Model CS678
Digital Troposcatter Modem

Digital Troposcatter Modem
Description

The CS678 is Comtech's newest, state-of-the-art digital tropo modem. The CS678 modem includes new features for automatic transmit power control, Ethernet connection, built-in test, and facilities for performance monitoring. The configuration setup for all features and modem status display is all from the front panel. The new modem has significantly fewer parts than the current S-575 modem (4 circuit boards versus 16), which makes it lighter, smaller, and consume 75% less power. These changes ensure better performance, easier maintenance, fewer spare parts, more robust and reliable operation. The CS678 includes two complete, redundant modems, with automatic monitoring and switchover. The modem is designed to handle excessive multipath and signal dispersion through the use of adaptive equalization and diversity reception.

The new modem is designed to work with many types of troposcatter terminals from Comtech Systems and others, and is compatible with the current S-575 modem. The modem may be used in both fixed terminals and in transportable terminals for tactical military applications.

The modem front panel contains an LED display that shows the modem's operational status. The function keys on the front panel are used to configure the modem and access modem operational data. The vacuum fluorescent digital display can show the modem configuration, modem operational data, and link performance. The modem case fits in a 19 inch EIA rack and has a drop down front panel to access the modem circuit boards. The modem case holds two complete modems, one operational and one standby, each requiring two circuit boards. Any of the four circuit boards may be changed from the front without any tools, without removing power or other hardware, ensuring a minimum time for repair.

Standard Features

- 2.048, 4.096 or 8.192 Mb/sec aggregate data rate (User data), RS-422 interface.
- 1, 2 or 4 E1 circuits, 120 Ω, balanced interface.
- Fully redundant design (operating modem and standby modem) with fault monitoring, and manual or automatic switchover.
- 99% bandwidth occupancy of 1.4 bit/Hz.
- Mitigates against multi-path dispersion of up to 3.0 delay spread/symbol time (2σ/T)
- Coherent QPSK or BPSK modulation.
- Microprocessor-controlled, on-line, built-in test capability for card level fault isolation.
- Intelligent front panel provides configuration control and displays received signal level (RSL), bit error rate (BER), and modem fault status.
- PC interface for remote control and monitoring of RSL, BER, and modem fault status.
- Maintains bit-count integrity in severe fades which makes it ideal for use with most encryption devices.
- Re-sync inhibit signal prevents external equipment from attempting re-sync during a fade.
- Alarm conditions shown on front panel display, signaled via contact closures, and by remote computer interface.
- Integral automatic transmit power control with 50 dB power adjustment range; reduces the possibility of interference when propagation conditions do not require full power.
- Integral bit error rate test (BERT) data and receive signal level (RSL) data from the modem can be used for G.821 performance statistics.
- Vacuum Fluorescent front panel display.
- Compact size (3 rack units, 13 cm high) and light weight (10.7 Kg).
- Integral Ethernet port for monitor and control.

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The CS678 modem is the world's leading tropo modem for high capacity and ability to operate over highly dispersive tropo paths at full performance. The CS678 and its predecessor have been field proven and are in use worldwide in both commercial and military systems.

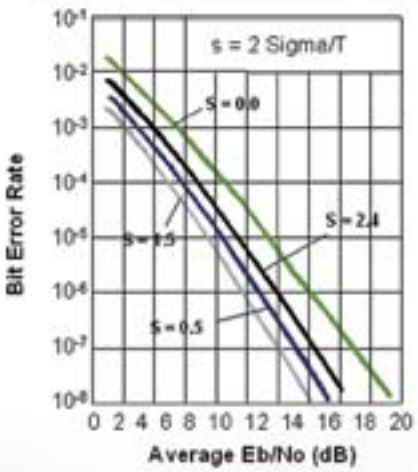
Comtech Systems, Inc.
ISO 9001:2000

ANSI-RAB QMS ACCREDITED — INTERNATIONAL MANAGEMENT SYSTEMS IMS
Certificate Number: IMS - 0010

Standard Specifications:

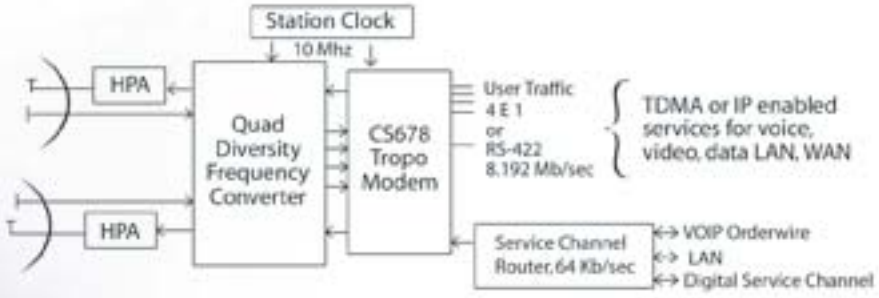
Aggregate Data Rate	Up to 8804 kb/s (user data, service channels, and overhead)
IF Bandwidth	7.0 MHz at highest data rate
IF Interface	70 MHz, 50 ohms
User Data Rates	1, 2 or 4 E1's, G.703, balanced; or single RS-422 configurable for 2.048, 4.096 or 8.192 Mb/sec
Station clock	10 MHz, external, Stratum 1
Service Channels	2 each, RS-422, total bandwidth 64 Kb/sec
Error Monitor	Integral error rate test pattern and monitor
Reliability	MTBF: 100,000 hours estimated
Operational Environment	Temperature: -10° C to +50° C Altitude: 3000 meters Humidity: 0 - 95% at 30° C, non-condensing
Prime Power	+48 VDC 150 watts, maximum
Size	131 mm high 474 mm wide with rack mount adapters 430 mm deep with carrying handles in front
Weight	10.7 kg fully configured

Modem Performance:



Bit Error Rate versus Eb/N0

Typical System Application:



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