



3933 US Route 11
Cortland, NY 13045

Telephone: (607) 753-6711
Facsimile: (607) 758-3648
www.intertek-etlsemko.com

February 12, 2010

Test report number 100026692CRT-001c
Project number 100026692-311

Nexans Inc. dba Berk-Tek
132 White Oak Road
New Holland, PA 17557

TEST:

Final qualification testing of a 100 Ω, 4 Pair telecommunication cable electrical performance to the requirements of ANSI/TIA-568-C.2 for Category 6A cable and to the client's custom enhanced specification.

STANDARDS USED:

Berk-Tek LANmark 10G2 Custom Specification, Revision 4.0, Dated June 30, 2009

ANSI/TIA-568-C.2 Balanced Twisted-Pair Telecommunications Cabling and Components Standards, dated August 2009

SECTIONS:

6.4: Horizontal cable transmission performance (6.4.1 to 6.4.27) of ANSI/TIA-568-C.2

AUTHORIZATION:

The project was authorized by Mr. Joel Fasnacht, representing the client, Nexans Inc. dba Berk-Tek, with signed quotation number 500199340.

SAMPLE DESCRIPTION:

An Intertek representative randomly selected 800 meters of a Category 6A, 4-Pair, 23 AWG, UTP, Plenum, Horizontal (solid) cable, identified as part number 10130484. The cable was bundled in a 6 around 1 configuration. The sample was received on January 14, 2009 and was in good condition.

EQUIPMENT LIST:

The following equipment was employed in conducting the tests.

<u>Equipment used</u>	<u>Model number</u>	<u>Control number</u>	<u>Calibration date</u>	<u>Calibration due date</u>
HP Automatic Cable Test System	46152A	E307	2/27/2009	2/27/2010

DATE OF TEST:

January 14, 2010 through January 15, 2010

TEST REPORT REVISION HISTORY:

First Issue: February 12, 2010 Original Document



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RESULTS: See appendix A for the test results

CONCLUSION:

The 100 Ω , 4 Pair telecommunication cable, as previously described and randomly selected by an Intertek representative, was tested in accordance with the standards referred to on page 1, and did comply with the indicated applicable transmission requirements. The testing was performed at Intertek located in Cortland, New York.

The procedures and requirements were taken from the standard referred to on page 1.

Reviewed and Approved By:

Antoine Pelletier
Engineer
Global Cabling Products Testing

John Cash
Technician
Global Cabling Products Testing



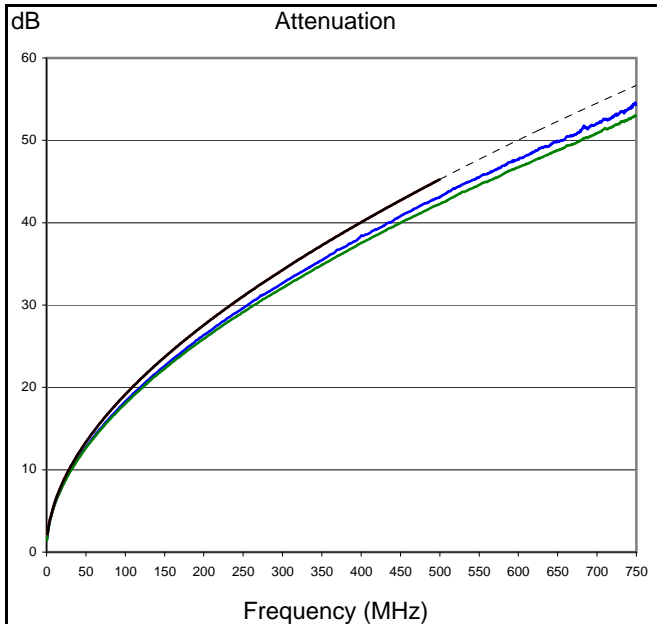
Appendix A
Summary test results

This appendix contains 7 pages.

