



USB4.0 30AWG TS 1M

Report To:

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Presented By:

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Report Date:

Date:2022/08/10

(13:59:30)

Approved by:
Printed Name:

Edited by:
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Sign above

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.Test Equipments Information

ID	Product and Serial Number	Description with series number	Manufacture
1	E5071C(MY46110033)	S-parameter Network Analyzer	Agilent
2	E5071C()	Time Domain Reflector(TDR)	Agilent Technologies
3	ENA-TDR(MY46110033)	Data Timing Generator	Keysight

.Device Under Test(DUT) Information

Part Number of DUT:001-099-USB4.0

Length(m)	1	Tested Pairs	5	Pairs
Temperature	20	°C	Humidity	40
Batch Number		Bundle Number	红绿橙透明HM绿白	
Testing following	Universal Serial Bus 3.1 Specification, R1.0			
Comments				
Technician	LY	Test Result	Pass	

.Tested Parameters List

.-USB3.1 SSP Raw Cable Insertion Loss	Pass
.-USB3.1 SSP Diff to Common Mode Conversion	Pass
.-USB2 Pair Attenuation	Pass
.-USB3.1 Raw Cable Impedance	Pass
.-USB3.1 Raw Cable Differential Delay	Pass
.-USB3.1 Raw Cable Intra Pair Skew	Pass
.-USB2 Differential Impedance	Pass
.-USB2 Propagation Delay	Pass
.-USB2 Intra-Pair Skew	Pass
.-USB3.1 Eye	Pass



Summary Result

USB3.1 SSP Raw Cable Insertion Loss summary result.

Start	Stop	Lim From	Lim To	Rx1	@(MHz)	Tx1	@(MHz)	Rx2	@(MHz)	Tx2	@(MHz)
100	100	-1	-1	-0.404	100	-0.405	100	-0.407	100	-0.41	100
2500	2500	-4.2	-4.2	-2.109	2500	-2.125	2500	-2.161	2500	-2.114	2500
5000	5000	-6	-6	-3.468	5000	-3.6	5000	-3.538	5000	-3.265	5000
10000	10000	-7.5	-7.5	-5.91	10000	-5.957	10000	-6.016	10000	-5.655	10000
12500	12500	-9.3	-9.3	-7.974	12500	-7.97	12500	-7.485	12500	-7.102	12500
15000	15000	-11	-11	-9.684	15000	-9.014	15000	-8.882	15000	-8.22	15000
MHz	MHz	dB	dB	Pass		Pass		Pass		Pass	

USB3.1 SSP Diff to Common Mode Conversion summary result.

Start	Stop	Lim From	Lim To	Rx1	@(MHz)	Tx1	@(MHz)	Rx2	@(MHz)	Tx2	@(MHz)
100	7500	-22	-22	-24.531	7290	-26.322	3380	-22.041	4370	-23.738	6500
MHz	MHz	dB	dB	Pass		Pass		Pass		Pass	

USB2 Pair Attenuation summary result.

Start	Stop	Lim From	Lim To	Dp	@(MHz)
50	100	-1.02	-1.43	-0.619	100
100	200	-1.43	-2.4	-1.082	200
200	400	-2.4	-4.35	-1.987	360
MHz	MHz	dB	dB	Pass	

USB3.1 Raw Cable Impedance summary result @ 200 ps, (Low:10 %, High:90 %)

Pair Num	Result	Spc Max	Spc Min	Max value	Min Value	ΔValue	Avg	Unit
Rx1	Pass	95	85	92.71	91.35	1.36	92.03	Ohms
Tx1	Pass	95	85	92.66	91.87	0.79	92.26	Ohms
Rx2	Pass	95	85	91.6	90.32	1.28	90.96	Ohms
Tx2	Pass	95	85	91.48	90.24	1.24	90.86	Ohms

USB3.1 Raw Cable Differential Delay summary result @ 200 ps, (Low:20 %, High:80 %)

Pair Num	Result	Spc Max	Value	Unit
Rx1	Ref Only	4.6	4.8481	ns/m
Tx1	Ref Only	4.6	4.8614	ns/m
Rx2	Ref Only	4.6	4.9494	ns/m
Tx2	Ref Only	4.6	5.003	ns/m

USB3.1 Raw Cable Intra Pair Skew summary result @ 200 ps, (Low:10 %, High:90 %)

Pair Num	Result	Spc Max	Value	Unit
Rx1	Pass	15	1.2	ps/m
Tx1	Pass	15	4.2	ps/m
Rx2	Pass	15	-2.3	ps/m
Tx2	Pass	15	-0.4	ps/m



Summary Result Continued

USB2 Differential Impedance summary result @ 400 ps, (Low:20 %, High:80 %)

Pair Num	Result	Spc Max	Spc Min	Max value	Min Value	ΔValue	Avg	Unit
Dp	Pass	103.5	76.5	99.83	93.04	6.79	96.43	Ohms

USB2 Propagation Delay summary result @ 400 ps, (Low:20 %, High:80 %)

Pair Num	Result	Spc Max	Value	Unit
Dp	Pass	16	4.9251	ns

USB2 Intra-Pair Skew summary result @ 400 ps, (Low:20 %, High:80 %)

