

# PacketExpert™

## PDF Report Details

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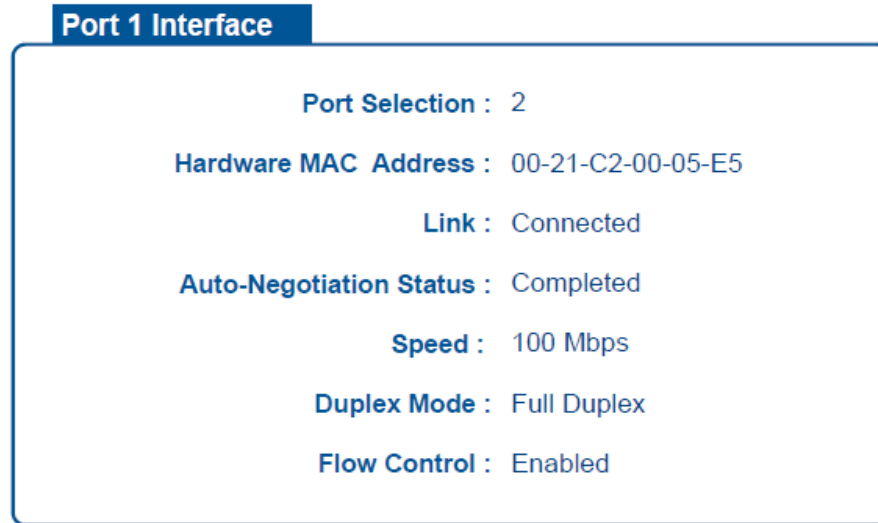
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## Section 1.0 BERT PDF Report Details

### 1.1 Interface Parameters

This group of results provides the Port Interface status at the time of report generation.



**Figure 1: Port Interface**

- Port Selection: The port for which the parameters are given
- Hardware MAC Address: MAC address of port.
- Link: Current Link status – Connected or Disconnected.
- Auto-Negotiation Status: Indicates whether Auto Negotiation is Complete or Incomplete
- Speed: Current negotiated link speed – 10/100/1000 Mbps.
- Duplex Mode: Current negotiated Duplex mode - Full-Duplex or Half-Duplex.
- Flow Control: Displays the flow control status. When enabled, the port responds to Flow Control messages from the remote end.

### 1.2 BERT Statistics

This group of results is generated for BERT test. They give the results of the BERT test.

| Port-1 BERT Statistics |                             |
|------------------------|-----------------------------|
| Test Time : 00:00:00   | Bit Error Rate : 0.000E+000 |
| No Rx Data Count : 0   | Bit Error Seconds : 0       |
| No Rx Data Seconds : 0 | Sync Loss Count : 0         |
| Bits Received : 0      | Sync Loss Seconds : 0       |
| Bit Error Count : 0    | Error Free Seconds : 0      |

**Figure 2: BERT Statistics**

- Test Time: Duration for which the test has been running in the format - HH: MM: SS
- Bit Error Rate: Average bit error rate since the beginning of the test. This is calculated by this formula -> Avg. Bit Rate = Total Bit Errors Occurred/Total Bits Received.
- Bit Error Seconds: Total Number of seconds in which at least a single bit error has occurred.
- No Rx Data Count: Number of discrete instances wherein no data was received for at least 10 continuous seconds.
- No Rx Data Seconds: Time in seconds during which "No Rx Data" alarm was active, since beginning of test.
- Sync Loss Count: Number of times Sync Loss occurred since beginning of test.

- Sync Loss Seconds: Time in seconds during which "Sync Loss" alarm was active, since beginning of the test.
- Bits Received: Total bits received since the beginning of the test. This gives the count of the actual BERT pattern bits only. This means, the header bits and Sequence Number bits (if enabled) are not counted.
- Bit error count: Total bit errors detected since the beginning of the test.
- Error Free Seconds: Time in seconds during which there were no errors since the beginning of the test. A second is considered to be error free if it maintains Pattern Sync and/or No Rx Data during the entire second.

### 1.3 Tx Statistics

This gives the Port wise Tx (transmission) statistics for the specific port.

| Tx Statistics             |                                     |
|---------------------------|-------------------------------------|
| Tx Number Of Frames : 11  | Tx Pause Frames : 0                 |
| Tx Number Of Bytes : 748  | Tx 64 Byte Length Frames : 0        |
| Tx Rate : 0.000 Mbps      | Tx 65-127 Byte Length Frames : 11   |
| Tx Frame Rate : 0.000 fps | Tx 128-255 Byte Length Frames : 0   |
| Tx Broadcast Frames : 11  | Tx 256-511 Byte Length Frames : 0   |
| Tx Multicast Frames : 0   | Tx 512-1023 Byte Length Frames : 0  |
| Tx Control Frames : 0     | Tx 1024-1518 Byte Length Frames : 0 |
| Tx VLAN Frames : 0        | Tx Over Sized Frames : 0            |

