

May 15, 2017

Test report number 102875593CRT-001b
Project number 102875593-311

Leviton Network Solutions
2222 222nd SE
Bothell, WA 98021



TEST:

Electrical performance testing of a cabling configuration to the standard requirements of ISO/IEC 11801 & EN 50173-1 for Class E_A channel.

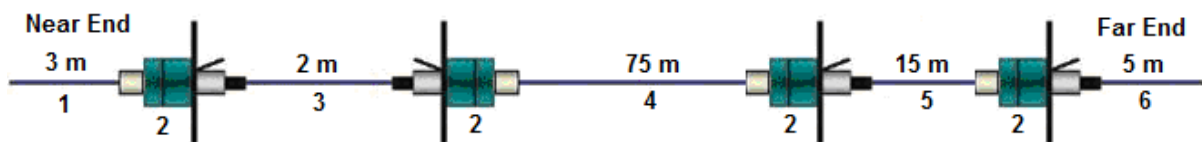
STANDARDS AND SECTIONS USED:

ISO/IEC 11801 Information Technology - Generic cabling for customer premises, Second edition dated September 2002 including amendments up to Amendment 2, dated April 2010 (Sections 6.4.2 to 6.4.8, 6.4.12 to 6.4.14.3 and 6.4.15)

EN 50173-1 Information technology -Generic cabling systems -Part 1: General requirements, dated May 2011 (Sections 5.2.2.1 to 5.2.2.8, 5.2.2.11 to 5.2.2.14, and 5.2.2.16 to 5.2.2.17)

SAMPLE DESCRIPTION:

The client supplied a 4-connector test configuration as illustrated below. The samples were bundled in a 6 around 1 configuration. The samples were received on November 28, 2016 and were production samples in undamaged condition.



Component Id	Manufacturer	Description	Part number
1	Brand-Rex A Leviton Company	LSZH Patch Cord, 3 m	6AZ10-*03
			AC6PCG030-***HB
2	Leviton	Workstation Jack Shielded QuickPort Patch Panel	6ASJK-R*6
			4S255-S24
3	Brand-Rex A Leviton Company	LSZH Patch Cord, 2 m	6AZ10-*02
			AC6PCG020-***HB
4	Brand-Rex A Leviton Company	U/FTP LSZH Horizontal Cable	UFP AZ-5*S
			AC6U/FTP-HF1-500**
5	Brand-Rex A Leviton Company	Jack to Plug LSZH Cable Assembly	10ZJP-*15
			AC6DZASJR0115yzA
6	Brand-Rex A Leviton Company	LSZH Patch Cord, 5 m	6AZ10-*05
			AC6PCG050-***HB

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AUTHORIZATION:

The project was authorized by Mr. John Walbridge, representing Leviton Network Solutions, with signed quotation Qu-00729369 dated November 11, 2016.

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>
Keysight Network Analyzer	8753E	E307	3/9/2016	3/9/2017
Keysight LCR Meter	4263B	E355	6/7/2016	6/7/2017
Temperature humidity meter	OM-EL-USB-2-LCD	H243	2/9/2016	2/9/2017

DATE OF TEST:

January 16, 2017

TEST REPORT REVISION HISTORY:

First Issue:	January 26, 2017	Original Document
Second Issue:	May 15, 2017	Corrected Jack to Plug LSZH Cable Assembly part number

RESULTS: See appendix A for the test results.

CONCLUSION:

The channel cabling configuration, as previously described and supplied by the client, 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
Project Engineer
Global Cabling Products Testing

David Ayers
Technician
Global Cabling Products Testing



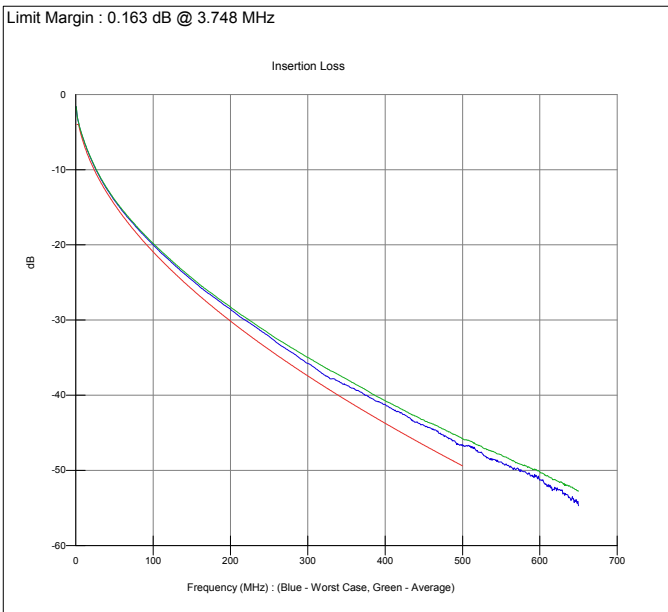
Appendix A
Summary test results

This appendix contains 7 pages.

