



TekExpress USB 3.1 Report

Test Report

Execution and Setup Information			
DUT ID		DUT001	
Date/Time		2019-03-06 10:00:13	
Connector Type		Standard	
Test Point		Compliance (TP1) – Far End	
DPOJET Version		"7.1.2.38"	
SigTest Version		3_2_8	
Total Execution Time		5 Minutes 25 Seconds	
Toggle Tool		AWG7122C	
Acquisition Mode		Live	
Over All Test Result		Pass	
DUT COMMENT:		General Comment – USB3.1 DUT	

UI-Unit Interval							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
UI-Unit Interval	Gen 1	DPOJET	200.449 ps	Pass	509.246 fs & 610.754 fs	199.94 ps	201.06 ps
UI-Unit Interval	Gen 1	USB-IF	200.458 ps	Pass	518.000 fs & 602.000 fs	199.94 ps	201.06 ps
COMMENTS							

VTx-Diff-PP-Differential PP Tx voltage swing							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
VTx-Diff-PP-Differential PP Tx voltage swing	Gen 1	DPOJET	494.174 mV	Pass	394.174 mV & 705.826 mV	100.0 mV	1.2 V
COMMENTS							

TCDR_Slew_Max-Maximum Slew Rate							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
TCDR_Slew_Max-Maximum Slew Rate	Gen 1	DPOJET	4.547 ms/s	Pass	5.453 ms/s	N.A	10.0 ms/s
COMMENTS							

Rj-Tx random jitter-Dual Dirac							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
Rj-Tx random jitter-Dual Dirac	Gen 1	DPOJET	2.253 ps	Pass	1.017 ps	N.A	3.27 ps
Rj-Tx random jitter-Dual Dirac	Gen 1	USB-IF	2.497 ps	Pass	773.400 fs	N.A	3.27 ps
COMMENTS							

Mask Hits							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit

Mask Hits	Gen 1	DPOJET	0.000	Pass	0.000	N.A	0
Mask Hits	Gen 1	USB-IF	0.000	Pass	0.000	N.A	0
COMMENTS							

TSSC-Freq-Dev-Max							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
TSSC-Freq-Dev-Max (Max)	Gen 1	DPOJET	-4.509 kppm (Max)	Pass	791.163 ppm & 808.837 ppm	-5.3 kppm	-3.7 kppm
TSSC-Freq-Dev-Max (Min)	Gen 1	DPOJET	-4.544 kppm (Min)	Pass	755.733 ppm & 844.267 ppm	-5.3 kppm	-3.7 kppm
COMMENTS							

TSSC-Freq-Dev-Min							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
TSSC-Freq-Dev-Min (Max)	Gen 1	DPOJET	7.231 ppm (Max)	Pass	307.231 ppm & 292.769 ppm	-300.0 ppm	300.0 ppm
TSSC-Freq-Dev-Min (Min)	Gen 1	DPOJET	-19.241 ppm (Min)	Pass	280.759 ppm & 319.241 ppm	-300.0 ppm	300.0 ppm
COMMENTS							

TSSC-Mod-Rate - SSC Modulation rate							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
TSSC-Mod-Rate - SSC Modulation rate	Gen 1	DPOJET	31.436 kHz	Pass	1.436 kHz & 1.564 kHz	30.0 kHz	33.0 kHz
COMMENTS							

TSSC-USB Profile							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
TSSC-USB Profile	Gen 1	DPOJET	200.449 ps	Pass	200.449 ps	0 s	N.A
COMMENTS							

TJ-Tx total jitter-Dual Dirac at 10E-12 BER							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
TJ-Tx total jitter-Dual Dirac at 10E-12 BER	Gen 1	DPOJET	60.541 ps	Pass	71.459 ps	N.A	132.0 ps
TJ-Tx total jitter-Dual Dirac at 10E-12 BER	Gen 1	USB-IF	63.309 ps	Pass	68.691 ps	N.A	132.0 ps
COMMENTS							

