PRODUCT BRIEF

AYECKA
SATELLITE TECHNOLOGIES

SM-1 PROX

New Generation DVB-S2X Modem

The SM1ProX is our newest generation DVB-S2X standard-compliant modem, which boasts a roll off factor as low as 5% on both receive and transmit interfaces. This advanced modem implements MODCODs (Modulation and Coding schemes) with up to 256 APSK (Amplitude Phase Shift Keying) modulation. Supports both BUC (Block Up-Conversion) and LNB (Low Noise Block down-conversion), as well as options of 10 MHz in/out, and features a Gigabit Ethernet switch for easy integration with any customer network.

The SM1ProX is ideal for point-to-point connectivity, incorporating AYECKA's powerful HPP (Hardware Packet Processing) engine to deliver throughput as high as 220 Mbps transmit and 320Mbps receive. It covers a broad range of symbol rates – from 100 Ksps to 60 Msps in the transmit and 460Msps in the receive. The unit supports pause frame for backpressure allowing easy integration for cellular backhauling and a like.

PRODUCT HIGHLIGHTS

- ✓ High speed satellite DVBS2X L-Band Modem
- ✓ Provides up to 320Mbps sustainable throughput.
- ✓ High speed data interfaces, L-band RF, BUC and LNB support.
- ✓ Supports L2 networking and pause frames.

MAIN APPLICATIONS

Data trunking	Mesh and star networks	Hub equipment
Data broadcast	HD surveillance video delivery	Cellular backhauling

SPECIFICATIONS

DVB-S2X MODULATOR

Standard	Fully compliant with ETSi EN 302 307
DVB-S2 Modes	CCM, VCM and ACM modes
Modulation	QPSK, 8PSK, 16APSK, 32APSK, 64APSK, 128APSK, 256APSK
Symbol rates	100Ksps to 60Msps
Throughput	Up to 220Mbps
Roll off factors	0.05,0.1,0.15,0.2,0.25,0.35
Coding	LDPC and BCH according to DVBS2
Code rates	¼, 1/3, 3/5, 2/3, ¾, 4/5, 5/6, 8/9, 9/10 and additional rates of S2X, refer to detailed table
Framing	Short and Normal
DVBS2 Pilots	On / Off
Frequency range	950 – 2150 MHz
Signal level	0 to -40 dBm
RF connector	Type F, 75Ohm
Spurious level	<-55dBc/4KHz
Phase Noise	Better than IESS-316
Reference Clock	10MHz internal, stability ± 1ppm
External Clock	By configuration
Return loss	>10dB
TX power off	>50dB
Flatness	± 0.5dB over any 36MHz band ± 2dB over the full band

IP ENCAPSULATION / DECAPSULATION

GSE	Based on ETSI TS 102 606
VLAN filtering	On Tx direction

TRAFFIC INTERFACE

Interface	10/100/1000 BaseT
Network	L2

CONTROL & MONITOR

Serial port	Serial over USB CLI
IP	API to be provided by request
Upgrade	SW and FW field upgradeable

DVB-S2X DEMODULATOR

Standard	Fully compliant with ETSi EN 302 307
DVB-S2 Modes	CCM, VCM and ACM modes
Modulation	QPSK, 8PSK, 16APSK, 32APSK, 64APSK, 128APSK, 256APSK
Symbol rates	100Ksps to 460Msps
Throughput	Up to 324Mbps
Roll off factors	0.05,0.1,0.15,0.2,0.25,0.35
Coding	LDPC and BCH according to DVBS2
Code rates	¼, 1/3, 3/5, 2/3, ¾, 4/5, 5/6, 8/9, 9/10 and additional rates of S2X, refer to detailed table
Framing	Short and Normal
DVBS2 Pilots	On / Off
Frequency range	950 – 2150 MHz
Signal Sensitivity	-158 +10log10 (Symbol rate) +Es/No
Max input signal	0dBm
RF connector	Type F, 75Ohm
Return loss	>10dB

STANDARDS COMPLIANCE

Safety	CE
EMI/EMC	FCC part 15, Class A
Upgrade	SW and FW field upgradeable

PHYSICAL CHARACTERISTICS

Dimensions (Excl. connectors)	Small form factor 20x16x4.3 cm
Power	24VDC, 12W
BUC power	24V/4.5A
LNB Power	13/18V / 0.5A
Weight	1Kg

ENVIRONMENTAL CONDITIONS

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

Supported MODCODS

DVB-S2 MODCODES

#	Mode	#	Mode	#	Mode	#	Mode
1	QPSK 1/4	9	QPSK 5/6	17	8PSK 9/10	25	32APSK 4/5
2	QPSK 1/3	10	QPSK 8/9	18	16APSK 2/3	26	32APSK 5/6
3	QPSK 2/5	11	QPSK 9/10	19	16APSK 3/4	27	32APSK 8/9
4	QPSK 1/2	12	8PSK 3/5	20	16APSK 4/5	28	32APSK 9/10
5	QPSK 3/5	13	8PSK 2/3	21	16APSK 5/6	29	Reserved
6	QPSK 2/3	14	8PSK 3/4	22	16APSK 8/9	30	Reserved
7	QPSK 3/4	15	8PSK 5/6	23	16APSK 9/10	31	Reserved
8	QPSK 4/5	16	8PSK 8/9	24	32APSK 3/4		

DVB-S2 MODCODES

PLS Code	Modulation	Code Rate	Frame Length	PLS Code	Modulation	Code Rate	Code Rate
132	QPSK	13\45	Normal	194	64APSK	4\5	Normal
134	QPSK	9\20	Normal	198	64APSK	5\6	Normal
136	QPSK	11\20	Normal	200	128APSK*	3\4	Normal
138	8APSK	5\9-L	Normal	202	128APSK*	7\9	Normal
140	8APSK	26\45-L	Normal	204	256APSK*	29\45-L	Normal
142	8PSK	23\36	Normal	206	256APSK*	2\3-L	Normal
144	8PSK	25\36	Normal	208	256APSK*	31\45-L	Normal
146	8PSK	13\18	Normal	210	256APSK*	32\45	Normal
148	16APSK	1\2-L	Normal	212	256APSK*	11\15-L	Normal
150	16APSK	8\15-L	Normal	214	256APSK*	3\4	Normal
152	16APSK	5\9-L	Normal	216	QPSK	11\45	Short
154	16APSK	26\45	Normal	218	QPSK	4\15	Short
156	16APSK	3\5	Normal	220	QPSK	14\45	Short
158	16APSK	3\5-L	Normal	222	QPSK	7\15	Short
160	16APSK	28\45	Normal	224	QPSK	8\15	Short
162	16APSK	23\36	Normal	226	QPSK	32\45	Short
164	16APSK	2\3-L	Normal	228	8PSK	7\15	Short
166	16APSK	25\36	Normal	230	8PSK	8\15	Short
168	16APSK	13\18	Normal	232	8PSK	26\45	Short
170	16APSK	7\9	Normal	234	8PSK	32\45	Short
172	16APSK	77\90	Normal	236	16APSK	7\15	Short
174	32APSK	2\3-L	Normal	238	16APSK	8\15	Short
178	32APSK	32\45	Normal	240	16APSK	26\45	Short
180	32APSK	11\15	Normal	242	16APSK	3\5	Short
182	32APSK	7\9	Normal	244	16APSK	32\45	Short
184	64APSK	32\45-L	Normal	246	32APSK	2\3	Short
186	64APSK	11\15	Normal	248	32APSK	32\45	Short
190	64APSK	7\9	Normal				