Signal Integrity Test Report

3M™ External MiniSAS Cable Assemblies

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1.0 Scope

This data sheet summarizes test methods, test conditions and product performance for the 3M Ribbon Twin Axial External MinSAS Cable Assemblies

2.0 Product Tested

Product:	Ribbon Twin Axial External MiniSAS Cable Assembly
Product Number:	8G26 series; Assemblies tested S-parameters and NEXT: 8G26-0A-CW1-01-2.30 8G26-8A-CW1-01-5.00 BER channel simulation: 8G26-0A-CW1-01-1.00 8G26-8A-CW1-01-3.00 8G26-8A-CW1-01-5.00
Related Specification Sheet:	TBD

3.0 General Conditions

3.1 Test Specimens

The test specimens shall be strictly in compliance with the design, construction details and physical properties detailed in the relevant technical specification sheet (See Section 2).

3.2 Standard Test Conditions

The test shall be done under the following conditions:

Temperature:	15°C to 35°C
Relative Humidity:	45% to 75%
Atmospheric pressure:	650 to 800 mmHg

4.0 Test Results Summary

Items		Specification per SAS2.1 rev07	Test Method	Results
Signal Integrity (Passive Cable)	Differential insertion loss, SDD21	Per SAS2.1 section 5.5.4: Loss less than TCTF test load specified in section 5.6.3 (see figure 93)	SAS-2.1 rev 07 sections 5.5.4, 5.6.3 (figure 93) and Annex D.10	PASS
	Differential reflection loss, SDD22	Meets SAS2.1 limit line: < -10 dB up to 2.08 GHz < -7.9+13.3 x log(f / 3 GHz) between 2.08 and 6 GHz	SAS-2.1 rev 07 sections 5.5.4 and Annex D.10	PASS
	Differential-to-common mode conversion, SCD21	Meets SAS2.1 limit line: < -18 dB up to 6 GHz	SAS-2.1 rev 07 sections 5.5.3 and Annex D.10	PASS
	Differential to common mode reflection, SCD22	Meets SAS2.1 limit line: < -26 dB up to 300 MHz < -12.7+13.3 x log(f / 3 GHz) between 300 MHz and 4.78 GHz < -10 dB between 4.78 and 6 GHz	SAS-2.1 rev 07 sections 5.5.3 and Annex D.10	PASS
	SCD21 – SDD21; (Differential-to-common mode conversion) minus (Differential insertion loss)	Meets SAS2.1 limit line: < -10 dB up to 6 GHz	SAS-2.1 rev 07 sections 5.5.3 and Annex D.10	PASS
	Near End Crosstalk (NEXT)	Meets SAS2.1 limit line: < -26 dB up to 6 GHz	SAS-2.1 rev 07 section 5.5.3	PASS
	BER channel simulation (Stateye)	Minimum eye height : 84 mV (P-P) Maximum total jitter: 0.64 UI	SAS-2.1 rev 07 section 5.5.5	PASS

5.0 Testing

Test methods are based upon SAS-2.1 (T10/2125-D revision 07)

5.1 General

Visual (Appearance) — EIA-364-18A

Purpose

The purpose of this test is to visually examine and dimensionally inspect the connector in order to determine whether the cable assembly conforms to the applicable specification and detail documents not covered by performance requirements.

Test Method

The examination shall be made in accordance with EIA-364-18A. The visual examination shall include inspection of the following features as a minimum: workmanship, marking, materials, finish, standards, design and construction. The dimensional inspection shall be a check for compliance with the outline drawings of the detail specification.

