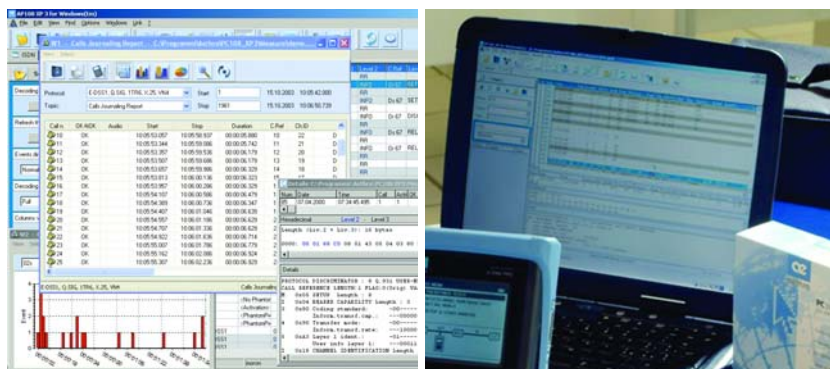


# PC108 for Windows™

## TRACE ANALYSIS & REMOTE MANAGEMENT SOFTWARE



**Smart tool**  
Powerful trace analysis and remote controlling

**One for All**  
Compatible with all Aethra's test equipment

**Voice over IP**  
Analysis, decode functions, Quality evaluation

### OVERVIEW

The Aethra® software for analysis and remote controlling PC108 for Windows™, puts at the user's disposal a complete series of indispensable features used for trace analysis and decoding activities, making easier comprehension and troubleshooting even in case of very complex problematic.

The software structure proposes four basic applications for Voice over IP management, trace analysis and decoding, remote control of the instrument and internal firmware upgrade.

The tools for the control and the evaluation of Voice over IP systems optimize the performances for specific issues such as the list and details of connections, the quality parameters coming from RTP/RTCP protocols and the QoS measurements.

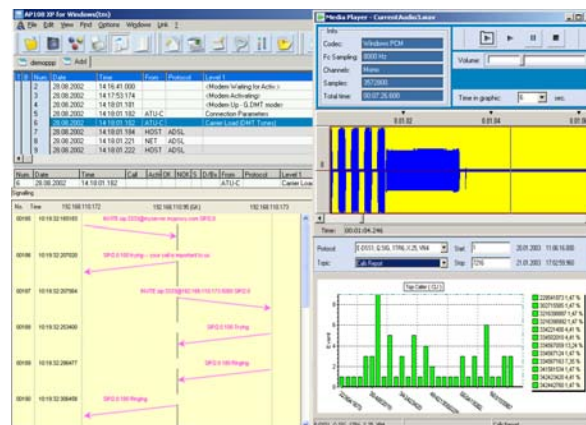
The handy display of data concerning protocols and its management facility and immediacy make the usage easy even for the less expert technicians or with simple know-how: moreover, several graphic representations have been introduced to fit this aim (flow charts, histograms) and they have been placed side by side with the classic tabular formats to improve the understanding of the captured trace. A typical example is the arrow flow-chart describing the signalling in a SIP or H.323 connection: it allows to quickly identify irregularities and errors.

PC108 for Windows™ has been developed taking care of technicians' real problems and needs and the result is a powerful, fast and versatile software which fulfils also the most articulate requests.



### FEATURES AT A GLANCE

- Powerful and detailed trace analysis, off-line and "real time" mode with multi-decoding features
- Network QoS evaluation algorithms
- Voice over IP signalling protocols graphically shown as arrow flowcharts
- Audio capture and analysis, WAV files management
- Displaying and processing of up to four concurrently statistic windows belonging to one or more files
- Record and play all the steps performed for the execution of tests
- Remote control of more devices via modem, via TCP/IP or through a simple RS232 cable



## SOFTWARE STRUCTURE

The "PC108 for Windows™ XP Edition" software is composed of four applications; every one is able to perform well defined operative functions.



- AP108, module for the signalling protocols analysis;
- AC108, application center for the modules and module itself for the device remote control;
- WS108, service module for the instruments internal firmware upgrade;
- VQ108, module for the QoS analysis and characterization of VoIP systems.

## LICENSES AND FEATURES

PC108 for Windows™ can be purchased with three different licenses, according to the functionalities the technician decides to make use of. With this aim, the following table resumes the features available for each license.

It must be stressed that the BASIC version is granted for free once purchased any Aethra® instrument suitable with PC108.

