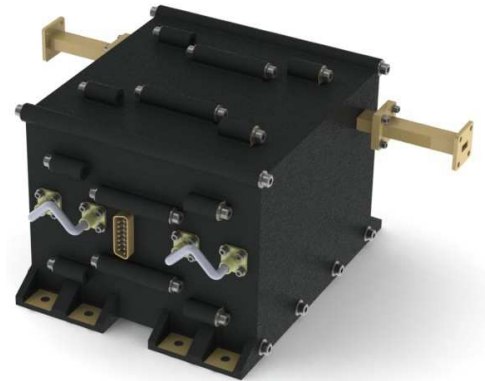


# μKaTx™ Rad Hard Wide Band Transmitter

The μKaTx™ Wide Band Transmitter Unit (WTU) is a state-of-the-art, high-reliability Ka-Band transmitter developed to meet the demanding radiation requirements of long-term space missions and the high data rates for the advanced digital modulation schemes. The design is based on development programs sponsored by MDA, NASA, and DARPA. Rates up to 3.2 Gbps, 8-PSK modulation is standard with EDAC and convolutional encoding. Low Density Parity Coding (LDPC) and other modulation methods are also available. The PA operates in Class A mode with less than 0.3dB of compression for exceptional performance in linear applications. The WTU is compatible with ITU, NTIA, SFCG, and MIL-STD-461 emission and radiation standards. The μKaTx™ WTU is compatible with industry standard Class 1 encryption, such as HAIPE. The output interface is a WR-34 waveguide launch.

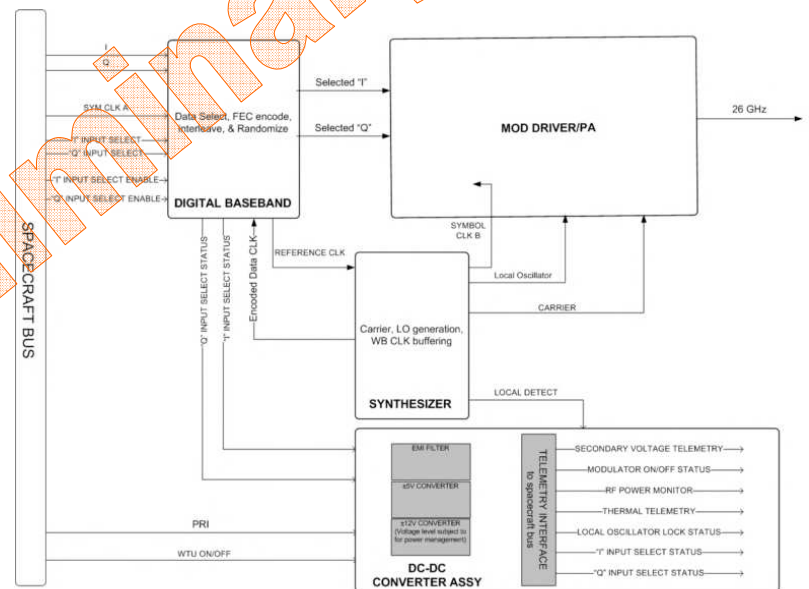


## High Data Rate Transmitter

- Ka-Band
- Rates from 100 kbps to 3.2 Gbps
  - μKa-1 rates 100 kbps to 100 Mbps
  - μKa-2 rates 100 Mbps to 1 Gbps
  - μKa-3 rates 1 Gbps to 2.25 Gbps
  - μKa-4 rate 3.2 Gbps
- 8-PSK or QPSK
- Other Modulation types available
- Mates to industry COMSEC
- TWT-Compatible

## Features for Space

- Total Dose and SEE Hardened
- Ruggedized for vibration, shock & thermal
- Temperature: -30° to +80°C
- MIL-STD-461 Compatible