5.2 Signal Integrity

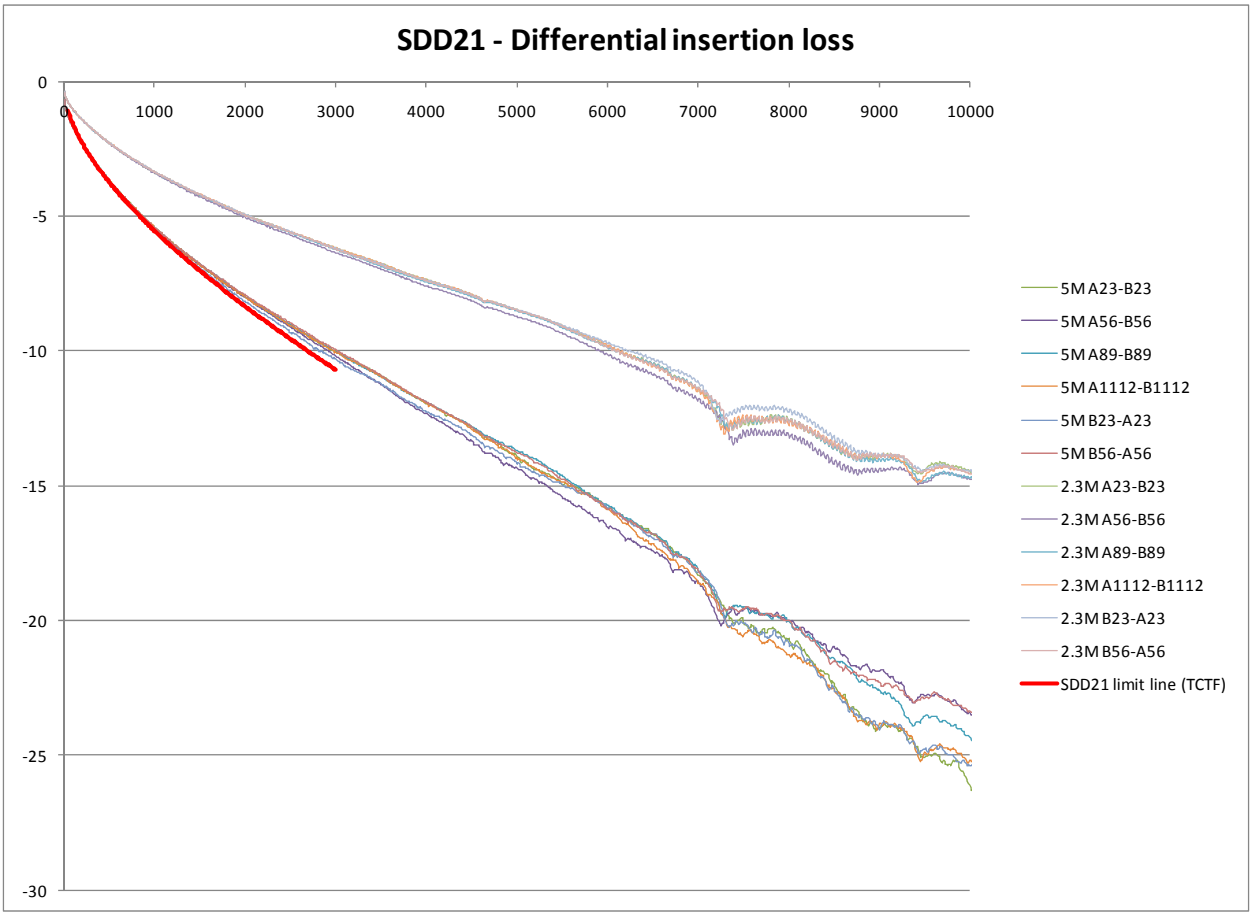
Differential insertion loss, SDD21

Purpose

The purpose of this test is to verify the differential insertion loss (SDD21) meets the requirements specified in SAS-2.1.