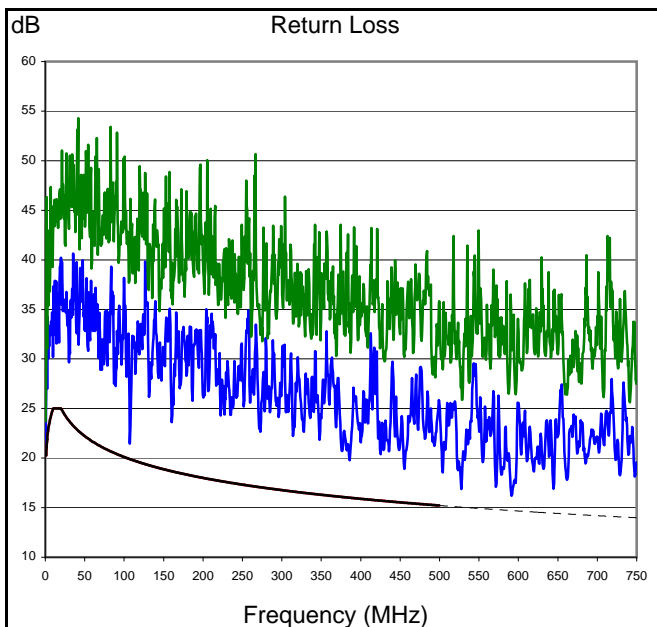
Summary

Client Nexans, INC, DBA Berk-Tek
Specifications Berk-Tek LANmark-10G2 CMP
 ANSI/TIA-568-C.2, Category 6A
Part number 10130484
Description **Berk-Tek LANmark-10G2 CMP**
 4X23 UTP-CMP-Solid

Test Started 1/14/2010 15:13
Technician John Cash
Report No. 100026692CRT-001c
Length (m) 100.00
Temperature 20 °C
Test Status **PASS**



Attenuation				
Freq. MHz	Worst Case	Average	LANmark Spec	TIA Spec
1	2.0	2.0	2.2	2.2
4	3.8	3.7	3.9	3.9
8	5.1	5.1	5.3	5.3
10	5.7	5.6	5.9	5.9
16	7.2	7.1	7.5	7.5
20	8.0	7.9	8.3	8.3
25	9.0	8.9	9.4	9.4
31.25	9.4	9.3	9.8	9.8
62.5	14.3	14.1	15.0	15.0
100	18.3	18.0	19.1	19.1
250	29.6	29.1	31.1	31.1
500	43.1	42.3	45.2	45.2
600	47.7	46.7		
750	54.3	53.0		
Limit Margin (dB) :			0.12	0.12
Frequency (MHz) :			3.62	3.62



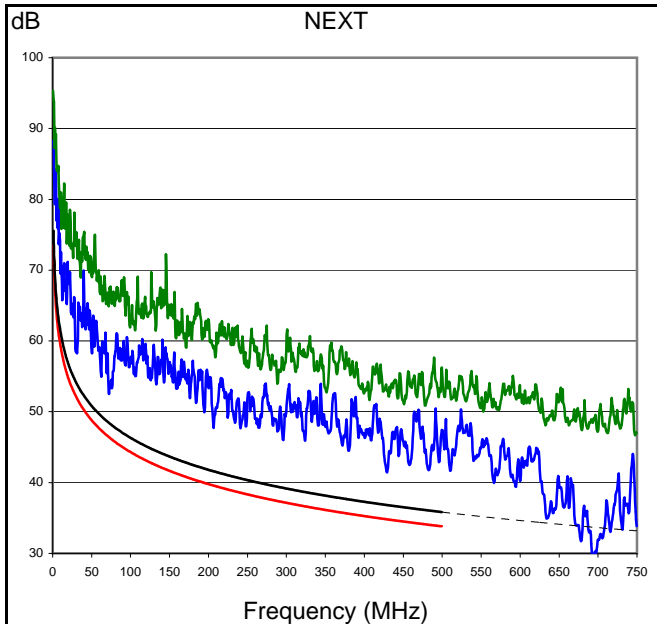
Return Loss				
Freq. MHz	Worst Case	Average	LANmark Spec	TIA Spec
1	28.1	30.0	20.3	20.3
4	33.0	35.4	23.1	23.1
8	33.1	42.6	24.5	24.5
10	30.2	42.3	25.0	25.0
16	32.7	43.2	25.0	25.0
20	40.2	44.7	25.0	25.0
25	35.4	41.6	24.3	24.3
31.25	35.0	48.2	24.0	24.0
62.5	33.4	41.4	21.5	21.5
100	38.2	46.1	20.1	20.1
250	29.2	41.4	17.3	17.3
500	25.6	35.8	15.2	15.2
600	25.5	32.7		
750	19.5	27.5		
Limit Margin (dB) :			1.56	1.56
Frequency (MHz) :			107.32	107.32

Legend : Blue - Worst Case; Green - Average; Red - TIA Specification; Black - LANmark Specification

