



Telecom **backhails** have migrated to 10Gb Ethernet/IP/MPLS while bunch of synchronization alternatives are available including: a) **TDM** based signals such as E1/T1, b) satellite **GNSS** and c) packet based solutions such as **SyncE** and **PTP**. **Ether10.Genius** is ready to test or monitor these architectures while emulating terminals, multiplexers, clocks and trasmission nodes.

Market Analysis

Updated on 21/10/15

10GbE, PTP/SyncE, C.3794 testing

Ether10.Genius	VePAL TX320s	MTS-5800	NetBlazer V2	Network Master Pro MT1000A
				
ALBEDO	VEEX	VIAVI	EXFO	ANRITSU

CONFIDENTIAL

PLATFORM					
Size	<ul style="list-style-type: none"> • 210 × 110 × 60 mm • Volume: 1,386 cc • 1.1 kg 	<ul style="list-style-type: none"> • 290 × 140 × 66 mm • Volume: 2,680 cc • 1.58 kg 	<ul style="list-style-type: none"> • 215 × 175 × 42 mm • Volume: 1,580 cc • 1.9kg 	<ul style="list-style-type: none"> • 254 × 210 × 55 mm • Volume: 2,934 cc • 2 kg 	<ul style="list-style-type: none"> • 257 × 164 × 77 mm • Volume: 3,245 cc • 2.7 kg
Architecture	• All interfaces included	• Factory Moduls	• All interfaces included	• Modular equipment	• All interfaces included
Display	<ul style="list-style-type: none"> • 480 x 272 pixels (4.3") • Touchscreen • Keyboard • Mouse 	<ul style="list-style-type: none"> • 840 x 480 pixels (7") • Touchscreen • Keyboard 	<ul style="list-style-type: none"> • 1200 x 600 pixels (7") • Touchscreen 	<ul style="list-style-type: none"> • 8 inch • Touchscreen • Multitouch 	<ul style="list-style-type: none"> • 800 × 480 pixels (9") • Touchscreen
Ruggedness	• 1,5 meters drop	• 1,0 meter drop	• IEC 721	• (?)	• (?)
Remote Control	<ul style="list-style-type: none"> • Standard VNC • SNMP 	• Proprietary (ReVeals)	<ul style="list-style-type: none"> • Standard VNC • SNMP 	• Standard VNC	• Standard VNC
Batteries	<ul style="list-style-type: none"> • 2 x Li-Po • 8 hours in 10 GbE • 24 hours in EI 	<ul style="list-style-type: none"> • Li-Ion • 2-6 hours 	<ul style="list-style-type: none"> • Li-Ion • 4 hours in 10GbE 	<ul style="list-style-type: none"> • Li-Ion • 2 hours 	<ul style="list-style-type: none"> • Li-Ion • 4 hours
Auxiliar Ports	<ul style="list-style-type: none"> • Ethernet RJ45 • 2 x USB • Headset 3.5 mm • SD card 	<ul style="list-style-type: none"> • Ethernet RJ45 • 2 x USB • Bluetooth • Celullar 	<ul style="list-style-type: none"> • 2 x Ethernet RJ45 • 2 x USB • Bluetooth • Celullar 	<ul style="list-style-type: none"> • Ethernet RJ45 • 3 x USB • SD card 	<ul style="list-style-type: none"> • 3 x USB • Ethernet RJ45 • IEEE 802.11 b/g/n • Bluetooth • Headset
GNSS receiver	• Antenna	• Antenna	• Antenna	• No	• Antenna
Optical Interfaces	<ul style="list-style-type: none"> • 2 x SFP+ • C37.94 	• 2 x SFP+	• 2 x SFP+	• 2 x SFP+	• 2 x SFP+
Electrical Interfaces	<ul style="list-style-type: none"> • 2 x RJ-45 • 2 x BNC • 2 x RJ45-balun • External Clock input • VF input • 2 x Datacom DTE/DCE 	<ul style="list-style-type: none"> • 2 x Bantam / RJ45 • 2 x BNC • External Clock input • VF input 	<ul style="list-style-type: none"> • 2 x Bantam • 2 x RJ-45 • 2 x BNC • External Clock input • VF input 	<ul style="list-style-type: none"> • 1 x Bantam • 2 x RJ-45 • 2 x BNC • External Clock input • VF input 	<ul style="list-style-type: none"> • 4 x Bantam • 2 x RJ45 • 2 x RJ48 • 4 x BNC • BNC External Clock input • VF input

