



# REPORT INTERTEK TESTING SERVICES, INC.

3933 US ROUTE 11, CORTLAND, NEW YORK 13045

ORDER NO.: 3039425-406

DATE: March 20, 2003

REPORT NO.: 3039425-002S

## RENDERED TO:

AESP/Signamax  
1810 North East 144 Street  
North Miami, FL 33181

**TEST:** Performance testing of the cabling configurations as defined in, and to the requirements of, TIA/EIA 568-B.2-1 for Category 6 Cabling Systems.

**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, dated December 10, 1998, Standard Test Methods for Electrical Performance Properties of Insulations and Jackets for Telecommunications Wire and Cable

TIA/EIA-568-B.2-1, Addendum 1: Transmission Performance Specifications for 4 Pair, 100  $\Omega$  Category 6 Cabling dated June 2002.

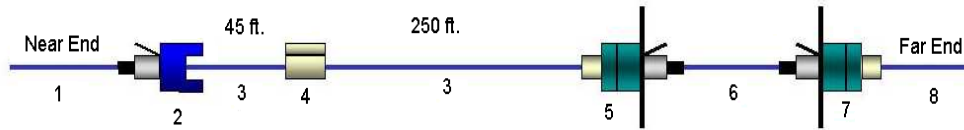
**AUTHORIZATION:** The tests were authorized by Mr. Don Daily, representing the client, AESP/Signamax, with Purchase Order No. 303092.

**DATE OF TEST:** March 20, 2003

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**SAMPLE DESCRIPTION:**

Channel (4 Connector)



<u>Component ID</u>	<u>Manufacturer</u>	<u>Part Number</u>	<u>Description</u>
3	CommScope	6ECMP	Horizontal Cable
5,7	AESP/Sigmax	12458-C6	Patch Panel
1,8	AESP/Sigmax	C6-114GY-10FB	Equipment Cord
6	AESP/Sigmax	C6-114GY-10FB	Cross Connect
4	AESP/Sigmax	110WBG-98PR-L	110 Block
2	AESP/Sigmax	KJ458-C6-BK	Wall Outlet

**EQUIPMENT LIST:** The following equipment was employed in conducting the tests.

<u>Equipment Used</u>	<u>Model Number</u>	<u>Serial Number</u>	<u>Control Number</u>	<u>Calibration Date</u>
Hewlett Packard Automatic Cable Test System	HP46152A	3903U01003	N/A	03/13/03

**Equipment**

The testing was performed using a Hewlett Packard 46152A Automatic Cable Test System. The system was calibrated using a full 2 port calibration with 801 linearly spaced data points, 300 Hz I/F bandwidth and a 5-second sweep time. The swept frequency measurements were performed from 0.5 MHz to 500 MHz.

**Measurements**

For the cabling configurations previously described, Attenuation, Near End Cross Talk, Far End Cross Talk and Return Loss were measured in accordance with ASTM D4566. These tests were performed on three separate channels.

**Requirements**

Attenuation, Near End Cross Talk, Power Sum NEXT, Equal Level Far End Cross Talk (ELFEXT), Power Sum ELFEXT and Return Loss were tested to the requirements of TIA/EIA-568-B.2-1, Cat. 6.

**Results**

The results for the 3 channel tests are shown in graphs 1-8. In each plot, the worst case and average readings are compared with the appropriate limits from the category 6 cabling specification.

**Conclusion:**

The Channels, 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.

These Procedures and Requirements were taken from the Standards referred to on Page 1.

