

## CSAT-5060 & CSAT-6070 C-Band Transceivers

Transceivers



5 to 25 W P<sub>1dB</sub>  
(6 to 32 W P<sub>sat</sub>)



50 W P<sub>1dB</sub>  
(63 W P<sub>sat</sub>)



100 & 125 W P<sub>1dB</sub>  
(125 & 150 W P<sub>sat</sub>)

### Introduction

The CSAT-5060 and CSAT-6070 C-Band Transceivers provide superior performance, long-term reliability, and ease of installation.

A very price competitive product, these transceivers embody the best design efforts of Comtech EF Data's highly experienced RF engineering team.

### Full Rated Power

The CSAT-5060 and CSAT-6070 deliver 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 receive full value for your investment.

### Phase Noise

The dual synthesizers in this family of transceivers 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 provides a high TOI that allows multi-carrier applications without the issues normally encountered in low power environments. The CSAT-5060 and CSAT-6070 deliver performance usually found only in split converter SSPA systems.

### Small, Compact Design

The transceivers are 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 and CSAT-6070:

- 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 and CSAT-6070 are available in a 1:1 redundant configuration.

### 10 dBm Option

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

### Typical Users

- Cellular Providers
- Maritime
- Oil & Gas

### Common Applications

- VSAT point-to-point applications – TDMA, DAMA, SCPC/MCPC

## Specifications

### Transmit

#### Frequency RF

CSAT-5060	5845 to 6425 MHz Standard 6425 to 6725 MHz (Optional Extended) 5850 to 6650 MHz (Optional Wide) 5845 to 6725 MHz (Optional Super Wide)
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CSAT-6070	6725 to 7025 MHz
Frequency IF	70 MHz $\pm$ 18 MHz 140 MHz $\pm$ 36 MHz (Optional)

Output Power	CSAT-5060	CSAT-6070	
	$P_{1dB}$	$P_{1dB}$	$P_{sat}$ Typical
10 dBm	10 dBm		
5 W	5 W (37dBm)	5 W (37dBm)	38 dBm (6 W)
10 W	10 W (40 dBm)	10 W (40 dBm)	41 dBm (12 W)
20 W	20 W (43 dBm)	20 W (43 dBm)	43.8 dBm (24 W)
25 W	25 W (44 dBm)	25 W (44 dBm)	45 dBm (32 W)
50 W	50 W (47 dBm)	50 W (47 dBm)	48 dBm (63 W)
100 W	100 W (50 dBm)	100 W (50 dBm)	51 dBm (125 W)
125 W	125 W (51 dBm)		51.8 dBm (150 W)

Gain	
10 dBm	25 dB
5 W	65 dB
10 W	68 dB
20 W	71 dB
25 W	71 dB
50 W	74 dB
100 & 125 W	77 dB

Attenuator Range	25 dB in 0.25 dB steps
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	-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 Conversion	3.0 Degrees at 6 dB OPBO from rated power
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RF Output VSWR	1.25:1
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RF Output Connector	Type N female CPR-137G
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IF Input Impedance	50 $\Omega$
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IF Input VSWR	1.25:1
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IF Input Connector	Type N female
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### Receive

#### Frequency RF

CSAT-5060	3625 to 4200 MHz 3400 to 4200 MHz (Optional)
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CSAT-6070	4500 to 4800 MHz
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Frequency IF	70 MHz $\pm$ 18 MHz 140 MHz $\pm$ 36 MHz (Optional)
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Gain, without LNA	45 dB
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Gain Flatness, without LNA	$\pm$ 0.75 dB full RF band $\pm$ 0.75 dB per 36 MHz
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Gain Stability, without LNA	$\pm$ 0.25 dB constant temperature $\pm$ 1.00 dB -40° to +55°C (-40° to 131°F)
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Output Power, P1dB	+13 dBm
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Two Tone Inter-Modulation	-50 dBc for two tones at 0 dBm each, 1 MHz apart
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Image Rejection	-60 dBc
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RF Input VSWR	1.25:1
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RF Input Connector	Type N female
IF Output Impedance	50 $\Omega$
IF Output VSWR	1.25:1
IF Output Connector	Type N female

### Common

Conversion	Dual, no spectral inversion
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Frequency Step Size	1.0 and 2.5 MHz automatic
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Frequency Stability	1x10 <sup>-9</sup> /day 1x10 <sup>-7</sup> /year 40° to +55°C 1x10 <sup>-8</sup> /Temperature
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Attenuation Steps	TX: 0 to 25 dB in 0.25 dB steps RX: 0 to 20 dB in 0.25 dB steps
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Phase Noise	100 Hz -66 dBc/Hz 1 kHz -76 dBc/Hz 10 kHz -86 dBc/Hz 100 kHz -96 dBc/Hz
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Group Delay	Linear 0.1 ns/MHz Parabolic 0.02 ns/MHz <sup>2</sup> Ripple 1 ns p-p
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### Monitor & Control

Methods	Both RS-485 and RS-232 Serial Interface Handheld controller, optional
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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
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Faults	Up converter functions Down converter functions Up converter synthesizers Down converter synthesizers Internal reference oscillator LNA current fault Over temperature condition
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### Environmental

Operating Temperature	-40° to +55°C (-40° to 131°F) Operating
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Storage Temperature	-50° to +75°C (-58° to 167°F) Storage
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Altitude	15,000 ft, mean sea level
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Humidity	0 to 100 Percent, Relative
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Prime Power	90 to 260 VAC standard 47 to 63 Hz standard 48 VDC optional
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Dimensions 10 dBm to 25 W	(height x width x depth) 8" x 8" x 11" (20 x 20 x 28 cm)
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50 W	9.75" x 10" x 23" (24.77 x 25.4 x 58.42 cm)
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100 & 125 W	10" x 12.5" x 26" (25.4 x 31.75 x 66.04 cm)
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Weight 5 W to 25 W	36 lbs (16 kg)
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50 W	65 lbs (29 kg)
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100 & 125 W	80 lbs (40 kg)
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Low Noise Amplifier	Customer defined
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RF Power	
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CSAT-5060	10 dBm, 5 W, 10 W, 20 W, 25 W, 50 W, 100 W, 125 W
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CSAT-6070	5 W, 10 W, 25 W, 50 W, 100 W
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AC Power CSAT-5060	120 W, 150 W, 200 W, 220 W, 250 W, 410 W, 759 W, 850 W
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CSAT-6070	150 W, 200 W, 220 W, 240 W, 250 W, 410 W, 759 W
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	Steady-State True AC Power Requirement (110 VAC)
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