Test Method

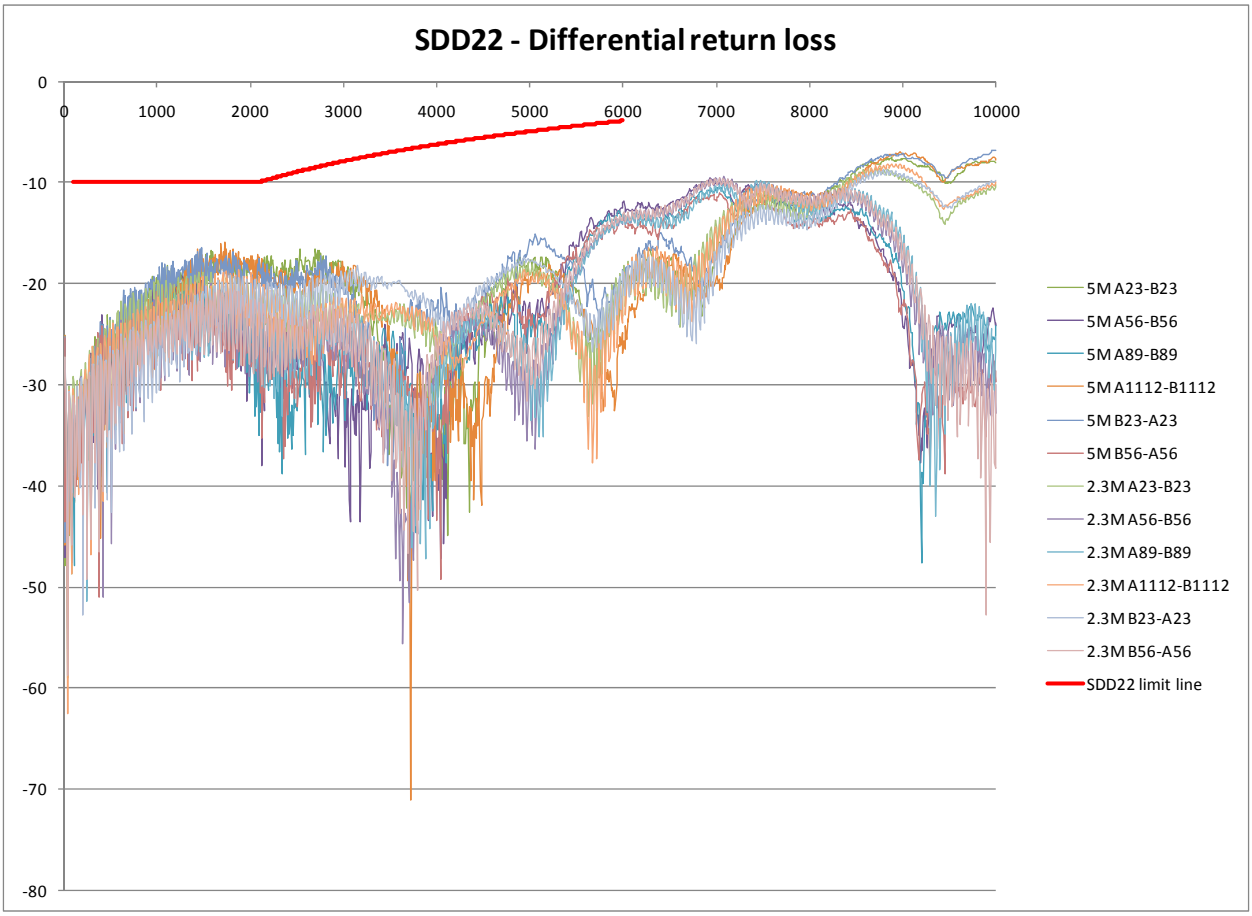
Differential insertion loss (SDD21) has been measured in accordance with standard SAS-2.1 rev 07.



Differential reflection loss, SDD22

Purpose
The purpose of this test is to verify the differential reflection loss (SDD22) meets the requirements specified in SAS-2.1.

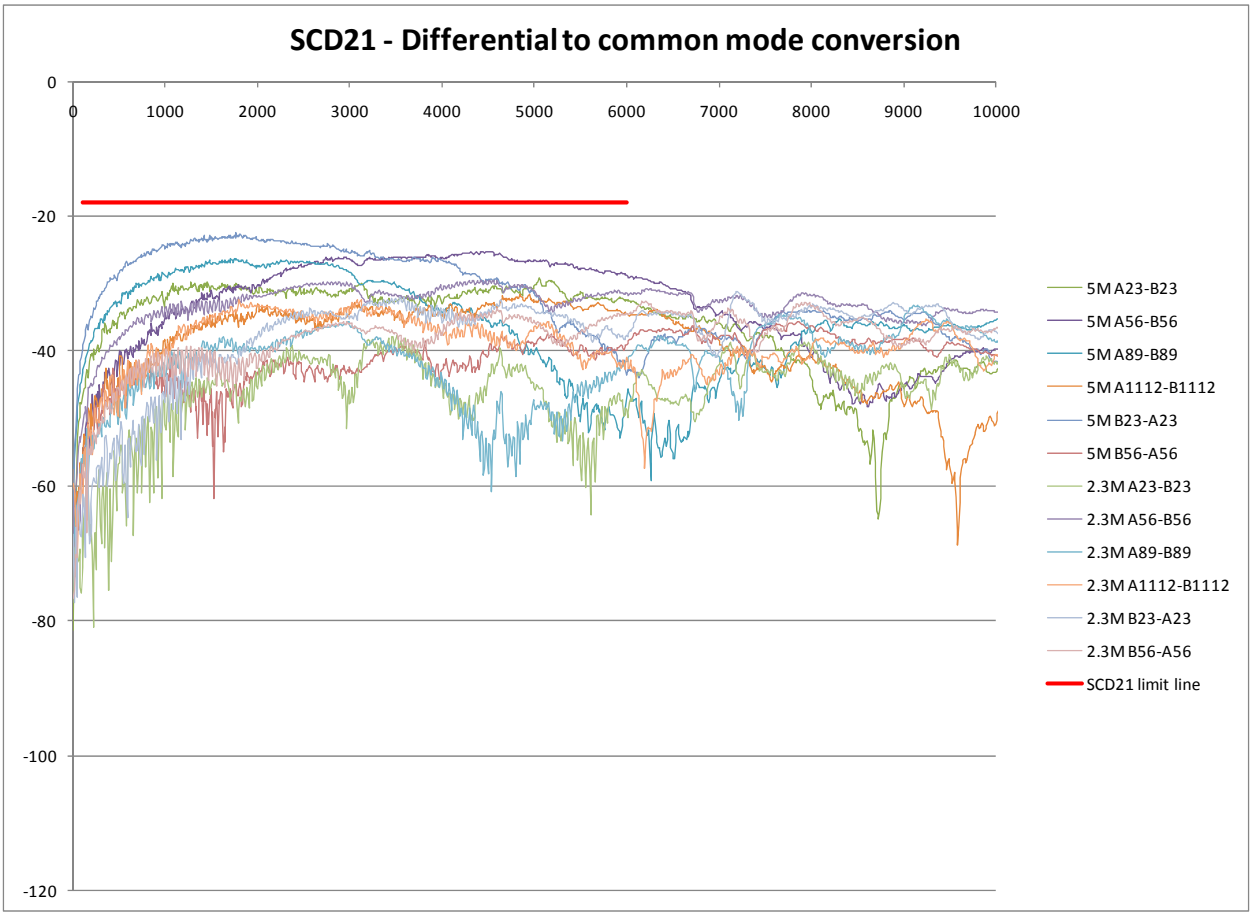
Test Method
Differential reflection loss (SDD22) has been measured in accordance with standard SAS-2.1 rev 07.



