

Transport Payload Testing

How to Verify the (Rx) Payload Data of a Frame

MD1230B/MP1590B

Data Quality Analyzer/Network Performance Tester



Introduction

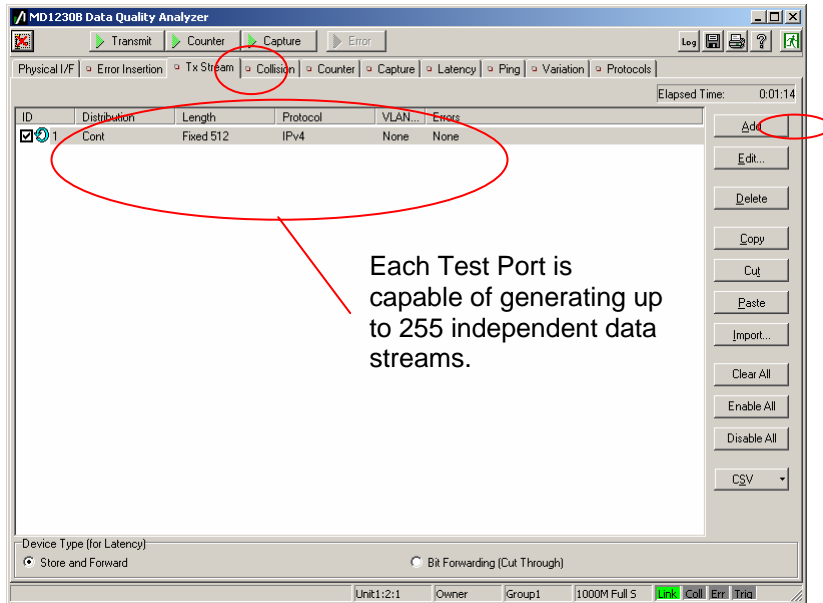
This application note explains the steps necessary to verify the (Rx) payload data within an Ethernet frame. The document may be used to set up demonstrations for, or as a quick start guide for, the MD1230B and MP1590B – which are used to transport data for next-generation networks. These products support the full range of access and metro network applications, including PON system verification, IP network equipment evaluation, network QoS verification and IPTV streaming verification.

- **MD1230B.** This data quality analyzer is compact and portable. It supports multiple interfaces using one chassis. It is an ideal all-in-one measurement instrument for IP measurements in R&D, manufacturing and maintenance. Its unique 1-ms network bandwidth measurement revolution supports service set-up testing, troubleshooting and monitoring by streaming service providers.
- **MP1590B.** This rack-mounted network performance tester is highly expandable. It is a unique one-box testing system that provides the only single-instrument solution for varying electrical 10G XFP SONET/SDH jitter testing. It is the only solution that fully verifies next generation technologies such as Differential Delay, LACS, 10G Ethernet and IP. The MP1590B is targeted at chip and module vendors – and router, switch and Add/Drop Mux vendors.

Payload Testing

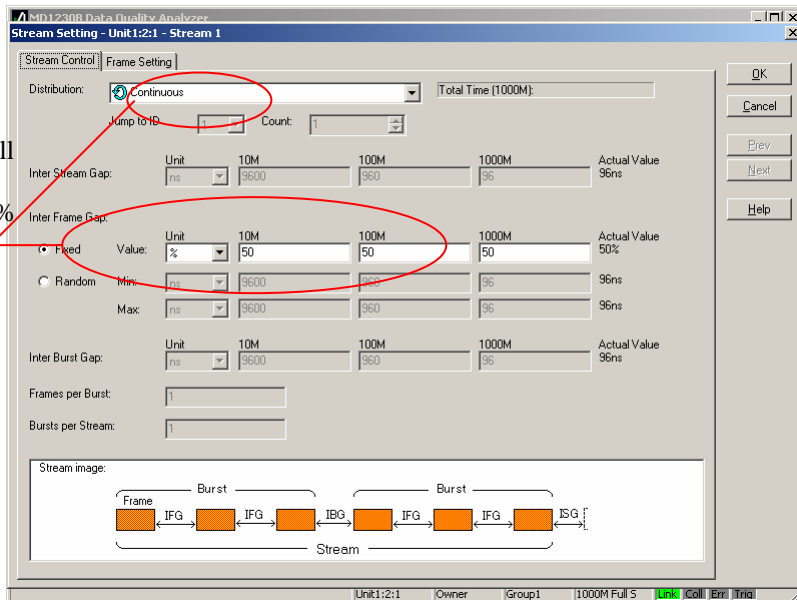
Data transmission includes both header information and actual data. The header identifies the source and destination of the packet, and is only used in the transmission process, while the actual data is referred to as the payload. Payload testing ensures that users receive data correctly on their next-generation networks.

