

## Award-Winning Wireless Infrastructure Solutions

Redline products deliver an unmatched combination of range, capacity, security, and reliability, even in very challenging environments. Best-in-class data rates and spectral efficiencies conserve valuable spectrum and reduce the costs of providing high-performance access. Redline's technology advantage includes several patents necessary for building the OFDM-based wireless broadband systems that deliver our characteristically robust, extreme-distance/high-bandwidth performance. With built-in security encryption, and many other advantages, Redline products provide the reliability you need to grow your systems into the future.

### Redline Products Feature:

- Outstanding range that exceeds 80 km (50 mi)
- Industry leading throughput with up to 90 Mbps of net throughput
- Extremely low latency for real-time applications
- Field-proven OFDM technology for superior non-LOS operation
- Supports both PTP and PMP with the same form factor
- High capacity backhaul and access transport capabilities
- Advanced encryption for secure data delivery
- Support for converged networks
- Software defined bandwidth to fit different or growing network needs



## Ease of Installation and Management

Redline products are designed to enable networks to be easily and cost-effectively installed, deployed and managed. RedCONNEX products offer both split architecture and all-outdoor configuration options. By placing the transceiver beside the antenna, RedCONNEX products eliminate cable losses, thus enabling the use of low cost cables and small, easy to align antennas. Redline products can maintain a reliable link in challenging environments, allowing antennas to be placed in convenient locations such as building rooftops and small towers. This minimizes installation costs and reduces location rentals.

### RedCARE Support

Redline's complete family of RedCONNEX products is backed by the best support programs in the industry. Redline's exceptional network of highly trained Certified Partners provides responsive customer and solution support everywhere Redline's products are available - all fully backed by Redline's professional support and service experts.

Redline has assembled a truly world-class, multi-lingual partner support organization along with a Technical Assistance Centre staffed by experienced support engineers who ensure you always get the help you need - when you need it most.



## Redline Management Suite (RMS)

The award-winning Redline Management Suite (RMS) is a sophisticated element management solution that gives broadband network operators the ability to easily deploy, control, monitor and upgrade their Redline components network-wide through an intuitive, user-friendly GUI. The RMS acts as a gateway between the Redline equipment in the network and the NMS and OSS/BSS, enabling full automation in the system.

- Full FCAPS support
- Remote network management and maintenance
- Automatic node discovery and visual display
- Status and alarm displays
- Advanced security administration
- Supports a variety of northbound and southbound interfaces (TMF 814 v.3)
- Windows® 2003-based client server architecture



## AN-80i



The AN-80i is the latest addition to Redline's RedCONNEX™ family of high performance wireless broadband transport solutions. Delivering carrier-grade performance and reliability that network operators have come to expect from Redline's wireless access and backhaul products, the AN-80i is the ideal solution for high capacity private and public network backhaul, cost effective business-grade access services and reliable municipality, campus and government security network backbone connectivity. The AN-80i redefines the benchmark for value and performance - providing operators the industry's most cost-effective, best in class solution for deploying their wireless network offerings.

- Operating in 5.4 and 5.8 GHz bands
- Industry-leading 108 Mbps uncoded burst rate with up to 90 Mbps Ethernet throughput
- Exceptional long-range capabilities
- Lowest end-to-end latency in its class
- Flexible channel size selection
- Dynamic time division duplex (TDD)
- PTP and PMP configuration support
- All outdoor configuration with IEEE 802.3af PoE
- AES Encryption for high security

## AN-50e



Redline's award-winning AN-50e is the world's first high-performance, low-cost multi-service solution for carriers and service providers looking to expand their networks and provide high quality access to customers. Operating in the 5.4 and 5.8 GHz unlicensed bands, Redline's AN-50e delivers an industry-leading 72 Mbps and supports long-range links exceeding 80 km (50 mi) in clear line-of-sight (LOS) conditions. The AN-50e provides cost-effective, site-to-site connectivity for demanding PTP and PMP applications including transparent LANs and VoIP.

