



OneExpert™ DSL

Modular Test Platform

Today's consumer expects a flawless broadband service experience and is becoming increasingly intolerant of any service disruptions. Meanwhile, fast-changing technologies challenge providers who must update their practices and equipment to serve growing numbers of customers with skyrocketing bandwidth demands. To meet this challenge, JDSU introduces the modular OneExpert test platform.

Future-proof modules ensure years of use supporting DSL, copper, services, and home networks. Combining the OneExpert multitouch, user-friendly interface with unique JDSU OneCheck automated tests eases complex tasks, helping field technicians fix problems the first time while improving access and home network performance.

In addition, providers can improve their work processes and reduce OpEx by expanding field tester usage in a connected world with StrataSync and mobile connectivity.

- VDSL 
- ADSL 
- Copper 
- TDR 
- Coax 
- Web 
- OneCheck 
- Mobile 
- StrataSync 



Benefits

- Find and fix problems the first time with powerful, easy-to-use capabilities for technicians of any skill level
- Enhance access and home network service quality
- Decrease OpEx by improving work processes and data flow
- Expand field-tester usage with cloud and mobile device capabilities and interoperability
- Protect your investment with a test instrument that grows with new technologies

Features

- Modular platform follows the broadband technology curve
- Tests ADSL2+/VDSL2 including bonded and vectored pairs, copper, POTS, and coax/HPNA
- OneCheck™ automates field tests and simplifies copper results
- SmartID™ Plus smart-probe support makes coax home testing efficient
- Multitouch, friendly user interface is similar to smart devices
- Mobile-connectivity iOS app provides remote control, job management, data enhancements, and technical support content, including tutorials
- StrataSync™ cloud-enabled architecture provides easy asset and test data management

Applications

- DSL and IP networks
- Copper loops
- In-home coax and Ethernet networks

Open Design

With the advent of cloud-based applications, touch screen interfaces, and always-on, always-connected smartphones and tablets, instrument users have high expectations not only for usability, but also for seamless integration between their devices and the back office. OneExpert design takes all this into consideration and provides a test platform that helps technicians perform more efficiently and fix problems faster. It lets service providers invest in a long-term, open platform.

Table 1. OneExpert design highlights

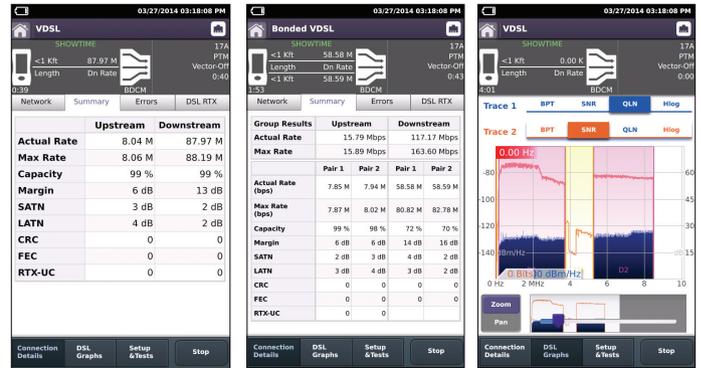
OneExpert Feature	What It Does	Why It Is Needed
Modular hardware	Ensures tester can be updated in line with technology and market advancements	Future-proofs your investment
Remote software upgrades	Software can be enhanced and upgraded in the field	Keeps hardware updated with the latest best-practice test applications
Multitouch user interface	Includes pinch-to-zoom, scrolling, flick, and more	Enhances ease-of-use by leveraging a user's mobile and tablet experience
Large screen	Complete graphs appear on a single screen	Improved ergonomics, particularly with TDR trace reading
Bluetooth®/WiFi-ready connectivity	Optional wireless connectivity	Easy communication with mobile devices
OneCheck	Automated JDSU suite of tests, many with pass/fail results	Leverages best practices to make complex tasks easy
StrataSync	Cloud-based solution manages JDSU instrument assets and field data results	Plug-and-play back-office integration



ADSL2+ / VDSL2

A common DSL sync test is performed at every dispatch because it is essential in helping field technicians understand DSL link quality (bandwidth rates, margins, errors, and likelihood for errors). This same test also helps to determine whether issues are coming from the equipment (CPE or DSLAM ports) or from the profile settings.

OneExpert DSL supports ADSL2/2+ Annex A and VDSL2 on single-line (up to 30a) and 2-pair bonded ports up to profile 17a. It supports vectoring on both single-line and bonded VDSL connections up to profile 17a along with DSL physical layer retransmission (G.INP). It is easy to use and shows most critical results on a single DSL summary screen page.