**Figure 3: Tx Statistics**

- Tx Number of Frames: Total number of frames transmitted
- Tx Number of Bytes : Total number of Bytes transmitted
- Tx Rate: Data Transmission rate in Mbps. It is the instantaneous value for that second.
- Tx Frame Rate: Frame Transmission rate in frames per second. It's the instantaneous value for that second.
- Tx Broadcast frames: Total number of broadcast frames transmitted
- Tx Multicast frames: Total number of multicast frames transmitted
- Tx Control Frames: Total number of control frames transmitted
- Tx VLAN Frames: Total number of VLAN frames transmitted.
- Tx Pause Frames: Total number of Pause frames transmitted.
- Tx 64 byte length frames: Total number of 64 byte length frames transmitted.
- Tx 65-127 byte length frames: Total number of frames transmitted of size X where  $65 \leq X \leq 127$
- Tx 128 – 255 byte length frames: Total number of frames transmitted of size X where  $128 \leq X \leq 255$
- Tx 256 – 511 byte length frames: Total number of frames transmitted of size X where  $256 \leq X \leq 511$
- Tx 512 – 1023 byte length frames: Total number of frames transmitted of size X where  $512 \leq X \leq 1023$
- Tx 1024 – 1518 byte length frames: Total number of frames transmitted of size X where  $1024 \leq X \leq 1518$
- Tx Oversized frames: Total number of oversized frames transmitted including jumbo frames.

## 1.4 Rx Statistics

This gives the Port wise Rx (Reception) statistics for the specific port.

| Rx Statistics                       |                                    |
|-------------------------------------|------------------------------------|
| Rx Total IFrames : 0                | Rx Non Test MPLS Frames : 0        |
| Rx Number Of Bytes : 0              | Rx VLAN1 Frames : 0                |
| Rx Rate : 0.000 Mbps                | Rx VLAN2 Frames : 0                |
| Rx Frame Rate : 0.000 fps           | Rx VLAN3 Frames : 0                |
| Rx Broadcast Frames : 0             | Rx MPLS1 Frames : 0                |
| Rx Multicast Frames : 0             | Rx MPLS2 Frames : 0                |
| Rx Control Frames : 0               | Rx MPLS3 Frames : 0                |
| Rx VLAN Frames : 0                  | Rx IP Checksum Errors : 0          |
| Rx Pause Frames : 0                 | Rx IPV4 Packets : 0                |
| Rx Wrong Opcode Frames : 0          | Rx IPV6 Packets : 0                |
| Rx 64 Byte Length Frames : 0        | Rx IP Non Test Packet : 0          |
| Rx 65-127 Byte Length Frames : 0    | Rx IP in IP Packet : 0             |
| Rx 128-255 Byte Length Frames : 0   | Rx UDP in IP Packet : 0            |
| Rx 256-511 Byte Length Frames : 0   | Rx TCP in IP Packet : 0            |
| Rx 512-1023 Byte Length Frames : 0  | Rx ICMP in IP Packet : 0           |
| Rx 1024-1518 Byte Length Frames : 0 | Rx IGMP in IP Packet : 0           |
| Rx Over Sized Frames : 0            | Rx IGRP in IP Packet : 0           |
| Rx Undersized Frames : 0            | Rx Other Protocol In IP Packet : 0 |
| Rx FCS Error Frames : 0             | Rx UDP Checksum Errors : 0         |
| Rx Non Test Frames : 0              | Rx UDP Packets : 0                 |
| Rx Non Test VLAN Frames : 0         | Rx UDP Non Test Packets : 0        |

**Figure 4: Rx Statistics**

- Rx Number of Frames: Total number of frames received
- Rx Number of Bytes : Total number of Bytes received
- Rx Rate: Reception data rate in Mbps . It's the instantaneous value for that second.
- Rx Frame Rate: Reception frame rate in frames per second. It's the instantaneous value for that second.
- Rx Broadcast frames: Total number of broadcast frames received
- Rx Multicast frames: Total number of multicast frames received
- Rx Control Frames: Total number of control frames received
- Rx VLAN Frames: Total number of VLAN frames received.
- Rx Pause Frames: Total number of Pause frames received.
- Rx Wrong Opcode frames: Number of MAC control frames received containing the wrong operational codes for the port.
- Rx 64 byte length frames: Total number of 64 byte length frames received.
- Rx 65-127 byte length frames: Total number of frames received of size X where  $65 \leq X \leq 127$
- Rx 128 – 255 byte length frames: Total number of frames received of size X where 128 and 255
- Rx 256 – 511 byte length frames: Total number of frames received of size X where  $256 \leq X \leq 511$
- Rx 512 – 1023 byte length frames: Total number of frames received of size X where  $512 \leq X \leq 1023$
- Rx 1024 – 1518 byte length frames: Total number of frames received of size X where  $1024 \leq X \leq 1518$
- Rx Oversized frames: Total number of oversized frames received including jumbo frames.
- Rx Undersized frames: Total number of undersized frames (<64 bytes) received.

