NETCONNECT* Category 5 System Test, Consolidation Point

1. INTRODUCTION

1.1. Purpose

Testing was performed on the AMP* NETCONNECT* Consolidation Point (CP) system to determine its conformance to the requirements of AMP Product Specification 108-1675 Rev. A.

1.2. Scope

This report covers the system electrical performance of the CP system manufactured by the Global Communication Connector Systems Group. Equal-level far-end crosstalk (ELFEXT) was not performed because the 108 specification gives no failure criteria. The ELFEXT criteria is expressed with an (ffs) which means for future study. When the ELFEXT failure criteria is available, the 108 specification will be revised. The testing was performed between 08Aug97 and 31Oct97.

1.3. Conclusion

The CP, listed in paragraph 1.5., met the system electrical performance requirements of AMP Product Specification 108-1675 Rev A, using the CP Test or Examination sequence.

1.4. Product Description

The CP is an interconnection point within the horizontal cabling, using TIA-568-A compliant connecting hardware and installed per the same specification. It differs from the Multi-User Outlet (MUO) in that it requires an additional connection for each horizontal cable run. CP should be located in an open work area so that each furniture cluster is served by at least one CP. The CP is limited to a maximum of 12 work areas. CP should be located in fully accessible , permanent locations such as building columns, and permanent walls.

1.5. Test Samples

The test samples were randomly selected from normal current production lots, and the following part numbers were used for test:

Test Group	Quantity	Part Nbr	Description
1,2,3	3 ea.	406772-1	Universal 110/RJ45 (CP)
1,2,3	3 ea.	219185-1	3 meter Transition PVC Cable
1,2,3	3 ea.	219185-1	10 meter Transition PVC Cable
1,2,3	3 ea.	219190-1	3 meter Transition FUTURELAN™Cable
1,2,3	3 ea.	219190-1	10 meter Transition FUTURELAN Cable
1,2,3	3 ea.	57248-2	Non-Plenum Cat 5 Horizontal Cable
1,2,3	3 ea.	57826-1	Non-Plenum FUTURELAN 350 Horizontal Cable

1.6. Environmental Conditions

Unless otherwise stated, the following environmental conditions prevailed during testing:

Temperature:	15 to 35°C
Relative Humidity:	20 to 80%

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1.7. Qualification Test Sequence

Test or Examination	Test Groups		
	1	2	3
	Test Sequence (a)		
Examination of Product	1,6	1,6	1,6
Attenuation, Channel/Link (b)	2	2	2
Near End Crosstalk, Channel/Link (Pair to Pair & Powersum) (b)	3	3	3
Return Loss, Channel/Link (b)	4	4	4
Attenuation Crosstalk Ratio (ACR), Channel (b)	5	5	5

NOTE

(a) The numbers indicate sequence in which tests were performed.
(b) Specific lengths and configurations can be found in Product Specification 108-1675.

2. SUMMARY OF TESTING

2.1. Examination of Product - All Groups

All samples submitted for testing were randomly selected from current production lots. A Certificate of Conformance was issued by the Global Communication Connector Systems Group and the Precision Cable Division (PCD). Where specified, samples were visually examined and no evidence of physical damage detrimental to product performance was observed.

2.2. Attenuation - All Groups

All attenuation results were within the limits specified in Tables 1 and 2.

2.3. Near End Crosstalk - All Groups

All near-end crosstalk results were within the limits specified in Tables 1 and 2.

2.4. Attenuation Crosstalk Ratio (ACR) - All Groups

All ACR results were within the limits specified in Tables 1 and 2.

2.5. Return Loss - All Groups

All return loss results were within the limits specified in Tables 1 and 2.

Frequency (MHz) See Note (a)	Near End Crosstalk Pair to Pair & Powersum (dB) See Note (b)	Attenuation (dB) See Note (b)	ACR (dB) See Note (c)	Return Loss (dB) See Note (d)
1.0	60.0	2.5	40	18
4.0	50.6	4.5	40	18
8.0	45.6	6.3	---	18
10.0	44.0	7.0	35	18
16.0	40.6	9.2	30	15
20.0	39.0	10.3	28	15
25.0	37.4	11.4	---	10
31.25	35.7	12.8	23	10
62.5	30.6	18.5	13	10
100.0	27.1	24.0	4	10

NOTE

(a) Per TIA/EIA TSB67.
(b) Values derived from a curve defined by frequency boundaries per EIA/TIA TSB67.
(c) Values derived from a curve defined by frequency boundaries per ISO/IEC 11801.
(d) Values derived from Table 2 of TIA/EIA-568A Draft Addendum 4A.

Table 1
Channel Requirements

Frequency (MHz) See Note (a)	Near End Crosstalk Pair to Pair & Powersum (dB) See Note (b)	Attenuation (dB) See Note (b)	ACR (dB) See Note (c)	Return Loss (dB) See Note (d)
1.0	60.0	2.1	40	18
4.0	51.8	4.0	40	18
8.0	47.1	5.7	---	18
10.0	45.5	6.3	35	18
16.0	42.3	8.2	30	15
20.0	40.7	9.2	28	15
25.0	39.1	10.3	---	10
31.25	37.6	11.5	23	10
62.5	32.7	16.7	13	10
100.0	29.3	21.6	4	10

NOTE

(a) Per TIA/EIA TSB67.
(b) Values derived from a curve defined by frequency boundaries per EIA/TIA TSB67.
(c) Values derived from a curve defined by frequency boundaries per ISO/IEC 11801.
(d) Values derived from Table 2 of TIA/EIA-568A Draft Addendum 4A.

Table 2
Link Requirements

3. TEST METHODS

3.1. Examination of Product

Where specified, samples were visually examined for evidence of physical damage detrimental to product performance.

3.2. Attenuation

A network analyzer was used to measure the scattering parameters S_{11} and S_{21} of the sample. The attenuation was then calculated from these measurements.

3.3. Near End Crosstalk

Sinusoidal frequencies of 1 to 100 MHz were applied to one end of the "driven line". The "quiet line" was monitored with a network analyzer to measure any crosstalk signals.

3.4. ACR

ACR is a calculated value. ACR is the difference between the Near-End Crosstalk loss and the Attenuation of the system under test. The units are dB.

3.5. Return Loss

The signal passing through a system loses some of its amplitude to a reflection which returns to the source. In a “good” system, the reflected wave has a small amplitude, so the returning wave can be said to have a high return loss. Return loss is the ratio of incident to reflected power expressed in dB.

4. VALIDATION

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