



**3933 US ROUTE 11, CORTLAND, NEW YORK 13045, U.S.A.**

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

**PROJECT NO.:** 3022866-311

**DATE:** February 19, 2009

**TEST REPORT NO.:** 3022866CRT-077

**RENDERED TO:**

Hubbell Premise Wiring  
14 Lord's Hill Road  
Stonington, CT 06378

**TEST:**

Performance testing of the Category 6 cabling configuration as defined in and to the requirements of TIA-568-C.2 (Draft 2.2), *Balanced Twisted Pair Telecommunications Cabling And Components Standard*

**STATEMENT OF LIMITATIONS:**

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.

**STANDARD USED:**

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

Proposed TIA-568-C.2 (Draft 2.2), *Balanced Twisted Pair Telecommunications Cabling And Components Standard*, dated December 2008.

**AUTHORIZATION:**

The project was authorized by Dr. Shadi AbuGhazaleh, representing, Hubbell Premise Wiring.

**DATE OF TEST:**

1/27/2009

**TEST REPORT REVISION HISTORY:**

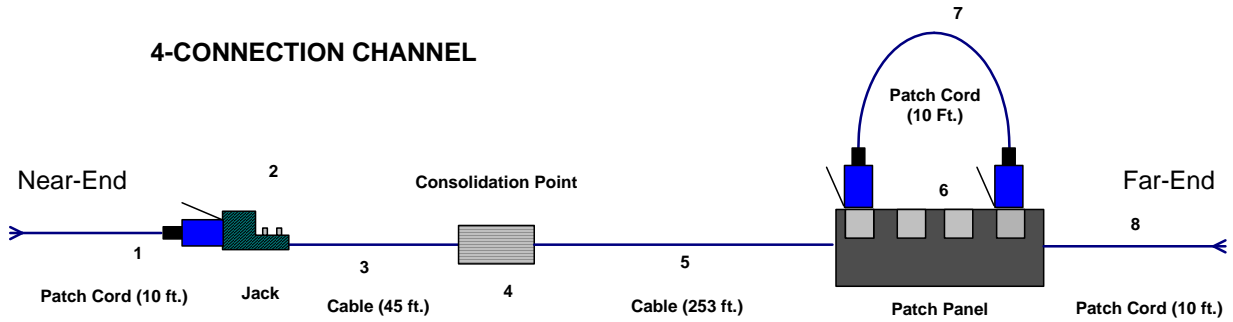
First Issue: February 19, 2009 Original Document

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**SAMPLE DESCRIPTION:**

**4-CONNECTION CHANNEL**



<u>Component ID</u>	<u>Manufacturer</u>	<u>Part Number</u>	<u>Description</u>
1, 7, 8	Hubbell Premise Wiring	PCX6XX <sup>1</sup> 10	10' C6 Patch Cord
2	Hubbell Premise Wiring	HXJ6A	C6A Jack
3, 5	Hubbell Premise Wiring	C6ASPX <sup>2</sup>	NEXTSPEED 10G CMP Cable
4	Hubbell Premise Wiring	NS6-110	110 Block
6	Hubbell Premise Wiring	P6E**U <sup>3</sup>	C6 Patch Panel

- 1. XX is the color of patch cord (black, blue, etc...)
- 2. X is cable color (blue, grey, etc...)
- 3. '\*\*' is the placeholder for the number of ports in the panel (e.g. 24, 48, etc...)

**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>
Agilent ENA Series Network Analyzer	E5070B	MY42401505	01/14/08

**RESULTS:**

See appendix A for the test results.

**CONCLUSION:**

The channel configuration, as previously described, was tested under the SAT program of Intertek in accordance with the standard contained herein, and did comply with the indicated applicable transmission requirements.

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

Kathy Heath  
Project Coordinator  
Global Cabling Products Testing

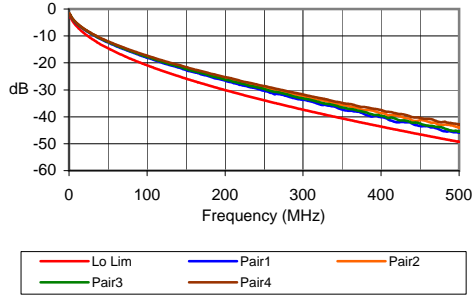
**Appendix A**  
Test results

Any data reported above 500 MHz is for indication only.