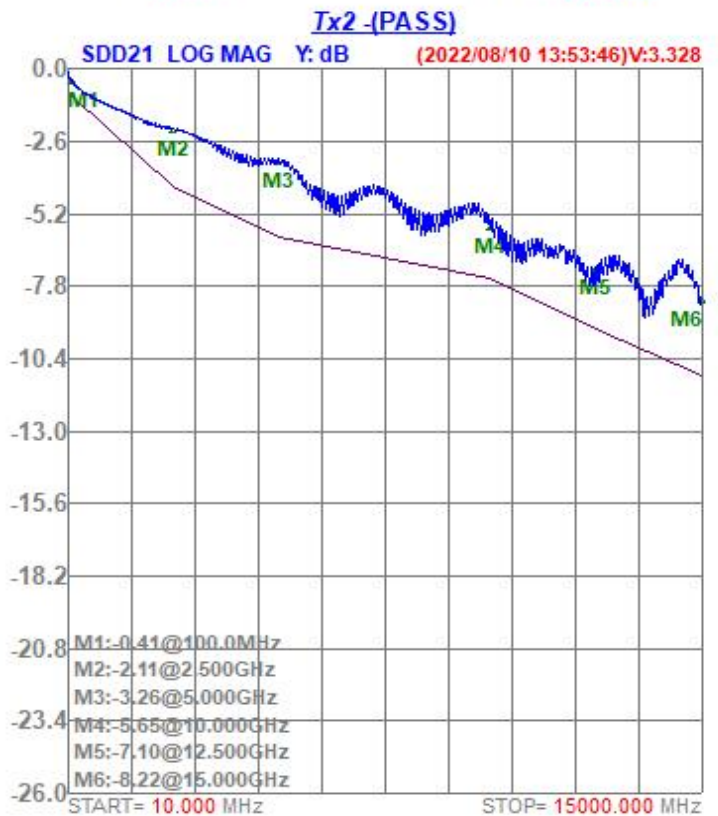
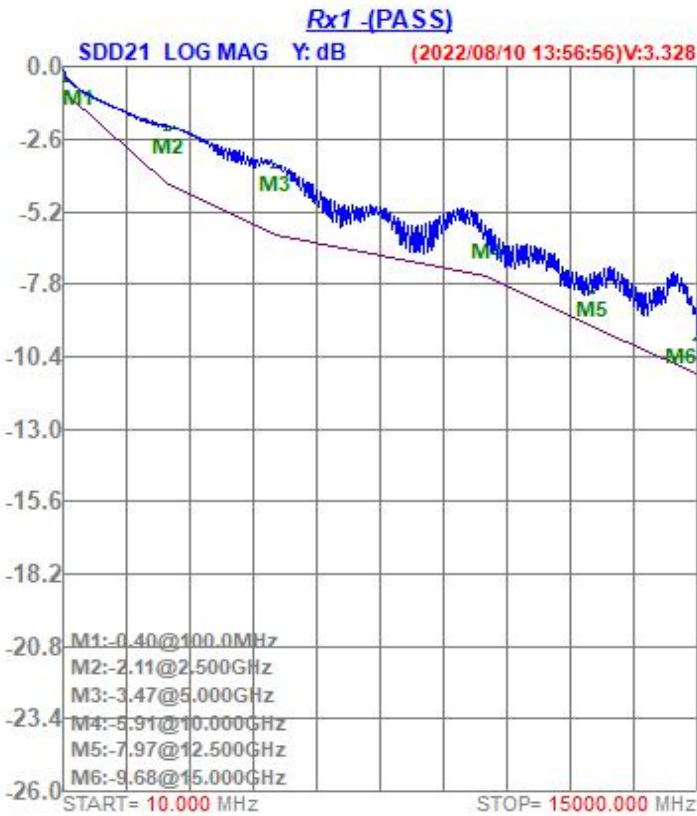
Pair Num	Result	Spc Max	Value	Unit
Dp	Pass	100	-23.42	ps

USB3.1 Eye summary result

Pair Num	Result								
Rx1	Pass								
Tx1	Pass								
Rx2	Pass								
Tx2	Pass								

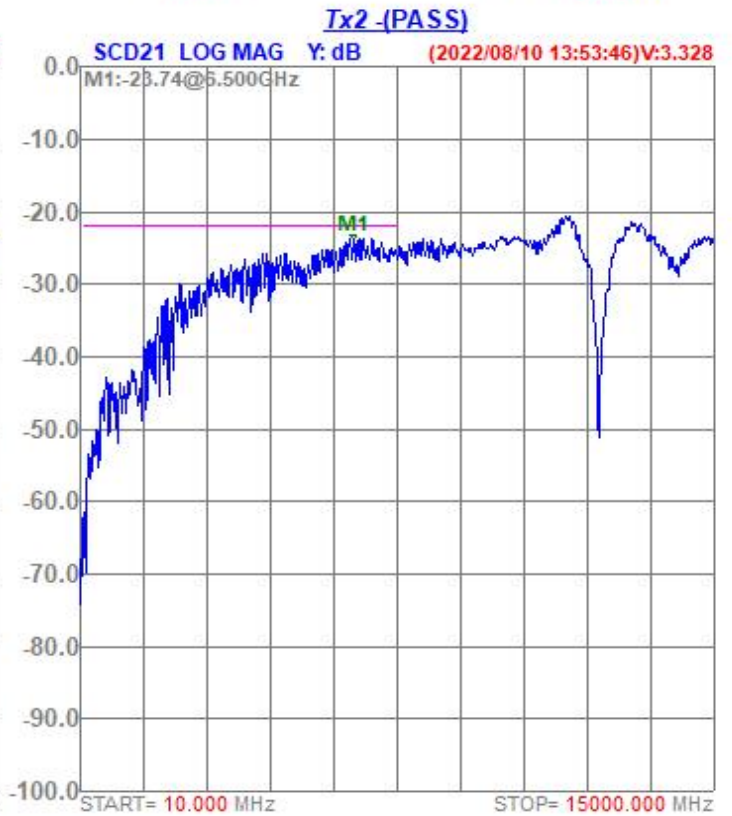
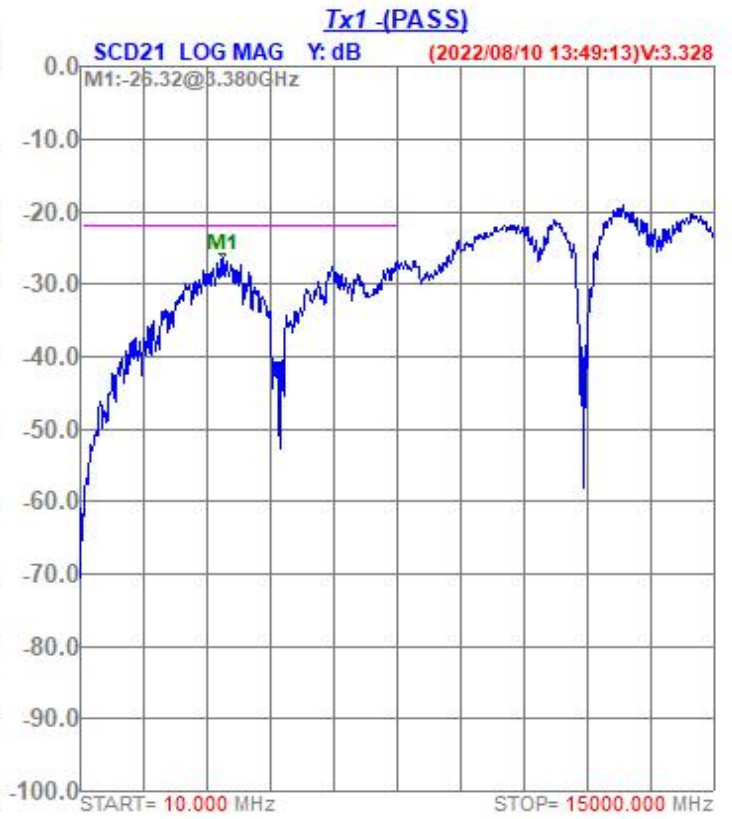