1. **CONFIGURE TEST DATA STREAMS ON TEST PORTS.** To enable payload data verification, configure the test data streams on Test Ports to verify bi-directional full line rate throughput. Each Test Port is capable of generating 255 independent data streams. Each stream can be comprised of TCP / UDP / IP packets with a user-defined or PRBS payload. The multi-stream capability allows each Test Port to generate data streams to each subnet / switch under test simultaneously.
 - A. Select a Test Port to transmit and receive data streams and choose **Tx Stream -> Add**.



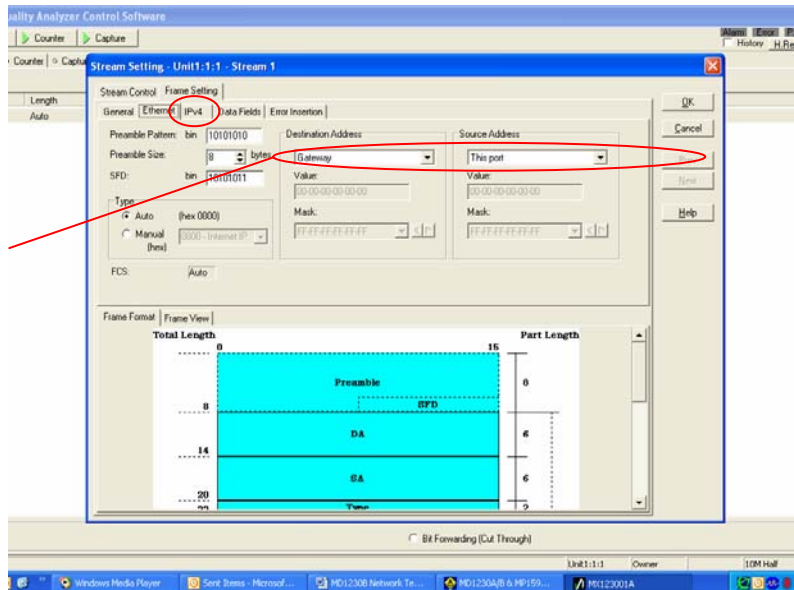
- B. On the **Stream Setting** screen, select **Duration -> Continuous** if generating only one stream Port. Select the amount of bandwidth rate that the stream group will generate. Configure the amount of desired bandwidth for the continuous stream by setting the Inter frame gap according to (1) time, (2) frames per second, (3) bits per second or (4) number of bytes.

Selected Stream will continuously generate data at 50% of maximum bandwidth.

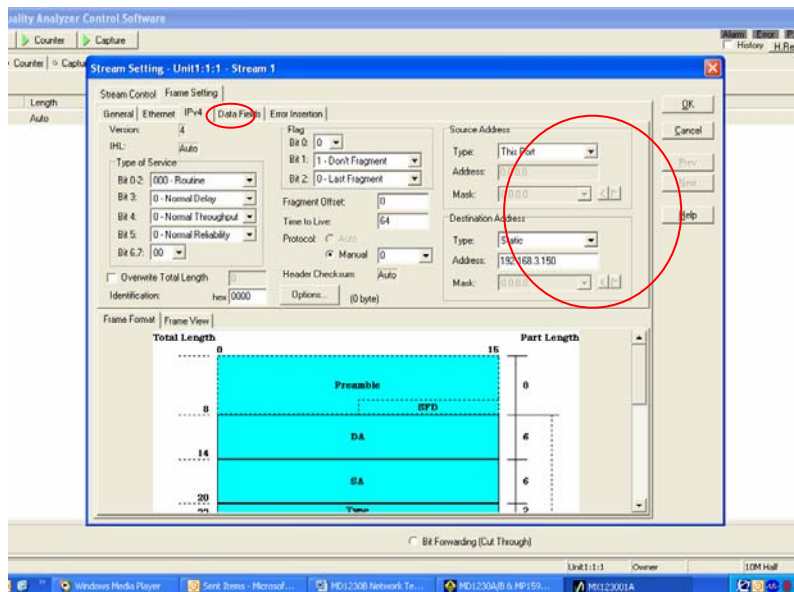


- C. Under **Frame Settings-> Ethernet**, select the **Source Address-> This Port** and the **Destination Address** to match that of the Destination Test Port MAC address. If the Destination port resides in a different Subnet than the Source Address, select the **Destination Address->Gateway** to ensure the Data steam is sent to the Gateway IP address defined in the port settings.