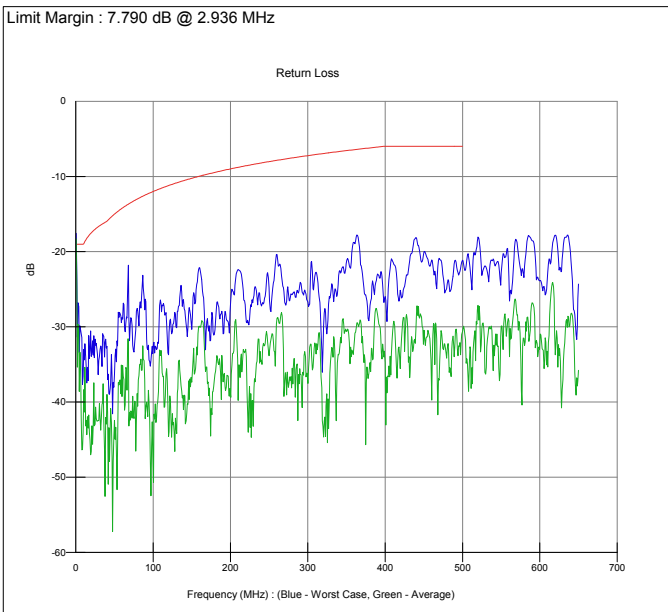


Summary

Client	Leviton / Brand-Rex	Report No	102875593CRT-001b
Specification	ISO-IEC 11801 and EN 50173-1 Class Ea Channel		
Part No	6ASJK_AC6PCG_AC6U/FTP	Length(m)	100.
Test Started	1/16/2017 2:13:15 PM	Temperature	22.6 °C
Description	4-connector Channel	Appendix	A
Technician	David Ayers	Test Status	Complies



Insertion Loss			
Freq	Worst Case	Average	Spec
1.	2.2	2.1	4.0
4.	4.0	3.9	4.2
8.	5.4	5.4	5.8
10.	6.0	6.0	6.5
16.	7.7	7.6	8.2
20.	8.7	8.6	9.2
25.	9.8	9.7	10.3
31.25	11.0	10.9	11.5
62.5	15.8	15.6	16.4
100.	20.0	19.8	20.9
250.	32.2	31.8	33.9
500.	46.6	45.8	49.4
650.	54.7	52.8	

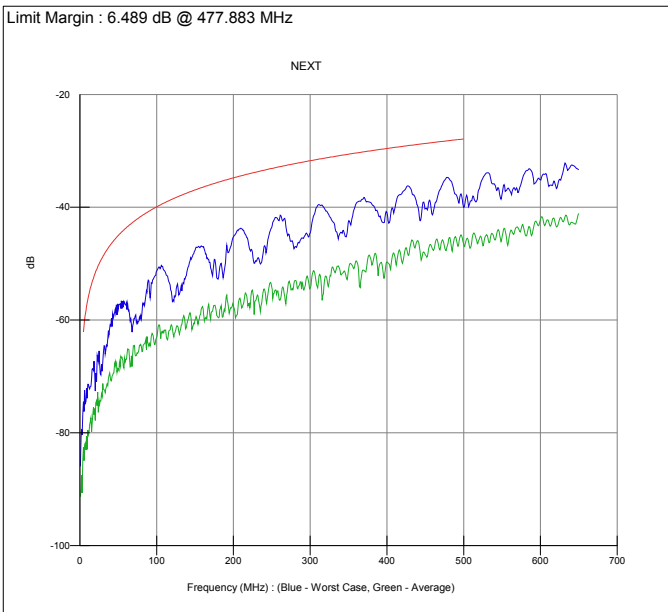


Return Loss			
Freq	Worst Case	Average	Spec
1.	21.5	22.5	
4.	30.9	33.0	19.0
8.	32.9	46.4	19.0
10.	34.9	40.0	19.0
16.	36.6	43.3	18.0
20.	33.9	46.5	17.5
25.	32.3	42.5	17.0
31.25	33.7	41.9	16.5
62.5	28.8	38.5	14.0
100.	32.8	48.6	12.0
250.	25.3	33.6	8.0
500.	21.2	30.6	6.0
650.	24.3	35.8	

