

# Aprisa LE

## POINT-TO-POINT DIGITAL MICROWAVE ETHERNET LINK 400 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 232 kbit/s in a 50 kHz channel.
- **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 400 MHz frequency band
- Up to 232 kbit/s Ethernet capacity
- 50 kHz channel size
- QPSK to 64 QAM modulation
- Range of 120+ miles
- Web server and SNMP management

## SYSTEM SPECIFICATION

RF	BAND	TUNING RANGE	SYNTHESIZER STEP SIZE
FREQUENCIES	400 MHz	400 – 470 MHz	6.25 kHz
MODULATION TYPES	Software configurable: QPSK / 16 / 32 / 64 QAM		
FREQUENCY STABILITY	Short term $\pm 1$ ppm (environmental effects and power supply variations) Long term $\pm 2$ 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
B1	0.5 MHz	$\geq 5.0$ MHz	400 – 470 MHz
POWER SUPPLY			
INPUT RANGE	115 / 230 VAC, 50 / 60 Hz $\pm 24$ VDC (20.5 – 30 VDC), $\pm 48$ 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
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

50 kHz CHANNEL	QPSK	16 QAM	32 QAM	64 QAM
GROSS CAPACITY	72 kbit/s	152 kbit/s	192 kbit/s	232 kbit/s
RECEIVER SENSITIVITY <sup>1</sup>	-109 dBm	-103 dBm	-100 dBm	-97 dBm
SYSTEM GAIN <sup>1</sup>	144 dB	134 dB	130 dB	126 dB

## NOTES

<sup>1</sup> 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 130 countries, 4RF provides radio communications equipment for critical infrastructure applications. Customers include utilities, oil and gas companies, transport companies, telecommunications operators, international aid organisations, public safety, military and security organisations. 4RF point-to-point and point-to-multipoint products are optimized for performance in harsh climates and difficult terrain, supporting IP, legacy analogue, serial data and PDH applications.

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