

POWER AND DIGITAL INSTRUMENTS PTY LTD.



Electronics and Communications Consulting Engineers

ACH 882 855763

POSTAL:
P.O. BOX 422
ROSEVILLE NSW 2069

BUSINESS OFFICE:
66A FINDLAY AVE
ROSEVILLE NSW AUSTRALIA

TEL: +61 2 9411 4442
FAX: +61 2 9412 1920

ABN 21 002 065 769

PDI TEST REPORT

No.0437

COMPREHENSIVE Cat 6 TRANSMISSION TESTING ON

4 Pair 5m RJ45 Patch Cord

With

COBLE (COB) Cat 6 RJ45 Plug

for

Australian Communications Laboratories Pty Ltd

DATE: 8th October, 2004

REPAIRED BY: G. GEORGEVITS (B E Hons)

TABLE OF CONTENTS

1. Background
2. Aims of Testing
3. Test Procedure
 - 3.1 Test Setups
 - 3.2 Range of Tests Performed
 - . Return Loss
 - . NEXT
4. Test Results, Findings and Conclusions
 - 4.1 Summary of Test Results
 - 4.2 Findings and Conclusions
5. Additional Background Information
6. Test Results
 - . Return Loss
 - . NEXT

PDI LABORATORY TEST REPORT No. 0437

**TITLE: 4 Pair RJ45 Patch Cord – With COBLE (COB) Cat 6 RJ45 Plug
Comprehensive Cat 6 Transmission Testing**

1. BACKGROUND

PDI was commissioned by Australian Communications Laboratories Pty Ltd to conduct comprehensive transmission testing on a single sample of a 5m patch cord, using Type Hosiwell 500+ cable.

2. AIM OF TESTING

The aim of the testing was to:

1. Verify transmission performance across the range 1MHz to 250MHz for Return Loss (RL),
2. Verify transmission performance across the range 1MHz to 250MHz for Near-end Crosstalk (NEXT)

in order to determine compliance with the Cat 6 transmission performance requirements set out in Standard (ANSI/TIA/EIA-568-B.2-1, 20th June, 2002).

3. TEST PROCEDURE

3.1 Test Setup

The test setup consisted of two SMP RJ45 jacks, qualified for use as Cat 6 patch cord test heads in accordance with the test head qualification procedures stipulated in the Standard. They were connected to the Network Analyser in accordance with the test setup specified in the Standard.

The twisted pairs linking the test heads to the test baluns were verified for compliant return loss performance and mounted in test fixtures which provide for a consistent common mode impedance in accordance with the procedures defined in the Standard.

The test pairs were terminated for both common and differential mode signals on all four pairs at both ends of the test circuit.

The patch cord sample was designated with an "A" and "B" end, so that the measurements may be repeated, if required, at a future date.

APPROVED:
REPORT COPYRIGHT PDI



PDI LABORATORY TEST REPORT No. 0437

**TITLE: 4 Pair RJ45 Patch Cord – With COBLE (COB) Cat 6 RJ45 Plug
Comprehensive Cat 6 Transmission Testing**

Refer also to Section 5. below for details of the test equipment used to perform the testing.

3.2 Range of Tests Performed

The following tests were performed on the test sample(s):

- . Return Loss (RL) on all four pairs, measured from both ends, total 8 tests for each sample
- . Near-end Crosstalk (NEXT) on all six pair combinations, measured from both ends, total 12 tests for each sample

In addition, a DC continuity test was performed on all pairs prior to commencement of transmission testing to ensure connection integrity.

APPROVED:
REPORT COPYRIGHT PDI



4. TEST RESULTS, FINDINGS AND CONCLUSIONS

4.1 Summary of Test Results

The following provides a summary of product transmission performance for the sample(s) tested.

A "*" next to a result indicates at least one test result was close to the pass mark, lying within the error margin of the measurement.

5m Cord Sample	Parameter	Cat 6 Test
#1	Return Loss	Pass*
#1	NEXT	Pass

4.2 Findings and Conclusions

The following transmission performance conclusions may be drawn from the test results:

1. The test sample exhibited marginal Return Loss response for pair 78 at around 10MHz, in both directions.
2. The test sample exceeded all other transmission performance requirements of the Standard by a satisfactory margin.

