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 8, 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 80Mbps 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.

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Technical Specifications

Waveforms
SCPC Channel

Adaptive Spreading, Code, and Modulation - ASCM

Data rates:
32 Kb/s - 200 Mb/s
Baud rates:
128 Ks/s - 100 Ms/s, step=1Ks/s
Modulations:
BPSK, QPSK, 8PSK, 16QAM,
Spectral shaping:
roll-off=0.05, 0.1, 0.2
Spread Spectrum:
spreading factor 1-24
SNR support:
-18 to +13 dB Coding: 27 LDPC codes
Supported rates:
1/4, 1/3, 2/5, 1/2, 2/3, 3/4, 5/6, 8/9

DVB-S2X

Carrier Rate:
5 Msps-250 Msps
Roll-off:
0.05, 0.10, 0.2 MODCODs: BPSK-S 1/5 — 256APSK ¾ (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) — 250Msps
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 ¾ (seamless MODCOD switching)
SNR range:
-9.5 dB to +21 dB FEC: LDPC, BCH

Enhanced Features

IP Features:
IPv4/IPv6, DHCP, NT/PAT, DNS Cashing, IGMPv2, VLANs, VRFs, RIPv2, BGP, Static Routes
QoS:
Per VSAT and Per Managed Group CIR, MIR, CBR, DiffServ and priority-based queueing
Embedded Application Acceleration & Protocol Optimization:
TCP Acceleration, GTP Acceleration, Header Compression

Layer 2 Services

Utilizing MEF based standards
Types of Services:
E-LINE ACCESS, E-LINE TRANSIT (Based on MEF 51.1)
Interface types:
UNI/ENNI (untagged, 802.1q, 802.1ad)
Operation & Maintenance
End-to End OAM Transparent forwarding OVC Management — based on MEF 7.3, MEF 60 and TMF640

Security

AES-256 bit link encryption, ACL Firewall, X.509, Terminal Authentication

Transmit Port

Frequency range:
950 - 2150 MHz
Tx power:
0 to -30 dBm, 0.1 dB resolution
Automatic uplink power control Reference:
10 MHz, switchable
BUC Power:
24VDC, 72W, switchable

Receive Port

Frequency range:
950 - 2150 MHz
Reference:
10MHz, switchable
LNB Power:
13/18, 24VDC, switchable

10 Mhz Reference

Internal reference:
MEMS-TCXO
Frequency accuracy:
up to 1 PPM including accuracy, temperature, and 10 years aging

Mobility

Seamless Beam/Satellite/Orbit switching, OpenAMIP, OpenBMIP

Management Interface

Secured Web-based local management, remote and local software upgrades, NMS remote management, SNMPV3

Modem Interfaces

DIFI 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

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