AYECKA
Communication Systems Ltd.

ST1 - Satellite Transmitter
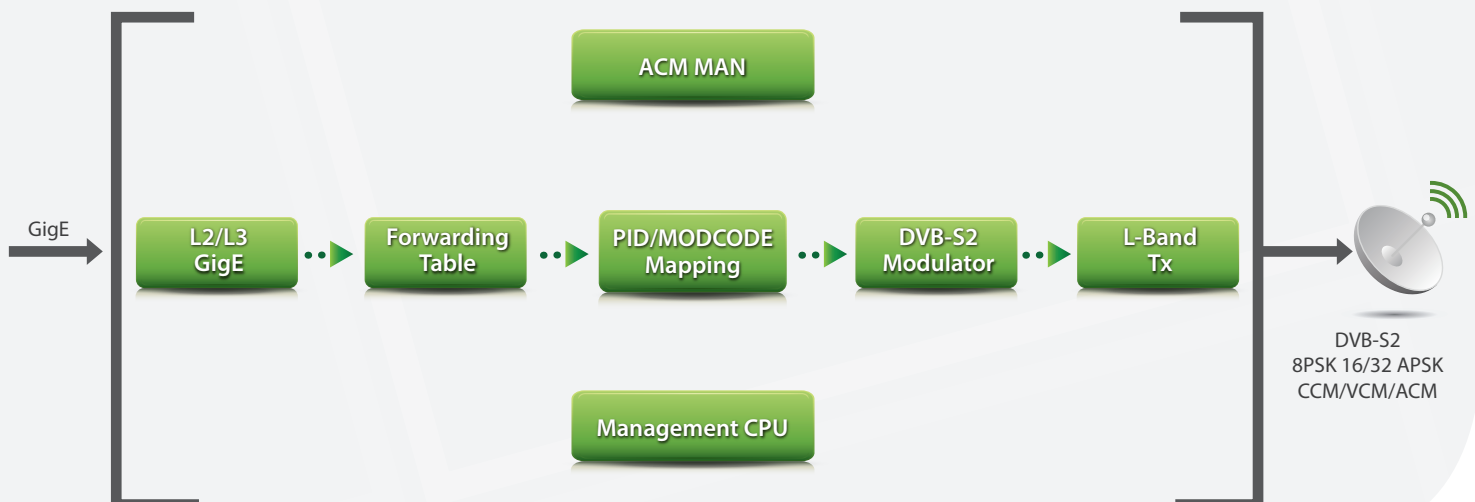## IP over DVB-S2 with GigE interfaces

ST1 , IP over satellite transmitter with full support of DVB-S2, gives service provider a powerful tool to optimize their business. The ST1 support of advanced modulation modes at 16 and 32 APSK ST1 delivers more performance at lower cost and significantly reduces long-term operating costs. Leading the market with its price performance, the ST1 enables new business models and revenue sources.

ST1 Product Highlights

- Cost effective solution for IP over DVB-S2 transmission
- Full support of DVB-S2
  - VCM and ACM (Internal ACM manager(*))
  - MODCOD: QPSK ¼ to 16 and 32 APSK 9/10
- Normal and Short frames
- Up to 45Msps / over 150Mbps output
- Support MPE and GS(*)
- Hardware implementation provide extremely low jitter due to encapsulation
- L3 Bridge / L3 Router / L2 Bridge - LAN interface
- Flexible network interfaces
- Support VLAN and MPLS tagging(*)
- Local IP interface for management.

ST1 Block Diagram

GigE → L2/L3 GigE ··· Forwarding Table ··· PID/MODCODE Mapping ··· DVB-S2 Modulator ··· L-Band Tx

ACM MAN

Management CPU

DVB-S2
8PSK 16/32 APSK
CCM/VCM/ACM

ST1

Enhanced Features

Focus on Transmission – ST1's unique architecture focuses on satellite transmission of IP over DVB-S2, leaving data routing to external routers. ST1 provides complete implementation of the DVB-S2 modulator (including ACM, VCM, multistream* and more)

Adaptive/Variable Code Modulation – IP satellite providers can provide real-time and flexible power and modulation schemes and packet density to pre-defined customer groups at various locations instead of addressing the lowest common denominator.

