



REPORT INTERTEK TESTING SERVICES, INC.

LITPD182

Rev. 2

3933 US ROUTE 11, CORTLAND, NEW YORK 10345

ORDER NO.: J20045942-406

DATE: May 4, 2001

REPORT NO.: J20045942-015s

RENDERED TO: HellermannTyton

TEST:

Performance testing of the cabling configurations as defined in TIA/EIA TSB-67 to the requirements of TIA/EIA 568A-5 for Category 5e 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.

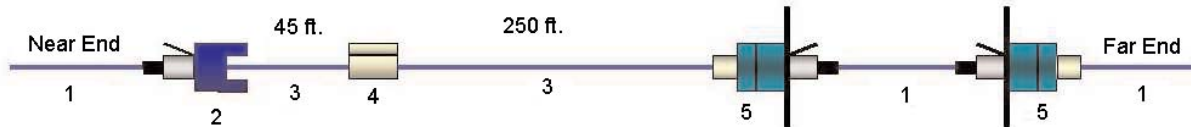
STANDARDS USED:

- 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-568A, dated October 6, 1995, Commercial Building Telecommunications Cabling Standard
- ANSI/TIA/EIA-568-A-5 Dated January 27, 2000, Transmission Performance Specification for 4 Pair 100 Ohm Category 5e Cabling
- ANSI/TIA/EIA-568-A-1-1997 dated August 20, 1997, Propagation Delay and Delay Skew Specifications for 100 Ohm 4-pair Cable
- ISO/IEC 11801-1995 First Edition, Information Technology - Generic Cabling for Customer Premises, dated July 15, 1995
- TIA/EIA TSB 67 - October 1995, Transmission Performance Specifications for Field Testing of Unshielded Twisted-Pair Cabling Systems

AUTHORIZATION: The tests were authorized by Mr. Gary J. Bernstein, representing the client, HellermannTyton

DATE OF TEST: May 4th, 2001

SAMPLE DESCRIPTION:



ID Number
1
2
3
4
5

Manufacturer
Hellermann Tyton
Hellermann Tyton
Superior Essex
Hellermann Tyton
Hellermann Tyton

Part Number
PC5EXXX10
RJ45FC5E
Cobra CMR
T110KIT1004
P108-12-MOD
W/ RJ45FC5E

Description
Equipment Cord
Wall Outlet
Horizontal Cable
110 Block
Patch Panel

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 200 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-A-5, Category 5e.

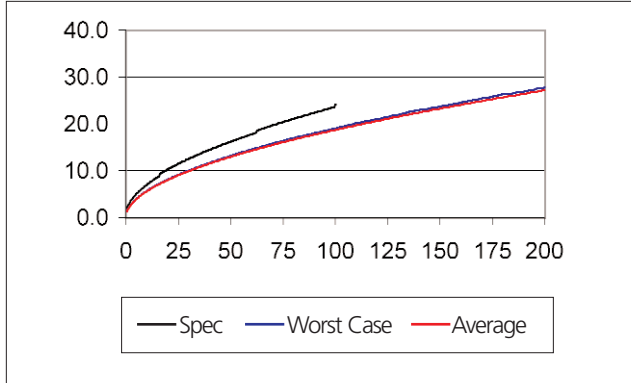
RESULTS:

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 5e cabling specification.



