

VictoriaSDH/ATM/IP



Multi-Layer Testing

SDH/ATM/IP

in a single tester



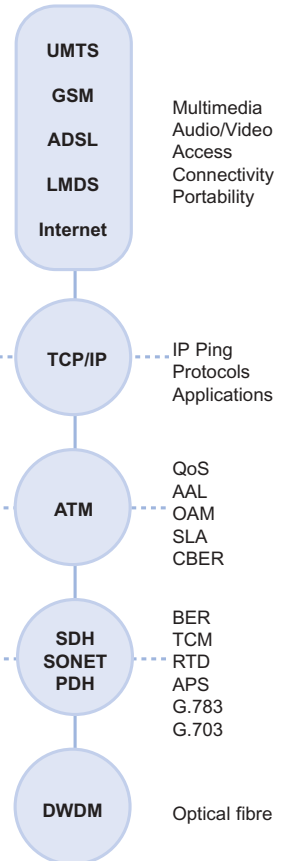
TrendCommunications

Multi-Layer Testing

– for the new generation

With multi-layered network architectures, telecommunications services are becoming more and more independent, and today's networks are more flexible than ever.

As a result, networks as different as UMTS, ADSL, PSTN and Internet can use the same routing, switching or transmission layers, and even share resources.



Victoria SDH/ATM/IP

Universal Multi-Layer Tester

SDH, SONET, PDH and T-Carrier

- Meets O.181 for SDH testers
- BER tests in payload and in OH overhead bytes
- Path trace in J0, J1 and J2
- G.821, G.826, M.2100, M.2101 performance
- Tandem Connection Monitoring (TCM) and APid tests
- G.783 pointer sequences
- TIE and frequency measurements
- Automatic Protection Switching (APS)
- Round Trip Delay (RTD)
- All the SDH, SONET, PDH and T-Carrier interfaces up to 155 Mbit/s
- PDH PCM30/31 frame structure with CAS signalling
- SDH at 34 Mbit/s according to ITU-T G.832
- Output with frequency offset

ATM

- Tests at 2, 34, 45 and 155 Mbit/s
- ATM traffic generation with overhead and payload edition
- Automatic detection of active connections, up to 1024 channels
- ATM, CBER bit error tests
- Simultaneous analysis of CTD, 1-CDV, 2-CDV, CMR, CLR, CER, SECBR, SES and US
- End-to-end or segment F4/F5 cells
- AIS, RDI, continuity check and loopback OAM cells
- Graphical results and results by counters
- Cell capture function
- Generation and analysis of AAL1
- AAL2 with generation and analysis of CPS, SSSAR and SSETD sublayers
- AAL5 generation and analysis