Support for ACM - Implementation of ACM in compliant with ETSI TS102 441 and Open ACM recommendations.

Wire-speed – ST1 handles traffic from the network to the satellite via dedicated hardware, supporting payload rates of up to 160 Mbps and eliminating the bottleneck caused by CPU processing.

GigE - Provides gigabit Ethernet as a standard interface.

Highly Efficient Hardware – ST1 is a highly specialized hardware platform for delivery of IP over DVB-S2 channels. Thehardware based implementation offers exceptional stability an performance.

Generic Stream – ST1 supports the new generic stream IP over DVB-S2 encapsulation, offering superior performance for IP over satellite delivery as compared to the multiprotocol encapsulation (MPE) *

Easy Integration – Provides IP and video over DVB-S2 transmission across most network architectures.

Channel Encryption – To ensure the highest levels of service security, ST1 supports BISS encryption using local or Internet-based key management. Channel encryption is available as an option *

Flexible Management interfaces - Provides an independent 100baseT management interface supporting CLI, Telnet and SNMP.

Highly Competitive Pricing – Ayecka's ST1 offers advanced technology at more than 50% less than other similar devices on the market

Applications

ST1 provide cost effective way to deliver IP traffc over satellite link. Combined with Ayecka SR1, Ayecka ST1 offers complete solution for SCPC IP over satellite links.
ST1 small form factor allows a smooth integration into "On the Move" systems.

Main Applications

- SCPC IP connectivity over satellite (in combination with SR1)
- IPTV over satellite broadcasting
- HD surveillance video delivery over satellite
- Cellular andWireless local loop backhauling
- Terrestrial DVB-S2 - MVDDS

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DVB-S2 Modulator

Standard	Fully compliant with ETSI EN 302 307
DVB-S2 Modes	Support for CCM, VCM and ACM modes
Modulation	QPSK, 8PSK, 16APSK, 32APSK
Channel Rate	up to 165 Mbps
Roll-off factors	0.05,0.1,0.15,0.2, 0.25, 0.35
Coding	LDPC and BCH as for DVB-S requirements
Code Rates	¼, ½, 3/5, 2/3, ¾, 4/5, 5/6, 8/9, 9/10
Framing	Short and normal frames
DVB-S2 Pilot	On / Off
Output Freq	950 - 2150MHz
Signal Level	-5 to -40 dBm 0.1db steps
Symbol Rates	100Ksps to 45Msps 1Ksps steps
RF connector	Type F, 75 Ohms / SMA 50 Ohms
Output Spectrum	< 55dBc/4kHz, modulated carrier Excludes spectral mask area
Phase Noise	Better than IESS-316
Reference clock	10Mhz Internal, stability ± 0.28 ppm
Return loss	> 10 dB
Output off	better then 50db
Flatness	+/- 0.5 dB over any 36MHz band +/- 2dB over the full band

IP encapsulation

MPE	According to ETSI 301 192
GSE	Based on ETSI TS 102 606 and ETSI TS 102 771(*)
Encap. Table	256 entries

Traffic Interface

Interface	10/100/1000 BaseT
Network Interface	L3 / L2*

ACM Manager *

Comm. Link	UDP/IP, channel agnostic
Signaling	based on ETSI TS 102 441 And Open ACM recommendations

Control & Monitor

Serial port	Serial over USB CLI
IP	CLI and SNMP
Upgrade	SW and FW field upgradeable

Standard Compliance

Safety	CE or equivalent
EMI/EMC	FCC part 15, Class A

Physical Characteristics

Dimensions	Rack mount - 1U 19". 20cm deep.
Power	12V (without BUC power)
BUC Power	24V/8A
Weight	0.5 Kg

Environmental Conditions

Operating Temp.	0° to 50° C.
Storage Temp.	-25° to +85° C
Humidity:	5% to 95% non-condensing