D2061 ADSL TESTER

OVER POTS – OVER ISDN

Smart troubleshooting tool
Powerful background monitor

Multi layer tester
ADSL, ATM and IP layer tests

Ideal companion for installers
Light weight, small footprint, robust

OVERVIEW

The D2061 has been specifically realized for ADSL lines and turns out to be one of the smallest, lightest and easy to handle devices on the market. Thanks to the 'Universal Modem' feature, this tester is able to simulate the user's modem and host checking each critical point of an ADSL connection and obtaining a complete set of parameters such as line bit rate and occupation capacity, but also connection bit rate both Fast and Interleaved path, noise margin and bit per tone allocation.

Like all the measurement devices made by Aethra®, it offers helpful features for the technician in installation, maintenance and troubleshooting phases.

The graphic user interface, common to the test instruments family of new generation made by Aethra®, satisfies all the user's needs. Navigating through the various menus is both easy and immediate thanks to the bright, back-lit, high resolution display as well as the zoom feature.

The features PREDEFINED TESTS and HISTORY, are used to manage and store personalized test setups and to recall the results of each test performed. This, together with the possibility to create a personal most used tests list, make the technician daily tasks simpler by avoiding possible setup errors and allowing also subsequent analysis of the results obtained.

The Smart Status™ feature allows the modem, the line and the device status to be displayed immediately. In particular, is shown the number of bits per tone assigned both in graphical and tabular format, the error count, events and anomalies on the line, the current and historical alarm status and evolved statistics about ATM level.

Thanks to Smart Status™ the user has all the necessary information at a glance, just by pushing a button.

FEATURES AT A GLANCE

- ☐ Specific ATM layer tests
- ☐ Complete IP layer feature including PPP and file transfer simulation
- ☐ Ethernet 10Base-T port for through (Bridge) mode
- ☐ Multi-protocol monitor and analysis including frames decoding
- ☐ Predefined test set-ups to save time on site
- ☐ Test results saving for subsequent analysis
- ☐ Includes PC108 for Windows™ software for powerful analysis and remote management
- ☐ In field upgradable firmware

BACKGROUND MONITOR

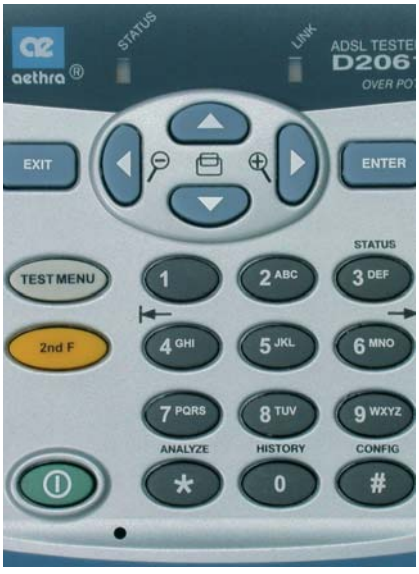
The device captures and decodes all modem events. During the active phase of the connection, all the AAL-5 packets are captured as well.
Moreover, it is possible to capture and decode communication protocol events over ISDN D channel[1].
In POTS mode, the D2061 is able to perform high impedance monitoring of POTS[2] events.
Advanced analysis through the PC software[3] issued with the device, helps to solve also more complex ADSL connections problems.

- Physical layer monitoring with alarms and error checks
- Line events analysis
- AAL-5 encapsulation decoding
- D[1] channel and POTS[2] line monitoring
- Real time and off-line decoding
- Capturing filters
- G.826/M.2100 statistics information

CONNECTION

Through this test, it is possible to control all ADSL connection data both for Upstream and Downstream sides.
The costumer's contractual parameters verification is immediate and easily interpretable.

- ATM Fast/Interleaved bit rate
- ATM maximum line rate
- Relative capacity
- Noise margin
- Attenuation
- Output power



ATM [5]

Whit the use of this test, it is possible to verify the correct working of the ATM layer, up to the ATM termination unit.
This test allows OAM as well as AAL-5 cells generation to be performed with response times (ms), errors and statistics[5].

- OAM cells generation, F4 and F5 type
- AAL-5 packets generation test
- Loop-back OAM cells management
- Programmable number of Ping requests
- Errors and statistics
- Waiting response time (sec.)

IP [6]

Thanks to IP PING test, the D2061, checks the connection to the Internet Provider, whether a remote host is reachable or not and the relative response times[6].
Moreover, all the information from the server such as messages, local, remote and server IP addresses and IP TRACE ROUTING is provided. This allows the correct connection settings of the user to be checked. The IP GENERATE TRAFFIC test, allows a data transfer between hosts to be simulated. This test, more exhaustive than IP PING, is able to measure the throughput of the connection in progress.