USB3.1 SSP Raw Cable Insertion Loss Graphic result





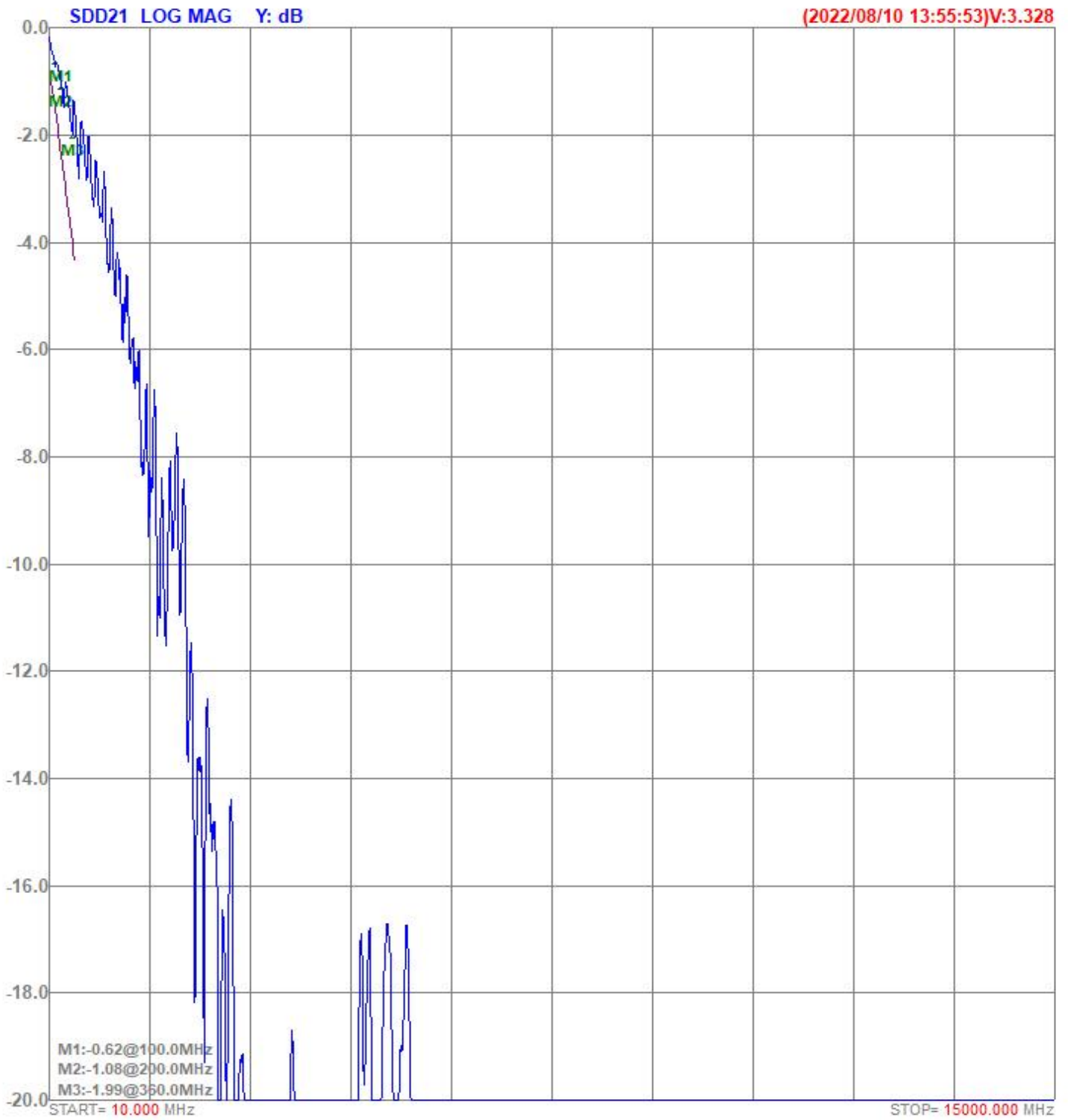
USB3.1 SSP Diff to Common Mode Conversion Graphic result





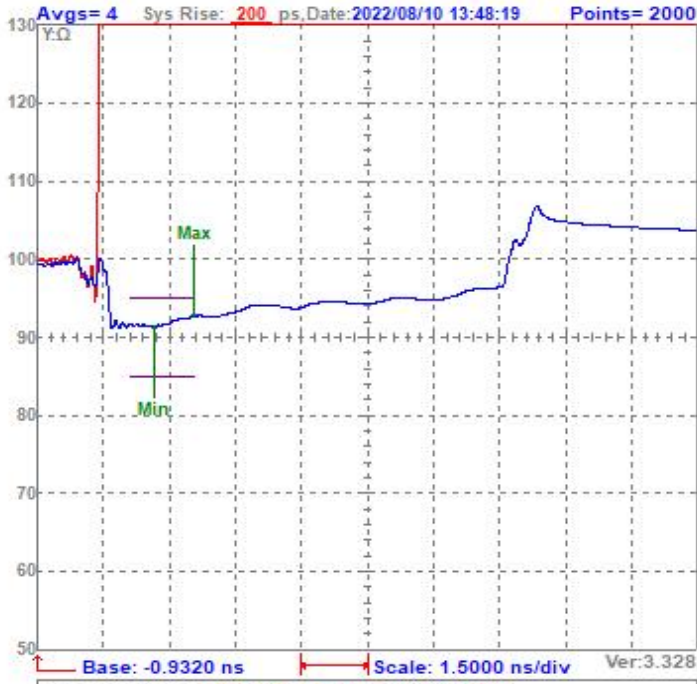
USB2 Pair Attenuation Graphic result

Dp -(PASS)

