

## Test Report for 1000BaseT

Time: 17:24:00

Device ID : Gen.II HMI

Device Description Not Available

Device Pair ID : Not Available

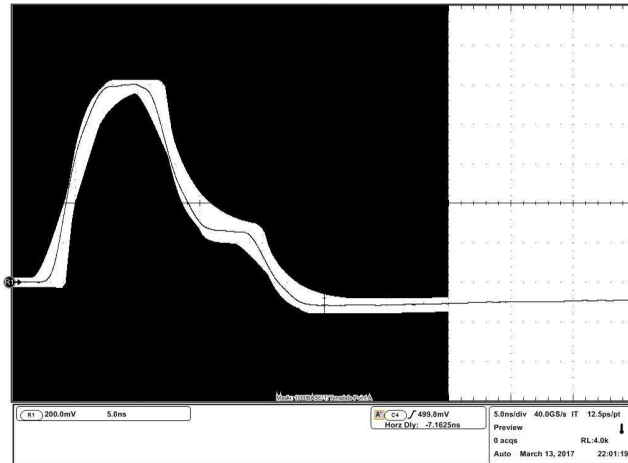
Port ID : Not Available

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	576.6mV	Fail
Peak Volt Point B	670mV to 820mV	570.8mV	Fail
%Diff A and B	<1%	0.50%	Pass
Peak Volt % Diff C	<2%	1.20%	Pass
Peak Volt %Diff D	<2%	1.18%	Pass
Droop Point G	>73.1%	99.4%	Pass
Droop Point J	>73.1%	100%	Pass
Jitter Master Filtered	<0.3ns	Not Available	Not Available
Jitter Master Unfiltered (Histogram Method)	<1.4ns	320.0ps	Pass
Jitter Master Unfiltered (TIE Method)	<1.4ns	Not Available	Not Available
Jitter Slave Filtered	Not Available	Not Available	Not Available
Jitter Slave Unfiltered (Histogram Method)	<1.4ns	Not Available	Not Available
Jitter Slave Unfiltered (TIE Method)	<1.4ns	Not Available	Not Available
Jitter Master Filtered (NO TX_TCLK ACCESS)	<0.3ns	Not Available	Not Available
Jitter Master Unfiltered (Histogram Method) (NO TX_TCLK ACCESS)	<1.4ns	275.0ps	Pass

Application Version : 3.2.9.28

<b>TEST</b>	<b>Spec. Range</b>	<b>Measured Value</b>	<b>Result</b>
Jitter Master Unfiltered (TIE Method) (NO TX_TCLKACCESS)	<1.4ns	Not Available	Not Available
Jitter Slave Filtered (NO TX_TCLKACCESS)	<0.4ns	Not Available	Not Available
Jitter Slave Unfiltered (Histogram Method) (NO TX_TCLKACCESS)	<1.4ns	Not Available	Not Available
Jitter Slave Unfiltered (TIE Method) (NO TX_TCLKACCESS)	<1.4ns	Not Available	Not Available
Transmitter Distortion	<10mV	-31.81mV	Fail
Common-mode output Voltage	<50mV	Not Available	Not Available
Return Loss			Not Available

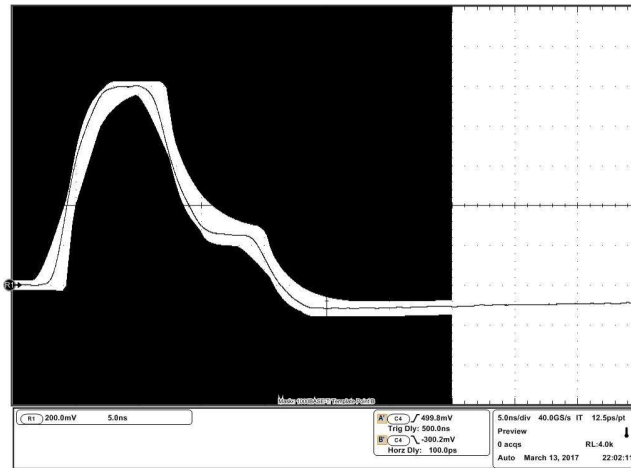
**IEEE Std 802.3ab, Sec 40.6.1.2.3: 1000Base-T Differential output template point A**