DSL summary

Signal to noise ratio (SNR) vs. bits per tone (BPT) graph

Quiet line noise (QLN) vs. BPT graph

Table 2. Typical tests technicians must perform

DSL Test	What It Does	Why It Is Needed
Synchronization test	Synchronization in auto mode or with a dedicated profile	Connection and provisioning problems
Profile	Current profile set	Mismatch between DSLAM profile, CPE settings, and customer's expectations
Margins and attenuation	SNR ratio margins and loop attenuations	Copper loops are exposed to external noise. Adequate noise margins maintain DSL connection quality. Higher attenuation results in lower SNR.
DSL errors	CRC, FEC, LOS, LOF, and LOP	DSL errors will transfer to application layers such as IP video
DSL RTX (G.INP)	DSL retransmission: status, retransmitted DTUs, corrected DTUs, uncorrected DTUs, INP REIN	DSL RTX support to match CPE and statistics to highlight DSL lines at risk, already using retransmission
BPT graph	Number of BPT identifies disturbers/interferers	Number of BPT identifies disturbers/interferers.
Hlog graph	Loop attenuation component of the channel transfer function (during the modem training phase)	Can detect bridged taps, degraded contacts, and bad joints
QLN graph	External noise floor of the DSL line	Shows frequency of potential disturbers/interferers on the DSL line

Single Test-Lead Connection

When connecting copper test leads, technicians will try to reduce the expense of multiple test cables as well the incidence of errors resulting from using the wrong lead. It is critical to get a proper connection with a good ground, or risk rendering meaningless test results. However, swapping between DSL testing and copper testing during troubleshooting adds time and risks losing test-lead connection quality.

OneExpert DSL lets technicians focus on test leads once, regardless of the number of DSL and copper tests that follow, saving time and, more importantly, avoiding misleading or incorrect results.

Table 3. Single test-lead connections

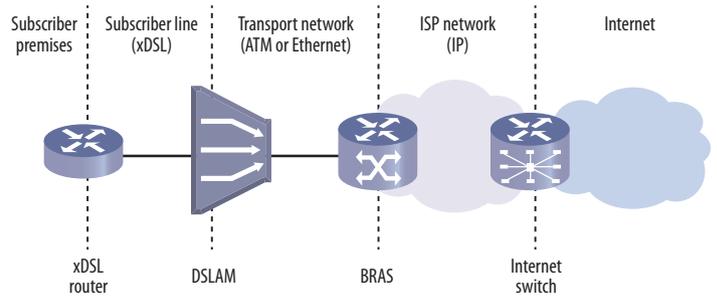
Single Test-Lead Connection	What It Tests	Why It Is Needed
All tests are conducted from a single test-lead connection	DSL and copper thru a single test-lead connection	Reduces the risk of misleading results from bad test lead connections

Enhanced IP Data — Web and Speed Testing

Internet subscribers demand reliable connectivity and new applications require higher data throughput and network-delay time performance. DSL error protection using interleave delay and error recovery mechanisms, like those for IP video, counteract time-sensitive data throughput using TCP/IP with acknowledgment and retransmission. The OneExpert DSL tester allows technicians to quickly test internet connectivity using the built-in web browser. It tests the data rates provided by VDSL vectoring with FTP/HTTP throughput as key reference tests for TCP/IP applications. Mature tests like IP ping delay are still necessary, especially for real-time applications, such as online gaming.

Table 4. IP data tests

IP Data Test	What It Tests	Why It Is Needed
User authentication	IPoE, PPPoE, IPv4, and IPv6	Customer service turn-up
Web browser	Connection to any website	Differentiates between network problems and web-server downtimes and isolates customer PC or mobile devices as points of failure
IP ping	Delay time through the network	Network delay is crucial, especially with high-interaction applications such as gaming
FTP/HTTP throughput	Upload and download rates	DSL profile parameters, such as INP, delay, and network aggregation issues, determine user-experienced data speeds