Differential-to-common mode conversion, SCD21

Purpose
The purpose of this test is to verify the differential-to-common mode conversion (SCD21) meets the requirements specified in SAS-2.1.

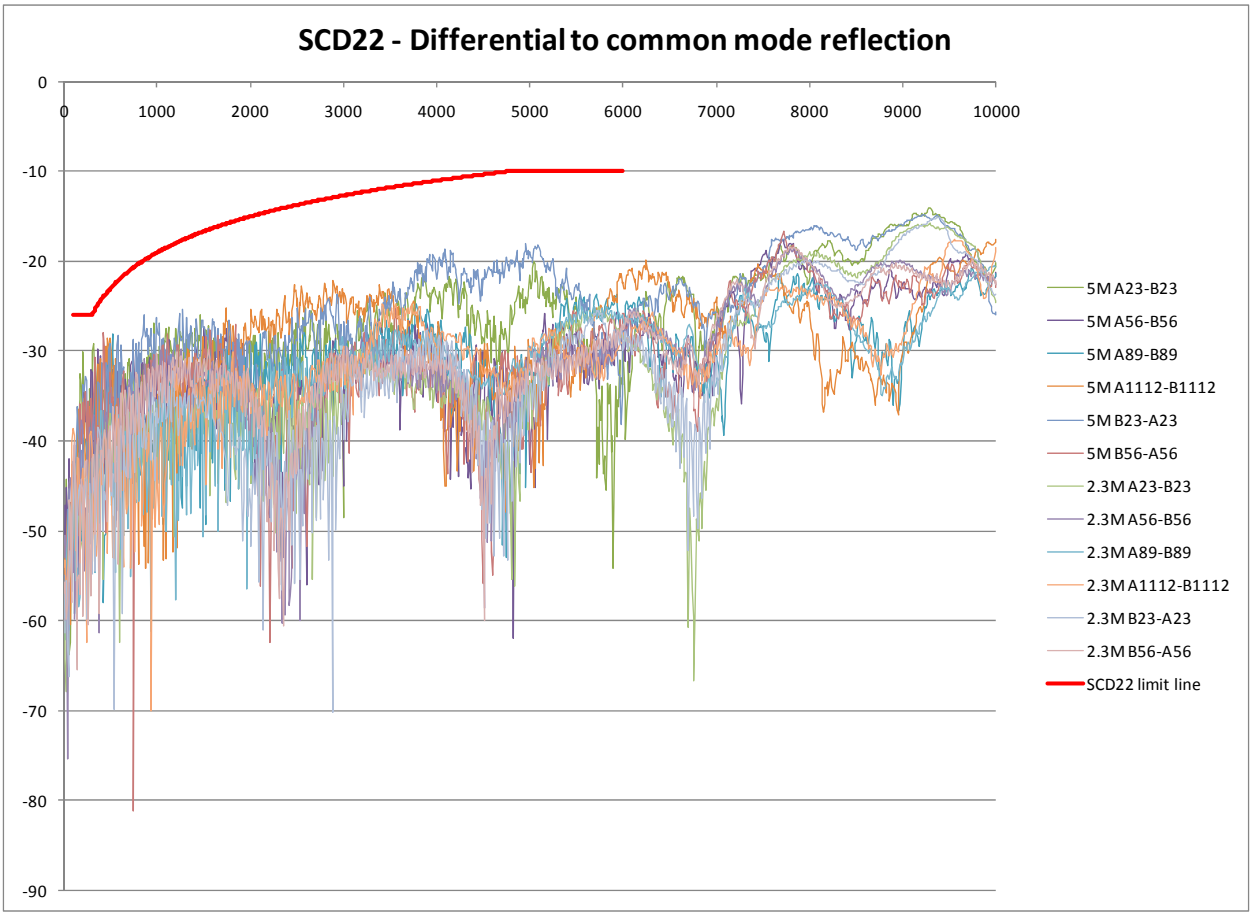
Test Method
Differential-to-common mode conversion (SCD21) has been measured in accordance with standard SAS-2.1 rev 07.



