

## HST-3000 IP Video Test Option

Test the technology, test the service, improve the process

### Highlights

- Thoroughly qualifies the IP Video service: Broadcast and VOD (Video-on-Demand)
- Evaluate key IP Video QoS parameters including Packet Loss, Packet Jitter, IGMP latency, and PCR Jitter
- Verify IP Video service including STB (Set Top Box) emulation of IGMP and RTSP signaling protocols
- Analyze IP Video Transport Stream flows including video, audio, data bandwidth, PID mapping
- Flexible, modular design allows you to buy what you need now — the IP Video option can easily be added later to the HST installed base



In one lightweight, robust, battery operated tester, the JDSU HST-3000 offers more testing power than any other handheld tester on the market. Its scalable, modular design cost-effectively addresses today's needs. Upgrade later in the field to meet emerging requirements through plug-in hardware modules and software options.

The HST-3000 IP Video option is a video test suite specifically designed to meet the needs of the field technician responsible for provisioning or turn-up of IP Video services that carry video program content over the Access Network. Test access includes the 2-wire ADSL interface or the Ethernet 10/100 interface at the DSL modem or FTTx Residential Gateway. The test suite includes Set Top Box (STB) emulation with signaling support for Broadcast Video (IGMP) and VOD (RTSP). Video Transport Stream analysis is provided, as well as video Quality of Service measurements: Packet Jitter, Packet Loss, IGMP latency, and PCR (Program Clock Reference) Jitter analysis.

# IP Video Test

## STB Emulation

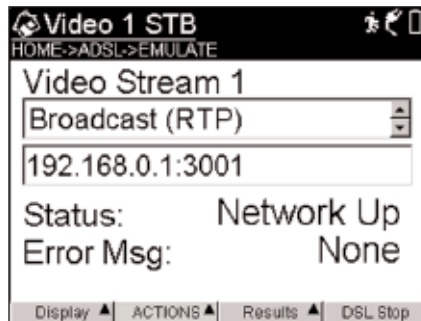
- STB registration
- IGMP signaling (Broadcast Channel Changing)
- RTSP Signaling (VOD Media Program Access)

The HST-3000 boasts advanced scripting features to improve compliance with operator Methods and Procedures, through interactive, one-button auto-tests. These tests are fully customizable on a per-customer basis, to include pass-fail thresholds.

Use the HST-3000 everywhere you need to quickly isolate your troubles: the network "IN," the loop "OUT" or the CPE. The handheld, rugged and easy-to-use HST-3000 is ideal for field use. It is compact, rugged and can be used in almost all conditions, from inside the CO/Exchange to outside in moderate rain.

## Transport Stream Analysis

- PID mapping all PIDs present
- Video bit rate (min, max, average)
- Audio bit rate (min, max, average)
- Data bit rate (min, max, average)
- Sync Errors

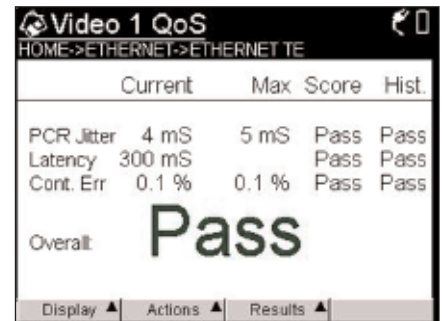


Video 1 STB  
HOME->ADSL->EMULATE

Video Stream 1  
Broadcast (RTP)  
192.168.0.1:3001

Status: Network Up  
Error Msg: None

Display ▲ ACTIONS ▲ Results ▲ DSL Stop



Video 1 QoS  
HOME->ETHERNET->ETHERNET TE

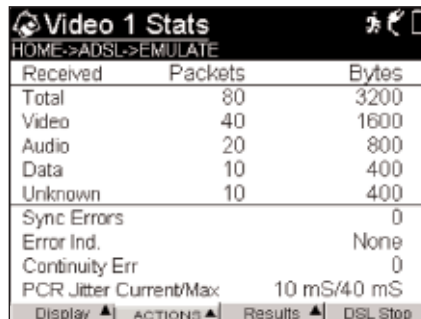
	Current	Max	Score	Hist.
PCR Jitter	4 mS	5 mS	Pass	Pass
Latency	300 mS		Pass	Pass
Cont. Err	0.1 %	0.1 %	Pass	Pass

Overall: **Pass**

Display ▲ Actions ▲ Results ▲

## Video Quality of Service

- Packet Jitter
- % Packet Loss
- IGMP latency
- PCR Jitter

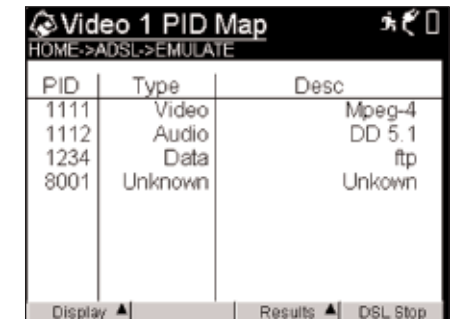


Video 1 Stats  
HOME->ADSL->EMULATE

Received	Packets	Bytes
Total	80	3200
Video	40	1600
Audio	20	800
Data	10	400
Unknown	10	400

Sync Errors: 0  
Error Ind.: None  
Continuity Err: 0  
PCR Jitter Current/Max: 10 mS/40 mS

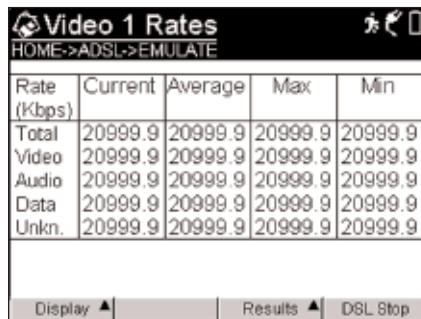
Display ▲ ACTIONS ▲ Results ▲ DSL Stop



Video 1 PID Map  
HOME->ADSL->EMULATE

PID	Type	Desc
1111	Video	Mpeg-4
1112	Audio	DD 5.1
1234	Data	ftp
8001	Unknown	Unkown

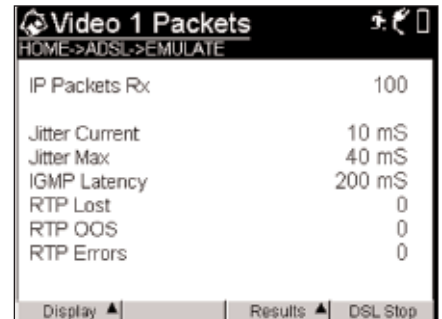
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Video 1 Rates  
HOME->ADSL->EMULATE

Rate (Kbps)	Current	Average	Max	Min
Total	20999.9	20999.9	20999.9	20999.9
Video	20999.9	20999.9	20999.9	20999.9
Audio	20999.9	20999.9	20999.9	20999.9
Data	20999.9	20999.9	20999.9	20999.9
Unkn.	20999.9	20999.9	20999.9	20999.9

Display ▲ Results ▲ DSL Stop



Video 1 Packets  
HOME->ADSL->EMULATE

IP Packets Rx: 100

Jitter Current: 10 mS  
Jitter Max: 40 mS  
IGMP Latency: 200 mS  
RTP Lost: 0  
RTP QOS: 0  
RTP Errors: 0

Display ▲ Results ▲ DSL Stop