Single test-lead connection enhanced IP data — Web and SpeedTest bonding

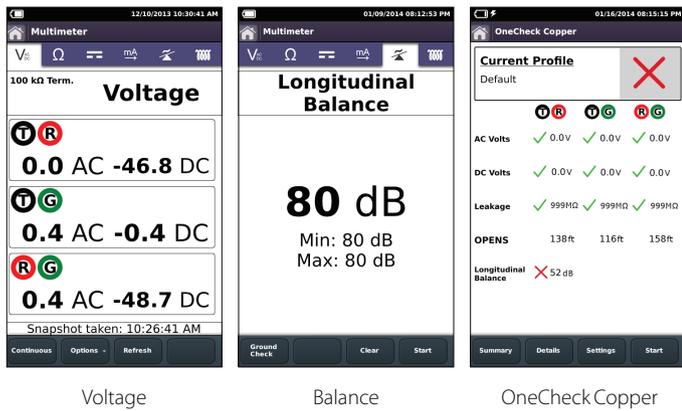
OneCheck Copper

It is critical to test the copper prior to turning up DSL. What may have worked for POTS or lower-speed DSL may not work for VDSL or as the plant degrades. Also, as soon as a DSL line cannot sync or syncs with poor performance, field technicians must test the copper. DSL requires achieving the highest possible signal-to-noise ratio (SNR) and, therefore, attenuation and overall balance affect it. Technicians must ensure copper health when maintaining DSL.



Table 5. Typical copper pair tests

Copper Tests	What It Tests	Why It Is Needed
Voltage	Foreign voltages	Safety and identifies cross-battery impairments
Resistance	Insulation between tip-A and ring-B and between tip-A, ring-B, and ground-E	Leakage resistance affects DSL sync and performance
Opens (capacitance)	Loop length and capacitive balance	Cable damage, one side open, loop length must be acceptable for DSL
Balance	Longitudinal balance, resistive balance, capacitive balance	Robustness against noise, otherwise reduced BPT
Load coil	Presence of load coils	Load coils act as low-pass filters and must be removed for DSL to work properly
Ground check	Ground connection check for balance	Poor or lack of ground leads to incorrect results, hides possible impairments



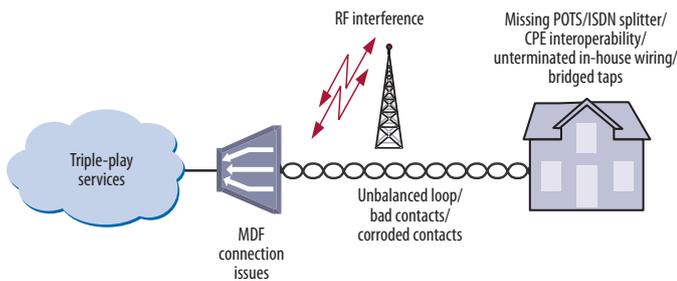
POTS Dialer

OneExpert DSL reduces the number of test tools a technician needs to carry by providing an integrated butt set. Technicians can use the POTS dialer to verify a line's continuity to the exchange and that it works without conflicting with the customer's broadband equipment due to an eventual missing or defective POTS splitter.

Table 6. POTS tests

Copper Tests	What It Tests	Why It Is Needed
POTS	DTMF and pulse POTS calls, caller ID	Connectivity to exchange and determining if POTS is available, dial test line facilities in an exchange

Inexperienced technicians often will call in a copper expert as soon as they are unable to find a fix, even without being sure the copper is faulty, extending repair times and increasing OpEx. OneCheck Copper lets any tier-1 technician assess copper-pair health automatically by testing the copper circuit as a single-ended line test (SELT) to rule out foreign voltages, opens, shorts, or load coils are on the line. It also tests whether the line is balanced enough for noise rejection so that it does not interfere with the DSL signal.



Copper-loop issues such as foreign voltage, opens shorts, and load coils can impact DSL and triple-play performance



POTS Dialer

TDR

OneExpert DSL TDR test functionality is a powerful tool for identifying cable faults that can impair broadband service. It completely rethinks TDR instrument operation for simplicity and accuracy—not one or the other, as with most TDRs—avoiding incorrect settings and false TDR readings. The automated SmartGain TDR mode’s patented time varying gain (TVG) and adaptive pulse width technologies precisely locate faults in access copper loops and inside home networks.

Table 7. TDR tests

TDR Test	What It Tests	Why It Is Needed
Loop length	Location of the cable end	VDSL requires shorter loop lengths than ADSL2+; loop lengths must be acceptable for the technology used.
Bridged taps	Length of bridged taps	Bridged taps cause unwanted reflections at the splice point and tap ends. The reflected signal, or circuit noise, degrades DSL performance. Also, bridged taps can act as an antenna picking up external noise along the tap. Bridged taps should be removed when possible to improve DSL performance.
Opens, shorts	Opens and shorts	Cable damage.
Corroded contacts	Presence of corroded contacts	Corroded contacts act as resistive (imbalance) or capacitive (opens) faults that especially impact the pair’s continuity and overall balance making it more susceptible to noise, thus degrading DSL performance.
Bad splices	Presence of bad splices	Bad splices cause unwanted reflections similar to resistive faults that impact the pair’s overall balance making it more susceptible to noise, thus degrading DSL performance.
Battery cross	Hard battery crosses: for example, a low resistance battery cross	Battery cross is physical contact with a working pair that creates noise and mismatched impedance issues.
Load coil	Location of load coils	Load coils act as low-pass filters and must be removed for DSL to work.
Wet sections	Location and length of a wet section	Wet sections contain increased capacitance causing impedance variations that result in significant DSL signal attenuation.



