

Sample-1 High Frequency

Test Report

P/N:CUJA02A-CG021-DF
(371.01057.005)

Test Date:

2020/07/17 11:17

Test Equipment List :

Equipment	Manufacture	P/N	S/N	Description
Network Analyzer	Agilent	E5071C	MY46522067	4 Port, 300 kHz to 20 GHz
Time Domain Reflectometry	Agilent	ENA-TDR	MY46522067	
Pattern Generator	Agilent	ENA-TDR	MY46522067	

Device Under Test (DUT) & Test Environment Information :

P / N:	CUJA02A-CG021-DF(371.01057.005)	Specifications:	
DUT Lot:		DUT Bundle:	HDMI
DUT Length(M):	1.80	Test Pair:	5 Pairs
Temperature(°C):	20	Humidity(%):	60
Remark:	20200717023		

Test Result Summary:

1	Attenuation	Pass
2	HEAC Attenuation	Pass
3	FEXT(Far end crosstalk)	Pass
4	Differential Impedance	Pass
5	Connector Impedance	Pass
6	Connector Impedance FarEnd	Pass
7	Differential Delay	Pass
8	IntraPair Skew	Pass
9	HEAC SingleEnd Impedance	Pass
10	HEAC CommonMode Impedance	Pass
11	HEAC Differential Impedance	Pass
12	HEAC Connector Impedance	Pass
13	HEAC Connector Impedance FarEnd	Pass
14	HEAC IntraPair Skew	Pass
15	InterPair Skew	Pass
Test Result:		Pass

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Attenuation

Start frequency	End frequency	Upper specification limit	Specification lower limit	CLK	D0	D1	D2
0.3	0.3	--	-5	-0.177	-0.119	-0.130	-0.134
825	825	--	-5	-3.561	-3.653	-3.756	-3.759
2475	2475	--	-12	-6.906	-7.059	-7.665	-6.514
4125	4125	--	-20	-10.327	-11.385	-11.721	-10.175
5100	5100	--	-25	-11.872	-12.709	-14.543	-11.607
0.3	5100	--	-5.00→-25.00	-3.664	-3.752	-3.914	-3.765
MHz	MHz	dB	dB	Pass	Pass	Pass	Pass

HEAC Attenuation

Start frequency	End frequency	Upper specification limit	Specification lower limit	HEAC
1	10	--	-1.6	-0.337
10	100	--	-5	-1.047
100	200	--	-7.1	-1.519
MHz	MHz	dB	dB	Pass

FEXT(Far end crosstalk)

Start frequency	End frequency	Upper specification limit	Specification lower limit	CLK-D0	CLK-D1	CLK-D2	D0-D1	D0-D2	D1-D2
0.3	5100	-20	--	-32.633	-30.612	-40.498	-31.762	-33.206	-31.971
MHz	MHz	dB	dB	Pass	Pass	Pass	Pass	Pass	Pass

Differential Impedance, Tr= 200 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
CLK	110	90	101.04	98.92	2.12	99.98	Pass
D0	110	90	97.41	96.00	1.41	96.71	Pass
D1	110	90	97.04	95.56	1.48	96.30	Pass
D2	110	90	96.56	94.41	2.15	95.49	Pass
Unit:	Ohm	Ohm	Ohm	--	--	--	--

Connector Impedance, Tr= 200 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference value	Satus
CLK	125~115,250	75~85,250	114.80	98.65	0.0	16.15	Pass
D0	125~115,250	75~85,250	111.85	95.29	0.0	16.56	Pass
D1	125~115,250	75~85,250	113.89	95.02	0.0	18.87	Pass
D2	125~115,250	75~85,250	114.06	93.74	0.0	20.32	Pass
Unit:	Ohm	Ohm	Ohm	--	--	--	--

Connector Impedance FarEnd, Tr= 200 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference value	Satus
CLK	125~115,250	75~85,250	113.72	98.23	0.0	15.49	Pass
D0	125~115,250	75~85,250	111.58	94.13	0.0	17.45	Pass
D1	125~115,250	75~85,250	113.93	95.23	0.0	18.70	Pass
D2	125~115,250	75~85,250	114.11	93.70	0.0	20.41	Pass
Unit:	Ohm	Ohm	Ohm	--	--	--	--

Test Data Summary Page 2 of 2

Differential Delay, Tr= 200 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Delay value	Satus
CLK	5.2	--	4.68	Pass
D0	5.2	--	4.64	Pass
D1	5.2	--	4.69	Pass
D2	5.2	--	4.73	Pass
Unit:	ns/M	ns/M	ns/M	--

IntraPair Skew, Tr= 200 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Satus
CLK	112	--	-12.53	Pass
D0	112	--	-33.93	Pass
D1	112	--	-40.54	Pass
D2	112	--	11.69	Pass
Unit:	ps	ps	ps	--

HEAC_SingleEnd_Impedance, Tr= 1000 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
HEAC	74.25	35.75	61.89	53.55	8.34	57.72	Pass
Unit:	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

HEAC_CommonMode_Impedance, Tr= 1000 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
HEAC	36	24	33.71	28.83	4.88	31.27	Pass
Unit:	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

HEAC_Differential_Impedance, Tr= 1000 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
HEAC	110	90	108.14	97.94	10.20	103.04	Pass
Unit:	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

HEAC_Connector_Impedance, Tr= 1000 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference valu	Satus
HEAC	125~115,250	75~85,250	115.70	101.20	243.0	14.50	Pass
Unit:	Ohm,ps	Ohm,ps	Ohm	Ohm	ps	Ohm	--

HEAC_Connector_Impedance_FarEnd, Tr= 1000 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference valu	Satus
HEAC	125~115,250	75~85,250	114.90	100.95	0.0	13.95	Pass
Unit:	Ohm,ps	Ohm,ps	Ohm	Ohm	ps	Ohm	--

HEAC_IntraPair_Skew, Tr= 1000 ps (10%_90%)

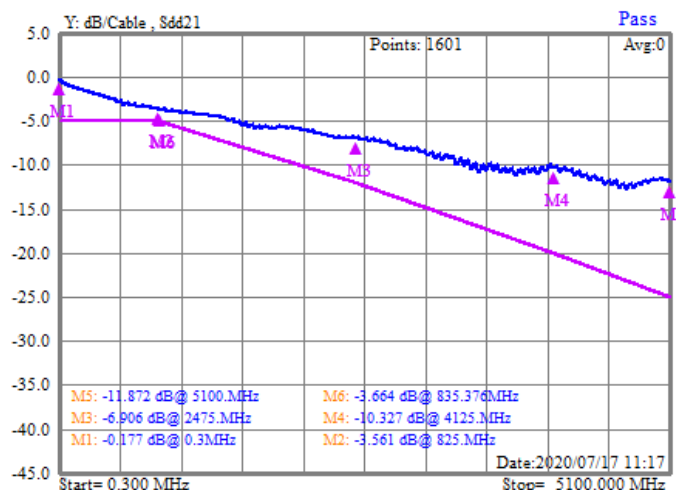
Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Satus
HEAC	111	--	54.619	Pass
Unit:	ps	ps	ps	--

InterPair_Skew, Tr= 200 ps (10%_90%)

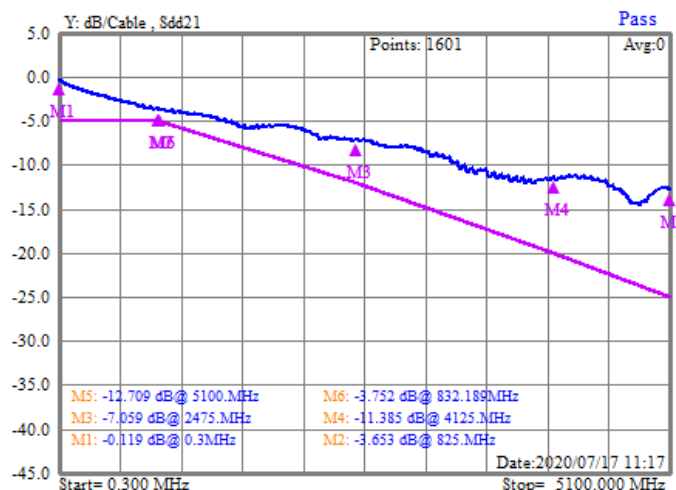
Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Satus
ALL	1780	--	163.80	Pass
Unit:	ps	ps	ps	--

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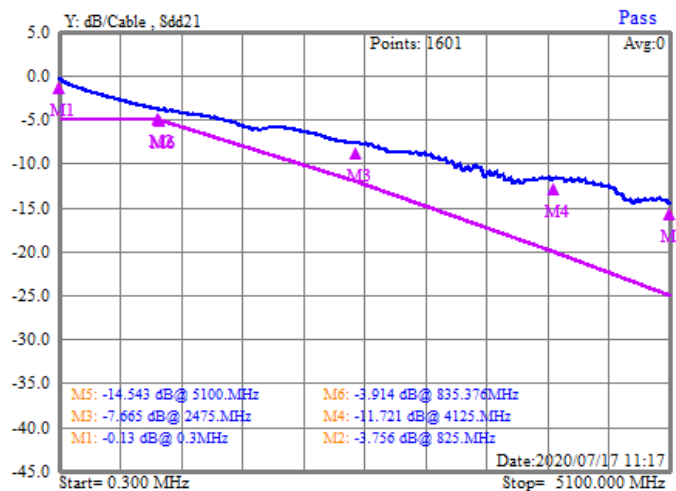
Attenuation (CLK)



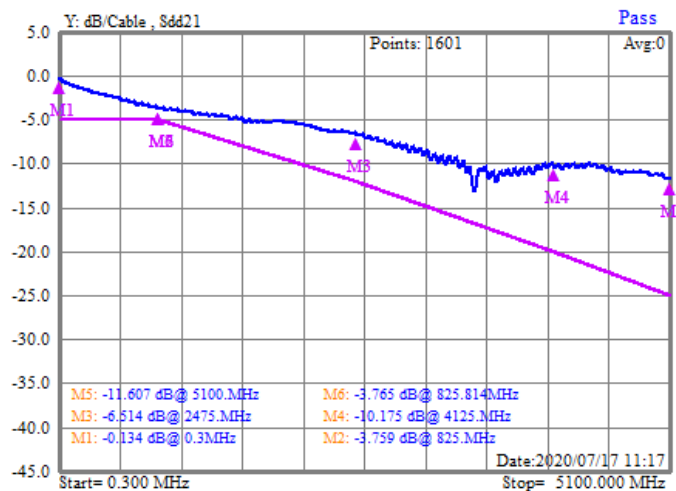
Attenuation (D0)



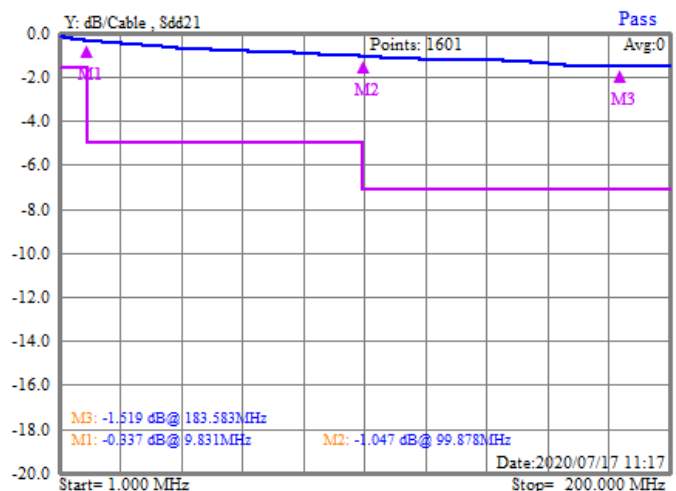
Attenuation (D1)



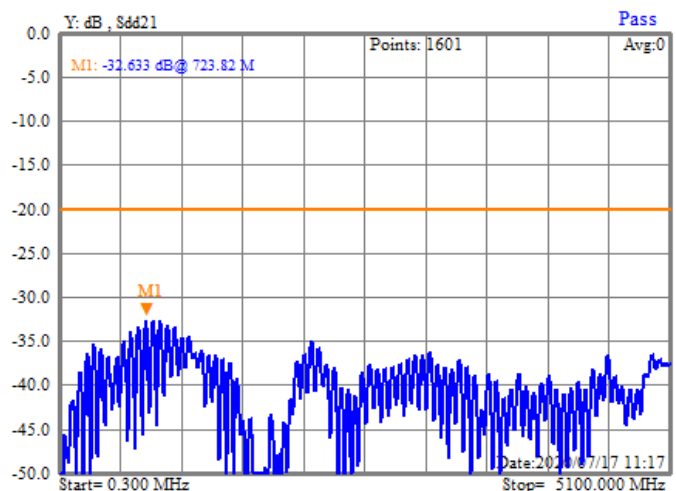
Attenuation (D2)



HEAC_Attenuation (HEAC)

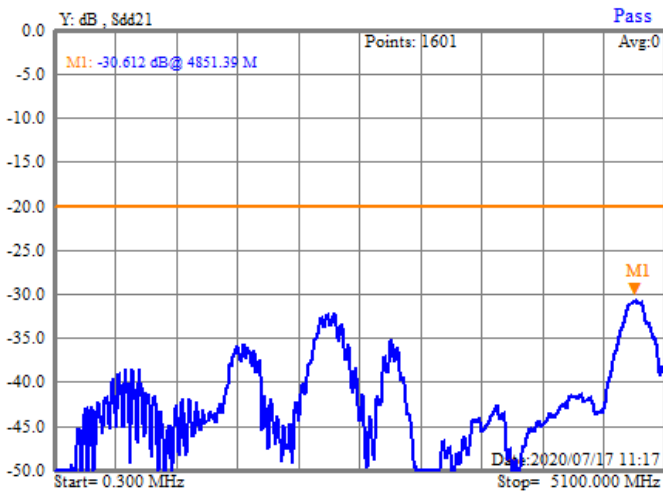


FEXT (CLK-D0)

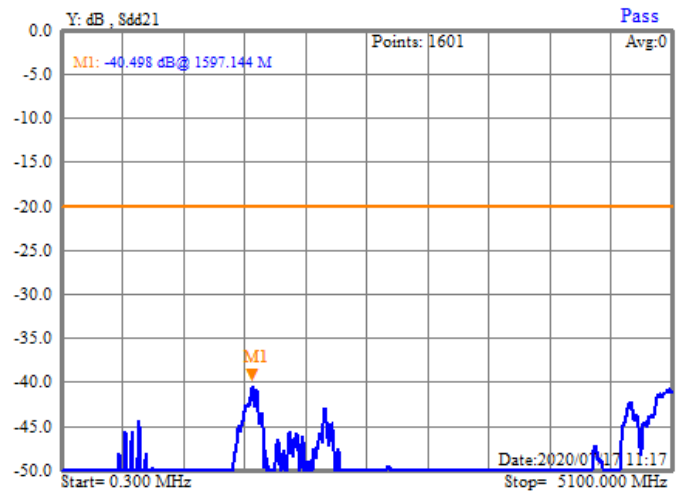


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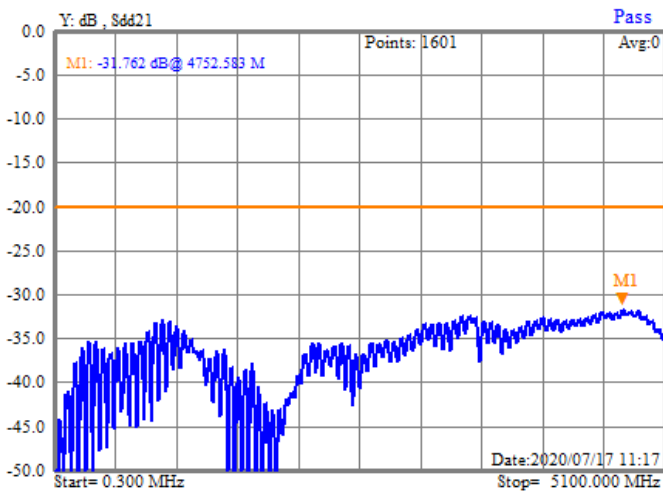
FEXT (CLK-D1)



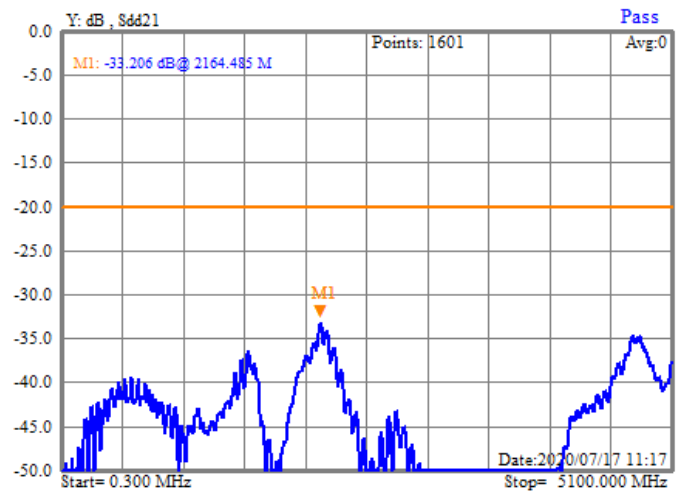
FEXT (CLK-D2)