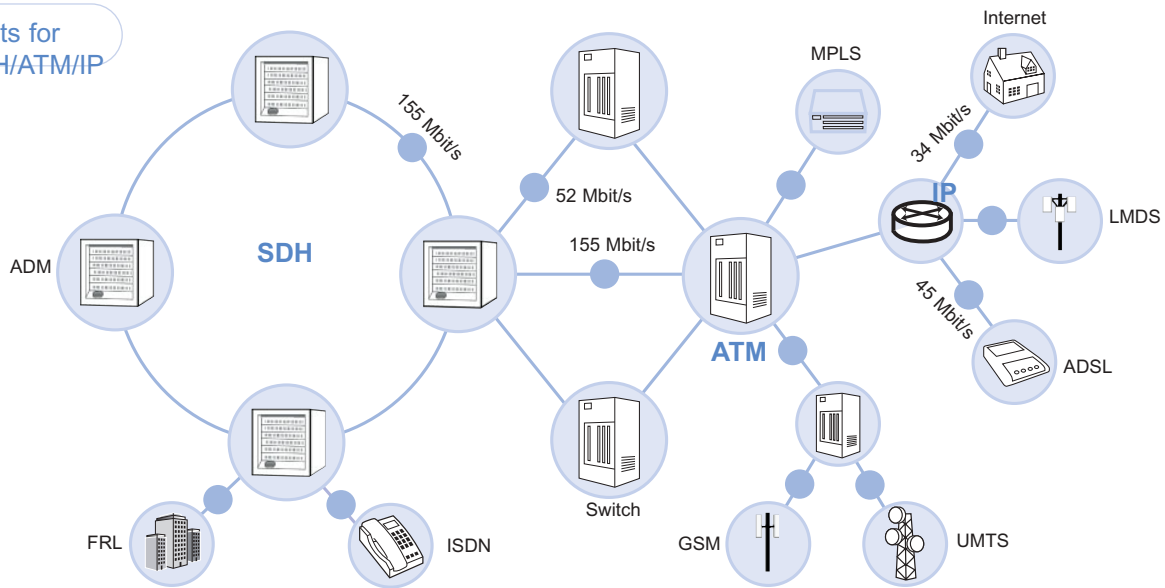
IP

- IP ping over ATM
- List of IP addresses by frequency
- Bandwidth use [bit/s]
- Traffic composition by protocol: TCP, UDP, ICM, IGMP [%]
- Traffic composition by application: WWW, FTP, Telnet, DNS, SNMTP [%]
- Frequency and packet size

The New Generation

of networks and applications

Testing points for
Victoria SDH/ATM/IP



The new generation of networks is beginning to offer advanced services, and their quality depends on the status of the infrastructure that is being used. You need an overall view of all the layers so that you could get a clear view on the status of your network and make wise commissioning and maintenance decisions.

A comprehensive evaluation of the network consists of a full check-up of the circuits and mechanisms that govern the physical SDH layer, but it is equally important to ensure manageable and error-free transmission. It is also essential to make sure that the ATM layer delivers the QoS required. Finally, the TCP/UDP/IP layer requires some basic functions, such as IP Ping and a detailed packet traffic analysis.

SDH, SONET, PDH, T-Carrier

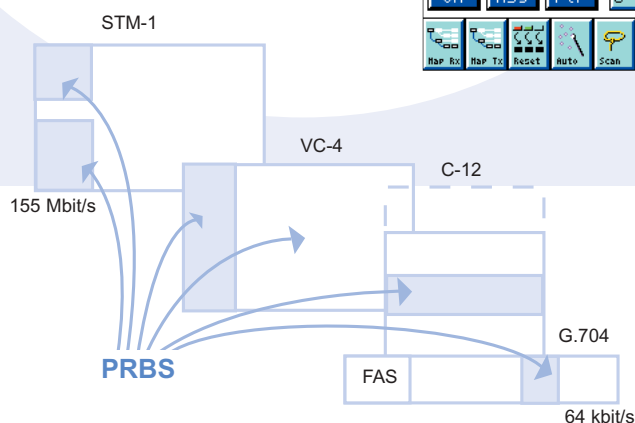
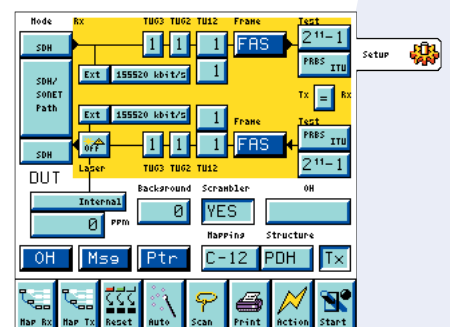
full physical layer analysis

Tests from 64 kbit/s to 155 Mbit/s

With Victoria SDH/ATM/IP there are no limitations for testing the physical layer, as the tester includes even the most advanced and sophisticated physical layer testing functions.

Victoria offers SDH, SONET, PDH and T-Carrier performance from 64 kbit/s up to 155 Mbit/s, normally only provided by desktop instruments.

Victoria SDH/ATM/IP can measure any point of the network, and is the only tester *truly* universal with hierarchies, interfaces and technologies.