MAIN FEATURES	VERSION		
	BASIC	EXPERT	ENTERP.
D channel protocol decoding	●	●	●
B channel protocol decoding	●	●	●
Filters and Triggers (capture & analysis)	●	●	●
Full detailed decoding on events grid	●	●	●
Hexadecimal displaying of data events	●	●	●
On-line displaying, analysis and decoding	●	●	●
Live B channel statistics	●	●	●
Test report	●	●	●
Off-line statistics report	●	●	●
Calls journaling report	●	●	●
Saving raw data in wave format	●	●	●
Audio analysis (echo, SNR, distortion)	●	●	●
RMS measurement analysis	●	●	●
Remote connection via RS232 and modem	●	●	●
More connections at the same time	●	●	●
Remote connection via TCP/IP	●	●	●
Release upgrading via WEB	●	●	●
Alarm notification via e-mail	●	●	●
Server mode	●	●	●
HTTP, H.323, SIP decoding	●	●	●
Ethernet capture	●	●	●
VoIP quality analysis	●	●	●
VoIP audio quality analysis (MOS)	●	●	●
* Dongle required			

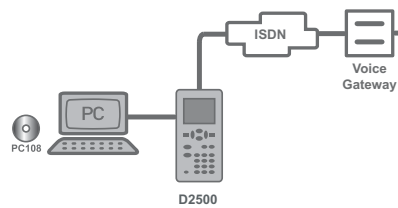
For what concerns the VoIP tools, it must be noticed that the analysis and decoding, the QoS evaluation and the MOS calculation are a special plug-in of the ENTERPRISE version with a dongle to be installed on the PC/laptop.

## VoIP: MONITOR

PC108 for Windows™ can operate also "stand-alone", with no need to connect to an Aethra® test instrument.

The Voice over IP traffic is monitored, allowing the user to analyze in depth and to

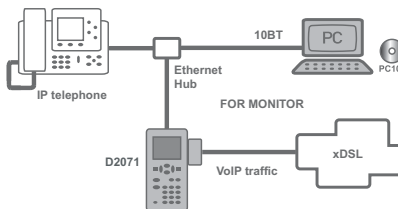
carefully characterize the system under test.



## VoIP over DSL: MONITOR

The VoIP tools of PC108 for Windows™ can analyze and decode the Voice over IP traffic between an IP telephone and the network through the wide band connection.

In this case, the connection can be set up by D2071 xDSL tester with the "Through mode" behaviour.



## VoIP: CONNECTION REPORT

PC108 for Windows™ provides the feature to display a detailed report on the monitored connections (you must have the traces dealing with these connections).

Besides of the list of connections, where the signalling protocol, the source and destination IP addresses, the duration and other global parameters are shown, it's possible to perform a quick evaluation of the quality of the link (QoS index, expressed as percentage).

The calculation of this value, that doesn't match the MOS but it's already a good information of the voice traffic quality, is

done through the processing of the following parameters: jitter, delay, packet loss. Moreover the QoS index is influenced by the communication pattern and by the selected audio codec.

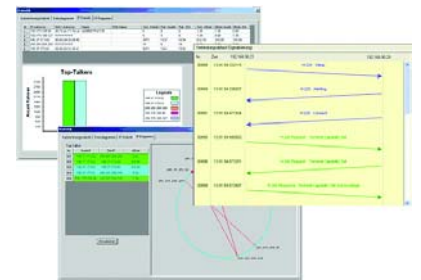
Further details are provided by the flow diagrams resuming each phase of signalling. They are able to highlight possible problems during the SIP or H.323 acknowledgements.

An exhaustive analysis of RTP/RTCP protocols enables a deep investigation on each packet data; it's possible to listen again to the audio track as well (.wav format) in order to judge subjectively the voice quality.

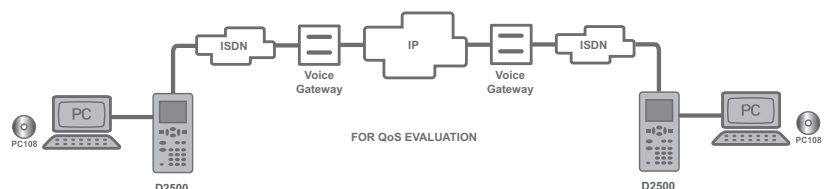
The RTP charts enables a clear and explanatory display of the time-curves for jitter, inter-arrival time and communication pattern. These curves can be analyzed placing on top of them the global traffic of the network.

The connections are characterized also by real-time statistics in form of overviews, bar or circle diagrams. Without interfering with the ongoing measurement or stopping it, the displayed data allow to quickly identify irregularities and errors.

Such statistics provide general information on the capturing trace and on the protocols in use (from layer two to upper layers). Great attention is put on the IP protocol, by displaying the top talkers and quantifying the data traffic between every possible pair of IP addresses.



