

EX-5i Series



All-Indoor, Carrier-Class, Tri-Band 5 GHz TDD Radio Systems for Low, Medium and High Capacity Ethernet and TDM Applications

The EX-5i series of all-indoor digital microwave radios is the first family of carrier-class, tri-band TDD radios available in the 5.2 – 5.8 GHz license-exempt bands. The EX-5i line delivers up to 216 Mbps of aggregate user throughput and up to sixteen T1/E1s plus one DS3. Featuring native TDM and native Ethernet transport and full software configurability and upgradeability, the EX-5i series was designed to meet demanding backhaul requirements of enterprise organizations and service providers seeking the accessibility benefits of an all-indoor configuration.

Carrier-class TDD. The EX-5i series radios combine 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. Optional 1+1 monitored hot standby (MHS) protection provides full hardware redundancy.

Industry-leading Spectrum Management. The EX-5i radios include selectable channel bandwidth and 1 MHz tuning resolution, yielding up to 54 non-overlapping frequency channels and up to 415 center frequencies of operation. These capabilities, combined with selectable modulation and superior system gain, provide unparalleled interference avoidance and transmission resiliency. A built-in spectrum analyzer is even included to accelerate deployment and simplify troubleshooting.

Synchronization. The Sync technology embedded in the EX-5i 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.

Security, Management and Data Networking. The EX-5i radios deliver the highest data and management security available with 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.



Primary Specifications		EX-5i Lite	EX-5i	EX-5i-16	EX-5i-DS3
Maximum Capacity ¹	TDM	4xT1/E1		16xT1/E1	16xT1/E1; 1xDS3
	Ethernet (Aggregate)	100 Mbps		200 Mbps	
Frequency (GHz)		Tri-band: 5.250-5.350, 5.470-5.725, 5.725-5.850			
Range ²		> 30 miles at 99.999% throughput availability			

Specifications		EX-5i Lite		EX-5i		EX-5i-16		EX-5i-DS3	
System				1RU				1.5RU	
Frequency Bands ¹ (GHz)	5.250-5.350 5.470-5.725	Physical Configuration		1.75 x 17 x 14 in		2.63 x 17 x 14 in			
Tuning Resolution	5.725-5.850	Operating Temperature		4.5 x 43.2 x 35.6 cm		Single-piece Indoor Unit (IDU)		6.7 x 43.2 x 35.6 cm	
Output Power (full power)	1 MHz	Full Spec Temperature				-40 to +65 °C			
5725-5850 MHz band		Weight				-40 to +149 °F			
5250-5350 MHz band ²	+24 dBm QPSK; +21 dBm 16QAM	Environmental				-25 to +60 °C			
5470-5725 MHz band ²	+13 dBm	Altitude		9.5 lbs / 4.3 kg		-13 to +140 °F		12 lbs / 5.5 kg	
Output Power (min power)	+13 dBm	Humidity		GR-1089-CORE intra-building		15,000 ft, 4.6 km			
Power Control Step Size	Full power minus 20 dB	Interfaces				95% non-condensing			
Receiver Threshold (BER=10 ⁻⁶)	0.5 dB	RF							
QPSK	8 MHz : 16 MHz : 32 MHz : 64 MHz ³	TDM T1/E1 Interfaces							
16QAM	-86 : -83 : -80 : -77	T1 Impedance		RJ48C/RJ45 (F) (x4)		N-type(F), impedance 50 ohm		RJ48C/RJ45 (F) (x16)	
Non-overlapping Channels	-78 : -75 : -72 : -69	T1 Line Code				100 ohms, balanced			
5.250-5.350 GHz		T1 Data Rate				AMI, B8ZS, selectable per channel			
5.470-5.725 GHz	10 : 5 : 2 : 1	E1 Impedance				1.544 Mbps			
5.725-5.850 GHz	29 : 14 : 7 : 3	E1 Line Code		ANSI T1.102-1987; ITU-T; G.823; GR-499-CORE		120 ohms, balanced			
Maximum RSL (QPSK)	15 : 7 : 3 : 1	E1 Compliance				HDB3			
Throughput Symmetry Control	-25 dBm error-free	DS3 Impedance				2.048 Mbps			
Error Floor	0 dBm no damage	DS3 Line Code		CEPT-1; G.703; ITU-T-G.703					
Latency (T1/E1)	5 modes	DS3 Data Rate		- BNC (F) (2x) 75 ohms, unbalanced					
Link Security	20/80, 80/20, 35/65, 65/35, 50/50	DS3 Compliance		-		B3ZS			
VLAN	10 ⁻¹²	Loopback Modes		-		44.736 Mbps			
Management	1ms, typical	Ethernet		-ANSI T1.102-1993; GR-499-CORE					
Compliance	96-bit proprietary encryption	Interface Speed		Remote Internal; Remote External; Local Line					
	128-bit and 256-bit AES encryption ³	Duplex		RJ45 (F) (x2), auto-MDIX					
	802.1Q	Compliance		10/100BaseT					
	HTTP GUI	Console (Serial)		Half, Full, Auto					
	CLI/Telnet	Interface Speed		802.3					
	SNMP v1, 2c, v3	Compliance		9-pin Sub-D (F)					
	FCC 15.247, FCC 15.407	Alarm		9600 bps					
	EN 301-893, EN 302-502	Inputs (2)		EIA-574 (RS-232)					
	EN 60-950, EN 301-489, IC RSS-210	Outputs (2)		9-pin Sub-D (F)					
System Components		Sync		TTL/Closure					
Complete Link ⁴	Two terminals, each with AC adapter and accessory kit	Synchronization		Relay (Form C)					
Single terminal	One terminal with AC adapter and accessory kit	DC Power		RJ45 (F)					
Accessory Kit	DC power connector,	Input Voltage		Internal Sync 1pps (GPS)					
AC Adapter		Consumption		6-pin barrier strip		6-pin barrier strip			
		AC Power Adapter		±20-60VDC		±20-60VDC			
		Input		<38.5W (48V: <0.8A, 24V: <1.6A)		< 45W (48V: <0.9A, 24V: 1.8A)			
		Output		EIC to NEMA 5-15		100-240VAC, 1.5A			
				48VDC, 1.5A, 72W					