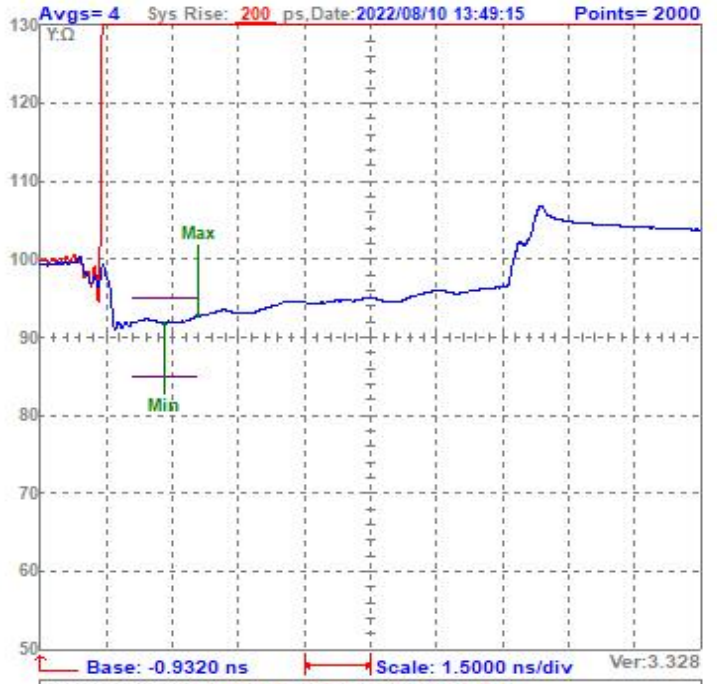




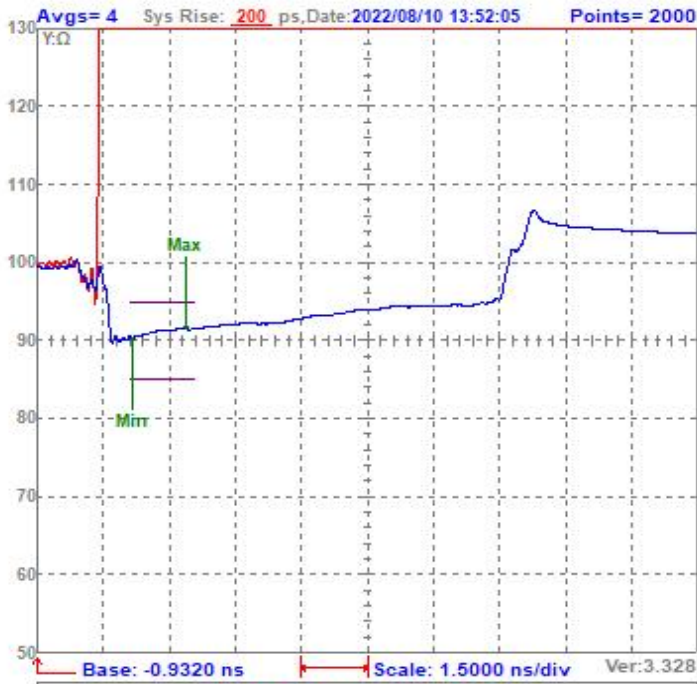
USB3.1 Raw Cable Impedance Graphic result



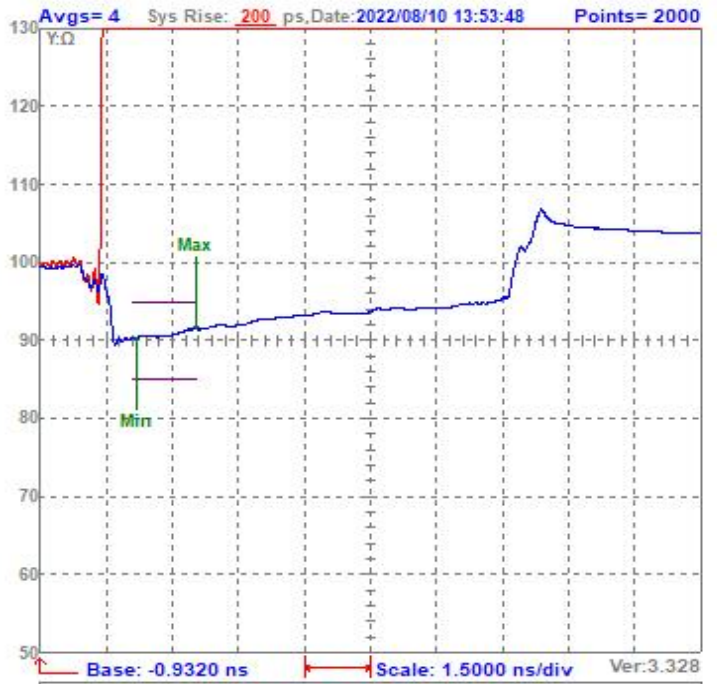
Parameter Name: USB3.1 Raw Cable Impedance Rx1	
Spc Max: 95 Ω	Spc Min: 85 Ω
Max: 92.71 Ohms at 2.6325 ns	Min: 91.35 Ohms at 1.7171 ns
ΔΩ: 1.36	Avg: 92.03 Ohms
Result: Pass	



Parameter Name: USB3.1 Raw Cable Impedance Tx1	
Spc Max: 95 Ω	Spc Min: 85 Ω
Max: 92.66 Ohms at 2.6550 ns	Min: 91.87 Ohms at 1.8746 ns
ΔΩ: 0.78	Avg: 92.26 Ohms
Result: Pass	



Parameter Name: USB3.1 Raw Cable Impedance Rx2	
Spc Max: 95 Ω	Spc Min: 85 Ω
Max: 91.60 Ohms at 2.4299 ns	Min: 90.32 Ohms at 1.2368 ns
ΔΩ: 1.28	Avg: 90.96 Ohms
Result: Pass	