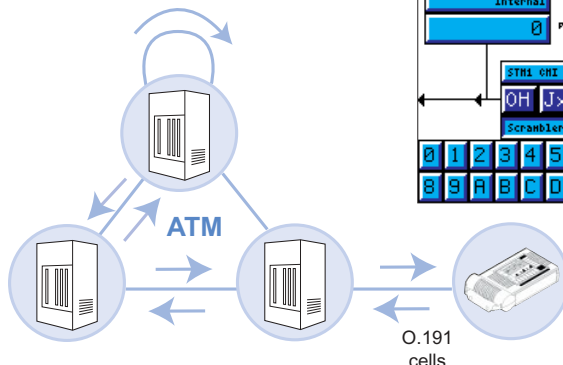
ATM Features

guaranteed performance and service

Optimising Your ATM Networks

Victoria SDH/ATM/IP is truly powerful in performing various measurements simultaneously, for example monitoring errors while measuring QoS and analysing OAM.

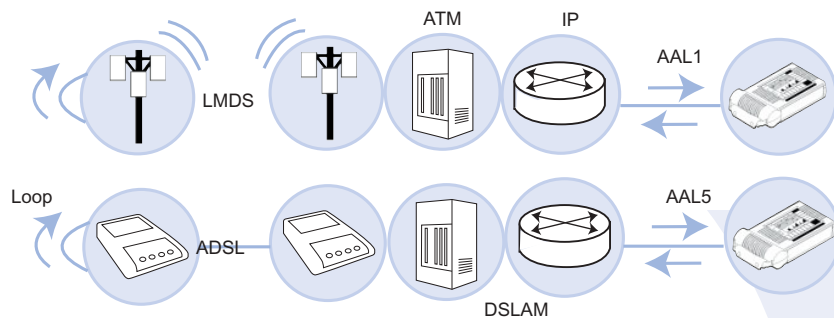
ATM layer measurement results, including physical layer usage, are represented as numeric tables and time graphs.



Installing Access Networks: LMDS and ADSL

There are two main strategies to implement first mile access: ADSL in local loop and LMDS as a wireless solution.

For LMDS, Victoria monitors and generates PRBS over AAL1 with BER calculation, whereas for ADSL, the tester monitors AAL5, including OAM functions. In both cases IP Ping is provided.



VPI	VCI	PTI	CLP	AAL Type
9	32	0	0	1
CSI	SN	ORC	PNB	
0	13	1	4C	45
			43	54
			52	
4F	4E	49	43	53
31	39	39	39	2E
47	41	53	20	41
4C	31	2E	00	0A
49	43	54	4F	52
41	20	41	54	40
20	49	43	54	20
			45	

AAL1 and AAL5 Testing

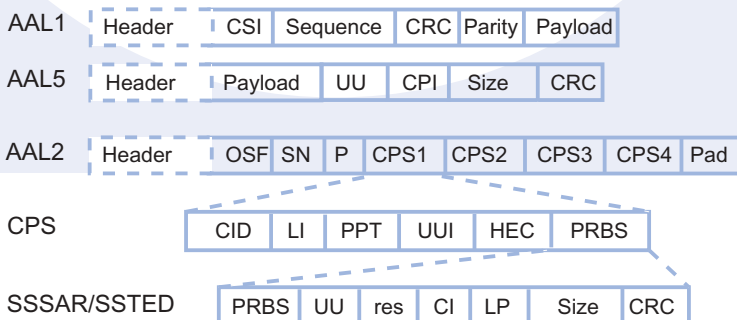
Victoria SDH/ATM/IP includes real-time traffic generation and analysis over AAL to check the performance of circuit emulation and video transport services (AAL1) or data transport (AAL5).



AAL2 Testing

The AAL2 ATM adaptation layer is a key element in 3G wireless networks, such as UMTS, where Victoria is an essential tool.

The tester includes full physical layer tests, AAL2 generation and analysis, IP ping and traffic testing.



