TDM/TDMA VSAT HUB

UHP-8000 SATELLITE ROUTER

| SCPC | **TDM/TDMA** | Hubless TDMA |

VSAT NETWORK

UHP broadband VSAT networks provide a variety of modern telecommunications services to different customer groups - small and large businesses, governmental and individual users. Satellite network ensures global coverage and its services are available virtually everywhere.

It is the fastest and most efficient way to connect a number of remote users into a single global network with service quality comparable or exceeding performance of terrestrial infrastructure in large cities.

UHP network uses efficient TDM/TDMA bandwidth on-demand multiple access to a satellite capacity. The typical UHP network consists of one Hub and number of associated remote terminals. UHP terminals may operate in hub-and-spoke (star) topology or in mesh mode, when terminals are connected via a single satellite hop bypassing the Hub. UHP terminals require no local management and are fully managed by the Hub.

- TDM/TDMA technology with on-demand dynamic bandwidth allocation

- Support of any topologies: "hub and spoke", "multilevel tree", "mesh"

- True High Throughput System with up to 86 Mbps in forward channel and up to 6.5 Mbps in return channels

- Cost-efficient scalability with up to 254 TDMA return channels and 500 000 terminals per network

- DVB-S2 ACM VSAT technology with bandwidth-efficient LDPC coding in TDMA channel

- Innovative MF-TDMA protocol with proven efficiency of 96% in comparison with SCPC channels

- Ultra-low latency VSAT system with round-trip delay about 570 ms for TDMA mode of operations

- Support of VLAN, multi-level QoS, codec-independent handling of real-time traffic, TCP Acceleration

- Built-in adaptive hierarchic traffic shaper specially designed for VSAT applications

- Web-based Network Management System allows to operate the network from everywhere

- Fast network startup — network is ready for use in less than a minute upon power-up

- Compatible with majority of C, Ku and Ka-band RF systems, supplies power and reference signals

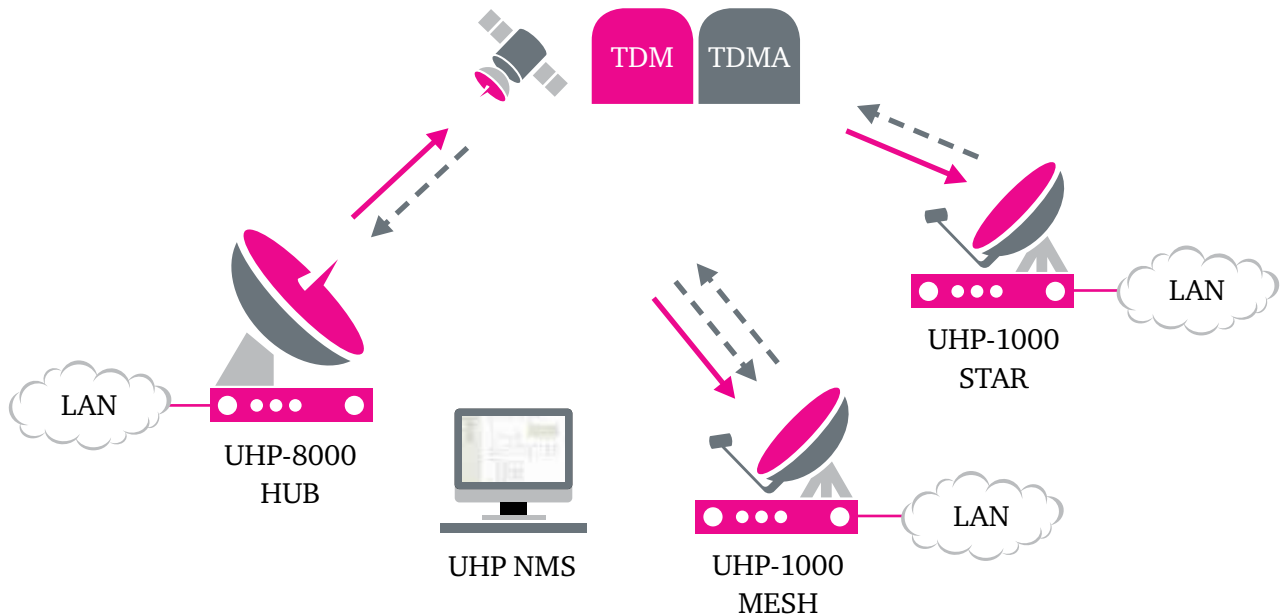- Upgradable by just a software key to support other modes of operations: SCPC, Hubless TDMA