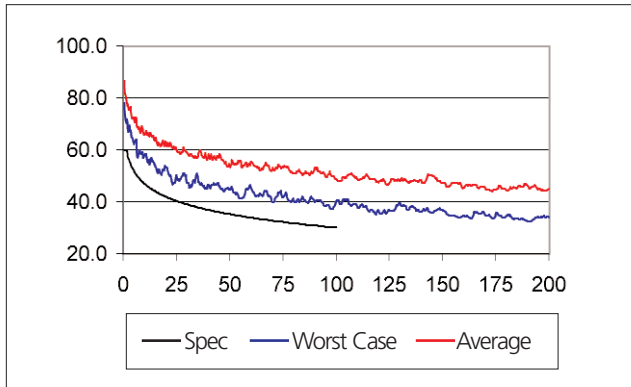


Attenuation



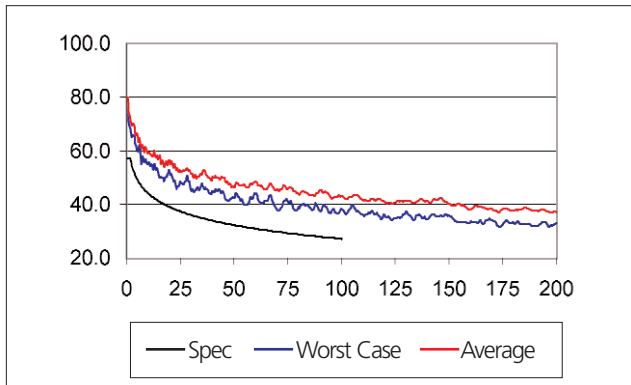
Freq.	Spec.	Worst Case	Average
1	2.5	1.7	1.7
4	4.5	3.5	3.5
8	6.3	5.1	5.0
10	7.0	5.7	5.6
16	8.8	7.2	7.1
20	10.2	8.1	8.0
25	11.4	9.1	9.0
31.25	12.7	10.2	10.1
62.5	18.5	14.8	14.6
100	24.0	19.0	18.7
155	N/A	24.1	23.7
200	N/A	27.7	27.1

Near End Cross Talk



Freq.	Spec.	Worst Case	Average
1	60.0	73.3	81.6
4	53.6	65.0	73.2
8	48.6	58.8	67.4
10	47.0	57.9	66.0
16	43.6	51.5	62.1
20	42.0	53.5	63.3
25	40.4	50.3	60.1
31.25	38.7	45.4	57.7
62.5	33.6	42.2	53.4
100	30.1	40.0	48.8
155	N/A	34.6	47.4
200	N/A	34.1	44.9

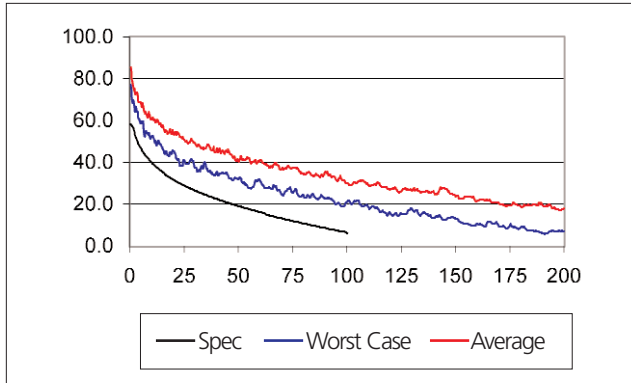
Power Sum NEXT



Freq.	Spec.	Worst Case	Average
1	57.0	71.3	75.0
4	50.9	62.9	67.0
8	45.8	55.8	60.0
10	44.1	55.3	59.1
16	40.6	50.3	55.2
20	39.0	52.3	56.5
25	37.4	48.4	52.7
31.25	35.7	44.7	50.0
62.5	30.6	40.2	46.7
100	27.1	38.1	43.1
155	N/A	33.3	40.0
200	N/A	32.9	37.2

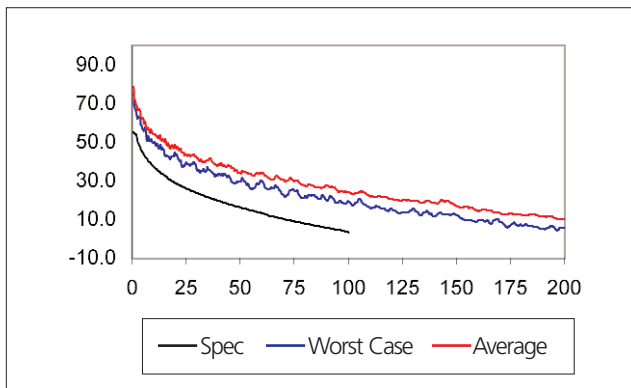


Attenuation to Cross Talk Ratio



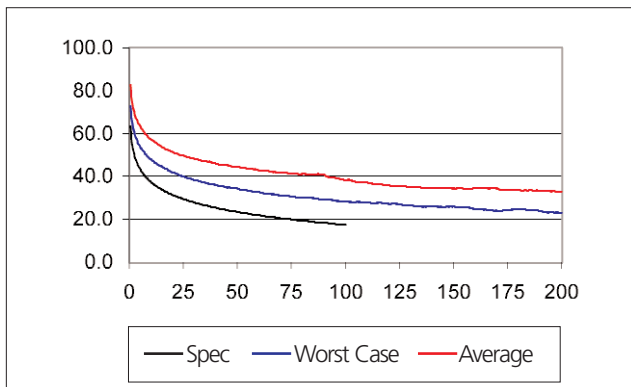
Freq.	Spec.	Worst Case	Average
1	57.5	71.6	79.9
4	49.0	61.5	69.7
8	42.3	53.7	62.4
10	40.0	52.3	60.4
16	34.8	44.4	55.0
20	31.8	45.4	55.3
25	29.0	41.3	51.1
31.25	26.0	35.3	47.6
62.5	15.0	27.6	38.8
100	6.1	21.0	30.1
155	N/A	10.5	23.7
200	N/A	7.0	17.7