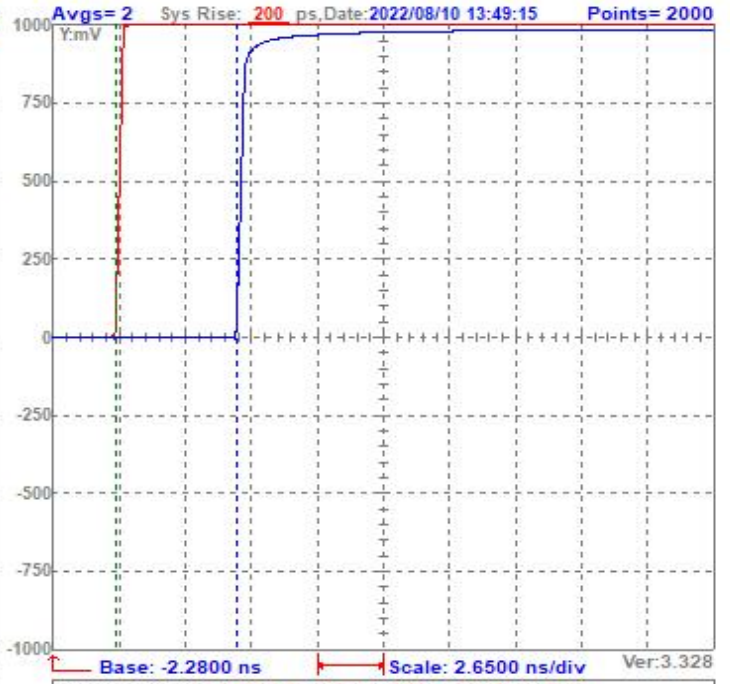
Parameter Name: USB3.1 Raw Cable Impedance Tx2	
Spc Max: 95 Ω	Spc Min: 85 Ω
Max: 91.48 Ohms at 2.5950 ns	Min: 90.24 Ohms at 1.2368 ns
ΔΩ: 1.25	Avg: 90.86 Ohms
Result: Pass	



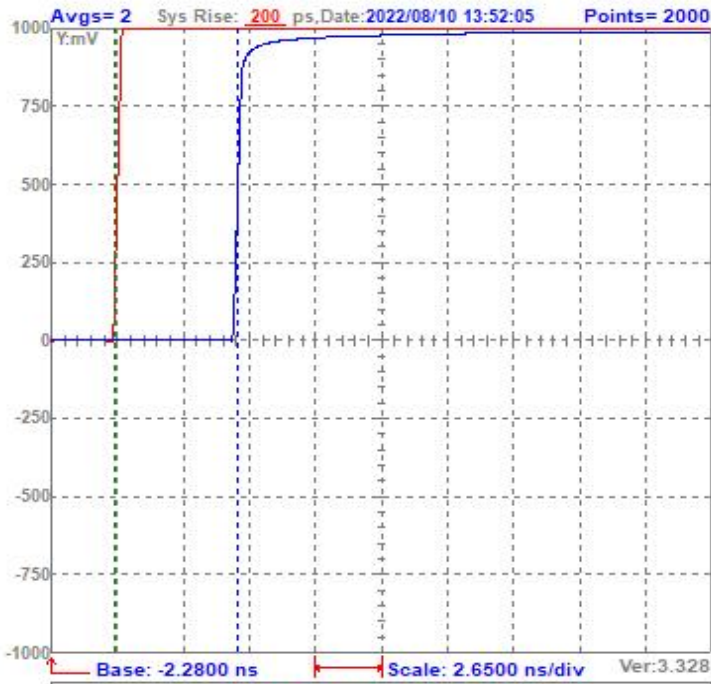
USB3.1 Raw Cable Differential Delay Graphic result



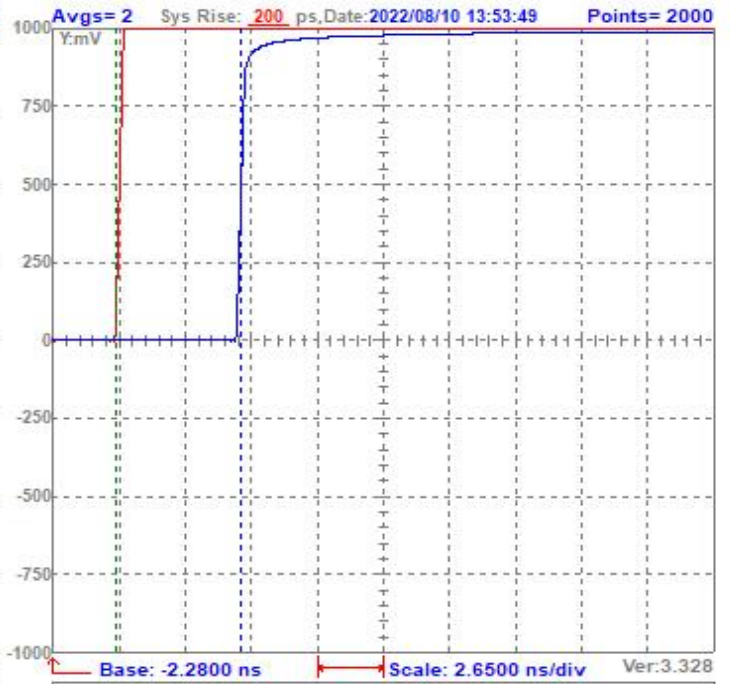
Parameter Name: USB3.1 Raw Cable Differential Delay Rx1	
Spc Delay: 4.6000 ns/m, DUT Length: 1 meters	
Ref Line: 0.2570 ns	Measured Line: 5.1051 ns
Mode: TDT Method	ΔValue: 4.8481 ns
Delay: 4.8481 ns/m	Result: Reference Only



Parameter Name: USB3.1 Raw Cable Differential Delay Tx1	
Spc Delay: 4.6000 ns/m, DUT Length: 1 meters	
Ref Line: 0.2570 ns	Measured Line: 5.1184 ns
Mode: TDT Method	ΔValue: 4.8614 ns
Delay: 4.8614 ns/m	Result: Reference Only



