

Technical Report
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ADSL Dynamic
Interoperability Testing

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Table of contents

1.	INTRODUCTION	3
2.	REFERENCES FOR PERFORMANCE TESTING	4
2.1	T1.413 systems	4
2.2	ITU-T systems	4
2.2.1	G.992.1 (G.DMT)	4
2.2.2	G.992.2 [GLITE]	4
3.	TEST SETUP	5
4.	TEST SUITES	5
4.1	Parameters	5
4.2	Sample test suite description format	5
4.3	Test Suite for T1.413-1998	5
4.4	Test Suite for ITU G.992.1	6
4.5	Test Suite for ITU G.992.2	7
5.	TEST CASES	7
5.1	Sample test case description format	7
5.2	Loop reach with external crosstalk and noise	8
5.3	Capacity on Standard loops with external crosstalk and noise	9
5.4	BER with external crosstalk and noise	9
5.5	Capacity on loop with bridged taps under external crosstalk and noise conditions	9
6.	REFERENCES	10
ANNEX A: BIT ERROR RATIO TESTING OF ATM BASED ADSL SYSTEMS		11
A.1	General description of BER testing	11
A.2	Description	11
A.3	Test Requirements	12
A.3.1	External BER test requirements	12

ANNEX B: A METHOD TO PERFORM ATM BASED BIT ERROR RATIO TESTS WITHOUT EXTERNAL BER TOOLS	14
B.1 Requirements of an internal BER tool	14
B.1.1 Traffic Generator	14
B.1.2 Traffic Analyzer	14
B.2 Measurement results	16
ANNEX C: REFERENCE TEST SETUP FOR ATM BASED ADSL SYSTEMS	17
C.1 Introduction	17
C.2 Description	17
C.2.1 Cabling	19
C.2.2 Cable simulator	20
C.2.3 Noise generators	22
C.2.4 BER test equipment	23
C.3 Conclusion	23
7. LIST OF FIGURES	24

1. Introduction

This document describes ADSL dynamic interoperability test suites and test cases.

An ATU-C and an ATU-R are dynamically interoperable if they implement a common and compatible set of features, functions and options and can demonstrate satisfactory mutual communication in a real network architecture environment as performance test conditions are varied and exercised. "Compatible" means that there are no conflicting requirements that will prevent the ADSL system from achieving interoperability.

Dynamic interoperability testing is often referred to as performance testing in ADSL and other telecommunication standards.

Systems can be tested for performance both on standard loops and on a set of additional loops. The procedures for each test case record which features from the referenced standards are used. Section 4 differentiates those test groups required for Dynamic Interoperability testing from those using non standard loops or conditions. Results from test groups using non standard loops or conditions can be used for characterization of Dynamic Interoperability.

Annex A: provides information on how to do bit error ratio testing in an ATM based ADSL environment.

Annex B: provides information on a method to perform ATM based BER testing without external BER tools.

Annex C: provides a reference test setup for ATM based ADSL systems.

2. References for performance testing

2.1 T1.413 systems

Systems claiming compliance to [ANSI] should be tested for performance using the loops and noise environment as specified in section 11 of [ANSI]. Section 11 of [ANSI] also describes the testing method and gives the required performance data.

2.2 ITU-T systems

2.2.1 G.992.1 (G.DMT)

2.2.1.1 Region A (other than Europe)

Systems claiming compliance to [GDMT] Region A should be tested for performance using the loops and noise environment as specified in Annex F of [GDMT]. The required performance data is also given in Annex F of [GDMT] while the testing method is described in [GTEST].

2.2.1.2 Region B (Europe)

Systems claiming compliance to [GDMT] Region B should be tested for performance using the loops and noise environment as specified in Annex G of [GDMT]. The required performance data is also given in Annex G of [GDMT] while the testing method is described in [GTEST].

2.2.2 G.992.2 [GLITE]

2.2.2.1 North America

Systems claiming compliance to [GLITE] North America should be tested for performance using the loops and noise environment as specified in Annex D of [GLITE]. The required performance data is also given in Annex D of [GLITE] while the testing method is described in [GTEST].

2.2.2.2 Europe

Systems claiming compliance to [GLITE] Europe should be tested for performance using the loops and noise environment as specified in Annex E of [GLITE]. The required performance data is also given in Annex E of [GLITE] while the testing method is described in [GTEST].

3. Test Setup

The test setup shall be as in Figure C1: Typical ADSL test setup.

Test duration for bit error ratio tests are defined in Table 1.

Table 1: Test duration for each BER test

Bit Rate	Minimum Test Period
> 6 Mbps	100 Seconds
>1.544 Mbps and < 6Mbps	500 Seconds
<1.544 Mbps	20 Minutes

4. Test Suites

4.1 Parameters

Parameters are a means to provide variable input conditions to test cases. Currently defined parameters are:

- MRG: margin (dB)
- LAT: latency (Fast or Interleaved)

4.2 Sample test suite description format

Test Group Number	
Test Group Description	
Test Cases	
Test Parameters	

4.3 Test Suite for T1.413-1998

The following two test groups shall be executed using the loops and noises referenced in Section 3.1. The results of these test groups shall be provided as the minimum required to demonstrate Dynamic Interoperability.

Note: The data for the test case using category 1 T1 noise on the Mid-CSA loop shall be taken at 3 dB margin.

Test Group Number	ANSI-TG1
Test Group Description	Capacity vs. Standard loop
Test Cases	TC2
Test Parameters	MRG = 6, LAT = fast or interleaved

Test Group Number	ANSI-TG2
Test Group Description:	Stability & BER
Test Cases	TC3
Test Parameters	MRG = 6, LAT = fast or interleaved

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