Aviat
NETWORKS

Aprisa XE

POINT-TO-POINT DIGITAL MICROWAVE LINKS

700 MHz licensed band

DATASHEET [FCC]

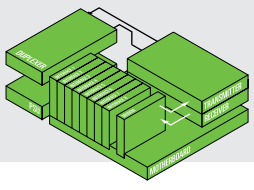
Aprisa XE: maximizing spectrum use and making challenging long distance links possible.

- **Efficient future-proof single-box architecture**: the Aprisa XE's built-in multiplexer and cross-connect eliminate external equipment and minimize the over-the-air requirements, with customer-configurable interface slots integrating all IP, voice and data traffic. Configuration, performance monitoring and diagnostics are easy with the Aviat embedded web-based element management system, SuperVisor.
- **High capacity**: class-leading spectral efficiency and up to 64 QAM modulation make the maximum use of the available spectrum, with industry leading capacity of up to 8632 kbit/s in a 1.75 MHz channel.
- **Long range**: a single 700 MHz Aprisa XE can link distances in excess of 120 miles, overcoming the problems of water, environmental conditions and topographical obstacles.
- **Carrier-class performance**: Aprisa XE links are engineered to achieve 'five 9s' availability, benefiting from state of the art forward error correction and inherent low latencies, for unrivaled quality of service.
- **Cost effective**: the Aprisa XE has a low total cost of ownership, providing a rapid return on investment by minimizing both capital and operational expenditure.
- **Redundancy options**: Monitored Hot Standby and Hitless Space Diversity are available for protection in mission-critical applications.
- **Reliable**: the Aprisa XE has an actual MTBF of 95.72 years. It can be relied upon to perform in the harshest and most remote environments.

In Brief

- Licensed 700 MHz lower and upper block A frequency bands
- Built-in cross-connect and multiplexer
- Up to 8632 kbit/s capacity
- 100 kHz, 200 kHz, 500 kHz, 1.0 MHz and 1.75 MHz channel sizes
- QPSK to 64 QAM modulation
- Range of 120+ miles
- Industry-leading reliability
- Web server and SNMP management
- All voice, data and IP applications
- MHSB and HSD protection options

Future-proof single-box architecture



Specifications

RF	Band	Tuning Range	Synthesizer Step
Frequencies	Lower 700 MHz	698 – 746 MHz	12.5 kHz
	Upper Block A 700 MHz	757–758 & 787–788 MHz	12.5 kHz
Modulation Types	Software configurable: QPSK / 16 / 32 / 64 QAM		
Frequency Stability	Short term ± 1 ppm (environmental effects and power supply variations) Long term ± 2 ppm (aging of crystal oscillators ≈ over 5 years)		
Antenna Connection	N-type female 50 ohm		

Transmitter Power Output	LOWER 700 MHz	UPPER 700 MHz
QPSK	+21 to +35 dBm	+21 to +31 dBm
16 QAM	+17 to +31 dBm	+17 to +31 dBm
32 QAM	+16 to +30 dBm	+16 to +30 dBm
64 QAM	+15 to +29 dBm	+15 to +29 dBm

Receiver			
Maximum Input Level	–20 dBm		
Dynamic Range	58 to 87 dB at 10^{-6} BER		
C/I Radio	Co-Channel	QPSK	better than 16 dB
		16 QAM	better than 20 dB
		32 QAM	better than 23 dB
		64 QAM	better than 27 dB
	First adjacent channel		better than –5 dB
	Second adjacent channel		better than –30 dB

Duplexer (bandpass)	Passband	TX / RX Split	Tuning Range
E0	7.0 MHz	⩾ 30 MHz	698 – 806 MHz

Power Supply	
Input Range	115 / 230 VAC, 50 / 60 Hz ±12 VDC (10.5 – 18 VDC), ±24 VDC (20.5 – 30 VDC), ±48 VDC (40 – 60 VDC)
Power Consuption	53 – 180 W input power (dependent on interface cards fitted and transmitteroutput power level)

Interfaces	
Ethernet Ports	Integrated 4-port 10 / 100Base-T switch with port-based rate limiting, VLAN tagging and QoS Support
E1 / T1	Quad 120 ohm G.703 / G.704
Data	Quad V.24 asynchronous, synchronous and over sampling mode Single synchronous X.21 / V.35 / RS-449 / RS-530
Analogue	Dual 2-wire FXS / FXO (POTS); Quad 4-wire E&M

