

DCM Test Report

Cable Type : 4x2x23 x PE/PVC	Factory Number :	Data File Name : DA049155.XLD
Cable I.D. : UTP#23X4P CABLE	Order Number :	Specification File : CAT 6ALDS
Temperature : 25.00 卨	Operator : MR-8-22	Test Date : 05/02/2010
Length : 305.00 m	Number of Pairs to Test : 4	Test Time : 03:57:55 AM
Starting Position : 3		

Pass - Fail Test Certificate - 4 Pairs

High Frequency

Test Type	Test Result
Input Impedance (Zin)(Ohms)(Open/Short)	OK
Return Loss (RL)(dB)	OK
Insertion Loss (IL)(Curve Fit)(dB/328.0 ft)@20C	OK
Near End Crosstalk Loss (NEXT)(dB)	OK
Power Sum NEXT(PSNEXT)(dB)	OK

Low Frequency

Test Type	Test Result
Conductor Resistance(Ohms/100.0 m)@20C	OK
Resistance Unbalance(%)@20C	OK
Cap. Unbalance to Ground(pF/0.0 m)@1000Hz	OK
Cap. Unbalance to Pair(pF/100.0 m)@1000Hz	OK

Signature:	Approved:	Date:
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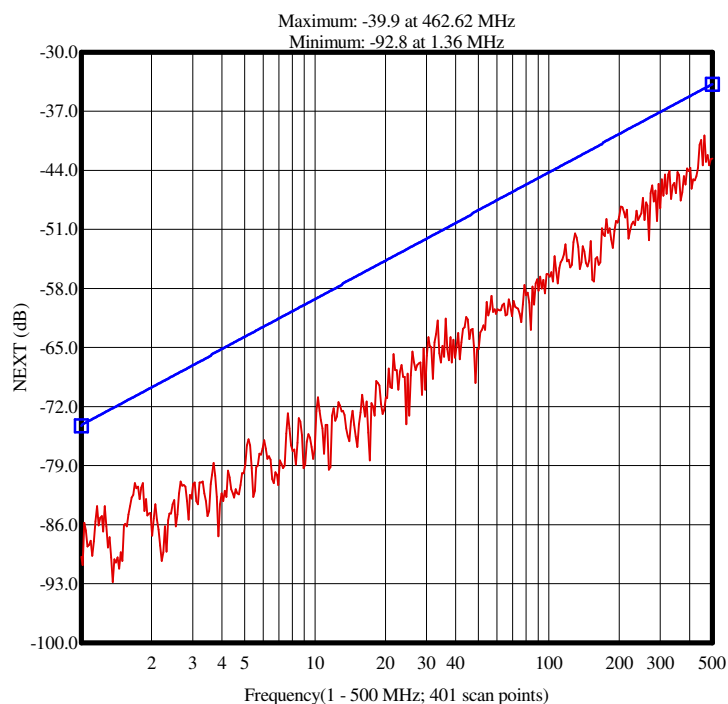
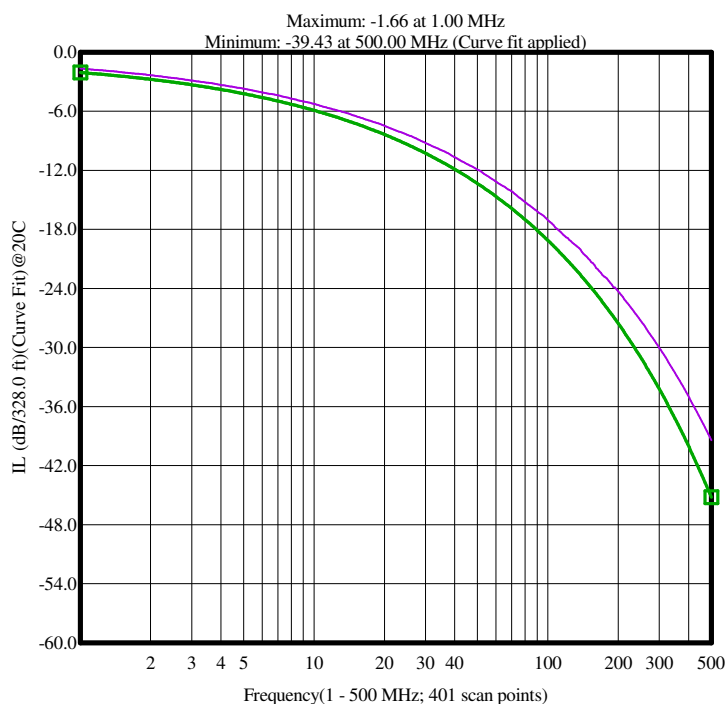
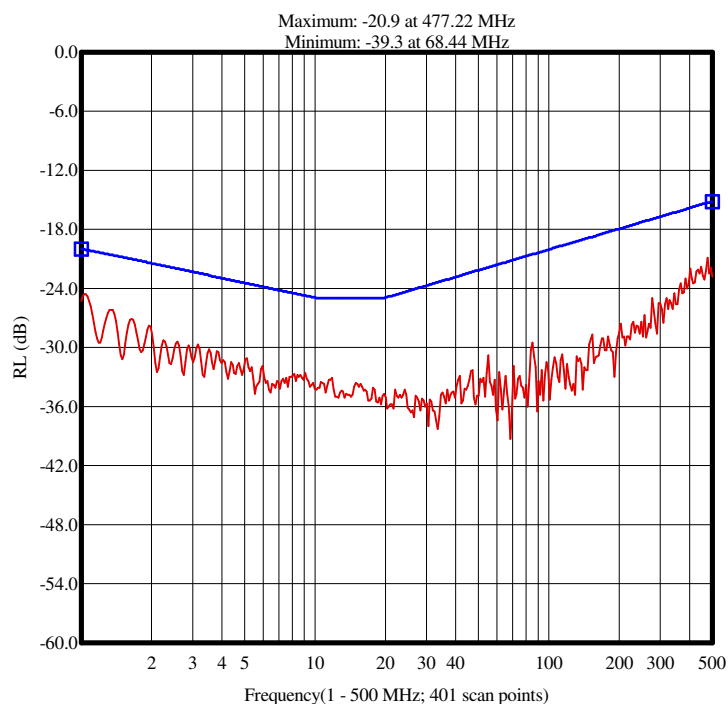
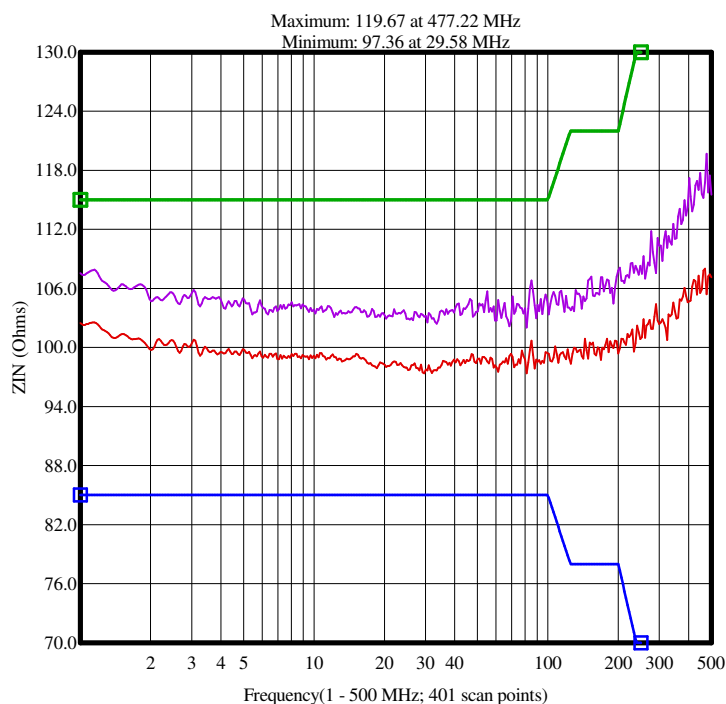
DCM Test Report

