



3933 US ROUTE 11, CORTLAND, NEW YORK 13045

Phone Number: 1-800-345-3851 Fax Number: 607-758-3648

PROJECT NO.: 3138572-311

REVISED DATE: December 13, 2007

TEST REPORT NO.: 3138572CRT-001b

**RENDERED TO:**

Superior Essex  
150 Interstate North Pkwy  
Suite 300  
Atlanta, GA 30339



Leviton Network Solutions  
2222 222nd SE  
Bothell, WA 98021



**TEST:**

Performance testing of the cabling configurations as defined in and to the requirements of TIA/EIA-568-B.2-10 draft 9.0, Transmission Performance Specification for 4 Pair 100  $\Omega$  Augmented Category 6 Cabling.

**STATEMENT OF LIMITATIONS:**

At the client's request, the purpose of this report is to provide electrical performance data on the test sample. It is not valid to use this report for any other purpose.

**STANDARDS USED:**

ASTM D4566-98, Standard Test Methods for Electrical Performance Properties of Insulations and Jackets for Telecommunications Wire and Cable, dated December 10, 1998

TIA/EIA-568-B.2-10 draft 9.0, Transmission Performance Specifications for 4 Pair, 100  $\Omega$  Augmented Category 6 Cabling, dated September 26, 2007

**AUTHORIZATION:**

The project was authorized by, Gayle Watson, representing the client, Superior Essex, with purchase order No. 147228.

**DATE OF TEST:**

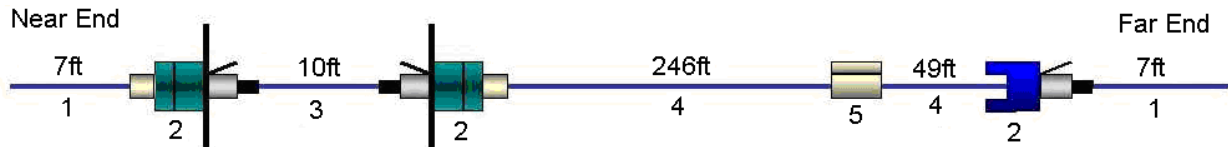
December 6, 2007

**TEST REPORT REVISION HISTORY:**

First issue: December 7, 2007 Original Document  
 Second issue: December 13, 2007 Name change to Leviton Network Solutions, consolidate appendixes

**SAMPLE DESCRIPTION:**

(4 Connectors Channel, bundled in a 6 around 1 configuration)



<u>Component ID</u>	<u>Manufacturer</u>	<u>Part Number</u>	<u>Description</u>
1	Leviton	6AS10-07S	Equipment Cord
2	Leviton	6AS10-10S	Equipment Cord
2	Leviton	6110G	Wall Outlet
4	Superior Essex	4PR 22AWG 10GAIN CMP CAT 6A	Horizontal Cable
5	Leviton	41B6A-1F4	Cat. 6A 110 connecting block

The samples were received on November 19, 2007 and were in good condition. All samples were supplied by the client.

**EQUIPMENT LIST:**

The following equipment was employed in conducting the tests.

<u>Equipment Used</u>	<u>Model Number</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Hewlett Packard Automatic Cable Test System	HP46152A	3903U01003	03/07/07

**PROCEDURE:**

The testing was performed in accordance with the measurements and calculations list below.

**Measurements:**

- Attenuation (Insertion Loss): ASTM D4566-98 Paragraph 26
- Near End Cross Talk (NEXT): ASTM D4566-98 Paragraph 24
- Far End Cross Talk (FEXT): ASTM D4566-98 Paragraph 25
- Return Loss: ASTM D4566-98 Paragraph 45.3
- Transverse Conversion Loss (TCL): TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.6.1
- Transverse Conversion Transfer Loss (TCTL): TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.6.2
- Alien Near End Cross Talk and Alien Far End Cross Talk (ANEXT and AFEXT): TIA/EIA-568-B.2-10 draft 9.0 Annex D

**Calculations:**

- Power Sum NEXT (PSNEXT): ASTM D4566-98 Paragraph 24.6 and TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.2.2
- Attenuation to Crosstalk Ratio Far End (ACRF): ASTM D4566-98 Paragraph 25 and TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.3