Differential to common mode reflection, SCD22

Purpose
The purpose of this test is to verify the differential to common mode reflection (SCD22) meets the requirements specified in SAS-2.1.

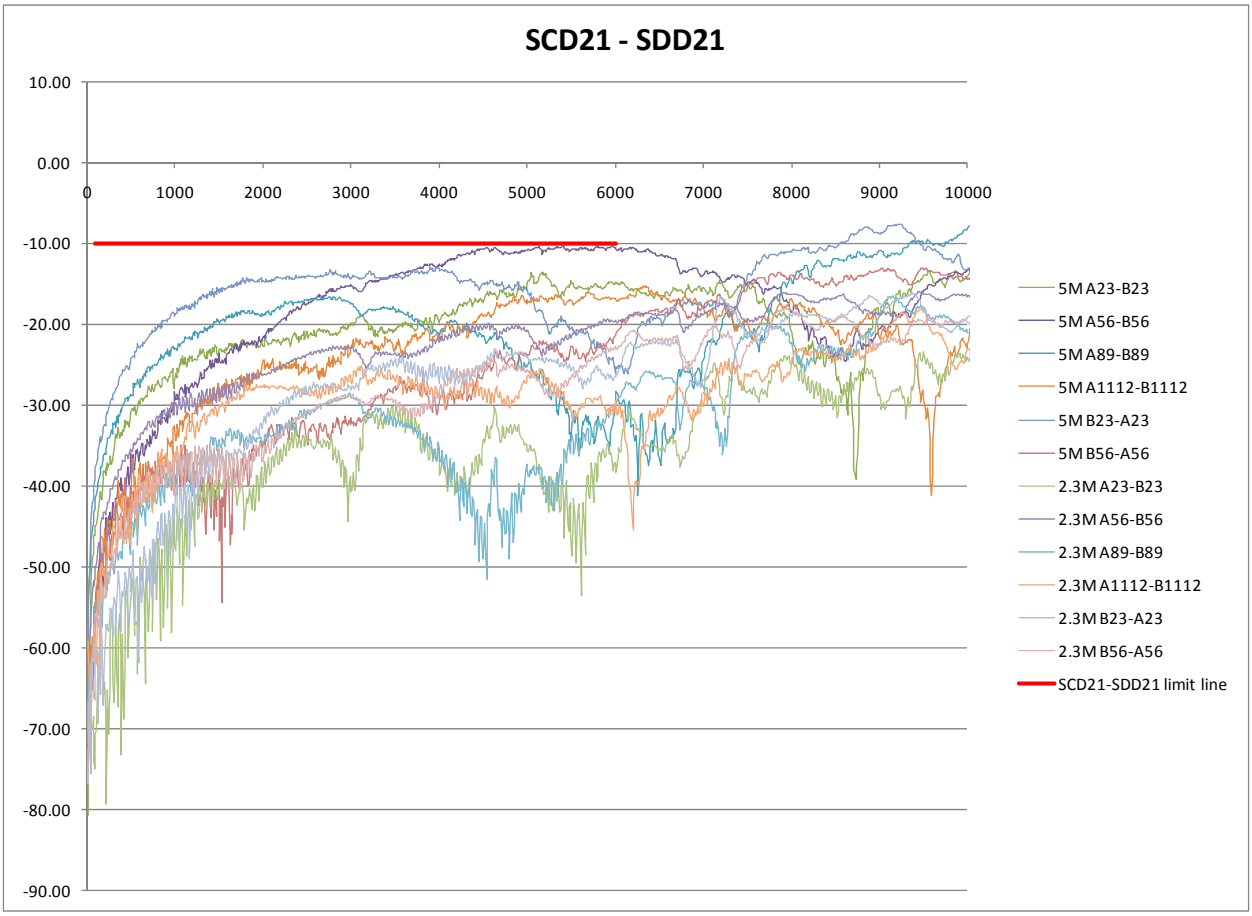
Test Method
Differential to common mode reflection (SCD22) has been measured in accordance with standard SAS-2.1 rev 07.