Ether10.Genius	VePAL TX320s	MTS-5800	NetBlazer V2	Network Master Pro MT1000A
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CLOCKS					
Internal Clock	<ul style="list-style-type: none"> GPS built-in receiver OCXO ±0.1 ppm Default better ±2.0 ppm 	<ul style="list-style-type: none"> GPS built-in receiver Internat Atomic clock 	<ul style="list-style-type: none"> Internal (Stratum 3) 	<ul style="list-style-type: none"> (?) 	<ul style="list-style-type: none"> 4.6 ppm,
External Inputs	<ul style="list-style-type: none"> DSI, EI 1.5, 2, 10 MHz 1 pps 	<ul style="list-style-type: none"> DSI, EI 1.5, 2, 10 MHz 1 pps SyncE, PPT 	<ul style="list-style-type: none"> DSI, EI 1.5, 2, 10 MHz 1 pps 	<ul style="list-style-type: none"> 1.5, 2 Mb/s, 1.5, 2 MHz 	<ul style="list-style-type: none"> DSI, EI 2, 10 MHz 1 pps PTP
Clock outputs	<ul style="list-style-type: none"> 1 pps 2Mb/s, 2.0, 10 MHz 	<ul style="list-style-type: none"> 1.5, 2.048 Mb/s 1.5, 2, 10, 25, 125 MHz 1 pps 	<ul style="list-style-type: none"> No(?) 	<ul style="list-style-type: none"> 1.5, 2 Mb/s, 1.5, 2 MHz 	<ul style="list-style-type: none"> (?)