- Power Sum Attenuation to Crosstalk ratio Far End (PSACRF): ASTM D4566-98 Paragraph 25 and TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.3.3
- Attenuation to Cross Talk Ratio (ACR): Attenuation to Cross Talk Ratio was determined by subtracting the Attenuation from the NEXT
- Power Sum ACR (PSACR): The Power Sum ACR was determined using the same procedure as ACR except that the Power Sum NEXT was used in the computation in lieu of the NEXT
- Propagation Delay and Delay Skew: TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.5
- Equal Level Transverse Conversion Transfer Loss (ELTCTL): TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.6.2.3
- Alien Power Sum NEXT (PSANEXT): ASTM D4566-98 Paragraph 24.6 and TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.8
- Power Sum Attenuation to Alien Crosstalk Ratio Far End (PSAACRF): ASTM D4566-98 Paragraph 25 and TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.9

**REQUIREMENTS:** The testing requirements were computed with the measurements and calculation list below.

**Measurements:**

- Insertion Loss (Attenuation): TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.1.3
- Near End Cross Talk (NEXT): TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.2.1.4
- Return Loss: the TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.4.5

**Calculations:**

- Power Sum NEXT (PSNEXT): TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.2.2.2
- Attenuation to Crosstalk Ratio Far End (ACRF): TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.3.1.2
- Power Sum Attenuation to Crosstalk Ratio Far End (PSACRF): TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.3.3.2
- Propagation Delay: TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.5.2
- Delay Skew: TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.5.4
- Transverse Conversion Loss (TCL): TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.5.4
- Equal Level Transverse Conversion Transverse Loss (ELTCTL): TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.6.2.3
- Power Sum Alien Near End Crosstalk (PSANEXT): TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.8.3
- Power Sum Attenuation to Alien Crosstalk Ratio Far-End (PSAACRF): TIA/EIA-568-B.2-10 draft 9.0 Paragraph 7.9.3

**RESULTS:** See appendix A for test results.


**CONCLUSION:**

The channel configurations, as previously described and supplied by the client, were tested in accordance with the procedures contained herein, and did comply with the indicated applicable transmission requirements. The testing was performed at Intertek ETL SEMKO located in Cortland, New York.

These procedures and requirements were taken from the standards referred to on page 1.

Reviewed and Approved By:

  
Antoine Pelletier  
Engineer  
Global Cabling Products Testing

  
John Cash  
Technician  
Global Cabling Products Testing

  
Kathy Heath  
Project Coordinator  
Global Cabling Products Testing

**Appendix A**  
Test results

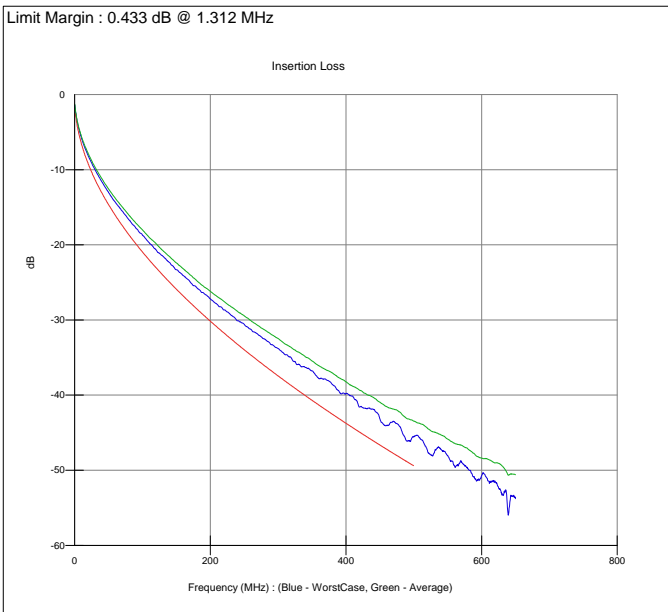
Any data reported above 500 MHz is for indication only.

This appendix contains 5 pages.