Standard TDR

Ethernet and Twisted Pair Wire Mapping

Where available, Ethernet cabling is typically preferred for home networks because it delivers optimal data rates and quality of service. OneExpert DSL wiring tools allow for Ethernet CAT5/6/7 or phone-wiring CAT3 testing. Technicians can quickly set up a home network using the Wire Mapping Smart Remote and resistive IDs as remote probes.

Table 8. Testing Ethernet and wire-mapping twisted pair

Twisted Pair Wire Mapping	What It Tests	Why It Is Needed
Wire mapping	Uses the Wire Mapping Smart Remote to test for physical-layer issues	Locate improper wire connections
Loop length	Loop length per pair	Verify cable run lengths
Opens, shorts	Location of opens, shorts	Cable damage, splices, or port connections
Cable identification	Cable run identification with resistive IDs	Multiple cable runs in the wired home network

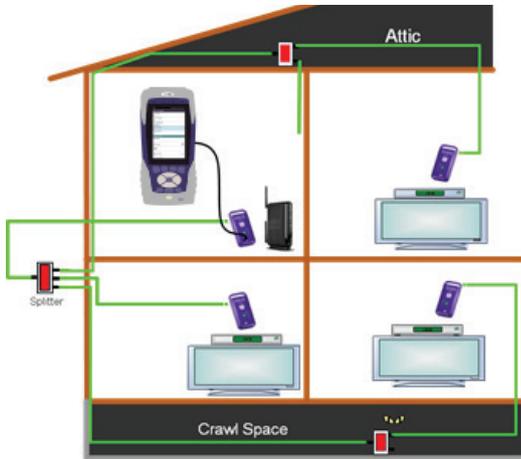


Wire Mapping Smart Remote

Coax

Problematic coax cable accounts for most repeat calls as well as video, voice, data, and multiroom DVR installation problems. Most home coax has never even been tested at the frequency ranges that support these services so problems become more apparent after service installation.

The powerful OneExpert DSL in conjunction with the optional JDSU SmartID coax probes can verify in-home coax (quality and topology) and service distribution to quickly display and certify subscriber coax topology. It immediately identifies and locates physical-layer impairments that affect both triple-play and multiroom DVR services saving valuable troubleshooting time and eliminating the need for repeatedly segmenting the network, making changes, and then retesting. Technicians use the information the device provides to determine whether they can quickly fix the drop, replace it with a new one, or use an alternative means to supply service to the location.

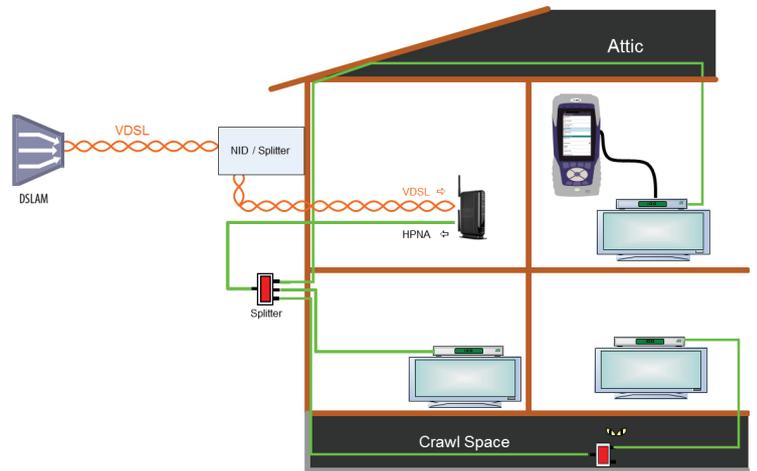


Coax home network under test with SmartIDs

HPNA

The HPNA technology standard developed by the Home Phoneline Network Alliance (HomePNA™) builds on Ethernet to connect and integrate all the home network components over an unpredictable wiring topology. The HPNA communication is used to pass information around a home to other HPNA-connected devices.

In the HPNA test, OneExpert DSL connects to the HPNA network via CPE and communicates with the HPNA network host to initiate the test. Each communication path between all HPNA network nodes will be tested, letting users segment problem node paths, node-to-node communication issues, and verify that the whole network is functioning correctly. OneExpert DSL can verify that HPNA networks are operating within expected service quality metrics and users can set up pass/fail limits to help simplify testing.