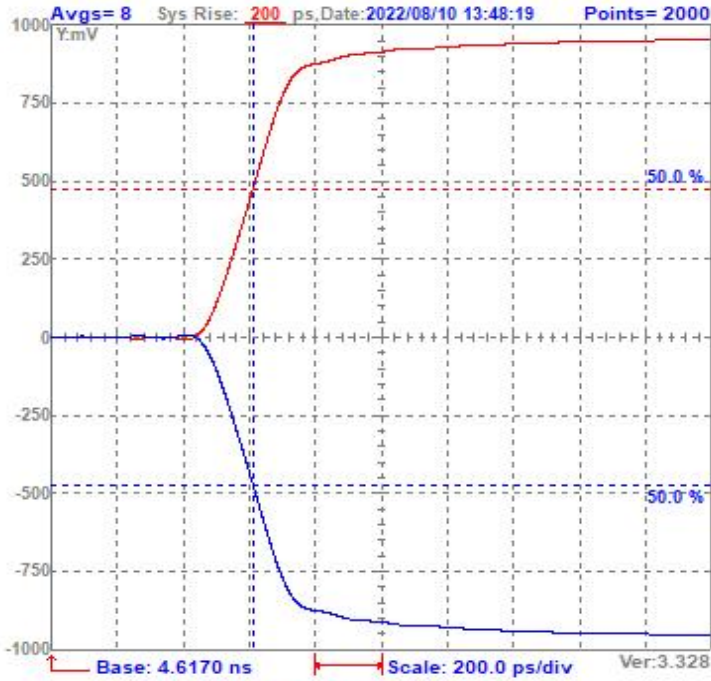
Parameter Name: USB3.1 Raw Cable Differential Delay Rx2	
Spc Delay: 4.6000 ns/m, DUT Length: 1 meters	
Ref Line: 0.2570 ns	Measured Line: 5.2064 ns
Mode: TDT Method	ΔValue: 4.9494 ns
Delay: 4.9494 ns/m	Result: Reference Only



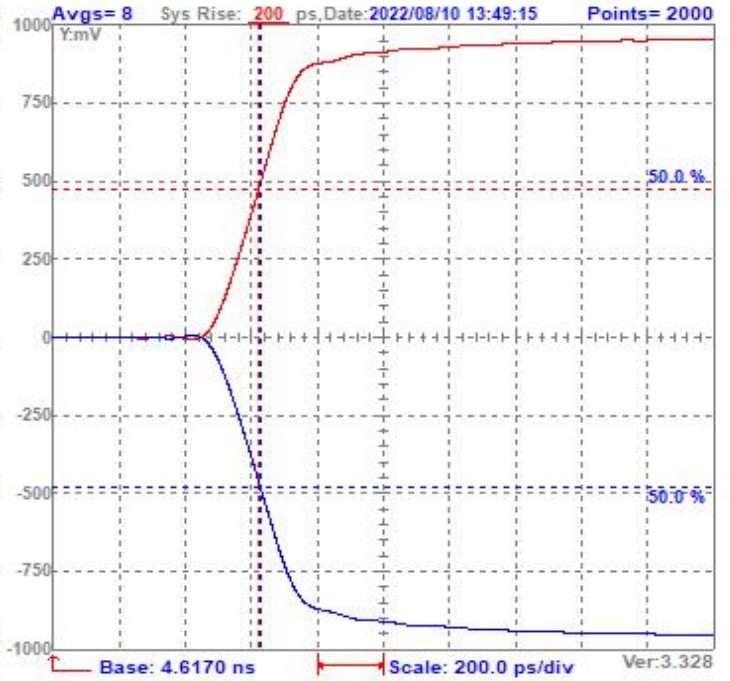
Parameter Name: USB3.1 Raw Cable Differential Delay Tx2	
Spc Delay: 4.6000 ns/m, DUT Length: 1 meters	
Ref Line: 0.2570 ns	Measured Line: 5.2600 ns
Mode: TDT Method	ΔValue: 5.0030 ns
Delay: 5.0030 ns/m	Result: Reference Only



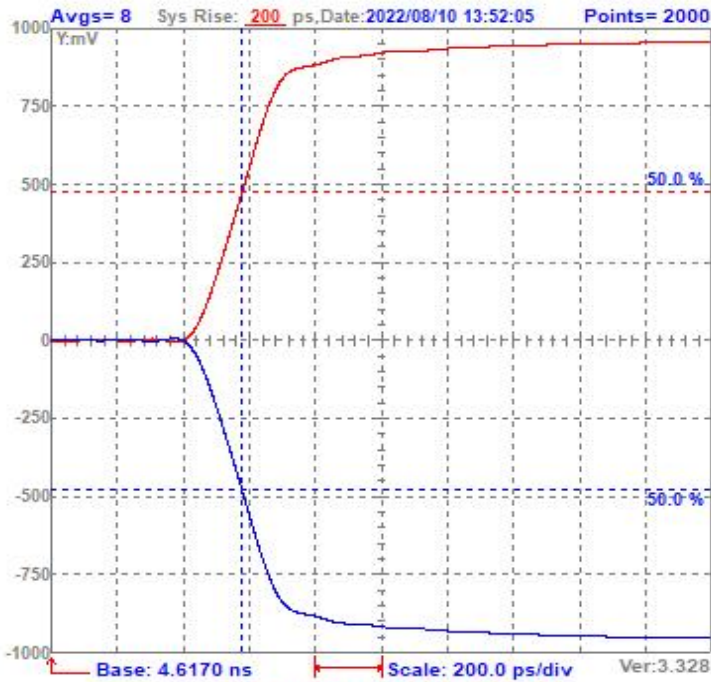
USB3.1 Raw Cable Intra Pair Skew Graphic result