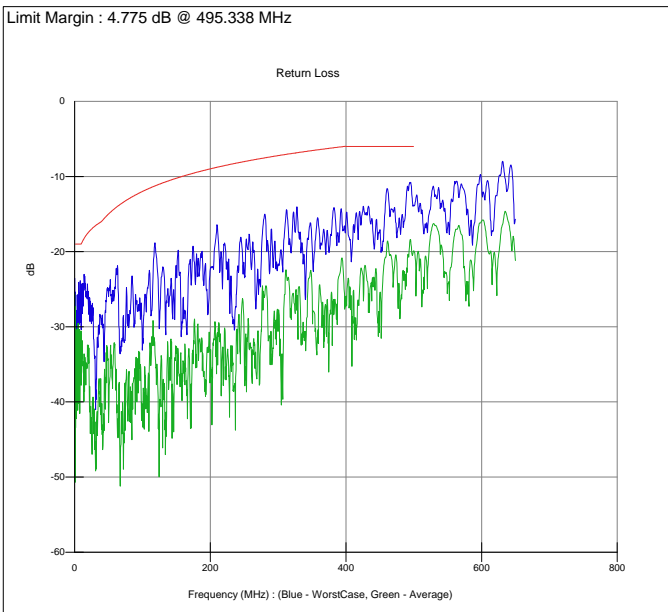


## Summary

<b>Client</b>	Leviton	<b>Report No</b>	3138572CRT-001
<b>Specification</b>	TIA 568B2-10 - Augmented Cat 6 Draft 9_0 500Mhz(Channel)	<b>Length</b>	100
<b>Part No</b>		<b>Temperature</b>	20 °C
<b>Test Started</b>	12/4/2007 9:39:14 AM	<b>[Param7]</b>	A
<b>Description</b>	Superior Essex with Leviton	<b>Test Status</b>	Complies
<b>Technician</b>	John Cash		



Insertion Loss			
Freq	Worst Case	Average	Spec
1.	1.8	1.8	2.3
4.	3.6	3.5	4.2
8.	5.1	4.9	5.8
10.	5.7	5.5	6.5
16.	7.2	7.0	8.2
20.	8.1	7.8	9.2
25.	9.1	8.7	10.3
31.25	10.2	9.8	11.5
62.5	14.6	14.1	16.4
100.	18.7	18.0	20.9
250.	30.6	29.4	33.9
500.	45.5	43.5	49.4
650.	53.8	50.6	

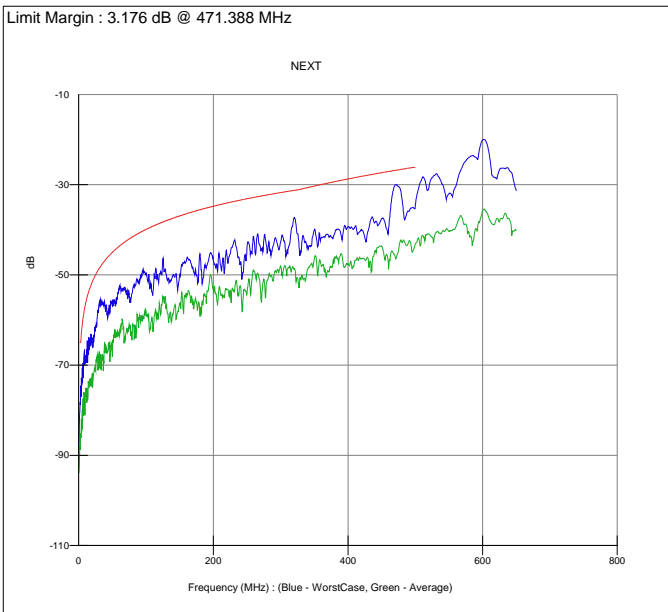


Return Loss			
Freq	Worst Case	Average	Spec
1.	37.2	45.3	19.0
4.	29.8	34.3	19.0
8.	26.8	36.8	19.0
10.	28.2	35.7	19.0
16.	24.7	35.1	18.0
20.	25.3	32.4	17.5
25.	28.7	42.5	17.0
31.25	39.1	46.3	16.5
62.5	22.7	40.6	14.0
100.	33.4	40.8	12.0
250.	22.0	30.8	8.0
500.	13.8	19.9	6.0
650.	15.7	21.2	