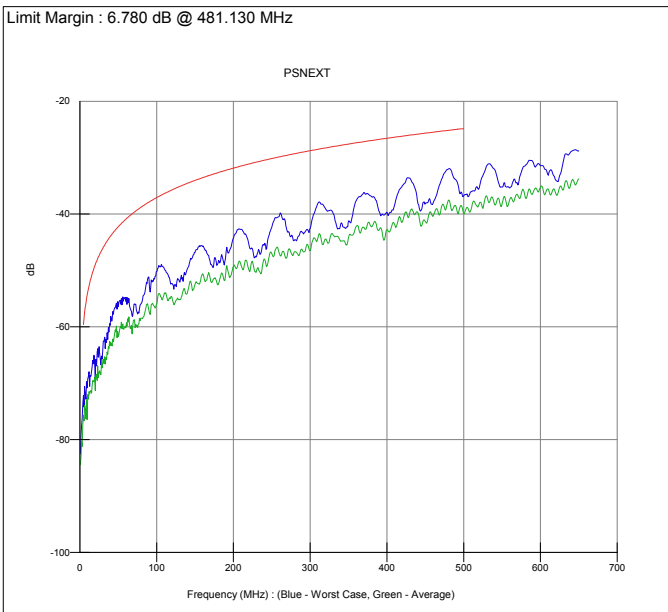


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Description	4-connector Channel	Appendix	A
Technician	David Ayers	Test Status	Complies



NEXT			
Freq	Worst Case	Average	Spec
1.	83.4	90.5	
4.	76.0	84.2	
8.	73.9	82.5	58.2
10.	72.6	80.5	56.6
16.	69.0	78.4	53.2
20.	72.6	77.8	51.6
25.	66.4	74.5	50.0
31.25	65.1	72.3	48.4
62.5	57.5	65.1	43.4
100.	51.3	63.0	39.9
250.	43.5	54.2	33.1
500.	40.0	46.6	27.9
650.	33.3	41.1	

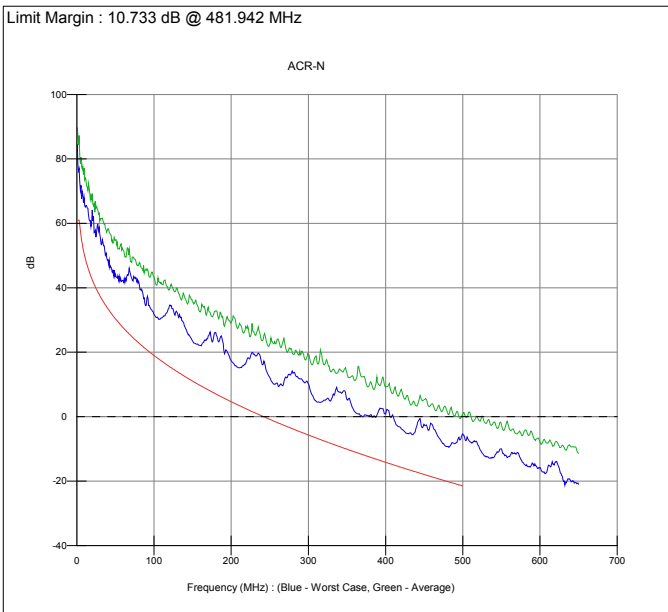


PSNEXT			
Freq	Worst Case	Average	Spec
1.	80.4	83.5	
4.	73.5	76.9	
8.	72.1	75.5	55.6
10.	70.5	73.3	54.0
16.	67.2	70.4	50.6
20.	68.9	71.2	49.0
25.	64.0	68.0	47.3
31.25	62.8	66.4	45.7
62.5	55.1	58.8	40.6
100.	50.2	55.9	37.1
250.	42.3	47.0	30.2
500.	36.8	39.9	24.8
650.	28.8	33.8	