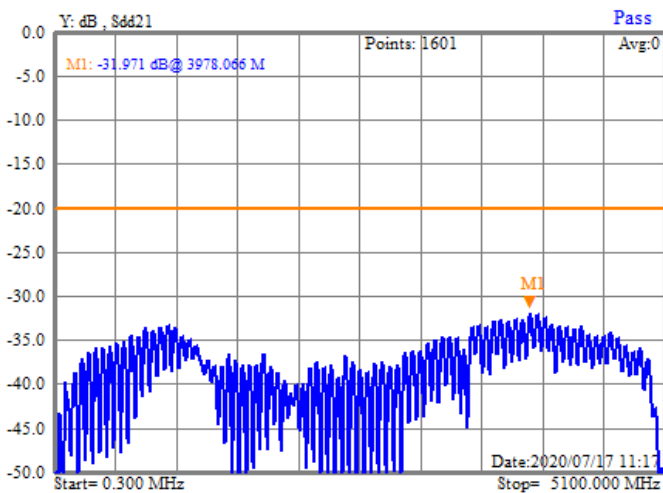
FEXT (D0-D1)



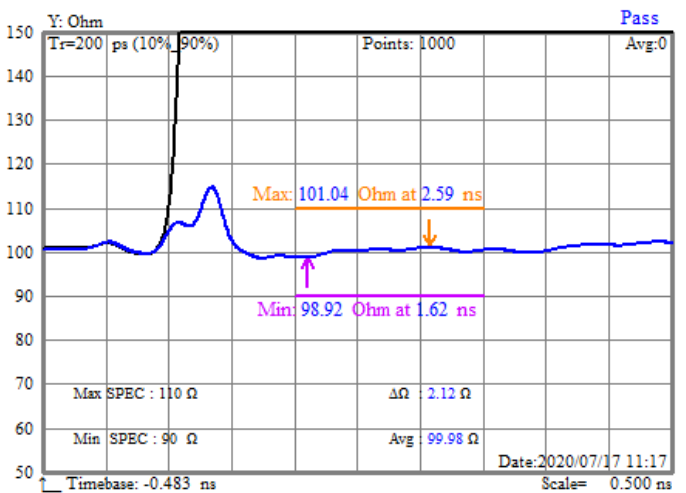
FEXT (D0-D2)



FEXT (D1-D2)

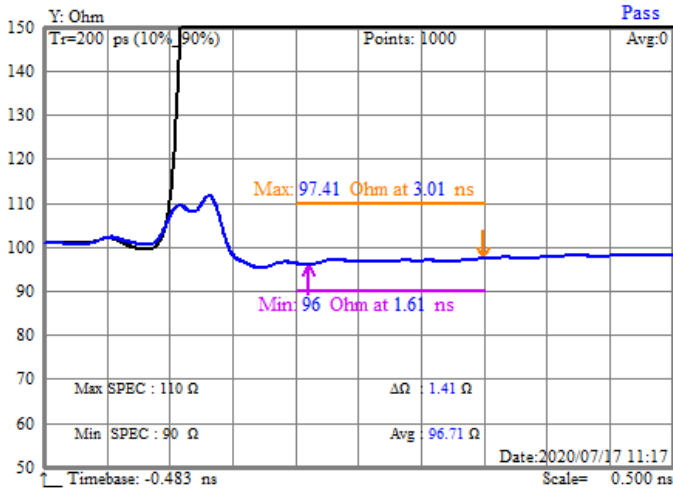


Differential Impedance (CLK)

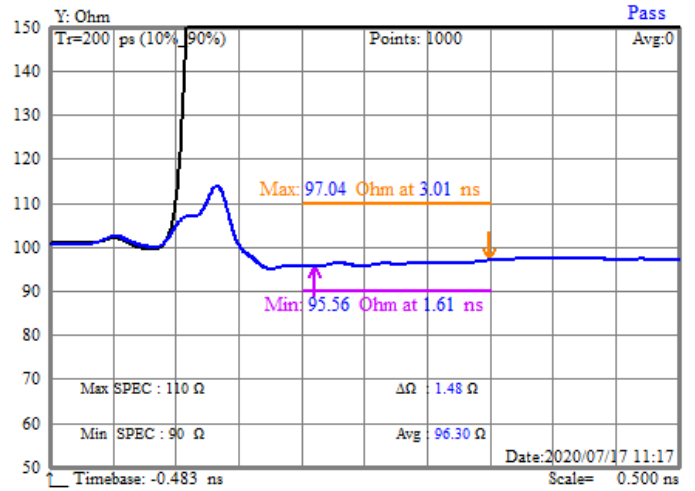


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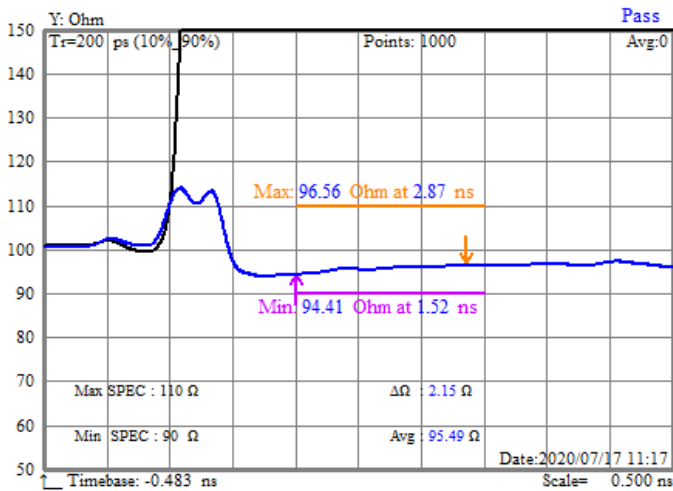
Differential_Impedance (D0)



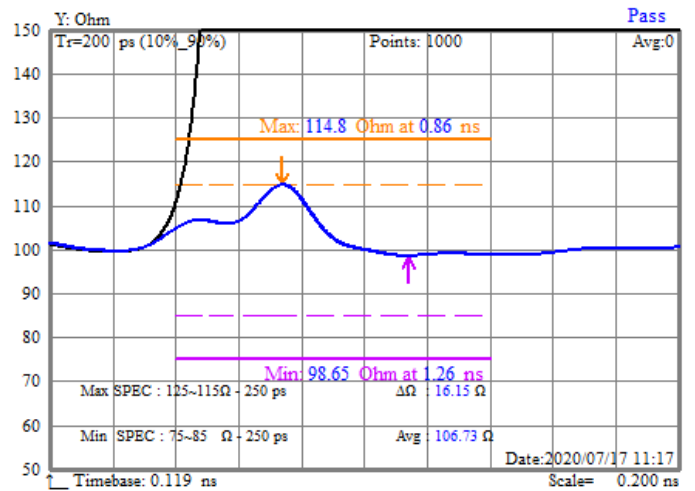
Differential_Impedance (D1)



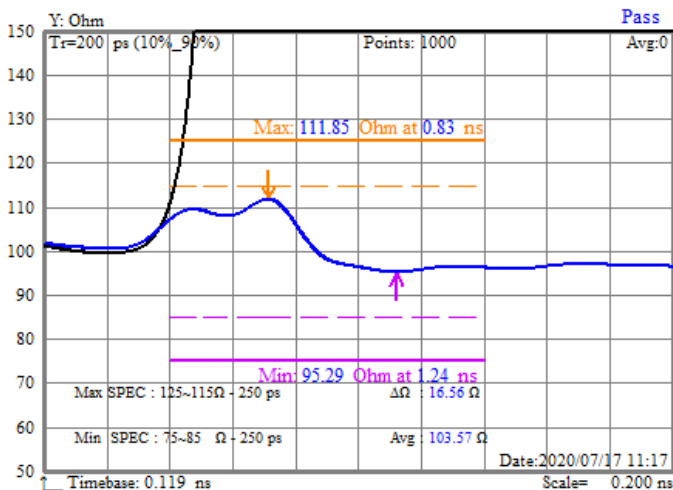
Differential_Impedance (D2)



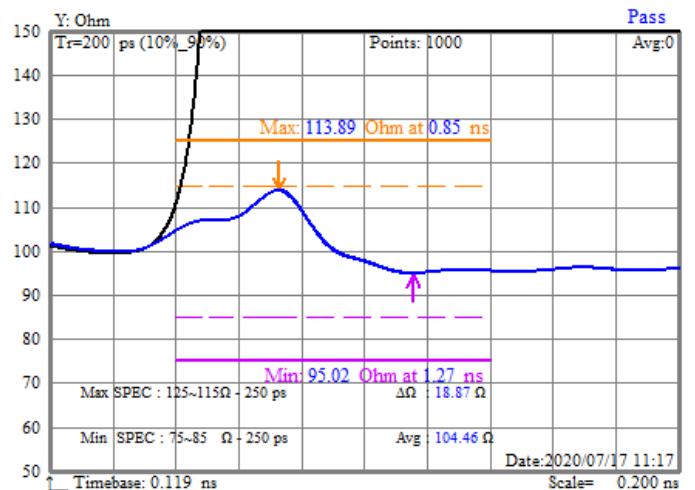
Connector_Impedance (CLK)



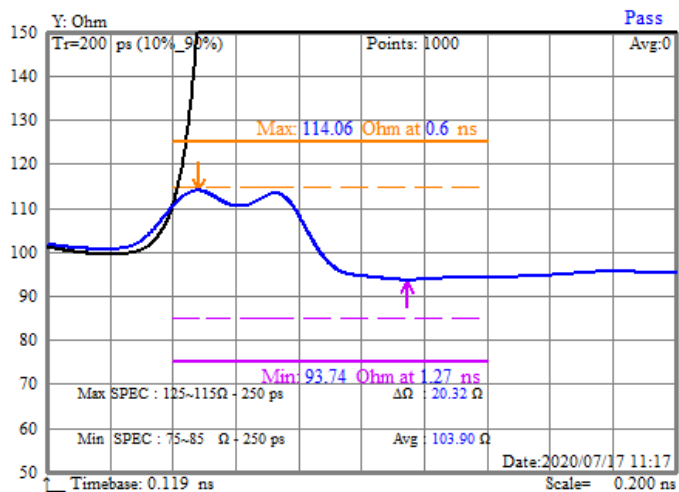
Connector_Impedance (D0)



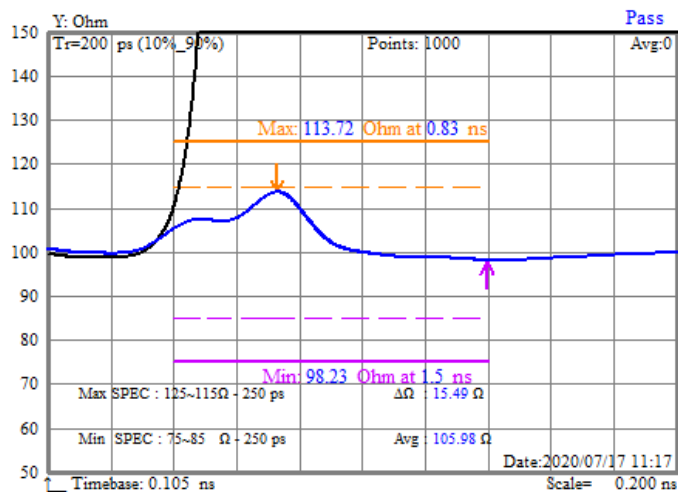
Connector_Impedance (D1)



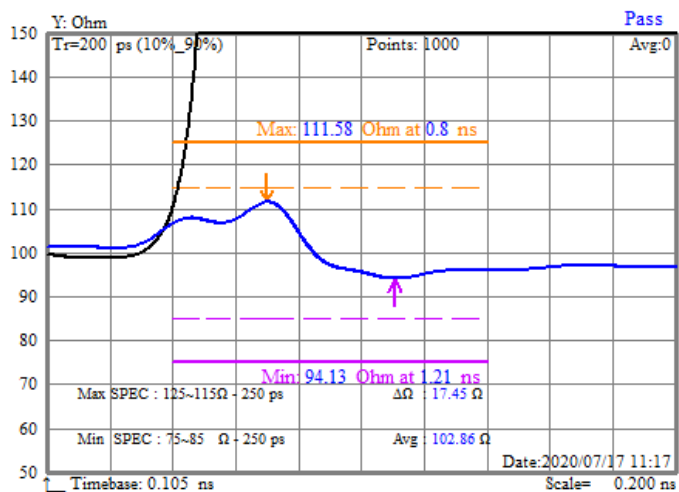
Connector_Impedance (D2)



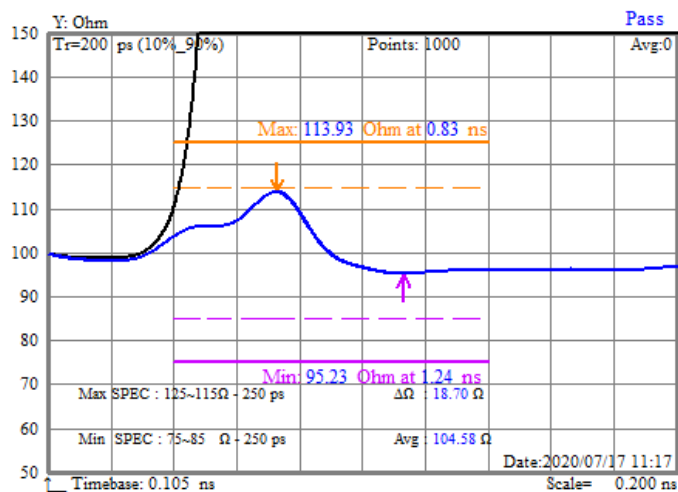
Connector_Impedance_FarEnd (CLK)



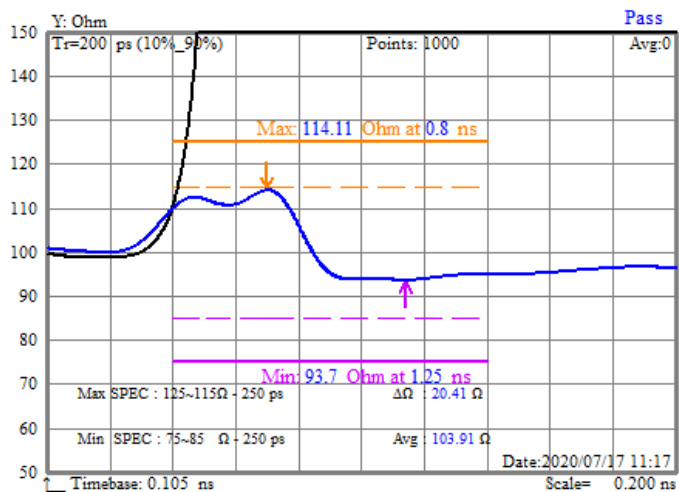
Connector_Impedance_FarEnd (D0)



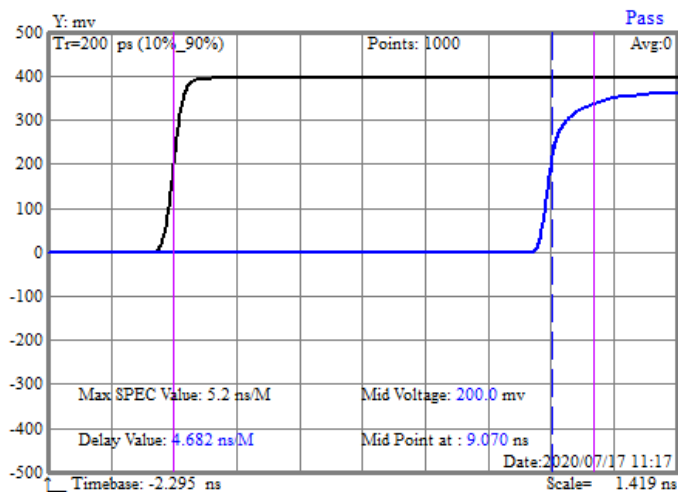
Connector_Impedance_FarEnd (D1)



