ODMR-840B Remote Router (Board Set)

Advanced VSAT Solutions

Overview

Comtech EF Data's Advanced VSAT Solutions portfolio provides high-performance satellite-based communication solutions for a diverse range of applications, including broadband maritime, offshore communications, mobile backhaul with RAN optimization, IP trunking and backhaul, corporate and enterprise networks, emergency and disaster recovery. Incorporating advanced technologies developed by Comtech EF Data, AHA Products Group, Memotec and Stampede, the solutions provide unmatched performance, industry-leading bandwidth efficiencies and network optimization – while minimizing Total Cost of Ownership.

Typical Users

- Government & Military

Common Applications

- Flyaway & Portable Terminals

Intended for use in portable VSAT terminals, the ODMR-840 board set combines a wide range of advanced technologies for efficient bandwidth utilization for hub-spoke networks:

- High-performance packet processing
- Lossless Payload compression
- Header compression
- Advanced Quality of Service (QoS)
- Dynamic SCPC with VMS
- DVB-S2 and VersaFEC® low-latency LDPC Forward Error Correction
- Ultra low overhead encapsulation

Features

- High-Performance Integrated Packet Processing
  - Layer 3 (Routed) operation
  - Advanced Quality of Service (QoS)
  - Header compression
  - Lossless payload compression
  - Ultra low overhead Streamline Encapsulation (TX)
  - Low overhead Enhanced Generic Stream Encapsulation (GSE) (RX)
- Advanced Forward Error Correction
  - VersaFEC low-latency LDPC transmit
  - DVB-S2 receive
- Adaptive Coding and Modulation (ACM) for Transmit and Receive
- Variable Coding and Modulation (VCM) for Receive
- Transmit
  - Data rate: 16 kbps to 15.35 Mbps
  - Symbol rate: 16 ksps to 4.5 Msps
  - Modulation: BPSK, QPSK, 8-QAM, 16-QAM
  - Rolloff : 20%, 25%, 35%
- Ultra low overhead Streamline Encapsulation
- Receive
  - Data rate: 1 Mbps to 160 Mbps
  - Symbol rate: 1 Msps to 62 Msps
  - Rolloff : 20%, 25%, 35%
  - Demodulation: QPSK, 8PSK, 16APSK, 32APSK
  - Low overhead enhanced Generic Stream Encapsulation
- Operating Frequency: 950 to 2150 MHz
- Ethernet interface for traffic and management
- Integrated with NetVue Integrated Management System and Vipersat Management System

Specifications

Transmit

Data Rate	16 kbps to 15.35 Mbps, in 1 bps step (CCM mode) (Modulation and FEC dependent)
Symbol Rate	16 ksps – 4.5 Msps
FEC	VersaFEC encoder (ACM and CCM modes)
Modulation & Code Rate	**Data Rate Range**
BPSK 0.488	16.00 kbps – 2.19 Mbps
QPSK 0.533	17.07 kbps – 4.80 Mbps
QPSK 0.631	20.19 kbps – 5.67 Mbps
QPSK 0.706	22.577 kbps – 6.34 Mbps
QPSK 0.803	25.69 kbps – 7.22 Mbps
8-QAM 0.642	30.83 kbps – 8.67 Mbps
8-QAM 0.711	34.14 kbps – 9.60 Mbps
8-QAM 0.780	37.44 kbps – 10.53 Mbps
16-QAM 0.731	46.80 kbps – 13.16 Mbps
16-QAM 0.780	49.92 kbps – 14.04 Mbps
16-QAM 0.829	53.04 kbps – 14.91 Mbps
16-QAM 0.853	54.60 kbps – 15.35 Mbps
Encapsulation	Ultra low overhead Streamline Encapsulation

Receive

Receive Data Rate (Pilots On)	QPSK	0.479 – 108.255 Mbps
	8PSK	1.740 – 160.0 Mbps
	16APSK	2.575 – 160.0 Mbps
	32APSK	3.623 – 160.0 Mbps
Receive Symbol Rate	QPSK	1 to 62 Msps
	8PSK	1 to 62 Msps
	16APSK	1 to 47 Msps
	32APSK	1 to 37 Msps
FEC	DVB-S2 decoder (ACM, CCM and VCM modes) short frame, normal frame	
Modulation & FEC	**Data Rate Range (Normal FEC frame, pilots off)**	
QPSK 1/4	0.479 – 29.672 Mbps	
QPSK 1/3	0.641 – 39.731 Mbps	
QPSK 2/5	0.771 – 47.779 Mbps	
QPSK 1/2	0.965 – 59.850 Mbps	
QPSK 3/5	1.160 – 71.922 Mbps	
QPSK 2/3	1.291 – 80.029 Mbps	
QPSK 3/4	1.452 – 90.029 Mbps	
QPSK 4/5	1.549 – 96.064 Mbps	
QPSK 5/6	1.615 – 100.148 Mbps	
QPSK 8/9	1.724 – 106.914 Mbps	
QPSK 9/10	1.746 – 108.255 Mbps	
8PSK 3/5	1.740 – 107.853 Mbps	
8PSK 2/3	1.936 – 120.011 Mbps	
8PSK 3/4	2.178 – 135.007 Mbps	
8PSK 5/6	2.422 – 150.181 Mbps	
8PSK 8/9	2.586 – 160.000 Mbps	
8PSK 9/10	2.618 – 160.000 Mbps	
16APSK 2/3	2.575 – 121.007 Mbps	
16APSK 3/4	2.896 – 136.127 Mbps	
16APSK 4/5	3.090 – 145.253 Mbps	
16APSK 5/6	3.222 – 151.428 Mbps	
16APSK 8/9	3.440 – 160.000 Mbps	
16APSK 9/10	3.483 – 160.000 Mbps	
32APSK 3/4	3.623 – 134.063 Mbps	
32APSK 4/5	3.866 – 143.051 Mbps	
32APSK 5/6	4.031 – 149.132 Mbps	
32APSK 8/9	4.303 – 159.207 Mbps	
32APSK 9/10	4.357 – 160.000 Mbps	
Pilots	On	
Encapsulation	Low overhead Enhanced GSE	

