

The U7920 is a carrier-grade satellite modem engineered for seamless operation across hybrid GEO, MEO, and LEO satellite networks. Integrated with the ESTELLA VSAT platform, it delivers secure, resilient, and high-performance IP connectivity for High Throughput Satellite (HTS) and next-generation NGSO broadband services

Fully compliant with the DVB-S2X (ETSI EN 302 307-2) and DVB-RCS2 (ETSI EN 301 545-2) open standards, the U7920 modem incorporates SpaceBridge's innovative WaveSwitch™ technology, enabling error-free dynamic switching between TDMA and SCPC return-link waveforms to maximize spectral efficiency and optimize network performance under varying traffic conditions. With support for both Layer 2 and Layer 3 networking, the U7920 provides exceptional deployment flexibility for a wide range of mission-critical and commercial applications, including broadband Internet access, IoT connectivity, homeland security, defense, Enterprise and government communications

The U7920 is a high-performance professional satellite modem/router designed to deliver reliable broadband connectivity at cost-effective price. Supports X.509 certificate-based authentication with optional IPSec encryption up to AES-256, and self-contained Layer 2/Layer 3 redundancy with redundant power supply, requiring no external equipment. With industry-standard OpenAMIP protocol, the U7920 seamlessly integrates with stabilized maritime and mobility antenna systems. Combined with SpaceBridge's advanced multi-beam mobility and beam-switching technology, compliant with DVB-RCS2 Annex M, the U7920 enables seamless satellite beam transitions while maintaining uninterrupted service. The result is a highly efficient, robust, and secure broadband communications solution for maritime, land-mobile, and other mobility applications operating across HTS and multi-orbit satellite networks.

Key Features & Benefits

- Up to 300 Mbps forward-link with TSN and 40 Mbps return-link IP throughput for high-performance broadband, enterprise, government, and defense communications.
- Highest spectral efficiency through highly granular MODCOD selection, Adaptive Coding and Modulation (ACM), and ultra-low roll-off factors.
- SpaceBridge WaveSwitch™ technology with Dynamic Rate/Waveform Assignment (DRA), automatically generating the optimum return-link waveform every 26.5 ms to match real-time traffic demand using either 3D-TDMA or dynamic SCPC.
- Hitless (error-free) dynamic switching between 3D-FTDMA and dynamic SCPC services every 26.5 ms while continuously optimizing carrier bandwidth, MODCOD, and burst size to maximize spectral efficiency and minimize satellite bandwidth and power consumption.
- Integrated Layer 2 and Layer 3 IP networking, providing deployment flexibility for routed and bridged satellite networks.
- Advanced Quality of Service (QoS) and IP traffic optimization, ensuring efficient bandwidth utilization and an enhanced user experience for latency-sensitive and mission-critical applications.
- OpenAMIP compliant, enabling seamless interoperability with stabilized maritime and land-mobile antenna systems from leading manufacturers. DVB-RCS2 Annex M mobility support with automatic beam acquisition and seamless beam switching for uninterrupted connectivity across HTS and multi-orbit satellite networks.
- Optional: IPSec encryption up to AES256
- Compatible with most commercial off-the-shelf (COTS) L-band BUCs, LNBs, and integrated transceivers, simplifying deployment and reducing system integration costs.
- Designed for seamless operation across GEO, MEO, and LEO satellite constellations, supporting fixed, maritime, land-mobile, enterprise, government, and defense applications.