- Rx FCS Error frames: Total number of frames received with bad FCS (Frame Check Sequence).
- Rx Non Test Frames: Total number of non test frames received. Filtering criteria is applied for every frame received to determine if it is a Valid test frame or not. The MAC header, IP header and UDP header of the received packet is inspected and the addresses and other fields are compared with the user configured values. If it fails any of the filters, this count is incremented.
- Rx Non Test VLAN frames: Total number of non test VLAN frames received. Non test VLAN frames are those frames that do not match the VLAN ID and Stack value fields configured in the Rx Configuration.
- Rx Non Test MPLS Frames: Total number of non test MPLS frames received. Non test MPLS frames are those frames that do not match the MPLS Label and Stack value fields configured in the Rx Configuration.
- Rx VLAN 1 frames: Total number of received VLAN frames having 1 level stacked VLAN.
- Rx VLAN 2 frames: Total number of received VLAN frames having 2 level stacked VLAN.
- Rx VLAN 3 frames: Total number of received VLAN frames having 3 level stacked VLAN.
- Rx MPLS 1 frames: Total number of received MPLS Frames having 1 level stacked MPLS.
- Rx MPLS 2 frames: Total number of received MPLS Frames having 2 level stacked MPLS.
- Rx MPLS 3 frames: Total number of received MPLS Frames having 3 level stacked MPLS.
- Rx IP Checksum Errors: Total number of frames received with IP Checksum errors.
- Rx IPv4 packets: Total number of IPv4 packets received.
- Rx IPv6 packets: Total number of IPv6 packets received.
- Rx IP non test packet: Total number of IP non test Packets received. These are frames that are IP packets, but failed to pass the IP layer filtering criteria.
- Rx IP in IP Packet: Total number of received IP packets encapsulated in another IP packet.
- Rx UDP in IP Packet: Total number of received UDP packets encapsulated in IP packet.
- Rx TCP in IP Packet: Total number of received TCP packets encapsulated in IP packet.
- Rx ICMP in IP Packet: Total number of received ICMP packets encapsulated in IP packet.
- Rx IGMP in IP Packet: Total number of received IGMP packets encapsulated in IP packet.
- Rx IGRP in IP Packet: Total number of received IGRP packets encapsulated in IP packet.
- Rx Other Protocol in IP Packet: Total number of received other protocol packets encapsulated in IP packet.
- Rx UDP Checksum Errors: Total number of frames received with UDP checksum errors.
- Rx UDP Packets: Total number of received UDP Packets.
- Rx UDP non test packets: Displays the number of UDP non test Packets. These are frames that are UDP packets, but did not pass the UDP layer filtering criteria.

## Section 2.0 RFC2544 PDF Test Report Details

### 2.1 Global Configuration

This gives the test configuration common to all 4 tests

- Frame Size Quantity: It displays the number of frames selected to test in RFC 2544.
- Frame Size: Here the configured frame sizes are displayed for which the test was conducted.
- Port/Direction: Specifies the ports used to test the RFC 2544 test. Source port is the East port, Destination port is the west port. Direction specifies which type of test was conducted:
  - → means Src port to Dst port unidirectional
  - ← means Dst Port to Src port unidirectional
  - ↔ means Bidirectional test was conducted

| Global Configuration  |    |           |     |                  |      |           |
|-----------------------|----|-----------|-----|------------------|------|-----------|
| Frame Size Quantity : | 7  |           |     |                  |      |           |
| Frame Size :          | 70 | 128       | 256 | 512              | 1024 | 1280 1518 |
|                       |    |           |     |                  |      |           |
| Source Port           |    | Direction |     | Destination Port |      |           |
| Port1                 |    | <-->      |     | Port2            |      |           |

Figure 5: Global Configuration

### Test Procedures

Gives which tests were selected to run, out of the 4 RFC 2544 tests. It shows 'Enabled' if selected, 'Disabled' if not selected.

- Throughput: It displays whether the Throughput test was selected or not.
- Frame Loss: It displays whether the Frame loss test was selected or not.
- Back-to-back: It displays whether the Back-to-Back test was selected or not.
- Latency: It displays whether the Latency test was selected or not.

| Test Procedures        |
|------------------------|
| Throughput : Enabled   |
| Frame Loss : Enabled   |
| Back To Back : Enabled |
| Latency : Enabled      |

Figure 6: Test Procedures

## 2.2 Throughput

Gives the test configuration and results for Throughput test

### 2.2.1 Configuration

| Configuration                          |  |  |  |
|--|--|--|--|
| Test Duration : 1                      |  | Number Of Trials : 1                   |  |
| P2 --> P3 Start Bandwidth : 1.000000 % |  | P3 --> P2 Start Bandwidth : 1.000000 % |  |
| P2 --> P3 End Bandwidth : 100.000000 % |  | P3 --> P2 End Bandwidth : 100.000000 % |  |

**Figure 7: Throughput Configuration**

- Test Duration: It displays the duration for which the throughput test was supposed to run.
- P2 → P3 Start Bandwidth: Specifies the minimum bandwidth configured for throughput test for the direction P2 -> P3
- P2 → P3 End Bandwidth: Specifies the maximum bandwidth configured for throughput test for the direction P2 -> P3
- P3 → P2 Start Bandwidth: Specifies the minimum bandwidth configured for throughput test for the direction P3 -> P2
- P3 → P2 End Bandwidth: Specifies the maximum bandwidth configured for throughput test for the direction P3 -> P2
- No of trials: Specifies the number of test trials configured.

### 2.2.2 Statistics

Statistics pane displays the results for the Throughput test. Both P2 -> P3 and P3-> P2 results are given. If the test is not performed on any of the direction, the test report statistics for that particular direction is blank.

