
Comment responses D1.0 San Antonio, Texas November 2014

Chris DiMinico - MC Communications/Panduit
cdiminico@ieee.org

Summary

- **Proposed comment responses to D1.0**

Draft 1.0 comments – 97.4.4.1.4 Differential to common mode conversion

Cl 97 **SC 97.4.4.1.4** **P 28** **L 24** # **51**
 DIMinico, Christopher MC Communications
Comment Type **T** **Comment Status** **D** **Equation (97-3)**
 change equation 97-3 to use log10 and yield positive values (loss).
SuggestedRemedy
 Change equation 97-3 to ConversionLoss $\geq [50 - 10 \log_{10}(f - 80)]$ dB $[72 - 11.51 \log_{10}(f - 80) - 600]$ dB where f is frequency in MHz.
Proposed Response **Response Status** **W**
 PROPOSED ACCEPT IN PRINCIPLE.
 Needs alignment with comment #27

Cl 97 **SC 4.4.1.4** **P 28** **L 26** # **27**
 Chini, Ahmad Broadcom
Comment Type **ER** **Comment Status** **D** **Equation (97-3)**
 Equation (97-3) needs to be corrected for loss instead of gain. Replace "ln" with equivalent log10 to be consistent with other equations as well.
SuggestedRemedy
 Use the equation in the attached document.
Proposed Response **Response Status** **W**
 PROPOSED ACCEPT IN PRINCIPLE.
 Reference: chini_3hp_01_1114.pdf - needs alignment with comment #50

$$\text{ConversionLoss}(f) \geq \begin{cases} 50 \text{ dB} & \text{for } 10\text{MHz} \leq f < 80\text{MHz} \\ 72 - 11.53 \times \log_{10}(f) \text{ dB} & \text{for } 80\text{MHz} \leq f \leq 600\text{MHz} \end{cases}$$

Conversion Loss – proposal

97.4.4.1.4 Differential to common mode conversion

The balance of the type A link segment is characterized by the differential to common mode conversion. Each type A link segment shall meet the values determined using Equation (97-3) at all frequencies from 1 MHz to 600 MHz.

$$\text{ConversionLoss}(f) \geq \begin{cases} -50 & 10 \leq f \leq 80 \\ 5 \times \ln f - 72 & 80 < f \leq 600 \end{cases} \text{ dB} \quad (97-3)$$

where

f is the frequency in MHz; $1 \leq f \leq 600$

The function $\text{ConversionLoss}(f)$ represents the conversion insertion loss at frequency f .

Editorial Note (to be removed prior to publication): Equation (97-3) needs to be converted into conversion loss.

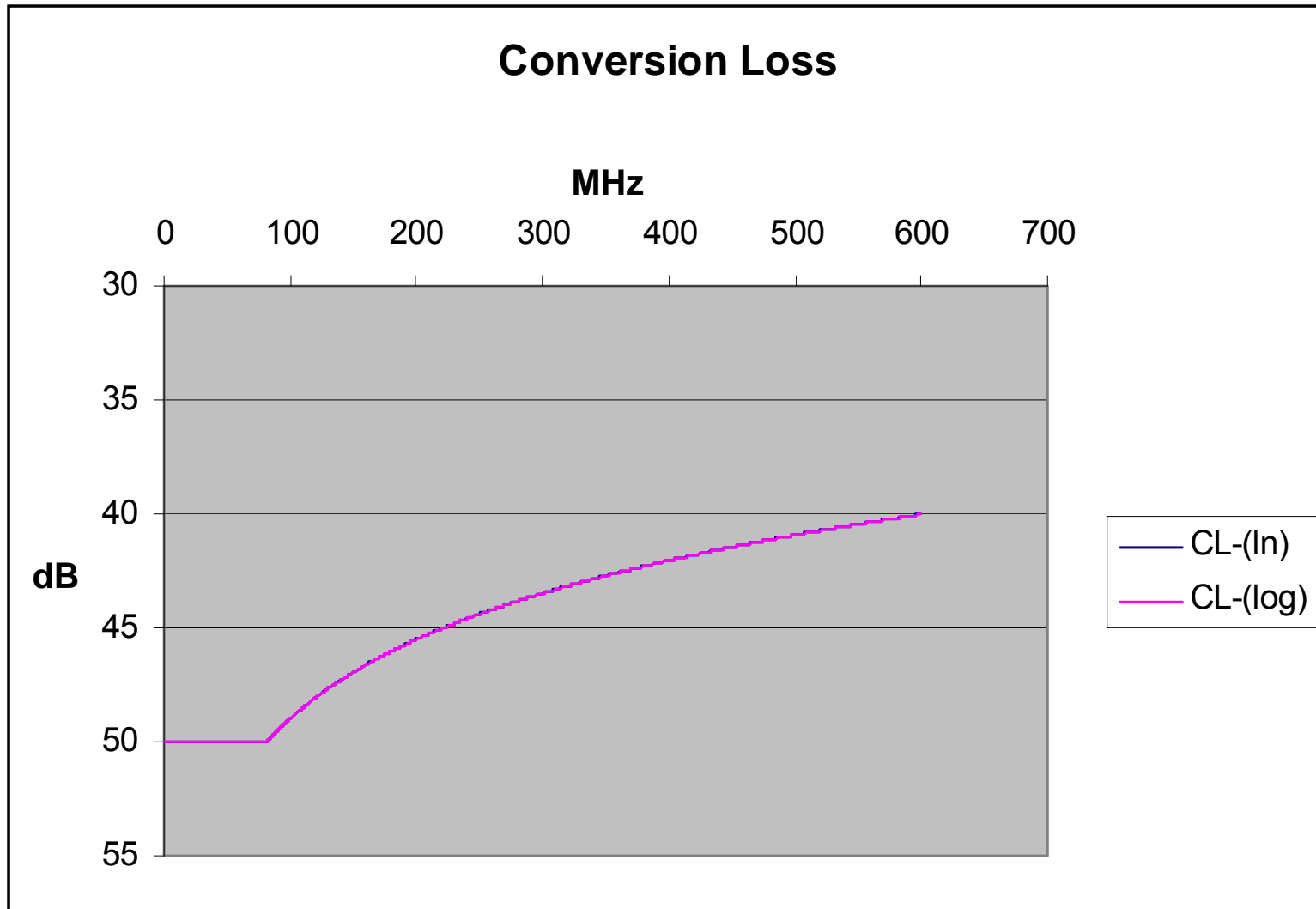
Correction:
$$\text{ConversionLoss}(f) \geq \begin{pmatrix} 50 & 10 \leq f \leq 80 \\ 72 - 5 \ln(f) & 80 < f \leq 600 \end{pmatrix} \text{ dB}$$