FORWARD LINK (Rx)

Frequency Range	950-2450 MHz
Instantaneous RX Bandwidth	Up to 500 MHz contiguous bandwidth
Waveforms	DVB-S2/S2X: QPSK to 256 APSK, all Code Rates
FEC	LDPC/BCH, Short and Normal Frames
RX BW	Up to 500 MHz instantaneous, contiguous
Symbol Rate	From 100 ksps to 476 Msps
Data Rate	Up to 300 Mbps peak IP throughput using Time Slicing
Encapsulation Modes	GSE and GSE-Lite (Optional for DVB-NIP)
Link Variation Mitigation	Adaptive Coding Modulation and AULPC
Channel Roll-off/ Spacing	5%, 10%, 15%, 20%, 35%
Terminal IF RX Interface	F-type 75 Ohm, satellite/band independent, LNB power OFF/13VDC/18VDC, DiSeqC: 22KHz tone ON/OFF

RETURN LINK DVB-RCS2 MF-TDMA (Tx)

Waveform Technology	DVB-RCS2, all MODCOD
FEC	16-State (2D)-TurboPhi
MODCOD	QPSK, 8PSK, 16QAM, all Coding Rates
Optional MODCOD	a) SS-BPSK, BPSK and b) 32QAM/64QAM
Synchronization	NCR/PCR sync integrated
Encapsulation Modes	RLE Encapsulation
Symbol Rate	From 156 Ksps to 25 Msps
Data Rate	Up to 40 Mbps
Channel Roll-off/ Spacing	5%, 10%, 15% and 20%
Link Variation Mitigation	Built-in Uplink Power Control (ULPC) Adaptive return carrier sizing every 26.5ms
Dynamic Rate Assignment (DRA)	Adaptive block size and MODCOD per timeslot/per carrier, every 26.5 ms
Tx Power Level	-30 dBm to 0 dBm
Terminal IFL TX Interface	F-type(F)75 Ohm, 950 to 2450 MHz satellite band independent; BUC timing reference On/OFF; selectable 10MHz or 50MHz reference; BUC Power – On/OFF, 24VDC

RETURN LINK WaveSwitch™ (Tx)

WaveSwitch™	- SpaceBridge high efficiency proprietary BM-FDMA to provide equivalent to SCPC grade service, sizing carrier symbol rate every frame - WaveSwitch™ carrier size and MODCOD selection every 26.5 ms - Hitless (error-free) switching from 3D-TDMA to dSCPC and back
Symbol Rate	From 156 Ksps to 25 Msps
Data Rate	Up to 50 Mbps

QOS, PEP AND SECURITY

QoS	Up to 8 flows QoS, based on ToS/DSCP, IP addresses, protocol and ports
Application Optimization	SpaceBridge proprietary L3 Performance Enhancement Protocol (PEP), compresses streams and significantly reduces return link TCP ACK (improves return link utilization and saves up to 50% return link ACK related bandwidth)
Authentication	X.509 certificate-based authentication, EAP-TLS 1.3
Security	Optional: IPSec encryption up to AES256
Transport Security	HTTPS, SSH v2
User Authentication	RADIUS authentication
TRANSEC	Optional over-the-air traffic obfuscation to reduce the probability of interception and traffic analysis

TRAFFIC PORTS AND PERFORMANCE

Interfaces	4xUser 10/100/1000BaseT auto-negotiated and 1 MGMT 1000BaseT Ethernet
Download speed	Up to 300 Mbps
Upload Speed	Up to 40 Mbps (RCS2), 50 Mbps (dSCPC)
Packet Processing	50 kpps with full QoS and PEP enabled
Network Services	- Layer 2 VLAN and bridge support - Layer 3 NAT, DHCP server/relay, Access List, DNS
Supported Protocols	IPv4/IPv6, IGMP, 802.1q

ENVIRONMENTAL AND MECHANICAL

Dimensions (WxLxH)	17.125 x 12 x 1.73 inches (435 x 306.8 x 43.7 mm)
Weight	<7.5 lbs (3.4kg)
Power	25 W; 100W to BUC/LNB
Operating Temperature	-4°F to +122°F (-20°C to +50°C)
Relative Humidity (RH)	RH: 10% to 90%, non-condensing
Storage Conditions	-40° to +85°C (-40° to +185°F), RH: 5 - 95%, non-condensing
Operating Altitude Above Mean Sea Level (AMSL)	Up to 4,500 m (14,765 ft), with temperature derating with altitude of 5°C per 1,000 m (2.74°F per 1000 ft), maximum operating ambient temperature reduced by 5°C per 1,000 m of altitude