- IP Bridge, IP Router, PPPoE, PPPoA
- PPP, IP, UDP, DHCP, DNS, ICMP, TFTP support
- PAP and CHAP (MD5) authentication
- Static and Dynamic IP address
- Gateway management and address
- Settable packet length and testing file
- IP statistics and response times
- Throughput calculation
- IP address book, password and User ID for immediate login to Internet
- IP Trace Routing with 30 hops disovering

BER

Equipped with an appropriate option[1], the D2061 can perform specific tests over S/T-Bus for line quality verification (BERT) and for ISDN basic access general control.

- G.821
- Different test pattern
- Test modes End-to-End and Selfcall
- Errors injection

ETHERNET [7]

The D2061 is able to replace the user's modem and to permit the Internet navigation by the use of a PC with 10Base-T network connection.
With this option, it is possible to verify the connection throughput thanks to the exaustive statistics features available for physical, ATM and Ethernet layers.
The powerful capturing feature of the single AAL-5 frames and the analysis facilities of PC108 software, allow to solve all the problems regarding connections to ISPs, without using expensive systems

- Internet access troubleshooting
- Host and Modem simulation
- Advanced statistics information

MISCELLANEOUS

Thanks to the integrated microphone and loudspeaker the D2061 is able to simulate both analogue POTS[2] and ISDN[1] telephones.
With the AUTOMATIC TESTS the user can quickly verify the ISDN line under control and, if not otherwise specified, the device generates automatically a series of calls and verifies the complete status of the line.

- Loopbox
- Evolved POTS terminal simulation
- Line Noise test
- Physical layer settings control
- Layer 2 configuration
- Availability status of the several bearer services, tele and supplementary services
- Availability check of single B channels

[1] ST2061
[2] AB2001N
[3] PC108 for Windows™
[4] MF206x
[5] ATM2061
[6] IP2061
[7] ETH2061

TECHNICAL SPECIFICATIONS

TELECOM INTERFACES

- ADSL access
  - ATU-R: ITU-T (CCITT) Rec. ITU-T-I.361, ITU-T- I.363.5, ITU-T- I.432, ITU-T- I.610, ITU-T-I.731
- ISDN Basic Rate [ST2061]
  - S/T: ITU-T (CCITT) Rec.I.430, ETS 300 012

ADSL LAYER

- D2061 over POTS[1]
  - Full Rate: ANSI T1.413 issue 2
  - G.DMT: G.992.1, Annex A (ADSL over POTS)
  - G.Lite: G.992.2
  - Multimode
- D2061-I over ISDN[2]
  - G.DMT: G.992.1, Annex B (ADSL over ISDN)
  - Others: ADSL over POTS/ISDN U-R2 (T-DSL)
  - Alcatel: ADSL over ISDN ETSI DTS/TM
- Handshake: G.994.1 (ex G.Hs)

[1-2]Only one module at time is available from the factory

ATM LAYER [ATM2061 OPTION]

- Stack
  - OAM Implementation: F4 and F5 OAM loopback cells OAM ITU-T I.610
  - ATM Adaptation Layer: AAL-5
  - VC channel selection: Settable by the User
- Multiplexing methods: LLC/SNAP or VC Multiplexed

IP/PPP LAYER [IP2061 OPTION]

- Stack
  - Data encapsulation methods: IP over ATM Bridged, IP over ATM Routed, PPP over ATM, PPP over Ethernet
  - RFC number: RFC2684 (ex 1483), 2225, 2364, 2516
- PPP: Client, Server

OPERATING MODES

- ADSL
  - ATU-R
  - ATU-R + Host
  - Through mode (BRIDGE): ETH2061 option
- ETHERNET
  - Host: ETH2061 option
- ISDN
  - TE-S (BRI): ST2061 option
- POTS
  - TE: AB2001N option
  - MON: AB2001N option

BACKGROUND MONITOR

- Events: ADSL parameters, alarms, errors, AAL-5 packets
- ISDN D channel monitor: ST2061 option
- POTS line monitor: AB2001N option
- Programmable filters: Independent filters capturing and displaying
- Analysis of the results stored into PC with PC108 for Windows™

SMART STATUS™

- Physical layer: G.826 / M.2100
- ADSL line: ES, SES, BBER, UAS, DMT bit per tone, graphic and table format, alarms and errors
- ATM layer: Tx/Rx cells counters, AIS-RDI-LB OAM cells counters, unmapped cells counter, VCs (VCI/VPI) of unmapped cells [ATM2061]
- ISDN line: Status levels ISDN 1, 2 and 3 clearly displayed [ST2061]