ETHERNET - IP					
Test Ports	<ul style="list-style-type: none"> 10G WAN, 1000BASE-X, 10/100/1000BASE-T, 100BASE-FX Dual Port 	<ul style="list-style-type: none"> 10G WAN, 1000BASE-X, 10/100/1000BASE-T, 100BASE-FX Dual Port 	<ul style="list-style-type: none"> 10G WAN, 1000BASE-X, 10/100/1000BASE-T, 100BASE-FX Dual Port 	<ul style="list-style-type: none"> 10G WAN, 1000BASE-X, 10/100/1000BASE-T, 100BASE-FX Dual Port 	<ul style="list-style-type: none"> 10G WAN, 1000BASE-X, 10/100/1000BASE-T, 100BASE-FX Dual Port
Frames	<ul style="list-style-type: none"> IEEE 802.3 / DIX VLAN, 802.1ad / Q-in-Q MPLS FCS error insertion IPv4 and IPv6 	<ul style="list-style-type: none"> IEEE 802.3 / DIX VLAN, 802.1ad / Q-in-Q MPLS IPv4 and IPv6 	<ul style="list-style-type: none"> IEEE 802.3 / DIX VLAN, 802.1ad / Q-in-Q MPLS IPv4 and IPv6 	<ul style="list-style-type: none"> IEEE 802.3 / DIX VLAN, 802.1ad / Q-in-Q MPLS IPv4 and IPv6 	<ul style="list-style-type: none"> IEEE 802.3 / DIX VLAN, 802.1ad / Q-in-Q MPLS IPv4 and IPv6
Optical	<ul style="list-style-type: none"> Power Meter 	<ul style="list-style-type: none"> Power Meter OTDR 	<ul style="list-style-type: none"> Power Meter 	<ul style="list-style-type: none"> Power Meter 	<ul style="list-style-type: none"> No
PoE Plus	<ul style="list-style-type: none"> Yes PoE Plus 	<ul style="list-style-type: none"> No(?) 	<ul style="list-style-type: none"> No(?) 	<ul style="list-style-type: none"> Only standard PoE 	<ul style="list-style-type: none"> Only standard PoE
Cable test	<ul style="list-style-type: none"> TDR: Open, Short distance to fault Active links: MDI / MDIX Wiremap: Open, Short, Straight, Crossed, Polarity, Pair Skew, Crosstalk 	<ul style="list-style-type: none"> TDR: Open/Short distance fault 	<ul style="list-style-type: none"> TDR: Distance to fault Wiremap: Polarity, Skew 	<ul style="list-style-type: none"> TDR: Open, Short distance to fault Cable length Wiremap: Open, Short, Straight, Crossed, Polarity, Pair skew 	<ul style="list-style-type: none"> No
Operation Modes	<ul style="list-style-type: none"> Terminal: IP, Ethernet, LL Pass through, Monitor Loop-back 	<ul style="list-style-type: none"> Terminal Monitor Loop-back 	<ul style="list-style-type: none"> Pass through Terminal Monitor Loop-back 	<ul style="list-style-type: none"> Pass through Terminal Loop-back 	<ul style="list-style-type: none"> Terminal Pass through, Monitor Loop-back
Latency	<ul style="list-style-type: none"> One-way delay with GPS Round Trip Delay (RTD) 	<ul style="list-style-type: none"> No OWD Round Trip Delay (RTD) 	<ul style="list-style-type: none"> OWD with GPS and CDMA Round Trip Delay (RTD) 	<ul style="list-style-type: none"> No OWD Round Trip Delay (RTD) 	<ul style="list-style-type: none"> No OWD Round Trip Delay (RTD)
Packet Capture	<ul style="list-style-type: none"> No 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> No
Streams	<ul style="list-style-type: none"> 8 streams 	<ul style="list-style-type: none"> 8 streams 	<ul style="list-style-type: none"> 10 streams 	<ul style="list-style-type: none"> 16 streams 	<ul style="list-style-type: none"> 16 streams
Measurements	<ul style="list-style-type: none"> BERT Alarm Detection/Genera 	<ul style="list-style-type: none"> BERT Alarm Detection Service Disruption Time PBB (MAC-in-MAC) 	<ul style="list-style-type: none"> BERT Alarm Detection Service Disruption Time 	<ul style="list-style-type: none"> BERT Alarm Detection Service Disruption Time 	<ul style="list-style-type: none"> BERT Alarm Detection/Genera Service Disruption Time PBB (MAC-in-MAC)
Protocols	<ul style="list-style-type: none"> DHCP, ARP, DNS Ping, Traceroute 	<ul style="list-style-type: none"> DHCP, ARP, DNS Ping, Traceroute FTP, HTTP 	<ul style="list-style-type: none"> DHCP, ARP, DNS Ping, Traceroute FTP, HTTP 	<ul style="list-style-type: none"> DHCP, ARP, DNS Ping, Traceroute FTP, HTTP 	<ul style="list-style-type: none"> DHCP, ARP, DNS Ping, Traceroute
Bandwidth Profiles	<ul style="list-style-type: none"> Constant, Burst, Ramp, Random 	<ul style="list-style-type: none"> Constant, Burst, Ramp 	<ul style="list-style-type: none"> Constant, Ramp, Bursty, Flood 	<ul style="list-style-type: none"> Constant, Burst, Ramp 	<ul style="list-style-type: none"> Constant, (Burst), Ramp
Ethernet OAM	<ul style="list-style-type: none"> No 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> Yes

	Ether10.Genius	VePAL TX320s	MTS-5800	NetBlazer V2	Network Master Pro MT1000A
RFC-6349	- No	- Yes	- Yes	- Yes	- Yes
RFC-2544	- Symmetric - Asymmetric (with GPS) - Throughput, Back-to-back, Frame loss, Latency, System recovery	- Symmetric - Asymmetric - Throughput, Back-to-back, Frame Loss, Latency	- Symmetric - Asymmetric - Throughput, Back-to-back, Frame loss, (Jitter), Latency, System recovery	- Symmetric - Throughput, back-to-back, frame loss and latency	- Symmetric - Asymmetric (with GPS) - Throughput, back-to-back, frame loss and latency
Y.1564 (eSAM)	- Symmetric - Asymmetric (with GPS)	- Symmetric	- Symmetric - Asymmetric	- Symmetric - Asymmetric (?)	- Symmetric - Asymmetric (with GPS)