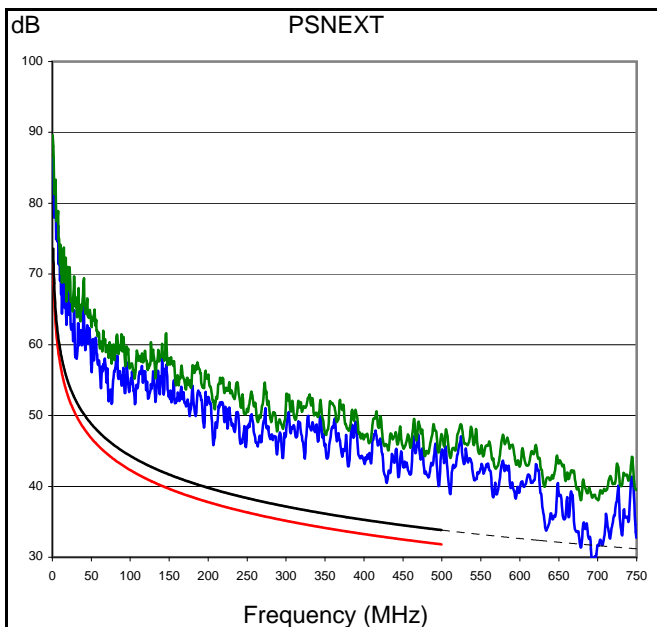
Summary

Client Nexans, INC, DBA Berk-Tek
Specifications Berk-Tek LANmark-10G2 CMP
 ANSI/TIA-568-C.2, Category 6A
Part number 10130484
Description **Berk-Tek LANmark-10G2 CMP**
 4X23 UTP-CMP-Solid

Test Started 1/14/2010 15:13
Technician John Cash
Report No. 100026692CRT-001c
Length (m) 100.00
Temperature 20 °C
Test Status **PASS**



NEXT				
Freq. MHz	Worst Case	Average	LANmark Spec	TIA Spec
1	87.8	94.0	75.5	73.5
4	84.2	89.2	66.9	64.9
8	73.6	82.5	62.8	60.8
10	69.5	79.0	61.4	59.4
16	67.0	78.4	58.2	56.2
20	68.2	76.6	56.8	54.8
25	65.3	73.6	55.4	53.4
31.25	66.2	74.0	54.8	52.7
62.5	54.9	67.1	49.4	47.4
100	57.5	62.7	46.3	44.3
250	51.5	57.2	40.4	38.3
500	47.4	56.2	35.8	33.8
600	40.2	52.7		
750	33.8	47.1		
Limit Margin (dB) :			4.09	6.10
Frequency (MHz) :			72.34	72.34



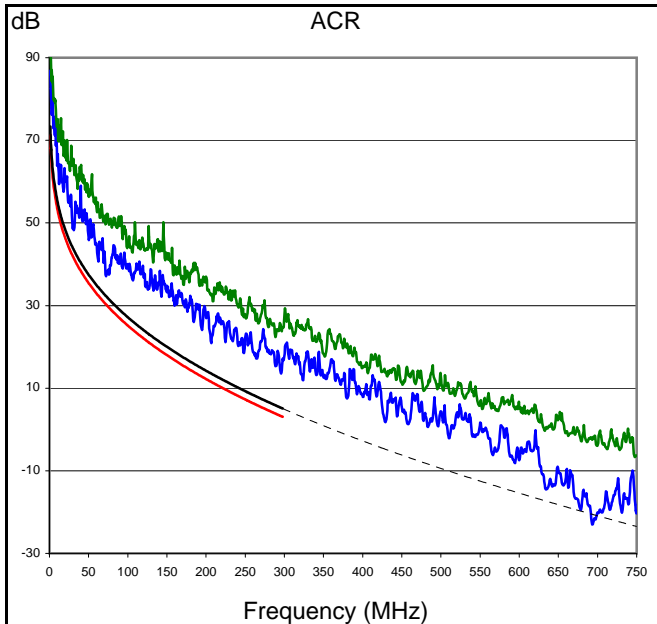
PSNEXT				
Freq. MHz	Worst Case	Average	LANmark Spec	TIA Spec
1	84.7	88.0	73.5	71.5
4	81.9	83.3	64.9	62.9
8	71.4	74.9	60.8	58.8
10	69.1	71.4	59.4	57.4
16	65.2	71.5	56.2	54.2
20	67.3	70.0	54.8	52.8
25	62.9	66.3	53.4	51.4
31.25	63.5	67.9	52.8	50.7
62.5	53.9	60.3	47.4	45.4
100	54.4	57.3	44.3	42.3
250	48.1	51.0	38.4	36.3
500	45.1	47.4	33.8	31.8
600	39.7	42.8		
750	32.7	39.5		
Limit Margin (dB) :			5.55	7.57
Frequency (MHz) :			76.09	76.09

