

Tools & Facts



News from DHS ELMEA Tools

We distribute Electronic Test Equipment

VePAL CX350 Advanced CATV Analyser

CATV Network Testing Simplified - The VeEX™ VePAL CX350 is a portable, fully integrated test solution for legacy analog and digital Cable TV networks supporting next generation DOCSIS/Euro DOCSIS 3.0 cable modem.



VeEX - CX350 CableTV Analyser

Industry's first CATV test solution supporting Analog signals, DVB-C carriers and DOCSIS® 3.0 modem emulation in a single instrument.

Standard features include a Signal Level Meter (SLM), Spectrum Analyzer, QAM analysis and constellation tests. Optional features include an Upstream Signal Generator (USG), a TDR for CATV cables, and an Upstream QAM Analyzer. Advanced Signal Measurements feature an Adaptive Equalizer On/Off function to troubleshoot micro-reflections and other network impairments.

A high capacity Lilon battery supports a full day operation on a single charge.

CX350 Key Features:

5MHz-1GHz frequency range with Annex A, B and C signal formats

Video/Audio power levels including Advanced Digital signal measurements - Hum, EVM, Phase Jitter & Group Delay

CableLabs® compliant dual band DOCSIS® 3.0 Cable Modem with Pass-Through testing

Spectrum analyzer to capture impulse noise and ingress

Home Installation Procedure (HIP) with user defined location and measurement specific test limits

Comprehensive SLM features including single channel measurement, system scan, tilt, and installation check

TDR supports up to 2km/6ft of standard coaxial cable

Upstream Generator (USG) - CW, QPSK and QAM-16/64/128 modulations

Forward/return path QAM measurements on deep interleaved modulation, MER, Pre/Post BER, Constellation diagram, Histogram, and Equalizer on/off mode

CX Tester Models:

	CX100+	CX120+	CX150+	CX180+	CX350	CX380
SLM	Yes	Yes	Yes	Yes	Yes	Yes
Modem Emulation	No	No	DOCSIS 2.0*	DOCSIS 2.0*	DOCSIS 3.0	DOCSIS 2.0*
TDR	No	Yes*	No	Yes*	Yes*	No
Upstream Signal Generator with FEC	No	Yes	Partial	Yes	Yes	Yes
Return Path QAM	No	No	No	Yes*	Yes*	Yes*

*Optional

DSn/PDH, Datacom, Ethernet Tester

The TX130+ platform offers customers a single, multifunctional access network diagnostic tool. Equipped with PDH/DSn, Datacom and Ethernet interface options, the TX130+ performs traditional ITU-T/ANSI transmission tests required by large telcos and wireless/mobile operators, Datacom tests for networks operating „V“ type interfaces, as well as Ethernet tests for newer, IP-based networks. The TX130+ can also be equipped with ISDN PRI and VF channel analysis.

The TX130+ is designed for field engineers that need an easy-to-use, hand-held and battery-powered field unit. To simplify and ensure rapid testing, the unit auto-configures itself to the signal detected, minimizing operator involvement



TX130+ Test Connectors



TX130+ Test Set

Platform Highlights:

Intuitive presentation of measurements with test graphics

High resolution color touch-screen viewable in any lighting conditions fitted with protective cover

Robust, handheld chassis packed with powerful and flexible features for demanding environments and test conditions

Optimized for field engineers or technicians installing and maintaining transporting legacy network

Ethernet port and connection for back office applications, workforce management and triple play service verification

User defined test profiles and thresholds enable fast, efficient and consistent turn-up of services

USB memory stick support and FTP upload capability for test result storage and file transfer respectively

Maintain instrument software, manage test configurations, process measurement results and generate customer test reports using included ReVeal™ PC software

Extend field testing time using interchangeable Lilon battery pack/s. Greater battery autonomy provided in standby mode

Supports advanced IP testing; Ping, trace route, ARP Wiz, VoIP, IPTV, WiFi, web browser, and FTP upload/download via Ethernet or USB port where applicable

Perform remote testing and monitoring using the remote control option via standard Ethernet interface

Key Features:

Supports E1/DS1, E3/DS3, DSn/PDH bit rates

Balanced (120 Ω) and Unbalanced (75 Ω) interfaces for E1/DS1

Dual E1/DS1 Transmitters & Receivers for bi-directional testing

Full Rate E1/DS1 and Fractional N, Nx64 kbit/s or Nx56 kbit/s testing

Dual E3/DS3 Receiver

Non-intrusive Pulse Mask Analysis at, E1, DS1 and E3, DS3 bit rates

Level and Frequency measurements

Auto Config of network type, bit rate, line coding, framing and test pattern

Bit Error and Performance Analysis per ITU/Bellcore standards

Error and Alarm Generation and Analysis

Histogram and Event analysis for errors and alarms

Round Trip Delay on all interfaces
Transmit Frequency Offset to stress clock recovery circuits

E1/DS1 and E3/DS3 Loop capability

Datacom interface for RS-449 (422 and 423), X.21, V.35 and V.36

Synchronous/asynchronous DTE/DCE mode of operation

10/100/1000-T Ethernet Testing for BERT, Throughput, Loopback and RFC2544 in single stream

VF drop/insert by headset

VF frequency/level measurement and VF send tone

SDN PRI (ANSI and ETSI) call set up

Jitter analysis on all rates, wander analysis on E1 and DS1 rate

Imprint

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Omni-Q

RADCOM's Omni-Q service monitoring solution has been enhanced to provide operators with real value in an IMS environment.

Superior Troubleshooting

The Omni-Q solution offers fully correlated, end-to-end, session-based signaling analysis that is integrated into the database of eDRs (extended call detail records). The actual signaling frames of the call are stored, and the link is saved as a parameter in the eDR that the probe sends to the database. The benefit to the customer is that in-depth troubleshooting capabilities, conditioned through analysis of the signaling frames, are easily accessible from network and trace reports as drill-downs.

Online Correlation

The Omni-Q solution enables complete end-to-end session analysis of calls encompassing multiple IMS, VoIP, SS7 and RTP protocols. This is achieved by using a sophisticated high performance and scalable online run-time correlation engine that concatenates eDRs by subjecting them to parallel processing of multiple correlation algorithms.

Service Profiling

The Omni-Q solution can detect and classify the different flow types within the operator's IMS service offering. This is achieved by creating a 'master' eDR concept, derived from the correlated sessions and using the correlated session for KPIs, rather than just for a signaling ladder diagram.



Radcom R70S High Performance Probe

The master eDR can manipulate fields from the selected eDRs composing the end-to-end session, to provide the essence of the end-to-end flow in a concise fashion.

The benefit to the customer is the ability to obtain clear visibility of meaningful service and network performance statistics, rather than just leg-based quality indicators. Flow-type classification can also be used to segment flows within the network and the IMS core to provide important key performance indicators (KPIs) for preventive troubleshooting and network planning.

Integrated Active Testing

The Omni-Q solution can generate active test calls and provide point-to-point path quality measurements. As the active test call capabilities are fully integrated in the Omni-Q, the test call is also monitored by the non-intrusive probe, to provide a unified, correlated view of the entire call as it progresses through the network.

The test call, emulating a real customer call, also provides additional measurements, such as ITU T P862 results and echo. An important customer benefit from this is the ability

to test across the IMS core regardless of the actual implementation and network elements, to benchmark services and act as a 'heart beat' for the viability of various path routes within the core.

Performance

IMS monitoring is enabled through RADCOM's next generation R70 probe, combining the best of in-house developed ASIC-based hardware processing – the GearSet™ – and multi-processor capabilities to deliver more than 48,000 RTP media stream analyses and over 150,000 signaling session analyses in a leading form factor deployment monitoring point.

Automated Network Monitoring

As networks grow and become more complex, the requirements for network performance monitoring have evolved as well. The days of focusing on „red light/green light“ views are over because alerts are typically so late and keep organizations in a perpetual reactive mode. Successful IT groups want to find the problems in the network before users are impacted or thresholds trip the red light alarm.

Netcordia offers the most comprehensive network monitoring system by providing the only tool to correlate views of network health and performance with network change and configuration data within a single service solution.