DJ-Tx deterministic Jitter-Dual Dirac							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
DJ-Tx deterministic Jitter-Dual Dirac	Gen 1	DPOJET	28.554 ps	Pass	57.446 ps	N.A	86.0 ps
DJ-Tx deterministic Jitter-Dual Dirac	Gen 1	USB-IF	28.207 ps	Pass	57.793 ps	N.A	86.0 ps
COMMENTS							

Eye Height – Transmitter Eye Mask							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
Eye Height – Transmitter Eye Mask	Gen 1	DPOJET	283.417 mV	Pass	183.417 mV & 916.583 mV	100.0 mV	1.2 V
Eye Height – Transmitter Eye Mask	Gen 1	USB-IF	287.603 mV	Pass	187.603 mV & 912.397 mV	100.0 mV	1.2 V
COMMENTS							

Width@BER							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
Width@BER	Gen 1	DPOJET	129.502 ps	Pass	61.502 ps	68.0 ps	N.A
Width@BER	Gen 1	USB-IF	136.691 ps	Pass	68.691 ps	68.0 ps	N.A
COMMENTS							

LFPS Duty Cycle							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
LFPS Duty Cycle (Max)	Gen 1	DPOJET	49.937 % (Max)	Pass	9.937 % & 10.063 %	40.0 %	60.0 %
N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A
LFPS Duty Cycle (Min)	Gen 1	DPOJET	49.827 % (Min)	Pass	9.827 % & 10.173 %	40.0 %	60.0 %
LFPS Duty Cycle (Max)	Gen 1	USB-IF	50.161 % (Max)	Pass	10.161 % & 9.839 %	40.0 %	60.0 %
LFPS Duty Cycle (Min)	Gen 1	USB-IF	50.022 % (Min)	Pass	10.022 % & 9.978 %	40.0 %	60.0 %
COMMENTS							

LFPS Fall Time							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
LFPS Fall Time	Gen 1	DPOJET	215.757 ps	Pass	3.784 ns	N.A	4.0 ns
LFPS Fall Time	Gen 1	USB-IF	228.534 ps	Pass	3.771 ns	N.A	4.0 ns
COMMENTS							

LFPS Rise Time							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
LFPS Rise Time	Gen 1	DPOJET	208.759 ps	Pass	3.791 ns	N.A	4.0 ns
LFPS Rise Time	Gen 1	USB-IF	225.769 ps	Pass	3.774 ns	N.A	4.0 ns
COMMENTS							

LFPS TPeriod							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
LFPS TPeriod (Max)	Gen 1	DPOJET	40.046 ns (Max)	Pass	20.046 ns & 59.954 ns	20.0 ns	100.0 ns
LFPS TPeriod (Min)	Gen 1	DPOJET	39.737 ns (Min)	Pass	19.737 ns & 60.263 ns	20.0 ns	100.0 ns
LFPS TPeriod (Max)	Gen 1	USB-IF	40.041 ns (Max)	Pass	20.041 ns & 59.959 ns	20.0 ns	100.0 ns
LFPS TPeriod (Min)	Gen 1	USB-IF	39.758 ns (Min)	Pass	19.758 ns & 60.242 ns	20.0 ns	100.0 ns
COMMENTS							

LFPS Vcm-AC							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
LFPS Vcm-AC	Gen 1	DPOJET	45.984 mV	Pass	54.016 mV	N.A	100.0 mV
LFPS Vcm-AC	Gen 1	USB-IF	46.000 mV	Pass	54.000 mV	N.A	100.0 mV
COMMENTS							