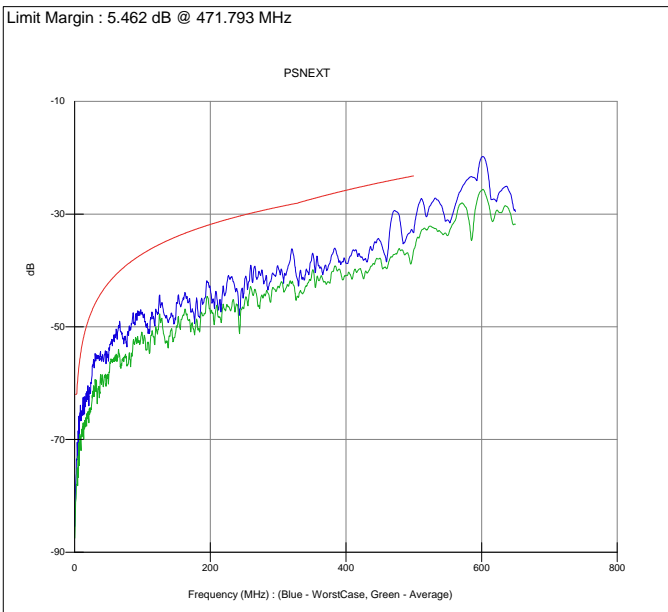


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<b>Technician</b>	John Cash		



NEXT			
Freq	Worst Case	Average	Spec
1.	83.9	91.9	65.0
4.	74.4	82.7	63.0
8.	70.3	76.2	58.2
10.	69.5	76.8	56.6
16.	66.1	74.2	53.2
20.	65.1	72.2	51.6
25.	61.4	70.8	50.0
31.25	56.4	70.3	48.4
62.5	52.9	62.6	43.4
100.	49.6	58.1	39.9
250.	44.5	54.3	33.1
500.	35.0	43.2	26.1
650.	31.4	40.2	

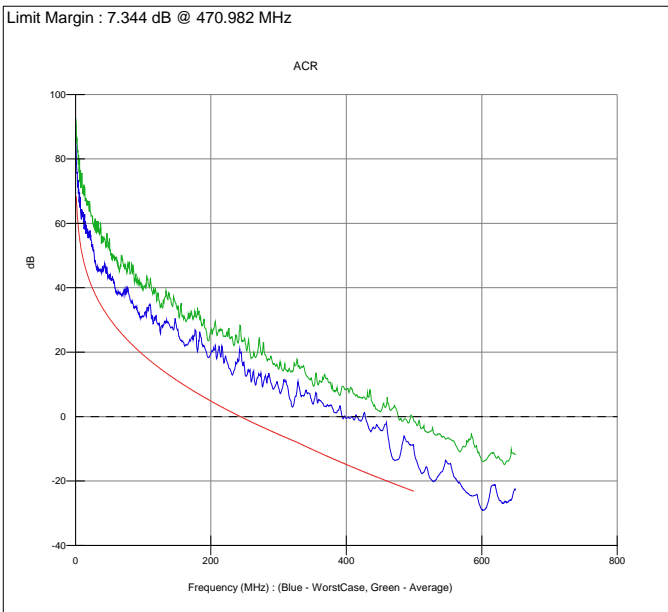


PSNEXT			
Freq	Worst Case	Average	Spec
1.	81.0	84.9	62.0
4.	71.7	75.5	60.6
8.	65.3	69.3	55.6
10.	66.4	69.5	54.0
16.	63.9	67.3	50.6
20.	62.0	65.0	49.0
25.	59.4	64.0	47.3
31.25	55.9	61.2	45.7
62.5	51.6	56.0	40.6
100.	47.6	51.4	37.1
250.	43.8	46.4	30.2
500.	33.3	36.4	23.2
650.	29.6	31.8	

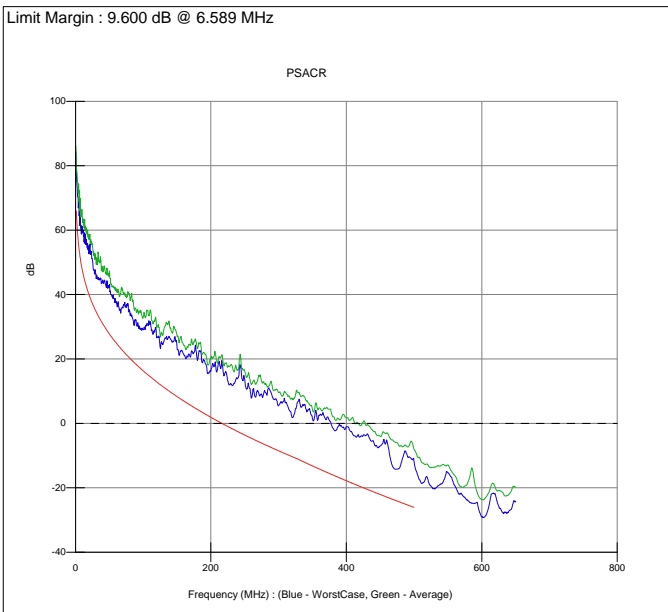


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<b>Technician</b>	John Cash		



ACR			
Freq	Worst Case	Average	Spec
1.	82.1	90.1	70.0
4.	70.8	79.1	59.0
8.	65.2	71.1	52.4
10.	63.8	71.2	50.2
16.	58.9	67.0	45.1
20.	57.2	64.1	42.6
25.	52.3	61.8	39.9
31.25	46.4	60.2	37.0
62.5	38.3	48.1	27.1
100.	31.0	39.6	19.2
250.	14.4	24.1	-0.7
500.	-10.6	-1.4	-23.2
650.	-22.4	-11.6	

