CoLT-450P

NETWORK TESTING–ACCESS

The right tool for triple-play service confirmation testing, maintenance and troubleshooting

- Easy-to-use, simple menus
- Advanced VDSL2, ADSL2+, SHDSL testing
- Makes determining IPTV and VoIP quality a snap
- Provides a comprehensive analysis of all layers involved

Robust and future-proof

- Modular design
- Smart test application modules (TAMs)
- Basic and advanced testing of IPTV, data, VoIP

Improve productivity

- Lightning-fast auto-test capabilities
- Runs a test at the push of a button
- Pass/fail results indicators for IPTV and VoIP QoS

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EXPERTISE REACHING OUT

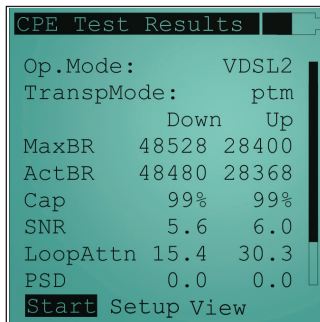# The Ultimate Handheld Platform for Triple-Play Testing

EXFO's CoLT-450P DSL Triple-Play Test Set represents the next generation of the popular CoLT-450, a powerful handheld platform optimized for triple-play testing over DSL. Whether you are testing ADSL, ADSL2+, G.shdsl, or VDSL2 including IPTV, VoIP and ISP services, the CoLT-450P has the power and modularity that you require in the field.
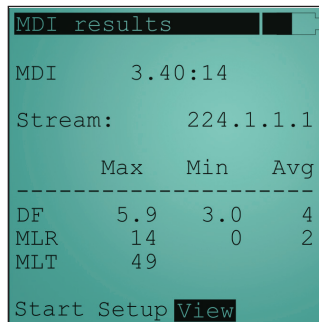
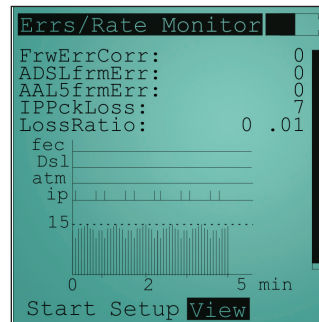## ENSURE QUALITY AT ALL PHASES OF TRIPLE-PLAY SERVICE DEPLOYMENTS

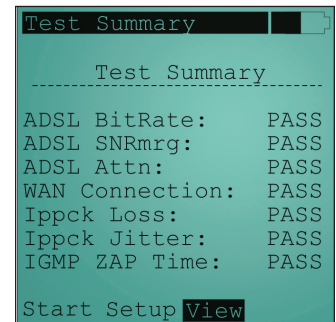- Installation
- Provisioning/activation
- Service/troubleshooting

CoLT-450P module

```
CPE Test Results
Op.Mode:         VDSL2
TranspMode:        ptm
             Down    Up
MaxBR     48528  28400
ActBR     48480  28368
Cap          99%    99%
SNR          5.6    6.0
LoopAttn   15.4   30.3
PSD          0.0    0.0
Start  Setup View
```
VDSL2 CPE Test Results

```
MDI results
MDI      3.40:14
Stream:      224.1.1.1
         Max   Min   Avg
-------------------------
DF       5.9   3.0     4
MLR       14     0     2
MLT       49
Start Setup View
```
MDI screen

```
Errs/Rate Monitor
FrwErrCorr:           0
ADSLfrmErr:           0
AAL5frmErr:           0
IPPckLoss:            7
LossRatio:       0 .01
 fec
 Dsl
 atm
 ip
 15

  0     2      5 min
Start Setup View
```
IPTV errors and rate monitor

```
Test Summary
      Test Summary
-------------------------
ADSL BitRate:     PASS
ADSL SNRmrg:      PASS
ADSL Attn:        PASS
WAN Connection:   PASS
Ippck Loss:       PASS
Ippck Jitter:     PASS
IGMP ZAP Time:    PASS
Start Setup View
```
IPTV Summary

