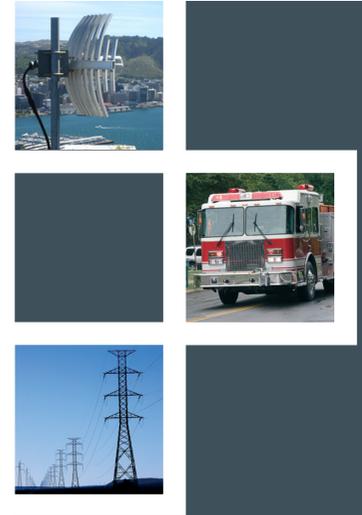# Aprisa LE

POINT-TO-POINT
DIGITAL MICROWAVE ETHERNET LINK
900 MHz licensed band

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

- **Long range**: a single Aprisa LE can link distances in excess of 120 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 952 kbit/s in a 200 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 900 MHz frequency band
- Up to 952 kbit/s Ethernet capacity
- 100 kHz and 200 kHz channel sizes
- QPSK to 64 QAM modulation
- Range of 120+ miles
- Web server and SNMP management
- MHSB and HSD protection option

4RF

SYSTEM SPECIFICATION

RF	BAND	TUNING RANGE	SYNTHESIZER STEP SIZE
FREQUENCIES	900 MHz	928 – 960 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	+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
	1.0 MHz	≥ 9.0 MHz	928 – 960 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, RSS-119
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

100 kHz CHANNEL	QPSK	16 QAM	32 QAM	64 QAM
CAPACITY (GROSS)	136 kbit/s	280 kbit/s	352 kbit/s	424 kbit/s
RECEIVER SENSITIVITY [1]	–106 dBm	–100 dBm	–97 dBm	–94 dBm
SYSTEM GAIN [1]	135 dB	129 dB	126 dB	123 dB
200 kHz CHANNEL				
CAPACITY (GROSS)	312 kbit/s	632 kbit/s	792 kbit/s	952 kbit/s
RECEIVER SENSITIVITY [1]	–102 dBm	–96 dBm	–93 dBm	–90 dBm
SYSTEM GAIN [1]	131 dB	125 dB	122 dB	119 dB

NOTES

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

ABOUT 4RF

Operating in more than 140 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.

4RF

For more information please contact
EMAIL sales@4rf.com
URL www.4rf.com

Version 1.2.0