fixed frequency:** 3 dB p-p over operating range
- **Saturated Output Power:** 44.5 dBm (nominal)
- **Rated Output Power (P_{1dB}):** 44 dBm
 - **Linear Output Power, defined as:**
 - **Intermodulation** (Third order intermodulation product relative to combined power of two carriers at 3 dB total power back-off from Saturated Output Power): -25 dBc
 - **Spectral Regrowth** (For QPSK at 1.5x and OQPSK at 1.0x rate offset at 2 dB back-off from Saturated Output Power): -30dBc
 - **AM / PM Conversion** (up to 2 dB below Rated Output Power): 2 deg/dB
- **RF Output VSWR:** 1.5:1
- **Phase Noise:**
 - 1 kHz: -69 dBc/Hz
 - 10 kHz: -69 dBc/Hz
 - 100 kHz: -81 dBc/Hz
 - 1 MHz: -87 dBc/Hz
 - 10 MHz: -122 dBc/Hz
- **Noise Power Density Transmit:** -70 dBW/4kHz
- **Noise Power Density Receive:** -60 dBm/MHz (maximum)
- **Output Spurious:** -60 dBc

Physical

- **Size:** 17.5" L x 13.6" W x 2.5" H (44.5 x 34.5 x 6.4 cm)
- **Weight:** 21 lbs (9.5 kg)
- **Operating Temperature** (Ambient Air): -58° F to +158° F (-55° C to +70° C)
- **Relative Humidity:** 100% Condensing
- **Shock & Vibration:** D6-36440, DO-160G, ABD 513, MIL-STD-810
- **Altitude:** 35,000 ft above sea level (operating)

10 MHz Reference

- **Accuracy:** 0.03 PPM at 25° C
- **Stability:** 0.03 PPM first year, 0.12 PPM over 20 years
- **Output Level:** ± 7 dBm (nominal)

About Wavestream

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



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Receive Specifications

- **Receive Frequency:**
 - Band A: 10.7 GHz - 11.7 GHz
 - Band B: 11.7 GHz - 12.75 GHz
- **IF Frequency:**
 - 950 - 1950 MHz
 - 1100 - 2150 MHz
- **Small Signal Gain:** 20 dB (nominal)
- **Gain Variation:**
 - **Over frequency at fixed temp:** 2 dB p-p over full band
 - **Over temp at fixed frequency:** 3 dB p-p over operating range
- **Intermodulation Products*** (Third Order Intercept): -13.5 dBm (minimum)
- **Noise Figure:** 8 dB (maximum)
- **Image Rejection:** 40 dB (minimum)
- **Group Delay** (linear): ± 1 ns over 36 MHz
- **Output Spurious:** -88 dBm (maximum)
- **Phase Noise:**
 - 10 Hz: -30 dBc/Hz
 - 100 Hz: -50 dBc/Hz
 - 1 kHz: -55 dBc/Hz
 - 10 kHz: -70 dBc/Hz
 - 100 kHz: -95 dBc/Hz
 - 1 MHz: -120 dBc/Hz
 - 10 MHz: -120W dBc/Hz

Interfaces

- **Input Power:** 3-pin MIL Circular
- **Ethernet:** 4-pin MIL Circular
- **ACU Discrete:** 6-pin MIL Circular
- **TX IF:** TNC
- **RX IF:** TNC
- **Reference:** TNC
- **RF Output:** WR-62 Waveguide, Type N (Optional)
- **RX Input:** Type N
- **Maintenance:** RJ-45 MIL Circular
- **Debug:** 9-pin D-Sub

Power

- **AC Power:** 115 AC; 360-800 Hz
- **AC Power Draw** (typical) (at Rated Output Power): 275W
- **AC Power** (at 3 dB back-off from Rated Output Power): 255W

Options

- **Non-pressurized Environment**

Base Model

- **ABT-KUS025-xxxx**
- **ABT-KUE025-xxxx**

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90-010-0032 Rev B



40W Ku-Band AeroStream™ Transceiver

WAVESTREAM ABT-KUS040 // ABT-KUE040

Field-Proven Performance

Wavestream's AeroStream™ Transceiver offers unmatched efficiency and performance for the challenging airborne environment. AeroStream™ products meet the requirements of RTCA/DO-160G, Boeing, Airbus and ARINC specifications for commercial aircraft as well as MIL-STD requirements for military aircraft.

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Features

- Airborne Qualified Commercial and Military
- Compact Package
- Transceiver Available in 40W Transmit Output and Full Ku-band Receive
- Integrated High Performance Reference
- Available for Pressurized and Non-Pressurized Environments

Wavestream Advantages

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Technical Specifications

RF Specifications

- **Transmit Frequency:**
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 - 13.75 GHz - 14.5 GHz
- **IF Frequency:**
 - 950 - 1450 MHz
 - 950 - 1700 MHz
- **IF Input VSWR:** 1.5:1

- **Small Signal Gain:** 61 dB (nominal)
- **Gain Adjustment:** 20 dB
- **Gain Variation:**
 - **Over frequency at fixed temp:** 3 dB p-p over full band
 - **Over temp at fixed frequency:** 3 dB p-p over operating range
- **Saturated Output Power:** 46.5 dBm (nominal)
- **Rated Output Power (P₁dB):** >46 dBm
Linear Output Power defined as:
 - **Intermodulation** (Third order intermodulation product relative to combined power of two carriers at 3 dB total power back-off from Saturated Output Power): -25 dBc
 - **Spectral Regrowth** (For QPSK at 1.5x and OQPSK at 1.0x rate offset at 2 dB back-off from Saturated Output Power): -30dBc
 - **AM / PM Conversion** (up to 2 dB below Rated Output Power): 2 deg/dB
- **RF Output VSWR:** 1.5:1
- **Phase Noise:**
 - 1 kHz: -69 dBc/Hz
 - 10 kHz: -69 dBc/Hz
 - 100 kHz: -81 dBc/Hz
 - 1 MHz: -87 dBc/Hz
 - 10 MHz: -122 dBc/Hz
- **Noise Power Density Transmit:** -70 dBW/4kHz
- **Noise Power Density Receive:** -60 dBm/MHz (maximum)
- **Output Spurious:** -60 dBc

Physical

- **Size:** 17.5" L x 13.6" W x 2.5" H (44.5 x 34.5 x 6.4 cm)
- **Weight:** 21 lbs (9.5 kg)
- **Operating Temperature** (Ambient Air): -58° F to +158° F (-55° C to +70° C)
- **Relative Humidity:** 100% Condensing
- **Shock & Vibration:** D6-36440, DO-160G, ABD 513, MIL-STD-810
- **Altitude:** 35,000 ft above sea level (operating)

10 MHz Reference

- **Accuracy:** 0.03 PPM at 25° C
- **Stability:** 0.03 PPM first year, 0.12 PPM over 20 years
- **Output Level:** ± 7 dBm (nominal)

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- **Group Delay** (linear): ±1 ns over 36 MHz
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- **Maintenance:** RJ-45 MIL Circular
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Power

- **AC Power:** 115 AC; 360-800 Hz
- **AC Power Draw** (typical) (at Rated Output Power): <350W
- **AC Power** (at 3 dB back-off from Rated Output Power): <315W

Options

- **Non-pressurized Environment**

Base Model

- **ABT-KUS025-xxxx**
- **ABT-KUE025-xxxx**



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90-010-0028 Rev E