Modulator Specifications

Operating Frequency	950 to 2150 MHz L-Band, 100 Hz frequency resolution
Frequency Stability	± 0.06 ppm (± 6 x 10-8), 0° to 50°C (32° to 122° F)
Frequency Reference	Internal
Scrambling	Comtech, disabled
Spectral Inversion	Normal or inverted
Transmit Filtering	Per IESS-308/-309 spectral mask
Transmit Filter Rolloff (Alpha)	20%, 25% and 35%
Output Power	0 to -40 dBm, in 0.1 dB steps
Power Accuracy	± 1.0 dB over frequency, data rate, modulation type and temperature range of 0 to 50° C
Transmit On/Off Ratio	-60 dBc minimum
Harmonics and Spurious	Better than -60 dBc/4 kHz (typically < -65 dBc/4KHz) Measured from Fo +/- 300 MHz
Output Phase Noise	< 1º rms double sided, 100 Hz to 1MHz (minimum of 6 dB better overall than the Intelsat IESS-308/309 requirement) dB/Hz Frequency Offset -66.0 100 Hz -76.0 1 kHz -86.0 10 kHz -96.0 100 kHz Fundamental AC line spurious is -42 dBc or lower. The sum of all other single sideband spurious, from 0 to 0.75 x symbol rate, is -48 dBc or lower.
Connector	SMA (Type-N option)
Impedance	50 Ω
External TX Carrier Off	By TTL 'low' signal
Test Modes	CW, 1/0 pattern, 2^23-1 and 2047 patterns
BUC Reference (10 MHz)	Via TX IF center conductor, 10.0 MHz ± 0.06 ppm, selectable on/off, 0.0 dBm ± 3 dB

Demodulator Specifications

Operating Frequency	950 to 2150 MHz L-Band, 100 Hz frequency resolution
Connector	SMA (Type-N option)
Impedance	50 Ω
Input Power Range, Desired Carrier	-65 dBm + 10 log (symbol rate in Msps) to -25 dBm
Maximum Composite Operating Level	-5 dBm total composite power 20 dBc within 10 MHz band from the desired carrier for QPSK, 8PSK, and 16APSK 10 dBc within 10 MHz band from the desired carrier for 32APSK 30 dBc outside of 10 MHz from carrier
Absolute Maximum, No Damage	-10 dBm
Rolloff	20%, 25%, 35%
Acquisition Range	+/- 100 kHz
Adaptive Equalizer	Corrects up to 3 dB tilt
LNB Reference (10 MHz)	Via RX IF center conductor, 10.0 MHz ± 0.06 ppm Selectable on/off, -3.0 dBm ± 3 dB
LNB Voltage	Selectable on/off, 13 VDC, 18 VDC, 24 VDC
LNB Current	500 mA, maximum
Monitor Functions	Es/No estimate, receive signal level, frequency offset
Es/No Monitor Accuracy	+/- 0.3 dB
Receive Signal Level Monitor Accuracy	+/- 6 dB (typical)

Packet Processor

Supported Protocols	
RFC 768 – UDP RFC 791 – IP RFC 792 – ICMP RFC 793 – TCP RFC 826 – ARP RFC 856 – Telnet RFC 862 – Ping RFC 894 – IP RFC 959 – FTP RFC 1112 – IP Multicast RFC 1213 – SNMP MIB II	RFC 768 – UDP RFC 791 – IP RFC 792 – ICMP RFC 793 – TCP RFC 826 – ARP RFC 856 – Telnet RFC 862 – Ping RFC 894 – IP RFC 959 – FTP RFC 1112 – IP Multicast RFC 1213 – SNMP MIB II
Statistics	Statistics

Connectors

L-Band Transmit and Receive	2 x SMA (Type-N option)
10/100/1000 Base-T Ethernet interface for traffic and management	1 x RJ-45
Console (RS-232), Summary Alarm, AGC and HW Mute	2x13-pin (Adam Tech FCS-26-SG)

Available Options

Option	**Type**
L-band Transmit & Receive (SMA or Type-N)	Hardware
Heatsink	Hardware
Integrated Power Supply	Hardware
Transmit Data Rate	FAST
Dynamic SCPC (with VMS)	FAST

Physical, Power, & Environmental

Approx Dimensions (SMA connector, without heatsink)	10.5 (L) x 8.4 (W) x 1.5 (H) (including SMA connector)
Weight	2.41 lbs
Power Supply	-24 VDC -48 VDC
Operating Ambient Enclosure Temperature	–30° to 60°C
Storage Temperature	–40° to 70°C

2114 West 7th Street, Tempe, Arizona 85281 USA
Voice: +1.480.333.2200 ● Fax: +1.480.333.2540 ● Email: sales@comtechefdata.com