**Spec Range: Fit the template**

Template Point A Test Result :  
Pass

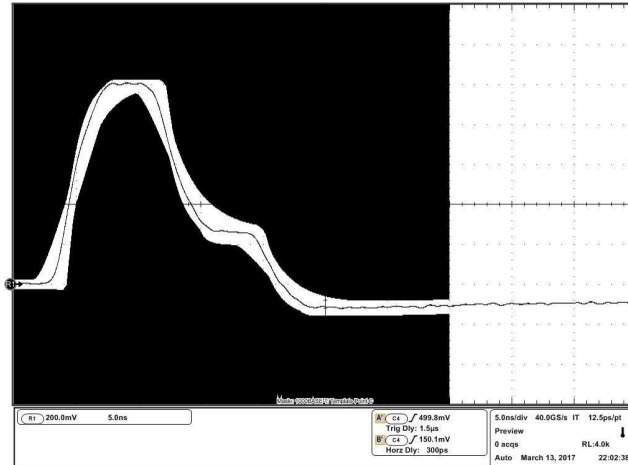
**IEEE Std 802.3ab, Sec 40.6.1.2.3: 1000Base-T Differential output template point B**



**Spec Range: Fit the template**

Template Point B Test Result :  
Pass

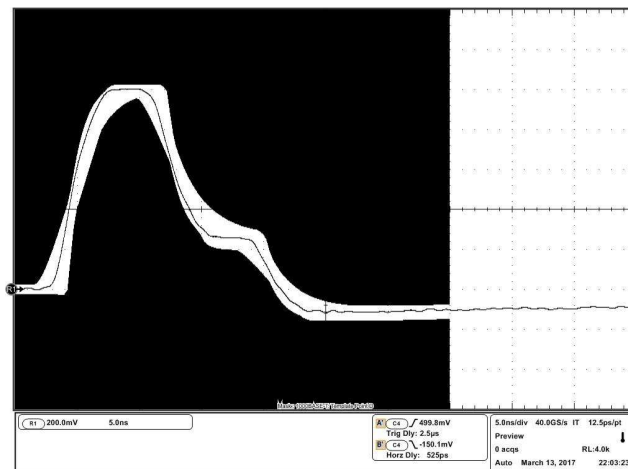
### IEEE Std 802.3ab, Sec 40.6.1.2.3: 1000Base-T Differential output template point C



#### Spec Range: Fit the template

Template Point C Test Result :  
Pass

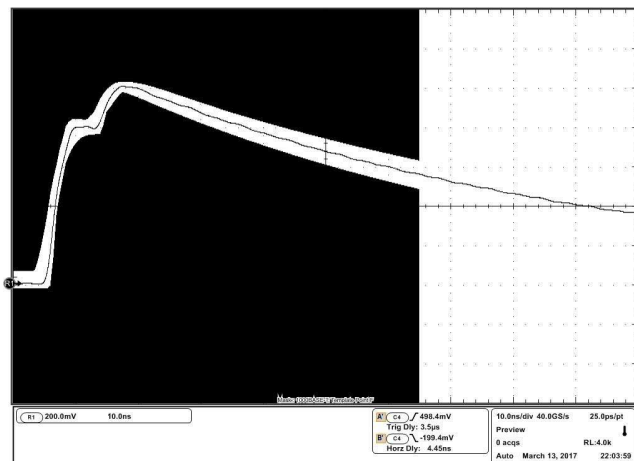
### IEEE Std 802.3ab, Sec 40.6.1.2.3: 1000Base-T Differential output template point D