As network managers try to isolate the subtle, hard to find problems, traditional performance views often overlook the symptoms and causes of problems because they do not have enough detail or the thresholds are set high to eliminate

too many daily alarms. By combining network performance with change and configuration, NetMRI automates the collection and analysis of data to quickly identify symptoms of potential issues, alert and remediate the problem well before the red light is triggered.

Now, instead of chasing fires after the fact, organizations can maintain and improve network consistency with Netcordia's distinctive network monitoring service and management solution.

The NetMRI Difference

Provides unique network monitoring view by correlating network performance and health with network change and configuration

Identifies potential issues or sub-optimal configurations before other systems identify a problem

Reduces service delivery risk

Lowers time to detect and isolate performance impacting issues

Automates network performance and change monitoring within a single tool

12.5G - Multi Channel BERT

The PCB12500 is a 1-12.5Gb/s Parallel Channel BERT with the capability to add a 0.5-13.5GHz clock synthesizer (model TG1C1-A) and up to five remote heads on 3-foot (1-metre) cables. Interchangeable heads include a PRBS generator and a PRBS error detector, additional heads will be released for generating, receiving, or conditioning bitstreams used for signal integrity testing.

The PCB12500 controller requires an external full-rate clock to drive the primary head. This same clock can also drive the other four heads or a second external clock can be used.

The TG1C1-A reference and jittered clock output can be used to apply clean or jittered clocks to the remote heads. The controller has highly-accurate multi-UI phase shift control for four of the five heads.

This allows heads to generate synchronized (or intentionally un-synchronized) outputs or make measurements with accurate clock/data alignment.

All features can be controlled through the PCB12500 control panel, TG1C1-A control panel, or remotely through a GPIB or USB interface.

Labview drivers are available at no cost.



PCB 12500
Parallel Channel BERT

Applications:

BER or eye-mask testing of multi-lane high-speed data channels

Testing backplane performance in the presence of multiple aggressors

Parallel stimulus/response testing for higher manufacturing throughput

Multi-aggressor crosstalk analysis and verification

Multi-channel BER testing

PPG 12500 - 12.5Gbit/s Programmable Pattern Generator

The PPG12500 is a 1-13Gb/s single channel Programmable Pattern Generator. Key features such as 32Mbit user-programmable pattern memory and two-tap de-emphasis provide the capability for compliance testing in Backplane, Copper and Fiber applications e.g. PCIe, USB3.0, SAS, 802.3ap 10G Ethernet, and Displayport testing. The generator has integrated precision clock and data phase adjust to align the output waveform as desired.



PPG 12500 Program Pattern Generator

The generator has 32Mbit programmable pattern memory and flexible trigger output. The programming software has many telecom and datacom preloads ready, including CJPAT, CRPAT, K28.5, PRBS2N-1 [N=7,9,10,11,15,23,29,31], etc. The generator differential output has fully adjustable output amplitude, crossover, DC offset, and two-tap de-emphasis.

All features can be controlled through the PPG12500 control panel or remotely through GPIB or USB. Labview drivers are available.

12.5G - 40G BERTs

The Centellax TG1B1-A 10G BERT is a cost-effective 0.5 to 12.5Gbps Pseudo-Random Bit Sequence generator and Bit Error Rate Tester designed for automated production-line testing, manufacturing and R&D lab use.

The BERT features an internal clock operating from 9.85 to 11.35Gbps, differential inputs and outputs, output amplitude control, jitter injection capability, GPIB control, and excellent eye quality.

Centellax offers a standard one-year warranty, with an extended warranty available, and free calibration during the warranty period.

The Centellax LabView VI driver allows you to easily in-

tegrate the BERT into your test system.

40G BERTs and PRBS generators up to 56Gbit/s are available as well.



TG1B1-A - 12.5G BERT

Key Features:

Low cost

High Performance

Internal or external clock system

Differential or single-ended input and outputs

Programmable output amplitude control

High-UI jitter injection for stressed eye testing

Can be used with Local push-buttons

GPIB remote interface

Optical Layer Monitoring

WISTOM is a high performance optical layer Key features monitor, combining the features of an optical spectrum analyzer and a fast optical channel monitor, aimed at long haul and metropolitan DWDM network supervision.