After completing physical-layer testing with SmartIDs, technicians can use the HPNA test to verify the coax network with CPE.

Table 9. Verifying the coax network

Smart ID Coax Test Sequence	What It Tests	Why It Is Needed
Bidirectional FDR	Events that cause excessive loss or reflectance	Locates bad splitters and connectors in the network
HPNA frequency sweep	All legs and in both directions	Ensures services like whole-home DVR will work
Noise ingress measurements	Each endpoint in the home	Identifies HPNA interferers

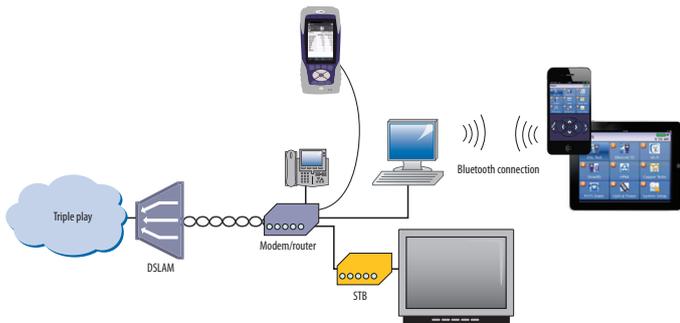
Mobile App

Testing with the OneExpert mobile iOS app is quicker and more efficient because technicians can leave the test set plugged in at one location and run tests remotely using the mobile app. Also, they can easily manage job files and export completed jobs to a server.

Providers are increasingly looking for back-office integration to expand the benefits of collecting everyday updated test results from the field. However, it may be difficult if not impossible for field technicians to connect their test instruments to their intranet. This mobile app leverages smartphones or tablets to link to the internal database.

Table 10. Testing with mobile apps

Mobile Device Integration	What It Does	Why It Is Needed
Job manager	Helps manage and enrich test results	Back-office integration
Remote access	Lets users remotely control the unit from a mobile device	Inconvenient test set access or several locations to fix between the test point and the fault
Extra information	Delivers tutorials, manuals, photos of all part numbers	Helps technicians in the field



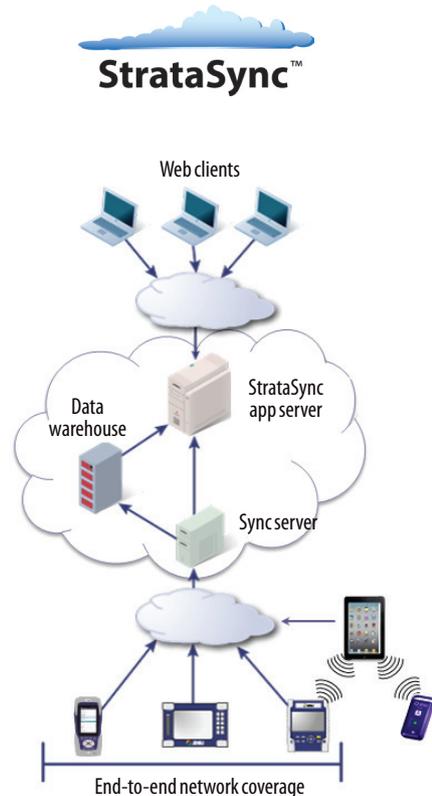
StrataSync

Field operations must maintain the latest firmware and software on their assets and then find solutions to more easily add new functionalities once they are deployed in the field. At the same time, they face challenges implementing best practices for specific configurations or regional automated tests on a wider scale. Also, most field test results gathered after spending valuable time on a customer line are lost and cannot be reused. Manual operation limits the reach of good ideas—but StrataSync fixes these issues and expands OneExpert DSL benefits.

StrataSync is a hosted, cloud-based solution that manages assets, configurations, and test data for JDSU instruments to ensure they are all equipped with the latest software and installed options. It manages inventory, test results, and performance data from anywhere with browser-based ease improving both technician and instrument efficiency. StrataSync manages and tracks test instruments and collects data from the entire network that can be leveraged for results analysis, and informs and trains the workforce.

Table 11. Managing assets and informing the workforce

StrataSync	What It Does	Why It Is Needed
Asset management	Manages and tracks test instruments by displaying assets, modules, versions, and locations. Maintains accurate instrument configuration and setup. Provides visibility into instrument utilization.	Save time by eliminating time wasted on instrument setup. Reduce repeats with correctly configured instruments. Improve results and reduce operating costs.
Data-result management	Collects and analyzes results with centralized collection and storage, secure visibility from anywhere, and consolidated test data/metrics.	Access more data with centrally collected results for better use. Speed problem resolution by sharing data for faster troubleshooting. Drive compliance by tracking and comparing technician performance.
Updates the workforce	Informs and trains the workforce through alerts, release notes and manuals, and a comprehensive product-knowledge library.	Inform the workforce using a single source for instrument status, new capabilities, and educational content. Improve performance with quick access to training and troubleshooting information. Stay current with alerts for expiring warranties and overdue calibrations.