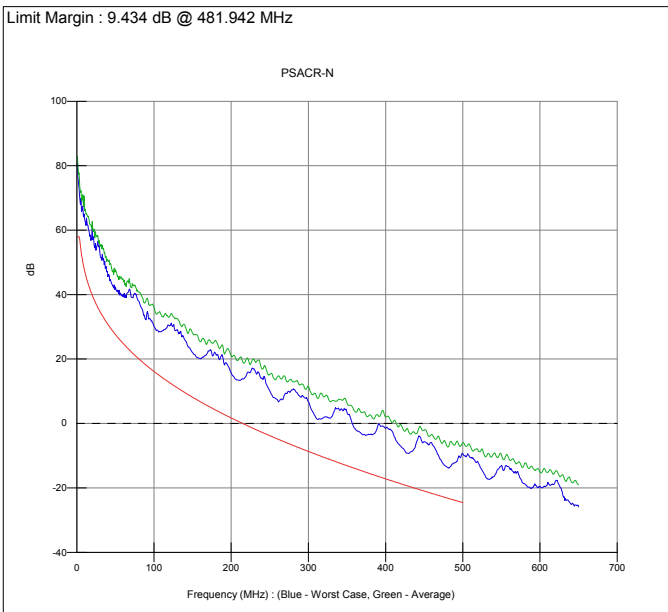


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Technician	David Ayers	Test Status	Complies



ACR-N			
Freq	Worst Case	Average	Spec
1.	81.3	88.4	61.0
4.	72.0	80.3	58.9
8.	68.5	77.1	52.4
10.	66.7	74.6	50.1
16.	61.3	70.8	45.0
20.	64.1	69.2	42.5
25.	56.7	64.8	39.8
31.25	54.1	61.5	36.9
62.5	42.1	49.6	27.0
100.	31.7	43.3	19.0
250.	12.2	22.6	-0.8
500.	-5.4	1.0	-21.5
650.	-21.1	-11.5	

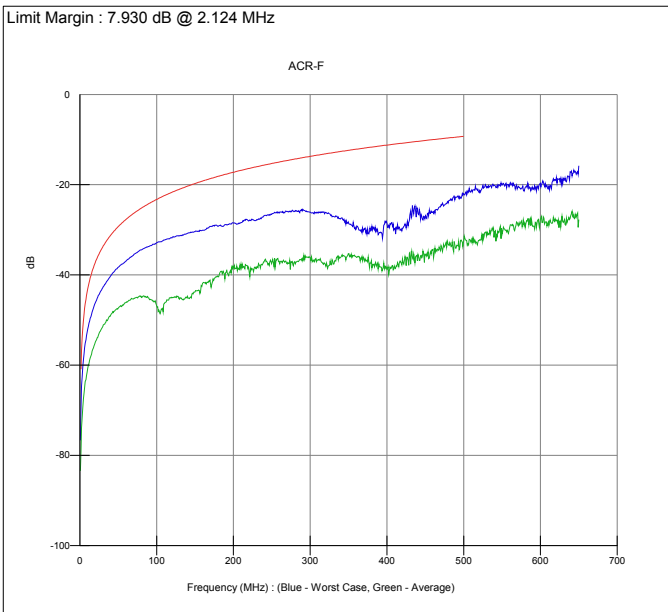


PSACR-N			
Freq	Worst Case	Average	Spec
1.	78.3	81.4	58.0
4.	69.5	73.0	56.4
8.	66.7	70.2	49.8
10.	64.6	67.4	47.5
16.	59.5	62.8	42.4
20.	60.3	62.7	39.8
25.	54.2	58.4	37.1
31.25	51.8	55.5	34.2
62.5	39.4	43.2	24.2
100.	30.2	36.1	16.1
250.	10.1	15.2	-3.8
500.	-9.5	-5.9	-24.5
650.	-25.9	-19.0	

