

DVB-S2/RCS Modem

L-Band-to-Ethernet

Product
Concept



Key Benefits

- Interoperability with existing SATCOM networks through use of standards-based technology
- High data rate performance in a mobile environment including airborne, and ground vehicular platforms
- Convenient rack-mount form-factor for easy integration into VSAT or SATCOM terminal product or subsystem
- Cost-effective upgrades and enhancements to modem software through use of reconfigurable processing technology
- Secure communications link

Target Applications

- High-Bandwidth IP Communications for Mobile Applications
- Broadband Mobile Internet Access
- Voice-over-IP
- Streaming Video
- Video Teleconference

Key Features

- DVB-S2 Compliant Forward Link
- DVB-RCS Compliant Return Link
- Spread-spectrum enhancements for high-bandwidth mobile performance (optional*)
- Available in commercial and rugged versions
- AES-256 encryption (optional*)
- Standard 1U 19" rack-mount enclosure
- Integrated Receive Signal Strength Indicator (RSSI)
- Based on software reconfigurable processing technology
- Embedded Flash memory



Description

Spectrum's DVB-S2/RCS Modem is a compliant SATCOM modem operating in the L-Band frequency range (950 MHz to 1950 MHz). The Modem offers customers maximum flexibility in their VSAT (Very Small Aperture Terminal) or SATCOM radio systems. Packaged in a 1U 19" rack-mount enclosure the modem can easily be integrated into a variety of subsystems and operating environments including airborne, ground mobile, and shipborne. Other packaging and enclosure options are also available upon customer request.

The DVB-S2/RCS modem implements both Second Generation Digital Video Broadcasting Over Satellite (DVB-S2) and Digital Video Broadcasting Return Channel via Satellite (DVB-RCS) waveform technology into a single modem. The DVB-S2 and DVB-RCS standard is a widely adopted commercial standard that has become the waveform of choice for use in the Joint IP Modem (JIPM) – the U.S. Department of Defense (DoD) standard IP modem to be used for defense satellite communications.

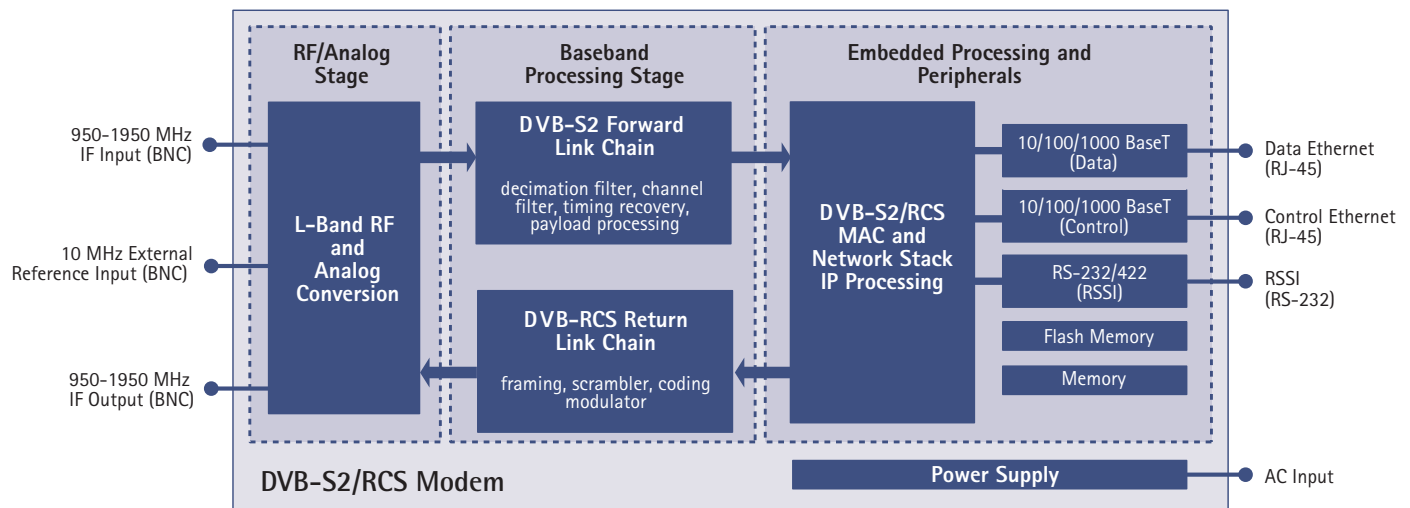


Figure 1. Block Diagram

This is a product concept based on an application reference design. To determine the configuration and performance that best matches your application, please contact Spectrum Sales. Spectrum reserves the right to change the specifications without warning until final product is available.