Specifications

DSL Modem

Test Interface

ADSL2+/VDSL2, test access over copper test leads (tip A, ring B leads for single channel; T/A, R/B, T1/A1, R1/B1 for bonding) or 8-pin modular (RJ45 type) with pin assignments 4 and 5 for DSL single pair and 3, 4, 5, 6 for DSL bonding
Replaceable test module

Modem Chipset

Broadcom 63168

VDSL Standard Compliance

Standard compliance as supported by the Broadcom 63168 chipset
ITU-T G.993.2 - VDSL2
ITU-T G.998.1 - ATM bonding
ITU-T G.998.2 - PTM bonding
ITU-T G.993.5 - Self-FEXT cancellation (vectoring)
ITU-T G.998.4 – Improved impulse noise protection for DSL transceivers
Single-pair profiles: 8a/8b/8c/8d, 12a/12b, 17a, 30a
Dual-pair profiles: 8a/8b/8c/8d, 12a/12b, 17a
Band plan 997 and 998, U0 band
Bonding mode for all specified profiles
Vectoring and bonding for all specified profiles
Vector-friendly mode

ADSL Standard Compliance

Standard compliance as supported by the Broadcom 63168 chipset
ITU-T G.992.1 Annex A, (ADSL)
ITU-T G.992.3 Annex A, L (ADSL2)
ITU-T G.992.5 Annex A, M (ADSL2+)
ITU-T G.998.1 ATM bonding
ITU-T G.998.2 PTM bonding
ANSI T1.413-1998, Issue 2
ITU-T G.992.5 INP Amendment 3

General Settings and Features

Auto sync
DSL technology modes ADSL, VDSL, auto
PTM mode for ADSL2+ and VDSL2
ATM mode for ADSL2+ and VDSL
Auto, ATM, PTM modes configurable
Vectoring and bonded vectoring support for VDSL2
Vectoring, vector-friendly, vectoring off modes configurable
Combined vectoring and bonding mode support for VDSL2
DSL RTX (G.INP) configurable for upstream/downstream
PhyR settings upstream/downstream
Bitswapping
24 k interleaving depth

Modem Status and General Information

Modem state — synchronization status
Training time
Synchronization time
ADSL mode, VDSL profile
Transport ATM/PTM/auto
Single-pair or bonding status
Vectoring status information
Estimated loop length
Download rate

Modem Summary Results

Actual rate per pair
Maximum attainable bit rate per pair
Group actual rate for DSL bonding
Group maximum attainable bit rate for DSL bonding
Line capacity per pair
SNR margin
CRC errors and FEC errors
RTX-UC
LATN (line attenuation)
SATN (signal attenuation)

Graphical Results

Signal-to-noise ratio per tone (SNR)
Bits per tone (BPT)
Quiet-line noise per tone (QLN)
Hlog (including bridged tap length conversion)
Two traces comparable

DSL Errors

Forward error correction (FEC)
Forward error correction errors per minute (FEC/min)
Cyclic redundancy check errors per minute (CRC)
Cyclic redundancy check (CRC/min)
Errored seconds (ES)
Severely errored seconds (SES)
Unavailable seconds (UAS)
Loss-of-frame alarm seconds (LOF)
Loss-of-signal alarm seconds (LOS)
Loss-of-margin alarm seconds (LOM)

DSL RTX (G.INP)

Retransmitted DTUs (RTX-TX)
Corrected DTUs (RTX-C)
Uncorrected DTUs (RTX-UC)

DSL Signal

Sync count
Time in synchronization state (uptime)
1 MHz ATN
Vectoring status
Interleaving status (path)
Interleave delay
Actual INP
Signal attenuation (SATN)
Line attenuation (LATN)
TX power

Per Band VDSL2 Statistics

Loop attenuation (LATN)
Signal attenuation (SATN)
SNR margin
Tx power

DSL Identity

Hardware type (chipset)
Hardware revision (chipset revision)
Vendor code
Vendor revision
Vendor software revision
Vendor PHY revision