Legend : Blue - Worst Case; Green - Average; Red - TIA Specification; Black - LANmark Specification

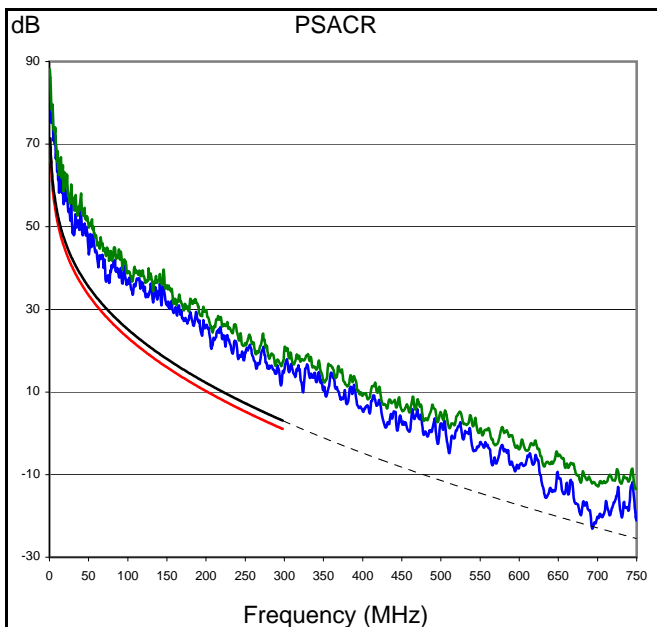
Summary

Client Nexans, INC, DBA Berk-Tek
Specifications Berk-Tek LANmark-10G2 CMP
 ANSI/TIA-568-C.2, Category 6A
Part number 10130484
Description **Berk-Tek LANmark-10G2 CMP**
 4X23 UTP-CMP-Solid

Test Started 1/14/2010 15:13
Technician John Cash
Report No. 100026692CRT-001c
Length (m) 100.00
Temperature 20 °C
Test Status **PASS**



ACR				
Freq. MHz	Worst Case	Average	LANmark Spec	TIA Spec
1	85.8	92.1	73.4	71.4
4	80.5	85.4	63.0	61.0
8	68.7	77.4	57.5	55.4
10	63.8	73.3	55.5	53.5
16	59.8	71.3	50.7	48.7
20	60.2	68.7	48.5	46.5
25	56.3	64.8	46.0	44.0
31.25	56.8	64.7	44.9	42.9
62.5	40.6	53.0	34.4	32.4
100	40.0	44.6	27.2	25.2
250	22.0	27.9	9.3	7.3
500	4.4	13.7		
600	-7.4	5.6		
750	-20.3	-6.3		
Limit Margin (dB) :			4.66	6.67
Frequency (MHz) :			29.86	29.86



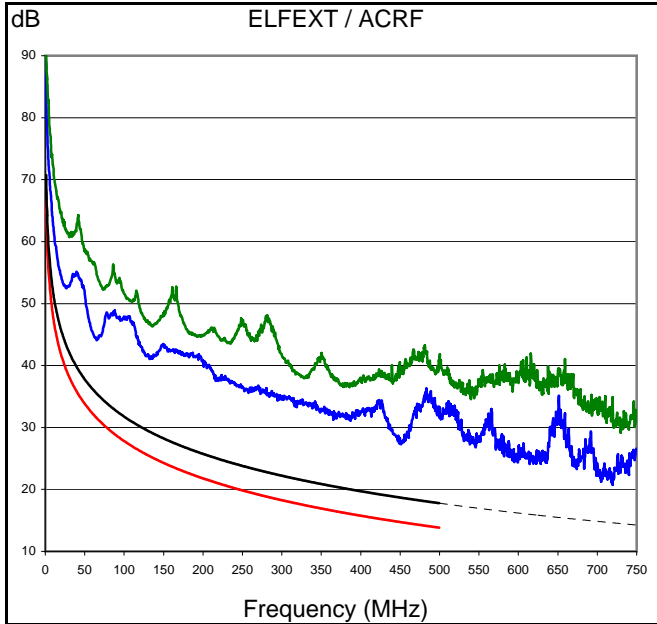
PSACR				
Freq. MHz	Worst Case	Average	LANmark Spec	TIA Spec
1	82.7	86.1	71.4	69.4
4	78.1	79.6	61.0	59.0
8	66.4	69.8	55.5	53.4
10	63.4	65.8	53.5	51.5
16	58.2	64.4	48.7	46.7
20	59.4	62.1	46.5	44.5
25	54.3	57.4	44.0	42.0
31.25	54.4	58.6	42.9	40.9
62.5	40.2	46.1	32.4	30.4
100	36.2	39.3	25.2	23.2
250	19.5	21.8	7.3	5.3
500	2.4	5.1		
600	-8.0	-3.9		
750	-21.1	-13.5		
Limit Margin (dB) :			6.40	8.42
Frequency (MHz) :			29.86	29.86