LFPS Vtx-DIFF-PP							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
LFPS Vtx-DIFF-PP (Max)	Gen 1	DPOJET	960.000 mV (Max)	Pass	160.000 mV & 240.000 mV	800.0 mV	1.2 V
LFPS Vtx-DIFF-PP (Min)	Gen 1	DPOJET	948.000 mV (Min)	Pass	148.000 mV & 252.000 mV	800.0 mV	1.2 V
LFPS Vtx-DIFF-PP (Max)	Gen 1	USB-IF	960.000 mV (Max)	Pass	160.000 mV & 240.000 mV	800.0 mV	1.2 V
LFPS Vtx-DIFF-PP (Min)	Gen 1	USB-IF	948.000 mV (Min)	Pass	148.000 mV & 252.000 mV	800.0 mV	1.2 V
COMMENTS							

LFPS TBurst							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
LFPS TBurst (Max)	Gen 1	DPOJET	1.190 us (Max)	Pass	590.459 ns & 209.541 ns	600.0 ns	1.4 us
LFPS TBurst (Min)	Gen 1	DPOJET	1.155 us (Min)	Pass	554.844 ns & 245.156 ns	600.0 ns	1.4 us
LFPS TBurst (Max)	Gen 1	USB-IF	1.256 us (Max)	Pass	656.280 ns & 143.720 ns	600.0 ns	1.4 us
LFPS TBurst (Min)	Gen 1	USB-IF	1.245 us (Min)	Pass	644.800 ns & 155.200 ns	600.0 ns	1.4 us
COMMENTS							

LFPS TRepeat							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
LFPS TRepeat (Max)	Gen 1	DPOJET	12.017 us (Max)	Pass	6.017 us & 1.983 us	6.0 us	14.0 us
LFPS TRepeat (Min)	Gen 1	DPOJET	11.988 us (Min)	Pass	5.988 us & 2.012 us	6.0 us	14.0 us
LFPS TRepeat (Max)	Gen 1	USB-IF	12.004 us (Max)	Pass	6.004 us & 1.996 us	6.0 us	14.0 us
LFPS TRepeat (Min)	Gen 1	USB-IF	11.992 us (Min)	Pass	5.992 us & 2.008 us	6.0 us	14.0 us
COMMENTS							

Rj(CP0)							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
Rj(CP0)	Gen 1	DPOJET	3.031 ps	-	N.A	N.A	N.A
COMMENTS							

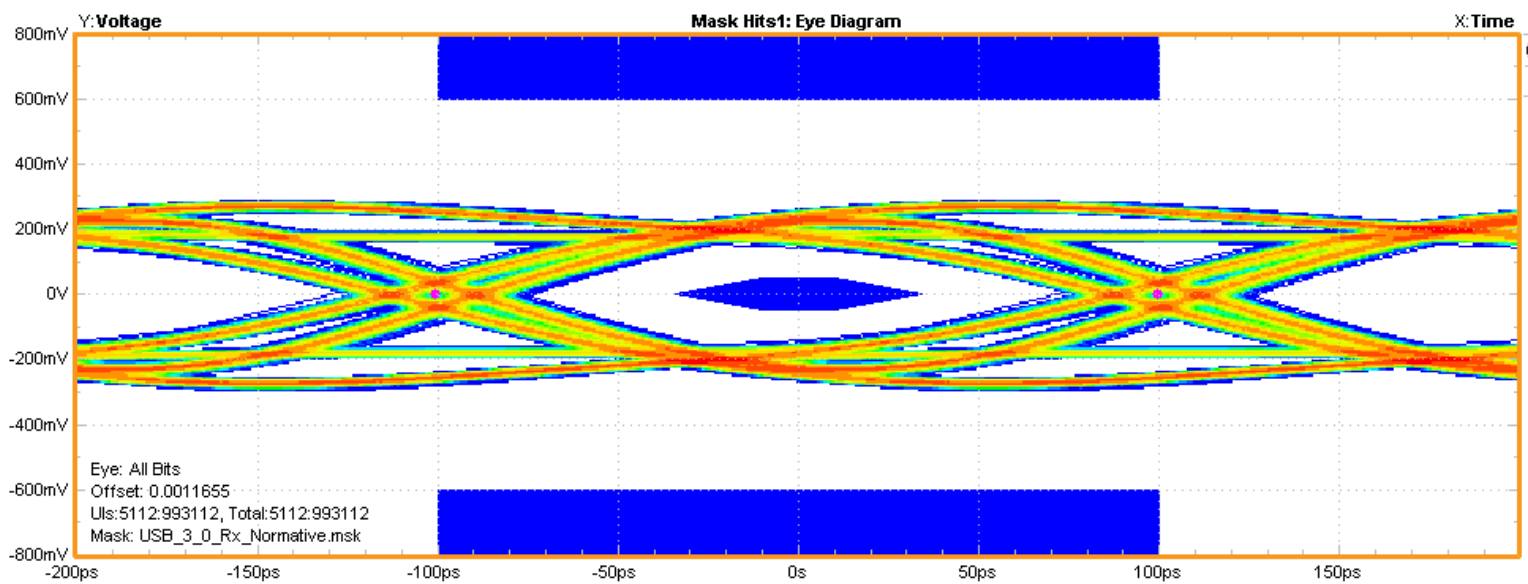
TJ(CP0)							
Measurement Details	Generation	Method	Measured Value	Test Result	Margin	Low Limit	High Limit
TJ(CP0)	Gen 1	DPOJET	71.597 ps	-	N.A	N.A	N.A
COMMENTS							