Auxiliary Interfaces	
Alarms	4 external alarm outputs, 2 external alarm inputs
Configuration	Embedded web server with SNMP
Management	Ethernet interface for SuperVisor and SNMP, V.24 setup port
RSSI	Front panel test point

Environmental	
Operating	+14° F to +122° F (–10° C to +50° C)
Storage	–4° F to +158° F (–20° C to +70° C)
Humidity	Maximum 95 % non-condensing

Mechanical	
Rack Mount	19" 2U high (internal duplexer)
Weight	23 lbs (10 kg) typical

Protected Options	
MHSB	≤ 4 dB splitter / cable loss, ≤1 dB TX relay / cable loss (system gain reduced by a maximum of 5 dB)
HSD	≤ 1 dB TX relay / cable loss, < 25 ms TX switching / hitless RX switching

Compliance	
Radio	FCC CFR 47 Part 27
EMI / EMC	FCC CFR 47 Part 15, EN 301 489-1, EN 301 489-4
Safety	EN/UL/IEC 62368-1, CB Certified, NRTL listed CSA 253147 applicable for AC, 48 VDC and 24 VDC product variants
Environmental	ETS 300 019-2-3 Class 3.2

System Performance

Upper Block A 700 MHz

100 kHz Channel	QPSK	16 QAM	32 QAM	64 QAM
Capacity[1] gross (TS + wayside)	168 (2 TS + 40) kbit/s	344 (5 TS + 24) kbit/s	432 (6 TS + 48) kbit/s	520 (8 TS + 8) kbit/s
Receiver Sensitivity[2]	–106 dBm	–100 dBm	–97 dBm	–94 dBm
System Gain [2]	137 dB	131 dB	127 dB	123 dB

200 kHz Channel	QPSK	16 QAM	32 QAM	64 QAM
Capacity[1] gross (TS + wayside)	336 (5 TS + 16) kbit/s	680 (10 TS + 40) kbit/s	840 (13 TS + 8) kbit/s	1024 (16 TS + 0) kbit/s
Receiver Sensitivity[2]	–102 dBm	–96 dBm	–93 dBm	–90 dBm
System Gain [2]	133 dB	127 dB	123 dB	119 dB

Lower 700 MHz

500 kHz Channel	QPSK	16 QAM	32 QAM	64 QAM
Capacity[1] gross (E1 + wayside)	792 (12 TS + 24) kbit/s	1592 (1 T1 + 8) kbit/s	1992 (1 TS + 408) kbit/s	2392 (1 T1 + 808) kbit/s
Receiver Sensitivity[2]	–99 dBm	–93 dBm	–90 dBm	–87 dBm
System Gain [2]	130 dB	124 dB	120 dB	116 dB

1.0 MHz Channel	QPSK	16 QAM	32 QAM	64 QAM
Capacity[1] gross (E1 + wayside)	1656 (1 T1 + 72) kbit/s	3320 (2 T1 + 152) kbit/s	4152 (2 T1 + 984) kbit/s	4984 (3 T1 + 232) kbit/s
Receiver Sensitivity[2]	–96 dBm	–90 dBm	–87 dBm	–84 dBm
System Gain [2]	131 dB	121 dB	117 dB	113 dB

1.75 MHz Channel	QPSK	16 QAM	32 QAM	64 QAM
Capacity[1] gross (E1 + wayside)	2872 (1 T1 + 1288) kbit/s	5752 (3 T1 + 1000) kbit/s	7192 (4 T1 + 856) kbit/s	8632 (5 T1 + 712) kbit/s
Receiver Sensitivity[2]	–94 dBm	–88 dBm	–85 dBm	–82 dBm
System Gain [2]	128 dB	119 dB	115 dB	111 dB

NOTES

[1] T1 capacities are specified as unframed. The management Ethernet capacity must be subtracted from the gross capacity (default 64 kbit/s).

[2] Performance specified at the antenna port for 10^{-6} BER. Figures for 10^{-3} BER are typically 1 dB better.

Disclaimer

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