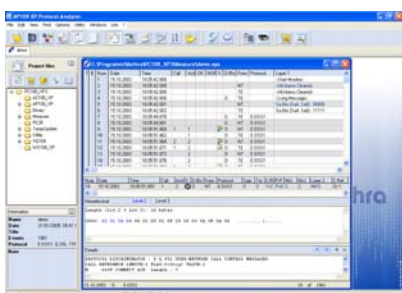
## OBJECTIVE EVALUATION OF QoS



PC108 for Windows™ helps the technician to characterize the whole connection where the VoIP traffic flows. The evaluation is performed through the calculation of MOS, achieved with some audio data sent from a source system to a destination system.

This perceptual voice quality measurement can be calculated by following various algorithms: everyone computes and processes the key VoIP quality parameters that are the packet jitter, frame loss, throughput, latency and out-of-order packets.

## AP108 - PROTOCOL ANALYSIS



The application module AP108 is used for capturing, decoding and analysing messages regarding all the signalling protocols detected over the trunks under exam.

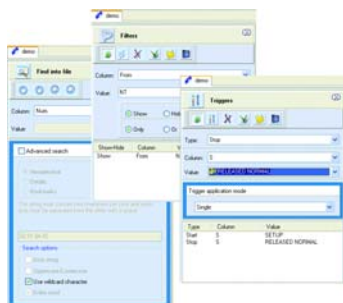
The single events capturing is carried out through an Aethra® test equipment that can send, all the relative information (timestamp, direction, channel) to a personal computer.

Moreover, the capture can occur through the Ethernet port of the PC when you want to analyse and decode a VoIP trace (PC108 stand-alone).

The module improves the device capturing and analysis features with the possibility to:

- Carry out the capture directly from PC
- Manage trace results on hard-disk
- Save traces with variable length not limited by the memory available with the device
- Analyze the protocols more in detail
- Recognize and decode a higher number of protocols
- Decode messages over different channels
- Add advanced features for finding, filters, triggers and statistics

## FILTERS, TRIGGERS AND MORE



During the analysis of a monitor test, the user can show or hide specific events on the trace by using the feature "Filters".

This feature gives the possibility to create also complex filters, depending on the number of conditions they contain.

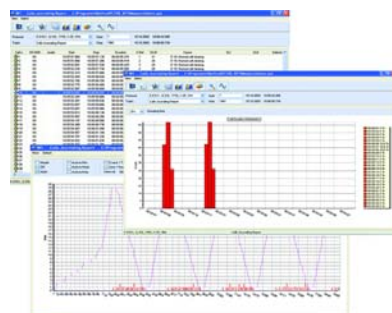
The "Trigger" feature is useful as it allows the user to capture signalling messages starting from a specific initial event with the possibility to terminate the capture when a specific final event occurs.

The "Find into file" feature permits to search a specific event or a string in the current trace. By using it, the operator will be able to perform advanced searches also on hexadecimal and ASCII strings, with the possibility to insert wildcard characters and specify if consider or not uppercase/lowercase characters.

The search can be carried out into a single event or event by event.

## CALLS JOURNALING REPORT

With the Calls Journaling Report the user can extract organized and accurate information on the calls available in the trace under exam. In this way, he avoids a difficult direct analysis of the trace; in fact the calls are listed in a spreadsheet-like grid, with all the data concerning release, result, call start and stop, duration, layers,



disconnection causes.

To simplify the analysis even more, the technician can access also graphic report where the data displayed deal with the time distribution of the calls (released and active calls) and the distribution of the durations (with a grouping time varying from 1 s to 60 s). Such data can be calculated on all the trace or on a restricted portion of it.

## AC108 - APPLICATION CENTER



The application AC108 is a console from where the user may accede to several

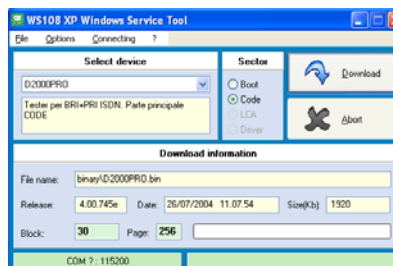
features of the software PC108.

The different applications it contains are:

- Remote control of the device via PC;
- Player/Recorder of Aethra® media files;
- Direct access to the several applications contained in PC108.

The remote control application presents an easy and immediate graphic interface since it recalls the same structure of the device. On the left side is represented the management keyboard and on the right side, the device screen. The lowest part is dedicated to the Player/Recorder control panel.