The WISTOM In-Fiber Intelligence™ combines optical channel monitoring (OCM) and optical performance monitoring (OPM) creating a real-time optical layer monitoring (OLM) capability. This enables proactive optical signal surveillance in the alloptical domain.

Due to WISTOM's high optical resolution, dense DWDM channel spacing can be managed over the full spectrum. Improved tuning and detection schemes, involving precision scanning techniques, ensure high measurement accuracy and reliability. WISTOM monitors the spectral characteristics over the C-band.

Any channel deviating from normal conditions is reported within milliseconds. Spectral characteristics, such as central wavelength and OSNR of each channel are monitored and reported. The long term drift of these parameters can be tracked and analyzed, thus providing input for network tuning and resource allocations.

WISTOM gives service providers the opportunity to resolve channel specific problems, in some cases even before a degrading channel suffers critical data loss. This translates into less costly network downtime and the ability to avoid violati-

Key Features:

Non-intrusive,
In-Fiber signal monitoring

Fast scan of entire DWDM spectrum in real-time

Excellent power and wavelength accuracy

Integrated optical switch for multi-fiber monitoring

Full-featured API for effective application integration

SNMP for effective network management integration

Highly adaptable, modular SW platform

Robust assembly with no moving parts ensures reliability

Numerous customization alternatives for high interoperability

on of service level agreements (SLAs). The unique measurement performance of WISTOM also enables diversified billing models and intricate SLA supervision.

SyncE Wander Testing

In recent years Ethernet developed into a major technology for data transmission with telecom and wireless providers. It is inexpensive, simple and widely deployed. However regular Ethernet networks are asynchronous and based on +/- 100ppm oscillators and that is a challenge.

So what is SyncE ?

SyncE stands for „Synchronous Ethernet“.

It is a Physical Layer, point to point technology. SyncE allows operators to converge services into a single, cost efficient network. It provides a simple, reliable and well understood method of distributing synchronisation over the physical layer through packet networks.

The SyncE Tap from CuBro helps to verify optical Gigabit Ethernet Links in reference to their Wander behaviour.

The Tap extracts a 125MHz clock from the data path which is measured by a Pendulum WM11 Wandermeter.

In combination the setup represents an inexpensive All-in-One Wander measurement solution.

CuBro SyncE Tap:

passes an optical GBit Ethernet signal and extracts the clock (SyncE 125MHz)

IEEE 1588 - 1 pps

fully transparent

100% non intrusive

provides 2 clock outputs for connection to a Pendulum Wandermeter



CuBro - SyncE Tap - Test Setup

Hitachi IT Operations Analyser

Software for systems monitoring and management in the IT environment is one of the most important IT investments your mid-sized business will ever make. But given the challenges that systems management poses for companies like yours, how can you ensure that the software you buy will deliver the best results – for the lowest total cost?

And, that it will address the biggest challenges associated with managing your IT infrastructure, including:

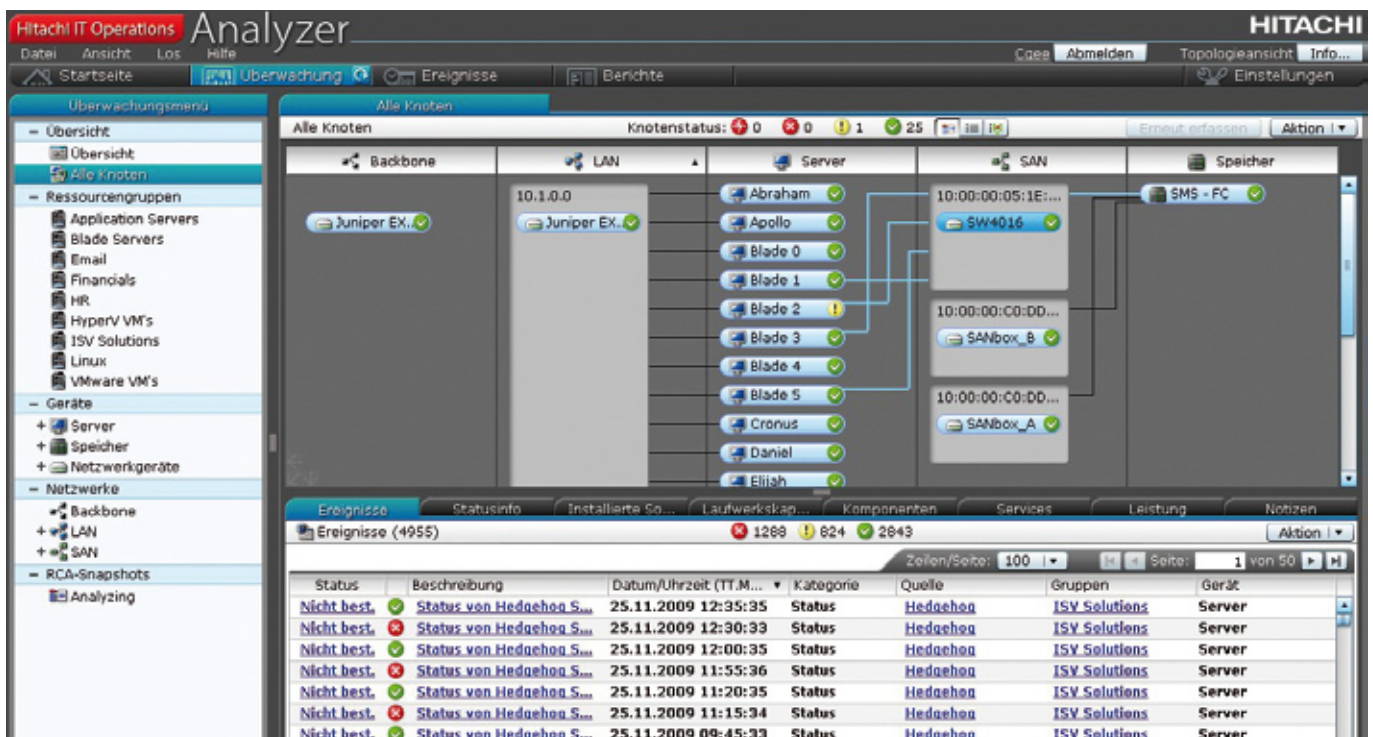
- Increasing operational complexity
- Growing service level demands
- Lean staff of IT generalists
- Continuing economic pressures

There are many potential pitfalls in selecting systems management software. Often the real issues that need to be addressed are masked by symptoms of other issues.

Five key characteristics of software that can help you successfully sift through the offerings to select the “right” solution are:

1. Single, consolidated view of resources
2. Vendor agnostic solution
3. Simplified deployment
4. Intuitive, automated operations
5. Developed specifically for medium companies

Software that includes these attributes is more likely to deliver low total cost of ownership (TCO) within the software and lower TCO to the IT infrastructure.



Hitachi IT Operations Analyzer topology view shows problem root cause details and can be easily segmented into logical views to show network path relationships within the IT infrastructure.

For medium companies looking for a simplified solution to monitor and manage IT assets, Hitachi IT Operations Analyzer software delivers on the five criteria for low TCO described above. The software diagnoses and monitors heterogeneous server, network and storage assets. It has been characterized by IDC as “an integrated performance and availability monitoring tool created with the needs of IT generalists in mind.” The software specifically offers the following to support efficient, effective operations and low TCO:

1. Single unified interface for monitoring servers, networks and storage
2. Support for multiple vendors and platforms
3. “Agentless” architecture to speed and simplify deployment
4. Automated root cause analysis of problems
5. Developed to specifically meet the needs of mid-sized IT environments

At the end of the day, IT managers need to address three key business issues they face on an ongoing basis:

- Maximizing system availability
- Reducing complexity of the IT infrastructure
- Managing budget and human resources effectively

Investing in Hitachi IT Operations Analyzer can help you manage these business issues and more, with the flexibility and simplicity you’ve been waiting for.

The entire White Paper is available here:

<http://itoperations.hds.com/Documents/en/Product%20Resources/SMBuyersGuide.pdf>