



5 to 25 W



50 W



100 W

Introduction

Comtech EF Data developed the XSAT-7080 X-Band Transceiver utilizing a talented team of RF engineers with many years of experience in designing and manufacturing satellite transceivers and other RF products. The XSAT-7080 family of 5 to 25 W, 50 W, and 100 W units is designed to provide the user with superior performance, long-term reliability and ease of installation with a very price competitive product. The XSAT-7080 is the perfect choice for your VSAT application for TDMA, DAMA, and SCPC/MCPC sites requiring higher power.

Full Rated Power

The XSAT-7080 delivers the full rated power, or more, measured at the 1 dB compression point and at the output flange. The user realizes the useable output power that is available and receives full value for the investment.

Phase Noise

The dual synthesizers in the XSAT-7080 deliver superior phase noise performance, exceeding Intelsat specifications by a very comfortable margin. The user receives the benefits of spectral purity and the ability to go into multi-carrier environments with less concern.

Third Order Intercept (TOI)

The design of the XSAT-7080 gives the user a high TOI that allows multi-carrier applications without the concerns normally associated with low power environments. The XSAT-7080 delivers performance usually found only in SSPA systems.

Small, Compact Design

The XSAT-7080 offers a 5 W, 10 W, 25 W, 50 W, and 100 W transceivers. This design allows quick, easy installation for these higher-powered transceivers. With the use of the EDMAC features of the companion CDM family of modems, even installation can be made without the requirement for expensive, heavy test equipment.

Full Monitor and Control (M&C)

Designed into the XSAT-7080 are a variety of methods to monitor and control this device. The XSAT-7080 offers full Monitor and Control from a small, convenient Hand-Held Terminal or easy access via RS-232 or RS-485 connections. Full remote M&C can be achieved through the companion CDM Modem family or the PC Windows-based EDMAC proprietary monitor and control software.

Redundancy

The XSAT-7080 is available in a 1:1 redundant configuration.

Specifications

Transmit

| | |
|--------------------------------|---|
| Frequency RF | 7900 to 8400 MHz |
| Frequency IF | 70 MHz \pm 18 MHz 140 MHz \pm 36 MHz (Optional) |
| Output Power, P _{1dB} | |
| 5 W | 37 dBm |
| 10 W | 40 dBm |
| 25 W | 44 dBm |
| 50 W | 47 dBm |
| 100 W | 50 dBm |
| Gain | |
| 5 W | 65 dB |
| 10 W | 68 dB |
| 25 W | 71 dB |
| 50 W | 74 dB |
| 100 W | 77 dB |
| Gain Flatness | \pm 0.75 dB full RF band \pm 0.75 dB per 36 MHz |
| Gain Stability | \pm 0.25 dB at constant C \pm 1.00 dB from -40° to +55°C (-40° to 131°F) |
| Carrier Mute | -70 dBc |
| Inter-Modulation | -33 dBc typical for two carriers each at -6 dB OPBO from rated power |
| Second Harmonic | -55 dBc |
| Spurious | |
| AC line harmonics | -45 dBc |
| Carrier related, <500 kHz | -60 dBc |
| All other In-band | -65 dBc |
| AM to PM Conversion | 3.0 Degrees at 6 dB OPBO from rated power |
| RF Output VSWR | 1.25:1 |
| RF Output Connector | |
| Type N Female | 5 W, 10 W and 25 W |
| CPR-112 | 50 W and 100 W |

Receive

| | |
|-----------------------------|---|
| Frequency RF | 7250 to 7750 MHz |
| Frequency IF | 70 MHz \pm 18 MHz 140 MHz \pm 36 MHz (Optional) |
| Gain, without LNA | 45 dB |
| Gain Flatness, without LNA | \pm 0.75 dB full RF band \pm 0.75 dB per 36 MHz |
| Gain Stability, without LNA | \pm 0.25 dB constant temperature \pm 1.00 dB -40° to +55°C (-40° to 131°F) |
| Output Power, P1dB | +13 dBm |
| Two Tone Inter-Modulation | -50 dBc for two tones at 0 dBm each, 1 MHz apart |
| Image Rejection | -60 dBc |
| RF Input VSWR | 1.25:1 |
| RF Input Connector | Type N Female |
| IF Output Impedance | 50 Ω |
| IF Output VSWR | 1.25:1 |
| IF Output Connector | Type N Female |

Common

| | |
|---------------------|--|
| Conversion | Dual, no spectral inversion |
| Frequency Step Size | 1.0 and 2.5 MHz automatic |
| Frequency Stability | 1 x 10 ⁻⁹ /day 1 x 10 ⁻⁷ /year 40° to +55° C 1 x 10 ⁻⁸ /Temperature |
| Attenuation Steps | TX: 0 to 25 dB in 0.25 dB steps RX: 0 to 20 dB in 0.25 dB steps |
| Phase Noise | |
| 100 Hz | -66 dBc/Hz |
| 1 kHz | -76 dBc/Hz |
| 10 kHz | -86 dBc/Hz |
| 100 kHz | -96 dBc/Hz |
| Group Delay | |
| Linear | 0.1 ns/MHz |
| Parabolic | 0.02 ns/MHz ² |
| Ripple | 1 ns p-p |

Monitor & Control

| | |
|----------|--|
| Methods | Both RS-485 and RS-232 Serial Interface Handheld controller, optional |
| Commands | Set TX frequency Set RX frequency Set TX attenuation Set RX attenuation Report TX output power Mute TX Report internal temperature Report power supply voltages Set time Set date |
| Faults | Up converter functions Down converter functions Up converter synthesizers Down converter synthesizers Internal reference oscillator LNA current fault Over temperature condition |

Environmental

| | |
|-----------------------|---|
| Operating Temperature | -40° to +55°C (-40° to 131°F) Operating |
| Storage Temperature | -50° to +75°C (-58° to 167°F) Storage |
| Altitude | 15,000 ft, mean sea level |
| Humidity | 0 to 100 Percent, Relative |
| Prime Power | 90 to 260 VAC Standard 47 to 63 Hz Standard 48 VDC Optional |
| Dimensions | (height x width x depth) 11" x 8" x 11" (28 x 20 x 28 cm) |
| 50 W | 9.75" x 10" x 23" (24.77 x 25.4 x 58.42 cm) |
| 100 W | 10.60" x 12.5" x 26" (26.92 x 31.75 x 66.04 cm) |
| Weight | |
| 5 W to 25 W | 36 lbs (16 kg) |
| 50 W | 65 lbs (29 kg) |
| 100 W | 80 lbs (40 kg) |
| Low Noise Amplifier | Customer defined |
| RF Power | 5 W, 10 W, 25 W, 50 W, 100 W |
| AC Power | 165 W, 220 W, 275 W, 450 W, 825 W |



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