This appendix contains 3 Pages.

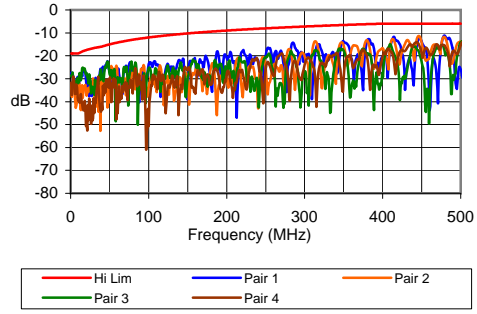
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**Insertion Loss**



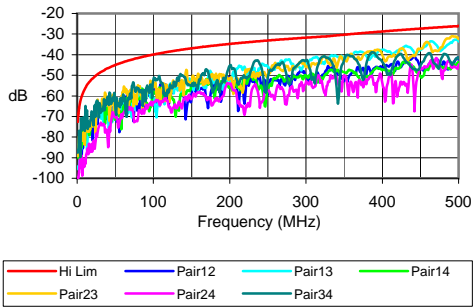
Frequency	Worst Case	Average	TIA Spec
1.0	-1.8	-1.7	-2.3
10.0	-5.4	-5.3	-6.5
31.3	-9.7	-9.5	-11.4
62.5	-14.0	-13.7	-16.3
100.0	-18.1	-17.6	-20.9
155.0	-23.0	-22.4	-26.2
200.0	-26.6	-25.9	-30.1
250.0	-30.3	-29.4	-33.8
350.0	-37.3	-36.0	-40.6
500.0	-45.7	-44.4	-49.3

**Return Loss**



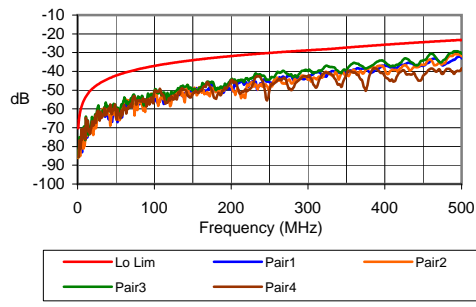
Frequency	Worst Case	Average	TIA Spec
1.0	-27.4	-30.2	-19.0
10.0	-30.2	-37.0	-19.0
31.3	-30.4	-38.2	-16.5
62.5	-27.9	-33.7	-14.1
100.0	-23.6	-34.0	-12.0
155.0	-22.9	-27.7	-10.1
200.0	-20.7	-27.8	-9.0
250.0	-20.6	-24.3	-8.0
350.0	-13.7	-20.3	-6.6
500.0	-13.9	-19.4	-6.0

**NEXT**



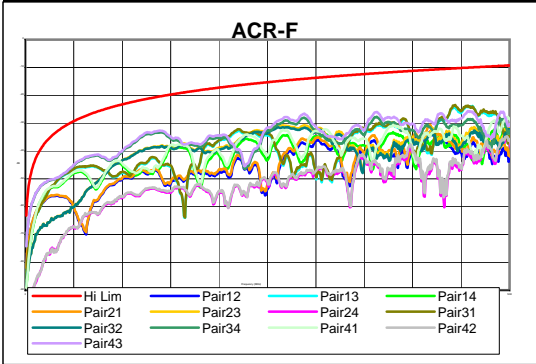
Frequency	Worst Case	Average	TIA Spec
1.0	-87.53	-91.98	-72.67
10.0	-76.16	-82.81	-56.63
31.3	-63.93	-69.18	-48.47
62.5	-55.78	-64.41	-43.45
100.0	-52.31	-59.99	-39.93
155.0	-52.43	-56.48	-36.71
200.0	-45.51	-54.35	-34.79
250.0	-45.42	-54.69	-33.14
350.0	-42.36	-47.60	-30.31
500.0	-32.21	-40.04	-26.1