Cable Type : 4x2x23 x PE/PVC	Factory Number :	Data File Name : DA049155.XLD
Cable I.D. : UTP#23X4P CABLE	Order Number :	Specification File : CAT 6ALDS
Temperature : 25.00 卨	Operator : MR-8-22	Test Date : 05/02/2010
Length : 305.00 m	Number of Pairs to Test : 4	Test Time : 03:57:55 AM
Starting Position : 3		

Worst Case Summary

High Frequency

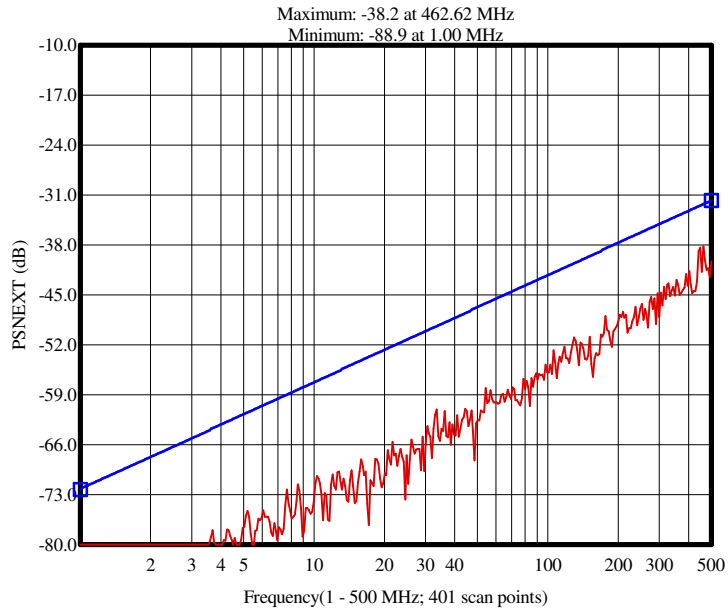
Test Type	Specification	Measured (Pair)	Margin	@ Frequency (MHz)	Test Result
Input Impedance (Zin)(Open/Short)	85.00 (Min)	97.35 (Pair 2)	12.35	29.58	Passed
Input Impedance (Zin)(Open/Short)	115.00 (Max)	107.89 (Pair 3)	7.11	1.15	Passed
Return Loss (RL)	20.1 (Min)	24.6 (Pair 3)	4.5	1.05	Passed
Insertion Loss (IL)(Curve Fit)@20C	2.12 (Max)	1.72 (Pair 2)	0.40	1.06	Passed
Near End Crosstalk Loss (NEXT)	34.3 (Min)	39.9 (Pairs 2-3)	5.6	462.62	Passed
Power Sum NEXT(PNEXT)	32.5 (Min)	38.4 (Pair 2)	5.9	448.47	Passed



N/A = Not Applicable.
--- = Disable/Bypassed Pair.

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Worst Case Summary

Low Frequency

Statistical Parameter	Maximum		Minimum		Average Maximum		Standard Deviation		Result
	Spec Limit	Measured	Spec Limit	Measured	Spec Limit	Measured	Spec Limit	Measured	
Conductor Resistance(Ohms/100.0 m)@20C	9.38	6.45	xxx	6.13	xxx	6.29	xxx	0.133	Passed
Resistance Unbalance(%)	5.00	0.22	xxx	0.02	xxx	0.13	xxx	0.085	Passed
Cap. Unbalance to Ground(pF/0.0 m)@1000Hz	330.00	0.00	xxx	0.00	xxx	0.00	xxx	1.000	Passed
Cap. Unbalance to Pair(pF/100.0 m)@1000Hz	xxx	1	xxx	0	xxx	0	xxx	0.2	N/A

Detail: Resistance/Capacitance Measurement -Normalized

Test Types	Conductor Resistance Ra @20C	Conductor Resistance Rb @20C	Resistance Unbalance	Capacitance Unbalance to Ground @1000 Hz	Test Result
Unit	Ohms/100.0 m	Ohms/100.0 m	%	pF/0.0 m	
Max Spec	9.38	9.38	5.00	330.00	
Min Spec	xxx	xxx	xxx	xxx	
Pair 1 [3]	6.45	6.43	0.22	0.00	Passed Passed Passed Passed
Pair 2 [4]	6.18	6.18	0.09	0.00	
Pair 3 [5]	6.39	6.41	0.21	0.00	
Pair 4 [6]	6.13	6.14	0.02	0.00	

Detail: Capacitance Unbalance Pair to Pair @1000 Hz - Normalized

Max Spec	xxx		xxx		xxx		xxx		xxx
Min Spec	xxx		xxx		xxx		xxx		xxx
Combo	pF/100.0 m	Combo	pF/100.0 m	Combo	pF/100.0 m	Combo	pF/100.0 m	Combo	pF/100.0 m
Pair 1 - 2	0	Pair 1 - 3	0	Pair 1 - 4	0	Pair 2 - 3	0	Pair 2 - 4	0
Pair 3 - 4	-1								