IP Analysis

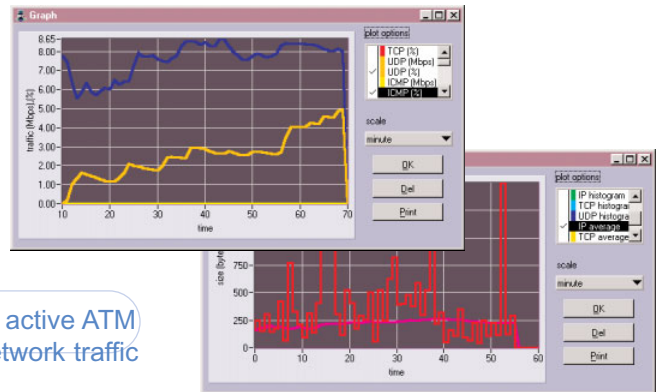
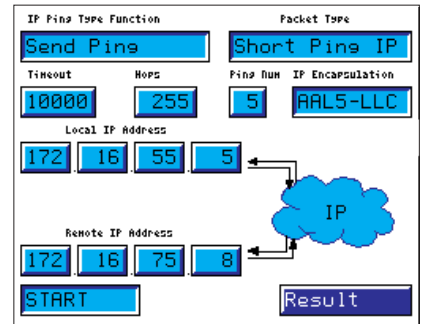
universal language



IP forms the base for the new applications that provide universal connectivity. The performance of these new applications depends to a great extent on the correct configuration, topology and optimization of the TCP/UDP/IP suite.

Victoria SDH/ATM/IP is equipped with an IP Ping function and external software for studying the traffic of these applications.

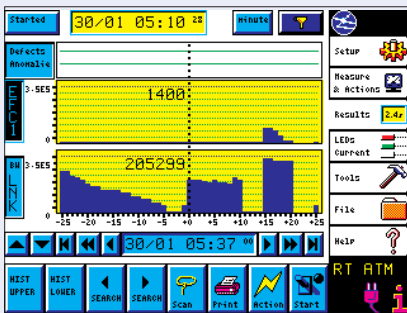
This way, you can test layer 3 connectivity, check bandwidth use and locate the points where delays and data loss occur. You can also monitor the formats, protocols and applications used in networks.



Traffic bandwidth trace of total and active ATM channels enables you to control network traffic

Manageable

power



Tracing

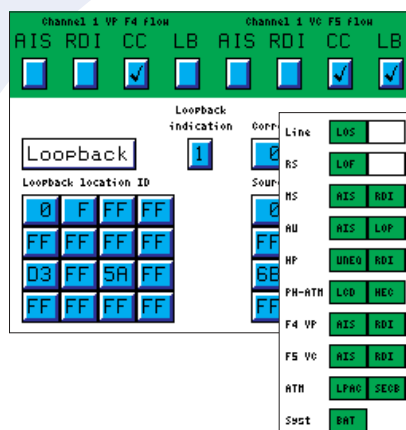
Victoria is a powerful analysing tool able to register all types of events at transmission and switching level. With Victoria, you can also save, print or transfer your results onto a PC.

Functions

The Macros automatically perform programmed measurements, with a single keypress. Autoconfiguration detects the whole signal structure. Fastscan explores tributary alarms and errors.

Touch&Play[®]

The simple syntax and the touch screen offer you the most natural user interface in the market.



Light and autonomous

Its small size, light weight and independence make Victoria a handy instrument and perfect for both field and factory work.

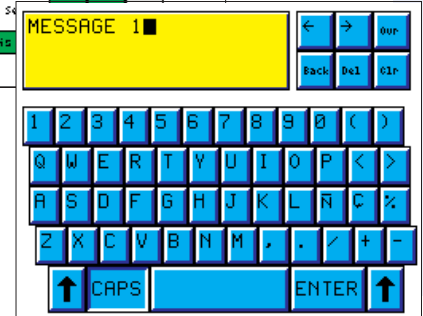
SoftLEDs[®]

Up to 100 events can be displayed simultaneously with 10 external tricolour LEDs indicated on screen.

Connectivity

Thanks to the serial port, you can use Remote Control, print and dump results on a PC, and use the IP Probe to analyse traffic.