Reviewed and Approved By:

Robert Southworth  
Lab Supervisor  
Communications Products

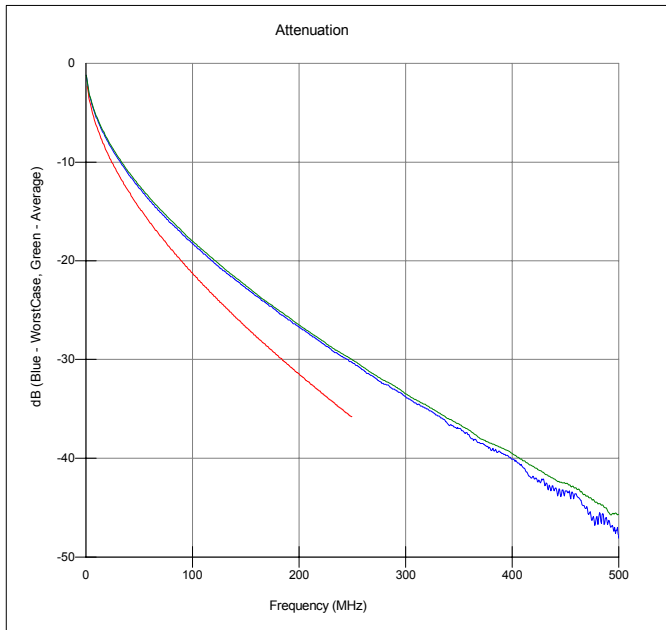
David L. Ayers  
Technician  
Communications Products

**Appendix A**  
Test Results

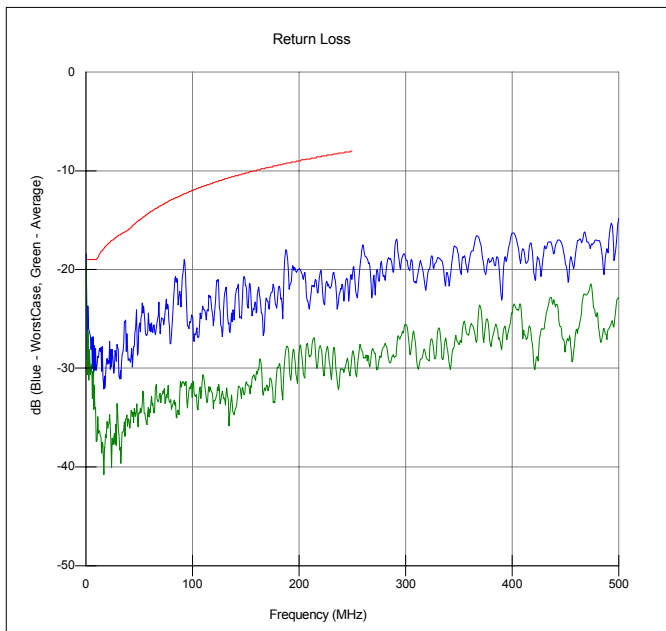
Any data reported above 250 MHz is for indication only.

## Summary

<b>Client</b>	AESP Signamax	<b>Report No</b>	3039425-002S
<b>Specification</b>	TIA 568B2-1 - Cat 6 Chan Swept500 Limits250MHz		
<b>Part No</b>	Test-1-2-3	<b>Length</b>	100
<b>Test Started</b>	3/20/03 10:15:35 AM	<b>Temperature</b>	21 °C
<b>Comments</b>	4 Connector Channel S500MHz L250MHz		
<b>Technician</b>	David Ayers	<b>Test Status:</b>	PASS



Attenuation			
Freq	Worst Case	Average	Spec
1.	1.7	1.7	2.2
4.	3.5	3.4	4.0
8.	4.9	4.8	5.7
10.	5.5	5.3	6.3
16.	7.0	6.8	8.1
20.	7.8	7.6	9.0
25.	8.7	8.6	10.1
31.25	9.8	9.6	11.3
62.5	14.2	13.9	16.4
100.	18.2	18.0	21.2
200.	26.7	26.5	31.5
250.	30.3	30.0	35.8
300.	33.8	33.5	
400.	40.1	39.5	
500.	48.1	45.7	

