**Terminal satellite IP**

**Return Channel**
- Format: MF-TDMA
- Symbol Rates: 156 KSym/s, 312 KSym/s, 625 KSym/s, 1.25MSym/s
- Transmit IF Frequency: 950-1450 MHz
- Transmit IF Signal: -10 to -25 dBm in 0.125 steps
- Turbo Coding: DVB-RCS compliant
- Modulation: QPSK, BPSK

**Outbound Channel from Hub**
- Format: DVB/MPEG-2 Transport Stream (ISO/IEC 13818) DVB Multi-Protocol Encapsulation (MPE) for IP Data PCR Insertion
- Symbol Rates: 5-42.5 MSym/s
- FEC: DVB Compliant R/S (204, 188) and Convolution (R=1/2, 2/3, 3/4, 5/6, 7/8)
- BER: Quasi-Error Free per DVB standard
- Modulation: QPSK or 8PSK
- Receive IF Frequency: 950-2150 MHz
- Input Power Range: -60 to -20 dBm

**Physical Interfaces**
- L-band Transmit and Receive: (2) Type F, 75 ohm
- Network: (1) 10/100 Base T Ethernet (RJ-45)

**Radiofrequency**
- Antenna Diameters: 0.96M, 1.2M, 1.8M, 2.4M
- ODU Power: 0.5W, 1W, 2W, 4W, 5W
- ODU Operating Temperature: -40°C to +55°C

**IDU Mechanical/ Environmental**
- Dimensions: 1U High, 12" Width, 8" Depth
- Power: 110/220 VAC Auto-sensing, Auto-ranging
- Temperature: 0º to 40ºC Operating; -20º to 70ºC storage
- 95% humidity non condensing at 0º to 40ºC operating
- 90% humidity non-condensing at 65º C non-operating
- Susceptibility: EN50082-1; 1997
- EMI: FCC Part 15, EN50022, CE
- Safety: UL/cUL 1950; EN60950; TUV; VDE

**HUB**

**Outbound Channel**
- Format: DVB/MPEG-2 Transport Stream (ISO/IEC 13818) DVB Multi-Protocol Encapsulation (MPE) for IP Data PCR Insertion
- Symbol Rates: 5-42.5 MSym/s
- FEC: DVB Compliant R/S (204, 188) and Convolution (R=1/2, 2/3, 3/4, 5/6, 7/8)
- Modulation: QPSK or 8PSK

**Return Channel**
- Format: MF-TDMA
- Symbol Rates: 156 KSym/s, 312 KSym/s, 625 KSym/s, 1.25MSym/s
- Turbo Coding: DVB-RCS compliant
- Modulation: QPSK, BPSK

**Network Management and Control**
- Network Management System (NMS): Java Web-based, Standard PC
- Network Control Center (NCC): Located at Hub; Redundant
- SUN Solaris Workstation; SNMP Agent

**System Performance**
- TCP Acceleration: 10 Mbps throughput
- Scalability: 10,000 nodes with single Hub/NCC; 100,000 nodes with multiple Hub/NCC
- Protocols: TCP/IP, UDP/IP, IGMP, RIP1&2, IP QoS support