ADSL MONITOR ANALYSIS

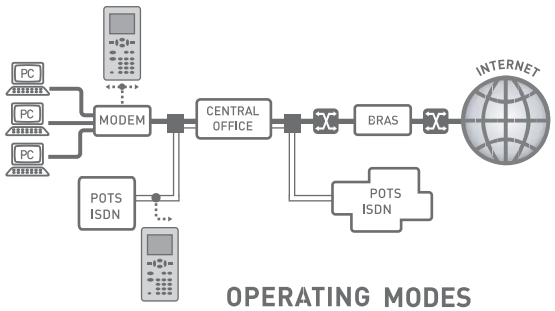
- Stand alone decoding: ADSL and AAL-5
- ADSL events decoding: Graphical and tabular format
- ATM header decoding
- AAL-5 decoding
  - Hexadecimal decoding grouped by levels: LLC, PPPoE discovery, ARP and MAC discovery Address Payload, Trailer

CONNECTION

- ADSL line mode
- ADSL maximum bit rate Kbps (DW/UP)
- Operative ATM speed rate (DW/UP)
- Relative Capacity % (DW/UP)
- Noise Margin dB (DW/UP)
- Attenuation dB (DW/UP)
- Output Power dBm (DW/UP)
- ATU-C manufacturer & version: ANSI mode

BIT PER TONE

- Number of bits per tone, frequency and bit per tone value
- Cursors: Moved along the graphic, provide information for each tone
- Display: 128, 256 tones
- Results format: Table, Graphic



OPERATING MODES

ATM [ATM2061 OPTION]

• VCI / VPI	Statistics and Errors
• Type of cell	F4 end-to-end, F4 segment, F5 end-to-end, F5 segment
• Location ID (end-to-end)	User defined
• ATM OAM cell Management	
• Type of Test	ATM PING, OAM & AAL-5 packets test, Traffic Generator

IP [IP2061 OPTION]

• IP address supported	Static, Dynamic (DHCP)
• Authentication protocol PPP	PAP, CHAP (MD5)
• Gateway selection	IP Bridged mode
• LLC/SNAP encapsulation	User defined
• Type of Test	IP Ping (ICMP), IP generate traffic (TFTP)

LOOP-BOX FEATURE [ST2061 OPTION]

AUTOMATIC ACCESS TEST [ST2061 OPTION]

- Fully automated Access test
- Automatic supplementary services test
- Programmable test sequence

BIT ERROR RATE TEST [ST2061 OPTION]

• G.821 statistics	ES, SES, US, DM, PASS/FAIL
• Pseudo-Random bit sequence	User definable 2^{11-1}, 2^{15-1}, 2^{23-1}, 16 bits octet
• Error Injection	Manual, Single, Automatic

HISTORY AND PREDEFINED TESTS FEATURES

- Saving and recalling of 10 different setup and results for each kind of test

CONNECTORS

• ADSL line interface	2 wires RJ11
• AUX	DB15-HD
• RS232	Mini - DIN 4 (ISO 4902)
• Handset	4 wires RJ9. Balanced
• Power in	External AC/DC adapter 4 wires

ENVIRONMENTAL CHARACTERISTICS

• Dimension	
Weight, with battery	≈ 500 gr.
Dimensions, with holster (mm)	100 (w) x 180 (l) x 50 (d)
• Power	
Battery Type	Rechargeable, Ni-MH
Battery life	≈ 3 hrs @ 25°C, LCD back-lit off
External AC/DC adapter	115/230Vac ±10% @ 50/60Hz
• Temperature	
Storage/Transport	-40°C to +70 °C
Operating, nominal	-5°C to +45 °C
Operating, limits	-10°C to +55 °C
• Humidity, non-condensing	≤ 93% RH @ 40 °C ≤ 70% RH @ 55 °C
• User's Safety Aspects	EN 61010-1, EN 60950, EN 41003
• EMC Aspects	EN 55022, EN 55024, EN 61000-3-2 / -3-3
• CE Marking	Class B (residential devices)

MISCELLANEOUS

• LCD display	320x200 Graphic display wide bright and back-lit, with Zoom function
• Internal microphone & loudspeaker	
• Upgradable firmware	By RS232 port
• MF206x, POTS Microfilter	Option

OPTIONS

• ATM2061	ATM Stack and Statistics
• IP2061	IP Suite Test
• ETH2061	Bridge mode adapter
• ST2061	ISDN BRI-S/T terminal simulator
• AB2001N	POTS Terminal Simulator and Monitor

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