Legend : Blue - Worst Case; Green - Average; Red - TIA Specification; Black - LANmark Specification

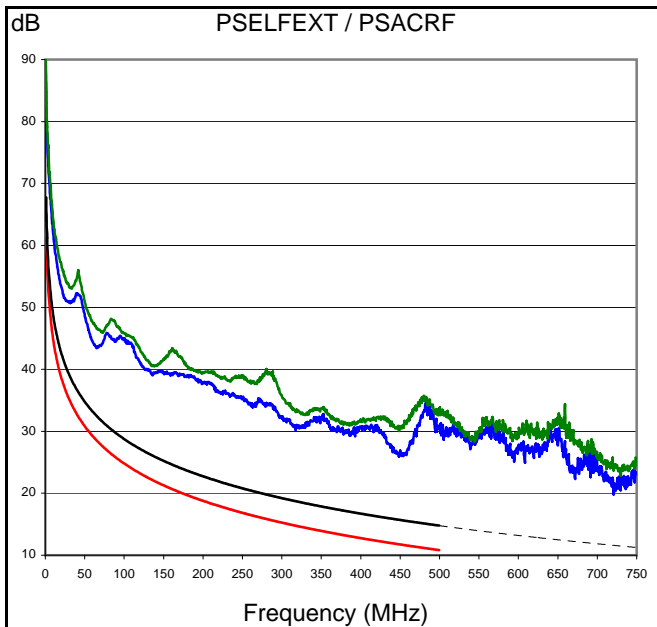
Summary

Client Nexans, INC, DBA Berk-Tek
Specifications Berk-Tek LANmark-10G2 CMP
 ANSI/TIA-568-C.2, Category 6A
Part number 10130484
Description **Berk-Tek LANmark-10G2 CMP**
 4X23 UTP-CMP-Solid

Test Started 1/14/2010 15:13
Technician John Cash
Report No. 100026692CRT-001c
Length (m) 100.00
Temperature 20 °C
Test Status **PASS**



ELFEXT / ACRF				
Freq. MHz	Worst Case	Average	LANmark Spec	TIA Spec
1	84.4	91.6	70.7	66.8
4	72.8	82.8	59.2	55.2
8	65.7	73.6	53.7	49.7
10	63.0	72.4	51.9	47.9
16	56.6	66.9	47.6	43.7
20	54.6	64.6	45.8	41.8
25	52.9	62.1	43.8	39.9
31.25	52.8	61.5	43.0	39.1
62.5	44.6	56.4	35.9	31.9
100	47.9	51.6	31.8	27.8
250	36.6	46.6	23.8	19.8
500	31.6	40.4	17.8	13.8
600	26.5	37.2		
750	26.6	31.1		
Limit Margin (dB) :			8.51	12.46
Frequency (MHz) :			22.36	22.36



PSELFEXT / PSACRF				
Freq. MHz	Worst Case	Average	LANmark Spec	TIA Spec
1	83.0	84.8	67.7	63.8
4	72.2	76.1	56.2	52.2
8	65.0	67.0	50.7	46.7
10	62.2	64.5	48.9	44.9
16	55.9	59.1	44.6	40.7
20	53.5	57.2	42.8	38.8
25	51.5	54.8	40.8	36.9
31.25	51.0	53.9	40.0	36.1
62.5	44.0	47.2	32.9	28.9
100	44.8	45.8	28.8	24.8
250	35.2	38.7	20.8	16.8
500	30.6	33.1	14.8	10.8
600	27.5	29.0		
750	23.1	25.1		
Limit Margin (dB) :			10.19	14.14
Frequency (MHz) :			448.40	448.40