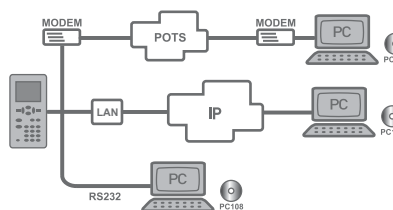
## WS108 - FIRMWARE UPGRADE



PC108 for Windows™ contains a specific tool used to upgrade the device internal firmware.

Thanks to WS108 the user can upgrade his Aethra® instrument on his own, easily and without any waste of time.

## CONNECTIONS MODES



The user has a triple choice to connect a PC where PC108 for Windows™ is running and an Aethra® test instrument. This is very useful as it allows to overcome temporary connection troubles, providing a valid redundancy of possibilities.

For instance, you can bypass possible Ethernet network problems (overloads) through a direct connection, via RS232 cable.



## TECHNICAL SPECIFICATIONS

### MONITOR

• Module AP108	Channel monitor and decoding,
• Features	On-line with the test equipment and off-line with a saved file
• Modes	D, 1B, 1B+D, 2B, AAL5
• Capture type	HDLC, Raw Data
• File format	Legacy file format (APS), TXT, CSV

### PROTOCOL DECODING

• Protocols decoded	E-DSS1, Q.SIG, 1TR6, VN4, DASS-2, X.25 (X.31), DPNSS, TN1R6®, 5ESS, SS7, CorNet®, V5.1/V5.2, DMS100, NI1, Frame Relay, PPP, LCP, BAP, BACP, IP, IPCP, CCP, IPX, ICMP, IPXCP, TCP, UDP, SNTP, DHCP, DNS, TFTP, HTTP, ARP/RARP, IEEE 802.3, Ethernet 2 VJC/VJU TCPIP, MULTILINK, V.120 PADD.P, OSI NL, X.NS, IDP, DEC.Ph.IV, APPLETALK, BRIDG.PDU, ST-II, BANY.VIN, 802.1d.HP, LUXCOM, SIG.NS, OSINLCP, XNS IDPCP, P5CP, APPLE.CP LQR, BRIDGE.NCP, BVCP
• Protocols recognized	SIP/SDP, H.323 (H.225, H.235, H.245, H.450) RTP, RTCP
• VoIP signalling protocols	Full detail, Hexadecimal, Mixed
• Real-Time protocols	
• ASN.1 Facility decoding	
• Events displaying modes	

### xDSL ANALYSIS

• Features	Modem events monitoring, AAL5 packets decoding
• Decoding info	Data, Time (absolute or relative), Events direction, Modem events, AAL5 header, VCI, VPI, Packet length, AAL5 PDU
• ADSL Events decoding	DMT bits on tabular and graphical format
• ATM header decoding	VCI, VPI
• AAL-5 decoding	User to User, CRC errors, Common Part Indicator
• Hexadecimal decoding	LLC, PPPoE discovering, ARP and grouped by levels MAC address discovering, Trailer Payload

### OTHER FEATURES

• Filters/Triggers	Based on Layer 1, 2, 3 protocols, SAPI, TEI, Call Reference, messages direction
• Filtering mode	Capturing and displaying of independent filters
• Triggers mode	One shot, Repeated
• Time cursor	HH:MM:SS.sss delta time
• Find	Files and data into the trace
• Goto	Based on event's number
• Bookmarks	Unlimited, with notes insertion
• Customizing	Colors of trace events and columns displaying
• Multi-User access	Access to the personal profile allowed by password
• Smart decoding	Decoding facilities in real time
• Results saving, multi-format export and printing	

### STATISTICS

• Mode	On-line and off-line mode
• IP traffic	Top talkers, list of connections
• ISDN traffic	Selection time, proceeding time B channels allocation, usage
• Log of calls with detailed information	
• Channel's occupation times for network structure analysis and billing	
• Other useful statistics on events, frames and traffic shape	

### VOICE OVER IP

• Details of connection	Flow charts, RTP diagrams
• QoS evaluation	Jitter, delay, packet loss Communication pattern Audio output (.wav file)
• Audio codec	G.722, G.711 A Law / u Law, GSM
• Audio analogue measures	Echo, Spectral analysis, RMS SNR, Insertion loss, Filters Amplitude and frequency distortion Audio format conversion

### REMOTE CONTROL

• Module AC108	Remote control and applications container
• Remote control mode	Direct connection via RS232, Modem link, TCP/IP network
• Output file format	BMP, ASCII TXT, AVI, Legacy (AMF)
• X.25 message management	With D2000 <sup>PRO</sup> it is possible to set a message and send it via X.25 Possibility to create user's macro actions
• Macro	

The functions available depend on the ordered licence type. Some features can be used in combination with specific devices only

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