#### Spec Range: Fit the template

Template Point D Test Result :  
Pass

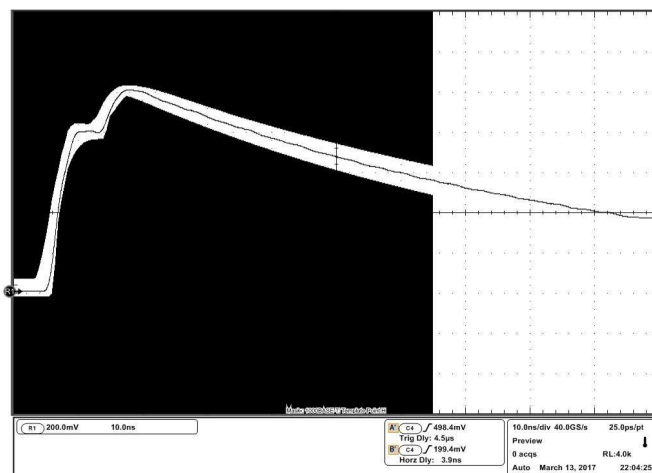
### IEEE Std 802.3ab, Sec 40.6.1.2.3: 1000Base-T Differential output template point F



**Spec Range: Fit the template**

Template Point F Test Result :  
Pass

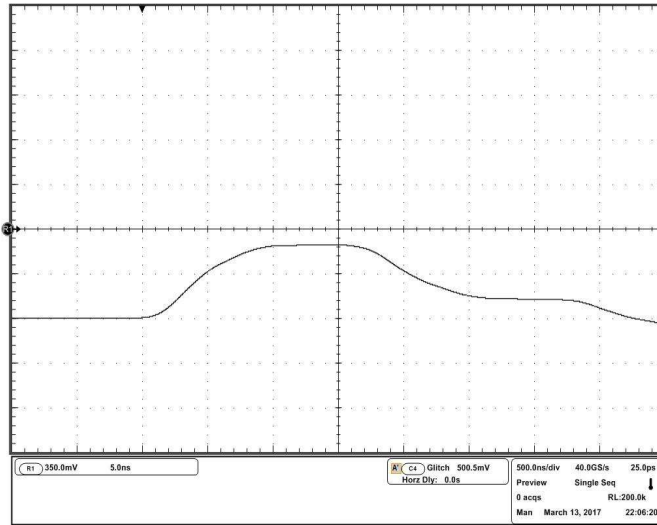
### IEEE Std 802.3ab, Sec 40.6.1.2.3: 1000Base-T Differential output template point H