μKaTx Wide Band Transmitter Block Diagram

# Space Micro Inc

## μKaTx™-X-XXX-XXX

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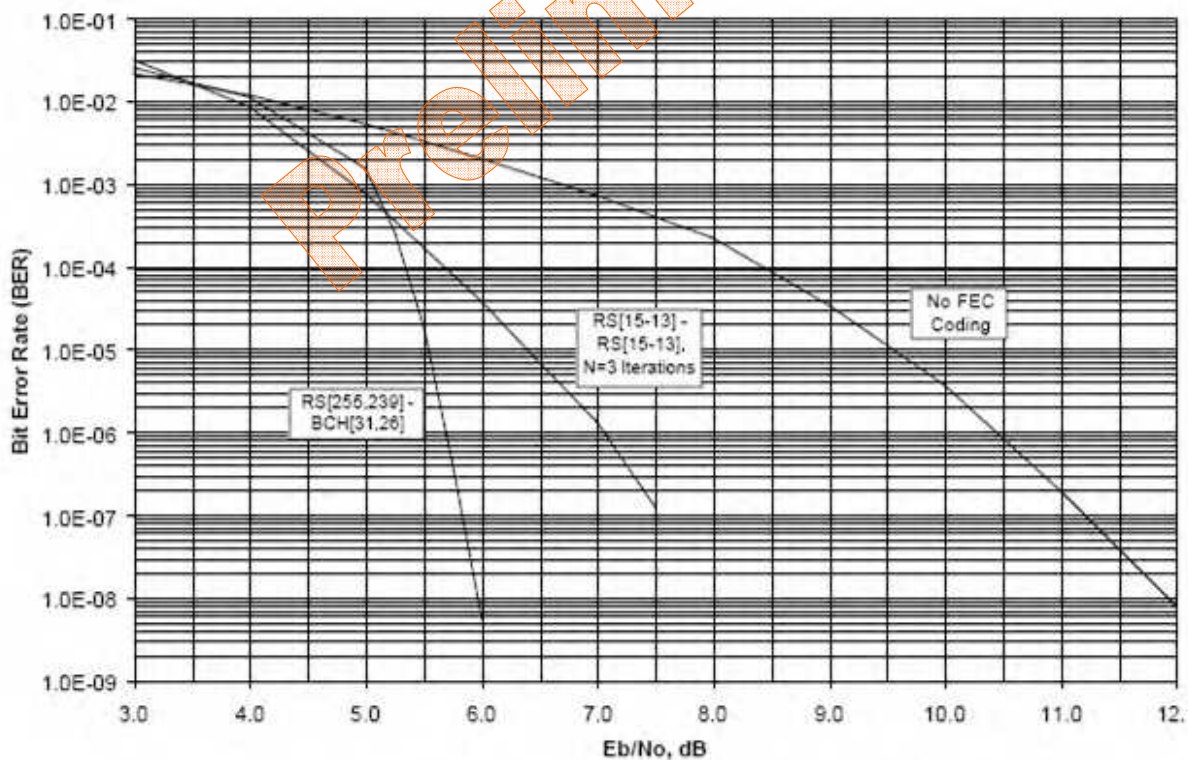


# μKaTx™ Rad Hard Wide Band Transmitter

## High Data Rate Transmitter Details

- Frequency: 20 to 32 GHz
- 8-PSK or QPSK
- Rates up to 3.2 Gbps
- Convolutional Encoding, Standard
  - Reed Solomon & BCH
  - LPDC in development
- Static Phase Imbalance:  $< +2^\circ$
- Static Amplitude Imbalance:  $< 0.5$  dB
- Output Power Options:
 

Power Out	Power Dissipated
3 mW	50 W
100 mW	51 W
2 W	70 W
5 W	80 W
- Frequency Stability
  - Short-term (1 sec)  $\leq 10^{-9}$
  - $< +$  PPM over 8 years
- Carrier Suppression:  $> 40$  dBc
- Mates to Industry COMSEC
- Integrate Phase Noise
  - $3.0^\circ$  rms 300 Hz to 1.0 GHz
- Radiation Tolerance/Effects
  - Total dose up to 300 krad
  - No SEL or SEFI
- Input Voltage: 22 to 34 VDC
- Power Consumption: 50 W
  - @ Output Power = 3/mW
  - Standby: 5 Watts, Standard
  - Optional lower standby consumption:  $< 2$  Watts
- Operating Temperature
  - $-30^\circ$  to  $+80^\circ$  C
- Size: 9.6 x 8.55 x 1.5 inches
- Weight: 5 pounds



Space Micro's FEC CODEC BER Performance