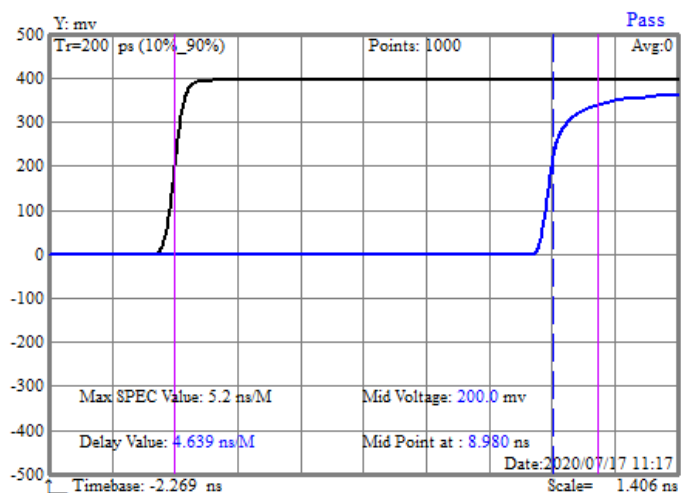
Connector_Impedance_FarEnd (D2)



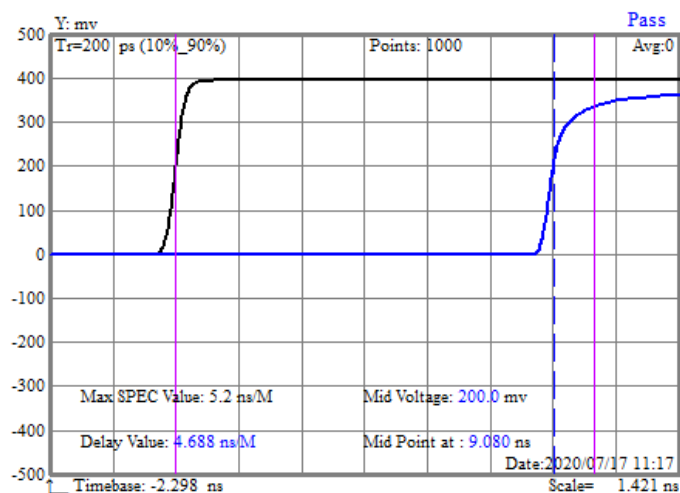
Differential_Delay (CLK)



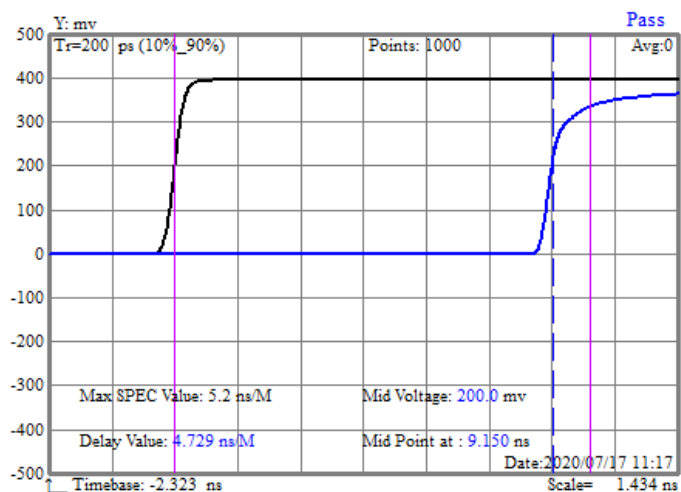
Differential_Delay (D0)



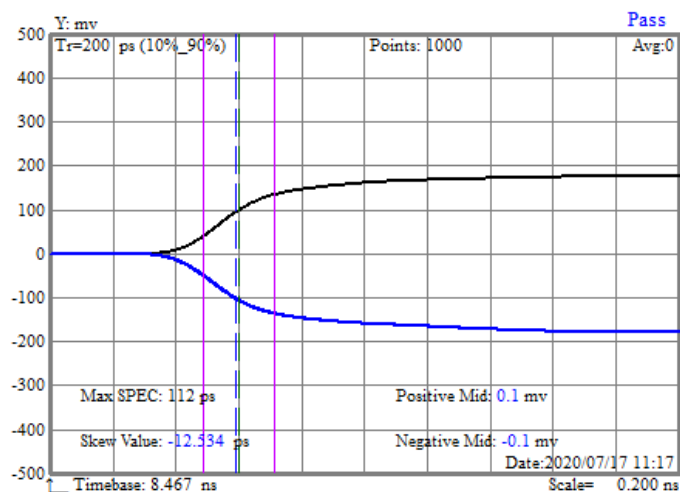
Differential_Delay (D1)



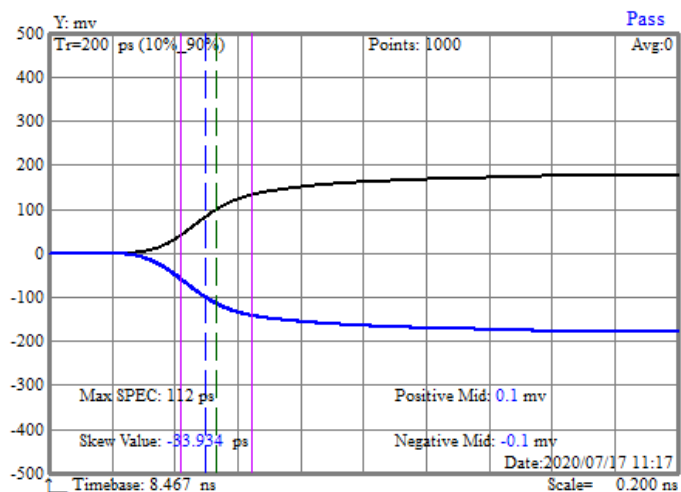
Differential_Delay (D2)



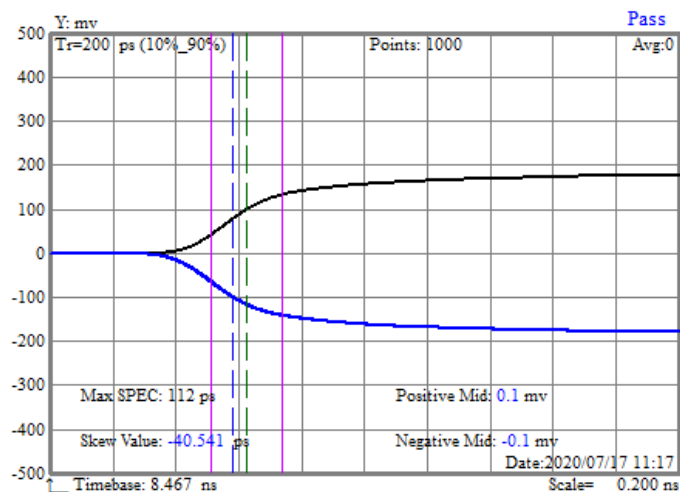
IntraPair_Skew (CLK)



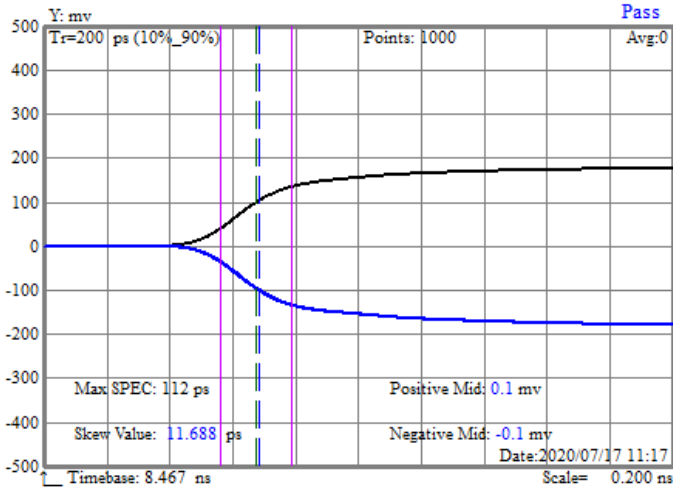
IntraPair_Skew (D0)



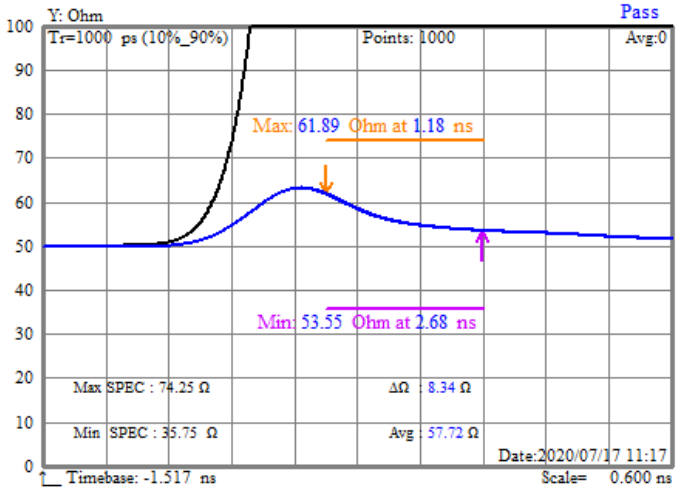
IntraPair_Skew (D1)



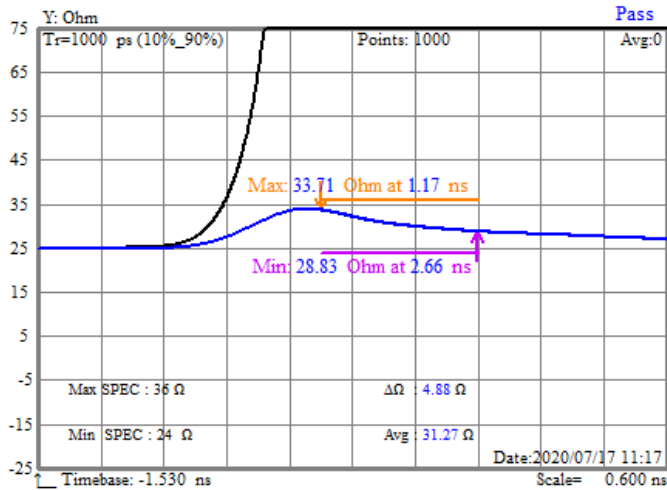
IntraPair_Skew (D2)



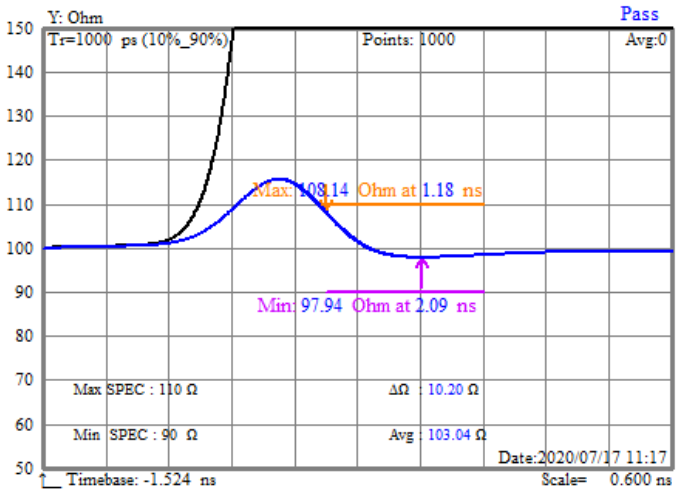
HEAC_SingleEnd_Impedance (HEAC)



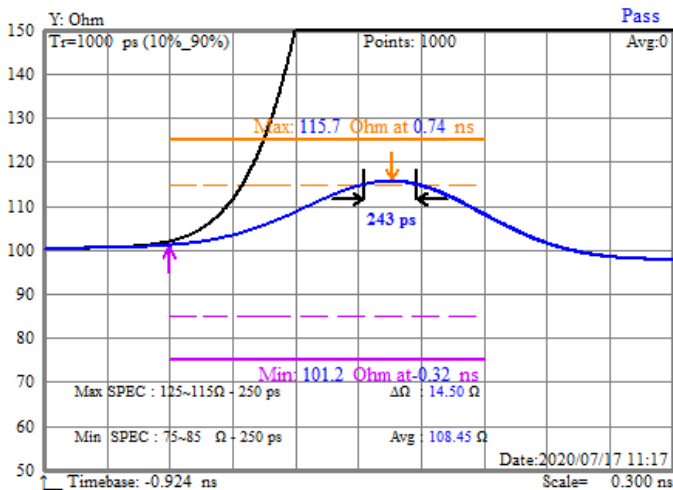
HEAC_CommonMode_Impedance (HEAC)



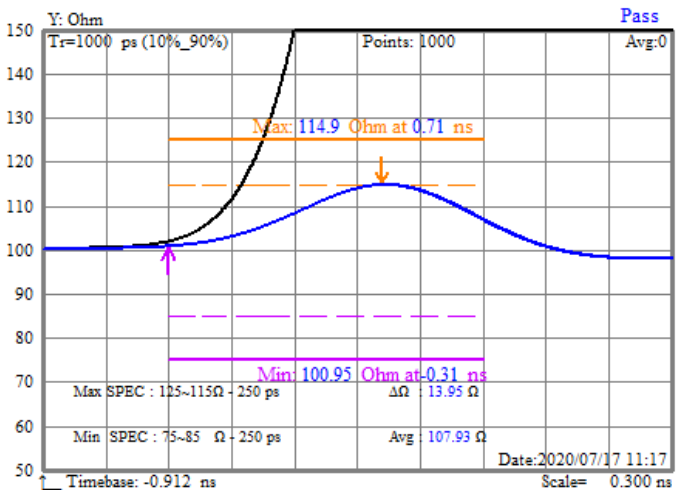
HEAC_Differential_Impedance (HEAC)



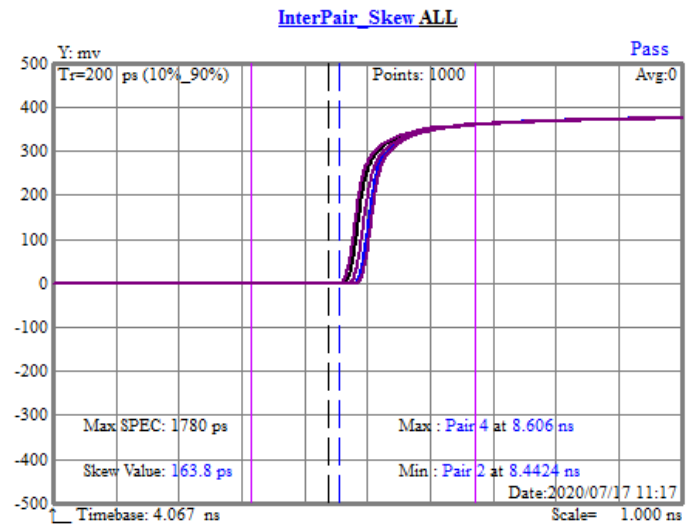
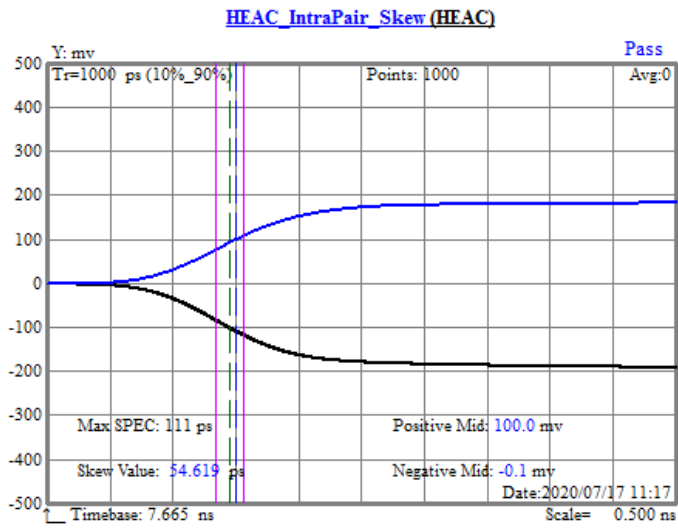
HEAC_Connector_Impedance (HEAC)



HEAC_Connector_Impedance_FarEnd (HEAC)



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Sample-2 High Frequency

Test Report

P/N:CUJA02A-CG021-DF
(371.01057.005)

Test Date:

2020/07/17 14:35

Test Equipment List :

Equipment	Manufacture	P/N	S/N	Description
Network Analyzer	Agilent	E5071C	MY46522067	4 Port, 300 kHz to 20 GHz
Time Domain Reflectometry	Agilent	ENA-TDR	MY46522067	
Pattern Generator	Agilent	ENA-TDR	MY46522067	

Device Under Test (DUT) & Test Environment Information :

P / N:	CUJA02A-CG021-DF(371.01057.005)	Specifications:	
DUT Lot:		DUT Bundle:	HDMI
DUT Length(M):	1.80	Test Pair:	5 Pairs
Temperature(°C):	20	Humidity(%):	60
Remark:	20200717023		

