



CS67PLUS

200 Mbps Digital Troposcatter Radio | Model CS67PLUS

Comtech Systems, the industry leading troposcatter technology company for the last 40 years, is proud to introduce the **CS67PLUS** Troposcatter Modem/Radio. At the heart of any troposcatter system is the troposcatter modem. As the modem performance and capabilities evolve, so does the entire system. The **CS67PLUS** is the first software-defined adaptive troposcatter modem and radio packaged in a compact sealed module. This adaptive architecture is capable of supporting Line-of-sight (LOS) and Troposcatter beyond line-of-sight (BLOS) communications with a capacity of up to 210 Mbps of full duplex data throughput. Offering a wide selection of modulation techniques from BPSK to 64APSK, coupled with the most powerful Error Correction in the industry, Low Density Parity Check (LDPC), the **CS67PLUS** Tropo Radio is a solid foundation for any troposcatter system.

Operating in the 4.4 to 5.0 GHz C-Band range, the **CS67PLUS** compact size is possible due to its Zero-IF design, providing the lowest cost, lowest power, and the smallest footprint solution of any modern troposcatter radio/modem technology to date. The **CS67PLUS** is mounted in a 1 RU connectorized interface chassis. The **CS67PLUS** contains two transmit channels and four receive channels and is user configurable for Single, Dual, or Quad Diversity system configurations essential to modular tactical troposcatter terminals. The **CS67PLUS** utilizes Phase Shift Keying (PSK) modulation schemes critical in troposcatter applications for its low peak-to-average power ratio (PAPR): a modulation with low PAPR is essential when using high power amplifiers such as Solid-State Power Amplifiers (SSPAs). Operating with a smaller back-off than other forms of modulation such as Quadrature Amplitude Modulation (QAM), PSK modulation increases the range of the troposcatter system.

To maximize link availability and data throughput, the **CS67PLUS** features Adaptive Coding Modulation (ACM). ACM continuously selects the best modulation and error correction coding scheme on a frame-by-frame basis based upon troposcatter link conditions to continuously provide maximum throughput and link availability. For applications where network equipment requires a fixed throughput, the **CS67PLUS** can be operated in Fixed Data Rate mode. As standard on previous Comtech Systems troposcatter modems, the **CS67PLUS** features Automatic Link Power Control (ALPC), which adjusts the transmit power level based upon link conditions to maintain the customer selected level of service desired. This also reduces the probability of interference at distant stations and reduces the probability of signal intercept.

For critical mission links, a redundant **CS67PLUS** system can be supplied, equipped with two (2) modules mounted in the 1RU chassis. Modules are easily removable and are Hot-Swappable.

Key Features

- Zero IF Direct digital to RF modulation - No intermediate frequencies
- Frequency agile from 4.4 to 5 GHz
- Highly integrated MIMO transceiver
- Higher order modulation (up to 6 bits/symbol) and data compression
- Powerful FEC – Low Density Parity Check (LDPC) Coding
- Seamless automatic ACM
- Packet processor with GigE layer 2 IP features and encryption
- Adaptive equalizer with diversity gain for a given link environment
- MIL-Spec rugged radio & modem – IP-66 rated for outdoor use
- 1 rack unit (RU) chassis (capable of 2 modules)



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Technical Specifications

Radio Architecture	Non-redundant or redundant
Propagation Modes	LOS, BLOS, Troposcatter
Diversity Modes	Single, Dual, or Quad
Symbol Rate	2.5 MBaud, 5 MBaud, 10MBaud, 20MBaud (user selectable)
Forward Error Correction	Low Density Parity Check (LDPC)
Data Rate Modes of Operation	Fixed, ACM, Single Stream and Dual Stream
Latency	Fixed \leq 5ms
	ACM \leq 30 ms
Modulation	BPSK to 64APSK
ACM/ACR	Automatic/Hitless within a symbol rate
Data Rate	Up to 105 Mbps (single stream)
	Up to 210 Mbps (dual stream)
	Automatic or user selectable rates
Channel Characteristics	Gaussian, Rayleigh with dispersion
Data Compression	AHA3602C GZIP File Format Specification version 4.3 (RFC-1952)
Encryption	AES-256 - Optional Payload Encryption
Radio Interface	Ethernet (10 / 100 / 1000 BASE-T)
GUI	Web based graphical user interface
Built-In Test Equipment (BITE)	Receive Signal Level (70 dB dynamic range)
	Bit/Packet Error Rate
	Loop-back, Digital, and RF
	Performance Logging (up to 64 GB)
Alarms	Major alarms, minor alarms, status
MTBF	100,000 Hours

Environmental & Physical	
Operating temperature	-40°F to 140°F (-40°C to 60°C)
Storage Temperature	-58°F to 185°F (-50°C to 85°C)
Height	1.75 in. (4.45 cm)
Width	8.1 in. (20.6 cm)
Depth	12.7 in. (32.3 cm)
Cooling	External 1 RU fan tray

Power	
Supply Voltage	24 / 48 Volts DC +/- 10%
Power Consumption	27.5 W maximum (single module)



Redundant CS67PLUS Chassis in a Transit Case



Redundant CS67PLUS Chassis with Two Modules

Specifications are subject to change