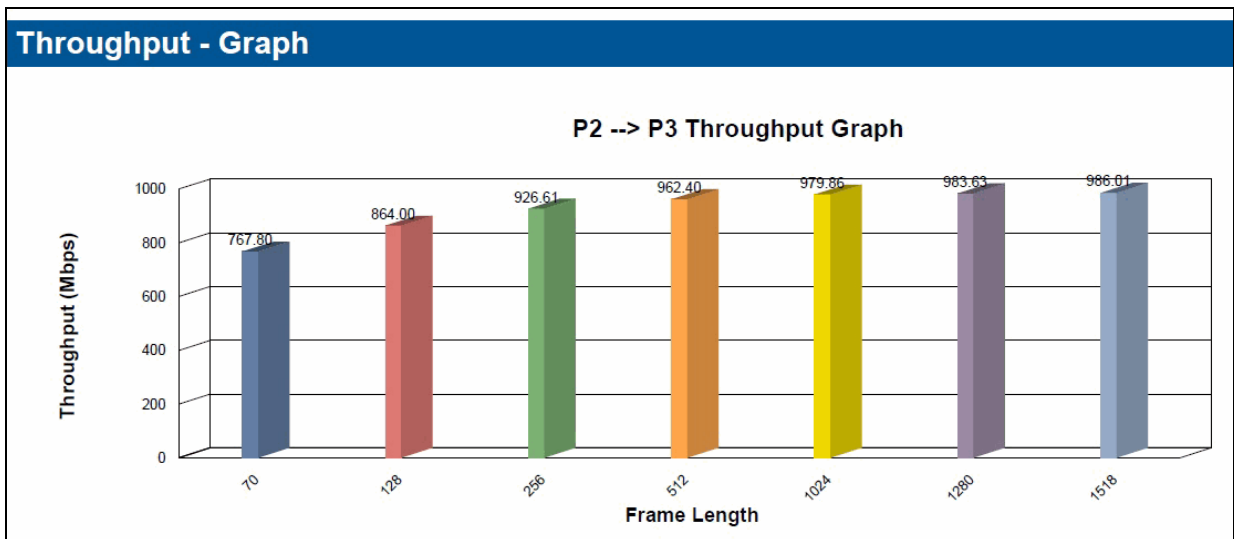
| Statistics           |            |               |                     |            |               |
|----------------------|------------|---------------|---------------------|------------|---------------|
| P2 --> P3 Throughput |            |               | P3 --> P2Throughput |            |               |
| Frame Length         |            |               | Frame Length        |            |               |
| 70                   | 100.0000 % | 767.7965 Mbps | 70                  | 100.0000 % | 767.0393 Mbps |
| 128                  | 100.0000 % | 864.0013 Mbps | 128                 | 100.0000 % | 864.0013 Mbps |
| 256                  | 100.0000 % | 926.6105 Mbps | 256                 | 100.0000 % | 926.6105 Mbps |
| 512                  | 100.0000 % | 962.4044 Mbps | 512                 | 100.0000 % | 961.4429 Mbps |
| 1024                 | 100.0000 % | 979.8647 Mbps | 1024                | 100.0000 % | 979.8647 Mbps |
| 1280                 | 100.0000 % | 983.6333 Mbps | 1280                | 100.0000 % | 983.6333 Mbps |
| 1518                 | 100.0000 % | 986.0055 Mbps | 1518                | 100.0000 % | 986.0055 Mbps |

**Figure 8: Throughput Statistics**

- Frame Length: Displays the frame size for which the result is being displayed. This column will contain the frame sizes configured in the Global configuration
- Throughput: Displays the throughput test result for the specified frame size. The value is given in both Percentage and Mbps. This represents the maximum rate at which frames can be sent across the device without frame loss. Percentage is the rate in terms of percentage of the line rate, whereas the result in Mbps specifies the actual data rate. Eg: for Frame length 70, result is given as 100% and 767.7965 Mbps. This means that the Throughput is 100% of the line rate (1 Gbps in this case) whereas the data rate (layer2 rate) throughput is 767.7965 Mbps.

### 2.2.3 Graph

Same tabular results are given in the form of a graph. X- axis gives frame length, whereas Y-axis gives the throughput in Mbps.



**Figure 9: Throughput Graph**

## 2.3 Back-to-Back Configuration

Gives the test configuration and results for Back to Back test for both directions.

### 2.3.1 Configuration

| Configuration                  |                               |
|--------------------------------|-------------------------------|
| Max Burst Size : 200           | Number Of Trials : 1          |
| P2 --> P3 Min Burst Size : 200 | P3 --> P2 Burst Size : 200    |
| P2 --> P3 No Of Burst : 1      | P3 --> P2 Number Of Burst : 1 |

**Figure 10: Back-to-Back configuration**

- Max Burst Size: Specifies the maximum burst size configured, in msec. This represents the maximum burst size at which the test stops (upper limit)
- Min Burst Size: Specifies the minimum burst size configured, in msec. This represents the minimum burst size at which the test stops (lower limit).
- Number of Burst: Number of bursts configured for the test.
- Number of trials: Specifies the number of test trails to be performed with this configuration.