SCD21 – SDD21

Purpose
The purpose of this test is to verify the SCD21-SDD21 calculation meets the requirements specified in SAS-2.1.

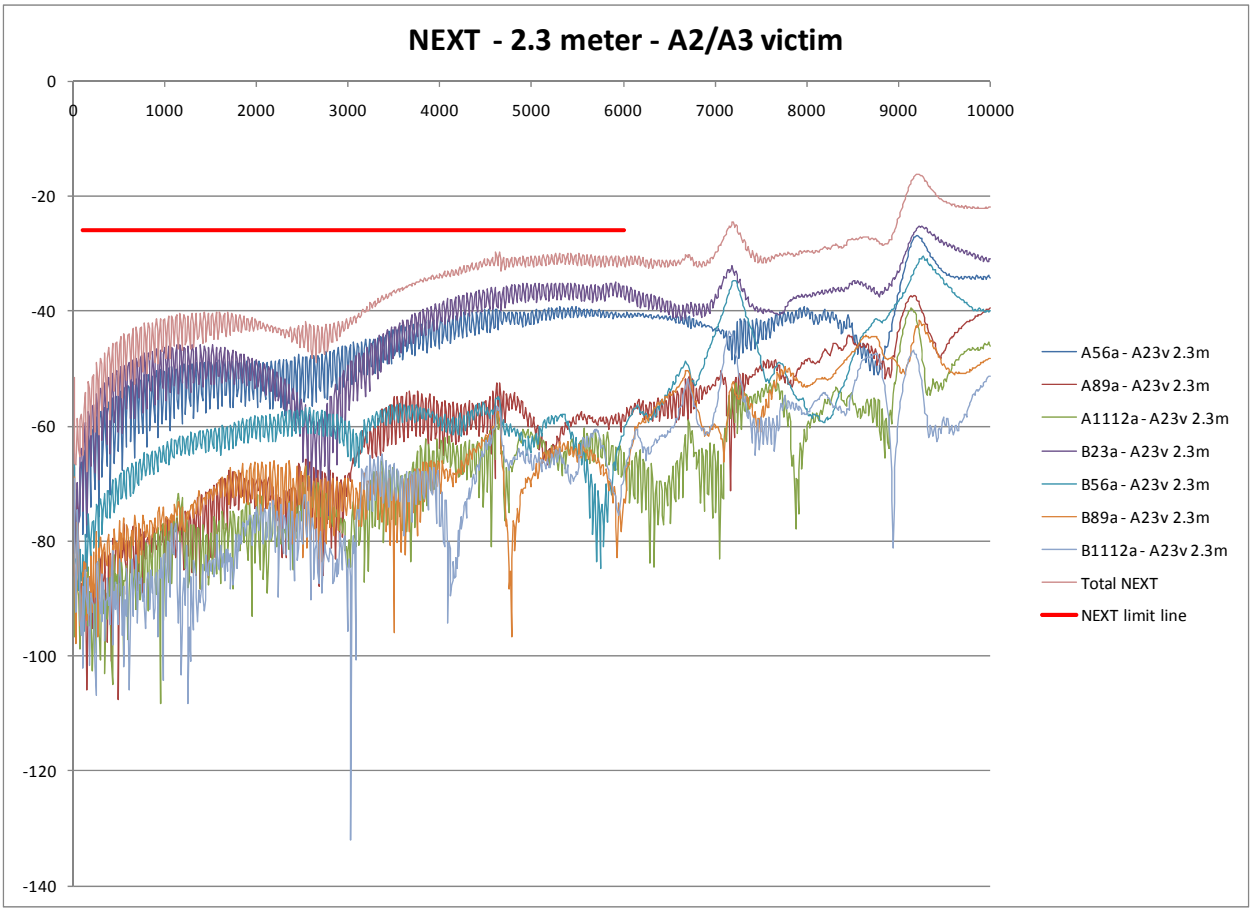
Test Method
The components of the SCD21-SDD21 calculation, differential to common mode conversion (SCD21) and differential insertion loss (SDD21), have been measured in accordance with standard SAS-2.1 rev 07.