Test Result Summary:

1	Attenuation	Pass
2	HEAC Attenuation	Pass
3	FEXT(Far end crosstalk)	Pass
4	Differential Impedance	Pass
5	Connector Impedance	Pass
6	Connector Impedance FarEnd	Pass
7	Differential Delay	Pass
8	IntraPair Skew	Pass
9	HEAC SingleEnd Impedance	Pass
10	HEAC CommonMode Impedance	Pass
11	HEAC Differential Impedance	Pass
12	HEAC Connector Impedance	Pass
13	HEAC Connector Impedance FarEnd	Pass
14	HEAC IntraPair Skew	Pass
15	InterPair Skew	Pass
Test Result:		Pass

Test Data Summary Page 1 of 2

Attenuation

Start frequency	End frequency	Upper specification limit	Specification lower limit	CLK	D0	D1	D2
0.3	0.3	--	-5	-0.179	-0.111	-0.174	-0.102
825	825	--	-5	-3.402	-3.229	-3.410	-3.381
2475	2475	--	-12	-6.313	-6.534	-6.499	-6.820
4125	4125	--	-20	-9.927	-11.286	-10.565	-11.661
5100	5100	--	-25	-12.007	-11.548	-12.071	-11.639
0.3	5100	--	-5.00→-25.00	-3.652	-3.522	-3.669	-3.571
MHz	MHz	dB	dB	Pass	Pass	Pass	Pass

HEAC Attenuation

Start frequency	End frequency	Upper specification limit	Specification lower limit	HEAC
1	10	--	-1.6	-0.340
10	100	--	-5	-1.063
100	200	--	-7.1	-1.554
MHz	MHz	dB	dB	Pass

FEXT(Far end crosstalk)

Start frequency	End frequency	Upper specification limit	Specification lower limit	CLK-D0	CLK-D1	CLK-D2	D0-D1	D0-D2	D1-D2
0.3	5100	-20	--	-27.052	-29.812	-35.845	-28.794	-30.729	-26.806
MHz	MHz	dB	dB	Pass	Pass	Pass	Pass	Pass	Pass

Differential Impedance, Tr= 200 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
CLK	110	90	98.83	96.48	2.35	97.66	Pass
D0	110	90	98.54	96.56	1.98	97.55	Pass
D1	110	90	98.33	96.62	1.71	97.48	Pass
D2	110	90	97.50	95.94	1.56	96.72	Pass
Unit:	Ohm	Ohm	Ohm	--	--	--	--

Connector Impedance, Tr= 200 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference value	Satus
CLK	125~115,250	75~85,250	111.58	96.79	0.0	14.79	Pass
D0	125~115,250	75~85,250	108.87	95.29	0.0	13.58	Pass
D1	125~115,250	75~85,250	113.54	95.86	0.0	17.68	Pass
D2	125~115,250	75~85,250	110.85	94.29	0.0	16.56	Pass
Unit:	Ohm	Ohm	Ohm	--	--	--	--

Connector Impedance_FarEnd, Tr= 200 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference value	Satus
CLK	125~115,250	75~85,250	112.44	97.90	0.0	14.54	Pass
D0	125~115,250	75~85,250	111.32	98.38	0.0	12.94	Pass
D1	125~115,250	75~85,250	114.06	98.02	0.0	16.04	Pass
D2	125~115,250	75~85,250	113.46	96.25	0.0	17.21	Pass
Unit:	Ohm	Ohm	Ohm	--	--	--	--

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Differential Delay, Tr= 200 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Delay value	Satus
CLK	5.2	--	4.65	Pass
D0	5.2	--	4.64	Pass
D1	5.2	--	4.65	Pass
D2	5.2	--	4.67	Pass
Unit:	ns/M	ns/M	ns/M	--

IntraPair Skew, Tr= 200 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Satus
CLK	112	--	14.12	Pass
D0	112	--	15.37	Pass
D1	112	--	-19.00	Pass
D2	112	--	-33.06	Pass
Unit:	ps	ps	ps	--

HEAC SingleEnd Impedance, Tr= 1000 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
HEAC	74.25	35.75	61.40	51.75	9.65	56.58	Pass
Unit:	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

HEAC CommonMode Impedance, Tr= 1000 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
HEAC	36	24	32.97	27.58	5.39	30.28	Pass
Unit:	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

HEAC Differential Impedance, Tr= 1000 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
HEAC	110	90	107.30	96.21	11.09	101.76	Pass
Unit:	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

HEAC Connector Impedance, Tr= 1000 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference valu	Satus
HEAC	125~115,250	75~85,250	114.65	101.08	0.0	13.57	Pass
Unit:	Ohm,ps	Ohm,ps	Ohm	Ohm	ps	Ohm	--

HEAC Connector Impedance FarEnd, Tr= 1000 ps (10%_90%)

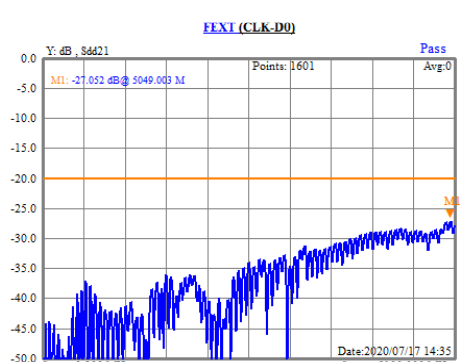
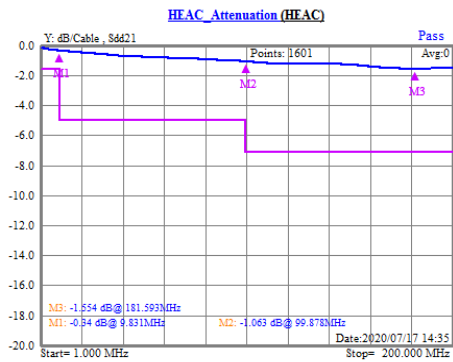
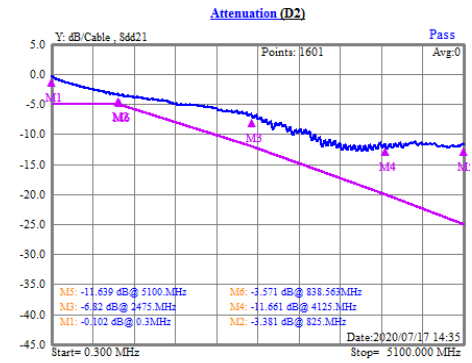
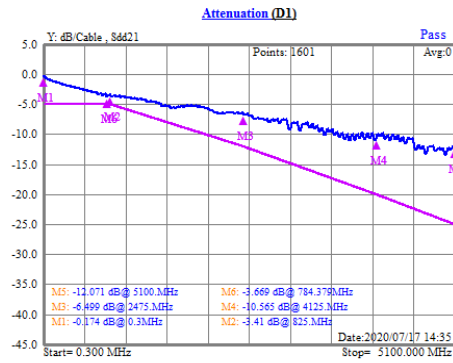
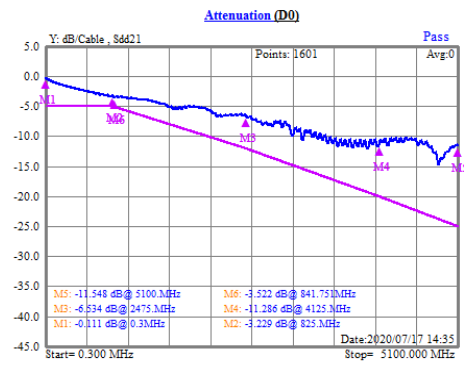
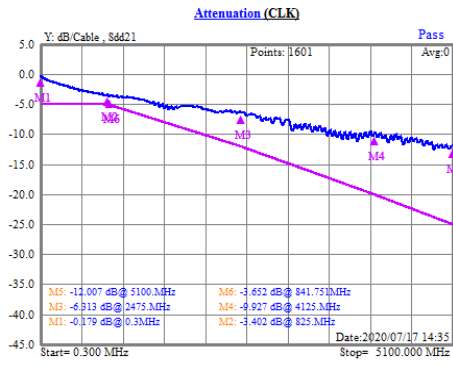
Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference valu	Satus
HEAC	125~115,250	75~85,250	114.97	100.97	0.0	14.00	Pass
Unit:	Ohm,ps	Ohm,ps	Ohm	Ohm	ps	Ohm	--

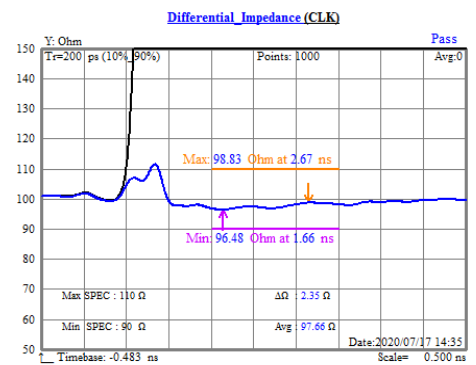
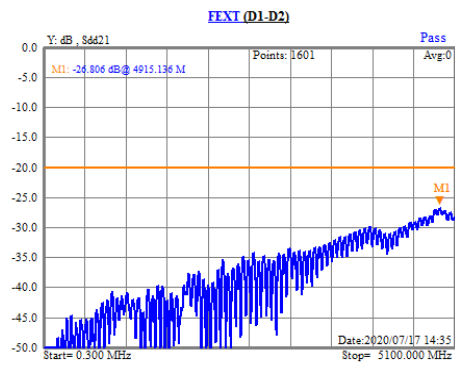
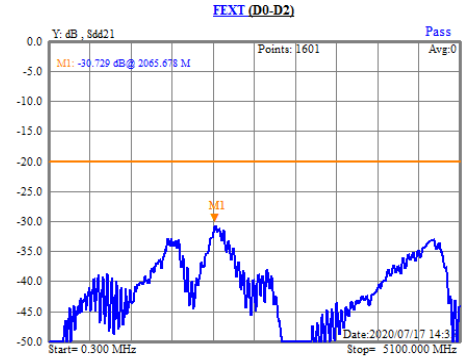
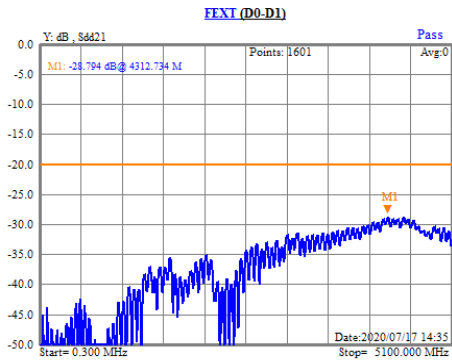
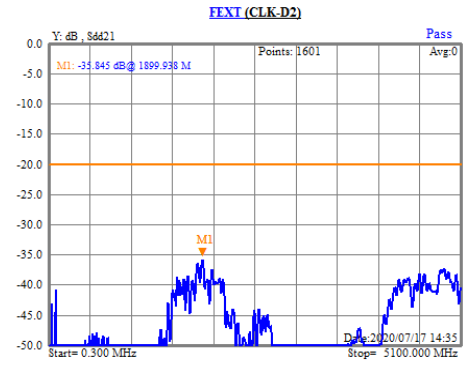
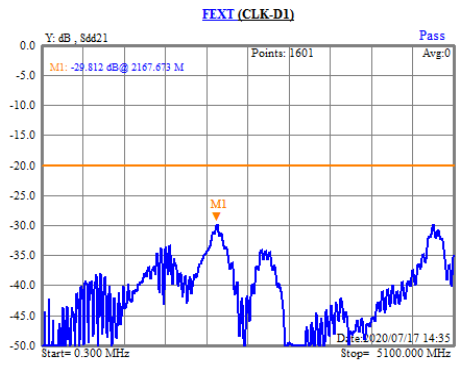
HEAC IntraPair Skew, Tr= 1000 ps (10%_90%)

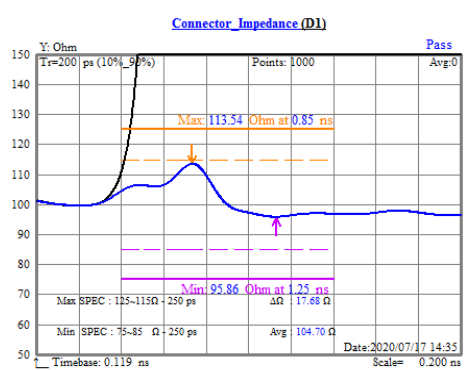
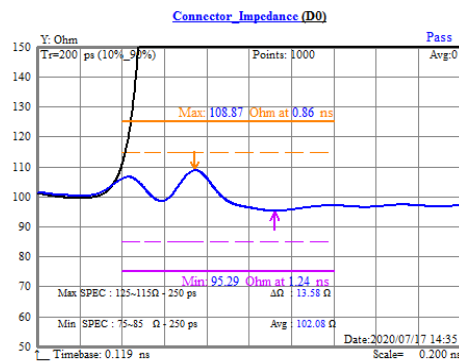
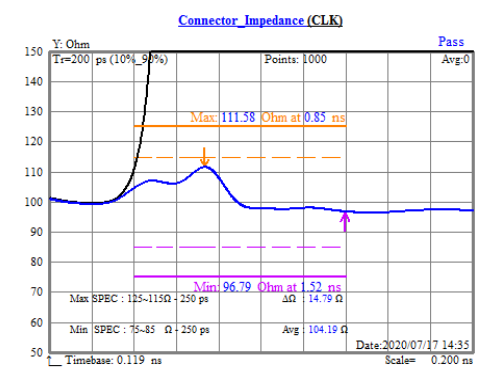
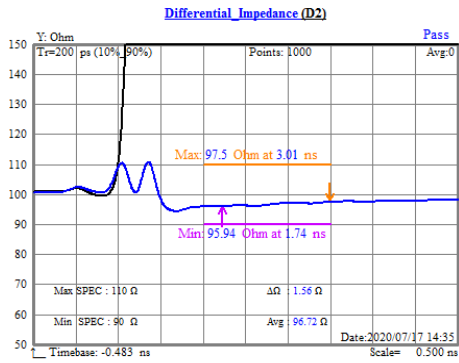
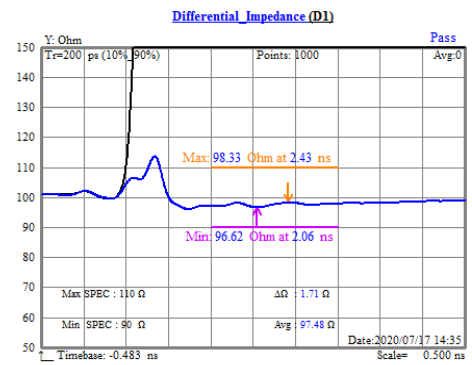
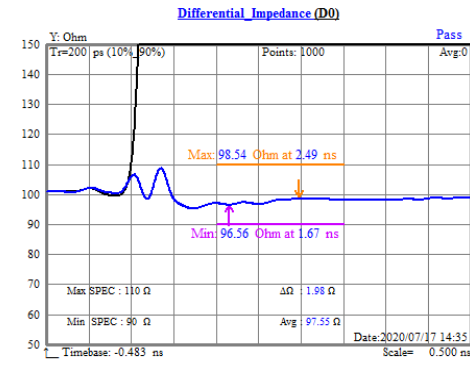
Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Satus
HEAC	111	--	69.211	Pass
Unit:	ps	ps	ps	--