SYNCHRONOUS ETHERNET - ITU-T G.8261					
PTP Modes	- Master, Slave, Passthrough	- Master, Slave	- Master, Slave	- Master, Slave	- Master, Slave
Frequency	- Offset and Drift - Analysis and Generation	- Offset - Analysis and Generation	- Offset - Analysis and Generation	- Offset - Analysis	- Offset - Analysis
ESMC / SSM (QL)	- Monitor, decode, generat.	- Monitor, decode, generat.	- Monitor, decode, generat.	- Monitor, decode, generat.	- Monitor, decode
SyncE Wander	- Built-in and real-time measurement - TIE, MTIE, TDEV	- Built-in and real-time measurement - TIE, MTIE, TDEV	- No(?)	- No	- No
Wander Generation	- Sinusoidal wander	- No	- No	- No	- No

PTP - 1588v2					
PTP modes	- Master, Slave, Transparnt - Protocol Decode/Generate - Freq. offset, drift	- Master, Slave, Transparnt - Protocol Decode/Generate - Freq. offset, drift	- Master, Slave - Protocol Decode/Generate	- Master, Slave - Protocol Decode/Generate	- Master, Slave - Protocol Decode/Generate
PTP Profiles	- Telecom - Electrical	- No(?)	- No(?)	- No(?)	- No(?)
PTP Wander	- Built-in and real-time - TIE, MTIE, TDEV	- Built-in and real-time - TIE, MTIE, TDEV	- No(?)	- No	- No
Floor metrics	- FPR, FPP, FPC - Pass / Fail threshold	- No	- No	- No	- No

E1 - T1					
Frames	- E1 (PCM-30/C, PCM-31/C) - DS1 (Q4-2015)	- E1, E2, E3 - DS1, DS3	- E1, OC-3 to OC192 - STM-1 to STM-64	- E1, OC-3 to OC192 - STM-1 to STM-64	- E1, OC-3 to OC192 - STM-1 to STM-64
Modes	- Terminal Monitor, Pass-through, Loop-back, Mux-Demux, Analogue	- Terminal Monitor, Pass-through, Loop-back, Analogue	- Terminal Monitor, Pass-through, Loop-back, Analogue	- Terminal Monitor, Pass-through, Loop-back, Analogue	- Terminal Monitor, Pass-through, Loop-back, Analogue
Measurements	- Attenuation - Frequency, Freq. deviation	- Attenuation - Frequency	- Attenuation - Frequency, Freq. deviation	- Attenuation - Frequency, Freq. deviation	- Attenuation - Frequency, Freq. deviation
Analysis	- G821, G826, M2100 - CAS, G711	- G821, G826, M2100 - CAS, G711	- G821, G826, M2100 - CAS, G711	- G.821, G.826, G.828, G.829, M.2100, M.2101	- G.821, G.826, M.2100
Latency	- Round Trip Delay (RTD) - One-Way Delay (OWD)	- Round Trip Delay (RTD)	- Round Trip Delay (RTD)	- Round Trip Delay (RTD)	- Round Trip Delay (RTD)
Pulse Mask	- Yes	- Yes	- Yes	- No(?)	- No(?)
Voice Frequency (VF)	- Measurement, generation - Add/drop	- Measurement, generation - Add/drop	- Yes	- No	- No
E1/T1 Jitter	- Analysis - Jitter Generation	- Analysis	- Analysis	- No	- No

	Ether10.Genius	VePAL TX320s	MTS-5800	NetBlazer V2	Network Master Pro MT1000A
EI/TI Wander	<ul style="list-style-type: none"> - TIE, MTIE, TDEV - Wander Generation 	<ul style="list-style-type: none"> - TIE, MTIE, TDEV - Wander Generation 	<ul style="list-style-type: none"> - TIE, MTIE, TDEV 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No