**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**

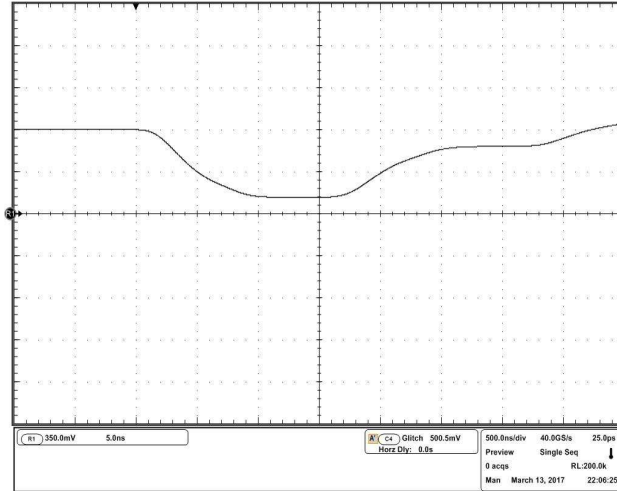


**Spec Range: Magnitude of the voltage at point A should lie in the range 670mV to 820mV**

Point A Peak Volt :  
576.6mV

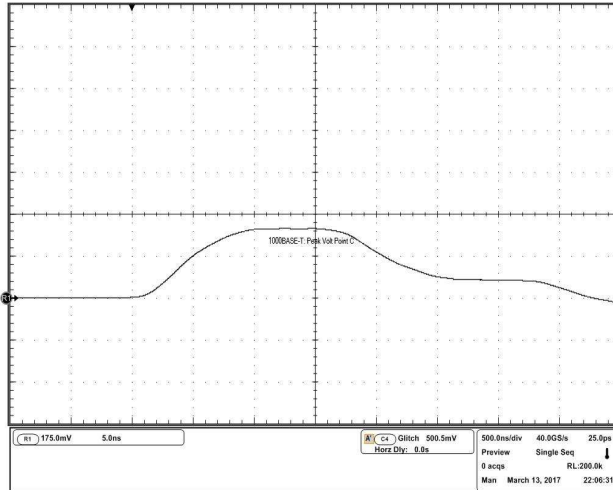
Point A Peak Volt Test Result :  
Fail

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



<p><b>Spec Range: Magnitude of the voltage at point B should lie in the range 670mV to 820mV.</b></p> <p><b>Difference between the magnitudes of the voltages at points A and B &lt; 1%.</b></p>		
Point B Peak Volt : 570.8mV	Point B Peak Volt Test Result : Fail	
%Diff A and B : 0.50%	Point A Peak Volt : 576.6mV	%Diff A and B : Test Result : Pass

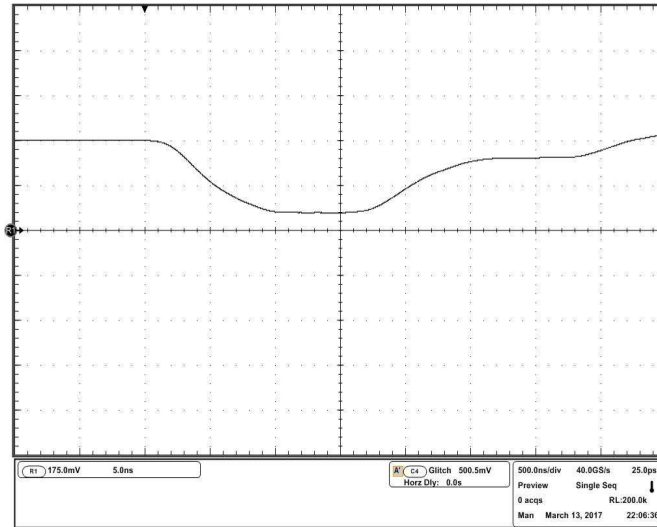
**IEEE Std 802.3ab, Sec 40.6.1.2.2 :1000 Base-T Peak differential output voltage point C**



<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 : 576.6mV	Peak Volt Point B Peak : 570.8mV	Peak Volt Point C Peak : 290.3mV
Peak Volt % Diff C : 1.20%	Peak Volt Point C Test Result : Pass	