**PSNEXT**

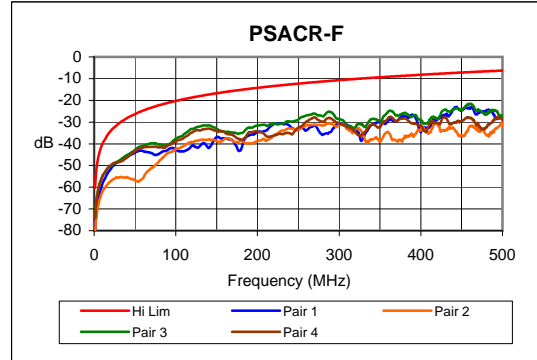


Frequency	Worst Case	Average	TIA Spec
1.00	-85.01	-86.28	-70.29
10.00	-75.09	-76.63	-54.05
31.30	-61.27	-64.01	-45.76
62.50	-54.48	-58.79	-40.67
100.00	-50.42	-54.33	-37.08
155.00	-49.40	-51.11	-33.81
200.00	-44.40	-48.51	-31.86
250.00	-44.44	-48.36	-30.18
350.00	-39.22	-41.99	-27.33
500.00	-30.38	-34.19	-23.23

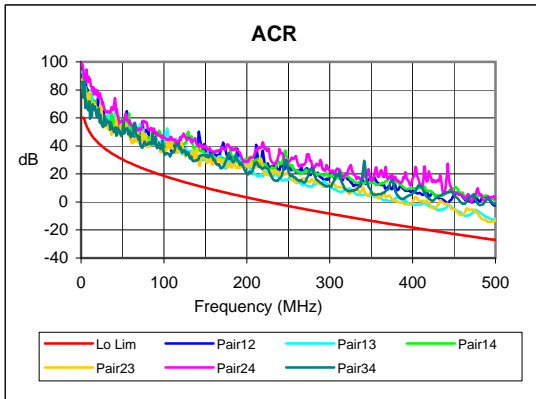
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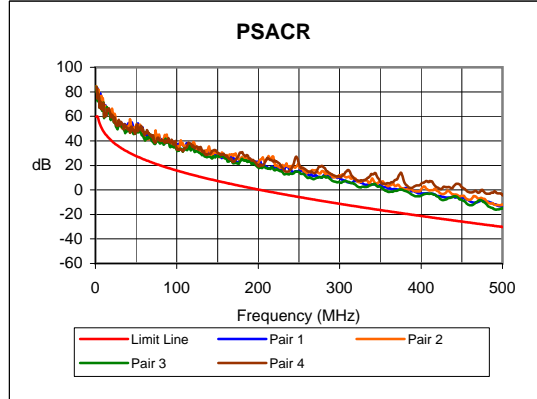
Frequency	Worst Case	Average	TIA Spec
1.0	-74.2	-83.7	-63.3
10.0	-55.9	-63.9	-43.3
31.3	-49.8	-55.2	-33.4
62.5	-42.2	-50.0	-27.4
100.0	-39.9	-46.4	-23.3
155.0	-35.4	-42.5	-19.5
200.0	-34.4	-40.7	-17.3
250.0	-31.8	-39.2	-15.3
350.0	-31.9	-38.2	-12.4
500.0	-28.5	-35.1	-9.3



Frequency	Worst Case	Average	TIA Spec
1.0	-73.8	-76.7	-60.3
10.0	-55.3	-57.6	-40.3
31.3	-47.6	-49.4	-30.4
62.5	-40.7	-43.8	-24.4
100.0	-37.7	-40.8	-20.3
155.0	-34.0	-36.2	-16.5
200.0	-31.6	-35.0	-14.3
250.0	-29.0	-32.7	-12.3
350.0	-29.8	-32.7	-9.4
500.0	-26.9	-29.6	-6.3



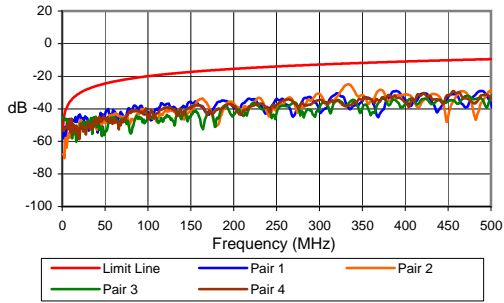
Frequency	Worst Case	Average	TIA Spec
1.0	85.9	95.8	60.0
10.0	70.9	84.4	50.3
31.3	54.4	61.6	37.1
62.5	42.1	54.4	27.1
100.0	35.0	47.5	18.6
155.0	29.9	37.5	9.6
200.0	20.2	33.9	3.3
250.0	15.8	33.0	-2.7
350.0	5.8	14.7	-13.4
500.0	-13.1	0.7	-27.1