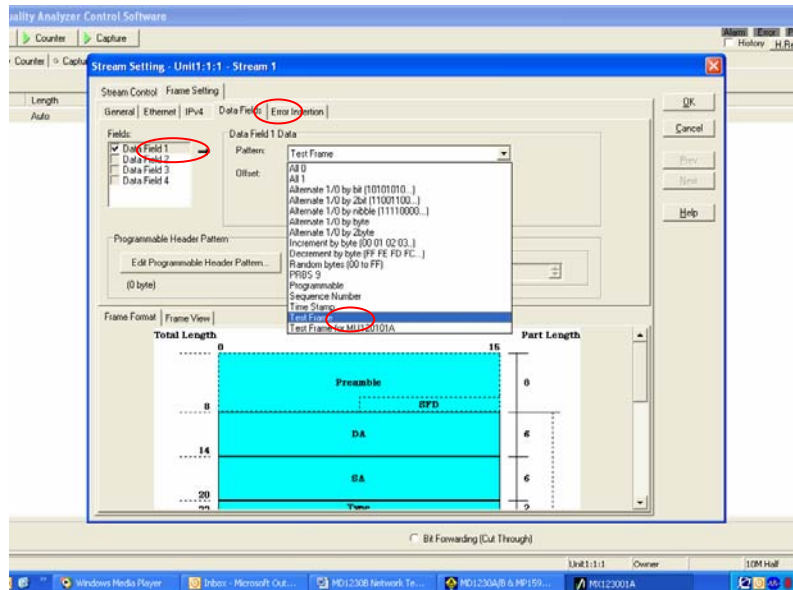
Source address set to **This Port**.
 Destination address set to **Static** if Dest. Port resides in same Subnet or to **Gateway** if Dest. Port resides in different subnet.



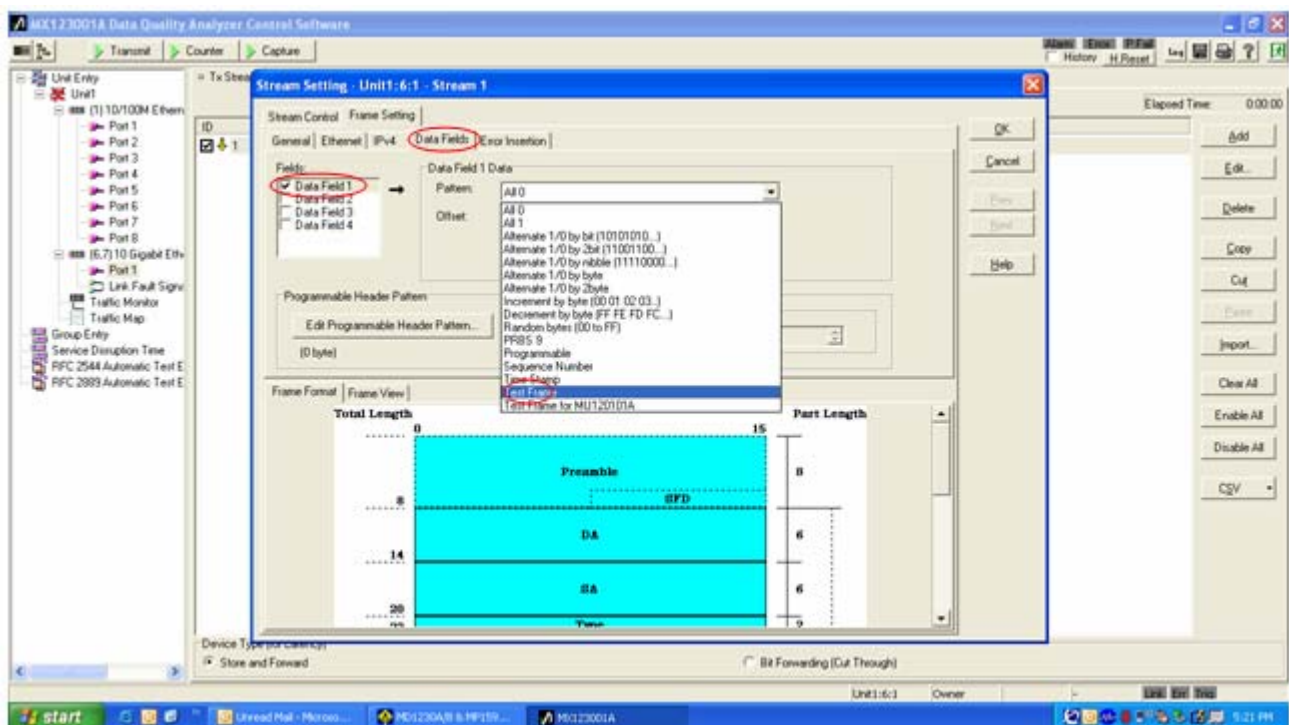
- D. Under **Frame Settings -> IPv4**, select the **Source Address-> This Port** and the **Destination Address** to match that of the Destination Test Port IP address.