UI-Unit Interval

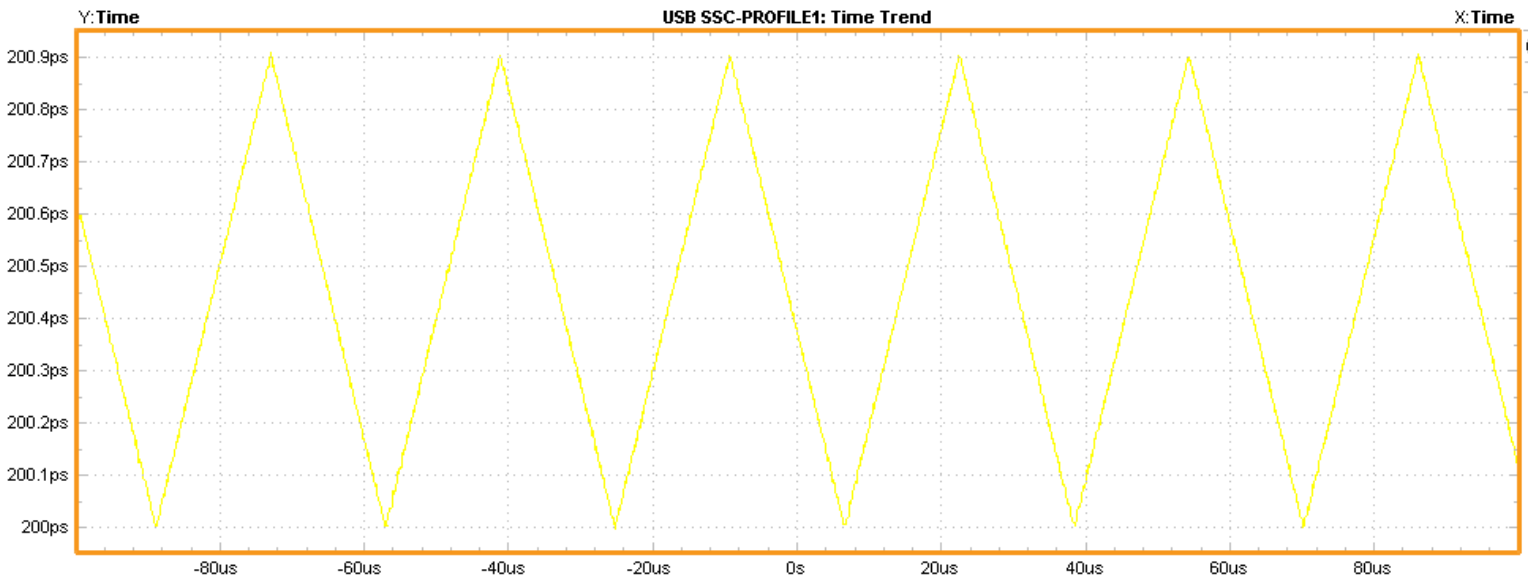
[CP0 waveform](#)[CP1 waveform](#)

