SPIRENT SMARTSIGHT

IPMAX

The SmartSight™ IPMax™ is the industry's first Triple Play services test unit designed for the Fiber-to-the-Node (FTTN) environment. SmartSight IPMax performs VoIP, video, data service emulation, voice and video quality analysis. It also verifies physical layer, ADSL2+ and VDSL sync capability of the service loop.

The unit allows service validation testing prior to customer handover and provides quick trouble identification and sectionalization when maintenance is required. Slightly larger than a typical in-home router, the IPMax is designed for outside plant operations that demand low-cost service assurance and minimum cabinet space.

APPLICATIONS

The IPMax is designed for colocation at the remote FTTN node. Testing is accomplished on the exact loop the customer is using, providing the service provider visibility to the actual customer experience. Data throughput testing from the DSLAM to aggregation and service routers is accomplished, allowing complete sectionalization when troubles occur. This application enables automation, end-to-end service validation and maintenance capabilities to turn up the service quickly, increasing customer satisfaction and reducing churn.

BENEFITS

- *Service validation*—verifies complete operation of Triple Play services prior to customer cutover, without an expensive truck roll and lost revenue
- *Emulates the customer experienc*—users can quickly verify and diagnose faults, reducing operational expenses and preventing unhappy customers. See exactly what your customer is experiencing!
- *Sectionalize the trouble*—provides end-to-end and single-ended measurements, allowing quick and accurate dispatches
- *Scalability to meet mainstream deployment*—allows wide-scale automation to meet carrier-class deployment time frames

KEY FEATURES

- Universal xTU-C and xTU-R supports ADSL, ADSL2, ADSL2+, VDSL, and VDSL2
- VoIP and POTS call generation, termination, and voice quality measurements
- Video STB emulation, change channel, and video quality measurements
- IP data performance parameter measurements and ISP connectivity verification
- Volt/Ohm/Capacitance measurements for metallic loop faults
- G.SELT and DELT compliant
- Designed for outside plant operations and future measurement support without forklift change-out

TECHNICAL SPECIFICATIONS

Measurement Mode

- Terminated mode: Emulates the CPE or the central office equipment to provide voice, data, and video emulation and measurement support Video, VoIP, and IP data testing features
- ISP authentication using PPPoA, PPPoE, static, DHCP
- Ping, traceroute, TCP port connect, data throughput measurement
- Active and in-line VoIP and video analysis
- End-to-end throughput measurement with qScope
- VoIP call emulation and termination
- Voice quality analysis using RTP, E Model, with MOS score generation
- VoIP post-dial delay and call completion rates
- Packet loss burstiness and recency effect per ETSI standard TS101329-5
- Latency, out of order packets, packet loss, jitter for round trip and one-way measurements
- Video quality measurements, active and passive, using VMOS and RTSP
- Emulation of the STB (Set top box)
- Channel change support with multicast join and release timing
- Video startup authorization using 802.1x

DSL Modem Emulation

- Unit provides terminated or bi-directional ATU-C and ATU-R modem sync, allowing in-line analysis
- ANSI T1.413 Issue 2 ATU-C and ATU-R
- ADSL G.dmt (G.992.1/2 Annex A) ATU-C and ATU-R
- ADSL2 (G.992.3/4 Annex A) ATU-C and ATU-R
- ADSL2+ (G.992.5 Annex A) ATU-C and ATU-R
- VDSL DMT (G.993.1) xTU-C and xTU-R
- VDSL2 DMT (G.993.2) xTU-C and xTU-R

Narrowband Testing Features

- Some features are optional
- Resistance, capacitance, AC/DC voltage
- Ring detection
- In-line DC current measurement for off-hook status
- Loop length
- Load coil detection

G.SELT Measurement Features

- Single-ended line qualification data rate estimation
- Single-ended insertion loss and attenuation
- Wideband noise analysis throughout the VDSL frequency band and impulse noise analysis
- Bridged tap detection

TECHNICAL SPECIFICATIONS (CONT'D)

DELT (ADSL2+ Diagnostics) Measurement Features

- ADSL2 diagnostics, including topology estimation, in-home and far-end noise collection and analysis
- Data rate reduction analysis
- Impulse noise analysis
- Dual-ended line re-qualification and service up-sell

Mechanical and Environmental

- 1.38" high X 9.56" wide X 11.75" deep
- -48VDC (20 watt max)
- Operating temperature is -40° C to +65° C at 95% relative humidity
- NEBS level 3 compliant
- Communications Options
- Ethernet IP
- Async RS-232C

Other Measurements and Features

- Port performance verification and line simulator—a fixed length line simulator with 2 different loop lengths to diagnose DSL line cards

External Connections

- Unit supports 2 test bus connections via RJ-45 connector
- Async craft port via RJ-45 connector and LED activity indicators
- Ethernet IP port via RJ-45 connector and LED activity indicators
- Power connection (-48VDC, battery return, frame ground)

ORDERING INFORMATION	
Description	**Part Number**
IPMax Triple Play Services Test Unit supporting ADSL, ADSL2, ADSL2+, VDSL, VDSL2. Logical and data testing features with IP communications	3577C-01
IPMax with Vom/Cap and narrowband measurements	3577C-01V
IPMax with Line simulator	3577C-01L
Single Ended Loop Testing (SELT)	3577C-SELT
Dual Ended Loop Testing (DELT)	3577C-DELT
Enhanced VoIP testing suite	3577C-VOIP
Enhanced video testing suite	3577C-IPTV

SPIRENT GLOBAL SERVICES

Spirent Global Services provides a variety of professional services, support services and education services—all focused on helping customers meet their complex testing and service assurance requirements. For more information, visit the Global Services website at www.spirent.com/gs or contact your Spirent sales representative.

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