- Up to 72 Mbps raw/49 Mbps net Ethernet throughput
- Lowest end-to-end latency in its class
- Bi-directional dynamic adaptive modulation
- Dynamic time division duplex (TDD) transmission
- PMP 802.1Q VLAN Support
- Redundant AC/DC Power Supplies
- DFS and ATPC

## AN-30e



The AN-30e is a carrier-grade TDM backhaul solution for mobility network and enterprise network operators. Operating in the 5.4 and 5.8 GHz unlicensed bands, the system is capable of long-range links exceeding 80 km (50 mi) in clear LOS conditions. Redline's proven AN-30e system is the ideal platform for migration to VoIP - capable of supporting up to eight T1/E1 circuits and mixed TDM/IP traffic applications. Enterprise operators and MUSH can benefit by using the AN-30e as an inexpensive alternative to leasing circuits and installing new wired services.

- Up to eight E1/T1 full and fractional (nx64) TDM ports
- Simultaneous transport of mixed IP and TDM traffic
- Up to 44 Mbps average data rate
- Very low TDM round-trip delay (RTD)
- High availability operation
- Full loop-back capability
- DFS and ATPC
- CLEI codes available

## About Redline Communications

Redline Communications is the leading provider of standards-based wireless broadband solutions. Redline's RedMAX™ WiMAX Forum Certified™ systems and award-winning RedCONNEX™ family of broadband wireless infrastructure products enable service providers and other network operators to cost-effectively deliver high-bandwidth services including voice, video and data communications. Redline is committed to maintaining its wireless industry leadership with the continued development of WiMAX and other advanced wireless broadband products. With more than 50,000 installations in 85 countries, and a global network of over 250 partners, Redline's experience and expertise helps service providers, enterprises and government organizations roll out the services and applications that drive their business forward.

## Redline's Technology Leadership



Redline has extensive experience in the development and deployment of advanced broadband wireless solutions incorporating OFDM (orthogonal frequency division multiplexing) technologies for the most robust non-line-of-sight performance available. Redline has leveraged its experience with OFDM-based broadband wireless infrastructure products to develop RedMAX, a complete WiMAX Forum Certified™ and one of the world's most widely-deployed WiMAX Forum Certified systems. Redline's experience with OFDM solutions has enabled it to become a world leader in WiMAX. Redline continues to develop new products and introduce new features to both its RedMAX and RedCONNEX products to deliver the performance and services network operators need.



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RedCONNEX Family 2007-06-18 (yyyy-mm-dd)

## RedCONNEX AN-80i System Specifications

System Capability:	LOS, optical-LOS, and non-LOS (OFDM)	Over the Air Encryption:	Proprietary private key encryption AES-128 and AES-256 options <sup>2</sup>
RF Band:	5.470-5.725 GHz <sup>1</sup> , TDD 5.725-5.850 GHz <sup>1</sup> , TDD	Network Connection:	10/100 Ethernet (RJ-45)
Channel Size:	10, 20, 40 MHz (software selectable) <sup>2</sup>	System Configuration:	HTTP (Web) interface, SNMPv2, Telnet
Data Rate:	Up to 108 Mbps (uncoded burst rate) <sup>2</sup> Up to 90 Mbps (ethernet rate) <sup>3</sup>	Element Management:	RMS platform Support
Max Tx Power:	20 dBm (region specific)	Operating Temp:	-40 to 60 degrees Celcius
Rx Sensitivity:	-85 dBm @ 3 Mbps max. (BER of 1x10e-9)	Power Consumption:	Standard IEEE 802.3af (15.4 W Max.)
PoE Cable:	Up to 91m (300 ft)	Power Supply:	110/220/240 VAC 50/60 Hz
Network Attributes:	Transparent bridge, automatic link distance ranging, 802.3x <sup>1</sup> , 802.1p <sup>1</sup> , DHCP pass-through, 802.1Q VLAN <sup>3</sup>	Compliance:	IEC, EN, and UL/CSA 60950 301 489-1, 301 489-17 5.8 GHz Industry Canada RSS 210, FCC part 15, ETSI EN 302 502; 5.4 GHz Industry Canada RSS 210, FCC part 15, ETSI EN 301 893
Modulation:	BPSK to 64 QAM (bidirectional dynamic adaptive)		
Dynamic Channel Control:	DFS, ATPC		
MAC:	PTP, concatenation, fragmentation <sup>3</sup> , ARQ		

<sup>1</sup> Availability restricted by regional regulations <sup>2</sup> Point-to-Point mode only <sup>3</sup> Point-to-Multipoint mode only