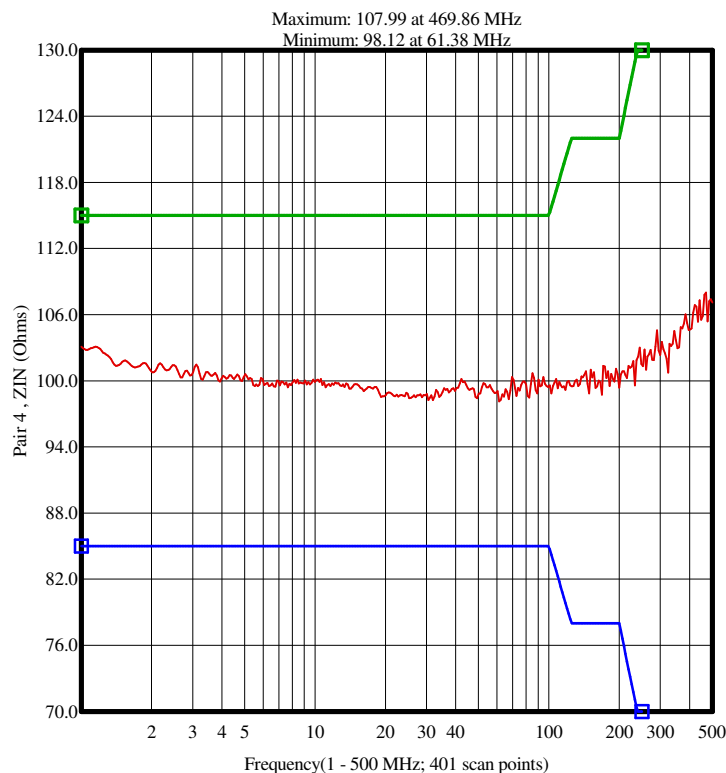
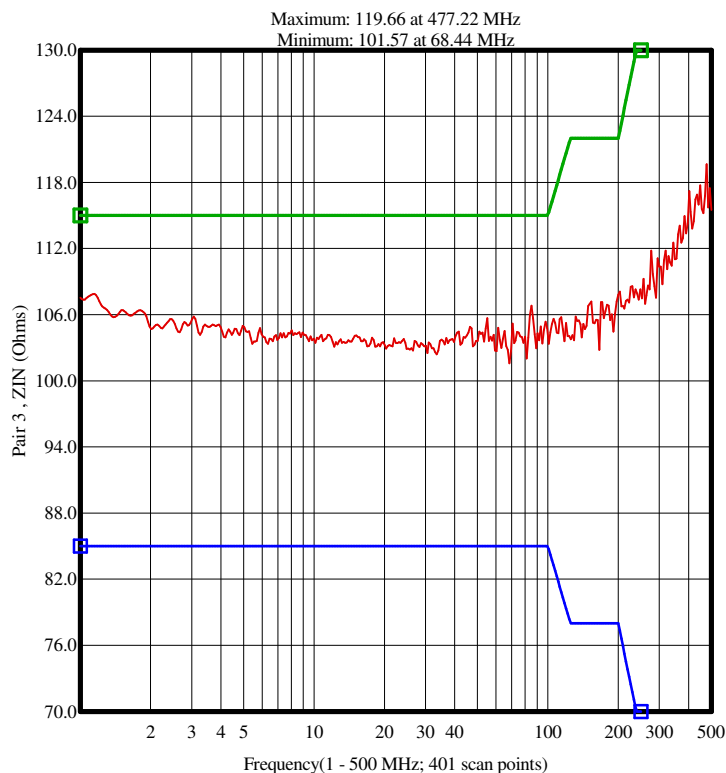
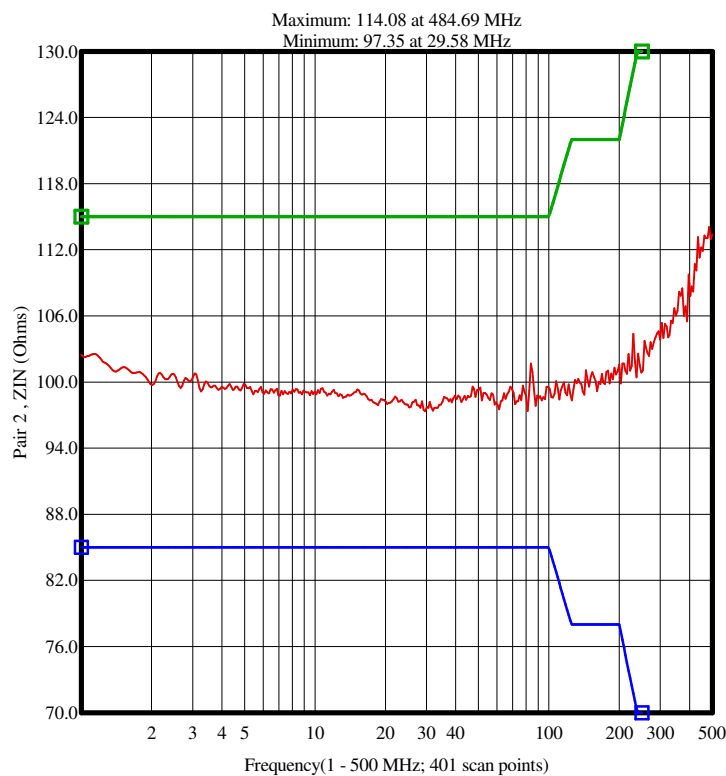
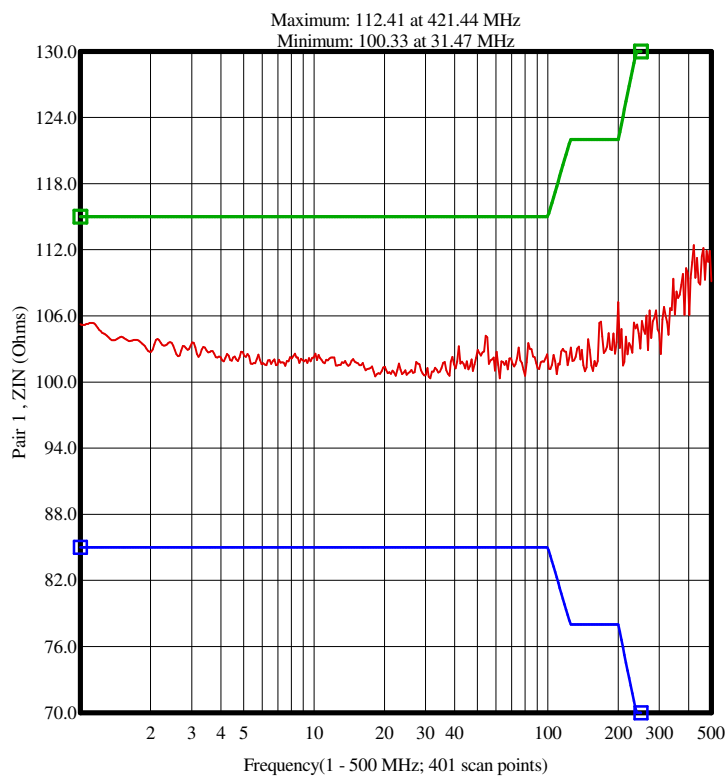
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Summary and Graphic: Input Impedance (Zin)(Open/Short)

Pair [Position]	Specification		Measured(Ohms)		Margin (Ohms)		@ Frequency (MHz)		Test Result
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	
Pair 1 [3]	85.00	115.00	100.33	105.36	15.33	9.64	31.47	1.10	Passed
Pair 2 [4]	85.00	115.00	97.35	102.53	12.35	12.47	29.58	1.13	Passed
Pair 3 [5]	85.00	115.00	101.57	107.89	16.57	7.11	68.44	1.15	Passed
Pair 4 [6]	85.00	115.00	98.12	103.10	13.12	11.90	61.38	1.00	Passed