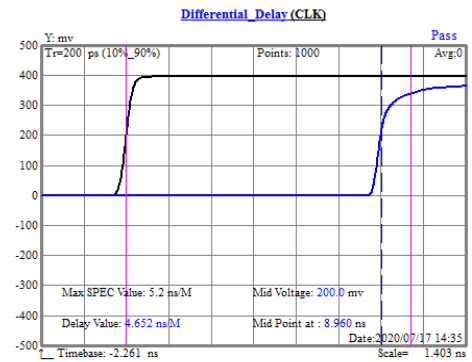
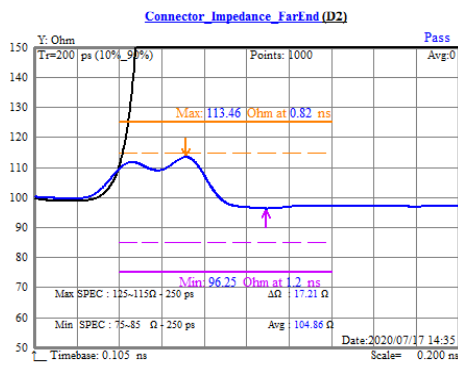
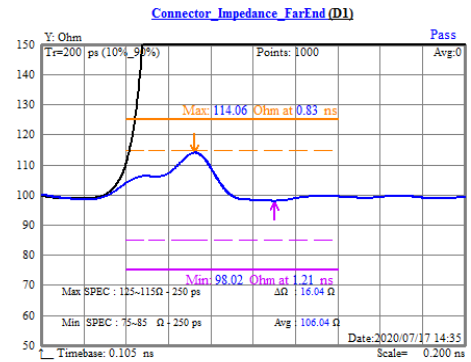
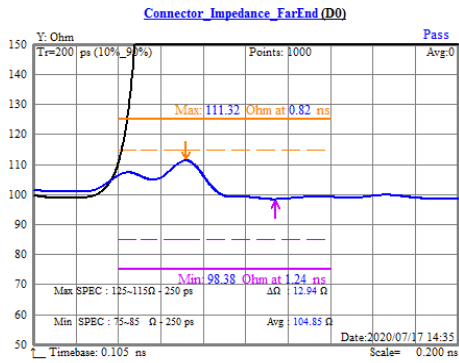
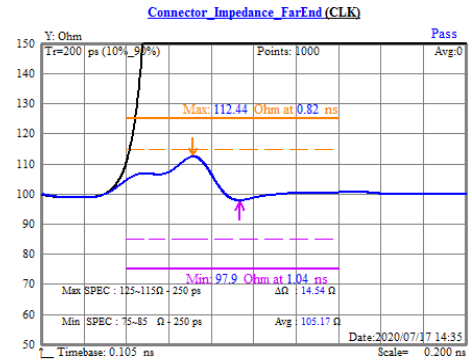
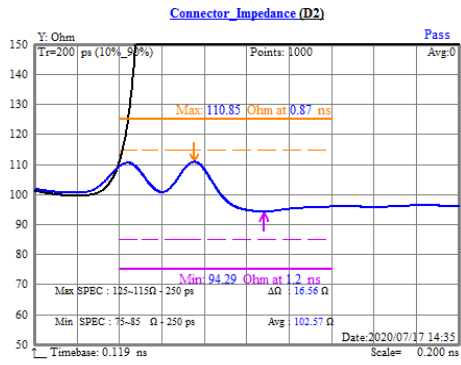
InterPair Skew, Tr= 200 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Satus
ALL	1780	--	46.52	Pass
Unit:	ps	ps	ps	--

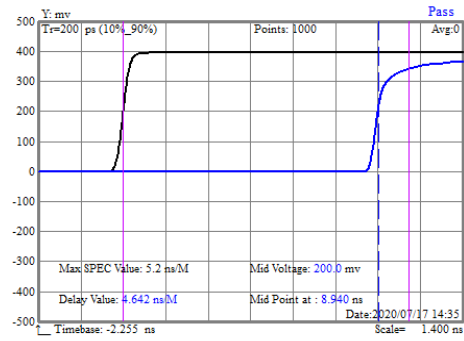




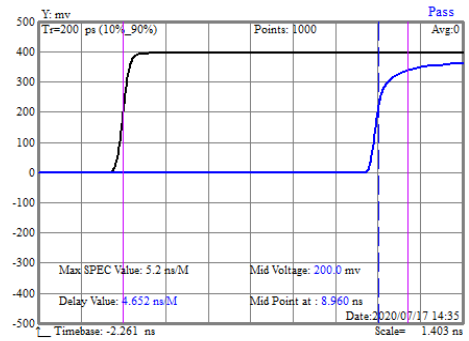




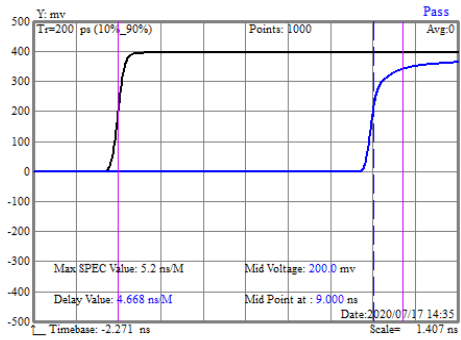
Differential_Delay (D0)



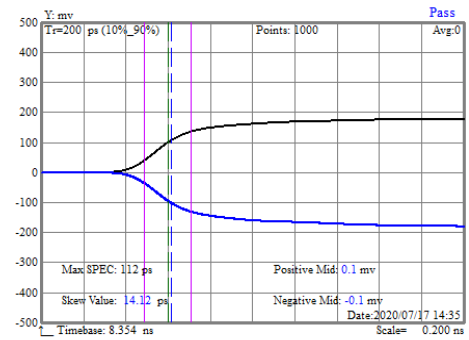
Differential_Delay (D1)



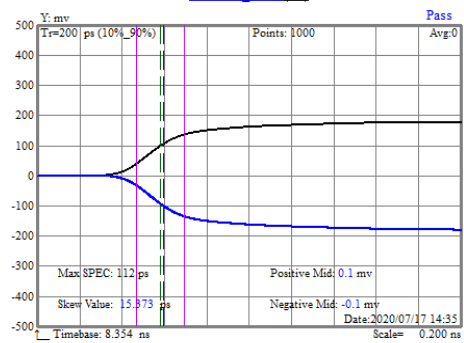
Differential_Delay (D2)



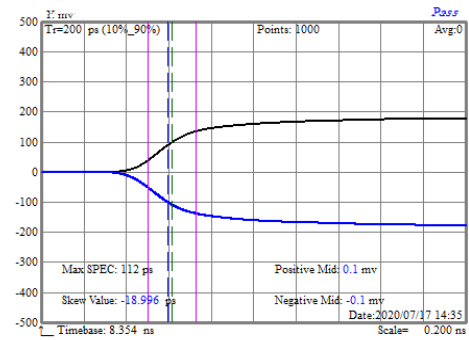
IntraPair_Skew (CLK)

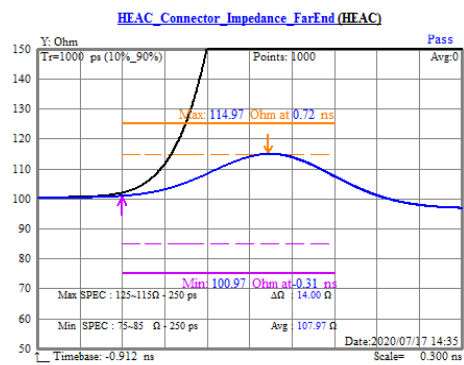
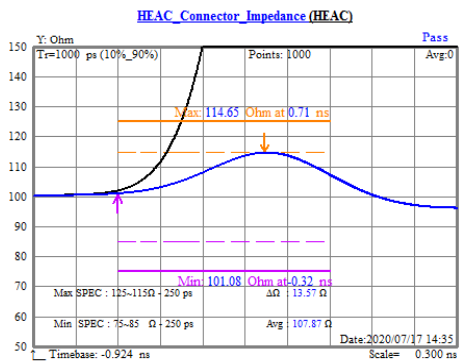
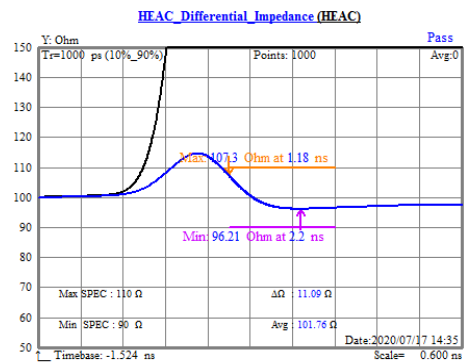
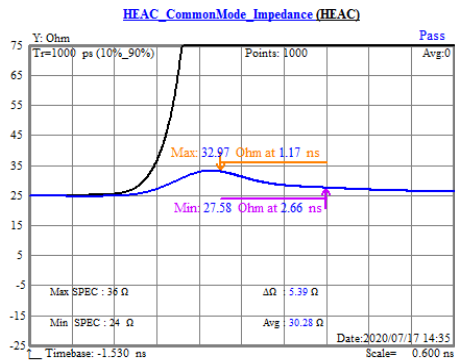
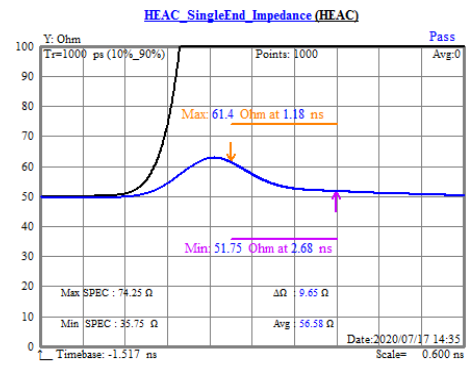
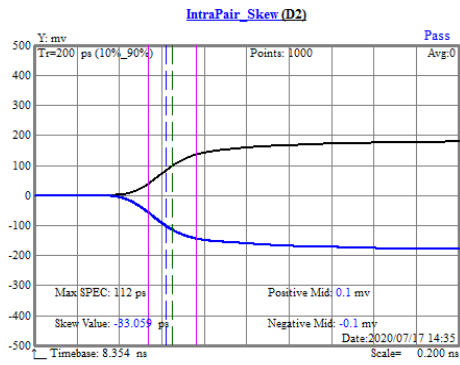


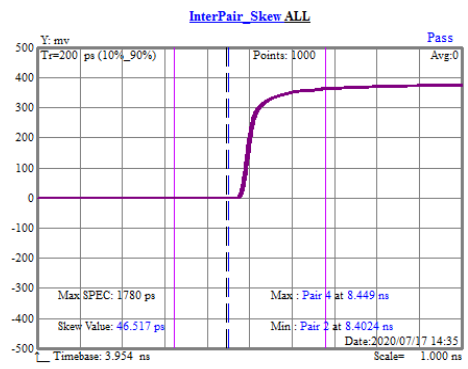
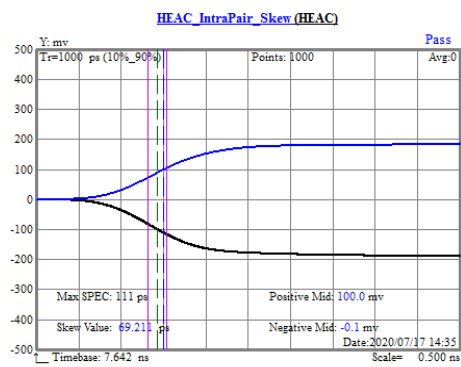
IntraPair_Skew (D0)



IntraPair_Skew (D1)







Sample-3 High Frequency

Test Report

P/N:CUJA02A-CG021-DF
(371.01057.005)

Test Date:

2020/07/17 14:39

Test Equipment List :

Equipment	Manufacture	P/N	S/N	Description
Network Analyzer	Agilent	E5071C	MY46522067	4 Port, 300 kHz to 20 GHz
Time Domain Relfectormetry	Agilent	ENA-TDR	MY46522067	
Pattern Generator	Agilent	ENA-TDR	MY46522067	

Device Under Test (DUT) & Test Environment Information :

P / N:	CUJA02A-CG021-DF(371.01057.005)	Specifications:	
DUT Lot:		DUT Bundle:	HDMI
DUT Length(M):	1.80	Test Pair:	5 Pairs
Temperature(℃):	20	Humidity(%):	60
Remark:	20200717023		

Test Result Summary:

1	Attenuation	Pass
2	HEAC Attenuation	Pass
3	FEXT(Far end crosstalk)	Pass
4	Differential Impedance	Pass
5	Connector Impedance	Pass
6	Connector Impedance FarEnd	Pass
7	Differential Delay	Pass
8	IntraPair Skew	Pass
9	HEAC SingleEnd Impedance	Pass
10	HEAC CommonMode Impedance	Pass
11	HEAC Differential Impedance	Pass
12	HEAC Connector Impedance	Pass
13	HEAC Connector Impedance FarEnd	Pass
14	HEAC IntraPair Skew	Pass
15	InterPair Skew	Pass
Test Result:		Pass

Test Data Summary Page 1 of 2

Attenuation

Start frequency	End frequency	Upper specification limit	Specification lower limit	CLK	D0	D1	D2
0.3	0.3	--	-5	-0.162	-0.120	-0.111	-0.110
825	825	--	-5	-3.408	-3.293	-3.345	-3.383
2475	2475	--	-12	-6.679	-6.801	-7.099	-6.269
4125	4125	--	-20	-9.520	-9.682	-9.496	-9.725
5100	5100	--	-25	-11.082	-10.437	-11.078	-10.658
0.3	5100	--	-5.00→-25.00	-3.526	-3.545	-3.575	-3.560
MHz	MHz	dB	dB	Pass	Pass	Pass	Pass

HEAC Attenuation

Start frequency	End frequency	Upper specification limit	Specification lower limit	HEAC
1	10	--	-1.6	-0.323
10	100	--	-5	-1.067
100	200	--	-7.1	-1.578
MHz	MHz	dB	dB	Pass

FEXT

Start frequency	End frequency	Upper specification limit	Specification lower limit	CLK-D0	CLK-D1	CLK-D2	D0-D1	D0-D2	D1-D2
0.3	5100	-20	--	-28.988	-29.061	-36.109	-26.849	-28.125	-27.390
MHz	MHz	dB	dB	Pass	Pass	Pass	Pass	Pass	Pass

Differential Impedance, Tr= 200 ps (10% ,90%)

Logarithmic na	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference valu	Average value	Satus
CLK	110	90	96.62	95.26	1.36	95.94	Pass
D0	110	90	97.61	95.36	2.25	96.49	Pass
D1	110	90	97.79	95.98	1.81	96.89	Pass
D2	110	90	96.74	95.11	1.63	95.93	Pass
Unit:	Ohm	Ohm	Ohm	--	--	--	--

Connector Impedance, Tr= 200 ps (10% ,90%)

Logarithmic na	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference value	Satus
CLK	125~115,250	75~85,250	111.97	96.04	0.0	15.93	Pass
D0	125~115,250	75~85,250	114.11	96.60	0.0	17.51	Pass
D1	125~115,250	75~85,250	115.33	97.19	36.0	18.14	Pass
D2	125~115,250	75~85,250	114.10	96.19	0.0	17.91	Pass
Unit:	Ohm	Ohm	Ohm	--	--	--	--

Connector Impedance FarEnd, Tr= 200 ps (10% ,90%)

Logarithmic na	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference value	Satus
CLK	125~115,250	75~85,250	108.95	96.82	0.0	12.13	Pass
D0	125~115,250	75~85,250	108.93	95.26	0.0	13.67	Pass
D1	125~115,250	75~85,250	108.73	96.95	0.0	11.78	Pass
D2	125~115,250	75~85,250	109.76	94.69	0.0	15.07	Pass
Unit:	Ohm	Ohm	Ohm	--	--	--	--

Test Data Summary Page 2 of 2

Differential Delay, Tr= 200 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Delay value	Status
CLK	5.2	--	4.66	Pass
D0	5.2	--	4.65	Pass
D1	5.2	--	4.67	Pass
D2	5.2	--	4.67	Pass
Unit :	ns/M	ns/M	ns/M	--

IntraPair Skew, Tr= 200 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Status
CLK	112	--	-7.81	Pass
D0	112	--	-17.41	Pass
D1	112	--	24.60	Pass
D2	112	--	-11.56	Pass
	ps	ps	ps	--

HEAC_SingleEnd_Impedance, Tr= 1000 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Status
HEAC	74.25	35.75	62.84	51.77	11.07	57.31	Pass
Unit:	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

HEAC_CommonMode_Impedance, Tr= 1000 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Status
HEAC	36	24	34.14	27.93	6.21	31.04	Pass
Unit:	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

HEAC_Differential_Impedance, Tr= 1000 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Status
HEAC	110	90	107.68	94.57	13.11	101.13	Pass
Unit:	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

HEAC_Connector_Impedance, Tr= 1000 ps (10%_90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Status
HEAC	125~115,250	75~85,250	115.53	101.14	207.0	14.39	Pass
Unit:	Ohm,ps	Ohm,ps	Ohm	Ohm	ps	Ohm	--

HEAC_Connector_Impedance_FarEnd, Tr= 1000 ps (10%_90%)