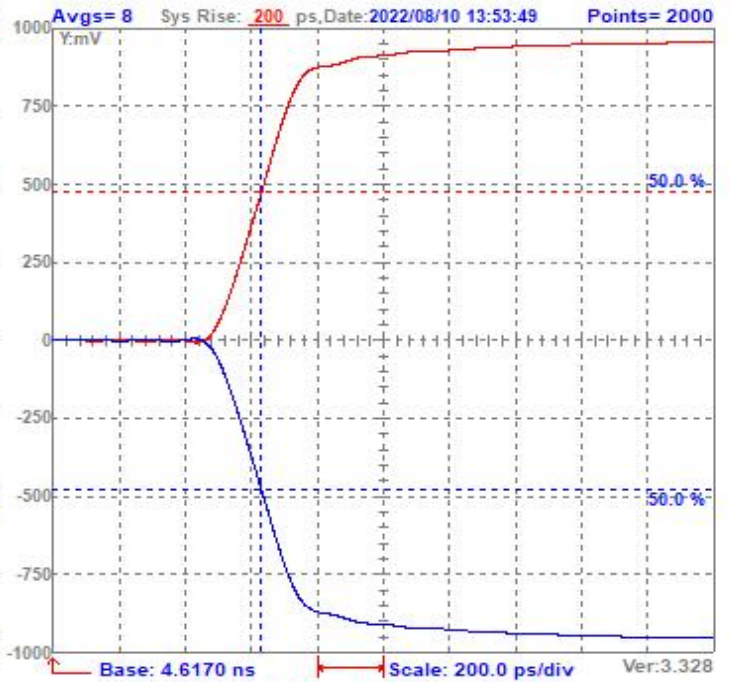
Parameter Name: USB3.1 Raw Cable Intra Pair Skew Rx1	
Spc Skew: 15.0 ps/m, DUT Length: 1 meters	
Mode: TDT Method, Relative: 50%	
ΔValue: 1.22 ps	Skew: 1.2 ps/m
Result: Pass	



Parameter Name: USB3.1 Raw Cable Intra Pair Skew Tx1	
Spc Skew: 15.0 ps/m, DUT Length: 1 meters	
Mode: TDT Method, Relative: 50%	
ΔValue: 4.19 ps	Skew: 4.2 ps/m
Result: Pass	



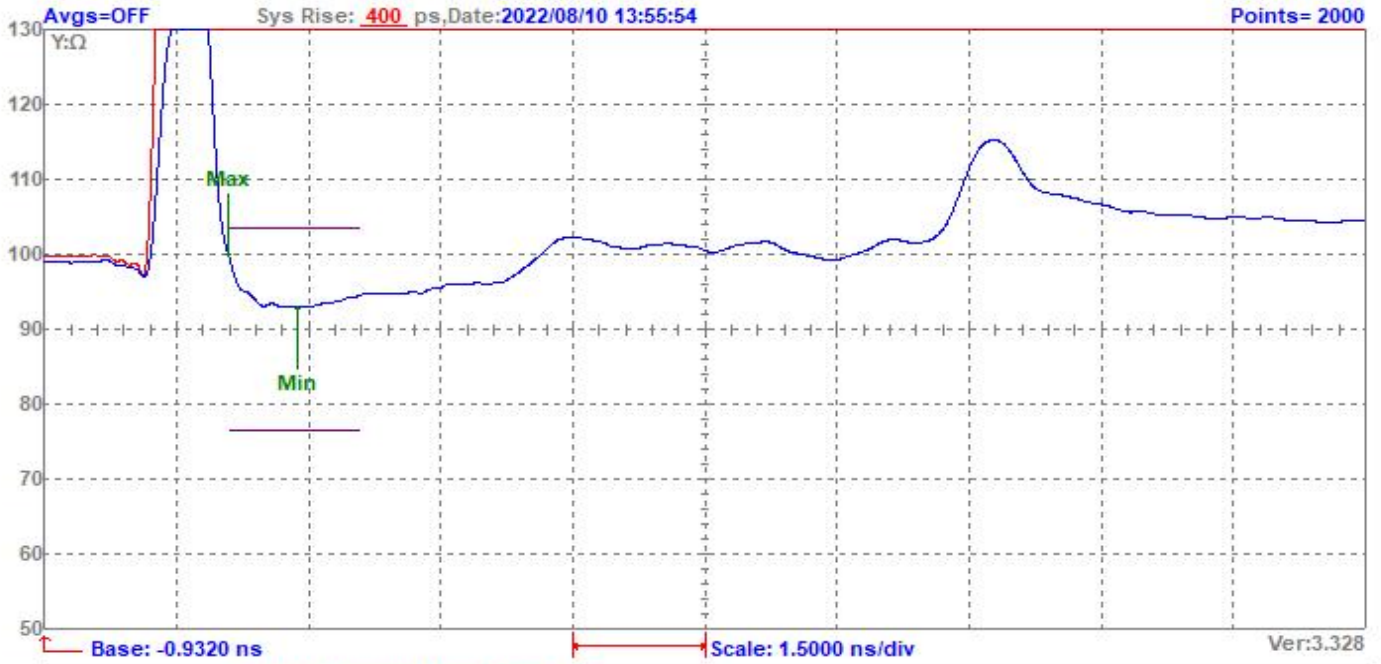
Parameter Name: USB3.1 Raw Cable Intra Pair Skew Rx2	
Spc Skew: 15.0 ps/m, DUT Length: 1 meters	
Mode: TDT Method, Relative: 50%	
ΔValue: -2.30 ps	Skew: -2.3 ps/m
Result: Pass	



Parameter Name: USB3.1 Raw Cable Intra Pair Skew Tx2	
Spc Skew: 15.0 ps/m, DUT Length: 1 meters	
Mode: TDT Method, Relative: 50%	
ΔValue: -0.38 ps	Skew: -0.4 ps/m
Result: Pass	