PDI LABORATORY TEST REPORT No. 0437

**TITLE: 4 Pair RJ45 Patch Cord – With COBLE (COB) Cat 6 RJ45 Plug
Comprehensive Cat 6 Transmission Testing**

5. ADDITIONAL BACKGROUND INFORMATION:

DATE OF TESTING: 8th October, 2004

PRODUCT DESCRIPTION: RJ45 Patch Cord, 5m sample

PART TYPES/NOS: ID number: ACL1357
Cable Type Hosiwell 500+

APPLICABLE STANDARD: "Commercial Building Telecommunications Building Standard, Part 2: Balanced Twisted Pair Cabling Components, Addendum 1 - Transmission Performance Specifications for 4-pair 100 ohm Category 6 Cabling", ANSI/TIA/EIA-568-B.2-1 20th June, 2002

OTHER RELEVANT REPORTS: None

TEST EQUIPMENT: Hewlett Packard Network Analyser with integral S-Parameter Test Set, Model HP8753ES, Serial No.US39174849

2 x BH Electronics Baluns, 50:100 Ohms, Type 040-0093

PDI reference attenuator, 30.0dB, 100 ohm, balanced, PDI Serial No.01372, traceable, Cal Id. 207642, calibration due 03.06.08

PDI GPIB Data Acquisition Software

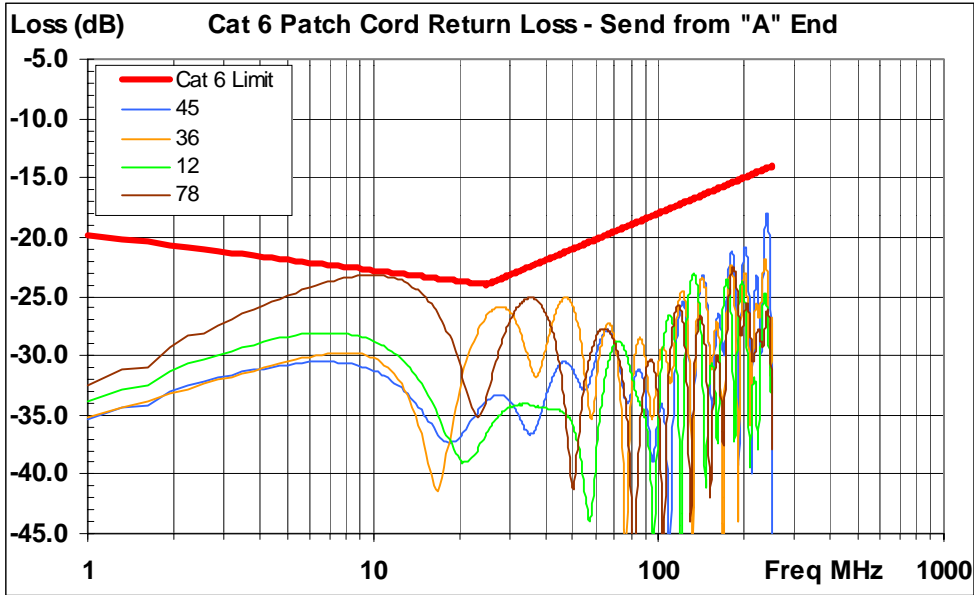
Cablesan Model 256 Cable scanner

APPROVED: 
REPORT COPYRIGHT PDI

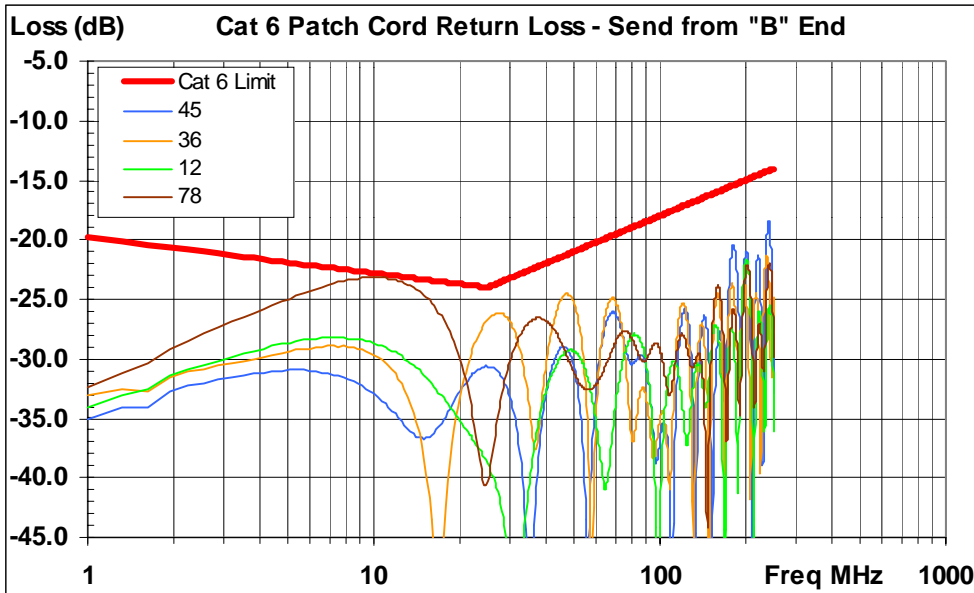
6. TEST RESULTS

Sample #1:

Return Loss - Send from "A" End



Return Loss - Send from "B" End



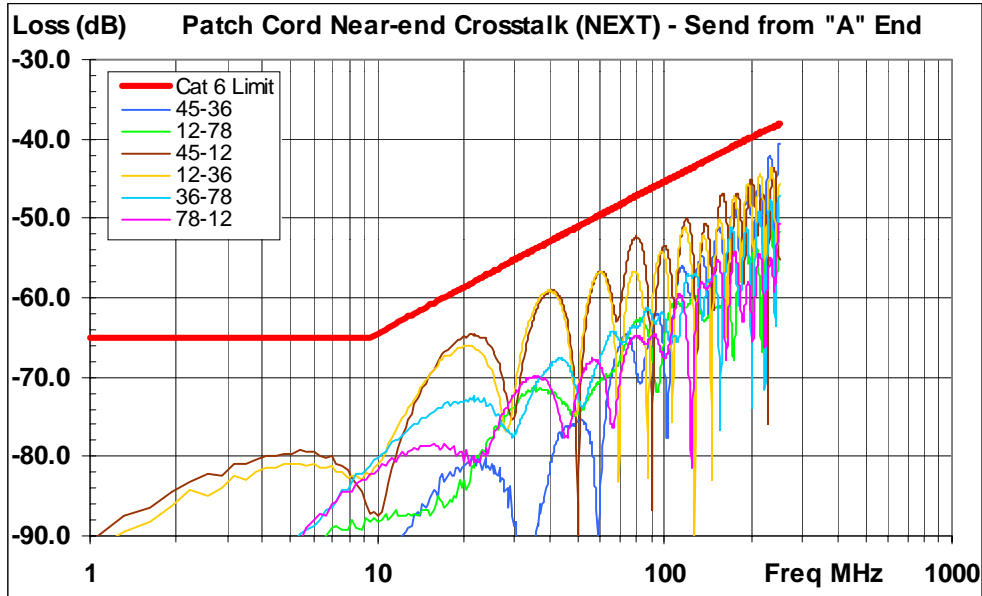
Estimated accuracy +/-1dB 0 - 30dB, +/-2dB >30dB

APPROVED: *G. Georgetti*
REPORT COPYRIGHT PDI

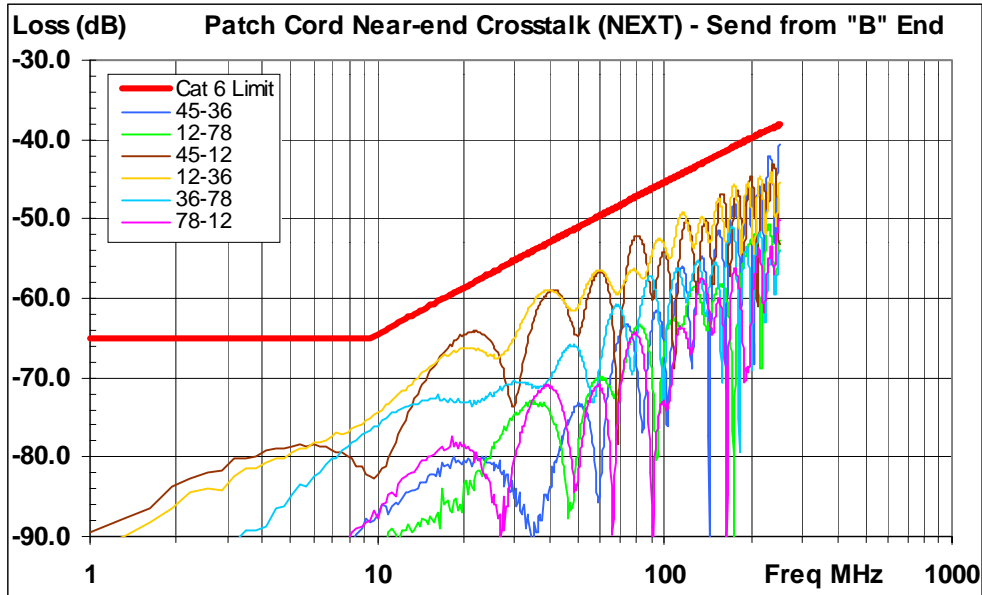
PDI LABORATORY TEST REPORT No. 0437
TITLE: 4 Pair RJ45 Patch Cord – With COBLE (COB) Cat 6 RJ45 Plug
Comprehensive Cat 6 Transmission Testing

Sample #1 (cont'd)

NEXT - Send from "A" End



NEXT - Send from "B" End:



Estimated accuracy +/-0.5dB to 50dB, +/-1dB for readings >50dB

END

APPROVED: *G. Georget*
REPORT COPYRIGHT PDI