

## Test Report for 1000BaseT

Time: 10:10:49

Device ID : T99X171T00

Device Description Not Available

Device Pair ID : ch1

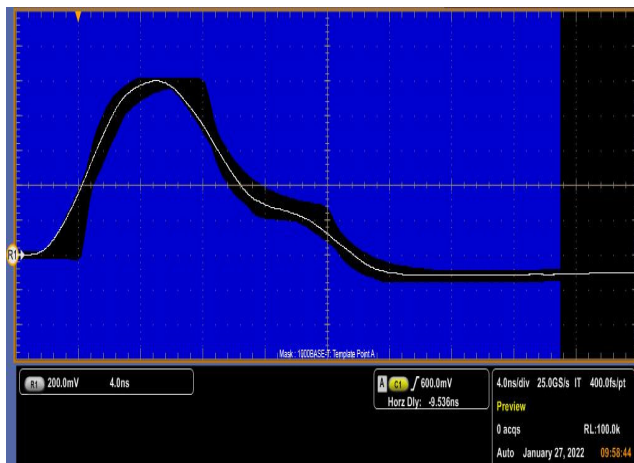
Port ID : Lan

| TEST                                                                 | Spec. Range      | Measured Value | Result        |
|----------------------------------------------------------------------|------------------|----------------|---------------|
| Template Test Point A                                                | Fit the template |                | Pass          |
| Template Test Point B                                                | Fit the template |                | Pass          |
| Template Test Point C                                                | Fit the template |                | Pass          |
| Template Test Point D                                                | Fit the template |                | Pass          |
| Template Test Point F                                                | Fit the template |                | Pass          |
| Template Test Point H                                                | Fit the template |                | Pass          |
| Peak Volt Point A                                                    | 670mV to 820mV   | 756.9mV        | Pass          |
| Peak Volt Point B                                                    | 670mV to 820mV   | 757.7mV        | Pass          |
| %Diff A and B                                                        | <1%              | 0.06%          | Pass          |
| Peak Volt % Diff C                                                   | <2%              | 0.84%          | Pass          |
| Peak Volt %Diff D                                                    | <2%              | 0.93%          | Pass          |
| Droop Point G                                                        | >73.1%           | 99.2%          | Pass          |
| Droop Point J                                                        | >73.1%           | 100%           | Pass          |
| Jitter Master Filtered                                               | <0.3ns           | Not Available  | Not Available |
| Jitter Master Unfiltered<br>(Histogram Method)                       | <1.4ns           | Not Available  | Not Available |
| Jitter Master Unfiltered<br>(TIE Method)                             | <1.4ns           | Not Available  | Not Available |
| Jitter Slave Filtered                                                | Not Available    | Not Available  | Not Available |
| Jitter Slave Unfiltered<br>(Histogram Method)                        | <1.4ns           | Not Available  | Not Available |
| Jitter Slave Unfiltered<br>(TIE Method)                              | <1.4ns           | Not Available  | Not Available |
| Jitter Master Filtered<br>(NO TX_TCLKACCESS)                         | <0.3ns           | Not Available  | Not Available |
| Jitter Master Unfiltered<br>(Histogram Method)<br>(NO TX_TCLKACCESS) | <1.4ns           | 480.0ps        | Pass          |

Application Version : 3.2.10.35

| TEST                                                                | Spec. Range | Measured Value | Result        |
|---------------------------------------------------------------------|-------------|----------------|---------------|
| Jitter Master Unfiltered<br>(TIE Method)<br>(NO TX_TCLKACCESS)      | <1.4ns      | 218.18ps       | Pass          |
| Jitter Slave Filtered<br>(NO TX_TCLKACCESS)                         | <0.4ns      | Not Available  | Not Available |
| Jitter Slave Unfiltered<br>(Histogram Method)<br>(NO TX_TCLKACCESS) | <1.4ns      | Not Available  | Not Available |
| Jitter Slave Unfiltered<br>(TIE Method)<br>(NO TX_TCLKACCESS)       | <1.4ns      | Not Available  | Not Available |
| Transmitter Distortion                                              | <10mV       | -7.767mV       | Pass          |
| Common-mode output<br>Voltage                                       | <50mV       | Not Available  | Not Available |
| Return Loss                                                         |             |                | Not Available |