## RedCONNEX AN-50e System

System Capability:	LOS, optical-LOS, and non-LOS (OFDM)	Dynamic Channel Control:	DFS, ATPC
RF Band:	5.470 - 5.850 GHz	MAC:	PTP, PMP, concatenation/ fragmentation <sup>2</sup> , ARQ
Channel Size:	20 MHz (5 MHz steps)	Range:	Beyond 80 km (50 mi) LOS @ 48 dBm EIRP
Data Rate:	Up to 49 Mbps average Ethernet rate	Network Connection:	10/100 Ethernet (RJ-45)
Max Tx Power:	20 dBm (region specific)	System Configuration:	HTTP (Web) interface, SNMP, CLI, console (RS-232)
Rx Sensitivity:	-86 dBm @ 6 Mbps (BER of 1x10e-9)	Network Management:	SNMP: standard/proprietary MIBs
IF Cable:	Up to 228 m (750 ft)	Power:	110-240 VAC 50/60 Hz, 18-72 VDC
Network Attributes:	Transparent bridge, automatic link distance ranging <sup>1</sup> , 802.3x <sup>1</sup> , 802.1p <sup>1</sup> , DHCP pass-through, 802.1Q VLAN <sup>2</sup> , encryption	Compliance:	EN 60950, EN 301 893, EN 301 390, EN 301 489-1 & 17, FCC part 15
Modulation:	BPSK to 64 QAM (bidirectional dynamic adaptive) <sup>1</sup>		

## RedCONNEX AN-30e System Specifications

System Capability:	LOS, and optical-LOS (OFDM)	<b>TDM</b>	
RF Band:	5.470 - 5.850 GHz	Clocking:	Internal, network, adaptive
Channel Size:	20 MHz (5 MHz steps)	Diagnostics:	Local, remote and traffic loopback testing, detects LOS, OOE, detects/generates AIS, LOS, RAI
Data Rate:	Up to 44 Mbps average Ethernet rate	Round-Trip-Delay:	9 ms
Max Tx Power:	20 dBm (region specific)	Ports:	1 to 8 TDM ports
Rx Sensitivity:	-86 dBm @ 6 Mbps (BER of 1x10e-9)	<b>E1 Interface</b>	
IF Cable:	Up to 228 m (750 ft) using high-grade cable	Connector:	RJ-48c, optional BNC adapter
Network Attributes:	Transparent bridge, automatic link distance ranging, 802.3x flow control, encryption	Data Rate:	2.048 Mbps
Modulation:	BPSK to 64 QAM	Framing:	Unframed, CRC4, FAS/MFAS
Dynamic Channel Control:	DFS, ATPC	Jitter:	ITU-T G.823
MAC:	PTP, concatenation, ARQ	Standards:	ETS TBR 12/13, ITU-T Rec., G.703, G.704, G.706, G.732, G.821, G.826
Range:	Beyond 80 km (50 mi) LOS @ 48 dBm EIRP	<b>T1 Interface</b>	
Network Connections:	10/100 Ethernet (RJ-45)	Connector:	RJ-48c
System Configuration:	HTTP (Web) interface, SNMP, CLI, console (RS-232)	Data Rate:	1.544 Mbps
Network Management:	SNMP: Standard/proprietary MIBs	Framing:	Unframed, D4 (SF), ESF
Power:	110-240 VAC 50/60 Hz, 18-72 VDC	Jitter:	AT&T TR-62411, ITU-T G.824
Compliance:	EN 60950, EN 301 893, EN 301 390, EN 301 489-1 & 17, FCC part 15	Standards:	ANSI T1.403, ITU-T Rec. G.703, G.704, G.733, G.821, G.826

<sup>1</sup>Point-to-Point Mode only, <sup>2</sup>Point-to-Multipoint mode only, <sup>3</sup>Contact sales for availability. All specifications subject to change without notice.



www.redlinecommunications.com



## RedCONNEX™

### ADVANCED BROADBAND WIRELESS INFRASTRUCTURE SOLUTIONS

Redline Communications' award-winning RedCONNEX™ family of broadband wireless infrastructure systems leads the industry in performance, ease of installation, and reliability. RedCONNEX systems have been used to establish high-performance networks for companies in a large variety of industries, including the telecommunications, municipality, utility, education, healthcare, military, public safety, and transportation sectors, as well as Internet Service Providers. These networks are supporting diverse applications ranging from video surveillance, storage and business continuity, premium Internet access, and other voice, video and data services. With its combination of low latency, long range capabilities and high throughput, RedCONNEX is ideal for all voice, video and data based applications.

*RedCONNEX the trusted choice for high  
performance broadband wireless solutions*

