AUKUA SYSTEMS

MGA2510 Product Brief

Ethernet Network Emulator

Applications

- Real-world application performance assessment
- Realistically reproducing 'field' or 'production network' issues in the lab
- Negative Functional Testing

Feature Highlights

- First and only 10M, 100M, 1G, 2.5G, 5G, 10G Ethernet capable network impairment emulator
- Combo copper (RJ45) and optical (SFP+) support
- Delay generation (fixed and variable / PDV)
- Packet drop, corrupt, FCS, link fail/flap and other impairments
- Bandwidth control
- Uniform, Gaussian and custom impairment distributions
- Selective impairments with powerful L2-L7 protocol filters
- Intuitive browser-based GUI and complete automation API
- Real-time statistics and graphical analysis
- Optional Traffic Generator and Packet Capture features

Overview

Aukua Systems' Ethernet Network Impairment Emulator is an easy to use purpose-built test system for R&D, Test and Support engineers building Ethernet based IT, storage networking and communications systems.

Aukua Ethernet Network Impairment Emulators are used to precisely recreate the delays, congestion and packet or link impairments found on all real-world data and storage networks. This helps our customers to quickly and accurately verify the performance of applications under real-world situations in a simple and repeatable way in the lab. Realistically recreating production network conditions in the lab also helps to efficiently reproduce and troubleshoot issues found on customer networks. And with an extensive set of impairment features Aukua Network Impairment Emulators are also used for creating an almost unlimited variety of negative testing scenarios for validating device and system functionality under non-ideal situations.

Data rates from 10Mbps to 10Gbps Ethernet, including the new 2.5Gbps and 5Gbps Ethernet rates (IEEE 802.3bz) and Automotive Ethernet (IEEE 802.3bp/bw) are supported. Also, Aukua Network Impairment Emulators are the first and only to support native copper 10GBASE-T interfaces, eliminating the need for complex and troublesome media converters. The powerful Aukua hardware-based architecture delivers true line-rate performance regardless of configuration as well as unmatched nanosecond precision delay generation.

Other important features include real-time statistics, alarms and graphical analysis, external reference clock inputs and a full RESTful API allowing complete automation capability, further enhancing productivity and integration with other development and testing tools. And the optional Ethernet Generator mode adds even more flexibility and value to the system.

Our hyperfocus on building a truly intuitive user-experience ensures that the Network Impairment Emulator is useful every time; even for the occasional user. First time users are productively testing within the first 10 minutes, even without training or assistance! This is in part thanks to a single, simple user interface that is served up from the system without any software installations required. No complex initial chassis configuration or setup is required.

First and ONLY Network Impairment Emulator to support the new 2.5G and 5G IEEE 802.3bz Ethernet rates and the ONLY one to support native 10GBASE-T operation!

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User Control

- HTML browser-based GUI (no install required)
- Automation: RESTful Web Services API supporting wide variety of programming languages, including Tcl, Java, Perl, Python and C/C++
- 1GbE RJ45 Management port
- USB 3.0 port

Test Interfaces

- RJ45: 100M, 1G, 2.5G, 5G, 10G
  (100BASE-TX, 1000BASE-T, 2.5GBASE-T*, 5GBASE-T*, 10GBASE-T)
  (*Both IEEE 802.3bz & NBASE-T variants supported!)
- Automotive Ethernet: 100BASE-T1, 1000BASE-T1
- SFP+: 10M, 100M, 1G, 2.5G, 5G, 10G, USXGMII
  (100BASE-FX, 1000/2500/5000BASE-X, 2500/5000/10GBASE-R, USXGMII, 10BASE-T with SFP transceiver)

General Features

- Line rate (wire-speed) performance
- Layer 1 transparency or pass-thru operation
- Powerful Classifier supports up to 16 Network Paths plus a Bypass Path per traffic direction
  Each Network Path can have unique delays & impairments
- L2-L7 protocol agnostic

Impairment Jamming

- Link Break / Flap
- +/- 150ppm transmit clock control
- Frame Loss (Packet Drop)
- Ethernet FCS errors
- Bit Corruption: L1 and L2+
  (invert or overwrite)
  (1E-2 to 1E-14)
- Packet Reorder
- Packet Duplication
- Packet Modification (up to 32 bytes)

Impairment Jamming Control

- Rate:
  - Percent: 0% to 100% in 0.00001% increments
  - 'X in Y' frame ratio (burst size / period)
- Single or burst control
- Distributions: Periodic, Uniform, Poisson

Delay

- Fixed delay (inter-frame gap unchanged)
- Variable delay - Packet Delay Variation (PDV)
- Delay resolution: 8ns for 1GbE and 6.4ns for 10GbE
- Min Delay: <8us
- Max Delay: 10 seconds (850ms at 10Gbps line rate)

Clock Reference Input

- Frequency: 10MHz SMA
- Phase: 1PPS SMA
- Time of Day (ToD): NTP

Environmental

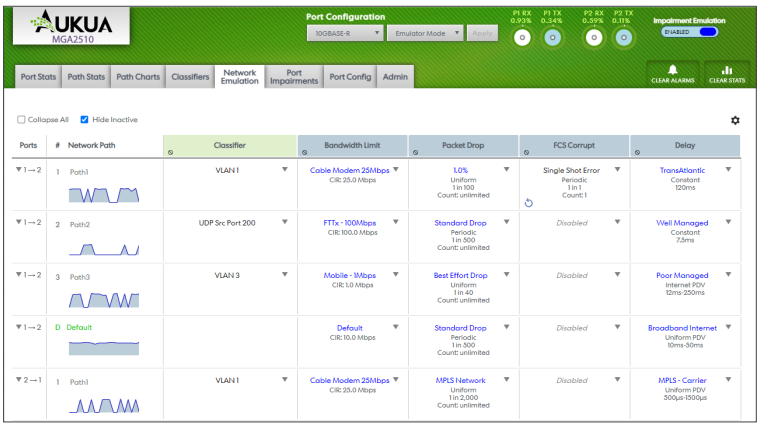
- Operating Temperature: 0°C ~ 40°C (32°F ~ 104°F)
- Operating Humidity: 10% - 90% (non-condensing)
- Input Power: 100-240 VAC, 50-60Hz; 2.6A Max

System

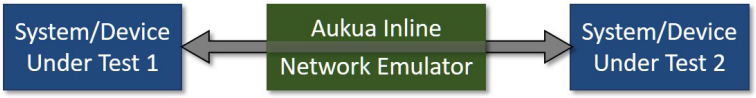
- Enclosure: 1RU, fits 19" rack system
- Dimensions: 1.7"H(43mm) x 17.2"W(437mm) x 9.8"D(249mm)
- System weight: 11.3lbs / 5.12kg
- Regulatory Compliance: CE, FCC, VCCI, RoHS

Other Features

- Real-time statistics and graphs
  (bandwidth, alarms, errors, jamming, delay, etc.)
- Stats Logging
- Optional license for powerful Traffic Generation mode available!
- Optional license for flexible Inline Analyzer and powerful Traffic Generator modes available!



Simple yet powerful browser-based user interface means there is no software to install. Users are productive in less than 10 minutes out-of-the-box!



Use case: transparent inline connection
(traffic passes transparently thru Aukua Network Emulator until Jamming/Delay is applied)

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