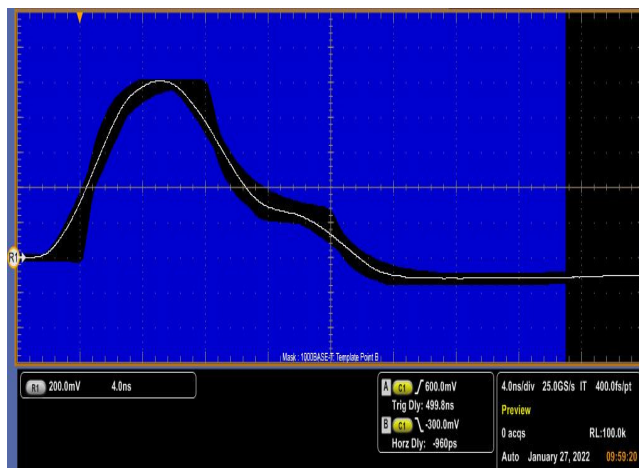
### IEEE Std 802.3ab, Sec 40.6.1.2.3: 1000Base-T Differential output template point A



#### Spec Range: Fit the template

Template Point A Test Result :  
Pass

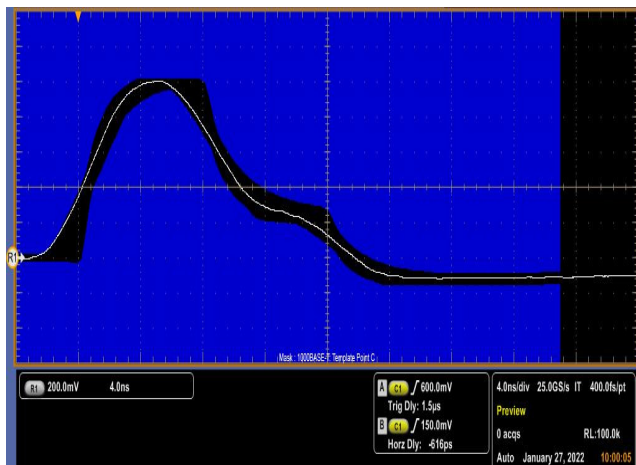
### IEEE Std 802.3ab, Sec 40.6.1.2.3: 1000Base-T Differential output template point B



#### Spec Range: Fit the template

Template Point B Test Result :  
Pass

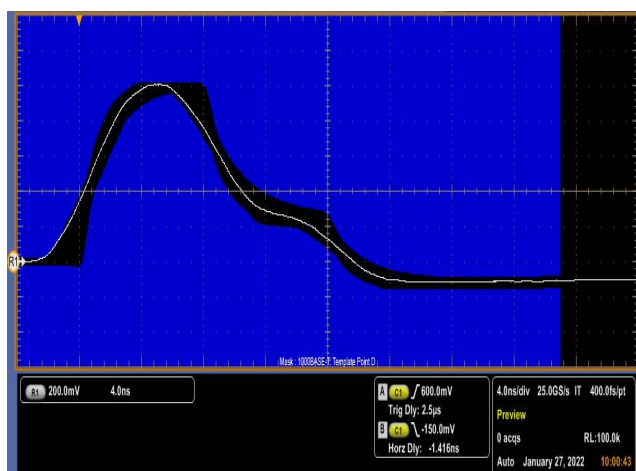
### IEEE Std 802.3ab, Sec 40.6.1.2.3: 1000Base-T Differential output template point C



#### Spec Range: Fit the template

Template Point C Test Result :  
Pass

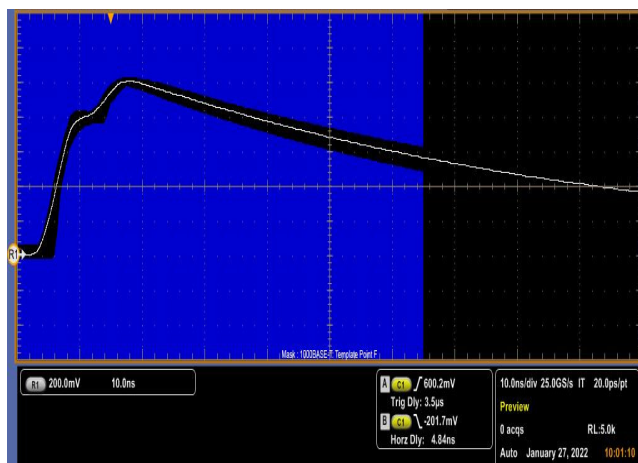
### IEEE Std 802.3ab, Sec 40.6.1.2.3: 1000Base-T Differential output template point D



