Comments #211, #213, #182, #204

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Comment #211, 213

Cl **162B** SC **162B.1.3.6** P **273** L **42** # 211

Kocsis, Sam — Amphenol

Comment Type **TR** *Comment Status* **D** *MTF XTALK*

Table 162B-2 rise and fall time specified as 7.5ps (1 instance. The group determined during D1p4 comment resolution that 8.5ps was a more practical value for the rise and fall time for FOM_ILD calculations. Its logical that the same rise time should be applied to ICN calculations.

SuggestedRemedy

Change to 8.5ps to match the FOM_ILD definitions in 162B.1.3.1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **162B** SC **162B.1.3.6** P **274** L **18** # 213

Kocsis, Sam — Amphenol

Comment Type **TR** *Comment Status* **D** *MTF XTALK*

Table 162B-4 rise and fall time specified as 7.5ps (2 instances). The group determined during D1p4 comment resolution that 8.5ps was a more practical value for the rise and fall time for FOM_ILD calculations. Its logical that the same rise time should be applied to ICN calculations.

SuggestedRemedy

Change to 8.5ps to match the FOM_ILD definitions in 162B.1.3.1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Table 162B–2—SFP+ mated test fixture integrated near-end crosstalk noise parameters

Description	Symbol	Value	Units
Symbol rate	f_b	53.125	GBd
3 dB reference receiver bandwidth	f_r	39.84	GHz
Near-end disturber peak differential output amplitude	A_{nt}	600	mV
Near-end disturber 20% to 80% rise and fall times	T_{nt}	7.5	ps

Table 162B–4—Multi-lane mated test fixture integrated crosstalk noise parameters

Description	Symbol	Value	Units
Symbol rate	f_b	53.125	GBd
3 dB reference receiver bandwidth	f_r	39.84	GHz
Near-end disturber peak differential output amplitude	A_{nt}	600	mV
Far-end disturber peak differential output amplitude	A_{ft}	600	mV
Near-end disturber 20% to 80% rise and fall times	T_{nt}	7.5	ps
Far-end disturber 20% to 80% rise and fall times	T_{ft}	7.5	ps

162B.1.3.1 Mated test fixtures differential insertion loss

The FOM_{ILD} is calculated according to 93A.4 with f_b=53.125 GHz, T_t=8.5 ps, and f_r=0.75 × f_b. The fitted insertion loss and insertion loss deviation are computed over the range f_{min}=0.05 GHz to f_{max}=40 GHz. FOM_{ILD} shall be less than or equal to 0.13 dB.

Comment #182

Cl **162A** SC **162A.4** P **260** L **40** # 182

Dawe, Piers Nvidia

Comment Type **T** *Comment Status* **D** *PCB IL*

This section, for CR, says "the recommended minimum insertion loss allocation for the transmitter or receiver differential controlled impedance PCBs is 2.3 dB at 26.56 GHz". This is the same as the 2.3 dB MCB PCB IL (but why?), and (ignoring connector via loss) 1/3 of the maximum host trace loss (6.875 dB). 92A.4 and 136A.4 use a ratio of 0.086/0.5 or 1/5.8 which allows more flexibility in host layout than 1/3 does. 120G has Host insertion loss up to 11.9 dB, and I didn't find a minimum host loss, although very low loss could be more of a concern in C2M than CR.

SuggestedRemedy

Reduce the recommended minimum insertion loss allocation for the CR transmitter or receiver differential controlled impedance PCBs to whatever is justified. If the reasonable limit is a strong function of host package reflection, state whether the recommendation is for a "nominal worst" package, or what. Add a recommended minimum insertion loss for C2M host traces as appropriate.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The IL pcb min and max are derived on the basis of PCB material IL and via IL . The PCB IL assumed is 1.24 dB/in and via of 0.68 dB @26.56 GHz. With consideration for maintaining reasonable minimum length while allowing loss between TX and connector. ILpcb(min)=(0.76 in*1.24 dB/in)+(2*0.68) dB = ~ 2.3 dB. The MCB PCB IL is the same to emulate min host IL.

https://www.ieee802.org/3/ck/public/18_05/lim_3ck_01a_0518.pdf

Why 7.5dB is Required for Host PCB Budget ?

