



Product Brochure

GLT 1500 Modem

Next Generation Multi-Service SDR Modem

Software Defined Radio (SDR) Modem

The satellite communications market demands a transformative Software Defined Radio (SDR) solution which overcomes critical industry challenges such as supporting diverse waveforms from multiple vendors to operate seamlessly across different networks, use cases and capabilities.

Advanced SDR technology offers unparalleled advantages by enabling the selection of the most relevant waveform for each mission. This flexibility empowers satellite communications providers to achieve seamless multi-vendor integration, unlocking new levels of adaptability and cost-efficiency.

Next generation SDR modem technology establishes a strong foundation for future SDR applications, consistently outperforming virtual modem alternatives in power consumption and economic efficiency. The industry's core need is a multi-vendor solution that transcends traditional technological boundaries. By expanding waveform portfolios and fostering strategic collaborations with key technology partners, satellite communications providers can deliver adaptive, high-performance platforms which meet the evolving needs of global defense, commercial, and connectivity markets.

SkyEdge IV Capabilities

One of the key waveforms supported by the GLT 1500 is the SkyEdge IV waveform – a state-of-the-art, full-scale, SATCOM network designed to meet the demands of any modern defense organization. This field-proven system is optimized for operations across land, sea, and air delivering reliable real-time data feeds to any platform, even in the most challenging field conditions.

GLT 1500 SkyEdge IV mode is a high-performance modem designed to equip security forces with ruggedized terminals that can be deployed on vehicles or carried in a backpack. It ensures seamless connectivity for both on-the-move and on-the-pause missions, delivering reliable beyond line-of-sight (BLoS) communication between command and tactical levels for uninterrupted information flow. SkyEdge IV waveform was specifically designed for seamless operation over next-generation Very High Throughput Satellites (VHTS) in GEO and MEO (supporting O3B mPower) constellations.

ASCM Waveform

GLT 1500 ASCM waveform provides cost-effective, secure, seamless connectivity across land, sea, and air on C, X, Ku and Ka bands using SCPC operation. It enables users to simultaneously run a full

range of applications, protocols and tasks with ease. Featuring spread spectrum support, with a spreading factor of up to 12, the waveform facilitates the use of very small antennas while maintaining high bit rates, ensuring effortless operation anytime, anywhere. Minimal setup by non-technical personnel facilitates launch of point-to-point satellite communications. The GLT 1500 SDR offers flexible support for data rates from 32kbps to 500Mbps with modulation, FEC and selectable frame size. This minimizes overhead at high-speeds and reduces delay at low speeds resulting in significant bandwidth savings.

Benefits

- Unmatched performance and flexibility, supporting GEO, MEO, and LEO orbits, and SCPC supporting DVB-S2X and ASCM waveforms, ensuring seamless performance for a wide range of applications
- Mobility connectivity across land, sea, and air with low SWAP, supporting OpenAMIP and OpenBMIP protocols, for seamless antenna integration. Fully compatible with SkyEdge IV Elastix TotalNMS
- Achieves > 500Mbps aggregated throughput and up to 150K packets-per-second processing
- Advanced adaptive spreading code and modulation (ASCM) waveform for SCPC applications supporting bit rates of 32kbps -200Mbps
- Wideband DVB-S2X carriers up to 500MSPS with very low SNR (VLSNR)
- Advanced security for mission-critical operations, with TRANSEC, AES-256 encryption, and compliance with FIPS 140-3 Level 3. Features HSM anti-tampering and Manual Zeroing.