#### Spec Range: Fit the template

Template Point D Test Result :  
Pass

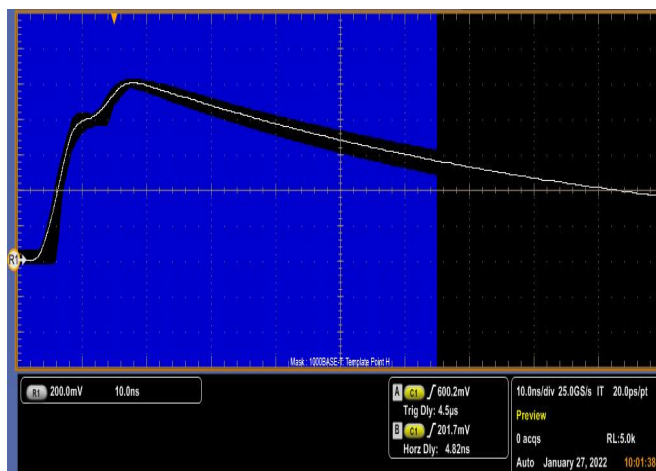
## IEEE Std 802.3ab, Sec 40.6.1.2.3: 1000Base-T Differential output template point F



### Spec Range: Fit the template

Template Point F Test Result :  
Pass

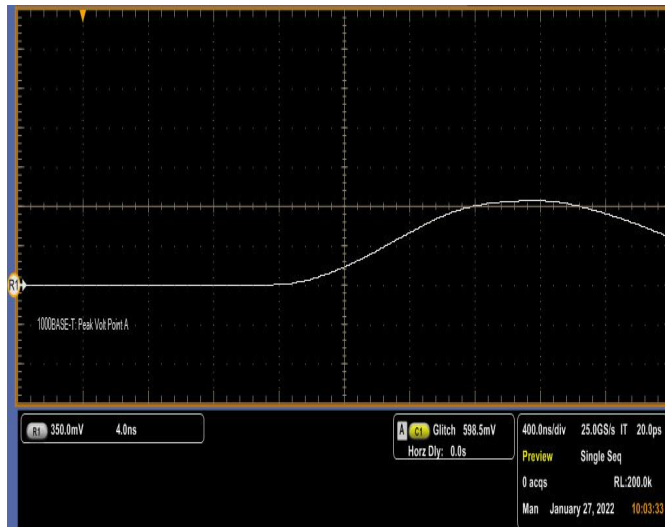
## IEEE Std 802.3ab, Sec 40.6.1.2.3: 1000Base-T Differential output template point H



