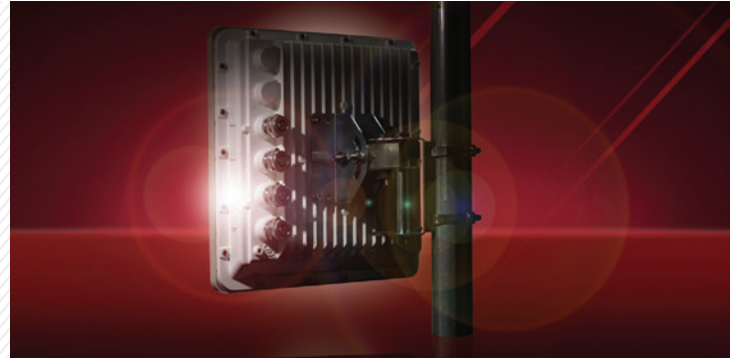




EX-4.9r Series



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

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

Carrier-class TDD. The EX-4.9r series 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-4.9r radios deliver 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.

ExaltSync Synchronization. The ExaltSync technology embedded in the EX-4.9r series radios 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-4.9r radios provide 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.

EX-4.9r series radios are available in both integrated antenna and external antenna (connectorized) versions.



Primary Specifications		EX-4.9r v2 / EX-4.9r-c v2
Maximum Capacity ¹	TDM	4xT1/E1
	Ethernet (Aggregate)	55 Mbps
Frequency (GHz)		4.940-4.990
Range ²		> 10 miles at 99.999% throughput availability

¹ Please refer to the Exalt Throughput and Range Specification document for detailed capacity information.

² Distance based upon FCC regulations, averages climate and terrain, 6' dish antennas, 3 dB transmission system, losses at each end. Longer or shorter distances will apply for alternative antennas, country regulations, transmission system losses, path topologies and radio configurations. See Exalt's path planning tool to model your scenario.

Specifications	EX-4.9r Series	Specifications	EX-4.9r v2	EX-4.9r-c v2
System		Physical		
Frequency Band (GHz)	4.940-4.990	Form Factor	Outdoor	Outdoor
Output Power (full power)		Dimensions (H x W x D)	14 x 14 x 3.8 in	14 x 14 x 2.5 in
QPSK 10 MHz	+22 dBm	Weight	35.6 x 35.6 x 9.7 cm	35.6 x 35.6 x 6.4 cm
16QAM 10 MHz	+24 dBm	Antenna	14 lbs; 6.4 kg	12 lbs; 5.5 kg
16QAM 20 MHz	+21 dBm	Integrated		External
16QAM 20 MHz	+21 dBm	Gain 24 dBi		Type-N F Connector
Output Power (min power)	+4 dBm	3 dB beamwidth 9°		
Power Control Step Size	0.5 dB	Operating Temperature		-40 to +65 °C
Receiver Threshold (BER=10 ⁻⁶)		Full Spec Temperature		-40 to +149 °F
QPSK 10 MHz channel	-86 dBm	Full Spec Temperature		-40 to +60 °C
QPSK 20 MHz channel	-83 dBm	Full Spec Temperature		-40 to +140 °F
Receiver Threshold (BER=10 ⁻⁶)		Environmental		NEMA 4/IP56
16QAM 10 MHz channel	-78 dBm	Altitude		15,000 ft; 4.6 km
16QAM 20 MHz channel	-75 dBm	Humidity		100% condensing
Non-overlapping Channels		Interfaces		
10 MHz channel	5	RF	-	2x N-type female, impedance 50 ohms
20 MHz channel	2	TDM T1/E1 Interfaces		RJ48C/RJ45 (F) (x4)
Maximum RSL (QPSK)	-25 dBm error-free	T1 Impedance		120 ohms, balanced
0 dBm no damage		T1 Line Code		HDB3
Error Floor	10 ⁻¹²	T1 Data Rate		1.544 Mbps
Latency (T1/E1)	1ms, typical	T1 Compliance		CEPT-1; G.703; ITU-T-G.703
Maximum Packet Size	1916 bytes	E1 Impedance		120 ohms, balanced
Link Security	96-bit proprietary encryption	E1 Line Code		HDB3
128-bit and 256-bit AES encryption ¹		E1 Data Rate		2.048 Mbps
VLAN	802.1Q	E1 Compliance		CEPT-1; 6703; ITU-T-6.70
Management	HTTP GUI	Loopback Modes		Remote Internal; Remote External; Local line
CLI/Telnet		Ethernet		1x RJ45 (F), auto-MDIX
SNMP v1, v2c, and v3		Interface Speed		10/100BaseT
Compliance	FCC Part 90	Duplex		Half, Full, Auto
IC RSS-111		Compliance		802.3
System Components		ExaltSync Synchronization		RJ45 (F)
Complete Link	Two terminals, each with AC adapter & accessory kit	1pps (GPS)		
Single Terminal	One terminal with AC adapter & accessory kit	AC Power Adapter		E1C to NEMA 5-15
Accessory Kit	DC power connector, rack and grounding hardware (spare)	Input		100-240VAC, 1.5A
AC Adapter	AC adapter (spare)	Output		48v @ 1.6A
Mounting Kits	EX-4.9r and 4.9r-c mounting hardware (spare)			
GPS Sync Kit	GPS antenna and mounting bracket (optional)			

¹ Software license key upgrade