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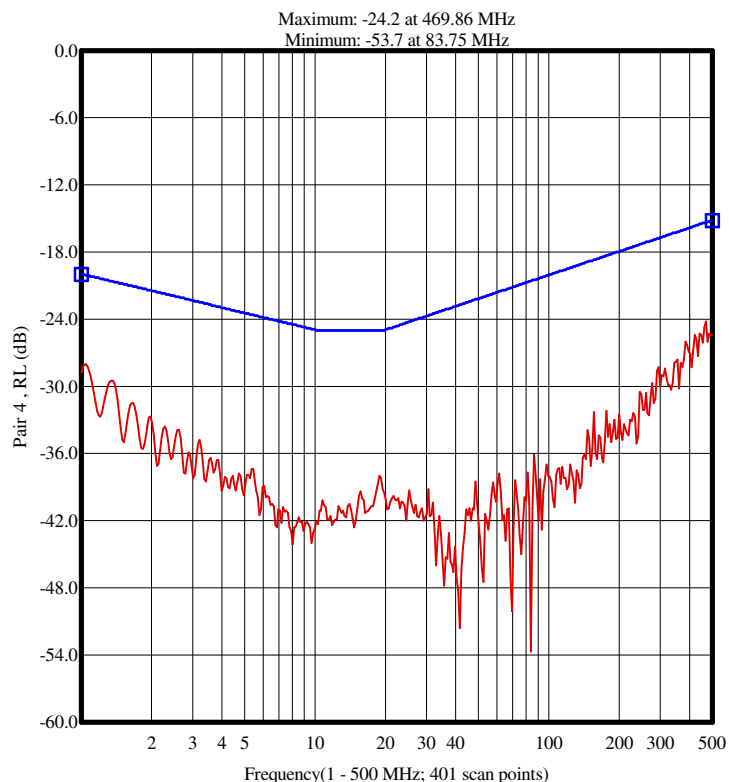
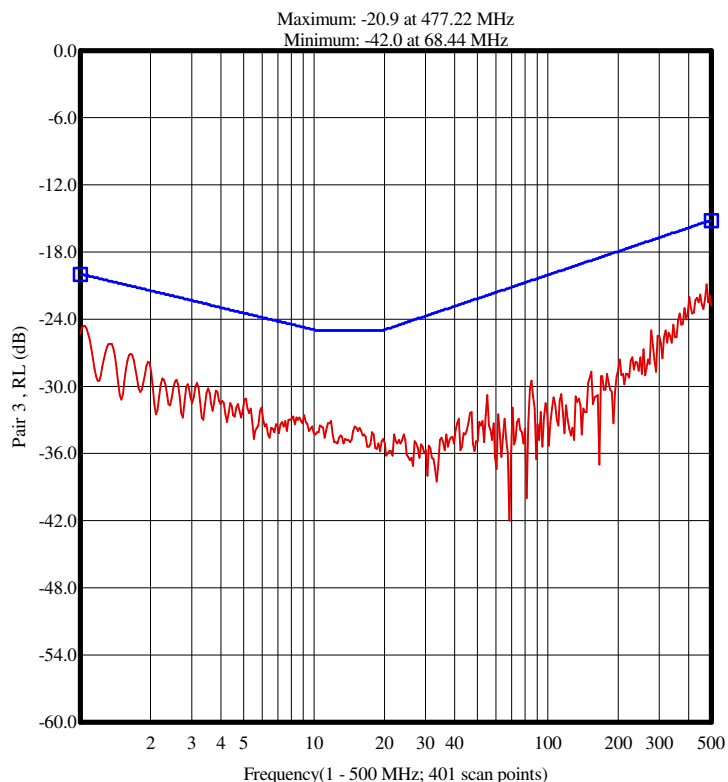
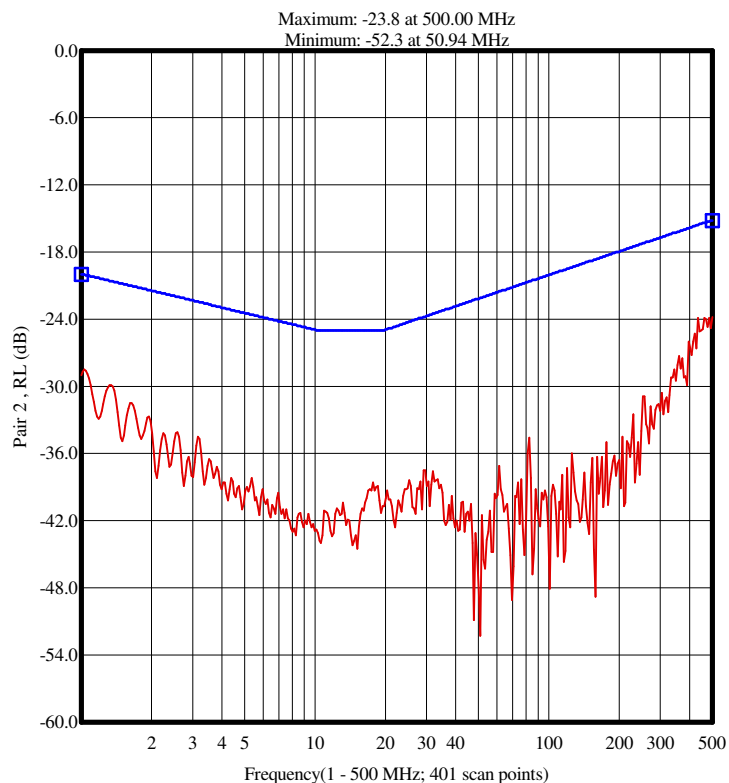
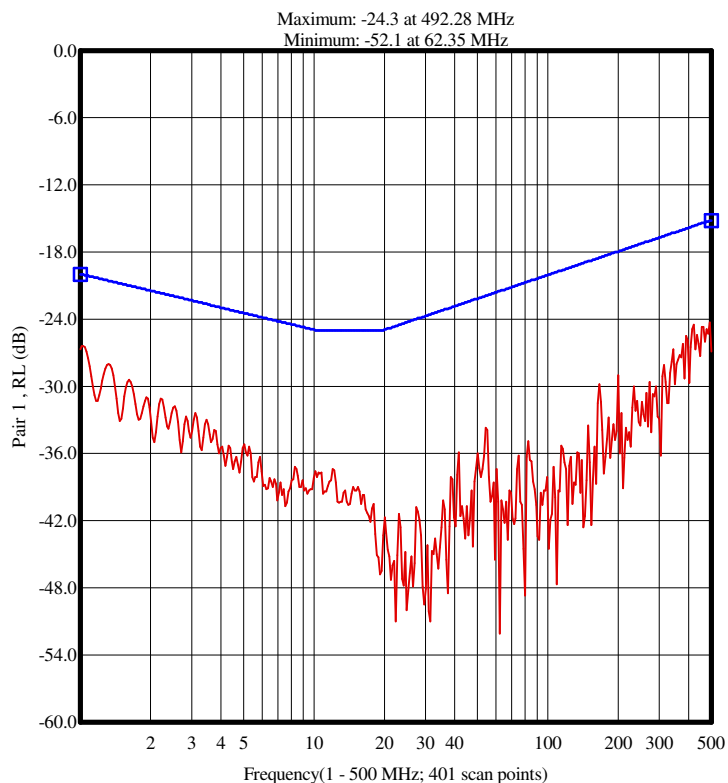
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Summary and Graphic: Return Loss (RL)

(Cat 6A): $RL \geq 20 + 5 * \log(f)$; 25; $25 - 7 * \log(f/20)$ (Refer to manual)

Pair [Position]	Spec (Min)(dB)	Measured(dB)	Margin (dB)	@ Frequency (MHz)	Test Result
Pair 1 [3]	20.0	26.4	6.4	1.02	Passed
Pair 2 [4]	15.6	23.9	8.3	434.74	Passed
Pair 3 [5]	20.1	24.6	4.5	1.05	Passed
Pair 4 [6]	20.1	28.0	7.9	1.05	Passed