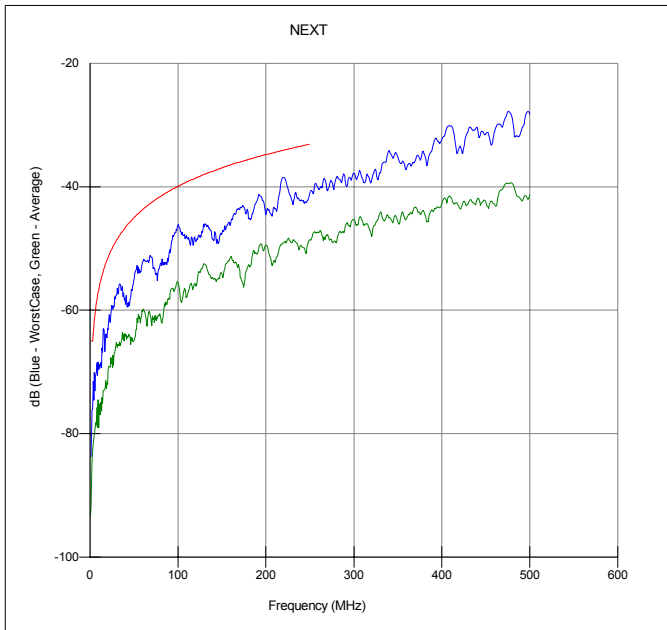


Return Loss			
Freq	Worst Case	Average	Spec
1.	27.1	28.4	19.0
4.	27.5	29.7	19.0
8.	27.7	31.7	19.0
10.	30.9	37.4	19.0
16.	30.8	37.7	18.0
20.	29.3	35.5	17.5
25.	28.5	37.3	17.0
31.25	30.9	37.1	16.5
62.5	26.2	33.7	14.1
100.	24.8	32.4	12.0
200.	19.9	28.3	9.0
250.	21.1	28.5	8.0
300.	18.9	25.6	
400.	16.3	24.5	
500.	14.8	22.8	

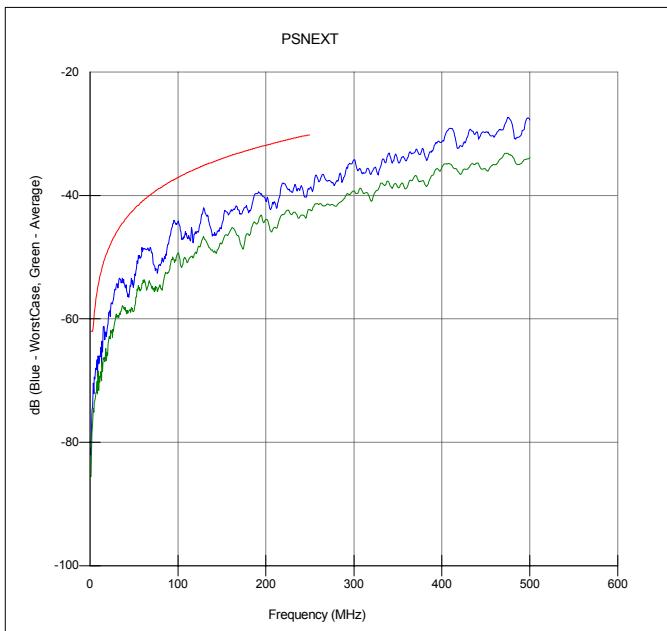


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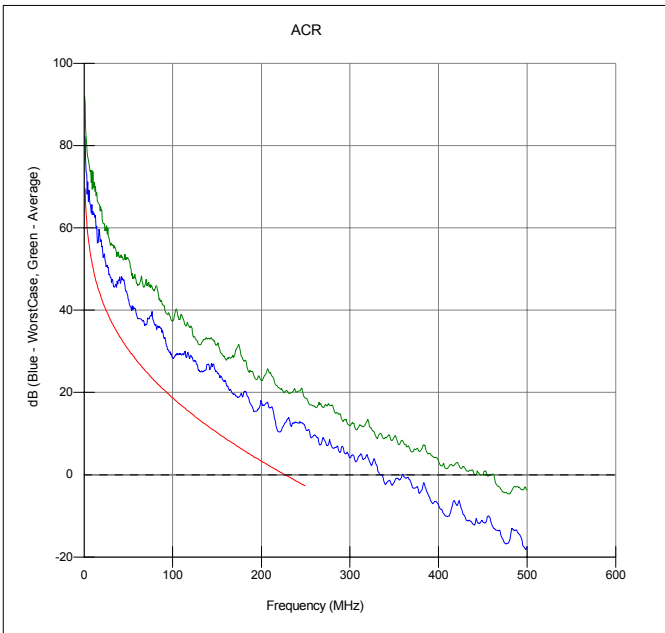
NEXT			
Freq	Worst Case	Average	Spec
1.	84.1	92.4	65.0
4.	73.9	81.1	63.0
8.	68.7	75.8	58.2
10.	70.7	78.2	56.6
16.	63.4	73.0	53.3
20.	63.3	71.5	51.7
25.	59.3	68.2	50.1
31.25	56.6	65.9	48.5
62.5	52.0	60.4	43.4
100.	46.3	55.5	39.9
200.	44.5	49.5	34.8
250.	41.0	48.6	33.1
300.	37.8	45.3	
400.	32.3	42.8	
500.	28.3	41.3	



