Evolution X5 Series Satellite Router

High-speed, High-performance IP Broadband Connectivity

Designed specifically to support business-critical applications, the Evolution X5 is ideally suited for high-performance broadband applications such as enterprise connectivity, cellular backhaul, maritime, secure banking, and other mobile applications.

The Evolution X5 features iDirect's highly efficient implementation of the DVB-S2 standard with Adaptive Coding and Modulation (ACM) on the outbound carrier. Along with deterministic MF-TDMA technology or SCPC Return, 2D 16-State FEC, the Evolution X5 maximizes the efficiency of satellite capacity to enable new opportunities.

Greater Flexibility

The Evolution X5 offers dual-mode operation between iNFINITI TDM or DVB-S2/ACM on the outbound and MF-TDMA or SCPC Return on the inbound, providing more flexibility for network design and bandwidth optimization. Whether initially deploying a DVB-S2 network or starting off with an iNFINITI network that is capable of being upgraded to a DVB-S2 network in the future, the Evolution X5 adapts to a customer's changing requirements. A customer can also temporarily switch from TDMA to SCPC Return without having to swap out the equipment.

With over-the-air software licensing features that can add data encryption and spread spectrum capabilities, operators are allowed even more flexibility to customize the Evolution X5 to meet their technical and budget requirements.

Increased Efficiency with Superior Quality of Service

iDirect's sophisticated Group QoS advanced traffic prioritization dynamically balances the demands of different applications according to their needs and bandwidth availability, across multiple sites and user sub-networks. When combining the Group QoS feature set with DVB-S2/ACM, service providers can increase DVB-S2 efficiency gains by combining multiple small networks into a single, larger carrier. Additional configurations, service pricing models, and reporting capabilities allow service providers to translate ACM benefits into new revenue-generating service offerings.

Greater Mobility

Leading spread spectrum technology enables use of ultra small and phased-array antennas on aircrafts, ships, and land based vehicles. The Evolution X5 is fully enabled for iDirect's Global Network Management System (GNMS) and Automatic Beam Switching (ABS) technology allowing for a seamless network with truly global coverage.

The Evolution X5's high-stability oscillator allows for operating in environments with steep temperature changes, making it ideal for mobile applications like cellular backhaul and maritime.

Simple, Intuitive Network Management

The Evolution X5 Series is easily configured, monitored, and controlled through the iVantage™ network management system, a complete suite of software-based tools for configuring, monitoring and controlling networks from one location.

Features

- Star topology
- Two modes of operation: iNFINITI or DVB-S2/ACM outbound
- Deterministic MF-TDMA or SCPC Return channel
- Extremely efficient 2D 16-State inbound coding
- Advanced QoS and traffic prioritization
- Automatic end-to-end Uplink Power Control
- Optional Spread Spectrum waveform technology supports very small antennas
- Optional AES 256-bit encryption

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Configuration

Network Topology	Star	
	Downstream DVB-S2 or (iNFINITI TDM)	*Upstream* MF-TDMA or (SCPC Return)
Modulation	QPSK, 8PSK, 16APSK (BPSK, QPSK, 8PSK)	BPSK, QPSK, 8PSK (BPSK, QPSK, 8PSK)
FEC	LDPC, 1/4 – 8/9 (Turbo, 0.495 – 0.879)	TPC*, 0.431 – 0.793 2D 16-State, 1/2 - 6/7 (SCPC Return: 2D 16-State, 1/2 - 6/7)
Max. Symbol Rate	45 Msps (15 Msps)	7.5 Msps (15 Msps)
Max. Info Rate	150 Mbps[1] (21 Mbps[2])	12.8 Mbps[3] (24 Mbps[4])
Max. Line Card IP Data Rate	149 Mbps[1] (20 Mbps[2])	11.1 Mbps[3] (18.2 Mbps[4])
Max. Remote IP Data Rate	35 Mbps[1] (17 Mbps[2])	10 Mbps[3] (15.6Mbps[4])
	Notes: [1]16APSK 8/9 FEC [2]QPSK, .793 FEC	*[3]QPSK 6/7 FEC [4]QPSK 4/5 FEC*
Spread Spectrum Factor (Max Rate Mcps)		Up to 7.5 Mcps Spreading Factors: 1,2,4,8,16
	Maximum downstream and upstream data rates cannot be achieved simultaneously *Maximum rates are achieved under optimal conditions and with unlimited NMS*	

Interfaces

SatCom Interfaces	TX Out: Type-F, 950–1700 MHz, +7dBm/-35dBm RX In: Type-F, 950–2150 MHz, -5dBm (max) composite/ -125+10*log(Fsym)dBm (min) single carrier Software controllable 10 MHz reference on TX Out and TX In ports
BUC IFL Interface	+24V, max. 70W, (120W PSU) (please refer to X5 Installation Manual for full list of supported BUCs)
LNB IFL Interface	+19V (Nominal), 500mA max DiSEqC (Voltage 14V/19V + 22KHz tone)
Data Interfaces	LAN: Single 10/100, 802.1q VLAN RS-232: RJ45 (Console connection)
Protocols Supported	TCP, UDP, ACL, ICMP, IGMP, RIP Ver2, Static Routes, NAT, DHCP, DHCP Helper, Local DNS Caching, OpenAMIP, cRTP and GRE
Security	AES Link Encryption (256-bit)**
Traffic Engineering	Group QoS, QoS (Priority Queuing and CBWFQ), Strict Priority Queuing, Application Based QoS, Minimum CIR, CIR (Static and Dynamic), Rate Limiting
Other Features	Built-in Automatic Uplink Power, Frequency and Timing Control, Authentication, Spread Spectrum** , Antenna Control Interface (OpenAMIP)

Mechanical/Environmental

Size	W 11.5 in (29.2 cm) x D 9.9 in (25.1 cm) x H 2 in (5.1cm)
Weight	4.4 lbs (1.99 Kg)
Operating Temperature	0˚ to +50˚C (32˚ to +122˚F) at Sea Level with temperature gradient of 1˚C per 1 min 0˚ to +45˚C (32˚ to +113˚F) at 10,000 Feet with temperature gradient of 1˚C per 1 min For ODU power consumption <70W (please refer to X5 Installation Manual for details)
Humidity Max	90% non-condensing humidity
Input Voltage	100–240 VAC Universal Input, 2A, 50–60 Hz
Radio Standards	EN 301-428 v1.3.1 — Ku-Band System Level Specification EN 301-443 v1.3.1 — C-Band System Level Specification
Safety Standards	Complies with IEC 60950, EN 60950-1, UL 60950-1, CSA C22.2 No.60950-1-03
Emission Standard	Complies with EN 55022 Class B, FCC Part 15 Class B, CISPR 22 Class B, EN 61000-3-2, EN 61000-3-3
EMC/Immunity Standard	Complies with EN 55024, EN 301-489-1, EN 301-489-12, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11
Certification	FCC, CE, and RoHS Compliant
	**Not supported for use with DVB-S2 outbound in iDX 3.0 and above* ***Optional*