

# Impairment Test Solutions

## Absolute Investigator™ Impairment Tester/Delay Line

Multi-Protocol, Multi-Speed Impairment Tester Integrates with a Full Suite of Absolute Investigator™ Test Tools

- ◆ *Determine the amount of delay*
- ◆ *Select criteria to identify errors*
- ◆ *Check for delays to the millisecond*
- ◆ *Report bit-level diagnostic details*

### Real-Time Impairment Test

The Absolute Investigator™ Impairment Tester sits invisibly, “in-line” between two devices to allow you to insert programmable delays on all traffic while simultaneously tracking the system’s reaction to the delay.

Use the Impairment Tester for compliance, error identification, and delay determination. With our unique integrated functionality you can confidently test multiple protocols at multiple speeds and then generate comprehensive reporting and deep diagnostics.

### Available Speeds and Protocols Supported

- ◆ 1Gbps through 10Gbps Fibre Channel
- ◆ 1Gbps and 10Gbps Ethernet
- ◆ 10Gbps FCoE
- ◆ AFDX, iSCSI, IP, IPv6, TCP, and other Ethernet-based protocols
- ◆ Custom and Proprietary Protocols

### One Architecture

Absolute Investigator™ features the most flexible, scalable and versatile instrument for protocol test and verification. The architecture is extensible to support multiple protocols and multiple test applications to meet the expanding requirements of various network topologies.

# Insert *real-time* traffic delays, conduct multi-protocol, multi-speed impairment testing and generate comprehensive reports with the Absolute Investigator™ Impairment Tester

## Simulate

Simulate latency and lengthy cable run effects for signal compliance

- ◆ Select the delay and determine criteria
- ◆ Delay traffic in one or both directions
- ◆ Verify appropriate cable length

## Discover

Discover reasons for signal loss such as:

- ◆ Corrupt traffic
- ◆ Repeater defects
- ◆ Fibre flaws
- ◆ Line breaks, corruption or jitter
- ◆ Over extended cable length

## Check

Check for error recovery

- ◆ Slow down devices and check under delayed conditions
- ◆ Identify multiple errors simultaneously
- ◆ Multi-faceted interpretation

## Report

Report delays or corruption

- ◆ Amount of delay
- ◆ Delay length
- ◆ Signal time

## Specifications

- ◆ Configured in port pairs
- ◆ Sits invisibly, in-line between two devices
- ◆ Hardware enabled by firmware (FPGA)

## Impairment Tester

## The Absolute Investigator™ Impairment Tester works in conjunction with all of these Absolute Analysis Solutions

Absolute Investigator™ Impairment Tester can work alone to test data delay effects on your storage network or devices and test the quality of the physical layer connectivity. Our Impairment Tester works in conjunction with Absolute Investigator™ Traffic Generators and Protocol Analyzers, providing you with the freedom to test completely, from physical layer connectivity to upper layer protocols, and from static protocol analysis to dynamic protocol analysis.

By working with our Absolute Investigator™ Protocol Database Editor and Application Software, you can generate unique test patterns for a custom application, and use the feature-rich Drag & Drop, trigger and filtering capabilities, as well as Library API for test automation.

### Traffic Generator

Absolute Investigator™ Traffic Generator allows the user to generate traffic into a Device Under Test (DUT) with complete control over the timing and content of the data. Valid and invalid traffic streams can be defined to test device error recovery. The traffic generator's ability to maintain full-line rate traffic, even across multiple links, allows device performance to be measured and operation under stress to be characterized.

### Error Injector

The Error Injector tests the recovery of systems and line failures for communications using Fibre Channel, Ethernet protocols. Conduct time-correlated, multi-protocol multi-speed testing.

### Bit Error Rate Tester

The Bit Error Rate Tester (BERT) allows the user to send both framed and unframed bit error rate test patterns through a link to test its ability to reliably transport data between the transmitter and the receiver. Several standard test patterns are available and user-defined test patterns are supported.

### API Library

The API Library is a 'C' API that provides the user with programmatic control over all the Absolute Investigator™ tools. Using the API Library, the user can write custom applications that function over the platform or create code for test automation.