10/100/1000 Ethernet TE
Test Interface
10/100/1000 Ethernet, RJ45 2 ports
Test Results
Link status, speed, duplex
Network
Test Interface
ADSL2+/VDSL2 modem Ethernet 10/100/1000 (ports 1 and 2)
Network Types
Terminate over DSL Bridged Ethernet
Data Mode
IPoE (IPv4 and IPv6), PPPoE (IPv4 and IPv6), multi-VLAN (IPv4 and IPv6), data off
MAC Setting
Factory default, user-defined
PPP/IP Connectivity
BRAS: PAP/CHAP IPCP RFCs 2364, 2516, 1483, 2684
VLAN Setting
Tag on/off VLAN interface count 1 to 6 ID selection 0-4095 Priority selection 0-7
IP Setup and Status
WAN/LAN status Gateway/DNS Static or DHCP DHCP user class DHCP vendor class IP release/renew DNS support WAN and LAN IPv6 mode manual, stateless, DHCPv6 stateful DHCPv6 option IA_PD, IA_NA IPv6 global address Local address mode: manual, automatic Local IPv6 address Subnet prefix length IPv6 gateway DNS server
WAN/LAN Results
IP address, packet statistics, net mask, gateway, DNS, MAC address
IP Data
Test Interface
ADSL2+/VDSL2, RJ45 and copper test leads
IP Ping
IP ping mode: IPv4, IPv6 Echoes sent/received, ping delay (cur/average/max/min), Lost count/percentage, packet size Supports IP address or DNS name destination

File Transfer Throughput Test — Speedtest
Transfer rate, bytes transferred, transfer status Transfer protocols FTP, HTTP Transfer direction download, upload HTTP authentication type none, basic, digest Concurrent download disabled, 1, 2, 3 Auto repeat disabled, enabled
Wiring Tools
Test Interface
RJ45 and RJ11
Tests
Wire mapping with Wire Mapping Smart Remote Locate cable runs with resistive IDs
Wiremapping Results
Pin assignment mapping Loop length per pair Opens Shorts
Resistive ID Results
Label ID number Pin pairs Resistance value Auto-detect interface RJ11 or RJ45
Coaxial Cable Testing
Test Interface
Coax using SmartID or SmartID Plus
Test Probes (near end)
SmartID, SmartID Plus
Settings
Supports any cable coax type with configurable velocity of propagation (VOP) and cable compensation
Tests
Locate cable runs with active RFIDs (requires SmartID Plus) Single-ended coax map (SECM)
Tests Using SmartIDs as Remote Probes
Locate cable runs with SmartIDs Dual-ended coax map (DECM) VDSL home-run check tests home coax runs for VDSL service use Whole-home check tests the entire coax network physical layer prior to HPNA test
Test Results
Noise ingress and frequency sweep test summary with pass/fail results Mapped overview of coax network Detailed view of cable lengths, faults, splitters, filters, amplifiers Graphically depicts frequency sweep data

HPNA Network Test		
Test Interface		
Ethernet RJ45 interface to CPE		
Tests		
Quick and chronic test		
Settings		
Configurable minimum PHY rate	12 – 256	
Configurable SNR	0 – 40	
Configurable max packet loss	0 – 99 (quick) 0 – 9,999 (chronic)	
Payload length size	6 – 1482	
Number of packets to send	0 – 5,000 (quick) 0 – 500,000 (chronic)	
General Connection Status		
Station list including indication of the host		
Device ID number		
Device MAC address		
Device HPNA CopperGate® chipset firmware and version identification		
HPNA Network Results		
Segment specific rate, constellation, and baud		
Segment specific packet error rate (PER)		
Segment specific SNR		
Segment specific receive power		
Segment MAC addresses		
Copper Test - DVOM		
Test Interface		
Tip A – ring B – ground E		
Range	Resolution	Accuracy
AC Volts		
0 – 300 peak	1 V	2% ±1 V
DC Volts		
0 – 300	1 V	2% ±1 V
Resistance		
0 – 999 Ω	1 Ω	2% ±2.5 Ω
1 – 9.99 kΩ	10 Ω	2%
10 – 99.9 kΩ	100 Ω	2%
100 – 999 kΩ	1 kΩ	2%
1.0 – 9.9 MΩ	10 kΩ	5%
10.0 – 100 MΩ	100 kΩ	5%
Leakage		
0 – 49.99 Ω	1 Ω	2% ±2.5 Ω
50 – 999 kΩ	1 Ω	2% ±2.5 Ω
1.0 – 9.99 kΩ	10 Ω	2%
10.0 – 99.9 kΩ	100 Ω	2%
100 – 999 kΩ	1 kΩ	2%
1.0 – 9.9 MΩ	10 kΩ	5%
10 – 100 MΩ	100 kΩ	10%