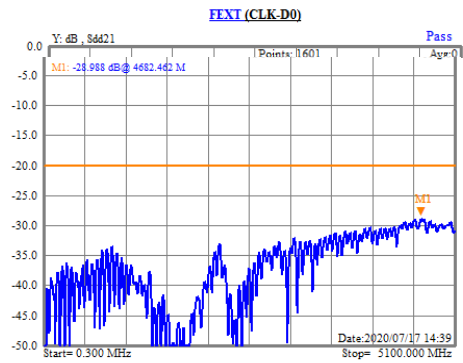
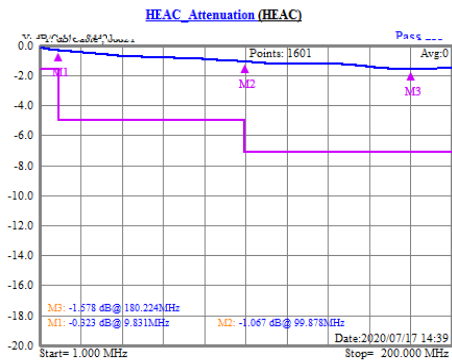
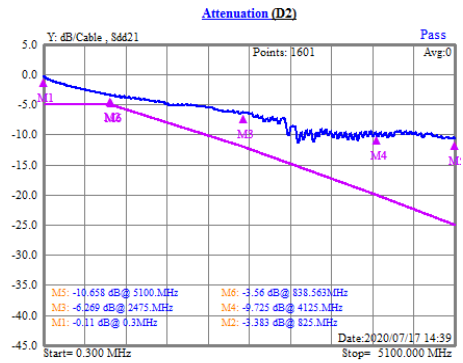
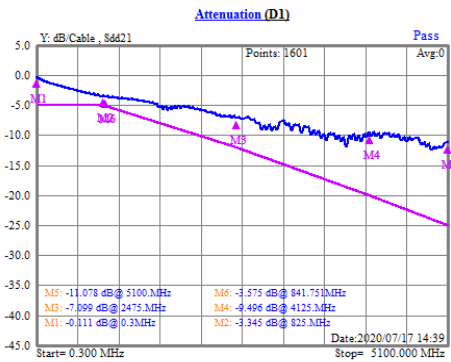
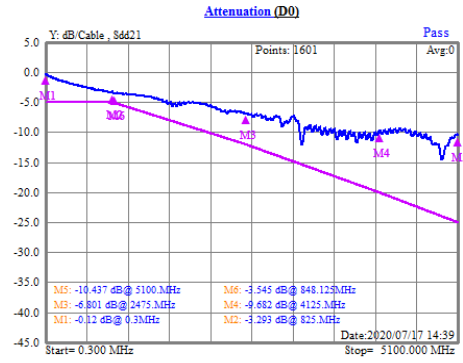
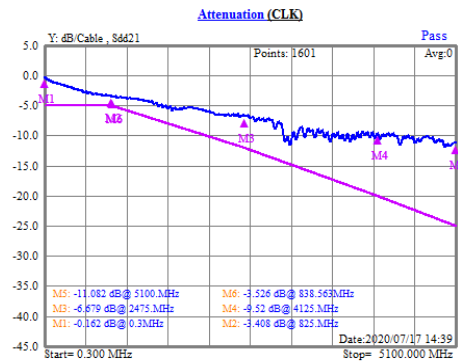
Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Status
HEAC	125~115,250	75~85,250	113.54	100.75	0.0	12.79	Pass
Unit:	Ohm,ps	Ohm,ps	Ohm	Ohm	ps	Ohm	--

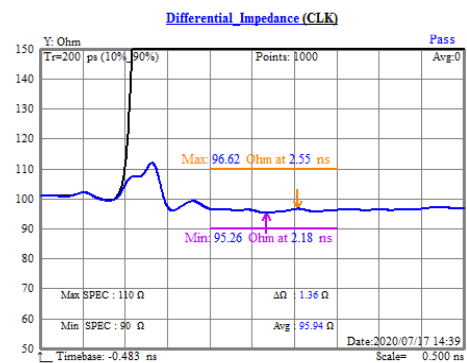
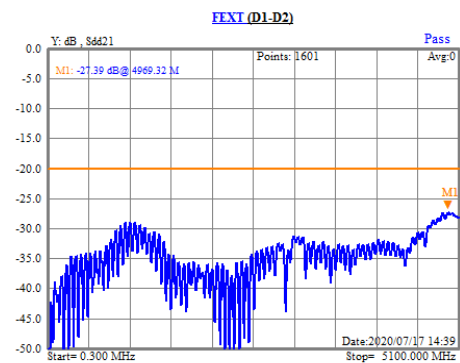
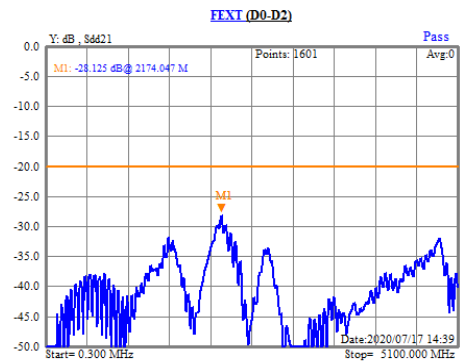
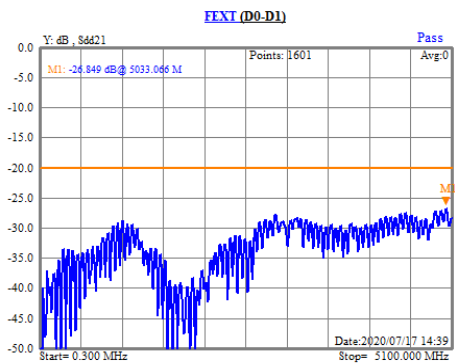
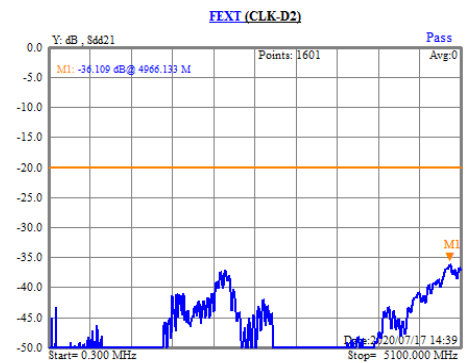
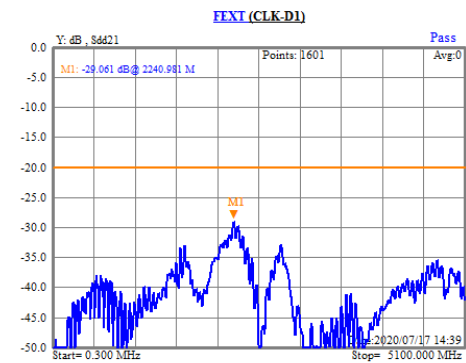
HEAC_IntraPair_Skew, Tr= 1000 ps (10%_90%)

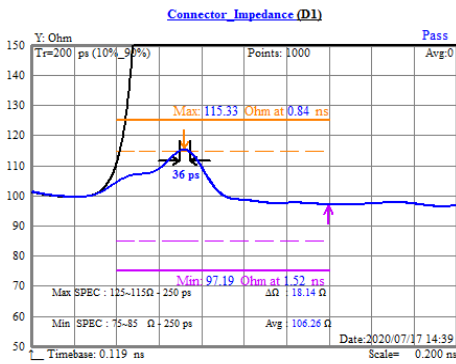
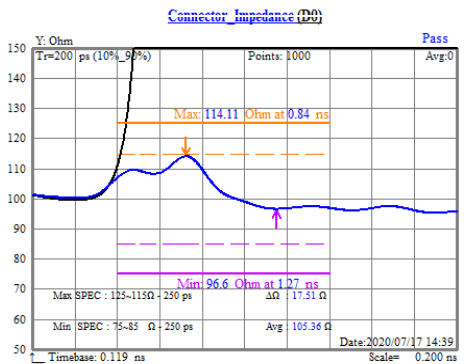
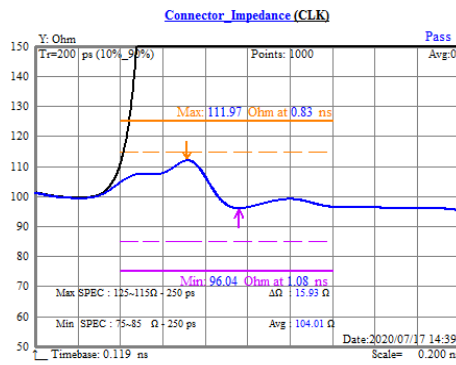
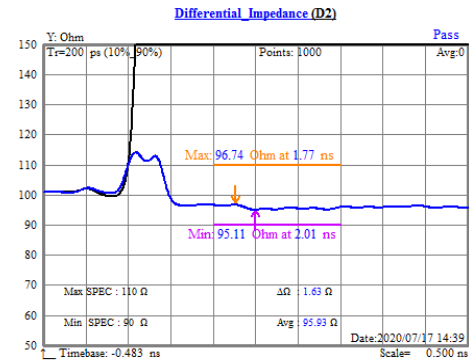
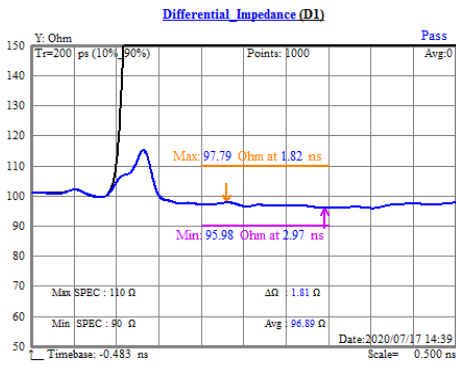
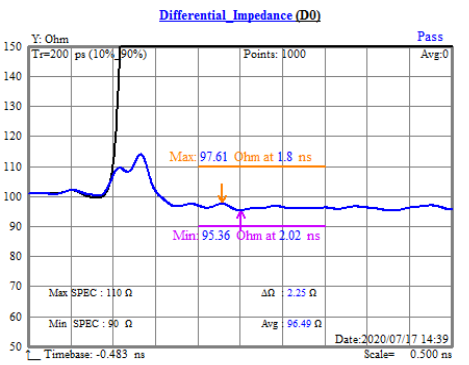
Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Status
HEAC	111	--	58.256	Pass
Unit:	ps	ps	ps	--

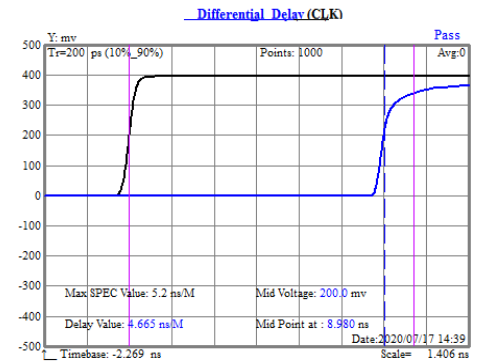
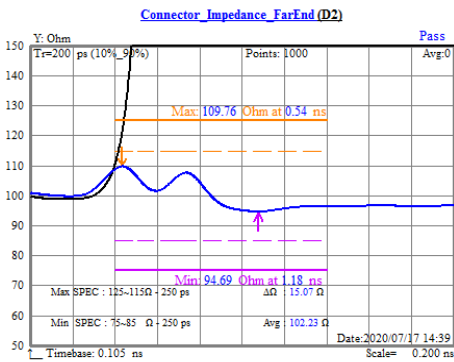
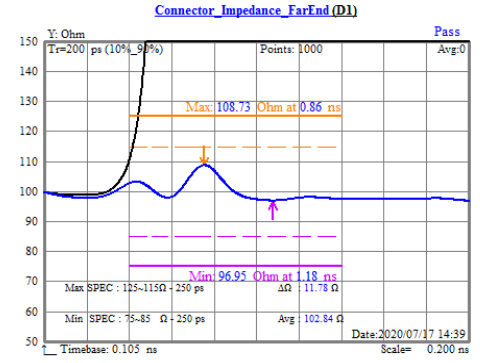
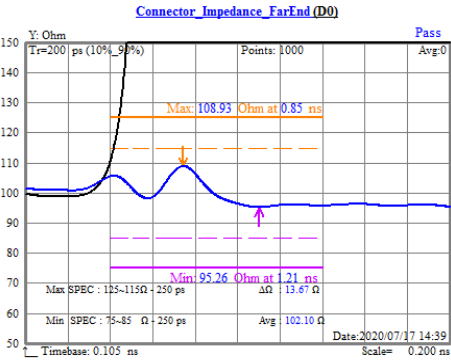
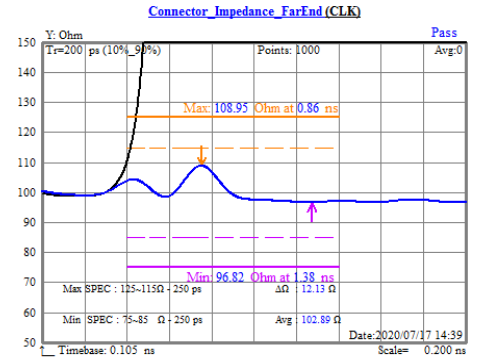
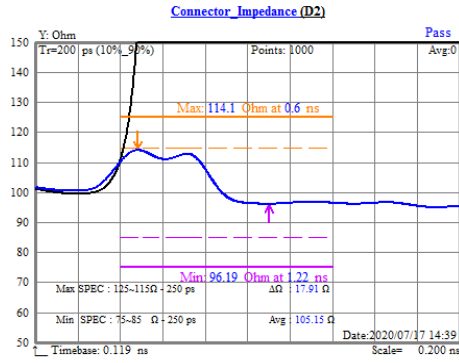
InterPair_Skew, Tr= 200 ps (10%_90%)

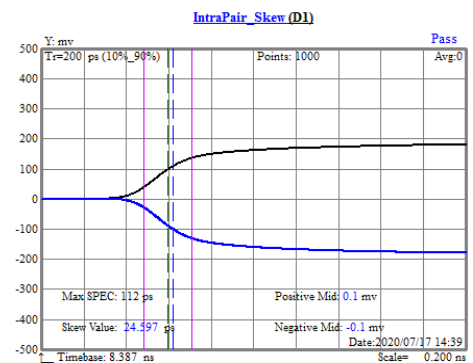
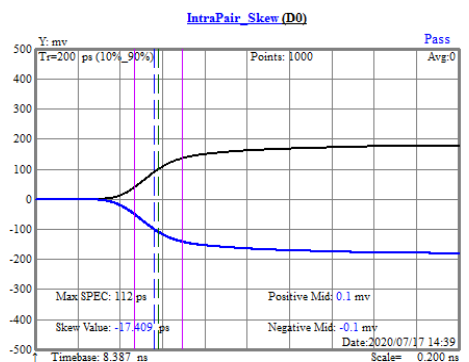
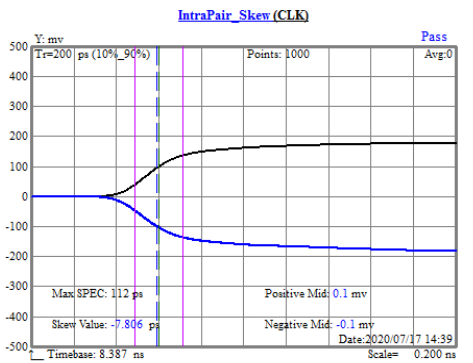
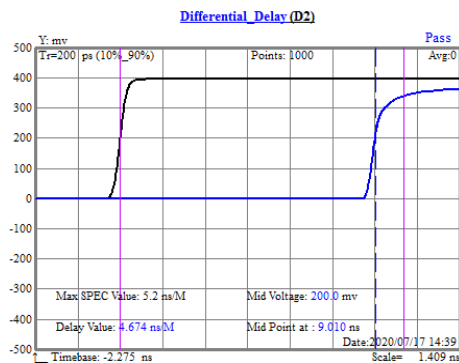
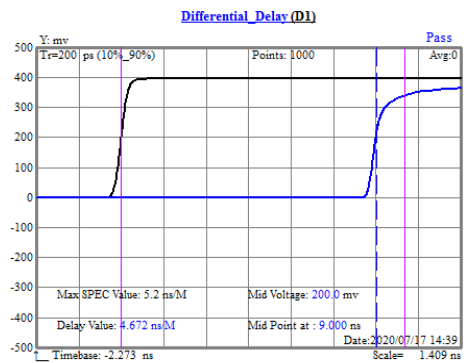
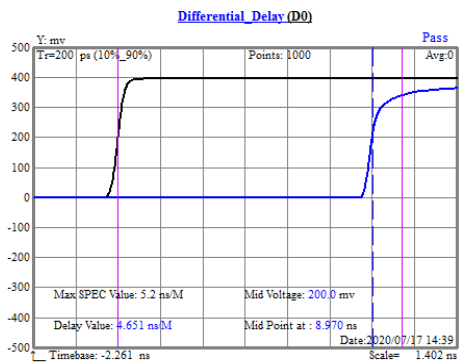
Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Status
ALL	1780	--	40.91	Pass
Unit:	ps	ps	ps	--

