Proposed Draft

Serial ATA International Organization

Serial ATA Revision 2.6 + Gen3i ECN # 027
Title : Gen3i Rx Differential Return Loss Text Description and Figure Change – Clarification Only

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Author Information

Author Name	Company	Email address
Dan Smith	Seagate	daniel.f.smith@seagate.com

Workgroup Chair Information

Workgroup (Phy, Digital, etc…)	Chairperson Name	Email address
6G PHY Working Group	Dan Smith	Daniel.F.Smith@seagate.com

Document History

Version	Date	Comments
0	27-Oct-2008	Initial Draft
1.0	28-Oct-2008	Changes added to figure and text from 6G PHY conference call.

1   Introduction

The SATA-IO 6G PHY Working Group found several clarifications that would help the end-user to better understand the intentions of changes that are already included in the Gen3i draft specification, revision 0.95.

1.1   Problem Statement

Both the Tx and Rx Differential Mode Return Loss entries in the parametric tables, for Gen3i, make cross references to section 7.2.2.2.6 and then further to Figure 7-10. In our haste to complete the draft, we didn't notice that the Rx references are not in the section headers and Figure 7-10.

The descriptive text and figure of section 7.2.2.2.6 were also updated to help the reader understand the intentions of the specification team.

Section 7.2.2.2.3 also has the same issue with the sentence text describing both TX and RX but the section header only reflecting the TX portion. No figure changes required.

None of these changes alter the numerical values already released. They are merely to lend greater understanding to the existing information.

1.2   Solution

Add Tx and RX information to the text header and figure to inform the reader that section 7.2.2.2.6 is meant for both Tx and Rx.

Slight variation in the TX and RX parametrics requires a new Figure 7-10 (the drawing below) to show the slight differences in the parametric values.

1.3   Background Information

2   Technical Specification Changes

The changes below are proposed against the SATA-IO 6G PHY Working Group draft specification, revision 0.95, that has been released to the Technical Integration group.

2.1   7.2.2.2.3 TX Differential Mode Return Loss (Gen2i, Gen2m~~, Gen3i~~) (Gen1i, Gen1m alternate),
7.2.2.2.6 TX Differential Mode Return Loss (Gen3i),
and
Figure 7-10

[**Editor's Note:** Only the changes marked in **blue** are proposed for sections 7.2.2.3, 7.2.2.2.6, and Figure 7-10. Ignore all other colorings, shadings, and strike-throughs, as these are carry-overs from the current 0.95 draft document.]

Below is proposed text updates to fix several issues with the section headers and the descriptive text.

Current Text in section 7.2.2.2.3:

7.2.2.2.3 TX Differential Mode Return Loss (Gen2i, Gen2m~~, Gen3i~~) (Gen1i, Gen1m alternate)

Proposed Text Change in section 7.2.2.2.3:

7.2.2.2.3 TX **and RX** Differential Mode Return Loss (Gen2i, Gen2m~~, Gen3i~~) (Gen1i, Gen1m alternate)

Current Text in section 7.2.2.2.6:

7.2.2.2.6 TX Differential Mode Return Loss (Gen3i)

(*current, first paragraph, last sentence*)
The return loss shall remain below this limit line from the starting frequency to the ending frequency.

Proposed Text Change in section 7.2.2.2.6:

7.2.2.2.6 TX **and RX** Differential Mode Return Loss (Gen3i)

(*proposed, first paragraph, last sentence*)
The return loss shall remain below **the line shown in Figure 7-10**, from the starting frequency to the ending frequency.

Table 7-2 Changes: (Numeric values have not been changed, only words or polarity for additional clarification.)

Current Table Entries:

RL$_{DD11,TX}$, TX Differential Mode Return Loss Start for slope	dB	300MHz	-		-	-	-	14	
Slope of TX Differential Mode Return Loss	dB/dec	Nom	-		-	-	-	13	7.2.2.2.6	7.4.13
TX Differential Mode Return Loss Max Frequency	GHz	Max	-		-	-	-	3	

Proposed Table Changes: (see changes in **Blue**, in the 4 highlighted cells)

RL$_{DD11,TX}$, TX Differential Mode Return Loss Start for slope	dB	**Min at 300MHz**	-		-	-	-	14	
Slope of TX Differential Mode Return Loss	dB/dec	**-**	-		-	-	-	**- 13**	7.2.2.2.6	7.4.13
TX Differential Mode Return Loss Max Frequency	GHz	**-**	-		-	-	-	3	

Table 7-4 Changes: (Numeric values have not been changed, only words or polarity for additional clarification.)