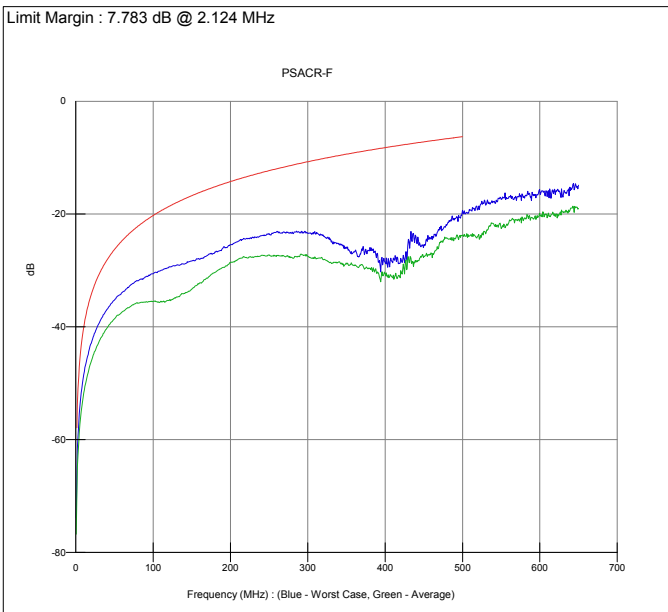


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Description	4-connector Channel	Appendix	A
Technician	David Ayers	Test Status	Complies



ACR-F			
Freq	Worst Case	Average	Spec
1.	72.5	80.5	62.5
4.	59.9	68.8	51.3
8.	54.2	63.0	45.2
10.	52.2	60.9	43.3
16.	48.2	56.9	39.2
20.	46.2	54.9	37.2
25.	44.3	52.9	35.3
31.25	42.4	51.0	33.4
62.5	36.5	45.9	27.3
100.	32.9	46.9	23.3
250.	26.5	37.3	15.3
500.	22.0	32.3	9.3
650.	15.8	27.7	

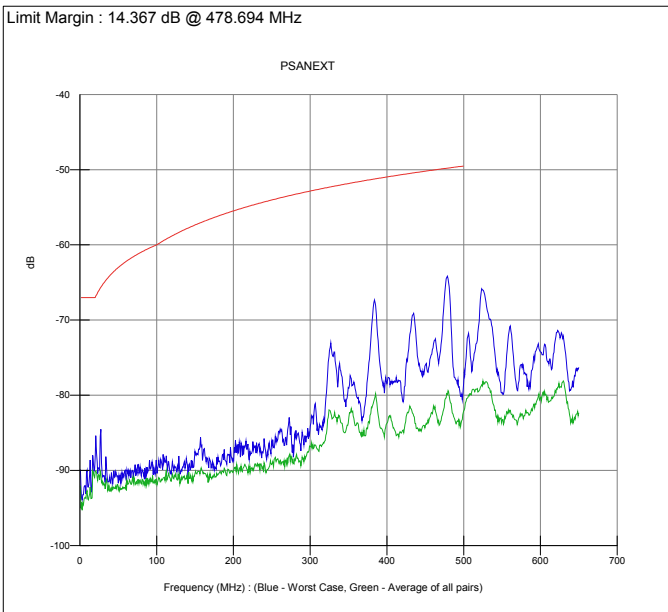


PSACR-F			
Freq	Worst Case	Average	Spec
1.	69.2	72.4	59.5
4.	56.5	59.9	48.3
8.	50.7	54.0	42.2
10.	48.7	52.0	40.3
16.	44.8	48.1	36.2
20.	42.9	46.1	34.2
25.	40.9	44.3	32.3
31.25	39.0	42.3	30.4
62.5	33.7	37.1	24.3
100.	30.6	35.5	20.3
250.	23.5	27.3	12.3
500.	19.5	23.8	6.3
650.	14.9	19.0	

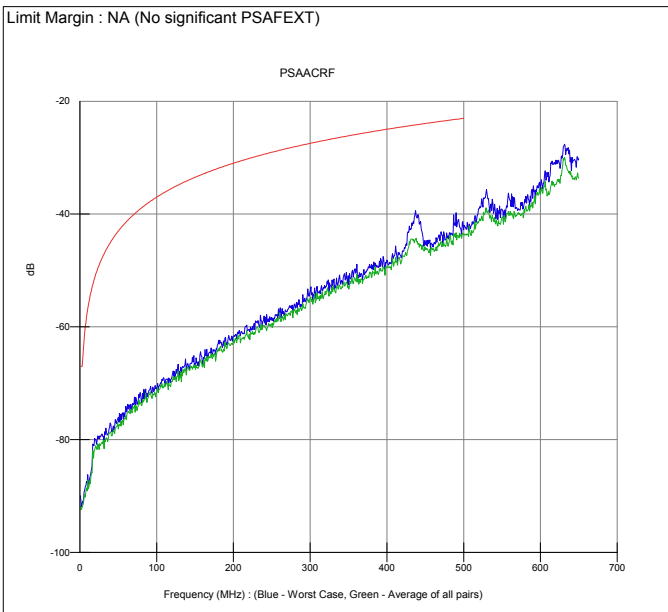


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Technician	David Ayers	Test Status	Complies



