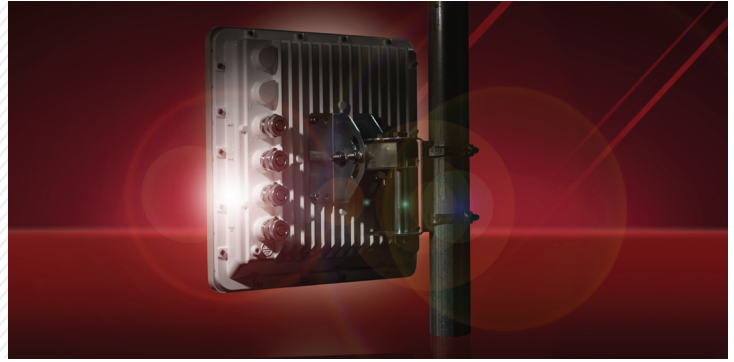




## EX-4.9r Series



### Carrier-class and Secure Communications for Emergency Response, Public Safety, and Government Agencies at 4.9 GHz

The EX-4.9r Series all-outdoor, multi-service, carrier-class solutions for the 4.9 GHz FCC public safety band deliver industry-leading capacity, availability, and security for emergency response and public safety communications.

The EX-4.9r Series is the first all-outdoor solution designed to deliver native TDM and native Ethernet transport and does not require external T1/E1 multiplexers or conversion protocols, ensuring minimum latency and maximum user throughput.

The EX-4.9r Series provides up to 55 Mbps of Ethernet capacity with four T1/E1 interfaces to enable PBX or trunk line interconnectivity and integrated support for TDM and IP-based services. The EX-4.9r Series is an excellent choice for wireless backhaul support for video surveillance, VoIP and P25 migration strategies, providing high capacity and low latency transport. In addition, the unmatched throughput and asymmetry control maximize the

performance of video or other unidirectional applications. The built-in spectrum analyzer helps facilitate inter-agency frequency coordination and coexistence.

ExaltSync™ synchronization technology is embedded in the EX-4.9r Series allowing systems to be densely collocated in close proximity without self-interference, minimizing antenna separation and reusing scarce spectrum across all collocated systems. ExaltSync in combination with variable channel bandwidth, 1 MHz tuning, superior system gain, and C/I performance across the entire band, provides unparalleled interference avoidance capabilities and transmission resiliency.

Exalt offers a rich feature set to address the needs of public safety organizations, including secure SNMPv3 management, 802.1q VLAN support and AES encryption.



Main Features		EX-4.9r / EX-4.9r-c
Maximum Capacity	TDM	4xT1/E1
	Ethernet	55 Mbps
Frequency (GHz)		4.940-4.990
Range*		> 10 miles at 99.999%

\* Distance based upon FCC regulations, averages climate and terrain, 6' dish antennas, 3 dB transmissions 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.

Features	EX-4.9r Series	Features	EX-4.9r	EX-4.9r-c
<b>System</b>		<b>Physical</b>		
Frequency Band (GHz)	4.940-4.990	Form Factor	Outdoor	Outdoor
Output Power (full power)		Dimensions (H x W x D)	13 x 13 x 3.4 in	13 x 13 x 2.5 in
QPSK    10 MHz	+22 dBm	Weight	37 x 37 x 9.7 cm	37 x 37 x 6.4 cm
16QAM   10 MHz	+21 dBm	Antenna	12 lbs; 5.5 kg	14 lbs; 6.4 kg
20 MHz	+24 dBm	Integrated		External
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 <sup>-6</sup> )				-40 to +149 F°
QPSK    10MHz channel	-86 dBm	Full Spec Temperature		-40 to +60 C°
20MHz channel	-83 dBm			-40 to +140 F°
Receiver Threshold (BER=10 <sup>-6</sup> )		Environmental		NEMA 4/IP56
16QAM   10MHz channel	-78 dBm	Altitude		15,000 ft; 4.6 km
20MHz channel	-75 dBm	Humidity		100% condensing
Maximum RSL (QPSK)	-25 dBm error-free 0 dBm no damage	<b>Interfaces</b>		
Non-overlapping channels		RF	-	2x N-type female, impedance 50 ohms
10 MHz channel	5	TDM T1/E1 Interfaces		RJ48C/RJ45 (F) (x4)
20 MHz channel	2	T1 Impedance	-	120 ohms, balanced
Supported T1/E1 ports		T1 Line Code	-	HDB3
QPSK    10 MHz channel	2/2	T1 Data Rate	-	2.048 Mbps
20 MHz channel <sup>1</sup>	2/2	T1 Compliance	-	CEPT-1; G.703; ITU-T-G.703
16QAM   10 MHz channel	2/2	E1 Impedance		120 ohms, balanced
20 MHz channel <sup>1</sup>	4/4	E1 Line Code		HDB3
Error Floor	10 <sup>-12</sup>	E1 Data Rate		2.048 Mbps
Latency (T1/E1)	1ms, typical	E1 Compliance		CEPT-1; 6703; ITU-T-6.70
Maximum packet size	1916 bytes	Loopback modes		Remote Internal; Remote External; Local line
Link Security	96-bit Security Key 128 and 256 bit AES encryption <sup>1</sup>	Ethernet		1x RJ45 (F), auto-MDIX
Management	HTTP GUI CLI/Telnet SNMP v1,v2c, and v3	Interface Speed		10/100BaseT
Compliance	FCC Part 90 IC RSS-111	Duplex		Half, Full, Auto
		Compliance		802.3
		ExaltSync™ synchronization		RJ45 (F) 1pps (GPS)
		AC Power Adapter		E1C to NEMA 5-15
		Input		100-240VAC, 1.5A
		Output		1.6A
<b>System Components</b>				
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)			
Mounting Kits	EX-4.9r and 4.9r-c mounting hardware (spare)			
GPS sync kit	GPS antenna and mounting bracket (optional)			

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



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