### Spec Range: Fit the template

Template Point H Test Result :  
Pass

**IEEE Std 802.3ab, Sec 40.6.1.2.2: :1000 Base-T Peak differential output voltage point A**

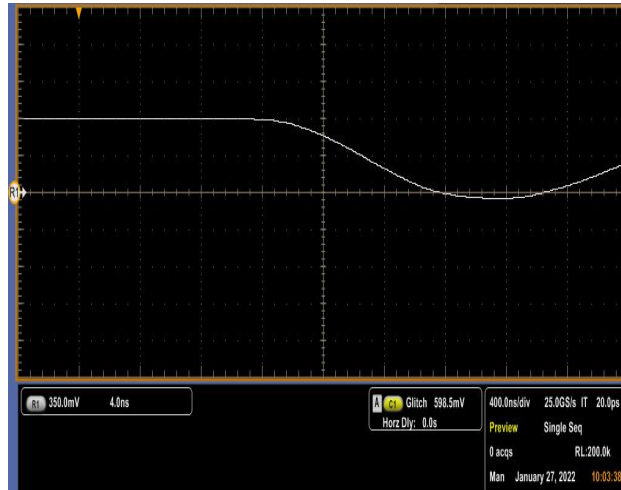


**Spec Range: Magnitude of the voltage at point A should lie in the range 670mV to 820mV**

Point A Peak Volt :  
756.9mV

Point A Peak Volt Test Result :  
Pass

## IEEE Std 802.3ab, Sec 40.6.1.2.2 :1000 Base-T Peak differential output voltage point B

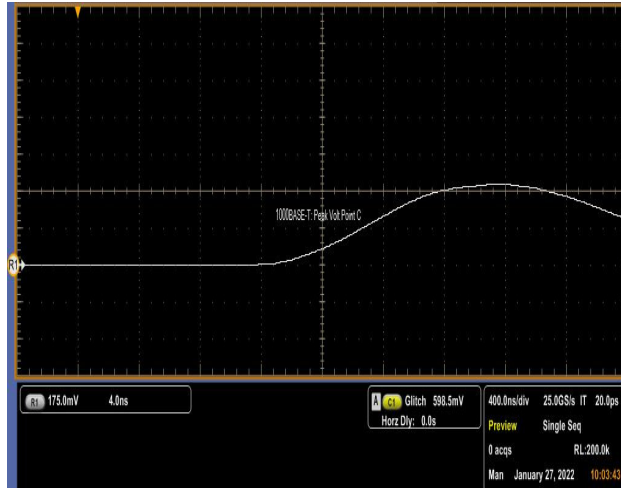


**Spec Range: Magnitude of the voltage at point B should lie in the range 670mV to 820mV.**

**Difference between the magnitudes of the voltages at points A and B < 1%.**

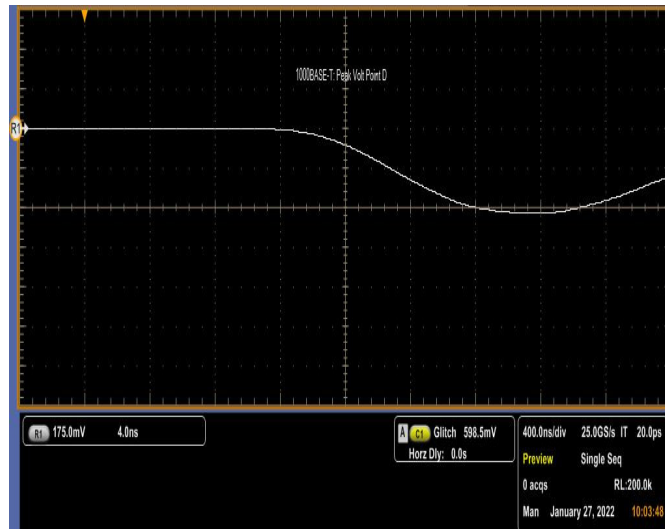
|                                |                                |                                         |                                       |
|--------------------------------|--------------------------------|-----------------------------------------|---------------------------------------|
| Point B Peak Volt :<br>757.7mV |                                | Point B Peak Volt Test Result :<br>Pass |                                       |
| %Diff A and B :<br>0.06%       | Point A Peak Volt :<br>756.9mV |                                         | %Diff A and B : Test Result :<br>Pass |

## IEEE Std 802.3ab, Sec 40.6.1.2.2 :1000 Base-T Peak differential output voltage point C



|                                                                                                                                                             |                                     |                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------|
| <b>Spec Range: Difference between the magnitude of the voltage at point D and 0.5 times the average of the voltage magnitudes at points A and B &lt; 2%</b> |                                     |                                         |
| Peak Volt Point A Peak :<br>756.9mV                                                                                                                         | Peak Volt Point B Peak :<br>757.7mV | Peak Volt Point C Peak :<br>381.9mV     |
| Peak Volt % Diff C :<br>0.84%                                                                                                                               |                                     | Peak Volt Point C Test Result :<br>Pass |

## IEEE Std 802.3ab, Sec 40.6.1.2.2 :1000 Base-T Peak differential output voltage point D



**Spec Range:** Difference between the magnitude of the voltage at point D and 0.5 times the average of the voltage magnitudes at points A and B < 2%