ITU-T G.703 / E0 (codirectional)					
Functions	<ul style="list-style-type: none"> - BER - Anomalies insert / analysis - Defects insertion, analysis - G.821 performance 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No
Latency	<ul style="list-style-type: none"> - Round Trip Delay (RTD) - One-Way Delay (OWD) 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No

C37.94					
Tests	<ul style="list-style-type: none"> - Rate from 64 to 768 kb/s - BER and ITU-T G.821 - Pass / Fail indications - Alarms Detect/Insert - Enhanced SFPs 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No
Measurements	<ul style="list-style-type: none"> - Optical Power meter - Freq. Deviation, Data rate 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No
Latency	<ul style="list-style-type: none"> - Round Trip Delay (RTD) - One-Way Delay with GPS 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No

DATACOM					
Operation Modes	<ul style="list-style-type: none"> - Terminal, Monitor 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No
Datacom	<ul style="list-style-type: none"> - Standard cables (CISCO) - From 50 b/s to 2048 kb/s - V.24/V.28 (RS-232), X.21/V.11, V.35, V.36 (RS-449), EIA-530 / 530A 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No
Analysis	<ul style="list-style-type: none"> - BER and G.821 - LOC, AIS, LSS, All 0, All 1 - Anomalies: TSE, Slip - Attenuation, Freq., Deviat. 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No
Latency	<ul style="list-style-type: none"> - Round Trip Delay (RTD) - One-Way Delay with GPS 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No

VoIP					
PBX emulation	<ul style="list-style-type: none"> - Yes (external PC) 	<ul style="list-style-type: none"> - One Terminal 	<ul style="list-style-type: none"> - One Terminal 	<ul style="list-style-type: none"> - One Terminal 	<ul style="list-style-type: none"> - No
Network emulation	<ul style="list-style-type: none"> - Yes 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No
T.38 Fax emulation	<ul style="list-style-type: none"> - Yes 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - No
Simultaneous Calls	<ul style="list-style-type: none"> - 5 simultaneous calls 	<ul style="list-style-type: none"> - One call 	<ul style="list-style-type: none"> - One call 	<ul style="list-style-type: none"> - One call 	<ul style="list-style-type: none"> - No
Codec	<ul style="list-style-type: none"> - G711, G723, G.729 	<ul style="list-style-type: none"> - G711, G723, G729 	<ul style="list-style-type: none"> - G.711, G.723, G.729, G.726, G.722 	<ul style="list-style-type: none"> - No(?) 	<ul style="list-style-type: none"> - No
Voice Quality	<ul style="list-style-type: none"> - MOS 	<ul style="list-style-type: none"> - MOS 	<ul style="list-style-type: none"> - MOS 	<ul style="list-style-type: none"> - MOS & R-Factor 	<ul style="list-style-type: none"> - No
RTP statistic:	<ul style="list-style-type: none"> - Jitter, Delay, Loss 	<ul style="list-style-type: none"> - No 	<ul style="list-style-type: none"> - Yes 	<ul style="list-style-type: none"> - Yes 	<ul style="list-style-type: none"> - No
DTMF tone	<ul style="list-style-type: none"> - Yes 	<ul style="list-style-type: none"> - Yes 	<ul style="list-style-type: none"> - No(?) 	<ul style="list-style-type: none"> - Yes 	<ul style="list-style-type: none"> - No
SIP analysis	<ul style="list-style-type: none"> - Yes 	<ul style="list-style-type: none"> - Yes 	<ul style="list-style-type: none"> - Yes 	<ul style="list-style-type: none"> - Yes 	<ul style="list-style-type: none"> - No
Call Modes	<ul style="list-style-type: none"> - Single, Sequential, Mass 	<ul style="list-style-type: none"> - Single 	<ul style="list-style-type: none"> - Single 	<ul style="list-style-type: none"> - Single 	<ul style="list-style-type: none"> - No