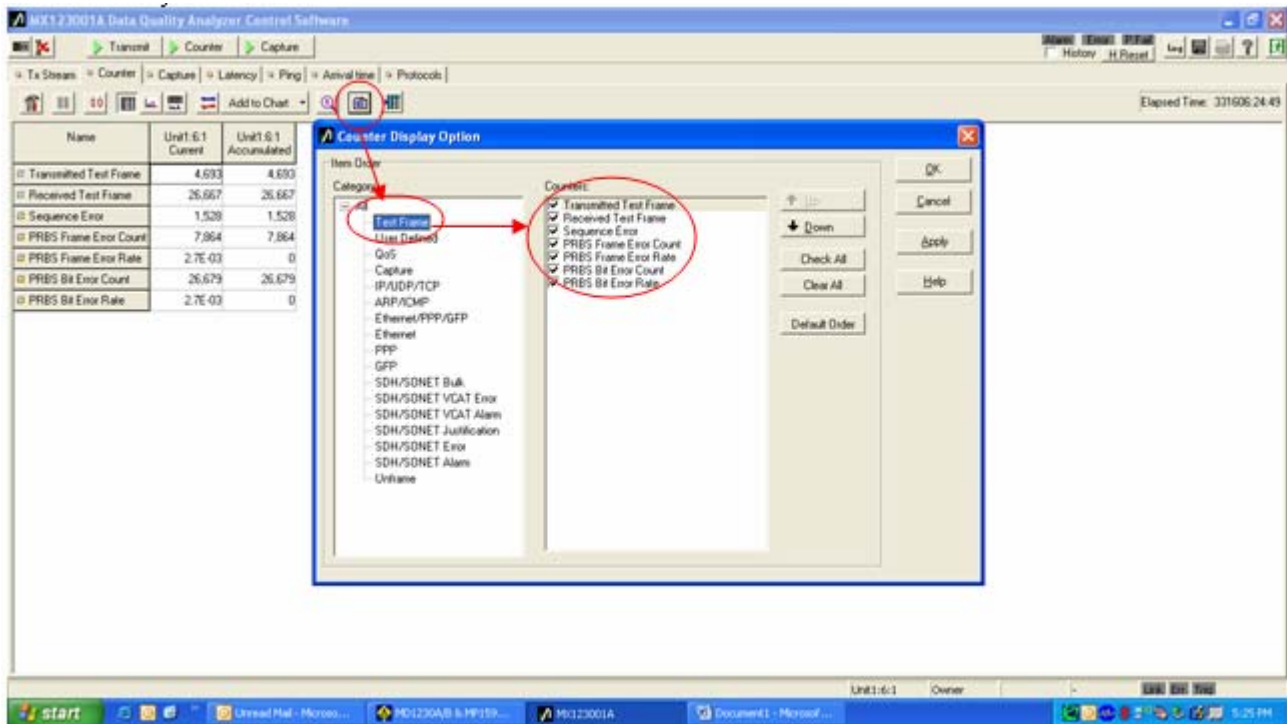
- E. Define the test payload within the encapsulated packet under the **Frame Settings -> Data Fields** tab. The choices vary from user-defined pattern, alternating 1/0, PRBS pattern or test frames. Test frames are unique payloads which provide a PRBS pattern for bit & frame error rate measurements and time stamp for latency measurements. The test frame is recommended for network testing to verify payload integrity and Quality of Service measurements.