* See Future Options section

Specifications

[Receive (Forward Link)]

Full compliance to DVB-S2 standard (ETSI EN 302 307) except where noted

- Data Rate Range: 64 kbps – 50 Mbps
- Symbol Rate / Chipping Rate Range: 256 Ksps / 256 Kcps to 36 Msps / 36 Mcps
- FEC Type: LDPC
- Modulation Type: QPSK, 8PSK (optional: 16-APSK, 32-APSK)
- Constant Coding and Modulation (CCM)
- Adaptive Coding and Modulation (ACM) (optional*)
- Spread spectrum capability (optional*)
- User-commanded center freq
- User-commanded RF amplitude

[Transmit (Return Link)]

Full compliance to DVB-RCS standard (ETSI EN 301 790) except where noted.

- FEC Type: Turbo
- Modulation Type: QPSK
- User Data Rate Range: 1 kbps – 50 Mbps
- User selectable burst spreading from 2 chips/bit to 16 chips/bit (optional*)
- Capable of burst-to-burst spreading changes (optional*)

[RF]

- RX Frequency Range: 950 – 1950 MHz (L-Band)
- TX Frequency Range: 950 – 1950 MHz (L-Band)
- Analog Bandwidth: 60MHz
- RX Power Input: -65dBm to +30dBm
- TX Power Output: 0 dBm
- Synthesizer Step Size: 250 KHz
- Harmonics: Better than -60dBc for both receive and transmit
- Noise Figure: Less than 15 dB

[Standards Compliance]

- ETSI EN 302 307 (DVB-S2)
- ETSI EN 301 790 (DVB-RCS)

[Processing Technology]

- Baseband Processing: FPGA and/or ASIC
- Embedded Processing: Embedded or Discrete GPP

[Mechanical]

- Form Factor: 19" 1U rackmount
- Dimensions: 1.75" (H) x 19" (W) x 18" (D)
- Weight: less than 10 lbs
- Air-cooled

[Physical Interfaces]

- RJ-45 Ethernet data port (100/1000BaseT)
- RJ-45 Ethernet control port (100/1000BaseT)
- DB-9 RS-232 for real-time RSSI measurements
- BNC input for 10 MHz external reference
- Type N L-Band signal input (950-1950 MHz)
- Type N L-Band signal output (950 – 1950 MHz)
- AC Input, 110 – 240 VAC (50/60 Hz)

[Monitoring and Control Protocol]

- SNMP
- Other Options Available

[Environmental]

- Operational: 0 to 50C
- Storage: -40 to 70C, up to 95% condensing
- Humidity: 5 to 95% non-condensing, operating.
- Contact Spectrum for specific ruggedization requirements such as extended temperature, shock & vibration, etc.

[Ordering Information]

- This is a product concept based on an application reference design. Please contact Spectrum Sales to determine the configuration and performance that best matches your application.
- Some of the available ordering options may be:
 1. Standard Modem in 19" Rackmount Enclosure
 - Customer integrates the modem with standard features and interfaces directly into their end product or terminal sub-system
 - Engineering Development Kit (EDK) including
 - i. DVB-S2/RCS Standard Application Programming Interface (API) Library
 - ii. Hardware /System Integration Guide
 2. Standard Modem with Hardware or Waveform Customizations
 - Customized hardware and waveform software to meet customer's technical specifications
 3. Full Turnkey SATCOM Terminal or Radio Development
 - Customized terminal or turnkey modem per customer's technical specifications

[Future Options]

- Future options may be implemented at the discretion of Vecima Networks Inc. or its subsidiaries based on market demand.**