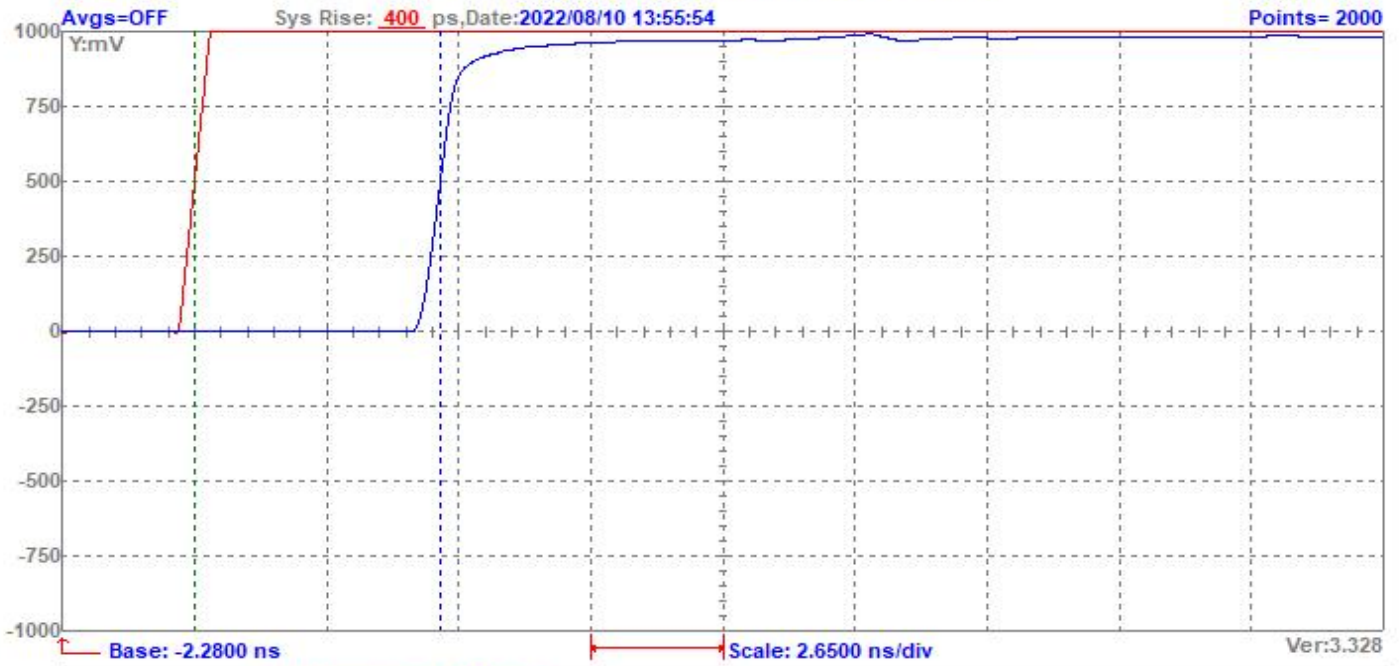
USB2 Differential Impedance Graphic result



Parameter Name: USB2 Differential Impedance Dp	
Spc Max: 103.5 Ω	Spc Min: 76.5 Ω
Max: 99.83 Ohms at 1.1618 ns	Min: 93.04 Ohms at 1.9347 ns
$\Delta\Omega$: 6.79	Avg: 96.43 Ohms
Result: Pass	



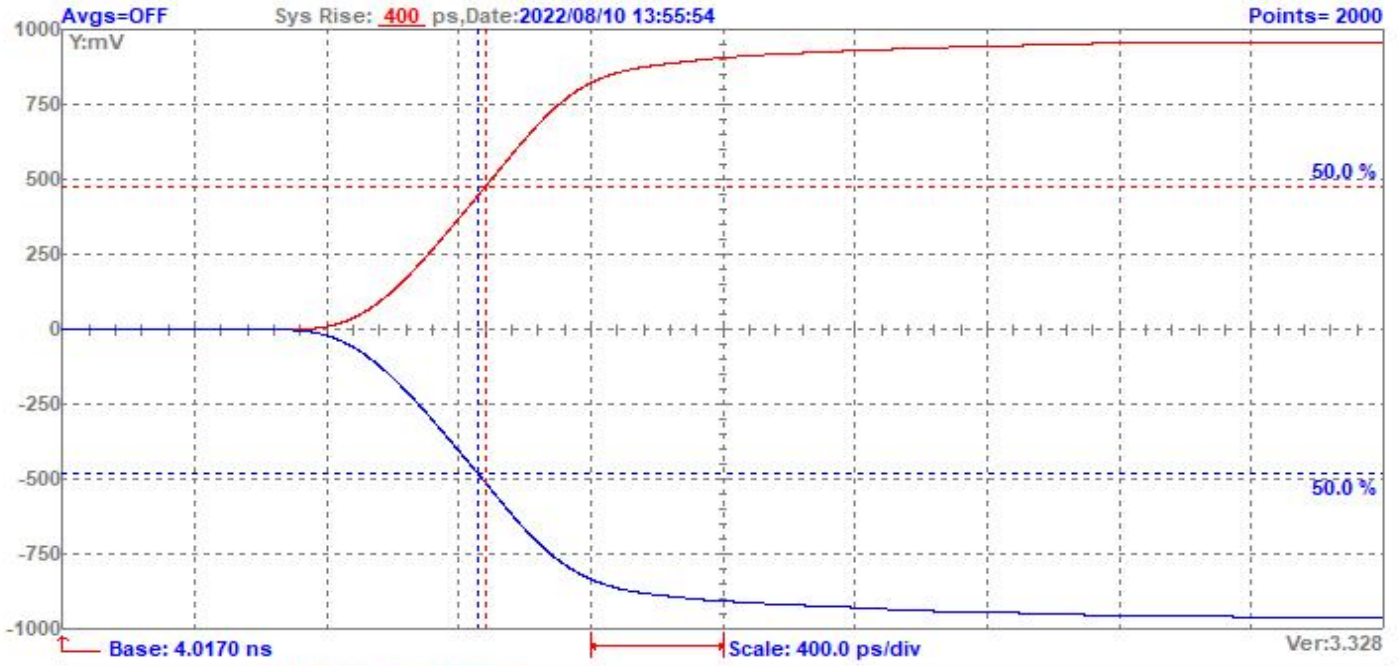
USB2 Propagation Delay Graphic result



Parameter Name: USB2 Propagation Delay Dp	
Sp Delay: 16.0000 ns, DUT Length: 1 meters	
Ref Line: 0.3699 ns	Measured Line: 5.2950 ns
Mode: TDT Method	Δ Value: 4.9251 ns
Delay: 4.9251 ns	Result: Pass



USB2 Intra-Pair Skew Graphic result



Parameter Name: USB2 Intra-Pair Skew Dp	
Spk Skew: 100.0 ps,DUT Length: 1 meters	
Mode:TDT Method,Relative:50%	
Δ Value: -23.42 ps	Skew: -23.4 ps
Result: Pass	



USB3.1 Eye Graphic result