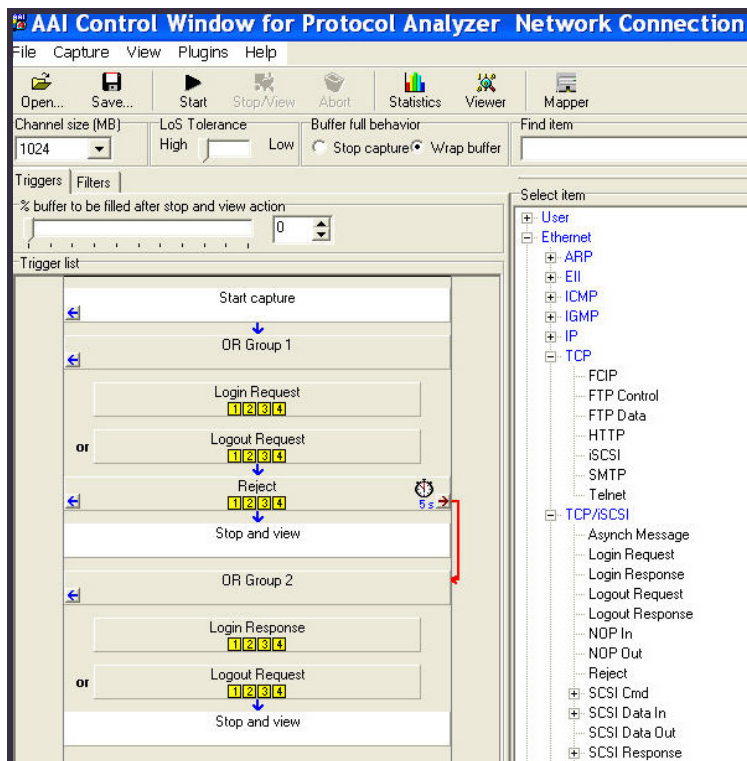
### Network Connections

The Absolute Investigator™ platform supports Small Form Factor Pluggable modules (SFP's) to allow the user to easily switch between various optical and copper physical layers. Passive optical taps are also available where the circumstances dictate that the insertion of the test tool cannot disrupt the network traffic. (Protocol Analysis only.)

### Platforms and Configurations

Absolute Investigator™ Solutions are available in several platforms ranging from highly portable notebooks to high port count rack mounts.

**Capture**  
**Control**  
**Analyze**



## Absolute Investigator™ Protocol Testing Solutions

Absolute Investigator™ has been designed from the ground up to be a multi-speed, multi-protocol, multi-function test platform.

Absolute Investigator™ is used in the development, qualification, manufacturing and support of equipment with external or embedded communications interfaces. These communications interfaces can be based on industry standards or Absolute Investigator™ can also be customized to support non-standard interfaces and protocols.

### Training

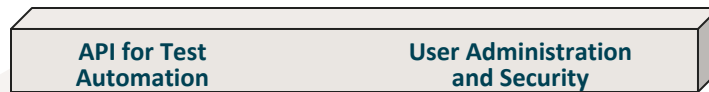
Absolute Analysis offers comprehensive training courses for products and protocols. Training can be provided at your location or remotely, and can be customized to your needs.

### Absolute Investigator™ Architecture

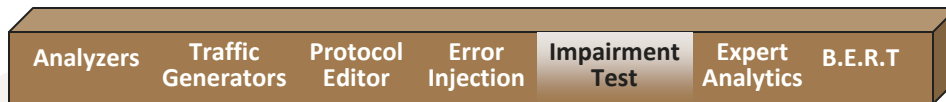
### Service & Support

Absolute Analysis provides unsurpassed service to all Investigator™ users including remote diagnostics, extended warranties, and upgrade paths to current offerings from any Investigator™ system.

#### APPLICATIONS



#### SOLUTIONS

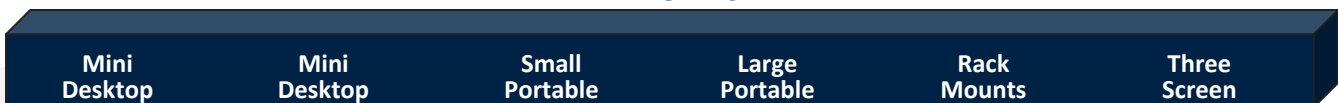


#### PROTOCOLS



↑ Investigator™ Software  
↓ Investigator™ Hardware

#### PLATFORMS



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