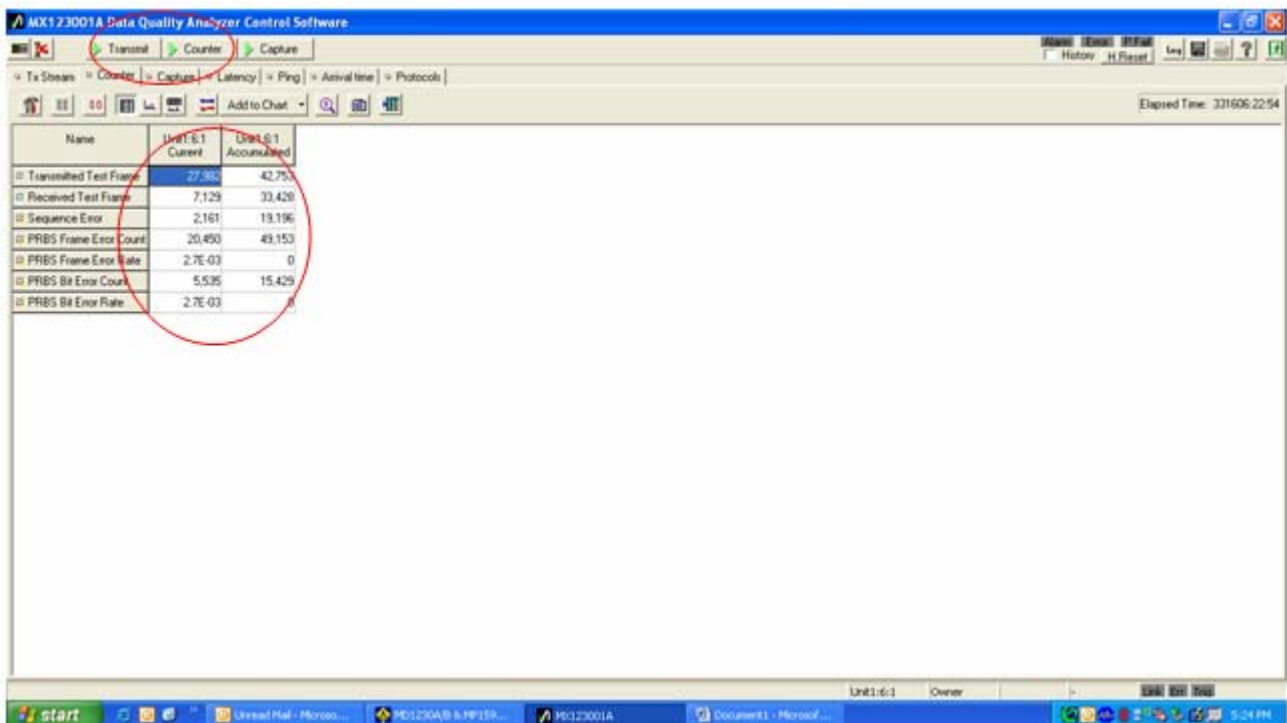
2. **VERIFY THE (RX) PAYLOAD DATA WITHIN AN ETHERNET FRAME.** Once the preceding preparation is accomplished, complete the following steps to transport payload testing.
- A. Insert a payload into your data stream by selecting **Frame Setting -> Data Fields -> Pattern**. Anritsu recommends selecting **Test Frame** as your payload. Test frame inserts a PRBS pattern for frame and bit error measurements, as well as a time stamp for Latency measurements.



- B. Select the measurement counter required for test by selecting **Counter->(Counter display button)**. You can manually select each measurement or select a group of measurements, depending on the data stream. Anritsu recommends selecting **Test Frame** counters to collect measurements for test frames transmitted & received, sequence errors and PRBS frame & bit errors received in the Payload.



- C. Begin **Transmit & Counter** buttons to verify the test frame counters are incrementing. These counters represent the payload frames.



Conclusion

This application note explains the steps necessary to verify the (Rx) payload data within an Ethernet frame. It is used to demonstrate the capabilities of and provide technical instruction for Anritsu's MD1230B and MP1590B, equipment used to transport data on next generation networks. The MD1230B is a compact and portable data quality analyzer. This competitive solution is an ideal all-in-one measurement instrument for IP R&D, manufacturing and maintenance. The MP1590B is a unique, highly expandable network performance tester targeted at chip and module vendors – and router, switch and Add/Drop Mux vendors. It can be used to make performance tests and jitter measurements of previous PDH, DSn, SDH/SONET, and OTN-related equipment and devices, or for OTN, EoS, virtual concatenation and LCAS measurements.

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