Point A Peak Volt :  
756.9mV

Point B Peak Volt :  
757.7mV

Point D Peak Volt :  
375.2mV

Peak Volt % Diff D :  
0.93%

Point D Peak Volt Test Result :  
Pass

## IEEE Std 802.3ab, Sec 40.6.1.2.2: 1000Base-T Maximum output droop point G



**Spec Range: Ratio of the voltage at point G to the voltage at point F > 73.1 %.**

**Limit: Ratio of the voltage at point G to the voltage at point F.**

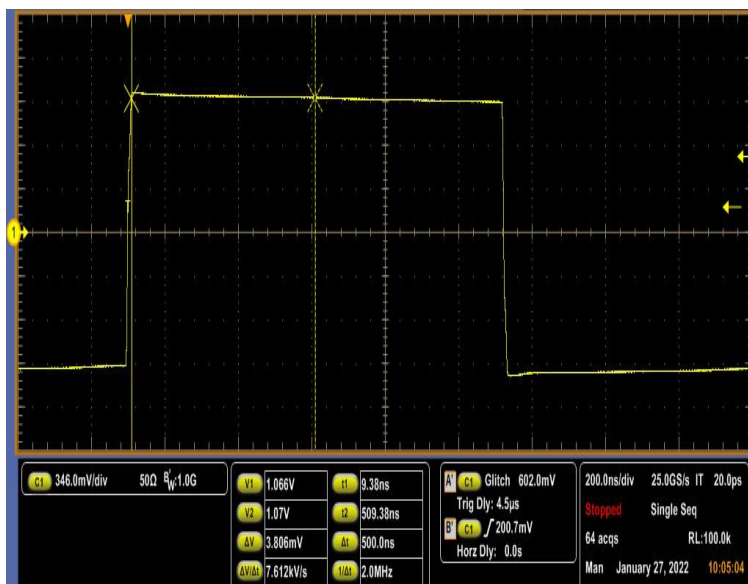
Droop Point G Peak :  
-1.098V

Droop Point F Peak :  
-1.107V

Droop Point G Limit :  
99.2%

Droop Point G Test Result :  
Pass

## IEEE Std 802.3ab, Sec 40.6.1.2.2: 1000Base-T Maximum output droop point J



**Spec Range: Ratio of the voltage at point J to the voltage at point H > 73.1 %.**

**Limit: Ratio of the voltage at point J to the voltage at point H.**

|                               |                                     |
|-------------------------------|-------------------------------------|
| Droop Point J Peak :<br>1.07V | Droop Point H Peak :<br>1.066V      |
| Droop Point J Limit :<br>100% | Droop Point J Test Result :<br>Pass |

## IEEE Std 802.3ab, Sec 40.6.1.2.5: 1000Base-T Master Filtered Jitter

**Trend Plot: Master Filtered Pk-Pk Jitter**

Not Available

**Trend Plot: Master Jtx\_Out**

Not Available

| Spec Range: Peak-to-peak value of the MASTER TX_TCLK filtered<br>+ JTx of Data <0.3ns |                                              |
|---------------------------------------------------------------------------------------|----------------------------------------------|
| Master Filtered Pk-Pk Jitter :<br>Not Available                                       | Master Jtx_Out :<br>Not Available            |
| Master Filtered Pk-Pk Jitter + Master Jtx_Out :<br>Not Available                      | Master Filtered Clk Edges :<br>Not Available |
| Master Filtered Pk-Pk Jitter Test Result :<br>Not Available                           |                                              |

## IEEE Std 802.3ab, Sec 40.6.1.2.5: 1000Base-T Master Unfiltered Jitter [Histogram Method]

### Master Unfiltered Pk-Pk Jitter [Histogram]

Not Available

|                                                                                                               |                                                               |
|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| <b>Spec Range: Peak-to-peak value of the Master TX_TCLK jitter relative to unjittered reference &lt;1.4ns</b> |                                                               |
| Master Unfiltered Pk-Pk Jitter :<br>Not Available                                                             | Master Unfiltered Median :<br>Not Available                   |
| Master Unfiltered Mean :<br>Not Available                                                                     | Master Unfiltered Pk-Pk Jitter Test Result :<br>Not Available |

## IEEE Std 802.3ab, Sec 40.6.1.2.5: 1000Base-T Master Unfiltered Jitter [TIE Method]

**Trend Plot: Master Unfiltered Pk-Pk Jitter**

Not Available

|                                                                                                                   |                                                |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| <b>Spec Range: Peak-to-peak value of the Master TX_TCLK jitter relative to<br/>unjittered reference &lt;1.4ns</b> |                                                |
| Master Unfiltered Pk-Pk Jitter :<br>Not Available                                                                 | Master Unfiltered Clk Edges :<br>Not Available |
| Master Unfiltered Pk-Pk Jitter Test Result :<br>Not Available                                                     |                                                |