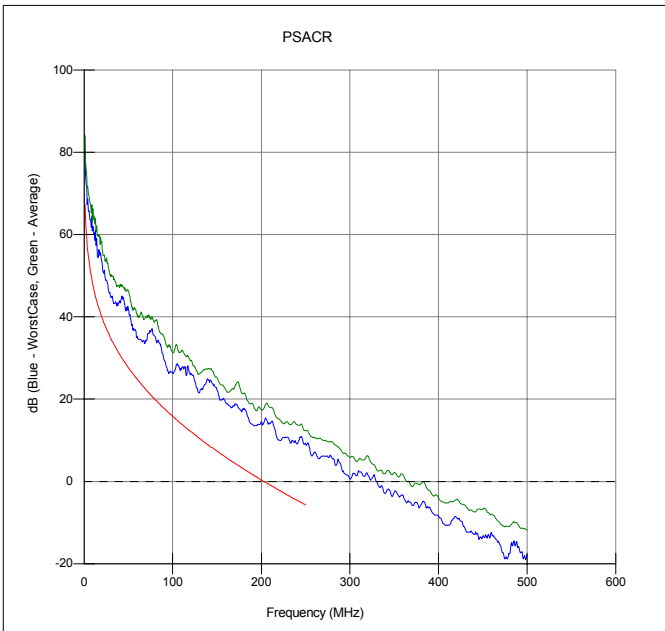
PSNEXT			
Freq	Worst Case	Average	Spec
1.	82.3	85.5	62.0
4.	72.1	74.9	60.5
8.	66.7	70.1	55.6
10.	67.5	71.1	54.0
16.	61.4	66.3	50.6
20.	61.2	65.5	49.0
25.	57.6	62.2	47.4
31.25	54.6	59.6	45.7
62.5	48.7	54.0	40.6
100.	44.2	49.3	37.1
200.	41.0	43.9	31.8
250.	38.8	42.3	30.2
300.	34.2	39.3	
400.	31.3	35.5	
500.	27.8	33.8	

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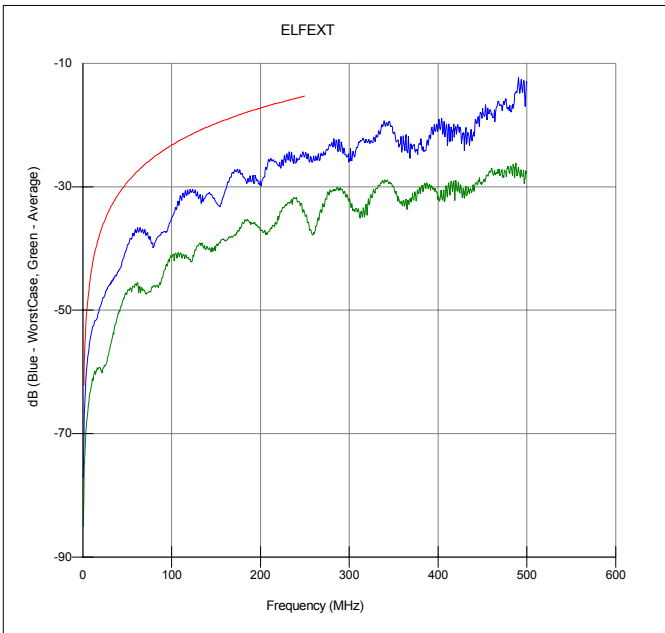
ACR			
Freq	Worst Case	Average	Spec
1.	82.4	90.7	70.3
4.	70.4	77.7	59.1
8.	63.8	71.0	52.5
10.	65.2	72.8	50.3
16.	56.6	66.1	45.2
20.	55.7	63.8	42.6
25.	50.5	59.6	39.9
31.25	46.9	56.2	37.0
62.5	37.9	46.4	26.9
100.	28.4	37.4	18.7
200.	17.9	22.9	3.3
250.	11.2	18.6	-2.7
300.	4.1	11.9	
400.	-7.4	3.4	
500.	-17.5	-3.8	



