SierraCom's FiberConnection™ Series 60 GHz Radio for US Markets Model: 3261-0000 & 3264-0000

OPERATION DESCRIPTION:

The Fiber Connection™ Series Radio operate in the 60GHz (57 to 64 GHz) unlicensed band. The Fiber Connection™ Radio Product is designed to carry Synchronous based (SONET: OC-3 or OC-12) data traffic. The radio uses Binary Phase Shift Keying (BPSK) modulation scheme to carry traffic of 155 Mb/s or 622 Mb/sec.

The Fiber Connection™ Radio is designed to support a variety of short-range applications (distances up to 1 km) and to operate in environments where frequency congestion is problematic. The signal absorption by oxygen gas (O_2) and the use of the narrow beam-width antennas allow for frequency re-use factor of one, thereby eliminating the need for costly frequency coordination.

❖ System Application:

Fiber ConnectionÔ as Hot Standby Radio for Free-Space Optical Radios

The Fiber Connection™ Radios in conjunction with the Free-Space Optical Radios provide a robust point-to-point communication link that is relatively immune to environmental conditions. The dust and fog that adversely affect the Free-Space Optical Radios do not appreciably hinder communication using the 60 GHz radio product. On the other hand, the rain and snow that affect 60 GHz radio do not cause appreciable degradation of the Free-Space Optical communications.

Fiber ConnectionÔ Radio as a Fiber Cable Bridge Across Obstacle

The Fiber Connection™ radio is designed to interface to a Fiber Terminal that carry OC-3/OC-12 traffic. In applications here obstacles such as highways, rivers, parking lots or Municipal by law etc prevent extension of the Fiber cable the Fiber Connection™ Radio provides means to overcome this.

Fiber ConnectionÔ Radio Eliminates the Building Rise Congestion

Building risers were originally designed to carry AC power, coax and telephone cables. In general, these risers are congested already and as such adding new cables results in major construction costs. These costs can be avoided by using the Fiber Connection™ Radio installed on the side of the walls of the building.

Micro/Pico Cell Base Station Interconnection

As the traffic density on cellular networks increases, more and more Base Stations are generally added to accommodate this need. The added Base Stations need to be interconnected by wireless backhaul equipment. Traditionally, this backhaul equipment operates in the licensed bands (13 to 38 GHz) that require frequency coordination and licensing. The Fiber Connection™ product eliminates frequency coordination and licensing problems.

Campus High Speed Data Connections

Businesses with High speed LAN data (100 Mb or 1 GigaBit Ethernet) networks that need to be connected to other buildings are limited to connections that LECs can provide. Generally, these access connections are limited to several T1s and in some cases to OC-3 capacity if a dark fiber already exists or a new one can be built. The Fiber Connection™ Radio can provide the capacity and connectivity as an alternative or compliment to the existing LEC connections.

System Features

The Fiber Connection™ Radio provides:

- Low Installation Cost (Single Outdoor Unit)
- Reliable Operation (Uses Robust Forward Error Correction FEC)
- Variety of Traffic Interface (Copper, Single, or Multi-mode Fiber Cable)
- Data Rates and Protocols
  OC-3
  OC-12
- Management and Configuration
  SNMP Version 1

Specifications

Preliminary

System	
Frequency Range	(57.0) 59.0 to 64.0 GHz
Applicable Standard	FCC Part 15, Subpart C, 15.255
T/R Spacing	2500 MHz
Frequency Variation	30 MHz total (Temperature & Aging)
System Gain	77 dB
Modulation Format	DBPSK

Transmitter	
RF Output Power	+10 dBm Typical
Spurious Emissions	FCC Part 15.255

Receiver	
Threshold	–57 dBm at 10-6 BER @ OC-12 –63 dBm at 10-6 BER @ OC-3
Maximum Input	–20 dBm
Noise Figure	12 dB Typical

Antenna and Mount	
Description	Parabolic Dish
Gain	41 dBi Typical
Polarization	Vertical or Horizontal[1]
Size	14” Dia x 9” Long
Coarse Adjust Range	±90° Azimuth ±90° Elevation
Fine Adjust (One Turn)	2.0° Azimuth 1.0° Elevation

Environmental	
Operating Temperature	–35 °C to +55 °C
Wind	110 km/h Operating 200 km/h Survival

Power Supply	
ODU Supply Voltage	±48 VDC[2]
Power Consumption	35W Maximum
Protection	Re-settable Fuse

Physical	
Dimensions	11.05” x 11.05”” x 3.25” (see Note 3) 14” x 27” including Antenna and Mount
Weight	5 kg

Specifications subject to change.

Notes

1 Vertical Polarization preferred
2 Or 115 VAC using Optional IDU Power Supply
3 Dimension excludes Antenna & Mount

Traffic Interface	
Radio Capacity	155/622 Mbps + FEC Overhead
Protocols	OC-3 SONET OC-12 SONET
SONET Interface	SMF 1310 nm

Cable	
Outdoor Connector	Proprietary Weathertight
Maximum Length	1000 ft (Fiber traffic) 300 ft (Twisted Pair)
Spare Fibers	2
Indoor Termination	All wires and fibers terminated
Fiber	SC standard, ST optional
Power wires	Molex 5557
Signal wires	RJ-45

Network Management	
Management Protocol	SNMP v.1 through IDU
Address Assignment	Fixed or DHCP

Alarms	Radio Configuration
Temperature	Capacity Selection
Radio Failure	FEC On/Off
Loss of Data (TX, RX)	Loopback (Near End, Far End)
	TX Mute
Status Monitor	**Network Functions**
Temperature	IP Address Configuration
Power Supply	Field Software Upgrade
Received Signal Level	Access Control
BER Performance	Common Language Facility ID
	Also
	Protocol Specific Functions

Indoor Interface (IDU)	Optional
Description	1U Rackmount Patch Panel
Fiber Connectors	SC standard ST no-cost option
Power Supply	Built-in, optional 115 VAC input, 50 W
SNMP	Internet LAN connection 10 Base-T. Standard RJ45 connection

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