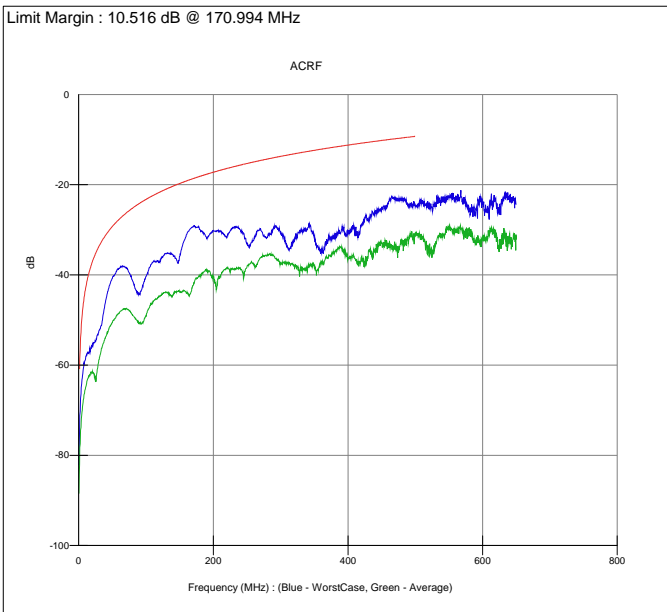


PSACR			
Freq	Worst Case	Average	Spec
1.	79.3	83.1	67.6
4.	68.2	72.0	56.5
8.	60.3	64.3	49.9
10.	60.8	63.8	47.6
16.	56.7	60.2	42.5
20.	54.1	57.0	39.9
25.	50.6	55.0	37.2
31.25	45.9	51.2	34.3
62.5	37.2	41.6	24.3
100.	29.1	33.0	16.3
250.	13.8	16.3	-3.6
500.	-11.9	-8.1	-26.1
650.	-24.2	-19.7	

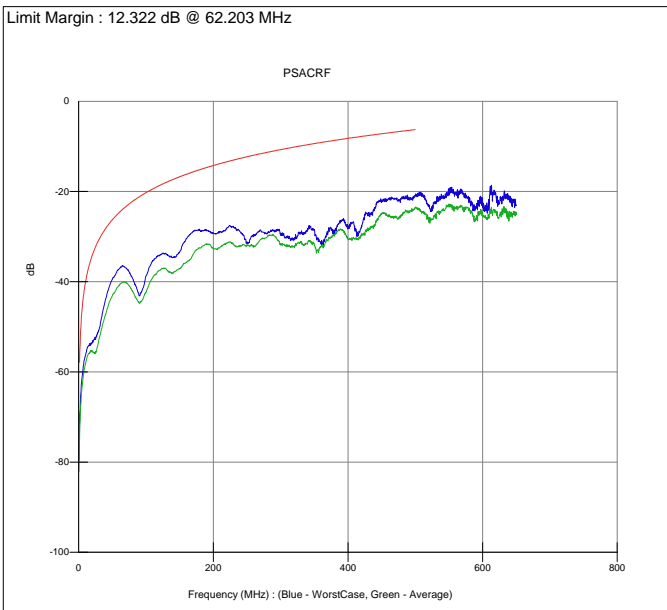


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<b>Technician</b>	John Cash		



ACRF			
Freq	Worst Case	Average	Spec
1.	76.9	83.7	62.7
4.	64.9	72.2	51.2
8.	59.7	66.6	45.2
10.	58.8	65.2	43.3
16.	56.9	62.4	39.2
20.	55.8	61.7	37.2
25.	54.6	63.2	35.3
31.25	52.2	58.2	33.4
62.5	38.2	48.0	27.3
100.	40.4	49.0	23.3
250.	32.9	38.3	15.3
500.	24.7	30.9	9.3
650.	24.4	32.1	