### 2.3.2 Statistics

Gives the results of the Back to Back test

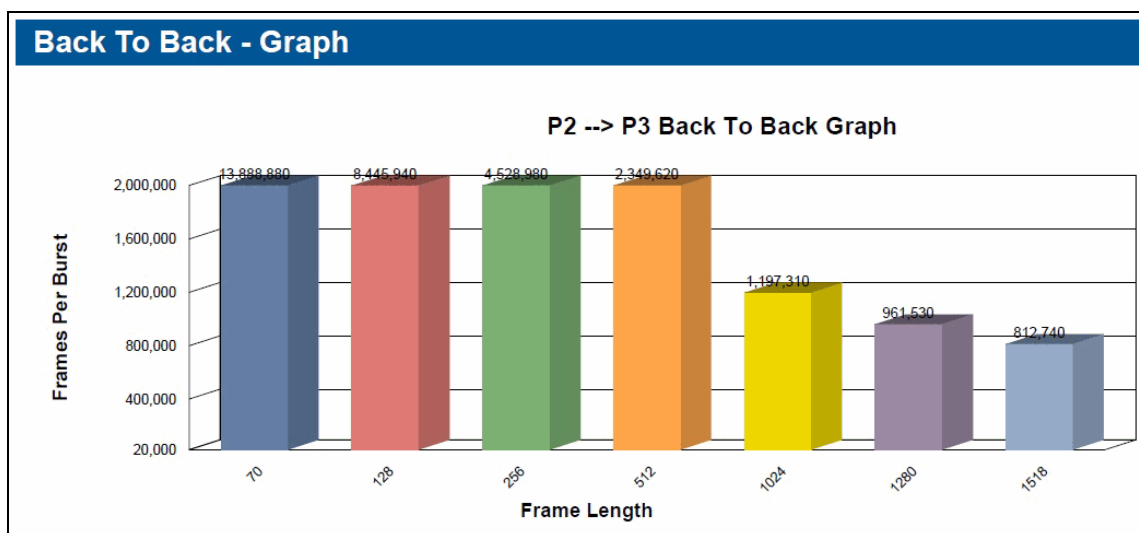
| Statistics   |                           |              |                          |
|--------------|---------------------------|--------------|--------------------------|
| Frame Length | P2 --> P3 Frame Per Burst | Frame Length | P3-->P2 Frames Per Burst |
| 70           | 13888880 Frames/Burst     | 70           | 13888880 Frames/Burst    |
| 128          | 8445940 Frames/Burst      | 128          | 8445940 Frames/Burst     |
| 256          | 4528980 Frames/Burst      | 256          | 4528980 Frames/Burst     |
| 512          | 2349620 Frames/Burst      | 512          | 2349620 Frames/Burst     |
| 1024         | 1197310 Frames/Burst      | 1024         | 1197310 Frames/Burst     |
| 1280         | 961530 Frames/Burst       | 1280         | 961530 Frames/Burst      |
| 1518         | 812740 Frames/Burst       | 1518         | 812740 Frames/Burst      |

**Figure 11: Back-to-Back Statistics**

- Frame Length: Displays the frame size for which the result is being displayed.
- Frames per burst: Gives the Back to back test results per frame size. Represents the maximum number of frames that can be sent at maximum throughput (100% of line rate/Minimum IFG) without any frame loss. It is given in terms of Frames/Burst.

### 2.3.3 Graph

The same tabular value is displayed in the form of graph. X-axis has the frame sizes, whereas Y-axis gives the Frames/Burst back to back value.



**Figure 12: Back-to-Back Graph**

### 2.4 Frame Loss

Gives the test configuration and results for Frame Loss test for both directions

#### 2.4.1 Configuration

- Test Duration: It displays the duration for which Frame Loss test was configured to run.
- Number of trials: Specifies the number of test trials to be performed with this configuration.
- Start Bandwidth: Displays the maximum bandwidth rate used for the test. This represents the maximum bandwidth that the frame loss test will start with.
- End Bandwidth: Displays the minimum bandwidth rate used for the test. This represents the minimum bandwidth at which the frame loss test will end.

| Configuration                          |  |  |  |
|--|--|--|--|
| Test Duration : 1                      |  | Number Of Trials : 1                   |  |
| P2 --> P3 Start Bandwidth : 1.000000 % |  | P3 --> P2 Start Bandwidth : 1.000000 % |  |
| P2 --> P3 End Bandwidth : 100.000000 % |  | P3 --> P2 End Bandwidth : 100.000000 % |  |

**Figure 13: Frame Loss test configuration**

## 2.4.2 Statistics

Gives the results for the Frame Loss test. The result is given as a table for each frame size tested. The table is in the form of input rate/Frame loss at that rate.

- **Frame Length:** Displays the frame size for which the result is being displayed.
- **Bandwidth:** Displays the bandwidth percentage at which frame loss test was tested for that frame size. This is in terms of percentage of the line rate.
- **Loss:** Displays the loss percentage occurred for the specified bandwidth percentage value. This is in terms of percentage – calculated using (Number of Lost frames/Total Number of frames sent) \* 100.