Mask Hits

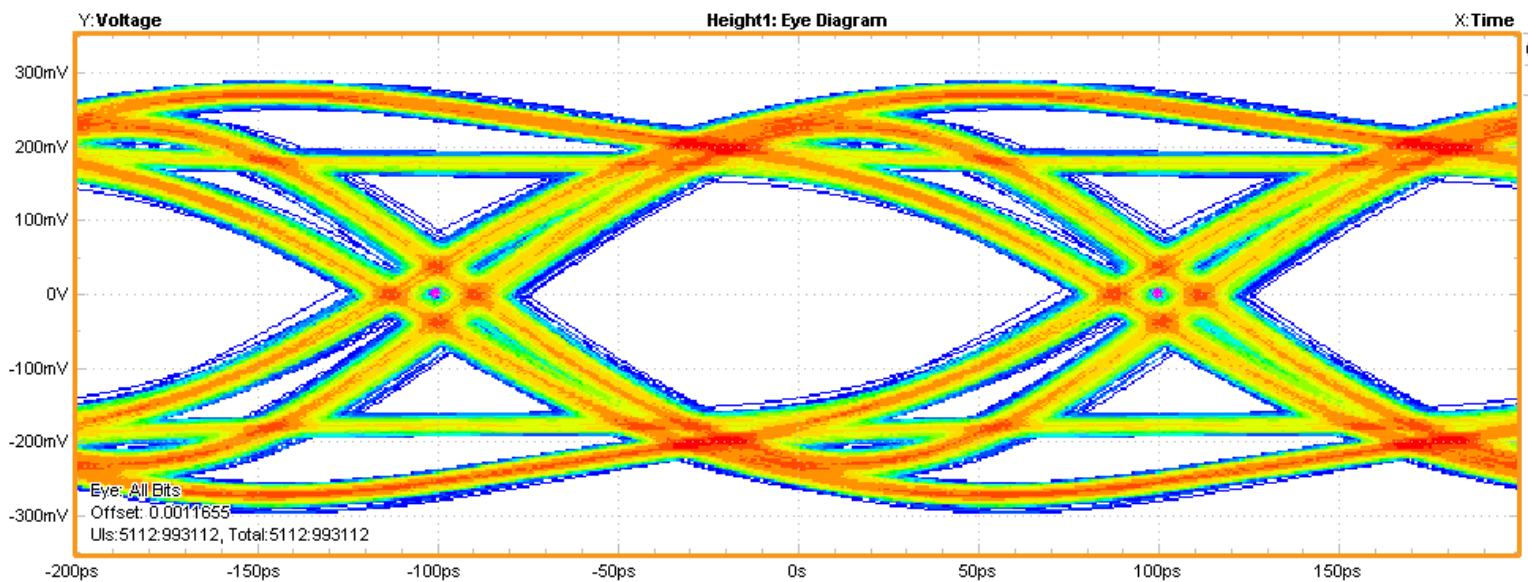
[Mask Hits](#)



