

CSAT-5060 C-Band Transceivers



50W P_{1dB}
(63W P_{sat})



5 to 25W P_{1dB}
(6 to 32W P_{sat})



100 & 125W P_{1dB}
(125 & 150W P_{sat})

INTRODUCTION

The CSAT-5060 C-Band Transceiver provides superior performance, long-term reliability, and ease of installation.

A very price competitive product, the CSAT-5060 embodies the best design efforts of Comtech EF Data's highly experienced RF engineering team.

APPLICATION

The CSAT-5060 is the perfect choice for any VSAT point-to-point application, including:

- TDMA
- DAMA
- SCPC/MCPC

FULL RATED POWER

The CSAT-5060 delivers the full rated power, or more, measured at the 1 dB compression point and at the output flange. You will know the useable output power you are paying for, and can receive full value for your investment.

PHASE NOISE

The dual synthesizers in the CSAT-5060 deliver superior phase noise performance, exceeding Intelsat specifications by a substantial margin. Your applications will benefit from outstanding spectral purity and the ability to operate in multi-carrier environments with less worry.

THIRD ORDER INTERCEPT (TOI)

The design of the CSAT-5060 provides a high TOI that allows multi-carrier applications without the issues normally encountered in low power environments. The CSAT-5060 delivers performance usually found only in split converter SSPA systems.

SMALL, COMPACT DESIGN

The CSAT-5060 transceiver is enclosed in a single unit chassis. This design allows quick, easy installation for all models in this family of transceivers.

FULL MONITOR AND CONTROL (M&C)

A variety of full monitor and control methods are designed into the CSAT-5060:

- Convenient connection using an optional small, hand-held terminal
- Easy access via EIA-232 or EIA-485 connections
- Remote management via the CDM modem family or the PC-based SatMac proprietary M&C software

REDUNDANCY

The CSAT-5060 is available in a 1:1 redundant configuration.

10dBm Option

This transceiver is designed to mate with an external high power SSPA (Example: CEFD HPODS) or TWTA to provide even higher output power.

CSAT-5060 C-Band Transceivers

TRANSMIT

| | | | |
|---------------------|---|------------------------|--------------------------------|
| Frequency RF | 5845 to 6425 MHz Standard 6425 to 6725 MHz (Optional Extended) 5850 to 6650 MHz (Optional Wide) 5845 to 6725 MHz (Optional Super Wide) | | |
| Frequency IF | 70 MHz ± 18 MHz 140 MHz ± 36 MHz (Optional) | | |
| Output Power | <u>Model</u> | <u>P_{1dB}</u> | <u>P_{sat} Typical</u> |
| | 10dBm | 10 dBm | |
| | 5W | 5W (37dBm) | 38dBm (6W) |
| | 10W | 10W (40dBm) | 41dBm (12W) |
| | 25W | 25W (44dBm) | 45dBm (32W) |
| | 50W | 50W (47dBm) | 48dBm (63W) |
| | 100W | 100W (50dBm) | 51dBm (125W) |
| | 125 W | 125W (51 dBm) | 51.8dBm(150W) |
| Gain | 10 dBm | 25 dB | |
| | 5W | 65 dB | |
| | 10W | 68 dB | |
| | 25W | 71 dB | |
| | 50W | 74 dB | |
| | 100 & 125W | 77 dB | |
| Attenuator Range | 25 dB in 0.25 dB steps | | |
| Gain Flatness | ±0.75 dB full RF band ±0.75 dB per 36 MHz | | |
| Gain Stability | ±0.25 dB at constant C ±1.00 dB from -40° to +55°C (-40° to 131°F) | | |
| Carrier Mute | -70 dBc | | |
| Inter-Modulation | -28 dBc typical for two carriers each at 6 dB OPBO from rated power (3 dB total OPBO) | | |
| 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 | 3.0 Degrees at 6 dB | | |
| Conversion | OPBO from rated power | | |
| RF Output VSWR | 1.25:1 | | |
| RF Output Connector | 10dBm, 5W, 10W, & 25W | | Type N Female |
| IF Input | 50W, 100W, & 125W | | CPR-137G |
| Impedance | 50Ω | | |
| IF Input VSWR | 1.25:1 | | |
| IF Input Connector | Type N Female | | |

RECEIVE

| | |
|-----------------------------|---|
| Frequency RF | 3625 to 4200 MHz 3400 to 4200 MHz (Optional) |
| Frequency IF | 70 MHz ±18 MHz 140 MHz ±36 MHz (Optional) |
| Gain, without LNA | 45 dB |
| Gain Flatness, without LNA | ± 0.75 dB full RF band ± 0.75 dB per 36 MHz |
| Gain Stability, without LNA | ± 0.25 dB constant temperature ± 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 | 50Ω |
| 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 | 1x10 ⁻⁹ /day 1x10 ⁻⁷ /year | |
| Attenuation Steps | 40° to +55°C 1x10 ⁻⁸ /Temperature Tx: 0 to 25dB in 0.25 dB steps Rx: 0 to 20dB in 0.25 dB steps | |
| Phase Noise | 100 Hz | -66dBc/Hz |
| | 1 kHz | -76dBc/Hz |
| | 10 kHz | -86dBc/Hz |
| | 100 kHz | -96dBc/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 | 10dBm to 25W | 8H x 8W x 11D inches 20H x 20W x 28D cm) |
| | 50W | 9.75H x 10W x 23D inches (24.77H x 25.4W x 58.42D cm) |
| | 100& 125W | 10 H x 12.5W x 26D inch (25.4H x 31.75W x 66.04D cm) |
| Weight | 5W to 25W | 36 lbs (16 kg) |
| | 50W | 65 lbs (29 kg) |
| | 100 & 125W | 80 lbs (40 kg) |
| Low Noise Amplifier | Customer defined | |
| RF Power | 10dBm | 5W 10W 25W 50W 100W 125W |
| AC Power | 120W | 150W 200W 250W 410W 750W 850W |
| | Steady-State True AC Power Requirement (110 VAC) | |