Power Sum ACR



Freq.	Spec.	Worst Case	Average
1	54.5	69.7	73.5
4	46.4	59.3	63.5
8	39.5	50.7	55.3
10	37.1	49.6	54.1
16	31.8	43.1	48.3
20	28.8	44.2	48.2
25	25.9	39.3	43.7
31.25	23.0	34.4	40.0
62.5	12.0	25.3	31.8
100	3.1	19.1	24.2
155	N/A	9.5	16.4
200	N/A	5.5	10.0

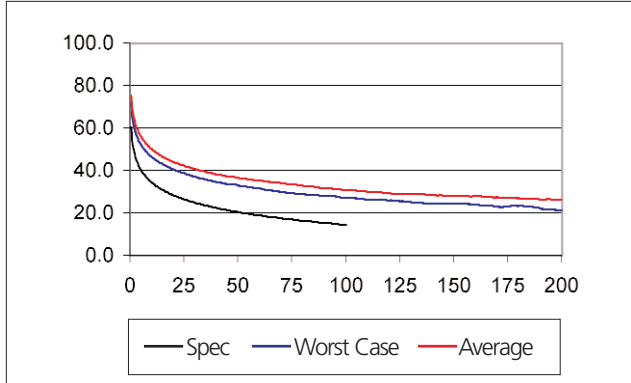
Equal Level Far End Cross Talk



Freq.	Spec.	Worst Case	Average
1	57.4	67.5	77.3
4	45.4	55.5	65.2
8	39.3	49.8	59.2
10	37.4	48.1	57.3
16	33.3	43.9	53.2
20	31.4	41.8	51.4
25	29.4	40.0	49.8
31.25	27.5	38.1	48.0
62.5	21.4	32.1	42.7
100	17.4	28.3	38.5
155	N/A	25.4	34.2
200	N/A	23.0	32.8

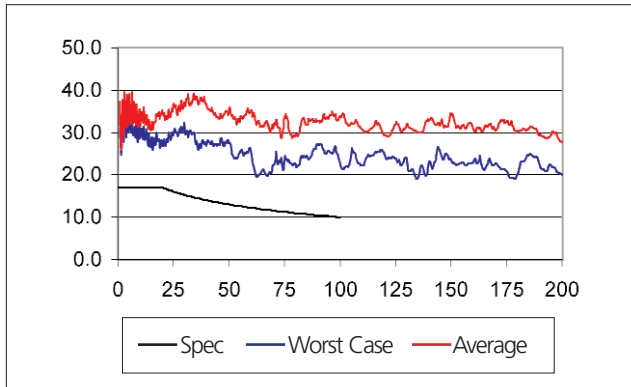


Power Sum ELFEXT



Freq.	Spec.	Worst Case	Average
1	54.4	65.5	70.0
4	42.4	54.0	58.0
8	36.4	48.4	52.0
10	34.4	46.5	50.2
16	30.3	42.5	45.9
20	28.4	40.5	44.1
25	26.5	38.7	42.3
31.25	24.5	36.8	40.4
62.5	18.5	31.0	34.9
100	14.4	27.2	30.8
155	N/A	24.3	27.8
200	N/A	21.1	26.2

Return Loss



Freq.	Spec.	Worst Case	Average
1	17.0	34.1	37.2
4	17.0	32.5	38.8
8	17.0	28.9	31.8
10	17.0	28.6	32.2
16	17.0	26.8	31.0
20	17.0	27.4	35.3
25	16.0	29.3	36.2
31.25	15.1	30.3	38.3
62.5	12.0	19.6	32.0
100	10.0	22.7	33.9
155	N/A	23.0	31.7
200	N/A	20.0	27.8

Conclusions:

The cabling configurations, as previously defined, were tested in accordance with and for the transmission requirements of the specifications contained herein and did comply with the indicated applicable requirements.

Report reviewed by:

Robert Southworth

Testing Performed by:

Marilyn Jump