## IEEE Std 802.3ab, Sec 40.6.1.2.5: 1000Base-T Slave Filtered Jitter

Trend Plot: Master Filtered Pk-Pk Jitter

Not Available

Trend Plot: Slave Filtered Pk-Pk Jitter

Not Available

Trend Plot: Slave Jtx\_Out

Not Available

| Spec Range: Peak-to-peak value of the SLAVE TX_TCLK filtered jitter<br>+ JTx of Data < 0.4ns + Pk - Pk Master Filtered jitter |                                                         |
|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Master Filtered Pk-Pk Jitter :<br>Not Available                                                                               | Slave Filtered Pk-Pk Jitter :<br>Not Available          |
| Slave Jtx_Out :<br>Not Available                                                                                              | Slave Filtered Clk Edges :<br>Not Available             |
| Slave Filtered Pk-Pk Jitter + Slave Jtx_Out :<br>Not Available                                                                | 0.4ns + Master Filtered Pk-Pk Jitter :<br>Not Available |
| Slave Filtered Pk-Pk Jitter Test Result :<br>Not Available                                                                    |                                                         |

## IEEE Std 802.3ab, Sec 40.6.1.2.5: 1000Base-T Slave Unfiltered Jitter[Histogram Method]

### Slave Unfiltered Pk-Pk Jitter [Histogram]

Not Available

|                                                                                                            |                                                              |
|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| <b>Spec Range: Peak-to-peak value of the SLAVE TX_TCLK jitter relative to<br/>MASTER TX_TCLK &lt;1.4ns</b> |                                                              |
| Slave Unfiltered Pk-Pk Jitter :<br>Not Available                                                           | Slave Unfiltered Median :<br>Not Available                   |
| Slave Unfiltered Mean :<br>Not Available                                                                   | Slave Unfiltered Pk-Pk Jitter Test Result :<br>Not Available |

## IEEE Std 802.3ab, Sec 40.6.1.2.5: 1000Base-T Slave Unfiltered Jitter[TIE Method]

Trend Plot: Slave Unfiltered Pk-Pk Jitter

Not Available

|                                                                                                 |                                               |
|-------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Spec Range: Peak-to-peak value of the SLAVE TX_TCLK jitter relative to<br>MASTER TX_TCLK <1.4ns |                                               |
| Slave Unfiltered Pk-Pk Jitter :<br>Not Available                                                | Slave Unfiltered Clk Edges :<br>Not Available |
| Slave Unfiltered Pk-Pk Jitter Test Result :<br>Not Available                                    |                                               |

### 1000Base-T Master Filtered Jitter (with out TX\_TCLK access)

Note: This is an alternate test method for jitter measurement being proposed, when TX\_TCLK is not accessible.

#### Trend Plot: Data(TM2) Pk-Pk Jitter

Not Available

|                                               |                                        |
|-----------------------------------------------|----------------------------------------|
| Spec Range: Data(TM2) Filtered Jitter < 0.3nS |                                        |
| Data(TM2) Pk-Pk Jitter :<br>Not Available     | Data(TM2) CLK Edges :<br>Not Available |
| Test Result :<br>Not Available                |                                        |

## 1000Base-T Master Unfiltered Jitter (with out TX\_TCLK access) - Histogram

Note: This is an alternate test method for jitter measurement being proposed, when TX\_TCLK is not accessible.