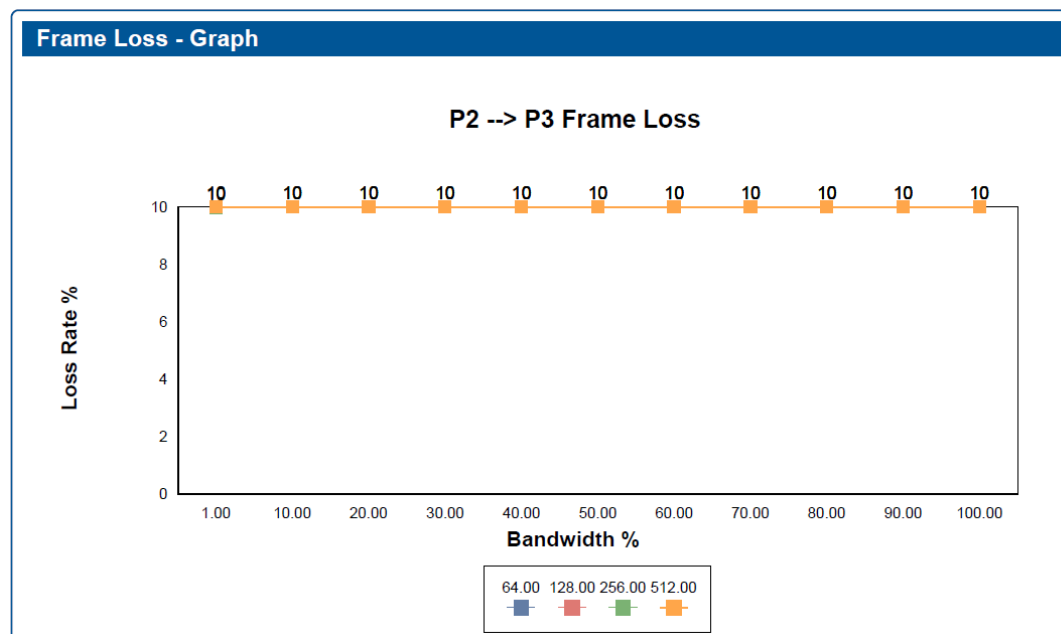
| Statistics   |                    |           |              |                    |           |
|--------------|--------------------|-----------|--------------|--------------------|-----------|
| Frame Length | P2--> P3 Bandwidth | Loss      | Frame Length | P3--> P2 Bandwidth | Loss      |
| 64           | 100.0000 %         | 10.0000 % | 64           | 100.0000 %         | 10.0000 % |
|              | 90.0000 %          | 10.0000 % |              | 90.0000 %          | 10.0000 % |
|              | 80.0000 %          | 10.0000 % |              | 80.0000 %          | 10.0000 % |
|              | 70.0000 %          | 10.0000 % |              | 70.0000 %          | 10.0000 % |
|              | 60.0000 %          | 10.0000 % |              | 60.0000 %          | 10.0000 % |
|              | 50.0000 %          | 10.0000 % |              | 50.0000 %          | 10.0000 % |
|              | 40.0000 %          | 10.0000 % |              | 40.0000 %          | 10.0000 % |
|              | 30.0000 %          | 10.0000 % |              | 30.0000 %          | 10.0000 % |
|              | 20.0000 %          | 10.0000 % |              | 20.0000 %          | 10.0000 % |
|              | 10.0000 %          | 10.0000 % |              | 10.0000 %          | 10.0000 % |
|              | 1.0000 %           | 9.9993 %  |              | 1.0000 %           | 9.9993 %  |

**Figure 14: Frame Loss Statistics**

For each frame size, the table is given for the range of input rates tested.

## 2.4.3 Graph

It plots the frameloss graph for the results occurred with X-axis being the Bandwidth and Y-axis with the Loss Rate (%).



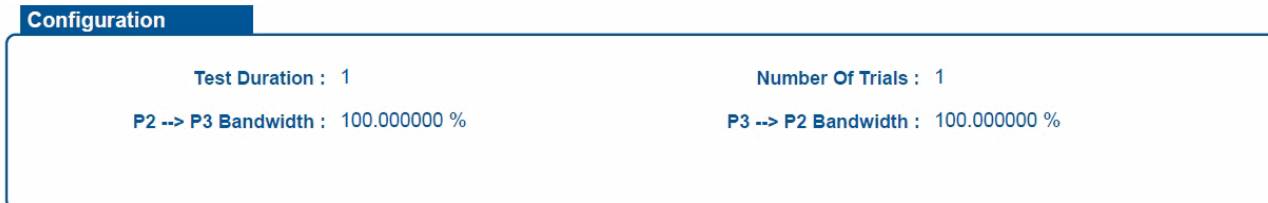
**Figure 15: Frameloss Graph**

## 2.5 Latency

Gives configuration and results for the Latency test

### 2.5.1 Configuration

- Test Duration: It displays the duration for which Latency test was configured to run.
- Number of trials: Specifies the number of test trails configured to be performed with this configuration.
- Bandwidth: Displays the bandwidth rate at which the test was configured to be performed.



**Figure 16: Latency Configuration**

### 2.5.2 Statistics

Gives the results of the Latency test

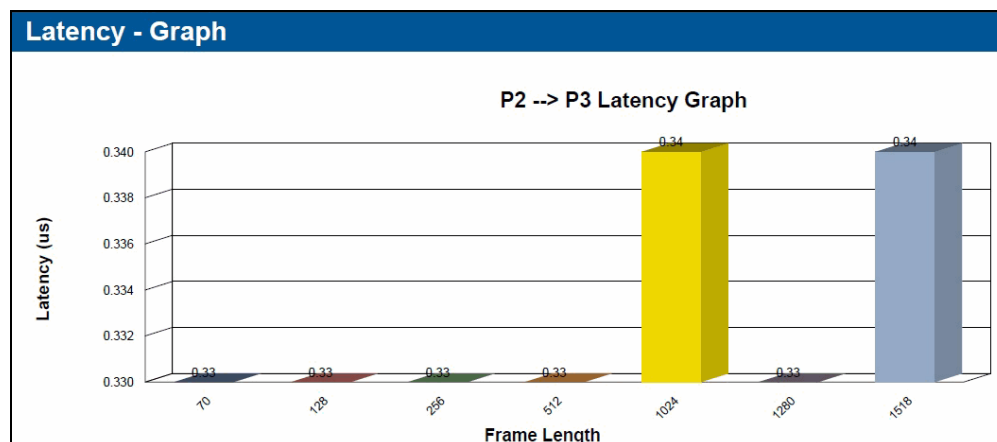
- Frame Size: Displays the frame size for which the result is being displayed.
- Latency: Displays the time taken to send the frame through device under test. Displays the value in microseconds (us). This represents the time taken between the time the frame leaves the source port and the time when the frame arrives at the destination port.