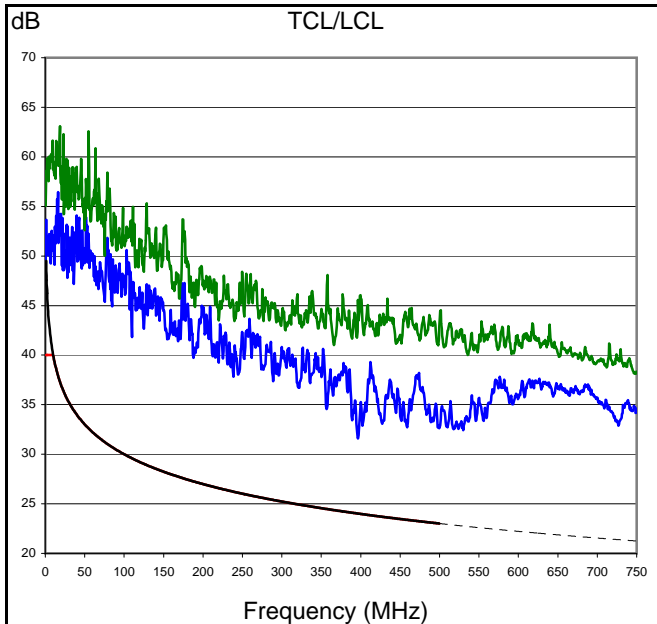
Legend : Blue - Worst Case; Green - Average; Red - TIA Specification; Black - LANmark Specification



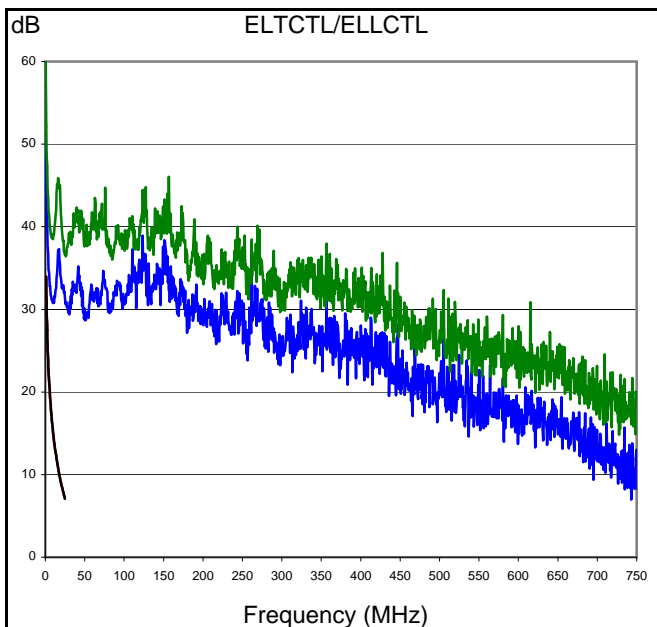
Summary

Client Nexans, INC, DBA Berk-Tek
Specifications Berk-Tek LANmark-10G2 CMP
 ANSI/TIA-568-C.2, Category 6A
Part number 10130484
Description **Berk-Tek LANmark-10G2 CMP**
 4X23 UTP-CMP-Solid

Test Started 1/14/2010 15:13
Technician John Cash
Report No. 100026692CRT-001c
Length (m) 100.00
Temperature 20 °C
Test Status **PASS**



TCL/LCL				
Freq. MHz	Worst Case	Average	LANmark Spec	TIA Spec
1	53.6	58.6	49.5	40.0
4	50.0	57.5	43.7	40.0
8	52.5	59.6	41.0	40.0
10	51.7	58.7	40.1	40.0
16	56.4	59.5	37.9	37.9
20	54.2	57.3	37.0	37.0
25	50.5	55.9	36.0	36.0
31.25	53.1	56.7	35.6	35.6
62.5	50.0	56.7	32.1	32.1
100	48.0	51.1	30.0	30.0
250	42.4	48.4	26.0	26.0
500	32.6	42.8	23.0	23.0
600	35.8	41.5		
750	34.5	38.3		
Limit Margin (dB) :			3.58	7.56
Frequency (MHz) :			1.75	396.55



