CubeSat X-Band Transmitter (XTX)

Available Q2 2017

PERFORMANCE

- Processing
  - Low-power Flash-based FPGA
  - V.35 IntelSAT scrambler
  - ½ rate convolutional encoding (K=7)
  - Differential encoding
  - Pulse shaping filter
- Interfaces
  - Low-speed I^2C Bus – 400 kHz or CAN 2.0 (telemetry and control)
  - Quad SPI Bus – 25 MHz LVDS
    SPI Bus – For lower data rates (payload data)
  - 50 Ω SMP connector
- Modulation
  - OQPSK or QPSK
  - IntelSAT IESS-308

MAIN FEATURES

- Low Power Consumption
  - Total power consumption < 10 W (for maximum RF power output)
  - Power from unregulated battery bus or regulated 5 V
- Transmission data rates of 3 to 50 Mbps
- Covers the 8.025 – 8.45 GHz frequency range
  - User programmable within bands
- Industry standard encoding and modulation techniques
  - Compatible with low-cost commercial demodulators
  - Based on IntelSAT IESS-308
  - OQPSK or QPSK
- Transmit output power from 24 dBm to 33 dBm

SPECIFICATIONS

Temperature	-25°C to +61°C
Power Consumotion	< 10 W
Mass	< 150 g
Dimensions	96 mm x 90 mm
Voltage	4 V – 30 V

RF Section

Frequency	8.025 GHz – 8.45 GHz
RF Power	2 Watt (33 dBm)
Channel Spacing	1 MHz
TX SNR	> 20 dB
Spurious Response	< -60 dBc (TBC)

SUPPLIED WITH:

- Flight Board
- User manual
- STEP model

CubeSat X-Band TX Overview

The XTX is an extremely compact X-Band transmitter designed for CubeSat missions. It is compatible with the CubeSat standard, with a CubeSat Kit PC/104 form factor. The transmitter implements OQPSK and QPSK modulation with transmission data rates of up to 50 Mbps.

The transmitter is ideal for space missions where a high data rate downlink is required. It implements an open network encoding scheme based on the IntelSAT IESS-308 specification which allows this product to be used with low-cost commercial satellite receivers.

A nadir facing X-Band patch antenna can also be incorporated into the CubeSat design. Its small size, low profile, rugged design and high directionality make it an excellent addition to the system.

3 to 50 Mbps X-band Transmitter
2 Watt RF Output Power

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