PSANEXT			
Freq	Worst Case	Average	Spec
1.	91.6	93.9	67.0
4.	93.5	94.4	67.0
8.	92.8	93.5	67.0
10.	91.5	93.5	67.0
16.	91.2	93.3	67.0
20.	88.0	90.1	67.0
25.	89.9	90.8	66.0
31.25	90.9	91.9	65.1
62.5	90.7	91.8	62.0
100.	89.7	91.6	60.0
250.	86.5	89.2	54.0
500.	78.1	82.1	49.5
650.	76.3	82.3	

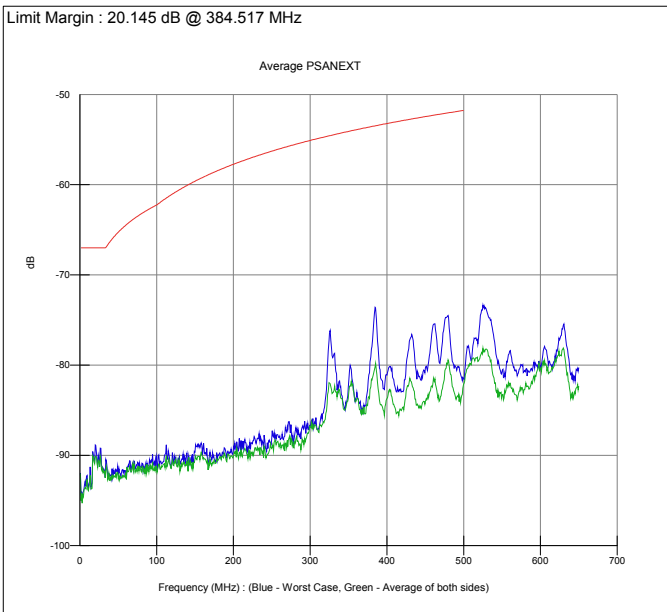


PSAACRF			
Freq	Worst Case	Average	Spec
1.	90.6	92.2	67.0
4.	90.9	91.5	65.0
8.	88.2	88.9	58.9
10.	86.6	87.7	57.0
16.	84.4	85.5	52.9
20.	80.0	81.5	51.0
25.	79.5	81.6	49.0
31.25	80.7	81.4	47.1
62.5	74.0	75.1	41.1
100.	71.0	71.5	37.0
250.	58.5	59.7	29.0
500.	42.6	43.7	23.0
650.	30.2	33.7	

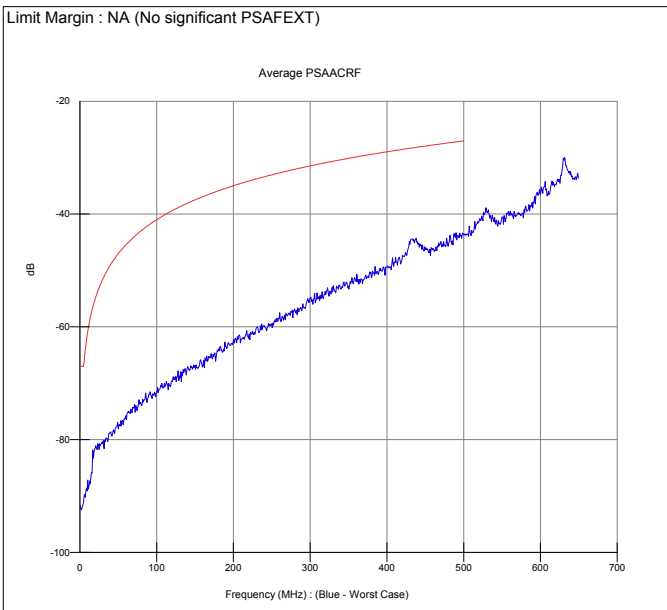


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Technician	David Ayers	Test Status	Complies



Average PSANEXT			
Freq	Worst Case	Average	Spec
1.	93.4	93.9	67.0
4.	94.1	94.4	67.0
8.	93.2	93.5	67.0
10.	92.9	93.5	67.0
16.	92.8	93.3	67.0
20.	88.9	90.1	67.0
25.	90.6	90.8	67.0
31.25	91.8	91.9	67.0
62.5	91.2	91.8	64.3
100.	91.0	91.6	62.2
250.	88.0	89.2	56.3
500.	81.7	82.1	51.8
650.	80.3	82.3	