### Trend Plot: Data(TM2) Unfiltered Pk-Pk Jitter [Histogram]



**Spec Range: Data(TM2) Unfiltered Jitter < 1.4nS**

Data(TM2) Pk-Pk Jitter :  
480.0ps

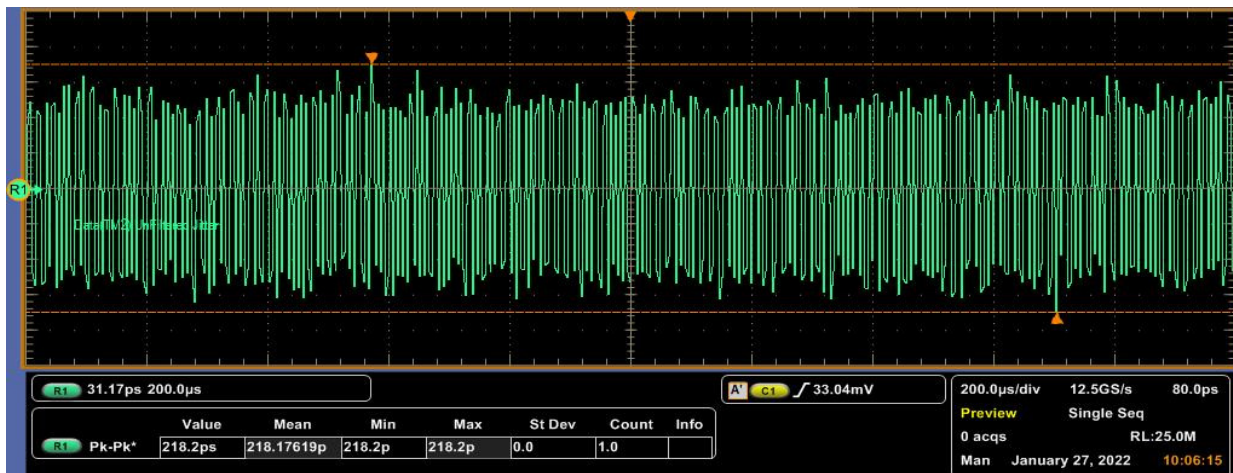
Test Result :  
Pass

Remarks :  
Median: 15.88ns  
Mean: 15.875ns

## 1000Base-T Master Unfiltered Jitter (with out TX\_TCLK access) - TIE

Note: This is an alternate test method for jitter measurement being proposed, when TX\_TCLK is not accessible.

### Trend Plot: Data(TM2) Unfiltered Pk-Pk Jitter [TIE]



**Spec Range: Data(TM2) Unfiltered Jitter < 1.4nS**

Data(TM2) Pk-Pk Jitter :  
218.18ps

Data(TM2) CLK Edges :  
124997

Test Result :  
Pass

### 1000Base-T Slave Filtered Jitter (with out TX\_TCLK access)

Note: This is an alternate test method for jitter measurement being proposed, when TX\_TCLK is not accessible.

#### Trend Plot: Data(TM2) Pk-Pk Jitter

Not Available

#### Trend Plot: Data(TM3) Pk-Pk Jitter

Not Available

| Spec Range: Data(TM3) Filtered Jitter - Data(TM2) Filtered Jitter < 0.4nS |                                           |
|---------------------------------------------------------------------------|-------------------------------------------|
| Data(TM2) Pk-Pk Jitter :<br>Not Available                                 | Data(TM3) Pk-Pk Jitter :<br>Not Available |
| Data(TM3) Pk-Pk Jitter - Data(TM2) Pk-Pk Jitter :<br>Not Available        | Data(TM3) Clk Edges :<br>Not Available    |
| Test Result :<br>Not Available                                            |                                           |

## 1000Base-T Slave Unfiltered Jitter (with out TX\_TCLK access) - Histogram

Note: This is an alternate test method for jitter measurement being proposed, when TX\_TCLK is not accessible.

### Trend Plot:Data(TM2) Unfiltered Pk-Pk Jitter [Histogram]

Not Available

### Trend Plot:Data(TM3) Unfiltered Pk-Pk Jitter [Histogram]

Not Available

| Spec Range: Data(TM3) Unfiltered Jitter - Data(TM2) Unfiltered Jitter < 1.4ns |                                           |
|-------------------------------------------------------------------------------|-------------------------------------------|
| Data(TM2) Pk-Pk Jitter :<br>Not Available                                     | Data(TM3) Pk-Pk Jitter :<br>Not Available |
| Data(TM3) Pk-Pk Jitter - Data(TM2) Pk-Pk Jitter :<br>Not Available            | Test Result :<br>Not Available            |
| Remarks :<br>Not Available                                                    |                                           |

### 1000Base-T Slave Unfiltered Jitter (with out TX\_TCLK access) - TIE

Note: This is an alternate test method for jitter measurement being proposed, when TX\_TCLK is not accessible.