Recommendation: → convert *ln* to *log* to be consistent with all other equations

$$5 \cdot \ln(f) = 5 \cdot \ln(10) \cdot \log(f) = 11.51 \cdot \log(f)$$

→ resulting equation:
$$\text{ConversionLoss}(f) \geq \begin{pmatrix} 50 & 10 \leq f \leq 80 \\ 72 - 11.51 \cdot \log(f) & 80 < f \leq 600 \end{pmatrix} \text{ dB}$$

Conversion Loss – proposal



Two significant digits

Draft 1.0 comments – 97.4.4.1.4 Differential to common mode conversion

Cl 97	SC 4.4.1.4	P 28	L 33	#	29
Chini, Ahmad		Broadcom			
<i>Comment Type</i>	ER	<i>Comment Status</i>	D		
ConversionLoss definition ?					
<i>Suggested Remedy</i>					
Replace "conversion insertion loss" with "mode conversion loss"					
<i>Proposed Response</i>		<i>Response Status</i>	W		
PROPOSED ACCEPT.					

In addition to the change requested by commenter add text
“The mode conversion specification applies to;

- Longitudinal conversion loss (LCL) with s-parameter SDC11/SDC22 and description common mode to differential mode return loss.
- Transverse conversion loss (TCL) with s-parameter SCD11/SCD22 and description differential mode to common mode return loss
- Longitudinal conversion transmission loss (LCTL) with s-parameter SDC12/SDC21 and description common mode to differential mode insertion loss
- Transverse conversion transmission loss (TCTL) with s-parameter SCD12/SCD21 and description differential mode to common mode insertion loss

For compliance to the specification measurements of LCL and LCTL are sufficient as LCL and TCL are considered reciprocal and LCTL and TCTL are considered reciprocal.

Draft 1.0 comments

Comment#24

Proposed reject. The text is to support what's included in the insertion loss function which is non obvious in reading the equation. Other 802.3 standards provide similar guidance see 55.7.2.1 as one example.

55.7.2.1 Insertion loss

This includes the insertion loss of the balanced cabling pairs, including work area and equipment cables plus connector losses within each duplex channel.

Comment#43

Proposed reject

language is used to establish min and allowance for longer lengths (without explicit max) see 40GBASE-CR4 as one example.

1.4.x 40GBASE-CR4: IEEE 802.3 Physical Layer specification for 40 Gb/s using 40GBASE-R encoding over four lanes of shielded balanced copper cabling, with reach up to at least 7 m.

Draft 1.0 comments

Comment#44

Accept in principle

diminico_3bp_0174.pdf source document for 802.3bp optional link segment specifications refers explicitly to shielded or screened construction. Add text end of paragraph 97.4.4.2. The type B link is assumed shielded or screened consistent with the specifications in 97.4.4.2.4 Coupling attenuation and 97.4.4.4 Coupling parameters.

Comment#39

proposed accept

comment is correct in stating that TBD be included adjacent to equation to indicate further study

Comment#8

I volunteer to generate graph of EQ-97-5 and all other equations suggested by the commenter if the TG agrees with commenter
See comment#10,11,12,13,14

Draft 1.0 comments

Comment#38

Resolve with comment#52

Comment#34

Accept in principle

delete Eq 97-11 $PSANEXT(f) \geq 75$

new equation 97-11 $PSANEXT(f) \geq 65$

change text to The power sum ANEXT loss between a disturbed type B link segment and the disturbing type B link segment shall meet the values determined using Equation (97–11).

Comment#37

Accept in principle

Text is correct as there are 5 link segments bundled together.

(1)Figure 97B-3 needs to be updated to illustrate 5 link segments.

(2)Figure 97B-2, 97-3 height to bundle is 10 mm TBD

"The use case 2 alien crosstalk test configuration consists of 5 link segments bundled together over a 5 meter length with one of the link segments extending unbundled for 3 meters."

Draft 1.0 comments

Comment#35

Proposed reject

See text "The use case 1 alien crosstalk test configuration consists of three link segments of 5 meter length and two inline connectors, equally spaced at 1.66 meter distance." See matheus_3bp_02_0113.pdf for use case and moffitt_3bp_01_0713.pdf for measurements. diminico_3bp_02_0714.pdf was to be updated to reflect use case measurements.

.

Comment#36

Accept in principle

See response to #37