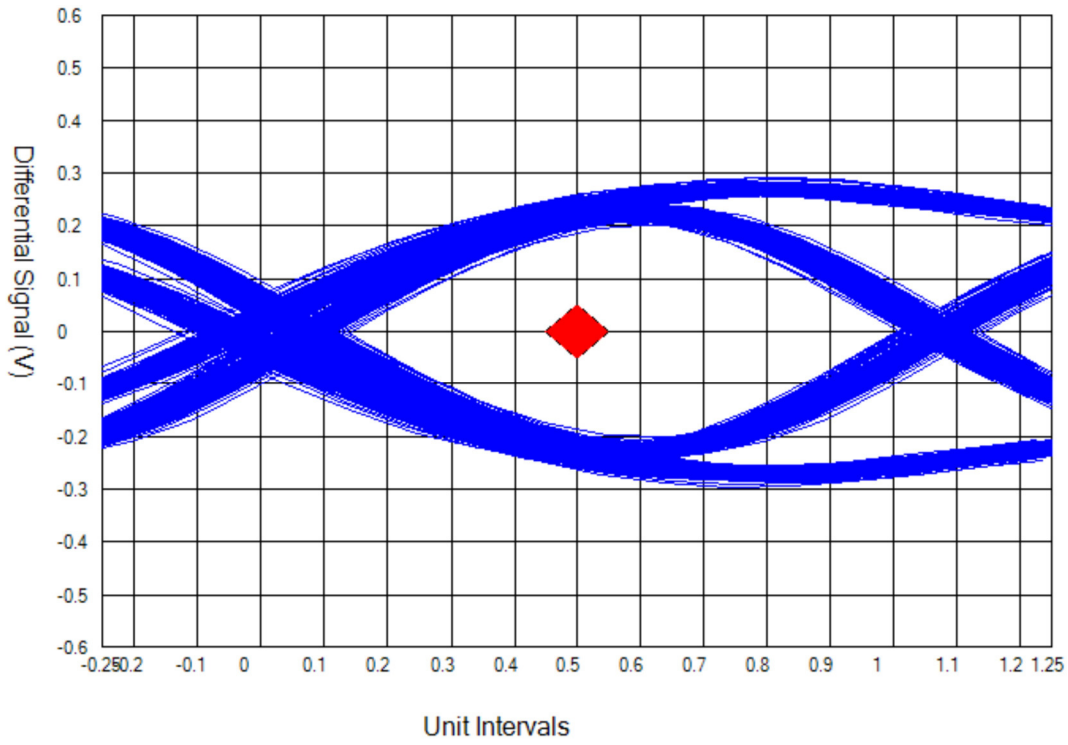
TSSC-USB Profile

[TSSC-USB Profile](#)