GLT 1500 Modem and card

Technical Specifications

Waveforms & Air Interface

SCPC Channel

Adaptive Spreading, Code, and Modulation - ASCM

Data rates:

32 Kb/s – 500 Mb/s

Baud rates:

128 Ks/s – 190 Ms/s, step=1Ks/s

Modulations:

BPSK, QPSK, 8PSK, 16QAM

Supported rates:

1/4, 1/3, 2/5, 1/2, 2/3, 3/4, 5/6, 8/9

Spectral shaping:

roll-off=0.05, 0.1, 0.2

Spread Spectrum:

spreading factor 1–12

SNR support:

–15 to +13 dB Coding: 27 LDPC codes

DVB-S2X

Carrier Rate:

5 Msps–190 Msps

Roll-off:

0.05, 0.10, 0.2

MODCODs:

BPSK-S 1/5 – 256APSK 3/4
(seamless MODCOD switching)

SNR range:

–9.4dB–21dB FEC: LDPC, BCH

SkyEdge IV

Return Channel

Elastix-Access:

eSCPC (Elastix SCPC), TDMA

Carrier Rate:

0.1 Msps (GEO) 1
Msps (MEO) – 190Msps

Roll-off:

0.05, 0.10, 0.2

Modulation:

BPSK, QPSK, 16-Ary

SNR range:

–15 dB to +15 dB

FEC:

XDC

Forward Channel

Standard:

DVB-S2X ACM

Carrier Rate:

5 Msps–500 Msps

Roll-off:

0.05, 0.10, 0.2

MODCODs:

BPSK-S 1/5 – 256APSK 3/4
(seamless MODCOD switching)

SNR range:

–9.4 dB to +21 dB FEC: LDPC, BCH

Performance

Aggregated throughput:

>500 Mbps

Packet processing:

up to 200 Kpps

- **Very Low SNR (VLSNR) operation for resilient links**
- **Efficient bandwidth utilization with adaptive MODCOD switching**

Enhanced Features

IP Features:

IPv4/IPv6, DHCP, NAT/PAT, DNS Caching, IGMPv2, VLANs, VRFs, RIPv2, BGP, Static Routes

QoS:

Per VSAT CIR, MIR, CBR, DiffServ and priority-based queueing

Embedded Application Acceleration & Protocol Optimization:

TCP Acceleration and Header Compression

Layer 2 Services

Standards-based Ethernet services (MEF frameworks)

Types of Services:

E-LINE EVC

Interface types:

UNI/ENNI (untagged, 802.1q, 802.1ad)

Security

- AES-256 link encryption
- TRANSEC support
- Secure boot and terminal authentication
- X.509 certificates and ACL firewall
- Designed for compliance with FIPS 140-3 Level 3 architectures (with Satellite Crypto Module)

Mobility

- beam, satellite, and orbit switching
- GEO, MEO, and LEO support
- OpenAMIP and OpenBMIP compliant
- Autonomous beam switching and Doppler compensation

Management Interface

- Secured Web-based local management, remote and local software upgrades, NMS remote management, SNMPv2/v3
- Compatible with SkyEdge IV Elastix TotalNMS

Transmit Port

RF Interface: N-Type**Frequency range:**

950 – 2450 MHz

Tx power:

0 to –30 dBm, 0.1 dB resolution with Automatic power control

Reference:

10 MHz, switchable

BUC Power:

24VDC, 72W, switchable

Receive Port

RF Interface: N-Type**Frequency range:**

950 – 2450 MHz

Reference:

10MHz, switchable

LNB Power:

24VDC, switchable

DiSEqC Support:

13/18 VDC, 22KHz

10 Mhz Reference

Internal reference:

MEMS-TCXO

Frequency accuracy:

up to 1 PPM including accuracy, temperature, and 10 years aging

Modem Interfaces

Digital RF 10Gbps interface

4xEthernet 10/100/1000 Base-T

Power:

Operating voltage:

100 to 240VAC, 50/60Hz,

Power:

50W

Environmental and Standards

Operating temperature:

–20 °C to +50 °C

Storage temperature:

–40 °C to +85 °C

Certifications:

CE, FCC, EMC

Mechanical

Dimensions:

1.75 H x 19 W x 17.5 D in

(4.4 x 48 x 44 cm), 1 RU