| Statistics |                   |            |                   |
|------------|-------------------|------------|-------------------|
| Frame Size | P2 --> P3 Latency | Frame Size | P3 --> P2 Latency |
| 70         | 0.3300 us         | 70         | 0.3400 us         |
| 128        | 0.3300 us         | 128        | 0.3400 us         |
| 256        | 0.3300 us         | 256        | 0.3400 us         |
| 512        | 0.3300 us         | 512        | 0.3400 us         |
| 1024       | 0.3400 us         | 1024       | 0.3500 us         |
| 1280       | 0.3300 us         | 1280       | 0.3400 us         |
| 1518       | 0.3400 us         | 1518       | 0.3400 us         |

**Figure 17: Latency Statistics**

### 2.5.3 Graph

It plots the latency graph for the results occurred with X-axis being the Frame Length and Y-axis meaning the latency value in microseconds (us).



**Figure 18: Latency Graph**

## 2.6 Configuration (Common for both RFC2544 and BERT Test)

These give the details of the various packet header/test configurations setup by the user for the Bert/RFC 2544 tests.

### 2.6.1 Tx Configuration

This gives the configuration details for the Tx direction

**Port-4 Tx Configuration**

**MAC**  
Source MAC Address : 00-21-C2-00-04-2F  
Destination MAC Address : 00-21-C2-00-04-F4  
Length /Type : 08-00  
VLAN : False  
VLAN Level : -  
VLAN ID1 : -  
VLAN Priority1 : -  
VLAN ID2 : -  
VLAN Priority2 : -  
VLAN ID3 : -  
VLAN Priority3 : -  
Layer : UDP

**IP**  
Length /Type : IPv4  
Source IP Address : 192.168.1.44  
Destination IP Address : 192.168.1.11  
IPv4TOS/DS : 0  
IPv4TTL : 128  
IPv4Protocol : 17  
IPv4Header Checksum : True  
IPv4Header Checksum Value : --  
IPv4Identification : True  
IPv4Identification Value : --  
IPv6Traffic Class : --  
IPv6Next Header : --  
IPv6Flow Label : --  
IPv6Hop Limit : --  
IPv6Source Address Type : --  
IPv6Source Address :-  
IPv6Destination Address Type : --  
IPv6Destination Address :-

**MPLS**  
MPLS : False  
MPLS Level : -  
MPLS Label1 : -  
MPLS Cos1 : -  
MPLS TTL1 : -  
MPLS Label2 : -  
MPLS Cos2 : -  
MPLS TTL2 : -  
MPLS Label3 : -  
MPLS Cos3 : -  
MPLS TTL3 : -

**UDP**  
UDP Source Port : 40000  
UDP Destination Port : 10000  
UDP Checksum : False  
UDP Checksum Value : --

**Traffic**  
Traffic GenerationType Constant Rate  
Frame Size : 1518  
Rate : 100 Percentage

**BERT Configuration**  
BERT Pattern Type : PRBS 2^9-1  
BERT User Defined Pattern : --  
BERT Invert : False  
BERTUserDefinedPatternLength: --  
BERT Sequence Number : True

Figure 19: Tx Configuration Details

- Source MAC Address: Specifies the source MAC address.
- Destination MAC Address: Specifies the destination MAC address.
- Length / Type: Specifies the Ethernet Header's Length / Type field.
- VLAN: Whether VLAN is enabled/disabled.
- VLAN Level: Number of Levels of VLAN selected.
- VLAN ID 1: ID of the Level 1 stacked VLAN.
- VLAN Priority 1: Priority of the Level 1 stacked VLAN.
- VLAN ID 2: ID of the Level 2 stacked VLAN.
- VLAN Priority 2: Priority of the Level 2 stacked VLAN.
- VLAN ID 3: ID of the Level 3 stacked VLAN.
- VLAN Priority 3: Priority of the Level 3 stacked VLAN.
- Layer: Layer selected (Layer 1, MAC, IP, UDP).
- MPLS: Whether MPLS is enabled/disabled.
- MPLS Level: Number of Levels of MPLS selected.
- MPLS Label 1: Assigned label for Level 1 of MPLS.
- MPLS COS 1: Class Of Service for Level 1 of MPLS.
- MPLS TTL 1: Time To Live for Level 1 of MPLS.
- MPLS Label 2: Assigned label for Level 2 of MPLS.
- MPLS COS 2: Class Of Service for Level 2 of MPLS.
- MPLS TTL 2: Time To Live for Level 2 of MPLS.
- MPLS Label 3: Assigned label for Level 3 of MPLS.
- MPLS COS 3: Class Of Service for Level 3 of MPLS.
- MPLS TTL 3: Time To Live for Level 3 of MPLS.
- Length / Type: Specifies the length /type value selected for the Ethernet Len/type field.
- Source IP Address: Displays the source IP Address
- Destination IP Address: Displays the destination IP Address.
- IPv4 TOS/DS: Type of Service, it is useful in instructing routers how to prioritize traffic.
- IPv4 TTL: Time to Live
- IPv4 Protocol: Defines the value of protocol field used in the IP header.
- IPv4 Header Checksum: The 16-bit checksum field is used for error-checking of the header. At each hop, the checksum of the header must be compared to the value of this field. If a header checksum is found to be mismatched, then the packet is discarded. Two options are provided – User defined static checksum or Auto dynamic checksum. True means auto checksum else its user defined checksum. User defined means it's a static value, and will be used to compare against the received checksum. Auto means, checksum is calculated dynamically and compared with received checksum
- IPv4 Header checksum value: If its user defined checksum, then the value specified by the user is displayed here.
- IPv4 Identification: This field in IP Header is used for uniquely identifying fragments of an original IP datagram. ID fields are also used for adding packet-tracing information to datagrams in order to help trace spoofed source addresses.
- IPv4 Identification value: It can be configured by user, if user configures then the Identification value is displayed.
- IPv6 traffic class: contains Internet traffic priority delivery value.