#### Trend Plot:Data(TM2) Unfiltered Pk-Pk Jitter [TIE]

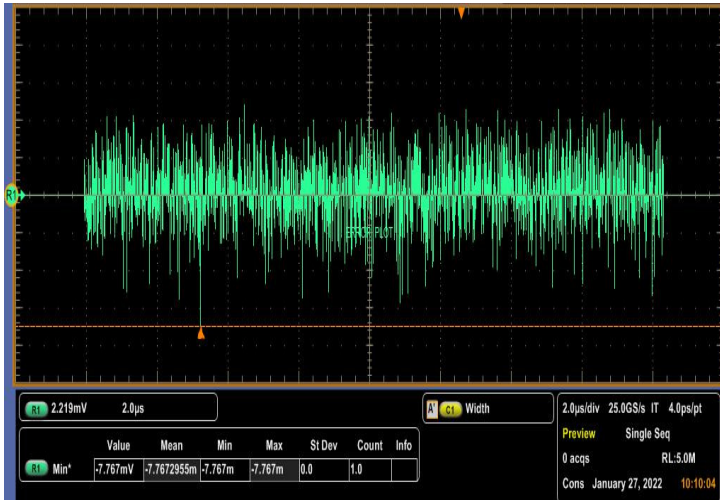
Not Available

#### Trend Plot:Data(TM3) Unfiltered Pk-Pk Jitter [TIE]

Not Available

| Spec Range: Data(TM3) Unfiltered Jitter - Data(TM2) Unfiltered Jitter < 14.5 |                                           |
|------------------------------------------------------------------------------|-------------------------------------------|
| Data(TM2) Pk-Pk Jitter :<br>Not Available                                    | Data(TM3) Pk-Pk Jitter :<br>Not Available |
| Data(TM3) Pk-Pk Jitter-Data(TM2) Pk-Pk Jitter :<br>Not Available             | Data(TM3) Clk Edges :<br>Not Available    |
| Test Result :<br>Not Available                                               |                                           |

## IEEE Std 802.3ab, Sec 40.6.1.2.4: 1000Base-T Transmitter Distortion



| Spec Range: Peak Distortion < 10mV                 |         |                   |          |
|----------------------------------------------------|---------|-------------------|----------|
| Test Result :                                      | Pass    | Peak Distortion : | -7.767mV |
| RMS :                                              | 1.922mV | SNR :             | 51.31dB  |
| Other Details :                                    |         |                   |          |
| RMS = 1.922mV SNR = 51.31dB                        |         |                   |          |
| Peak Distortion at symbol 411 = -7.767mV           |         |                   |          |
| Peak Distortion at symbol 1115 = -6.335mV          |         |                   |          |
| Peak Distortion at symbol 336 = -6.129mV           |         |                   |          |
| TX_TCLK Freq = 124.9991MHZ                         |         |                   |          |
| TX_TCLK ppm = -0.000710% [-7.101 ppm]              |         |                   |          |
| DC Offset Measured = 21.305mV                      |         |                   |          |
| Peak Distortion for 40 Phase offsets is below 10mV |         |                   |          |
| Peak Distortion for 0 Phase offsets is above 10mV  |         |                   |          |

## IEEE Std 802.3ab, Sec 40.8.3.1: 1000Base-T Return Loss

Not Available

| Frequency | Spec. Value | Measured Value<br>Not Available | Result |
|-----------|-------------|---------------------------------|--------|
| 1 MHz     | -16.00dB    | Not Available                   |        |
| 10 MHz    | -16.00dB    | Not Available                   |        |
| 20 MHz    | -16.00dB    | Not Available                   |        |
| 30 MHz    | -16.00dB    | Not Available                   |        |
| 40 MHz    | -16.00dB    | Not Available                   |        |
| 50 MHz    | -14.08dB    | Not Available                   |        |
| 60 MHz    | -12.50dB    | Not Available                   |        |
| 70 MHz    | -11.16dB    | Not Available                   |        |
| 80 MHz    | -10.00dB    | Not Available                   |        |
| 90 MHz    | -8.97dB     | Not Available                   |        |
| 100 MHz   | -8.07dB     | Not Available                   |        |

Return Loss Result Not Available

### IEEE Std 802.3ab, Sec 40.8.3.3: Common-mode output voltage

Not Available

|                                                |               |
|------------------------------------------------|---------------|
| <b>Spec Range: Less than 50mV peak-to-peak</b> |               |
| Common-mode 1000BaseT output voltage           | Not Available |
| Common-mode for 1000T Result                   | Not Available |