Test Your Data, Voice and Video Services

Data
- Supports the latest VDSL2, ADSL2+, SHDSL standards
- Terminate and Through mode operation
- Multiple encapsulation methods (PPPoE, PPPoA, IPoA, IPoE)
- IP layer testing: ping, traceroute and Web download speed

Voice (VoIP)
- VoIP testing supporting SIP, MGCP, and SCCP
- Multilayer monitoring and analysis
- VoIP delay and jitter histograms

Video (IPTV)
- Fully supports simultaneous multiple channels of HDTV and standard-definition TV
- IPTV testing supporting MPEG-2, MPEG-4 part 2 and MPEG-4 part 10 (AVC/H.264) transport streams, and WM9/VC-1 flows
- Set-top box emulation IGMP for testing at the NID
- Per-layer error detection and traffic histograms
- Channel ZAP time measurements
- Real-time media delivery index (MDI) measurements of video streams
- QoS pass/fail indicators
- PCR jitter, PID viewer to ensure reliable video stream being delivered

IP VIDEO-OVER-DSL TESTING SUITE (VDTS) (OPTIONAL)

Supported video standards	MPEG2 TS, MPEG4 TS (including H.264/Part 10, Part 2), WM9/VC-1
Video streaming control	Video streaming (channels) detection/selection (IGMP)
Operation	Through mode or stand-alone with STB IGMP emulation
Analysis and statistics	ADSL, ATM, IP layer analysis
	Bandwidth usage per channel
	IGMP packets
	Set-top box (STB) traffic
	Key IP video QoS parameters: packet loss, packet jitter, zap time
	PCR jitter, PID statistics (advanced package)
	Media delivery index (MDI) (advanced package)
	QoS pass/fail indicators
Graphic results	Bandwidth usage and per-layer error-detection graph
	IP packet and PCR jitter histograms

VOIP OVER DSL ANALYSIS SUITE (VOIP TESTING) (OPTIONAL)

Signaling protocols	Session initiation protocol (SIP)
	Media gateway control protocol (MGCP)
	Skinny client control protocol (SCCP)
Operation	Through mode
Call monitoring/analysis	ADSL, ATM, IP layer call statistics
	Gateway/ATA initialization
	Call flow
	Codec indicator (G.711, G.729, G.726, G.723)
	Key VoIP QoS parameters: packet loss, packet jitter
	QoS pass/fail indicators
Graphic results	Delay distribution, jitter histogram

BROADBAND INTERNET ACCESS TESTING SUITE

Login format	Username and password using PAP and /or CHAP
IP options	Routing functionality, NAT, DNS support
Ping	Pings another device on the network
	Configurable number of pings (1 to 99)
	Packet size: 32 to 9999 bytes (32 is default)
	Results: indicate packet size, packets sent/recieved, minimum/average/maximum roundtrip times in milliseconds (ms)
Traceroute	Determines the path used to reach device on the network
	Timeout in seconds
	Packet size: 32 bytes
	Max. hops: 30
	Results: indicate IP address of hop and roundtrip time in milliseconds (ms)
Web download speed	Downloads a web page and indicates speed of download
	Address: IP or URL
	Protocol: HTTP

VDSL2 VTU-R MODULE

Chipset	Infineon
Standards	ITU-T G.993.2 ITU-T G.994.1
Band plans	997, 998
VDSL2 Profiles	8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a
	(fully compliant with VDSL2 standard)
Transmission Modes	PTM-TC and ATM
Rates supported	Up to 100 Mbit/s symmetrical
Measurements	Maximum bit rates
(upstream and downstream)	Actual bit rates
	Capacity
	Signal-to-noise ratio (SNR) margin
	Output power
	Attenuation
	FEC, HEC statistics and errored seconds
Encapsulation methods	PPPoE (RFC 2516), bridged Ethernet (RFC 2684)
Optional tests	Data (Through) mode operation, VDTS (IPTV),
	VDTS-ADV (Advanced IPTV), VoIP testing