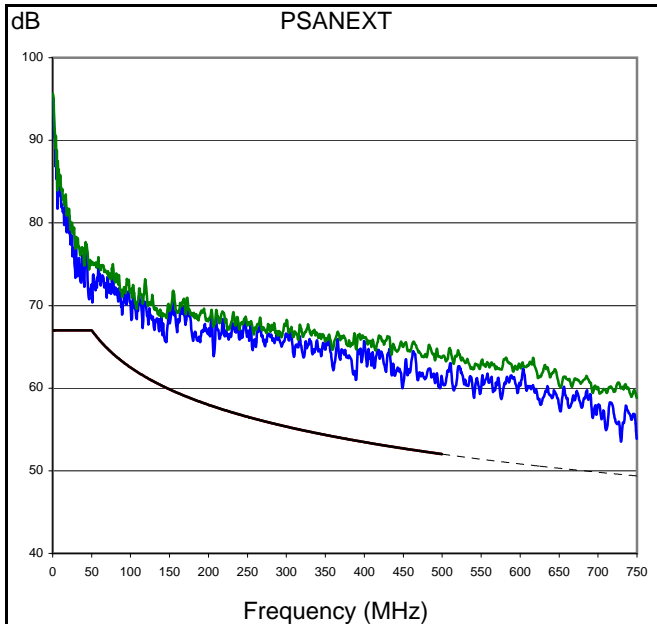
ELTCTL/ELLCTL				
Freq. MHz	Worst Case	Average	LANmark Spec	TIA Spec
1	45.8	52.2	34.0	34.0
4	34.8	42.0	22.4	22.4
8	31.1	38.6	16.9	16.9
10	30.8	38.5	15.1	15.1
16	37.1	45.9	10.9	10.9
20	33.7	41.4	9.0	9.0
25	31.6	36.6	7.1	7.1
31.25	30.3	37.5		
62.5	32.1	41.0		
100	30.6	37.7		
250	29.9	35.5		
500	22.3	26.3		
600	18.3	28.0		
750	13.0	18.9		
Limit Margin (dB) :			11.83	11.83
Frequency (MHz) :			1.12	1.12

Legend : Blue - Worst Case; Green - Average; Red - TIA Specification; Black - LANmark Specification

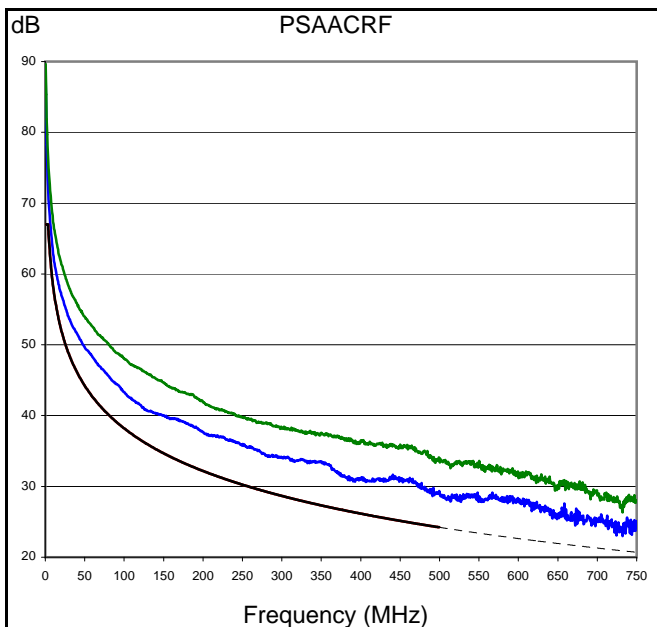
Summary

Client Nexans, INC, DBA Berk-Tek
Specifications Berk-Tek LANmark-10G2 CMP
 ANSI/TIA-568-C.2, Category 6A
Part number 10130484
Description **Berk-Tek LANmark-10G2 CMP**
 4X23 UTP-CMP-Solid

Test Started 1/14/2010 15:13
Technician John Cash
Report No. 100026692CRT-001c
Length (m) 100.00
Temperature 20 °C
Test Status **PASS**



PSANEXT				
Freq. MHz	Worst Case	Average	LANmark Spec	TIA Spec
1	94.0	95.0	67.0	67.0
4	89.0	90.5	67.0	67.0
8	86.0	86.5	67.0	67.0
10	83.7	85.8	67.0	67.0
16	81.4	82.8	67.0	67.0
20	79.5	81.3	67.0	67.0
25	78.4	80.0	67.0	67.0
31.25	77.0	79.4	67.0	67.0
62.5	73.0	74.8	65.6	65.6
100	70.5	71.7	62.5	62.5
250	66.2	67.6	56.5	56.5
500	61.3	63.7	52.0	52.0
600	60.3	62.5		
750	53.9	58.8		
Limit Margin (dB) :			3.48	3.48
Frequency (MHz) :			51.10	51.10