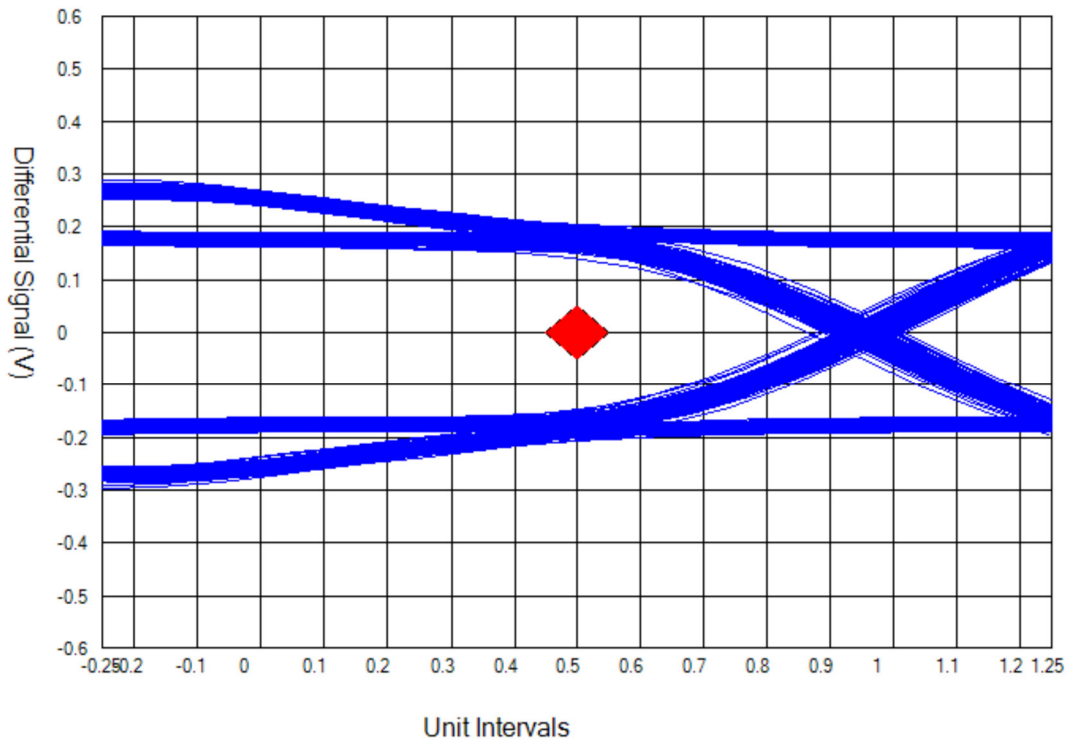
Eye Height – Transmitter Eye Mask

[Eye Height – Transmitter Eye Mask](#)

Eye Diagram

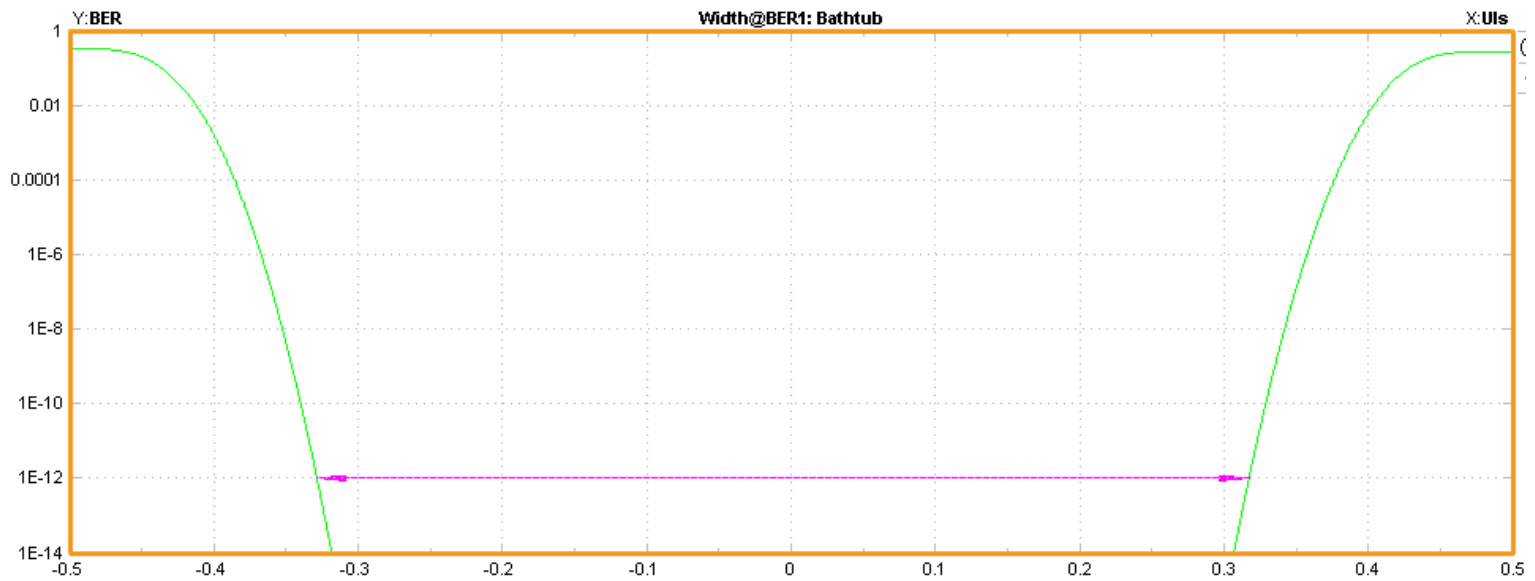


Eye Diagram



Width@BER

Width@BER



LFPS Duty Cycle

LFPS waveform