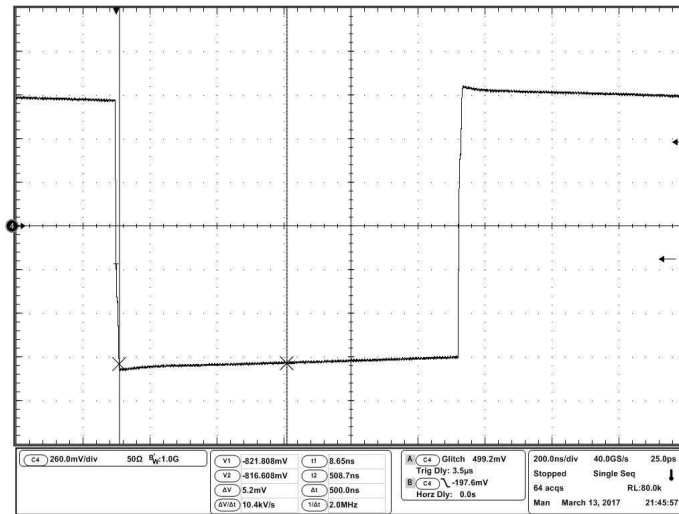


**IEEE Std 802.3ab, Sec 40.6.1.2.2 :1000 Base-T Peak differential output voltage point D**



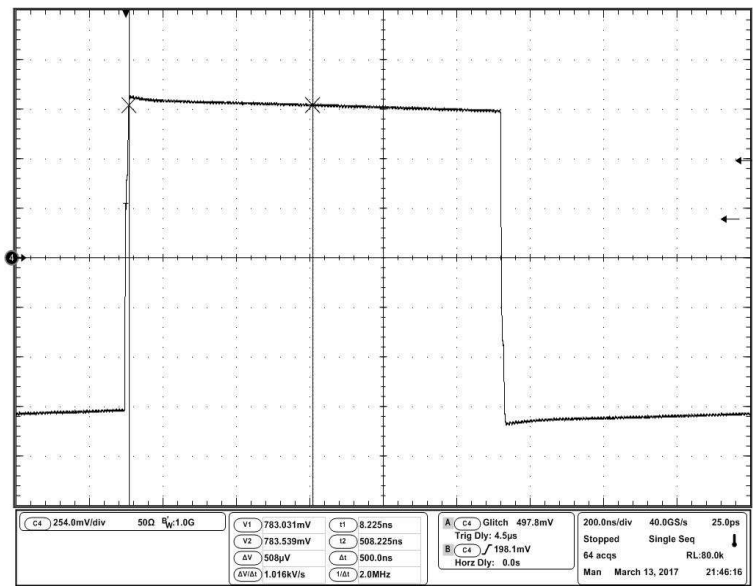
<b>Spec Range: Difference between the magnitude of the voltage at point D and 0.5 times the average of the voltage magnitudes at points A and B &lt; 2%</b>		
Point A Peak Volt : 576.6mV	Point B Peak Volt : 570.8mV	Point D Peak Volt : 283.5mV
Peak Volt % Diff D : 1.18%		Point D Peak Volt Test Result : Pass

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



<p><b>Spec Range: Ratio of the voltage at point G to the voltage at point F &gt; 73.1%.</b></p> <p><b>Limit: Ratio of the voltage at point G to the voltage at point F.</b></p>	
<p>Droop Point G Peak : -816.6mV</p>	<p>Droop Point F Peak : -821.8mV</p>
<p>Droop Point G Limit : 99.4%</p>	<p>Droop Point G Test Result : Pass</p>

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



<p><b>Spec Range: Ratio of the voltage at point J to the voltage at point H &gt; 73.1%.</b></p> <p><b>Limit: Ratio of the voltage at point J to the voltage at point H.</b></p>	
<p>Droop Point J Peak : 783.5mV</p>	<p>Droop Point H Peak : 783.0mV</p>
<p>Droop Point J Limit : 100%</p>	<p>Droop Point J Test Result : Pass</p>