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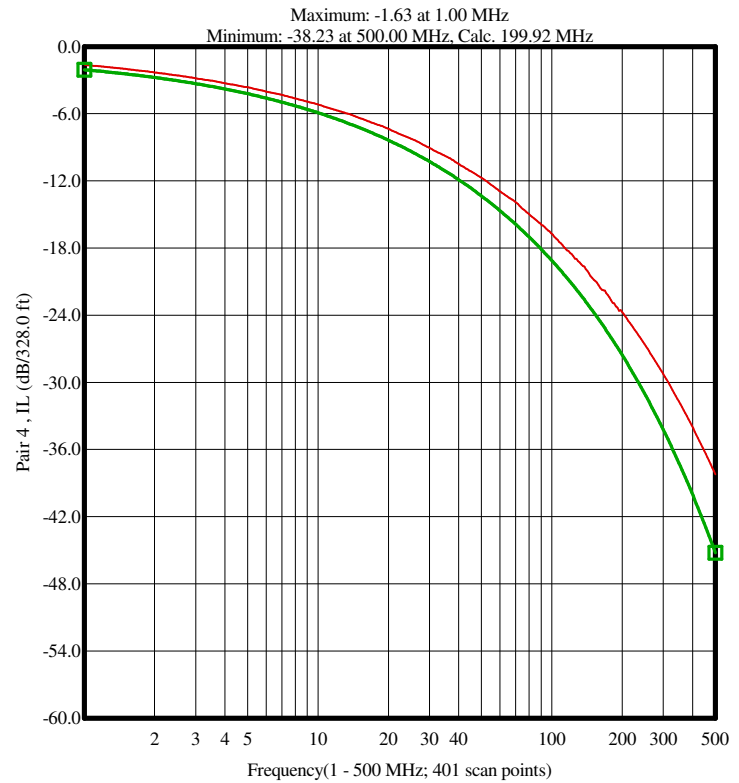
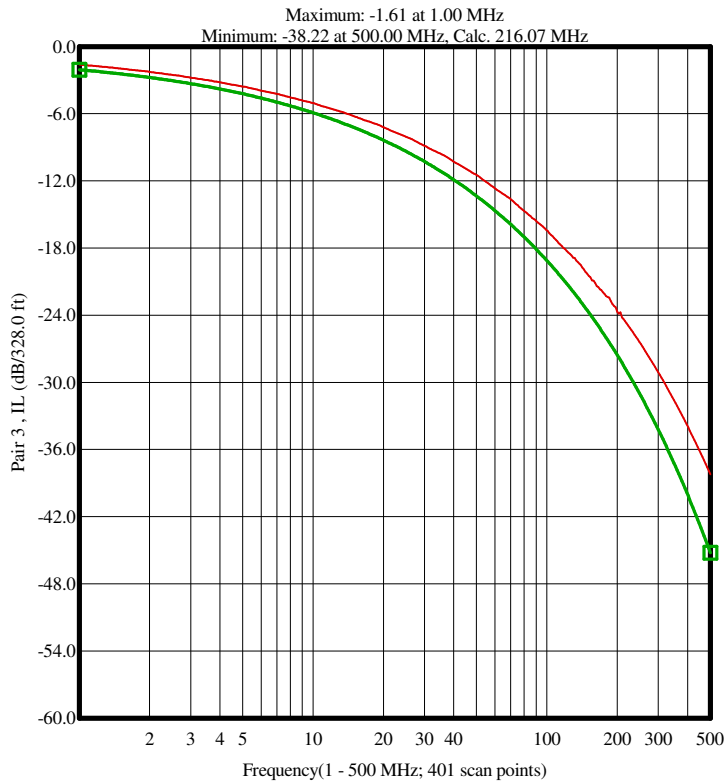
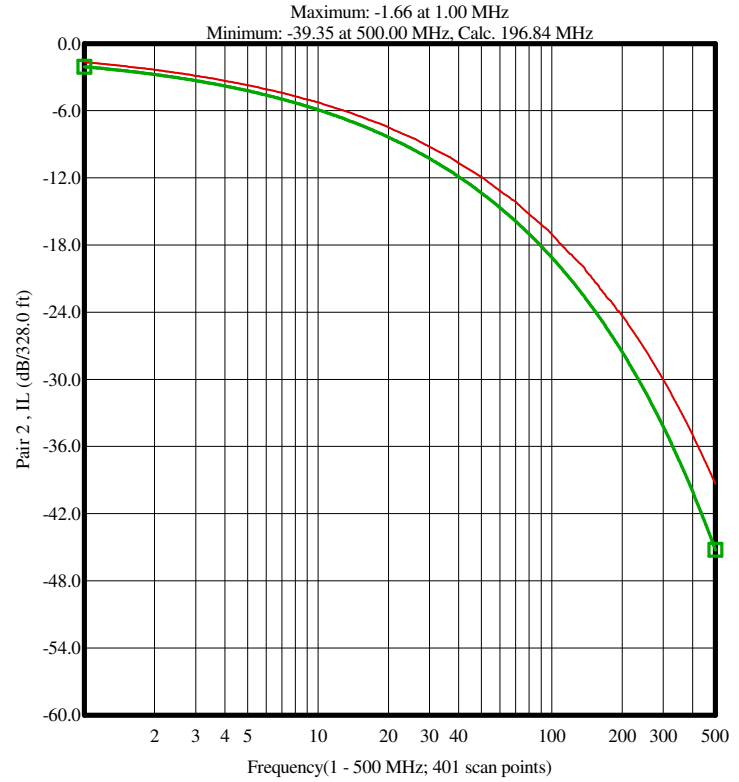
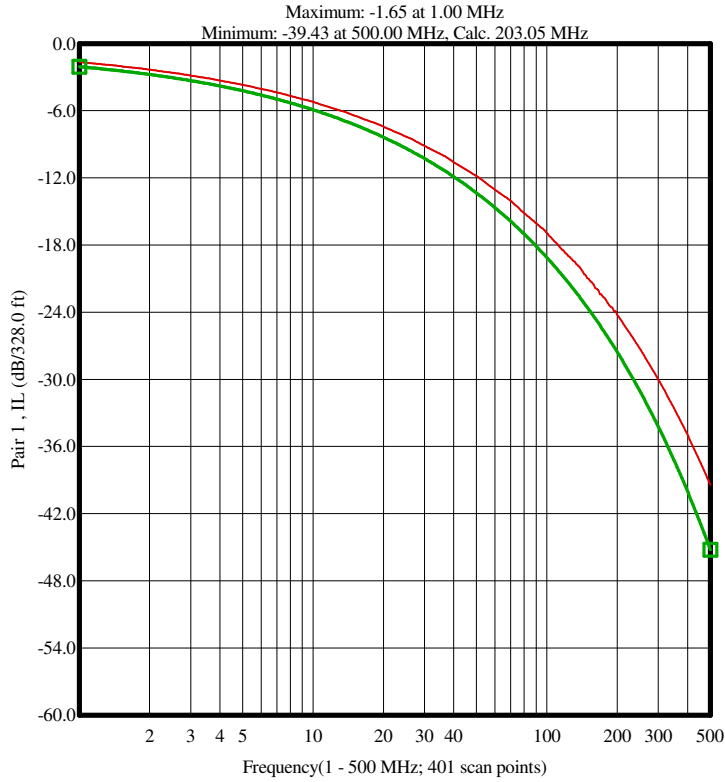
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Summary and Graphic: Insertion Loss (IL)(Curve Fit)@20C

(Cat 6A): $IL \leq 1.82 \sqrt{f} + 0.0091 * f + 0.25 / \sqrt{f}$ (Refer to manual)

Pair [Position]	Spec (Max)(dB/328.0 ft)	Measured(dB/328.0 ft)	Margin (dB/328.0 ft)	@ Frequency (MHz)	Test Result
Pair 1 [3]	2.11	1.70	0.41	1.05	Passed
Pair 2 [4]	2.12	1.72	0.40	1.06	Passed
Pair 3 [5]	2.07	1.61	0.46	1.00	Passed
Pair 4 [6]	2.12	1.69	0.43	1.06	Passed



