

Powerful VSAT satellite modem for advanced enterprise connectivity and cellular backhaul, with a focus on advanced L2 and L3 support targeting telecom service providers, ISPs, governments, and enterprises around the world

U7780 is a high performance L2/L3 networking satellite modem/router capable of supporting download speeds of 100Mbps download and upload up to 14.5Mbps. With integrated L2/L3 optimization, the U7780 is ideal solution for supporting VSAT connected cellular sites (supports cellular traffic header/payload compression and 4G/LTE/5G acceleration) and/or enterprise L2 networks (IP traffic within VLAN/L2 tunnels can be accelerated across satellite).

### Application and uses

- True broadband capabilities for L2 applications ranging from SMB office productivity to rural communities connectivity
- Enterprise and retail connectivity
- 2G, 3G, 4G and LTE/5G rural Cellular Backhaul links
- Critical communications satellite-as-backup links
- Peer-to-Peer Mesh connectivity (optional)

### Features and Benefits

- DVB-S2X Forward Link. Highest spectral efficiency via highly granular MODCODs, low roll off rates and Adaptive Coding and Modulation (ACM)
- DVB-RCS2 Return Link channels supporting: SS-BPSK/QPSK, BPSK, QPSK, 8PSK, 16/32/64QAM
- RL up to 5% roll-offs and channel spacing with ACM/DRA
- Powerful packet processing engine allowing robust multi-host/multi-user enterprise and cellular backhaul connectivity
- Traffic optimization (Performance Enhancement Proxy) and QoS, enhancing user experience and conserving satellite bandwidth
- Layer-3 / Layer-2 traffic and CBH optimization for easy integration with MNOs
- Cellular backhaul and enterprise traffic optimization - ideal for rural 2.5G/3G/4G
- Optional : Cellular traffic decryption/encryption



## Specifications Forward Link

Waveform Technology	DVB-S2/S2X ACM, QPSK to 256APSK, all coding and roll off rates
Encapsulation Modes	MPE and/or GSE Encapsulation
Symbol Rate	From 128Ksps to 125Msps, optional 250Msps or 500Msps
Channel Roll-off and Spacing	5%, 10%, 15%, 20%, 25%, 30%, 35%
Terminal IF RX Interface	F-type 75 Ohm, 950~2150MHz satellite/band independent, off/13/18VDC off/22KHz selectable matching COTS ODU and wideband LNBS

## Return Link

Waveform Technology	MF-TDMA (combined free and demand-assigned multiple access) with ACM, SS-BPSK, SS-QPSK, BPSK, QPSK, 8PSK, 16/32/64QAM, efficiency 92 to 94%, depends on block sizes WaveSwitch: dynamic SCPC, efficiency 99.5% SS-B/QPSK, BPSK, QPSK, 8PSK, 16/32/64QAM SCPC: permanent SCPC, efficiency 99.9% DVB-S2/S2X ACM, QPSK to 256APSK
Encapsulation Modes	RLE or MPE ATM1/2/4 for MPEG MF-TDMA; RLE for WaveSwitch; GSE for permanent SCPC
Symbol Rate	From 128Ksps to 12Msps for MF-TDMA and WaveSwitch; 256ksps to 50Msps for SCPC
Data Rate	MF-TDMA up to 40Mbps; WaveSwitch up to 50Mbps; SCPC up to 100Mbps
Channel Roll-off and Spacing	5%, 10%, 15%, 20%, 25%, 30%, 35%
Link Variation Mitigation	Terminal built-in Uplink Power Control (ULPC) and Return Link ACM/DRA supporting Ka, Ku and C-band
Tx Power	-30dBm to 0dBm
Terminal IFL TX Interface	F-type 75 Ohm, 950MHz to 2400MHz, satellite /band independent, off/10MHz/50MHz reference, off/24VDC selectable, matching COTS ODU. Provides up to 100W power to the BUC (i.e. 24VDC, 4A)

## Traffic ports and performance

Interfaces	User ports: 4x1000BaseT Ethernet and one SFP for Optical connectivity MGMT ports: 1x1000BaseT Ethernet
Download speed	Up to 120Mbps
Upload Speed	Up to 50 Mbps in TDMA/WaveSwitch mode, up to 200Mbps in SCPC mode
Packet Processing	100kpps with full QoS and PEP enabled
Network Services	Support Layer-2 and layer-3 traffic modes at same time Layer 2 VLAN and bridging Layer 3 NAT, DHCP server/relay, IP Routing

## Traffic Enhancement and QoS and PEP

QoS	Up to 256 flows QoS, based on TOS/DSCP, IP addresses, protocol and ports
Application Optimization	<ul style="list-style-type: none"> <li>Advanced Layer 2/Layer 3 header compression and small packet coalescing to reduce 2G/3G overhead</li> <li>4G/5G header compression to reduce overhead of cascaded IP addresses</li> <li>Acceleration of 4G/5G GTP tunnel to maximize performance and mitigate effect of satellite delay on throughput</li> </ul>
Multimedia	Programmable VoIP, video-over-IP /video-conferencing detection and guaranteed QoS behavior due to C2P protocol
Security	Optional: Encryption up to AES256
CBH Optimization (Xiplink)	Tx License: 1/6/15Mbps
COTM/COTP	Open AMIP

## U7780 Mesh

Waveform Technology	SCPC (WaveSwitch): BPSK, QPSK, 8PSK, 16/32QAM,
Encapsulation Modes	GSE or MPE Encapsulation
Symbol Rate	From 128Ksps to 12Msps
Date Rate	Up to 40Mbps
Roll off and Spacing	5%, 10%, 15%, 20%, 25%, 30%, 35%
Tx/RX Frequencies	950-2400MHz
Number of Carriers	1 to 8

## Environmental and Mechanical

Form factor	Indoor 1U rack mount
Dimensions (WxHxD)	17.125 x 1.75 (1 RU) x 10.7 inches 435 x 45 x 272 mm
Weight	7.5 lbs (3.4kg)
Power	<ul style="list-style-type: none"> <li>24VDC input: Dual fuse protection supporting 30W to U7780 modem and LNB and up to 100W to the BUC.</li> <li>Option: DIN Rail mounted 100-240VAC to 24VDC 120W/240W power supply</li> <li>Option: DIN Rail mounted 48VDC to 24VDC 120W/240W power supply</li> <li>Stand-by – Economy energy</li> </ul>
Operating Conditions	-4°F to 140°F (0°C to 60°C) 10% to 90% humidity, non-condensing
Certifications	CE, FCC, ROHS