EX-4.9i

Expandable 2-4xT1/E1 + 100BaseT

Licensed Multi-Service Wireless Backhaul

All-indoor 4.9GHz multi-service backhaul

Licensed band operation

Market leading capacity and range

T1/E1 and Ethernet support

Spectrum efficient

Carrier-class

Resilient transmission

Lowest cost per megabit-mile

- ✓ ***Deploy*** carrier-class wireless backhaul on 4.9GHz
- ✓ ***Carry*** voice and Ethernet simultaneously
- ✓ ***Eliminate*** leased line expenses
- ✓ ***Avoid*** infrastructure bottlenecks
- ✓ ***Reduce*** installation and maintenance costs
- ✓ ***Connect*** locations in days, not weeks
- ✓ ***Maximize*** system collocation and minimize costs
- ✓ ***Avoid*** interference
- ✓ ***Secure*** public safety wireless backhaul connections
- ✓ ***Facilitate*** frequency coordination
- ✓ ***Collocate*** systems and re-use spectrum

- **4940 to 4990 MHz**
- **10/100BaseT Ethernet + 4xT1/E1**
- **Up to 55Mbps user capacity with up to 4xT1/E1**
- **10 and 20MHz channel support**
- **Up to 5 non-overlapping channels**
- **>10 miles @ 99.999%***
- **2-year standard warranty****

*Distance based on FCC regulations, average climate & terrain, 6' dish antennas, 3dB transmission system losses at each end with 55Mbps throughput. Longer or shorter distances will apply for alternative antennas, country regulations, transmission system losses, path topologies and radio configurations.

**Terms and conditions apply. See your Exalt Communications representative for details.

Municipalities

- Create secure inter-building networks rapidly
- Interconnect PBXs and IP backbones over the same high capacity wireless backhaul link
- Connect campus locations securely with AES encryption
- Eliminate leased line costs
- Facilitate 4.9GHz channel coordination

Public Safety Agencies and Emergency Response Centers

- Interconnect emergency response centers securely and reliably
- Backhaul IP and T1/E1 voice traffic simultaneously
- Avoid interference
- Eliminate leased line costs
- Install connections instantly
- Carry voice and data connections seamlessly
- Backhaul security and surveillance video
- Outfit mobile command centers with high capacity licensed backhaul
- Provide management capability
- Maximize system collocation and reduce installation expenses

The EX-4.9i from Exalt Communications is a carrier-class, multi-service wireless backhaul solution for the licensed 4.9GHz public safety band designed for indoor rack-mounted installation. Using state-of-the-art proprietary modulation techniques, the EX-4.9i delivers the highest combined Ethernet and TDM capacity for point-to-point 4.9GHz applications. Starting at 27Mbps and 2xT1/E1, the system can be upgraded to 55Mbps and 4xT1/E1 connectivity with an optional software key, providing simultaneous data and voice interconnection with a choice of proprietary or AES encryption for highly secure emergency response and public safety applications.

The EX-4.9i provides **affordable** multi-service performance and maximum reliability in a system designed to meet the stringent requirements of telecommunications carriers. In comparison, most 4.9GHz solutions are based on Wi-Fi OFDM, which is best-effort technology designed for consumer applications with unpredictable throughput, reliability, and latency. Exalt delivers reliable, sustained Ethernet and T1/E1 capacity over longer distances in the most adverse environmental and path conditions and at the **lowest cost per megabit-mile available today!**

EX-4.9i Specifications

System

Frequency Band[1]	4940-4990MHz	
Output Power (at full power)	**Mode 1**	**Mode 2**
10 MHz channel	+22dBm	+21dBm
20MHz channel	+24dBm	+21dBm[2]
Output Power (at min power)	+4dBm	
Power Control Step Size	0.5dB	
Receiver Threshold (guaranteed over temperature @BER=10^{-6})	**Mode1**	**Mode2**
10MHz channel	-86dBm	-78dBm
20MHz channel	-83dBm	-75dBm[2]
Receiver Threshold (typical)	2dB better than above	
Maximum RSL (Mode 1)	-25dBm error-free 0 dBm no damage	
Non-overlapping channels		
10MHz channel	5	
20MHz channel	2	
Aggregate User Capacity[3]	**Mode1**	**Mode2**
10MHz channel	13Mbps	27Mbps
20MHz channel	27Mbps	55Mbps[2]
Supported T1/E1 ports	**Mode1**	**Mode2**
10MHz channel	2/2	2/2
20MHz channel	2/2	4/4[2]
Error Floor	10^{-12}	
Latency (T1)	1ms, typical	
Maximum packet size	1916 bytes	
Link Security	96-bit proprietary AES encryption[2]	
Management	HTTP GUI CLI/Telnet SNMPv3	
Regulatory Compliance	FCC part 90 IC RSS-111	

Physical

Physical Configuration	Single-piece indoor unit (IDU)
Dimensions (H x W x D)	1RU 1.75 x 17 x 14 inches 4.5 x 43.2 x 35.6 cm
Operating Temperature	-40 to +65 degrees C -40 to +149 degrees F
Full Spec Temperature	-25 to +60 degrees C -13 to +140 degrees F
Weight	9.5 pounds; 4.3 kg
Environmental	GR-1089-CORE intra-building
Altitude	15,000 feet; 4.6 km
Humidity	95% non-condensing

[1] This frequency band may not be available in all countries. Consult your Exalt Communications representative for details.
[2] Firmware option required
[3] The figure listed is the actual aggregate user throughput, maximum, as measured at layer 2. T1 or E1 circuits may be enabled one at a time, as needed, and subtract 3.1Mbps (1.544Mbps full-duplex) or 4.1Mbps (2.048Mbps full-duplex), respectively, from the aggregate user throughput. Some combinations of frame size, link distance, T1/E1 enabling, bandwidth, mode and desired latency will result in reduced maximum aggregate throughput. See your Exalt Communications representative for details.

Interfaces

RF	N-type (F)
Impedance	50 ohms
T1/E1 (x4)	RJ48C/RJ45 (F)
T1 Impedance	100 ohms, balanced
T1 Line Codes	AMI, B8ZS, selectable per channel
T1 Clocking Speed	1.544Mbps
T1 Compliance	ANSI T1.102-1987 ITU-T; G.823; GR-499-CORE
E1 Impedance	120 ohms, balanced
E1 Line Codes	HDB3
E1 Clocking Speed	2.048Mbps
E1 Compliance	CEPT-1; G.703; ITU-T-G.703
Loopback Modes	Remote Internal Remote External Local Line
Ethernet (x2)	RJ45 (F), auto-MDIX
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 (In and Out)	RJ45 (F)
Signaling	1pps (GPS)[4]
DC Power	6-pin barrier strip
Input Voltage	±20-60VDC
Consumption	<38.5W (48V :<0.8A, 24V:<1.6A)
AC Power Adapter	EIC-to-NEMA 5-15
Input	100-240VAC, 1.5A
Output	48VDC, 1.5A, 72W

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)
GPS sync kit[4]	GPS antenna and mounting bracket (optional)

[4] Firmware upgrade required

Specifications subject to change without notice.

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