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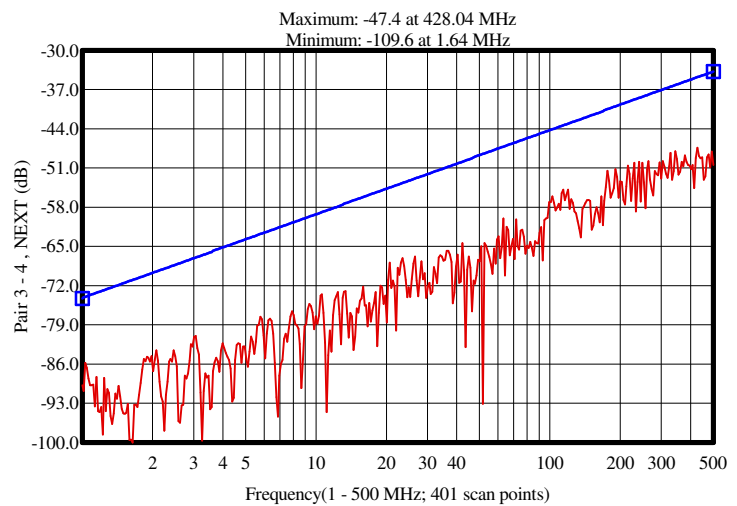
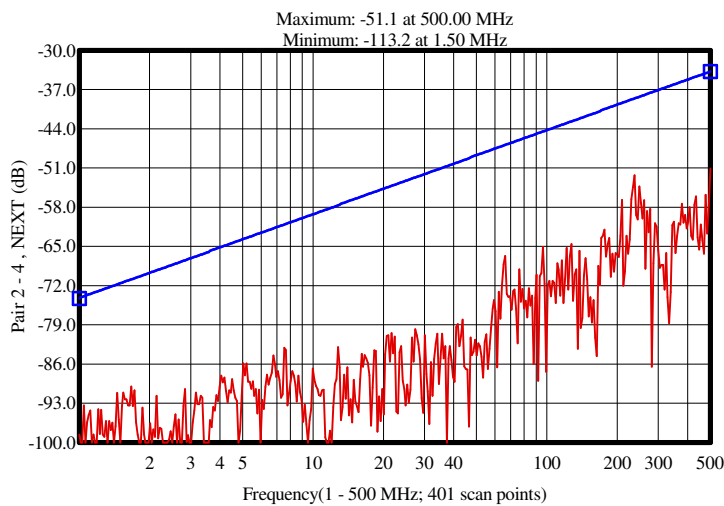
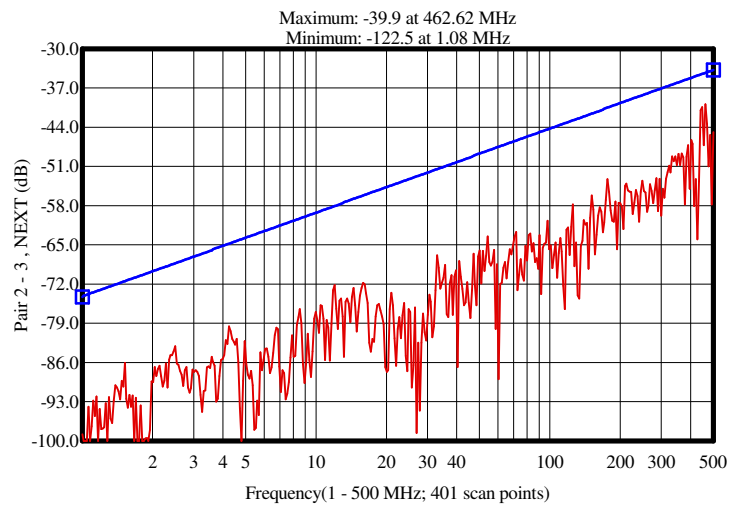
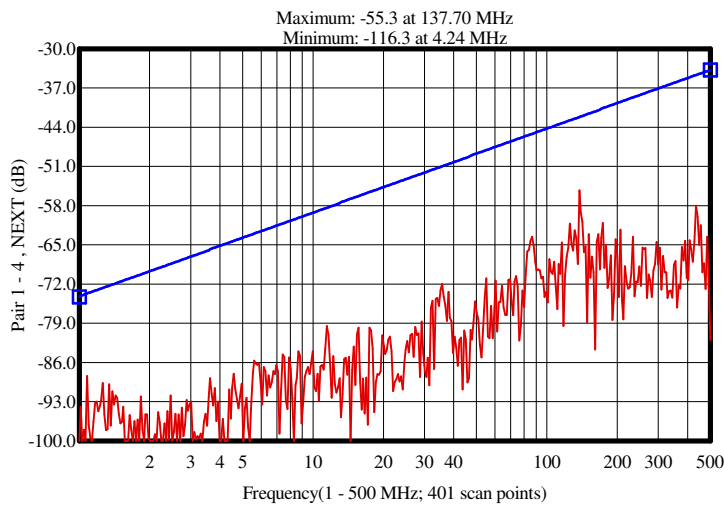
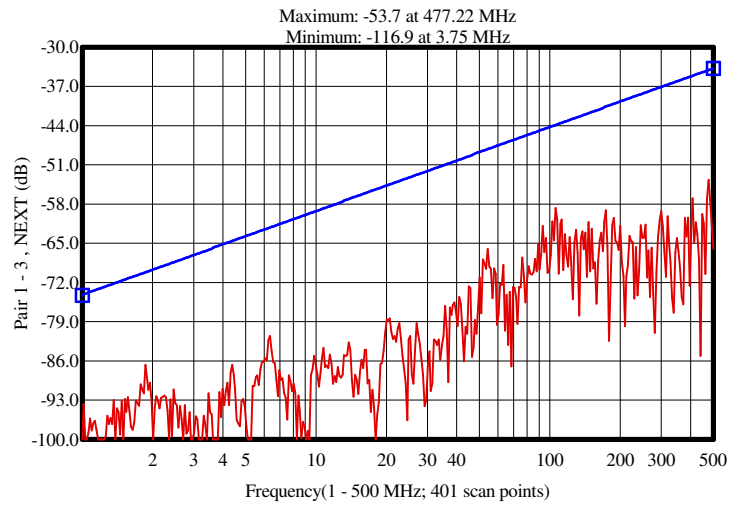
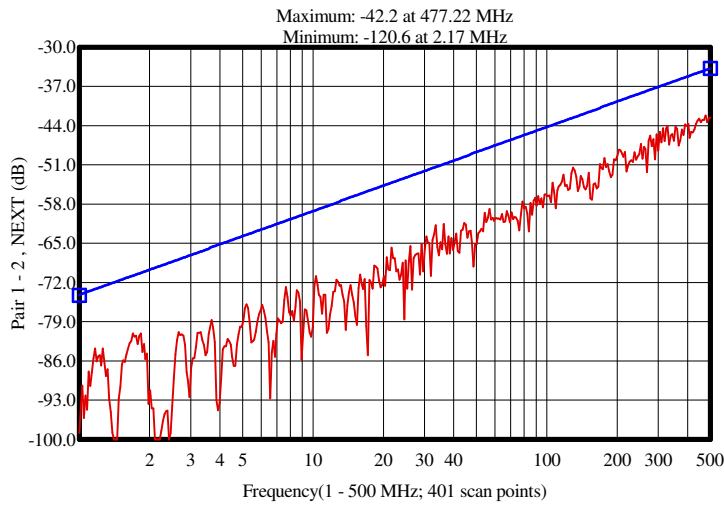
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Summary and Graphic: Near End Crosstalk Loss (NEXT)

(Cat 6A): NEXT >= 44.3 - 15 *log(f/100)

Pair [Position]	Spec (Min)(dB)	Measured(dB)	Margin (dB)	@ Frequency (MHz)	Test Result
Pair 1 - 2	36.5	44.1	7.6	328.69	Passed
Pair 1 - 3	43.9	58.7	14.8	105.74	Passed
Pair 1 - 4	42.2	55.3	13.1	137.70	Passed
Pair 2 - 3	34.3	39.9	5.6	462.62	Passed
Pair 2 - 4	38.6	52.3	13.7	237.18	Passed
Pair 3 - 4	40.5	51.5	11.0	176.56	Passed