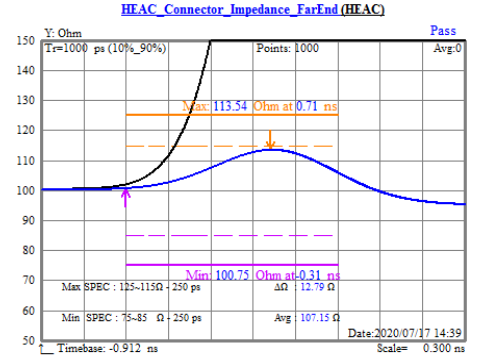
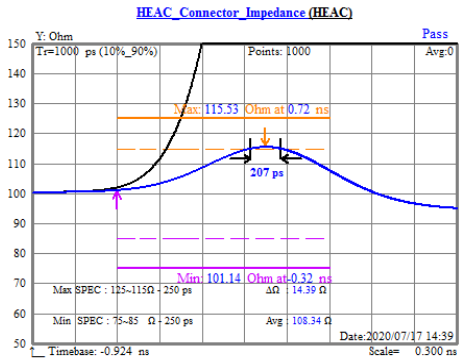
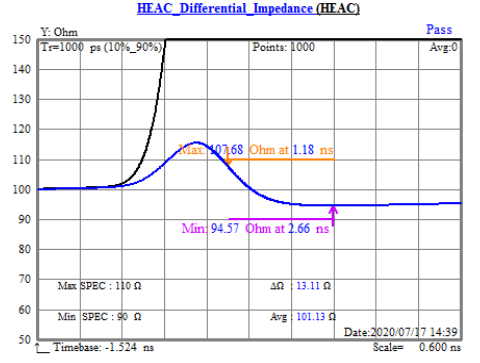
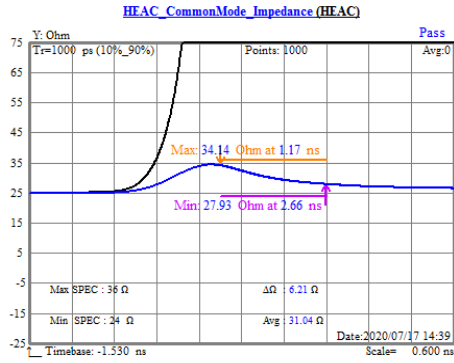
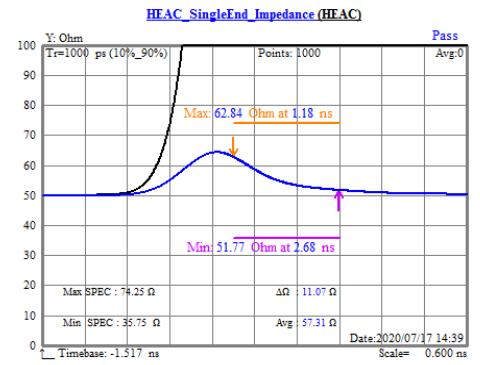
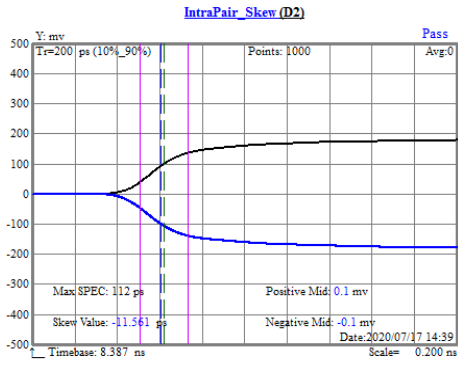


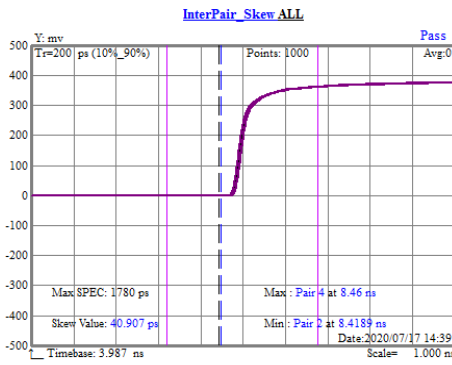
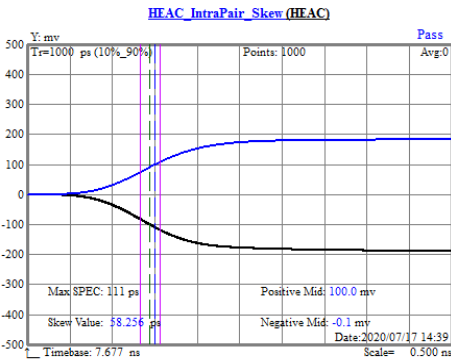












Sample-4 High Frequency

Test Report

P/N:CUJA02A-CG021-DF
(371.01057.005)

Test Date:

2020/07/17 14:43

Test Equipment List :

Equipment	Manufacture	P/N	S/N	Description
Network Analyzer	Agilent	E5071C	MY46522067	4 Port, 300 kHz to 20 GHz
Time Domain Reflectometry	Agilent	ENA-TDR	MY46522067	
Pattern Generator	Agilent	ENA-TDR	MY46522067	

Device Under Test (DUT) & Test Environment Information :

P / N:	CUJA02A-CG021-DF (371.01057.005)		Specifications:	
DUT Lot:			DUT Bundle:	HDMI
DUT Length(M):	1.80		Test Pair:	5 Pairs
Temperature(°C):	20		Humidity(%):	60
Remark:	20200717023			

Test Result Summary:

1	Attenuation	Pass
2	HEAC Attenuation	Pass
3	FEXT(Far end crosstalk)	Pass
4	Differential Impedance	Pass
5	Connector Impedance	Pass
6	Connector Impedance FarEnd	Pass
7	Differential Delay	Pass
8	IntraPair Skew	Pass
9	HEAC SingleEnd Impedance	Pass
10	HEAC CommonMode Impedance	Pass
11	HEAC Differential Impedance	Pass
12	HEAC Connector Impedance	Pass
13	HEAC Connector Impedance FarEnd	Pass
14	HEAC IntraPair Skew	Pass
15	InterPair Skew	Pass
Test Result:		Pass

Test Data Summary Page 1 of 2

Attenuation

Start frequency	End frequency	Upper specification limit	Specification lower limit	CLK	D0	D1	D2
0.3	0.3	--	-5	-0.142	-0.128	-0.137	-0.153
825	825	--	-5	-3.413	-3.299	-3.308	-3.436
2475	2475	--	-12	-6.395	-6.335	-6.345	-6.254
4125	4125	--	-20	-9.308	-9.172	-8.832	-9.428
5100	5100	--	-25	-11.616	-10.952	-10.999	-10.915
0.3	5100	--	-5.00→-25.00	-3.652	-3.573	-3.598	-3.687
MHz	MHz	dB	dB	Pass	Pass	Pass	Pass

HEAC Attenuation

Start frequency	End frequency	Upper specification limit	Specification lower limit	HEAC
1	10	--	-1.6	-0.353
10	100	--	-5	-1.098
100	200	--	-7.1	-1.598
MHz	MHz	dB	dB	Pass

FEXT(遠端串音/Far end crosstalk)

Start frequency	End frequency	Upper specification limit	Specification lower limit	CLK-D0	CLK-D1	CLK-D2	D0-D1	D0-D2	D1-D2
0.3	5100	-20	--	-26.849	-29.535	-36.587	-27.922	-30.814	-27.205
MHz	MHz	dB	dB	Pass	Pass	Pass	Pass	Pass	Pass

Impedance, Tr= 200 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Status
CLK	110	90	98.20	94.89	3.31	96.55	Pass
D0	110	90	98.43	95.13	3.30	96.78	Pass
D1	110	90	97.86	96.69	1.17	97.28	Pass
D2	110	90	96.32	94.97	1.35	95.65	Pass
Unit :	Ohm	Ohm	Ohm	--	--	--	--

Impedance, Tr= 200 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference value	Status
CLK	125~115,250	75~85,250	111.54	94.94	0.0	16.60	Pass
D0	125~115,250	75~85,250	111.11	94.40	0.0	16.71	Pass
D1	125~115,250	75~85,250	113.25	96.55	0.0	16.70	Pass
D2	125~115,250	75~85,250	113.33	95.01	0.0	18.32	Pass
Unit :	Ohm	Ohm	Ohm	--	--	--	--

Impedance FarEnd, Tr= 200 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference value	Status
CLK	125~115,250	75~85,250	113.69	97.01	0.0	16.68	Pass
D0	125~115,250	75~85,250	112.66	96.80	0.0	15.86	Pass
D1	125~115,250	75~85,250	113.64	98.54	0.0	15.10	Pass
D2	125~115,250	75~85,250	113.65	96.92	0.0	16.73	Pass
Unit :	Ohm	Ohm	Ohm	--	--	--	--

Test Data Summary Page 2 of 2

Delay, Tr= 200 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Delay value	Satus
CLK	5.2	--	4.67	Pass
D0	5.2	--	4.65	Pass
D1	5.2	--	4.66	Pass
D2	5.2	--	4.67	Pass
Unit :	ns/M	ns/M	ns/M	--

Skew, Tr= 200 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Satus
CLK	112	--	0.04	Pass
D0	112	--	1.21	Pass
D1	112	--	-5.01	Pass
D2	112	--	-18.81	Pass
Unit :	ps	ps	ps	--

Impedance, Tr= 1000 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
HEAC	74.25	35.75	61.34	51.22	10.12	56.28	Pass
Unit :	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

Impedance, Tr= 1000 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
HEAC	36	24	33.15	27.34	5.81	30.25	Pass
Unit :	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

Impedance, Tr= 1000 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
HEAC	110	90	107.06	95.34	11.72	101.20	Pass
Unit :	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

Impedance, Tr= 1000 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference value	Satus
HEAC	125~115,250	75~85,250	115.13	101.15	99.0	13.98	Pass
Unit :	Ohm,ps	Ohm,ps	Ohm	Ohm	ps	Ohm	--

Impedance FarEnd, Tr= 1000 ps (10% 90%)

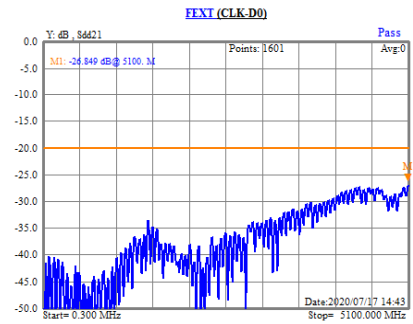
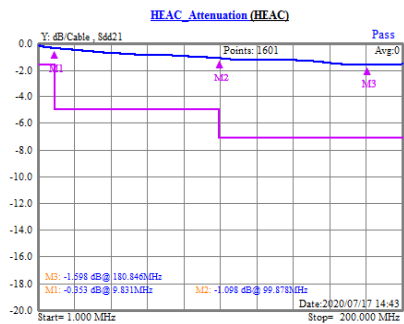
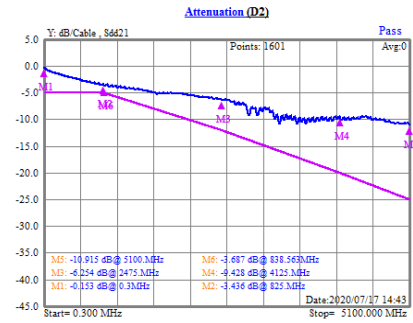
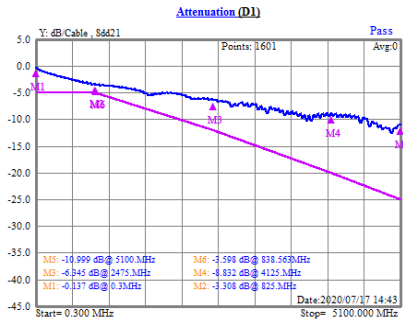
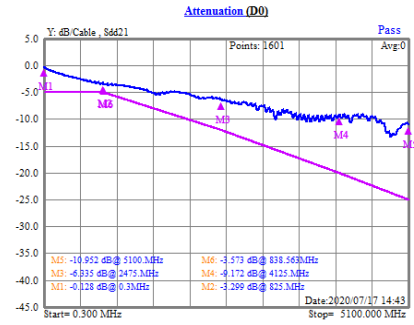
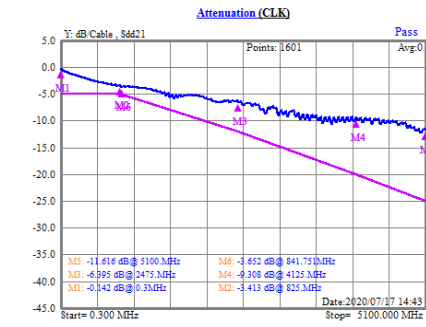
Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference value	Satus
HEAC	125~115,250	75~85,250	114.87	100.92	0.0	13.95	Pass
Unit :	Ohm,ps	Ohm,ps	Ohm	Ohm	ps	Ohm	--

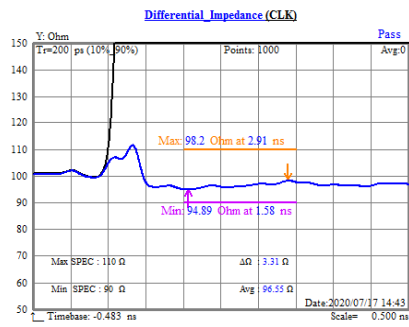
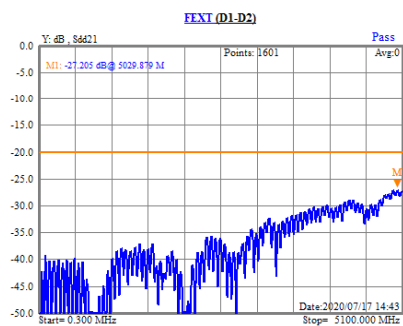
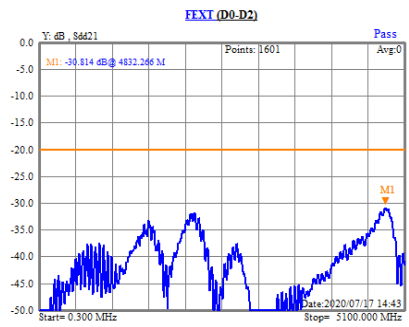
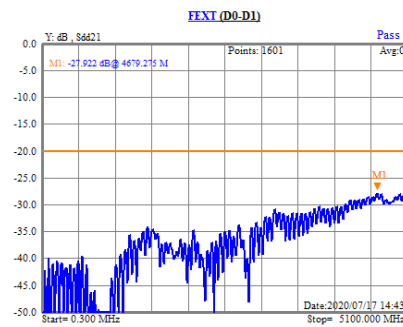
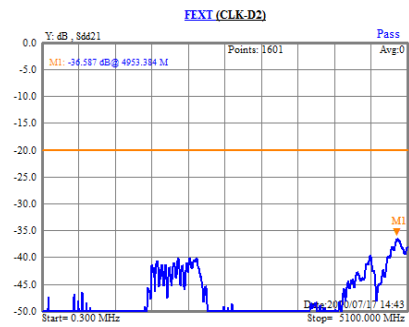
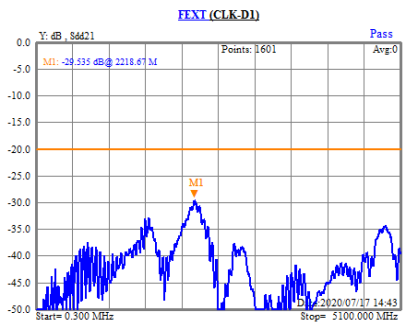
Skew, Tr= 1000 ps (10% 90%)

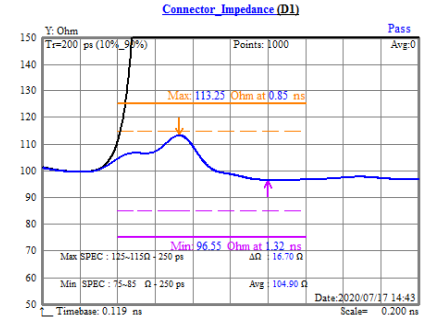
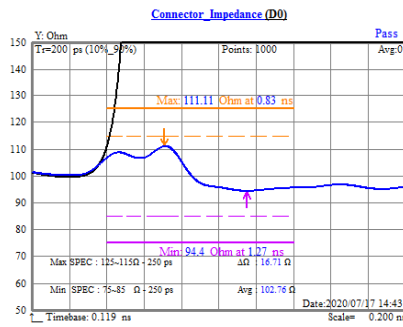
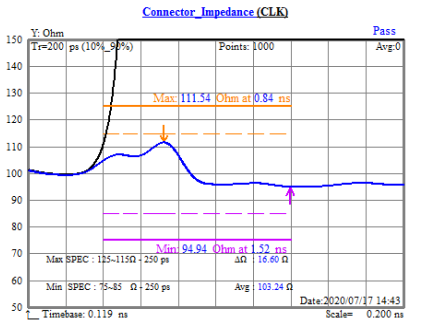
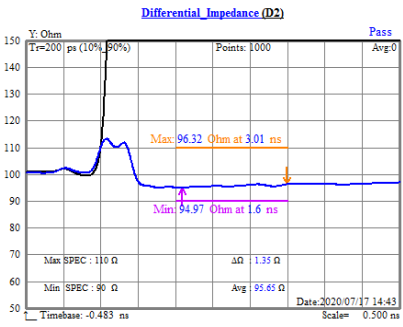
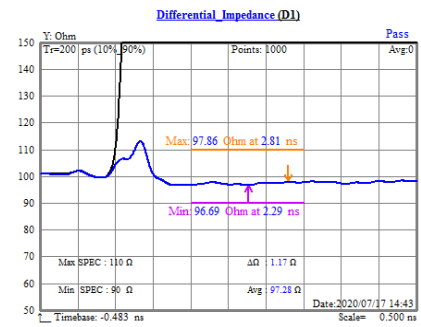
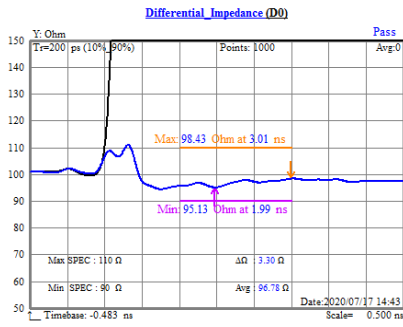
Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Satus
HEAC	111	--	84.581	Pass
Unit :	ps	ps	ps	--