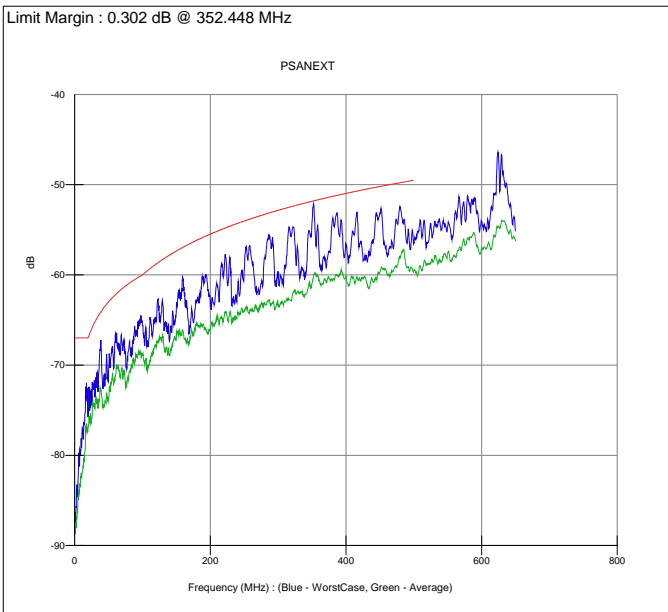


PSACRF			
Freq	Worst Case	Average	Spec
1.	74.3	76.7	59.7
4.	62.9	65.2	48.2
8.	57.6	59.7	42.2
10.	56.4	58.4	40.3
16.	54.1	55.9	36.2
20.	53.5	55.6	34.2
25.	52.7	55.7	32.3
31.25	50.0	52.2	30.4
62.5	36.8	40.4	24.3
100.	38.8	42.3	20.3
250.	31.2	31.9	12.3
500.	20.9	23.7	6.3
650.	23.0	25.1	

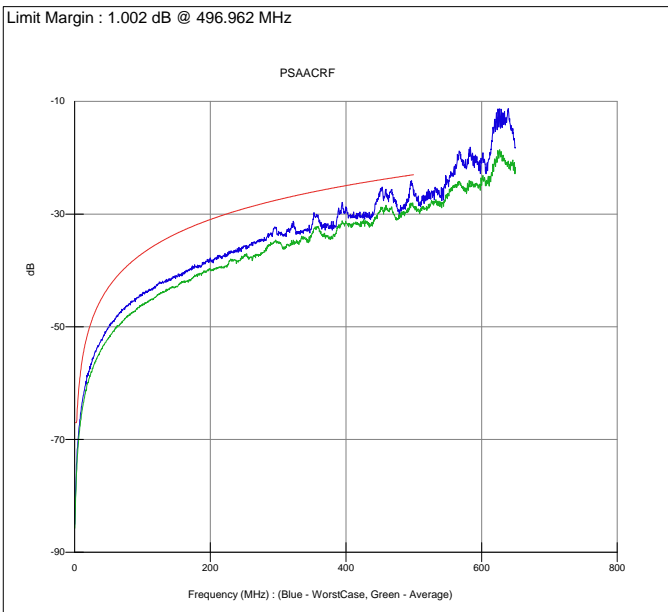


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PSANEXT			
Freq	Worst Case	Average	Spec
1.	87.6	88.6	67.0
4.	85.4	86.5	67.0
8.	79.6	83.3	67.0
10.	78.6	82.0	67.0
16.	74.7	79.0	67.0
20.	75.7	77.0	67.0
25.	72.9	76.2	66.0
31.25	71.7	73.9	65.1
62.5	67.1	70.1	62.0
100.	65.3	68.8	60.0
250.	60.0	64.1	54.0
500.	56.5	59.6	49.5
650.	55.2	56.2	



PSAACRF			
Freq	Worst Case	Average	Spec
1.	81.9	83.7	67.0
4.	72.0	73.5	65.0
8.	66.4	67.7	58.9
10.	64.5	65.9	57.0
16.	60.4	61.8	52.9
20.	58.3	59.8	51.0
25.	56.4	58.0	49.0
31.25	54.4	56.2	47.1
62.5	48.0	50.0	41.1
100.	44.4	46.2	37.0
250.	35.7	37.5	29.0
500.	26.1	28.8	23.0
650.	18.2	21.7	