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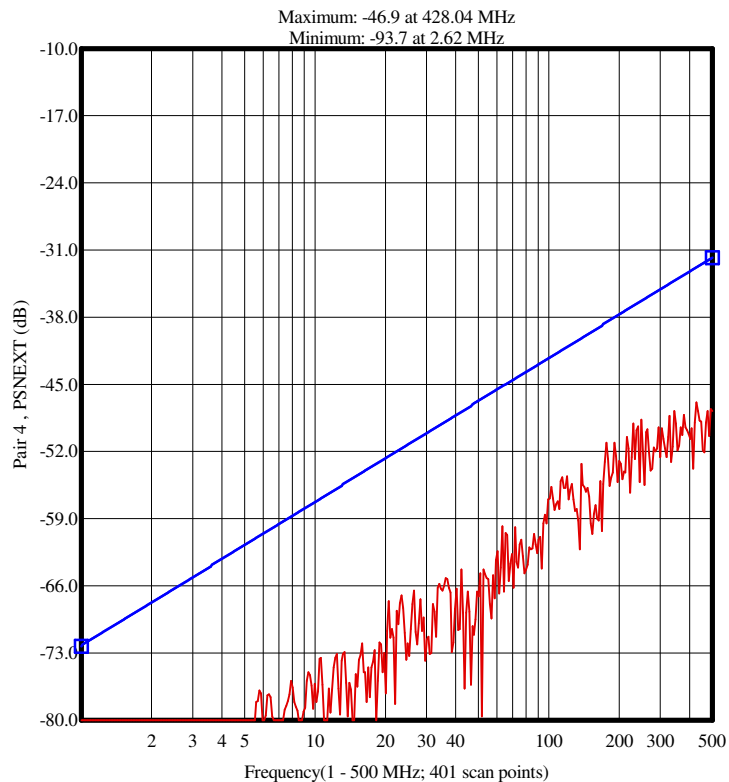
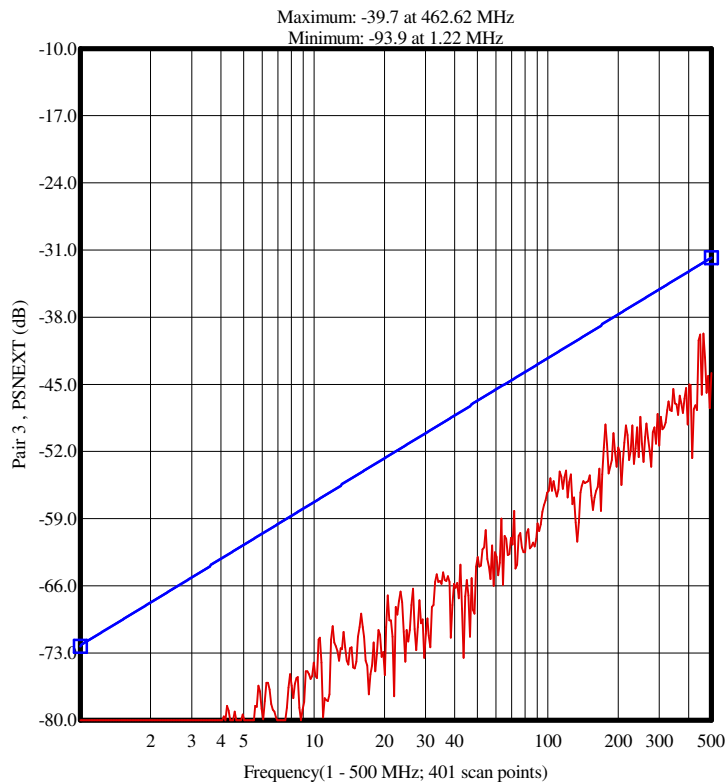
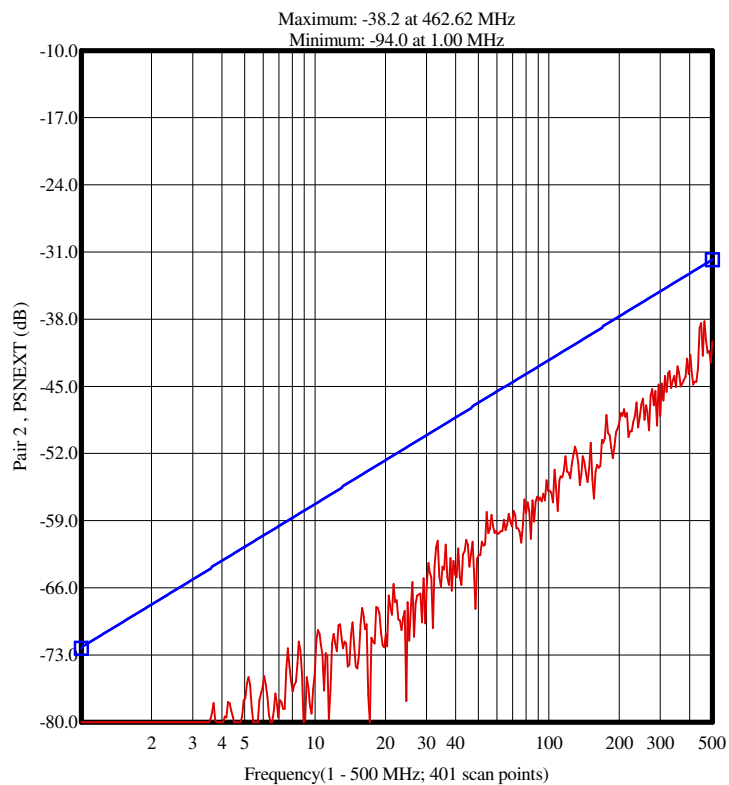
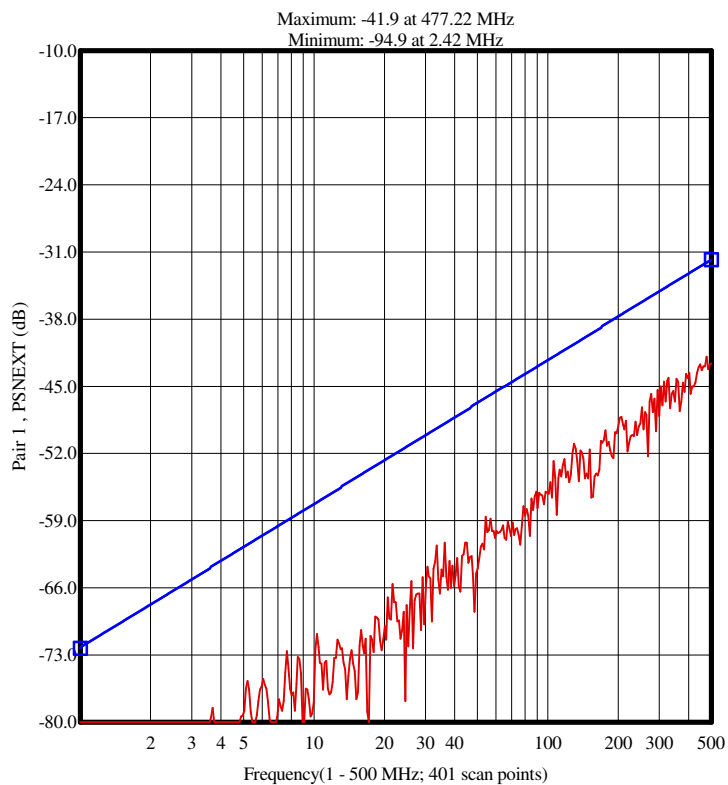
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Summary and Graphic: Power Sum NEXT(PSNEXT)

(Cat 6A): PSNEXT >= 42.3 - 15 log(f/100)

Pair [Position]	Spec (Min)(dB)	Measured(dB)	Margin (dB)	@ Frequency (MHz)	Test Result
Pair 1 [3]	34.5	44.1	9.6	328.69	Passed
Pair 2 [4]	32.5	38.4	5.9	448.47	Passed
Pair 3 [5]	32.5	39.8	7.3	448.47	Passed
Pair 4 [6]	36.8	49.1	12.3	229.93	Passed



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NEXT SWEEP - Worst Margin (dB) (Negative sign indicates a failure.)

