

**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 NCSO 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 satellite modem/router designed to deliver reliable broadband connectivity with IP throughput of up to 300 Mbps on the forward link and 40 Mbps on the return link. Supporting the 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 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 TDMA 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.
- 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.

# U7920 – High-Performance 500 MHz DVB-2X/DVB-RCS2 Networking Satellite Modem/Router, optimized for GEO, MEO and LEO Satellites

## FORWARD LINK (Rx)

|                           |                                                                                                     |
|---------------------------|-----------------------------------------------------------------------------------------------------|
| Instantaneous Bandwidth   | up to 500 MHz of instantaneous contiguous bandwidth                                                 |
| Frequency Range           | 950-2450 MHz                                                                                        |
| Waveforms                 | DVB-S2/S2X: QPSK to 256 APSK, all Code Rates                                                        |
| FEC                       | LDPC/BCH, Short and Normal Frames                                                                   |
| Symbol Rate               | From 100 Ksps to 476 Msps                                                                           |
| Data Rate                 | Up to 300 Mbps                                                                                      |
| 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 (F), 75 Ohm, satellite/band independent, DiSEqC; LNB power OFF/13VDC/18VDC 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                                                                                                                  |
| Synchronization               | NCR/PCR lock sync integrated                                                                                                                         |
| Encapsulation Modes           | RLE Encapsulation                                                                                                                                    |
| Symbol Rate                   | From 156 Ksps to 25 Msps                                                                                                                             |
| Data Rate                     | From 266 bits/burst to 40 Mbps                                                                                                                       |
| Channel Roll-off/ Spacing     | 5%, 10%, 15%, 20%, 25%, 35%                                                                                                                          |
| 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, 950-2450 MHz satellite/band independent, BUC timing reference – ON/OFF selectable 10MHz or 50MHz reference BUC Power - OFF/24V DC |

## Return Link WaveSwitch™ (Tx)

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WaveSwitch™ | <ul style="list-style-type: none"> <li>• 3D-TDMA: Adaptive block size, MODCOD, Roll off and BUC TX power per timeslot/per carrier, every 26.5 ms frame</li> <li>• or dynamic SCPC. High efficiency proprietary BM-FDMA to provide equivalent to SCPC grade service, sizing carrier symbol rate, and MODCOD every frame (26.5 ms)</li> <li>• Hitless (error-free) switching from 3D-TDMA to dSCPC and back, or resizing dSCPC carriers</li> </ul> |
| Symbol Rate | From 156 Ksps to 25 Msps                                                                                                                                                                                                                                                                                                                                                                                                                         |

## QOS and PEP

|                          |                                                                                                                                                                                                                              |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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, SSHv2                                                                                                                                                                                                                 |
| 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                                                                                                                                   |
| Packet Processing   | 50 kpps with full QoS and PEP enabled                                                                                                           |
| Network Services    | <ul style="list-style-type: none"> <li>• Layer 2 VLAN and bridge support</li> <li>• Layer 3 NAT, DHCP server/relay, Access List, DNS</li> </ul> |
| Supported Protocols | <ul style="list-style-type: none"> <li>• IPv4/IPv6, IGMP, 802.1q</li> </ul>                                                                     |

## Environmental and Mechanical

|                                                 |                                                                                                                                                                                          |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dimensions (WxLxH)                              | 17.125 x 12 x 1.75 inches (435 x 306.8 x 44.4 mm)                                                                                                                                        |
| Weight                                          | <7.5 lbs (3.4kg)                                                                                                                                                                         |
| Power                                           | 40 W for modem; 100W to BUC/LNB                                                                                                                                                          |
| Operating Temperature                           | -4°F to 122°F (-20°C to +50°C)                                                                                                                                                           |
| Relative Humidity (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 |



U7920



All designs, specifications and availabilities of products and services presented in this bulletin are typical and subject to change without notice.

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