Frequency	Worst Case	Average	TIA Spec
1.0	83.8	84.7	59.7
10.0	70.0	71.6	47.7
31.3	55.4	55.2	34.4
62.5	45.9	46.4	24.3
100.0	36.9	38.2	15.8
155.0	26.4	29.1	6.7
200.0	24.1	23.7	0.4
250.0	16.2	20.7	-5.7
350.0	3.4	6.9	-16.4
500.0	-14.9	-8.3	-30.2

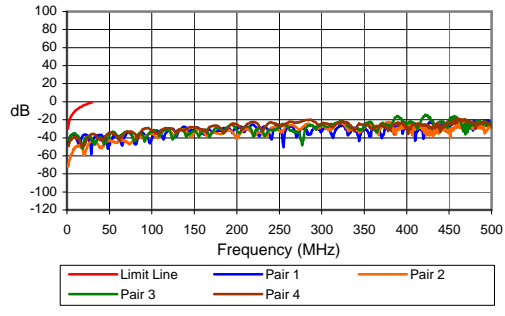
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TCL



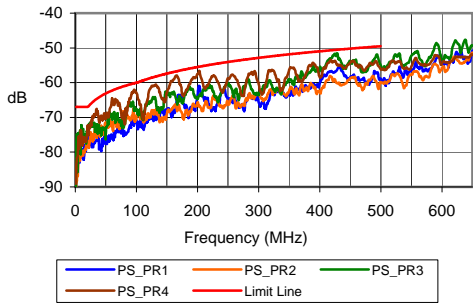
Frequency	Worst Case	Average	TIA Spec
1.0	-45.0	-52.5	-50.0
10.0	-49.7	-53.1	-35.1
31.3	-47.3	-52.1	-27.6
62.5	-42.2	-46.2	-23.1
100.0	-42.1	-45.2	-20.0
155.0	-35.8	-40.8	-17.2
200.0	-36.4	-41.1	-15.5
250.0	-34.3	-41.5	-14.1
350.0	-31.5	-37.7	-11.8
500.0	-28.8	-34.2	-9.5

ELTCTL



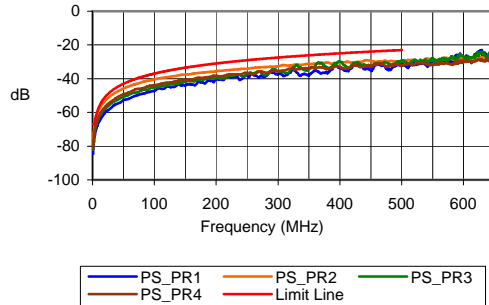
Frequency	Worst Case	Average	TIA Spec
1.0	-42.5	-49.2	-30.0
10.0	-35.4	-40.6	-10.1
31.3	-35.8	-42.5	
62.5	-38.1	-42.3	
100.0	-31.7	-35.3	
155.0	-28.8	-32.7	
200.0	-25.0	-31.5	
250.0	-25.3	-29.6	
350.0	-25.1	-28.6	
500.0	-24.7	-27.9	

PSANEXT(NE & FE) Worst Case



Frequency	Worst Case	Average	TIA Spec
1.0	-89.1	-92.4	-67.0
10.0	-72.4	-78.8	-67.0
31.3	-69.1	-73.9	-65.1
62.5	-66.3	-72.4	-62.0
100.0	-62.9	-69.7	-60.0
155.0	-60.6	-67.5	-57.1
200.0	-57.6	-65.6	-55.5
250.0	-58.7	-64.5	-54.0
350.0	-56.5	-61.5	-51.8
500.0	-54.9	-58.4	-49.5

PSAACRF (NE & FE) Worst Case



Frequency	Worst Case	Average	TIA Spec
1.0	-78.0	-81.6	-67.0
10.0	-59.0	-62.8	-57.2
31.3	-49.7	-53.7	-47.2
62.5	-44.1	-48.0	-41.1
100.0	-40.5	-44.3	-37.0
155.0	-37.5	-41.0	-33.2
200.0	-35.7	-38.8	-31.0
250.0	-34.1	-37.0	-29.0
350.0	-31.2	-34.8	-26.1
500.0	-29.2	-31.4	-23.0