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

Trend Plot: Master Filtered Pk-Pk Jitter

Not Available

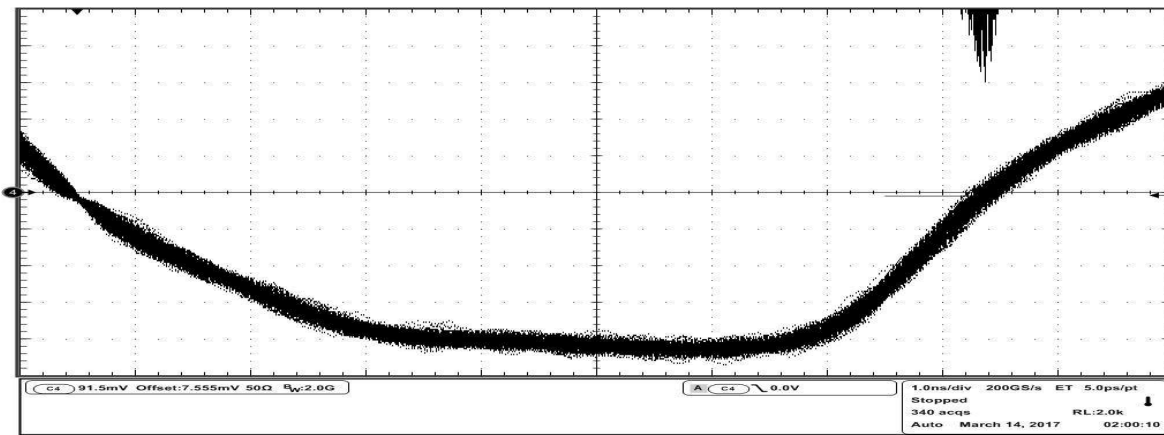
Trend Plot: Master Jtx\_Out

Not Available

<b>Spec Range: Peak-to-peak value of the MASTER TX_TCLK filtered + JTx of Data &lt;0.3ns</b>	
Master Filtered Pk-Pk Jitter : Not Available	Master Jtx_Out : Not Available
Master Filtered Pk-Pk Jitter + Master Jtx_Out : Not Available	Master Filtered Clk Edges : Not Available
Master Filtered Pk-Pk Jitter Test Result : 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]**



<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 : 320.0ps	Master Unfiltered Median : 7.85ns
Master Unfiltered Mean : 7.8455ns	Master Unfiltered Pk-Pk Jitter Test Result : Pass

## 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 unjittered reference &lt;1.4ns</b>	
Master Unfiltered Pk-Pk Jitter : Not Available	Master Unfiltered Clk Edges : Not Available
Master Unfiltered Pk-Pk Jitter Test Result : 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

<b>Spec Range: Peak-to-peak value of the SLAVE TX_TCLK filtered jitter + JTx of Data &lt; 0.4ns + Pk - Pk Master Filtered jitter</b>	
Master Filtered Pk-Pk Jitter : Not Available	Slave Filtered Pk-Pk Jitter : Not Available
Slave Jtx_Out : Not Available	Slave Filtered Clk Edges : Not Available
Slave Filtered Pk-Pk Jitter + Slave Jtx_Out : Not Available	0.4ns + Master Filtered Pk-Pk Jitter : Not Available
Slave Filtered Pk-Pk Jitter Test Result : 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 MASTER TX_TCLK &lt;1.4ns</b>	
Slave Unfiltered Pk-Pk Jitter : Not Available	Slave Unfiltered Median : Not Available
Slave Unfiltered Mean : Not Available	Slave Unfiltered Pk-Pk Jitter Test Result : 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

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

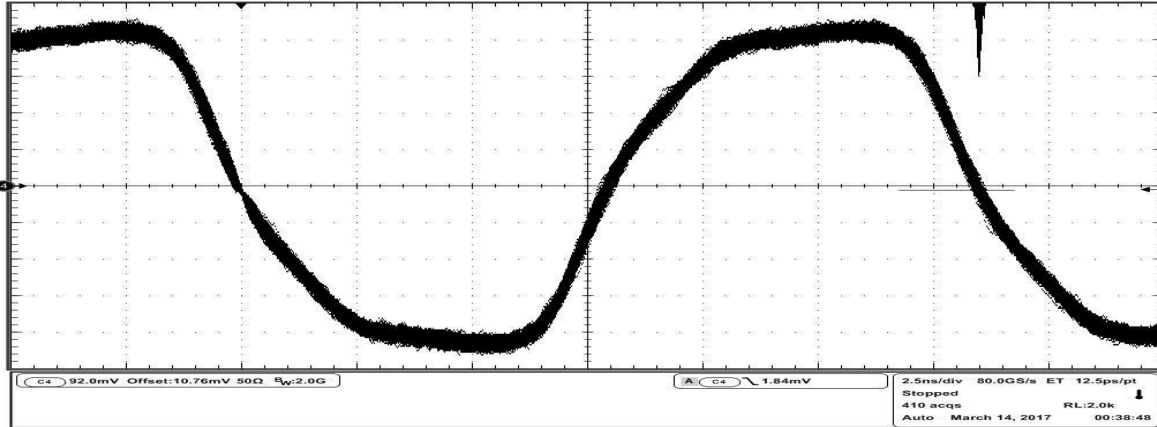
Not Available

<b>Spec Range: Data(TM2) Filtered Jitter &lt; 0.3nS</b>	
Data(TM2) Pk-Pk Jitter : Not Available	Data(TM2) CLK Edges : Not Available
Test Result : 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 :  
275.0ps