Drv/Rec	2	3	4
1	7.5	14.8	13.0
2	...	5.6	13.7
3	11.0

NEXT SWEEP - Worst Frequency (MHz)

Drv/Rec	2	3	4
1	328	105	137
2	...	462	237
3	176

Detail Discrete Frequencies ---Input Impedance (Zin)(Ohms)(Open/Short)

Frequency	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00
Max Spec	115.00	115.00	115.00	115.00	115.00	115.00	115.00	115.00	115.00	115.00
Min Spec	85.00	85.00	85.00	85.00	85.00	85.00	85.00	85.00	85.00	85.00
Pair 1 [3]	105.25	102.17	102.15	102.29	101.61	101.37	100.66	100.40	100.58	101.97
Pair 2 [4]	102.46	99.53	99.26	99.09	98.89	98.22	97.89	97.92	98.26	99.47
Pair 3 [5]	107.55	104.77	104.52	103.75	103.58	103.26	102.90	103.38	103.60	104.19
Pair 4 [6]	103.10	100.27	99.81	99.93	99.18	98.68	98.74	98.57	98.35	99.49

Continue:Input Impedance (Zin)(Ohms)(Open/Short)

Frequency	125.00	155.00	200.00	250.00						
Max Spec	122.00	122.00	122.00	132.00						
Min Spec	78.00	78.00	78.00	68.00						
Pair 1 [3]	102.90	101.19	107.13	103.99						
Pair 2 [4]	98.46	100.63	101.53	100.92						
Pair 3 [5]	103.83	105.99	107.80	107.96						
Pair 4 [6]	99.50	100.58	99.40	101.43						

Detail Discrete Frequencies ---Return Loss (RL)(dB)

(Cat 6A): $RL \geq 20 + 5 * \log(f)$; $25; 25 - 7 * \log(f/20)$ (Refer to manual)

Frequency	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00
Min Spec	20.0	23.0	24.5	25.0	25.0	25.0	24.3	23.6	21.5	20.1
Pair 1 [3]	26.7	35.5	38.5	38.1	40.1	42.0	49.7	50.6	50.2	40.7
Pair 2 [4]	29.0	39.1	42.9	42.9	41.0	40.1	39.0	39.7	39.3	44.8
Pair 3 [5]	25.3	31.6	32.9	34.2	34.2	35.1	36.2	35.4	34.5	33.5
Pair 4 [6]	28.8	39.2	43.9	42.6	40.1	40.1	40.3	41.5	39.8	38.0

Continue:Return Loss (RL)(dB)

Frequency	200.00	250.00	300.00	350.00	400.00	500.00				
Min Spec	18.0	17.3	16.7	16.2	15.8	15.2				
Pair 1 [3]	29.1	32.7	33.3	29.7	28.3	26.9				
Pair 2 [4]	36.7	32.8	32.0	29.4	26.4	23.8				
Pair 3 [5]	28.4	28.0	25.6	25.6	22.5	22.8				
Pair 4 [6]	32.5	31.2	29.9	27.8	27.1	25.4				

Detail Discrete Frequencies ---Insertion Loss (IL)(dB/328.0 ft)(Curve Fit)@20C

(Cat 6A): $IL \leq 1.82 \sqrt{f} + 0.0091 * f + 0.25 / \sqrt{f}$ (Refer to manual)

Frequency	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00
Max Spec	2.07	3.79	5.30	5.92	7.48	8.37	9.37	10.49	14.98	19.12
Pair 1 [3]	1.65	3.30	4.68	5.21	6.65	7.43	8.31	9.34	13.32	16.92
Pair 2 [4]	1.66	3.33	4.72	5.26	6.70	7.49	8.38	9.42	13.43	17.04
Pair 3 [5]	1.61	3.20	4.54	5.05	6.45	7.20	8.06	9.06	12.94	16.42
Pair 4 [6]	1.63	3.27	4.64	5.17	6.59	7.36	8.24	9.26	13.20	16.73

Continue:Insertion Loss (IL)(dB/328.0 ft)(Curve Fit)@20C

Frequency	125.00	155.00	200.00	250.00	300.00	350.00	400.00	500.00		
Max Spec	21.49	24.07	27.56	31.05	34.25	37.22	40.03	45.23		
Pair 1 [3]	19.06	21.32	24.25	27.27	30.03	32.59	34.99	39.43		
Pair 2 [4]	19.16	21.42	24.31	27.31	30.05	32.59	34.96	39.35		
Pair 3 [5]	18.49	20.77	23.70	26.46	29.13	31.60	33.92	38.22		
Pair 4 [6]	18.89	21.04	23.74	26.64	29.28	31.73	34.01	38.23		

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Detail Discrete Frequencies ---Near End Crosstalk Loss (NEXT)(dB)

(Cat 6A): NEXT >= 44.3 - 15 *log(f/100)

Frequency	1.0	4.0	8.0	10.0	16.0	20.0	25.0	31.25	62.5	100.0
Min Spec	74.3	65.2	60.7	59.3	56.2	54.7	53.3	51.8	47.3	44.3
Pair 1 - 2	98.9	92.5	77.8	78.5	71.3	71.2	69.0	64.9	60.6	56.5
Pair 1 - 3	107.0	91.6	90.3	87.1	85.8	79.1	82.1	90.6	71.8	68.7
Pair 1 - 4	103.2	104.6	86.8	85.3	91.8	82.7	83.5	87.9	75.3	74.2
Pair 2 - 3	98.8	85.2	84.4	77.3	71.9	87.6	76.6	78.6	71.4	65.5
Pair 2 - 4	98.6	89.6	89.3	87.2	86.7	94.2	92.7	94.0	73.9	81.0
Pair 3 - 4	89.8	82.5	77.2	77.7	73.7	77.7	72.6	73.2	64.3	57.1

Continue:Near End Crosstalk Loss (NEXT)(dB)

Frequency	200.0	250.0	300.0	400.0	500.0					
Min Spec	39.7	38.3	37.1	35.2	33.8					
Pair 1 - 2	49.5	48.4	48.1	43.8	42.6					
Pair 1 - 3	62.1	64.0	59.6	66.3	66.0					
Pair 1 - 4	67.2	70.2	68.1	71.2	82.0					
Pair 2 - 3	57.6	54.3	59.2	49.4	44.9					
Pair 2 - 4	66.5	55.4	66.1	61.0	51.1					
Pair 3 - 4	53.4	51.5	52.6	51.0	50.5					

Detail Discrete Frequencies ---Power Sum NEXT(PSNEXT)(dB)

(Cat 6A): PSNEXT >= 42.3 - 15 log(f/100)

Frequency	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00
Min Spec	72.3	63.2	58.7	57.3	54.2	52.7	51.3	49.8	45.3	42.3
Pair 1 [3]	94.8	88.4	77.0	76.7	71.1	70.2	68.5	64.9	60.1	56.1
Pair 2 [4]	94.0	83.2	76.6	74.2	68.5	71.0	68.2	64.6	60.1	55.9
Pair 3 [5]	88.9	80.3	76.2	74.2	69.5	74.8	70.8	71.8	62.8	56.2
Pair 4 [6]	88.9	81.6	76.4	76.5	73.3	76.4	72.2	73.0	63.4	56.9

Continue:Power Sum NEXT(PSNEXT)(dB)

Frequency	200.00	250.00	300.00	400.00	500.00					
Min Spec	37.7	36.3	35.1	33.2	31.8					
Pair 1 [3]	49.1	48.2	47.7	43.7	42.6					
Pair 2 [4]	48.7	46.6	47.6	42.4	40.3					
Pair 3 [5]	51.6	49.4	51.0	46.5	43.8					
Pair 4 [6]	53.0	49.9	52.2	50.5	47.8					

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