IPSat™
Internet Satellite Terminal

IPSat™ Internet Satellite Terminal

HIGHLIGHTS

- Modular architecture for flexible configuration of high-speed satellite Rx/Tx or hybrid satellite Rx/terrestrial Tx
- Supports QPSK, BPSK – transmit and QPSK, 8PSK (future option) – receive
- Receive rate up to 45 Msps (72.5 Mbps)
  Data reduction via:
  PID and Section level filtering
  IP level filtering
- Transmit rate 9 kbps — 2.5 Mbps
  SCPC or Burst (optional)
  Interfaces: 10/100 Base T Ethernet, HSSI, others available
- Encapsulation: Multiprotocol per EN 301 192
- RF: Ku-Band, C-Band, Ka-Band
- Small 0.75, 1.0, 1.2, 1.8, and 2.4 meter antennas

OVERVIEW

The Radyne ComStream IPSat Internet Satellite Terminal is designed as a fully-integrated (Router, Earth Station and RF ODU) modular system capable of receive-only, transmit-only, or full duplex satellite connectivity to the Internet anywhere in the world. The IPSat integrates Radyne ComStream's expertise in satellite modem technology with an embedded, speed-optimized IP router to provide the highest throughput and the greatest level of integration in the industry. The IPSat can offer the most flexible, cost-efficient performance for high-speed satellite downloads from the World Wide Web for ISP's, businesses, and individuals.

CUSTOMER SUPPORT SERVICES

Radyne ComStream offers turnkey solutions with end-to end design, installation and commissioning services including IP network design, third party application integration, satellite link budget, antenna selection earth station design, system training and equipment installation and test.

APPLICATIONS

- Internet Service Provider Access to Remote Regions
- Distance Learning (Streaming or MPEG-based Audio and Video
- Adding IP-based Services for Audio and Video Broadcasters
- Enterprise Networks
- Information Service Providers
- System Design and Integration Services

RADYNE COMSTREAM

IPSat Internet Satellite Terminal

PRELIMINARY SPECIFICATIONS

RECEIVE

Demodulation	QPSK or 8PSK (future option)
Data Throughput	Up to 70 Mbps
Resolution	Variable in 1 bps steps
Symbol Rates	1.0 Msps to 45 Msps
FEC	Concatenated Reed-Solomon and Viterbi
	Viterbi rates 1/2, 2/3, 3/4, 5/6, 7/8
	Reed-Solomon rates 188/204 (DVB)
Input Frequency	950 to 2150 MHz, 70/140 MHz optional
Input Signal Dynamic Range	-65 to -20 dBm

BER Performance for quasi error-free (BER 1 x 10^{-10}) performance with concatenated coding:

Code Rate	Typical E_b/N_0	Maximum E_b/N_0
1/2	3.8 dB	4.5 dB
2/3	4.2 dB	5.0 dB
3/4	4.8 dB	5.5 dB
5/6	5.5 dB	6.0 dB
7/8	5.9 dB	6.4 dB

DVB compliant	EN 300 421, EN 301 192

MPEG PROCESSING

Transport Stream	IEC 13818-1
Filtering	32 MPEG PID Filters
IP Decapsulation	DVB MPE per EN 301 192

ETHERNET INTERFACE

Physical Interface	10/100BaseTX per IEEE 802.3u on RJ-45 connector
Protocols	UDP, TCP, IGMP, ARP
IP Addressing	User-Programmable
IP Processing	1000 static routes, IGMP support
Packet Delivery Modes	Unicast, Multicast

TRANSMIT

Modulation	QPSK and BPSK
Data Rate	9 kbps to 2.5 Mbps
Frequency	950 - 1750 MHz standard, 70/140 MHz optional
Reference Frequency Signal	10 MHz
Reference Stability	$1E^{-8}$
Frequency Resolution	1 kHz
Output Level	-5 to -25 dBm

TRANSMIT (continued)

ODU Power	24 V @ 3A from internal supply, (up to 4W Ku-Band BUC), interface for optional external power supply. Power supplied on Tx IFL cable.
10 MHz Reference levels	+3 dBm, ± 3 dB
Connector	MINI UHF (L-Band), BNC (70/140 MHz)
FEC	Sequential Rate 1/2, 3/4 Viterbi Rate 1/2, 3/4

MONITOR AND CONTROL

Indoor unit	Tx/Rx data rates, Tx/Rx mod type, Tx/Rx code type and rate, Acq range, Int/Ext/Loop timing, E_b/N_0, AGC Level, Status, Fault History, many others
Monitor	Receive carrier offset and signal level, E_b/N_0, AGC gain factor, MPEG and IP Packet statistics
Control	Receive symbol rate, receive synthesizer frequency, receive mod type and code rate, fault reporting
Status	Carrier lock and decoder sync, receive synthesizer faults, demodulator fault summary
Indicators	Green LEDs for Power, Sync and Enable, Red LED for Fault
Rear Panel Interface	RS-232 and RS-485 electrical on DB-9 female connector, SNMP Agent available soon
In-Band Control	Uses Radyne ComStream IP Network Management System (IPNMS)

POWER

Input Voltage (Vac)	90 to 265 Vac, autosensing
Frequency	47 to 63 Hz
Consumption	50 W true RMS power (typical)

ENVIRONMENTAL

Temperature	0°C to 50°C operating; -20°C to 75°C nonoperating
Humidity	5% to 95% noncondensing, operating; 0% to 99% noncondensing, nonoperating

OUTDOOR EQUIPMENT

Radyne ComStream C-, Ku-, or Ka-Band Block Upconverters and Block Downconverters are required to guarantee the specifications on this data sheet.

Ask your Radyne ComStream representative for more information on ODUs and antenna specifications for optimum performance.
A variety of Outdoor RF units and antenna sizes are available.

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