

## EX-4.9i



### All-Indoor, Carrier-Class 4.9 GHz TDD Radio for Emergency Response, Public Safety and Government Agencies

The EX-4.9i all-indoor digital microwave radio is the highest capacity carrier-class, TDD radio operating in the 4.9 GHz public safety band. The EX-4.9i delivers up to 55 Mbps of aggregate user throughput and up to four T1/E1s at 99.999% availability. Featuring native TDM and native Ethernet transport and full software configurability and upgradeability, the EX-4.9i was designed to meet demanding deployment and security requirements of emergency response, public safety and government organizations seeking the accessibility benefits of an all-indoor configuration.

**Carrier-class TDD.** The EX-4.9i combines native TDM and native Ethernet transport with low, fixed latency to deliver guaranteed throughput and service quality. Capacity can be allocated variably between TDM and Ethernet via software, while the selectable throughput symmetry control feature enables radio capacity to efficiently match asymmetric traffic requirements, such as those associated with video surveillance systems.

**Security, Management and Data Networking.** The EX-4.9i delivers the highest data and management security available with included 96-bit encryption, optional 128- and 256-bit AES encryption and secure SNMP v3 management, together with enhanced fault management and diagnostic features. The 802.1Q VLAN option provides built-in network administration and security flexibility

**Synchronization.** The Sync technology embedded in the EX-4.9i radio allows multiple radio systems to be collocated in close proximity without self-interference, minimizing antenna separation and ensuring reuse of scarce spectrum across all collocated systems.

**Industry-leading Spectrum Management.** The EX-4.9i provides unparalleled transmission resiliency and spectral efficiency. Selectable modulation, selectable channel bandwidth and frequency reuse capabilities facilitate inter-agency frequency coordination and collaboration. A built-in spectrum analyzer is even included, helping to accelerate deployment and simplify troubleshooting.



Primary Specifications		EX-4.9i
Maximum Capacity <sup>1</sup>	TDM	4xT1/E1
	Ethernet (Aggregate)	55 Mbps
Frequency (GHz)		4.940-4.990
Maximum Range <sup>2</sup>		> 10 miles at 99.999% throughput availability

## Specifications

## EX-4.9i

### System

Frequency Band (GHz)	4.940-4.990	
Output Power (full power)		
QPSK	10 MHz	+22 dBm
	20 MHz	+24 dBm
16QAM	10 MHz	+21 dBm
	20 MHz	+21 dBm
Output Power (min power)	+4 dBm	
Power Control Step Size	0.5 dB	
Receiver Threshold (BER=10 <sup>-6</sup> )		
QPSK	10 MHz channel	-86 dBm
	20 MHz channel	-83 dBm
Receiver Threshold (BER=10 <sup>-9</sup> )		
16QAM	10 MHz channel	-78 dBm
	20 MHz channel	-75 dBm
Non-overlapping Channels		
10 MHz channel	5	
20 MHz channel	2	
Maximum RSL (QPSK)	-25 dBm error-free 0 dBm no damage	
Error Floor	10 <sup>-12</sup>	
Latency (T1/E1)	1ms, typical	
Maximum Packet Size	1916 bytes	
Link Security	96-bit proprietary encryption 128-bit and 256-bit AES encryption <sup>1</sup>	
Management	HTTP GUI CLI/Telnet SNMP v1, v2c, and v3	
Compliance	FCC Part 90 IC RSS-111	

### System Components

Complete Link	Two terminals, each with AC adapter & accessory kit
Single Terminal	One terminal with AC adapter & accessory kit
Accessory Kit	DC power connector, rack and grounding hardware (spare)
AC Adapter	AC adapter (spare)

<sup>1</sup> Software license key upgrade.

### Physical

Form Factor	Indoor
Dimensions (H x W x D)	1RU 1.75 x 17 x 14 in 4.5 x 43.2 x 35.6 cm
Weight	9.5 lbs; 4.3 kg
Operating Temperature	-40 to +65 °C -40 to +149 °F
Full Spec Temperature	-25 to +60 °C -13 to +140 °F
Environmental	GR-1089-CORE intra-building
Altitude	15,000 ft; 4.6 km
Humidity	95% non-condensing

### Interfaces

RF	1x N-type female, impedance 50 ohms
TDM T1/E1 Interfaces	RJ48C/RJ45 (F) (x4)
T1 Impedance	100 ohms, balanced
T1 Line Code	AMI, B8ZS, selectable per channel
T1 Data Rate	1.544 Mbps
T1 Compliance	ANSI T1.102-1987; ITU-T; G.823; GR-499-CORE
E1 Impedance	120 ohms, balanced
E1 Line code	HDB3
E1 Data rate	2.048 Mbps
E1 compliance	CEPT-1; 6703; ITU-T-6.70
Loopback Modes	Remote Internal; Remote External; Local line
Ethernet	
Interface Speed	10/100BaseT
Duplex	Half, Full, Auto
Compliance	802.3
Console (Serial)	9-pin Sub-D (F)
Interface Speed	9600 bps
Compliance	EIA-574 (RS-232)
Alarm	9-pin Sub-D (F)
Inputs	(2) TTL/Closure
Outputs	(2) Relay (Form C)
Sync Synchronization	RJ45 (F) (x2); Input: 1pps (GPS); Output: Sync out
DC Pwer	6-pin barrier strip
Input Voltage	±20-60VDC
Consumption	<38.5W 24V<1.6A
AC Power Adapter	EIC to NEMA 5-15
Input	100-240VAC, 1.5A
Output	48VDC, 1.5A, 72W