Range	Resolution	Accuracy
Distance to Short (conversion from resistance measurement depending on cable setup)		
0 – 30 kft	(0 – 10 km)	
Capacitance/Opens (conversion from capacitance measurement depending on cable setup)		
0 – 47.1 nF	1% ±15 pF	
47.1 nF – 157 nF	2% ±15 pF	
157 nF to 1.57 uF	2%	
0 – 3 kft (0 – 999 m)	1 ft (1 m)	
3 – 10 kft (1 – 3.3 km)	10 ft (1 m)	
10 – 100 kft (1 – 33.3 km)	100 ft (10 m)	
DC Current		
0 – 110 mA		
Longitudinal Balance		
28 – 70 dB	1 dB	±2 dB
70 – 120 dB	1 dB	Indication only
Load Coil Counter		
up to 5 ±1		
TDR		
Test Interface		
Tip A – ring B		
0 to 40 kft (0 to 12 km)		0.5% of distance
Test Modes		
Standard		
SmartGain TDR		
In-Home		
Features		
World view		
Peak view		
Typical Test Case		
500 ft (150 m) bridged tap visible at 18 kft (5500 m) on a 20 kft (6000 m) 24 AWG cable/0.5 mm cable		
Short-Range		
0 to 1000 ft (0 to 305 m)	0.3 ft (0.1 m)	1 ft (0.3 m)
TDR at VOP=0.67 (AWG=24 or 0.5 mm)		
POTS		
Test Interface		
RJ11, tip A – ring B		
POTS Dialer		
DTMF or pulse-dial mode		
Ring detect		
Caller ID (Bellcore Telcordia TR-TSY-000030)		
Call log (last 10 calls)		
Phonebook (quick dial)		

Mobile Device Application	
iOS Support	
6.0 or newer	
StrataSync	
Asset management	
Data management	
General	
Power Supply	
Battery	LiOn internal rechargeable, 7.4V nominal voltage, 6600 mAh
Operating time > 4 hours for typical use cases	
Auto power down (adjustable)	
AC line operation via external adapter/car charger	
Connector	
DSL test module	8-pin modular (RJ45 type)
Ethernet	2 x 8-pin modular (RJ45)
T/A, R/B, T1/A1, R1/B1 and ground/Earth	2 mm recessed banana
POTS	8-pin modular (RJ45) and tip A-ring B
USB	2 x USB 2.0 client ports
Connectivity	
USB flash drive	
Remote operation	
Mobile device application	
Bluetooth	
Standard	Bluetooth 2.1 + EDR, Bluetooth 4.0 ready
WiFi Ready	
Standard	802.11 b/g/n (2.4 GHz)
Audio Support	
Speaker/microphone	
Bluetooth headset	
USB headset	
Permissible Ambient Temperature	
Nominal range of use	0 to 50°C (32 to 122°F)
Storage and transport	-10 to 60°C (14 to 140°F)
Humidity	
Operating humidity	10 to 90%
Display	
5 inch/127 mm diagonal color WVGA (800 x 480 pixels) backlit LCD with projected capacitive multitouch screen	
Physical	
Size (L x W x H)	250 x 119 x 82.4 mm (9.8 x 4.68 x 3.2 in)
Weight including batteries	1.9 kg
Compliance	
CE marked	

Ordering Information

The OneExpert DSL can be ordered in full configuration for high-end ADSL2+/VDSL2 and copper test demands, or it can be scaled down for specific needs and applications.

Description	Part Number
Mainframe	
OneExpert*	ONX-580
Battery	ONX580-BATTERY-48WH
AC universal power adapter	AC-CHARGER
Module	
ONX-580 Broadcom 63168 (bonded ready) test module**	ONX-BDCM-DSL-BONDED
Options	
ADSL/VDSL bonding option	ONX580-BONDED
Apple device connectivity	ONX580-APPLE-001
Bluetooth	ONX580-BLUETOOTH
HPNA	ONX580-HPNA
Cables	
CAT5 cable, shielded, RJ45	CB-016994
Lineman bed of nails clips	CB-008502
Lineman telco clips	CB-008501
Accessories	
Large carrying case	CC-034601
Soft glove	AC-Glove
Strand hook	HST-000-098-01
Hand strap	AC-HANDSTRAP
SmartID probe	SMARTID-PLUS-1PC-TELCO
Wire Mapping Smart Remote	AC-WIREMAP-REMOTE

* Includes web, quick cards, and one-year StrataSync asset management subscription; order battery and charger separately.

** Includes ADSL/VDSL single pair, DVOM, balance, TDR, OneCheck, and FTP/HTTP speed test; the ADSL/VDSL bonded-pair support option is sold separately.



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