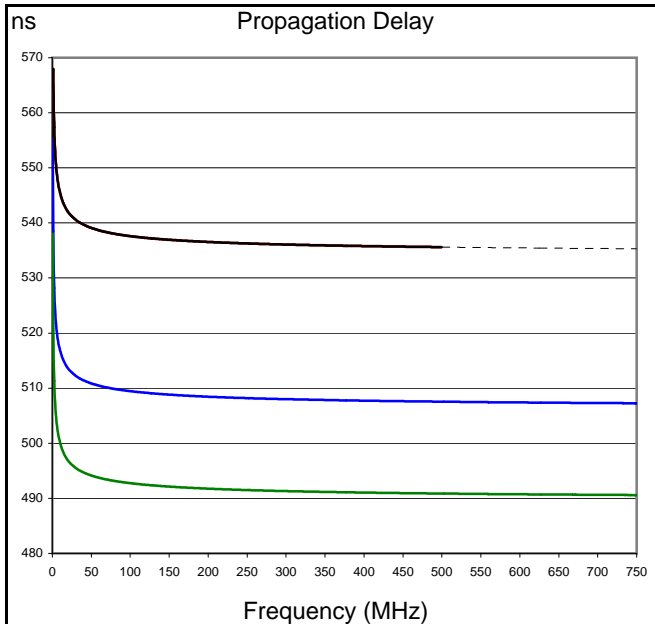


PSAACRF				
Freq. MHz	Worst Case	Average	LANmark Spec	TIA Spec
1	81.8	85.4	67.0	67.0
4	70.5	75.0	65.6	65.6
8	65.0	69.3	60.1	60.1
10	62.9	67.4	58.3	58.3
16	58.9	63.5	54.1	54.1
20	57.4	61.7	52.2	52.2
25	55.5	59.8	50.3	50.3
31.25	54.6	59.0	49.5	49.5
62.5	47.9	52.2	42.3	42.3
100	43.3	48.1	38.2	38.2
250	35.8	39.8	30.2	30.2
500	29.4	33.8	24.2	24.2
600	27.8	31.2		
750	25.1	27.9		
Limit Margin (dB) :			4.25	4.25
Frequency (MHz) :			490.88	490.88

Legend : Blue - Worst Case; Green - Average; Red - TIA Specification; Black - LANmark Specification

Summary

Client	Nexans, INC, DBA Berk-Tek	Test Started	1/14/2010 15:13
Specifications	Berk-Tek LANmark-10G2 CMP ANSI/TIA-568-C.2, Category 6A	Technician	John Cash
Part number	10130484	Report No.	100026692CRT-001c
Description	Berk-Tek LANmark-10G2 CMP 4X23 UTP-CMP-Solid	Length (m)	100.00
		Temperature	20 °C
		Test Status	PASS



Propagation Delay				
Freq. MHz	Worst Case	Average	LANmark Spec	TIA Spec
1	538.6	521.8	567.9	567.9
4	522.6	505.8	551.5	551.5
8	518.1	501.3	546.7	546.7
10	516.9	500.1	545.5	545.5
16	514.5	497.7	543.0	543.0
20	513.7	496.9	542.1	542.1
25	512.9	496.1	541.2	541.2
31.25	512.5	495.8	540.9	540.9
62.5	510.4	493.6	538.6	538.6
100	509.5	492.8	537.6	537.6
250	508.2	491.5	536.3	536.3
500	507.5	490.9	535.6	535.6
600	507.4	490.7		
750	507.3	490.6		
Limit Margin (dB) :			28.06	28.06
Frequency (MHz) :			487.13	487.13

Delay Skew			
Freq. MHz	Worst case	LANmark Spec	TIA Spec
1-500	35.06	45	45

Low frequency measurements						
Parameter	Worst Case	Average	LANmark		TIA	
			Spec	Margin	Spec	Margin
Mutual capacitance (nF/100m)	4.45	4.28	5.60	1.15	5.60	1.15
Maximum Capacitance Unbalance Pair-to-Ground (pF/100m)	23.05	17.77	330.00	306.96	330.00	306.96
Conductor DC resistance (Ω)	7.53	7.15	9.38	1.85	9.38	1.85
DC Resistance Unbalance within a pair (%) using IEC calculation method	0.35%	0.21%	1.50%	1.15%	2.00%	1.65%

Legend : Blue - Worst Case; Green - Average; Red - TIA Specification; Black - LANmark Specification