UHP TDM/TDMA HUB

The Hub consists of one or more UHP-8000 satellite routers. In its basic configuration, it has a single UHP-8000 router which transmits one outbound TDM carrier towards all the remote terminals and receives two inbound TDMA carriers shared between all the remotes. Additional satellite routers are required in order to support more inbound carriers and/or to create redundant configurations in the Hub. TDM/TDMA Mesh feature allows single-hop connectivity between the remotes via the TDMA carrier also used in the inbound. The Hub is typically installed in one or more 19" rack mounted chassis.

The outbound TDM channel makes use of the most efficient modulation and coding technologies based on DVB-S2 ACM (or DVB-S) industry standard. The design of the outbound channel, in combination with an innovative, bandwidth-saving MF-TDMA protocol and LDPC FEC coding in the inbound channel, ensures industry-lowest operating costs and delivery of highest-quality services. UHP technology has unparalleled versatility and minimizes both CAPEX and OPEX, thus guaranteeing the lowest total cost of ownership for satellite networks of any configuration.

Typical Network Diagram of UHP TDM/TDMA Network

TDM   TDMA

UHP-1000
STAR

LAN

UHP-8000
HUB

LAN

UHP NMS

UHP-1000
MESH

LAN

UHP-8000 TDM/TDMA HUB SPECIFICATIONS

NETWORK			
Mode of operation	TDM/TDMA, TDM/TDMA Mesh		
Number of channels	Up to 254 return (TDMA) channels per one forward (TDM) channel		
Number of remotes	Up to 500'000 terminals per network (2040 per return channel)		
TDM CHANNEL			
Data Rate	From 250 kbps (250kSps @ QPSK 1/2) up to 86 Mbps (32MSps @ 8PSK 9/10)		
Modulation / Coding	DVB-S (QPSK, Viterbi+RS); 1/2, 2/3, 3/4, 5/6, 7/8; DVB-S2 ACM (QPSK); 1/3; 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10; DVB-S2 ACM (8PSK); 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 DVB-S2 ACM (16APSK); 2/3, 3/4, 4/5, 5/6, 8/9, 9/10		
QoS	3-level prioritization, traffic policies, CIR, hierarchic 680-channel traffic shaper, FAP		
TDMA CHANNEL			
Data Rate	From 133 kbps (100 ksps @ QPSK 2/3) up to 6,5 Mbps (4 Msps @ QPSK 5/6)		
Modulation / Coding	QPSK, LDPC		
Demodulator Performance, BER <10^{-7}	FEC	2/3	5/6
	C/N	5.4	6.9
QoS	3-level prioritization, traffic policies, CIR, Group CIR, hierarchic 680-channel traffic shaper		
ROUTER			
Performance	Up to 60'000 pps		
Support	DSCP, end-to-end VLAN, RIP, L2 Bridging, CRTP, DHCP, IGMP, proxy ARP, TCP Acceleration		
Management	HTTP user interface, Network Management System, SNMP, Telnet, Service Monitoring		
INTERFACES			
IF Rx	950-2050 MHz (LNB DC – 13.5V/18V 0.75A)		
IF Tx	950-1750 MHz, –30…- 5 dBm, (LO 10 MHz / +5 dBm, BUC DC – 24V / 2A)		
ORDER CODE / MODIFICATIONS			
UHP-8R4-HUB	UHP-8000 TDM/TDMA HUB, 1 TDM channel, 4 MF TDMA channels, Basic NMS		
UHP-8R4-HUBR	UHP-8000 TDM/TDMA Redundant HUB, 2 TDM channels, 4 MF TDMA channels, VNO NMS		