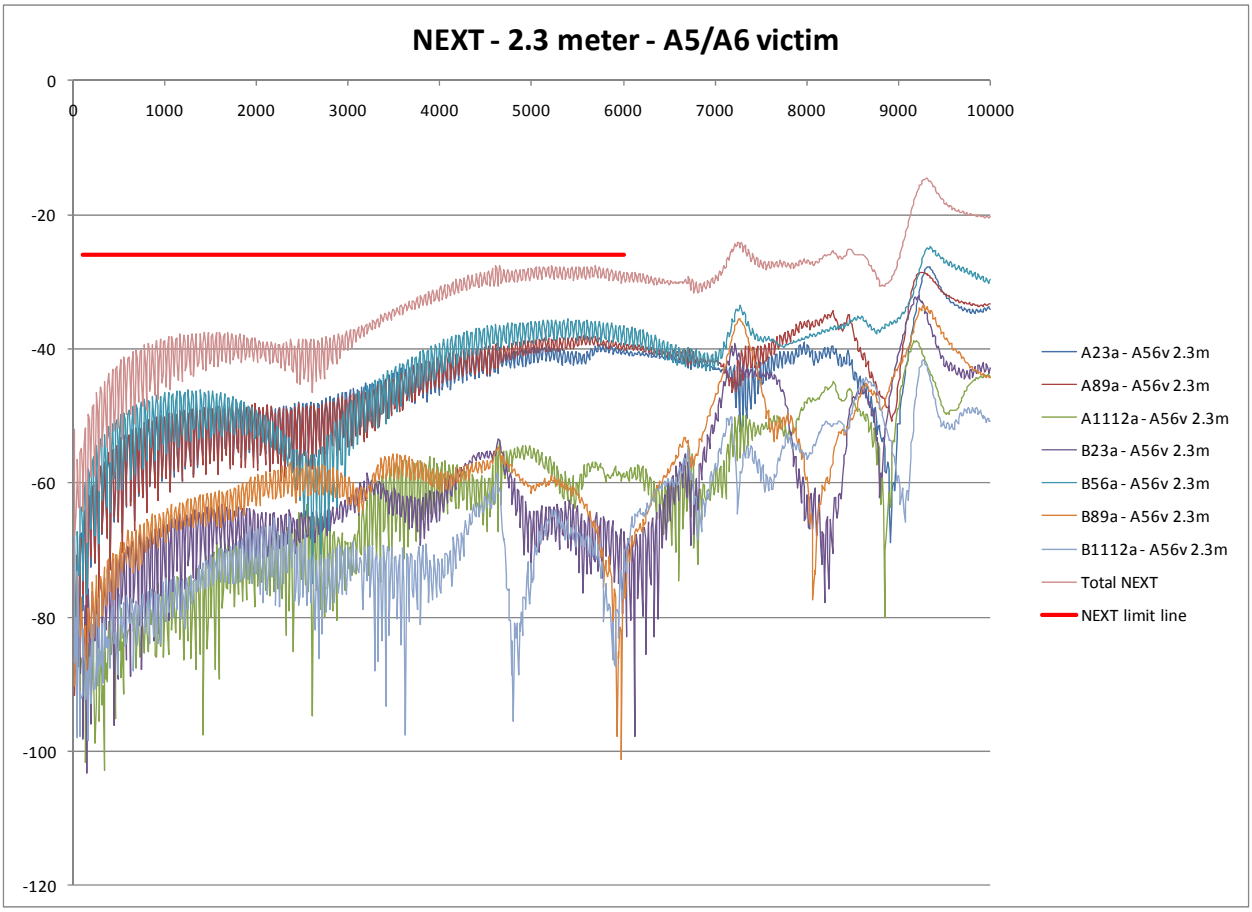


Near End Crosstalk (NEXT)

Purpose
The purpose of this test is to verify the near end crosstalk (NEXT) meets the requirements specified in SAS-2.1.

Test Method
Near end crosstalk (NEXT) has been measured in accordance with standard SAS-2.1 rev 07.