Current Table Entries:

RL$_{DD11,RX}$, RX Differential Mode Return Loss	dB	300MHz	-		-	-	-	14	7.2.2.2.6 7.2.2.2.6	7.4.13 7.4.13
Slope of RX Differential Mode Return Loss	dB/dec	Nom	-		-	-	-	13		
RX Differential Mode Return Loss Max Frequency	GHz	Max	-		-	-	-	3		

Proposed Table Changes: (see changes in **Blue**, in the 4 highlighted cells)

RL$_{DD11,RX}$, RX Differential Mode Return Loss	dB	Min at 300MHz	-		-	18	7.2.2.2.6 7.2.2.2.6	7.4.13 7.4.13
Slope of RX Differential Mode Return Loss	dB/dec	-	-		-	- 13		
RX Differential Mode Return Loss Max Frequency	GHz	-	-		-	6.0		

Figure Changes:

Section 7.2.2.2.3's Figure 7-7 does not need revision because in represents both the Tx and the Rx cases as currently incorporated.

See the required Figure 7-10 change below, with additional clarification added, to go with the 7.2.2.2.6 text changes shown above.

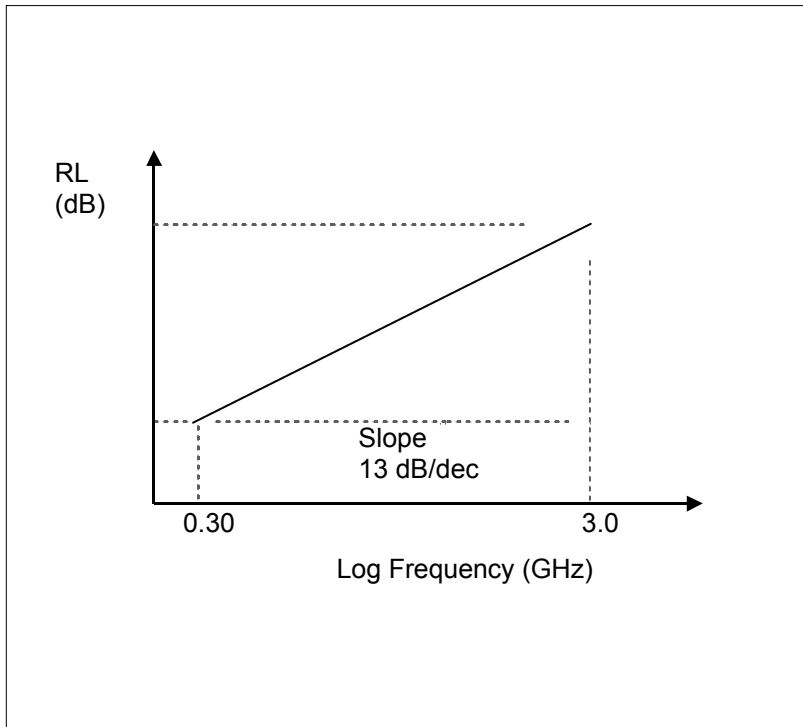Current Figure 7-10 as shown in the 0.95 draft:

Figure 7-10 – Differential Return Loss Limits, ~~Gen3~~Gen3i

Proposed Figure 7-10 Change: (a replacement figure, and its **label change**)
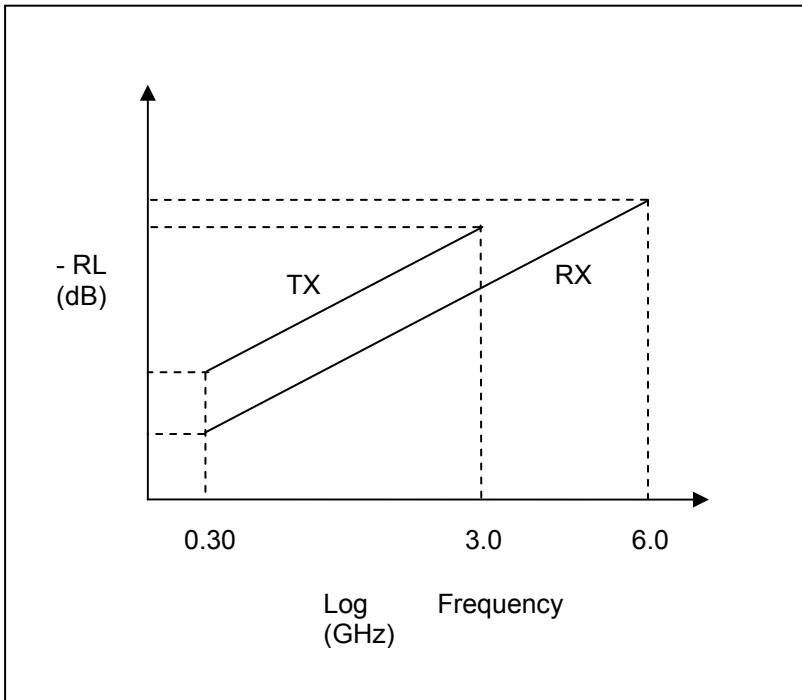

Figure 7-10 – Differential Return Loss Limits, ~~Gen3~~Gen3i, **TX and RX**