- IPv6 next header: specifies the next encapsulated protocol. The values are compatible with those specified for the IPv4 protocol field. For Rx config, this value is used to filter incoming Ipv6 packets. If incoming IPV6 packets Next header field value does not match this value, the packet is rejected and flagged as Non test packet.
- IPv6 flow label: used for specifying special router handling from source to destination(s) for a sequence of packets.
- IPv6 Hop Limit: For each router that forwards the packet, the hop limit is decremented by 1 when the hop limit field reaches zero, the packet is discarded. This replaces the TTL field in the IPv4 header that was originally intended to be used as a time based hop limit.
- IPv6 Source Address type: It displays whether the specified type is a IPv4 mapped address/IPv4 Compatible address or an IPv6 address.
- IPv6 Source Address: Displays the specified IPv6 Source address.
- IPv6 Destination Address type: It displays whether the specified type is a IPv4 mapped address/IPv4 Compatible address or an IPv6 address.
- IPv6 Destination Address: Displays the specified IPv6 destination address.
- UDP source port: Displays the source port specified for the UDP header for the specified port.
- UDP destination port: Displays the destination port specified for the UDP header for the specified port.
- UDP Checksum: If true then auto checksum is enabled, if false its user defined.
- UDP Checksum value: Is displayed if the checksum is user defined.
- BERT Pattern Type: Displays the specified BERT Pattern type;
- BERT User defined pattern: If the Bert pattern type selected is user defined pattern then the value specified by the user is displayed here.
- BERT Invert: True if BERT pattern is selected to be inverted else false.
- BERT User defined pattern length: Displays the length of the user defined pattern if user defined pattern is selected.
- BERT Sequence number: True if sequence number is enabled else false.
- Frame size: frame size selected for the BERT test.
- Rate: The rate (in %) selected for the BERT test.

## 2.6.2 Rx Configuration

The details for the configuration to the Rx are as same as that to Tx. Every field description is same for Rx.

| MAC  | IP  |
|--|---|
| Source MAC Address : 00-21-C2-00-04-2F<br>Destination MAC Address : 00-21-C2-00-04-F4<br>Length /Type : 08-00<br>VLAN : False<br>VLAN Level : -<br>VLAN ID1 : -<br>VLAN Priority1 : -<br>VLAN ID2 : -<br>VLAN Priority2 : -<br>VLAN ID3 : -<br>VLAN Priority3 : -<br>Layer : UDP | Length /Type : IPv4<br>Source IP Address : 192.168.1.44<br>Destination IP Address : 192.168.1.11<br>IPv4TOS/DS : 0<br>IPv4TTL : 128<br>IPv4Protocol : 17<br>IPv4Header Checksum : True<br>IPv4Header Checksum Value : --<br>IPv4Identification : True<br>IPv4Identification Value : --<br>IPv6Traffic Class : --<br>IPv6Next Header : --<br>IPv6Flow Label : --<br>IPv6Hop Limit : --<br>IPv6Source Address Type : --<br>IPv6Source Address : --<br>IPv6Destination Address Type : --<br>IPv6Destination Address : -- |
| MPLS   | UDP   |
| MPLS : False<br>MPLS Level : -<br>MPLS Label1 : -<br>MPLS Cos1 : -<br>MPLS TTL1 : -<br>MPLS Label2 : -<br>MPLS Cos2 : -<br>MPLS TTL2 : -<br>MPLS Label3 : -<br>MPLS Cos3 : -<br>MPLS TTL3 : -  | UDP Source Port : 40000<br>UDP Destination Port : 10000<br>UDP Checksum : False<br>UDP Checksum Value : --  |
| Traffic  | BERT Configuration  |
| Traffic GenerationType : Constant Rate<br>Frame Size : 1518<br>Rate : 100 Percentage   | BERT Pattern Type : PRBS 2^9-1<br>BERT User Defined Pattern : --<br>BERT Invert : False   |
| Traffic  | BERT Configuration  |
| Traffic GenerationType : Constant Rate<br>Frame Size : 1518<br>Rate : 100 Percentage   | BERT Pattern Type : PRBS 2^9-1<br>BERT User Defined Pattern : --<br>BERT Invert : False<br>BERTUserDefinedPatternLength : --<br>BERT Sequence Number : True   |

Figure 20: Rx Configuration Details