

Aprisa LE

POINT-TO-POINT DIGITAL MICROWAVE ETHERNET LINK 2.0 GHz licensed band



2.0 GHz Aprisa LE: maximizing spectrum use and making challenging long distance links possible

- **Long range:** a single Aprisa LE can link distances in excess of 80 miles, overcoming the problems of water, environmental conditions and topographical obstacles.
- **Carrier-class performance:** Aprisa LE 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 LE has a low total cost of ownership, providing a rapid return on investment by minimizing both capital and operational expenditure.
- **Maximum 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 2392 kbit/s in a 500 kHz channel.
- **Redundancy options:** monitored hot standby and hitless space diversity are available for protection.
- **Easy-to-manage:** configuration, performance monitoring and diagnostics are easy with the 4RF embedded web-based element management system, SuperVisor.

The Aprisa LE in brief

- Licensed 2.0 GHz frequency band
- Up to 2392 kbit/s Ethernet capacity
- 500 kHz channel size
- QPSK to 64 QAM modulation
- Range of 80+ miles
- Web server and SNMP management
- MHSB and HSD protection option



SYSTEM SPECIFICATION

RF	BAND	TUNING RANGE	SYNTHESIZER STEP SIZE
FREQUENCIES	2000 MHz	1900 – 2300 MHz	62.5 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 OUTPUT POWER			
QPSK	+20 dBm to +34 dBm		
16 QAM	+17 dBm to +31 dBm		
32 QAM	+16 dBm to +30 dBm		
64 QAM	+15 dBm to +29 dBm		
RECEIVER			
MAXIMUM INPUT LEVEL	-20 dBm		
DYNAMIC RANGE	58 to 87 dB at 10^{-6} BER		
C/I RATIO	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
	14 MHz	≥ 91 MHz	1900 – 2300 MHz
POWER SUPPLY			
INPUT RANGE	115 / 230 VAC, 50 / 60 Hz		
	± 24 VDC (20.5 – 30 VDC), ± 48 VDC (40 – 60 VDC)		
POWER CONSUMPTION	53 – 75 W input power (dependent on transmitter output power)		

TRAFFIC INTERFACE	
ETHERNET	Integrated 4-port 10/100Base-T switch with port-based rate limiting, VLAN tagging and QoS Support
AUXILIARY INTERFACES	
ALARMS	4 external alarm outputs, 2 external alarm inputs
CONFIGURATION	Embedded web server with SNMP
MANAGEMENT	Ethernet interface for SuperVisor and SNMP; RS-232 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	RSS-GEN, SRSP-302.0
EMI /EMC	ICES-003
SAFETY	EN 60950 CSA 253147 applicable for AC, 48 VDC and 24 VDC product variants
ENVIRONMENTAL	ETS 300 019 Class 3.2, WEEE

SYSTEM PERFORMANCE

500 kHz CHANNEL	QPSK	16 QAM	32 QAM	64 QAM
CAPACITY ¹	792 kbit/s	1592 kbit/s	1992 kbit/s	2392 kbit/s
RECEIVER SENSITIVITY ²	-99 dBm	-93 dBm	-90 dBm	-87 dBm
SYSTEM GAIN ²	133 dB	124 dB	120 dB	116 dB

NOTES

- Performance specified at the antenna port for 10^{-6} BER. Figures for 10^{-3} BER are typically 1 dB better.
- Unreleased: Please contact 4RF for availability.

ABOUT 4RF

Operating in more than 130 countries, 4RF solutions are deployed by oil and gas companies, utilities and transport companies, telecommunications operators, broadcasters, international aid organisations, and public safety, military and security organisations. All 4RF products are optimized for performance in harsh climates and difficult terrain, and support legacy analog, serial data, PDH and IP applications.

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