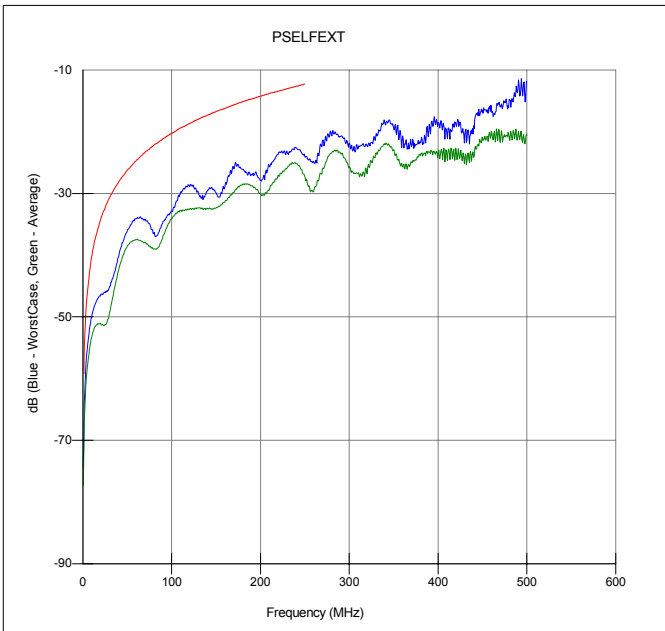
PSACR			
Freq	Worst Case	Average	Spec
1.	80.7	83.9	67.9
4.	68.6	71.5	56.6
8.	61.8	65.3	49.9
10.	62.1	65.8	47.7
16.	54.6	59.5	42.6
20.	53.6	57.9	39.9
25.	48.9	53.7	37.2
31.25	44.9	50.0	34.3
62.5	34.6	40.0	24.1
100.	26.3	31.3	15.8
200.	14.5	17.4	0.3
250.	9.1	12.3	-5.7
300.	0.6	5.8	
400.	-8.4	-4.0	
500.	-17.8	-11.8	

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<b>Technician</b>	David Ayers	<b>Test Status:</b>	PASS



ELFEXT			
Freq	Worst Case	Average	Spec
1.	72.4	80.9	63.0
4.	60.4	69.0	51.3
8.	54.9	63.4	45.2
10.	53.5	62.0	43.3
16.	51.3	59.4	39.2
20.	49.3	59.5	37.2
25.	47.4	59.0	35.3
31.25	45.8	55.6	33.4
62.5	37.2	46.3	27.4
100.	35.1	41.4	23.3
200.	29.6	37.1	17.2
250.	24.8	34.6	15.3
300.	25.6	32.0	
400.	20.6	31.8	
500.	13.2	27.9	



PSELFEXT			
Freq	Worst Case	Average	Spec
1.	69.5	72.4	60.0
4.	57.0	60.2	48.3
8.	51.5	54.7	42.2
10.	49.9	53.3	40.3
16.	47.2	51.2	36.2
20.	46.5	51.1	34.2
25.	46.1	51.2	32.3
31.25	44.9	48.6	30.4
62.5	34.0	37.5	24.4
100.	32.8	34.1	20.3
200.	28.0	30.1	14.2
250.	24.2	27.5	12.3
300.	21.9	25.7	
400.	18.6	23.7	
500.	11.9	20.6	