NEXT - 2.3 meter - A2/A3 victim
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
-20
-40
-60
-80
-100
-120
-140
A56a - A23v 2.3m
A89a - A23v 2.3m
A1112a - A23v 2.3m
B23a - A23v 2.3m
B56a - A23v 2.3m
B89a - A23v 2.3m
B1112a - A23v 2.3m
Total NEXT
NEXT limit line

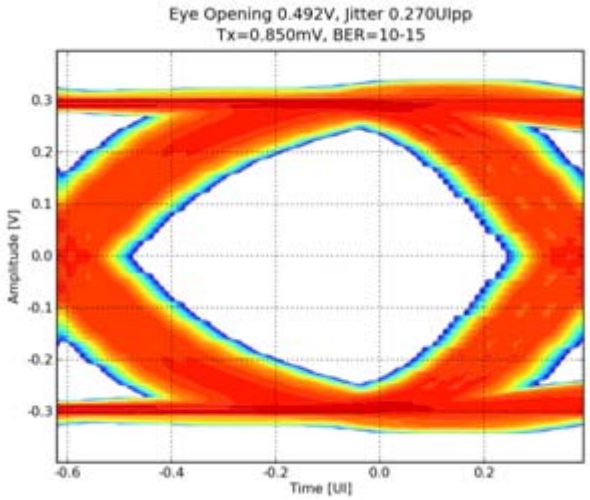


BER channel simulation

Purpose
The purpose of this test is to verify the BER channel simulation meets the requirements specified in SAS-2.1.

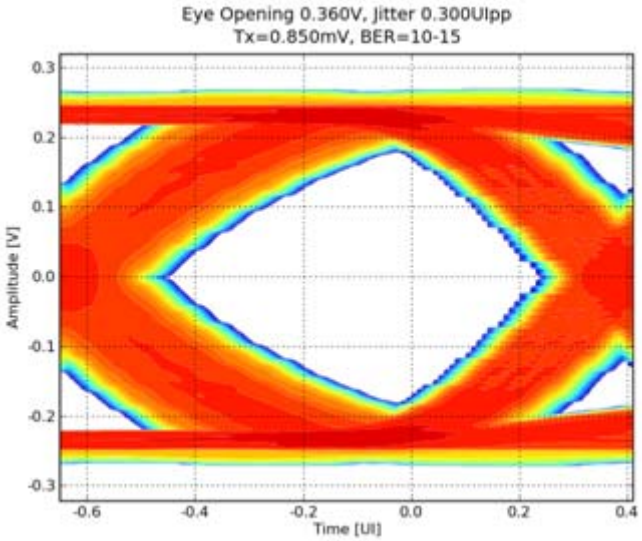
Test Method
The BER channel simulation has been conducted in accordance with standard SAS-2.1 rev 07.

1 meter (30 AWG)



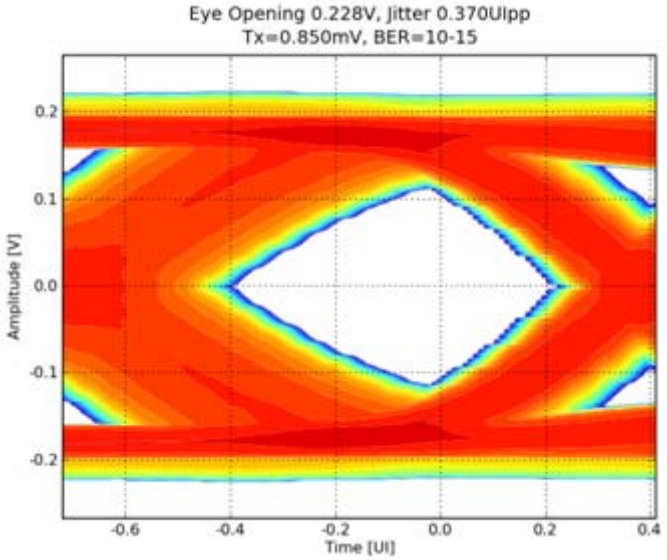
Eye height: 492 mV - PASS (> 0.84 mV)
Jitter: 0.27 UI - PASS (< 0.64 UI)

3 meter (28 AWG)



Eye height: 360 mV - PASS (> 0.84 mV)
Jitter: 0.30 UI - PASS (< 0.64 UI)

5 meter (28 AWG)



Eye height: 228 mV - PASS (> 0.84 mV)
Jitter: 0.37 UI - PASS (< 0.64 UI)

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