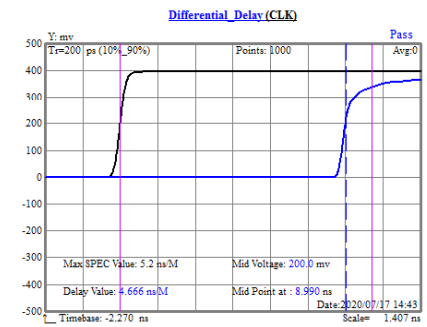
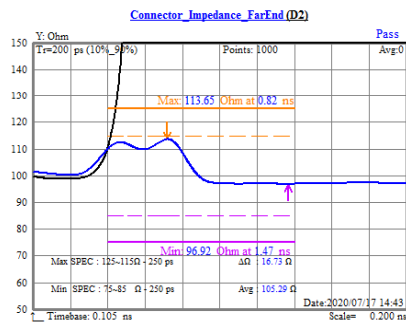
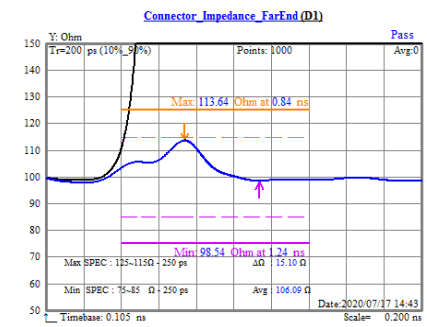
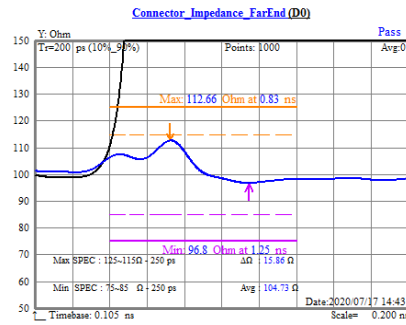
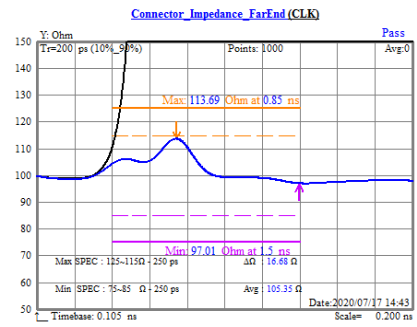
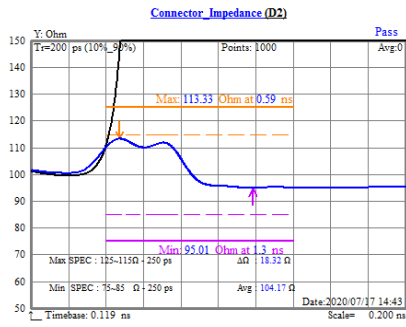
Skew, Tr= 200 ps (10% 90%)

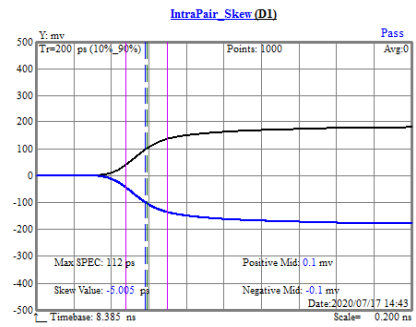
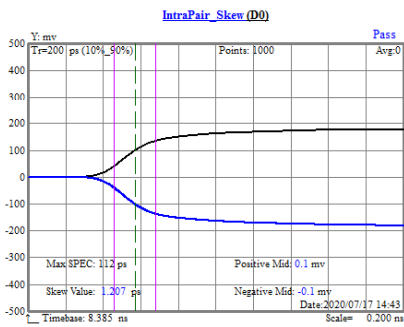
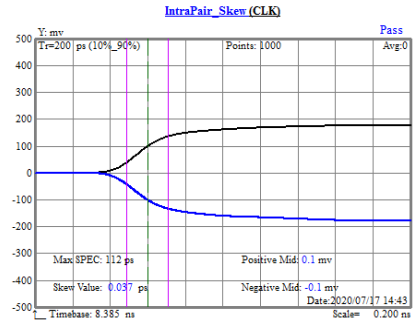
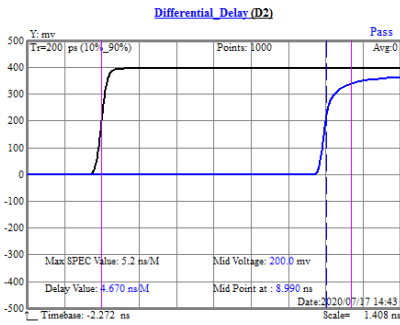
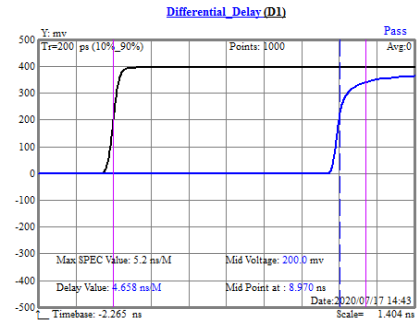
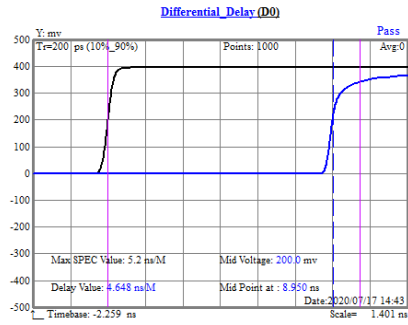
Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Satus
ALL	1780	--	40.18	Pass
Unit :	ps	ps	ps	--

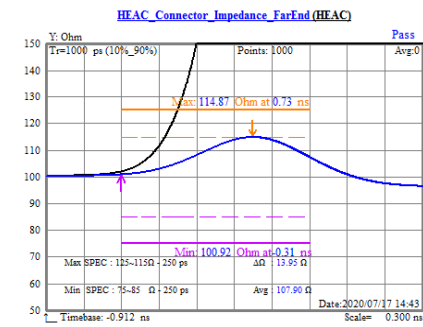
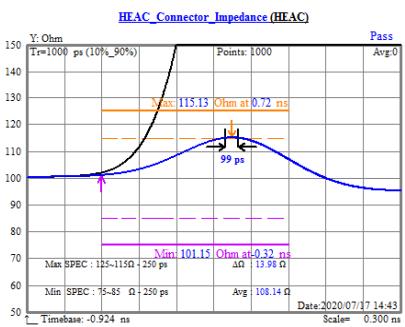
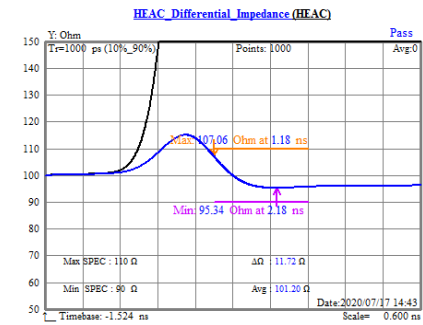
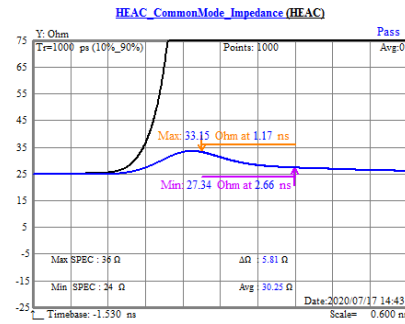
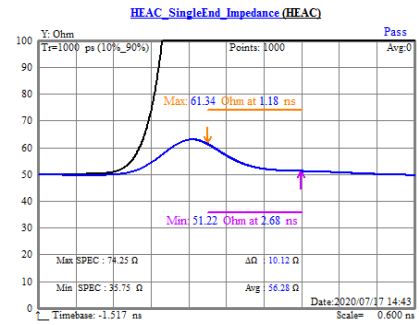
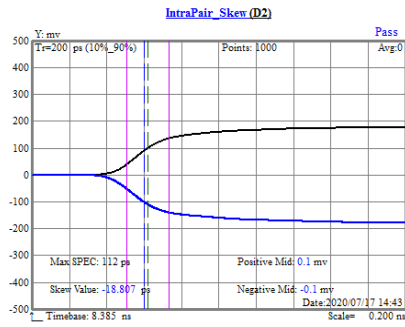


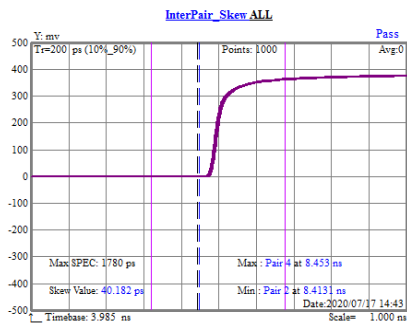
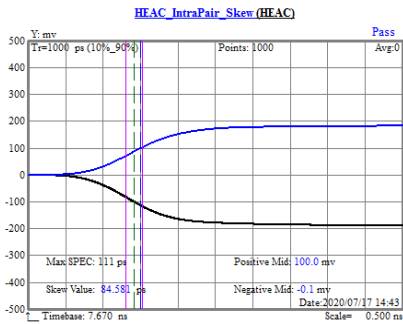












Sample-5 High Frequency

Test Report

P/N:CUJA02A-CG021-DF
(371.01057.005)

Test Date:

2020/07/17 14:47

Test Equipment List :

Equipment	Manufacture	P/N	S/N	Description
Network Analyzer	Agilent	E5071C	MY46522067	4 Port, 300 kHz to 20 GHz
Time Domain Reflectometry	Agilent	ENA-TDR	MY46522067	
Pattern Generator	Agilent	ENA-TDR	MY46522067	

Device Under Test (DUT) & Test Environment Information :

P / N:	CUJA02A-CG021-DF(371.01057.005)	Specifications:	
DUT Lot:		DUT Bundle:	HDMI
DUT Length(M):	1.80	Test Pair:	5 Pairs
Temperature(°C):	20	Humidity(%):	60
Remark:	20200717023		

Test Result Summary:

1	Attenuation	Pass
2	HEAC Attenuation	Pass
3	FEXT(Far end crosstalk)	Pass
4	Differential Impedance	Pass
5	Connector Impedance	Pass
6	Connector Impedance FarEnd	Pass
7	Differential Delay	Pass
8	IntraPair Skew	Pass
9	HEAC SingleEnd Impedance	Pass
10	HEAC CommonMode Impedance	Pass
11	HEAC Differential Impedance	Pass
12	HEAC Connector Impedance	Pass
13	HEAC Connector Impedance FarEnd	Pass
14	HEAC IntraPair Skew	Pass
15	InterPair Skew	Pass
Test Result:		Pass

Test Data Summary Page 1 of 2

Attenuation

Start frequency	End frequency	Upper specification limit	Specification lower limit	CLK	D0	D1	D2
0.3	0.3	--	-5	-0.128	-0.146	-0.152	-0.156
825	825	--	-5	-3.330	-3.260	-3.314	-3.399
2475	2475	--	-12	-6.153	-6.557	-6.493	-6.134
4125	4125	--	-20	-9.572	-10.800	-9.402	-9.187
5100	5100	--	-25	-10.629	-10.401	-10.992	-10.634
0.3	5100	--	-5.00→-25.00	-3.530	-3.663	-3.663	-3.746
MHz	MHz	dB	dB	Pass	Pass	Pass	Pass

HEAC Attenuation

Start frequency	End frequency	Upper specification limit	Specification lower limit	HEAC
1	10	--	-1.6	-0.326
10	100	--	-5	-1.043
100	200	--	-7.1	-1.540
MHz	MHz	dB	dB	Pass

FEXT(Far end crosstalk)

Start frequency	End frequency	Upper specification limit	Specification lower limit	CLK-D0	CLK-D1	CLK-D2	D0-D1	D0-D2	D1-D2
0.3	5100	-20	--	-26.987	-31.956	-38.696	-27.530	-33.364	-27.027
MHz	MHz	dB	dB	Pass	Pass	Pass	Pass	Pass	Pass

Differential Impedance, Tr= 200 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
CLK	110	90	97.84	95.47	2.37	96.66	Pass
D0	110	90	97.98	96.87	1.11	97.43	Pass
D1	110	90	98.62	97.57	1.05	98.10	Pass
D2	110	90	97.16	95.80	1.36	96.48	Pass
Unit :	Ohm	Ohm	Ohm	--	--	--	--

Connector Impedance, Tr= 200 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference value	Satus
CLK	125~115,250	75~85,250	111.98	96.20	0.0	15.78	Pass
D0	125~115,250	75~85,250	115.72	96.68	54.0	19.04	Pass
D1	125~115,250	75~85,250	114.33	97.71	0.0	16.62	Pass
D2	125~115,250	75~85,250	115.91	96.20	68.0	19.71	Pass
Unit :	Ohm	Ohm	Ohm	--	--	--	--

Connector Impedance FarEnd, Tr= 200 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference value	Satus
CLK	125~115,250	75~85,250	109.86	95.79	0.0	14.07	Pass
D0	125~115,250	75~85,250	112.27	94.61	0.0	17.66	Pass
D1	125~115,250	75~85,250	112.46	97.27	0.0	15.19	Pass
D2	125~115,250	75~85,250	115.32	96.22	40.0	19.10	Pass
Unit :	Ohm	Ohm	Ohm	--	--	--	--

Test Data Summary Page 2 of 2

Differential Delay, Tr= 200 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Delay value	Satus
CLK	5.2	--	4.65	Pass
D0	5.2	--	4.64	Pass
D1	5.2	--	4.64	Pass
D2	5.2	--	4.65	Pass
Unit :	ns/M	ns/M	ns/M	--

IntraPair Skew, Tr= 200 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Satus
CLK	112	--	10.27	Pass
D0	112	--	-12.75	Pass
D1	112	--	-9.10	Pass
D2	112	--	-3.44	Pass
Unit :	ps	ps	ps	--

HEAC SingleEnd Impedance, Tr= 1000 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
HEAC	74.25	35.75	60.69	52.39	8.30	56.54	Pass
Unit :	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

HEAC CommonMode Impedance, Tr= 1000 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
HEAC	36	24	33.43	28.58	4.85	31.01	Pass
Unit :	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

HEAC Differential Impedance, Tr= 1000 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Difference value	Average value	Satus
HEAC	110	90	106.37	94.95	11.42	100.66	Pass
Unit :	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

HEAC Connector Impedance, Tr= 1000 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference value	Satus
HEAC	125~115,250	75~85,250	114.61	101.05	0.0	13.56	Pass
Unit :	Ohm,ps	Ohm,ps	Ohm	Ohm	ps	Ohm	--

HEAC Connector Impedance FarEnd, Tr= 1000 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Maximum impedance	Minimum impedance	Bump width	Difference value	Satus
HEAC	125~115,250	75~85,250	114.45	100.77	0.0	13.68	Pass
Unit :	Ohm,ps	Ohm,ps	Ohm	Ohm	ps	Ohm	--

HEAC IntraPair Skew, Tr= 1000 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Satus
HEAC	111	--	51.364	Pass
Unit :	ps	ps	ps	--

InterPair Skew, Tr= 200 ps (10% 90%)

Logarithmic name	Upper specification limit	Specification lower limit	Delay difference	Satus
ALL	1780	--	27.69	Pass
Unit :	ps	ps	ps	--