- Time graphs and histograms
- Virtually unlimited capacity to register events
- Search, identification and quantitative functions



Modes

Victoria operates in Termination, Transparent and Mux/Demux modes, in and out of service, on any interface.

Victoria SDH/ATM/IP

Relevant Recommendations	ITU-T: G.703, G.704/G.732, G.742, G.751, G.783, G.804, T.832, G.957, O.181, I.432 ANSI: T1.102-1993, T1.108-1995, T1.105.02, T1.646
Interfaces	Optical: 34, 52 and 155 Mbit/s, monomode 1310/1550 nm, multimode 1310 nm, FC or SC connectors, Short and Long Haul Electrical: 1.5, 2, 8, 34, 45, 52, 140 and 155 Mbit/s in a BNC or DIN 1.6/5.6 connector Outputs with frequency offsets from 0 to $\pm 20\,000$ ppm with steps of 0.01 ppm
SDH/SONET	Tests Mappings of 2, 34, 45 and 140 Mbit/s signals in their containers BER tests in containers and OH channels Programmable RSOH, MSOH, LO-POH, HO-POH overhead bytes Analysis and generation of path trace, errors and alarms Analysis and generation of pointer movements; manual and G.783 sequences BER and performance measurements according to G.821D, G.826, M.2100, M.2101.1 Round Trip Delay (RTD) Tandem Connection Monitoring (TCM) Automatic Protection Switching (APS)
PDH/T-Carrier Tests	Analysis and generation of errors and alarms in framed and non-framed signals Frequency, drift and tributary offset measurements BER test (PRBS11, PRBS15, PRBS20, PRBS23, editable) G.821D, G.826, M.2100 performance Round Trip Delay (RTD) G.832 transport of SDH at 34 Mbit/s PCM30/31 structure for 2 Mbit/s signals with/without CRC Programming and monitoring of CAS signalling
ATM Tests	Analysis and generation at 2, 34, 45 and 155 Mbit/s Traffic generation with header and payload edition Trace of up to 1024 active connections Traffic bandwidth trace of total and active channels Monitoring of four independent cell flows BER tests for ATM (CBER), PRBS15, PRBS23, and user defined QoS (O.191): simultaneous analysis of CTD, 1-CDV, 2-CDV, CMR, CLR, CER, SECBR, SES and US OAM (I.610): End-to-end and segment F4/F5 AIS and RDI cells, continuity check and loopback Cell capture function AAL1: complete generation and analysis AAL2: generation and analysis including sublayers CPS, SSSAR and SSETD AAL5: complete generation and analysis
IP Tests	IP Ping over ATM (RFC1483/2684) IP Probe with a PC, graphical results and results in tables List of IP addresses by frequency Bandwidth use [bit/s] Traffic composition by protocol: TCP, UDP, ICM, IGMP [%] Traffic composition by application: WWW, FTP, Telnet, DNS, SNMP [%] Packet size and frequency
Functions	Autoconfiguration: automatic identification of the entering signal FastScan: automatic scan for errors, alarms and events Macros: automatic performance of programmed tests Frequency Measurement Optical Power Measurement Remote Control by SCPI commands Results in tables and graphs Printing and transfer of results onto a PC
Safety	Radiated and conducted emission (EMC): EN55022 Immunity to EMC: EN61000-4-x Immunity to electrostatic discharge (ESD): EN61000-4-2 Electrical safety: EN61010-1
Ergonomics	Size: 257 x 147 x 59 mm 120 x 90 mm colour touchscreen 10 external tricolour LEDs Weight: 1.68 kg Options weight: additional battery 0.37 kg and rubber boot 0.36 kg Power supply by network or NiMH battery, single or double





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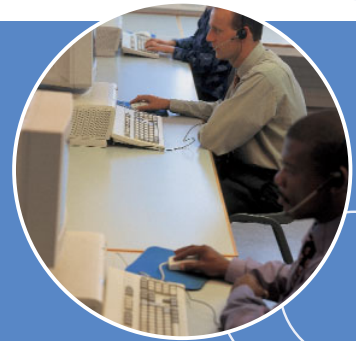
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Distributor

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