ADSL2+ ATU-R MODULE

Chipset	Conexant
Standards	Annex A option (over POTS):
	ITU-T G.992.5 (ADSL2+), ITU-T G.992.3 (ADSL2 and RE-ADSL2), ITU-T G.992.1 (G.DMT) and ANSI T1.413 Issue 2
	Annex B option (over ISDN):
	ITU-T G.992.5 (ADSL2+), ITU-T G.992.3 (ADSL2 and RE-ADSL2), ITU-T G.992.1 (G.DMT)
Rates supported	Downstream: up to 24 Mbit/s
	Upstream: up to 1 Mbit/s
Measurements	Maximum bit rates
(upstream and downstream)	Actual bit rates
	Mode: Fast, Interleaved
	Latency capacity
	Signal-to-noise ratio (SNR) margin
	Output power
	Attenuation
	Carrier load (bits/bin)
	ATM F5 OAM loopback
Encapsulation methods	PPPoE (RFC 2516), RFC 2684 supporting bridged Ethernet (IPoE), IPoA (RFC 1577), PPPoA/LLC and PPPoA/VC-MUX (RFC 2364)
Optional tests	Data (Through) mode operation, VDTS (IPTV), VDTS-ADV (advanced VDTS), VoIP testing

SHDSL MODULE

Chipset	Conexant
Standards	ITU-T G.991.2 (G.shdsl)
	ITU-T G.994.1
Modes of operation	STU-R, STU-C (optional)
Rates supported	2 Wire: 192 kbit/s to 2.3 Mbit/s in 8 kbit/s steps
Measurements	Bit rate
(upstream and downstream)	Signal-to-noise ratio (SNR) margin
	Transmit (Tx) power
	Attenuation
	Receiver (Rx) gain
	EOC channel information
Encapsulation methods	PPPoE (RFC 2516), RFC 2684 supporting Bridged Ethernet (IPoE), IPoA (RFC 1577), PPPoA/LLC and PPPoA/VC-MUX (RFC 2364)
Optional tests	Data (Through) mode operation, VoIP testing

GENERAL SPECIFICATIONS

Size (H x W x D)	Approx. 250 mm x 107 mm x 59 mm (9.8 in x 4.2 in x 2.3 in)
Weight	Approx. 1.3 kg (2.9 lb)
Power	Rechargeable NiMH battery module. 10.8 VDC, 2700 mAh
	Maximum of 110 minutes to fully recharge
Autonomy	Up to 5.4 hours at 20 °C (68 °F) varies with the duty cycle of the tests performed
AC power adapter	Input: 100-240 VAC, 50-60 Hz
	Output: 16 V, 3.1 A
Temperature	
operating	0 °C to 50 °C (32 °F to 120 °F)
storage	−20 °C to 70 °C (−4 °F to 158 °F)
Humidity	5% to 95% non-condensing
Display	128 x 128 pixel backlit monochromatic LCD
Interfaces	RJ-45 port for DSL connection
	USB 2.0, RS232C (V.24) for software upgrades and results download to a PC
	RJ-45 for 10/100 BaseT Ethernet connection
Self-test	Routine on power-up
Languages	Multiple languages supported
Storage	Capacity of up to 500 results

CL4P-MC-XX-XX

Model ■
CL4P-MC = CoLT-450P chassis

Module ■
GSSHDS-MOD = CoLT-450P, SHDSL STU-R modem module
CXAD2P-AMOD = CoLT-450P, ADSL2+ annex A ATU-R modem module
CXAD2P-BMOD = CoLT-450P, ADSL2+ annex B ATU-R modem module
IFVDSL2-MOD = CoLT-450P, IFVDSL2 CPE modem module

NOTES
a. Available for GSSHDS-MOD module only.
b. Available for CXAD2P-AMOD module only.
c. Available for CXAD2P-BMOD module only.
d. Available for IFVDSL2-MOD module only.

Software Upgrade ■
00 = Without software upgrade
GSH-C = Upgrade CL4-GSSHDS-MOD to support STU-R and STU-C [a]
DATA = Enables data analysis in through mode
VOIP = VoIP Anaylsis
VDTS = Video-over-DSL test suite [b, c, d]
VDTS-ADV = IPTV advanced option [b, c, d]
CXAD2P-SWXAB = CoLT-450P ADSL2+ module annex A and annex B software option [b, c]

Example: CL4P-MC-CXAD2P-AMOD-VOIP

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