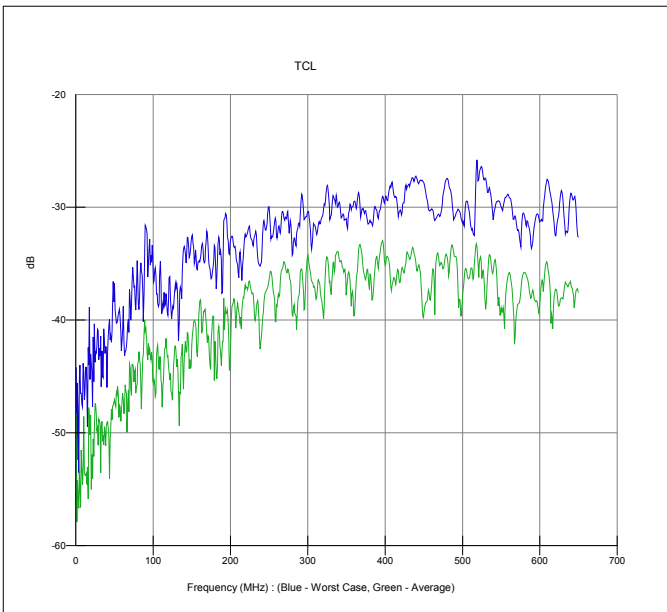


Average PSAACRF		
Freq	Worst Case	Spec
1.	92.2	67.0
4.	91.5	67.0
8.	88.9	62.9
10.	87.7	61.0
16.	85.5	56.9
20.	81.5	55.0
25.	81.6	53.0
31.25	81.4	51.1
62.5	75.1	45.1
100.	71.5	41.0
250.	59.7	33.0
500.	43.7	27.0
650.	33.7	

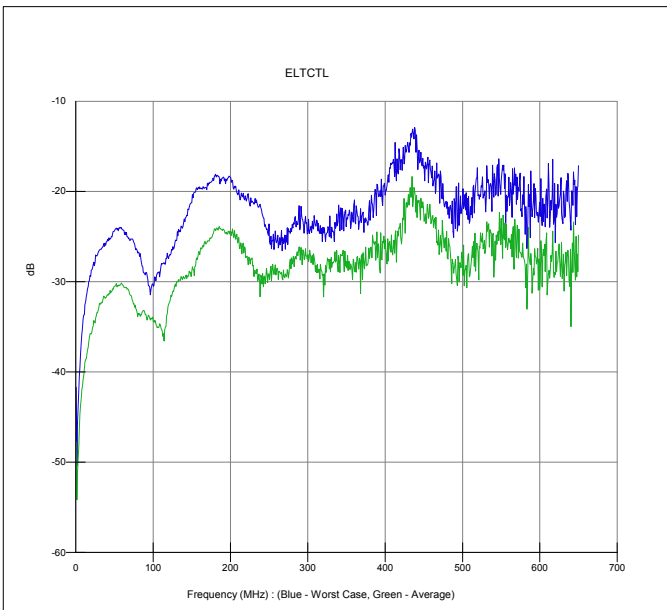


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Test Started	1/16/2017 2:13:15 PM	Temperature	22.6 °C
Description	4-connector Channel	Appendix	A
Technician	David Ayers	Test Status	Complies



TCL			
Freq	Worst Case	Average	Spec
1.	49.9	54.2	
4.	52.8	55.7	
8.	47.5	53.5	
10.	45.7	49.9	
16.	42.6	55.1	
20.	43.8	55.0	
25.	44.7	47.4	
31.25	43.1	49.2	
62.5	42.3	48.0	
100.	35.6	45.5	
250.	30.1	36.4	
500.	31.4	37.9	
650.	32.7	37.6	



ELTCTL			
Freq	Worst Case	Average	Spec
1.	47.6	51.7	
4.	41.6	47.7	
8.	35.7	41.9	
10.	33.8	40.5	
16.	30.5	37.2	
20.	28.7	35.8	
25.	27.7	34.5	
31.25	26.4	32.5	
62.5	24.5	30.6	
100.	30.4	34.2	
250.	24.2	29.4	
500.	21.8	27.8	
650.	17.1	24.8	