Test Result :  
Pass

Remarks :  
Median: 16.0ns  
Mean: 15.99ns

### 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]

Not Available

<b>Spec Range: Data(TM2) Unfiltered Jitter &lt; 1.4nS</b>	
Data(TM2) Pk-Pk Jitter : Not Available	Data(TM2) CLK Edges : Not Available
Test Result : Not Available	

### 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

<b>Spec Range: Data(TM3) Filtered Jitter - Data(TM2) Filtered Jitter &lt; 0.4nS</b>	
Data(TM2) Pk-Pk Jitter : Not Available	Data(TM3) Pk-Pk Jitter : Not Available
Data(TM3) Pk-Pk Jitter - Data(TM2) Pk-Pk Jitter : Not Available	Data(TM3) Clk Edges : Not Available
Test Result : 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 : Not Available	Data(TM3) Pk-Pk Jitter : Not Available
Data(TM3) Pk-Pk Jitter - Data(TM2) Pk-Pk Jitter : Not Available	Test Result : Not Available
Remarks : 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]

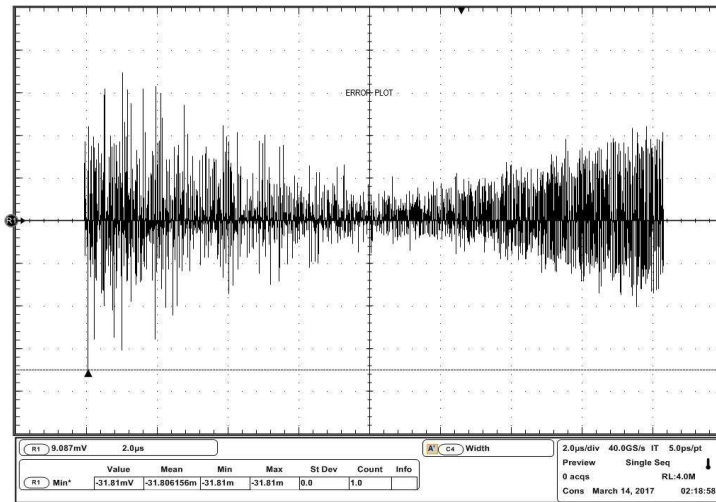
Not Available

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

Not Available

Spec Range: Data(TM3) Unfiltered Jitter - Data(TM2) Unfiltered Jitter < 1.4ns	
Data(TM2) Pk-Pk Jitter : Not Available	Data(TM3) Pk-Pk Jitter : Not Available
Data(TM3) Pk-Pk Jitter-Data(TM2) Pk-Pk Jitter : Not Available	Data(TM3) Clk Edges : Not Available
Test Result : Not Available	

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



Spec Range: Peak Distortion < 10mV	
Test Result : Fail	Peak Distortion : -31.81mV
RMS : 5.177mV	SNR : 42.71dB
<p>Other Details :</p> <p>RMS = 5.177mV SNR = 42.71dB</p> <p>Peak Distortion at symbol 13 = -31.81mV</p> <p>Peak Distortion at symbol 136 = 31.53mV</p> <p>Peak Distortion at symbol 254 = 28.5mV</p> <p>TX_TCLK Freq = 125.0067MHZ</p> <p>TX_TCLK ppm = 0.005326% [53.263 ppm]</p> <p>DC Offset Measured = 9.1797mV</p> <p>Peak Distortion for 20 Phase offsets is below 10mV</p> <p>Peak Distortion for 20 Phase offsets is above 10mV</p>	



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

Not Available

<b>Frequency</b>	<b>Spec. Value</b>	<b>Measured Value</b> Not Available	<b>Result</b>
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