- With Meg-7N material, 4.5mil trace IL at HT is measured to be 1.24 dB/in at 28 GHz
- For each front port channel there will be 2 set of vias (at host ASIC BGA footprint & at I/O connector footprint) with stripline routing
  - Footprint via with 7.9mil drill & 130mil thick stackup is simulated to be 0.68 dB at 28 GHz
- Total host PCB budget = (5 x 1.24 + 2 x 0.68) = **7.56 dB**

Comment #204

Cl **162** SC **162.11.7.2** P **174** L **1** # 204

Dudek, Mike Marvell

Comment Type **E** *Comment Status* **D** *CA COM XTALK*

It is confusing to state the aggressors are in column two through four because there are separate columns for next and fext.

SuggestedRemedy

Change to "the crosstalk paths are from the aggressors listed horizontally to the victims listed vertically.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add victim label to first column to support existing text. "the crosstalk paths are from the aggressors given in columns two through four to the victim given in the first column."

Table 162D–2—100GBASE-CR1 cable assembly types and supportable number of PMDs

one end		other end		supportable PMDs
Receptacle/Plug type	Number	Receptacle/Plug type	Number	Number
SFP+	1	SFP+	1	1
SFP-DD	1	SFP+	2	2
DSFP	1	SFP+	2	2
QSFP+	1	SFP+	4	4
QSFP-DD800	1	SFP+	8	8
OSFP	1	SFP+	8	8
SFP-DD	1	SFP-DD	1	2
DSFP	1	DSFP	1	2
QSFP+	1	QSFP+	1	4
QSFP-DD800	1	QSFP-DD800	1	8
OSFP	1	OSFP	1	8

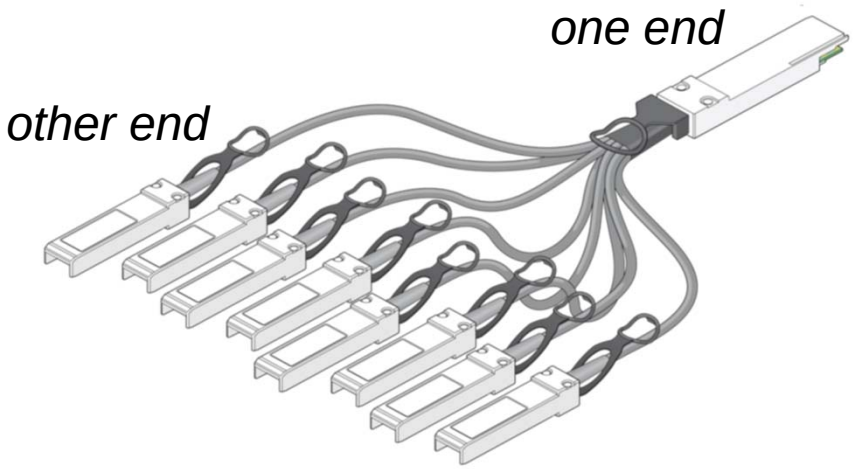

Figure 136D–4—QSFP-DD to 8×SFP28 cable assembly

Comment #204

Delete text P174, L2, adopt text and Table 162-20 below with editorial license

The number of crosstalk paths of each MDI type are given in Table 162–20; ~~the crosstalk paths are from the aggressors given in columns two through four to the victim given in the first column~~.

Table 162–20—Number of crosstalk paths used in COM

	SFP+		SFP-DD or DSFP		QSFP+		QSFP-DD800 or OSFP	
	NEXT	FEXT	NEXT	FEXT	NEXT	FEXT	NEXT	FEXT
SFP+	1	0	1	1	1	3	1	7
SFP-DD or DSFP	2	1	2	1	2	3	2	7
QSFP+	4	3	4	3	4	3	4	7
QSFP-DD800 or OSFP	8	7	8	7	8	7	8	7

The number of crosstalk paths based on ~~of each~~ MDI type are given in Table 162–20.

Table 162-20 -- Number of crosstalk paths used in COM §

Victim (one end)§	NEXT§	FEXT from other end§			
		SFP+§	SFP-DD or DSFP§	QSFP+§	QSFP-DD800 or OSFP§
SFP+§	1§	0§	1§	3§	7§
SFP-DD or DSFP§	2§	1§	1§	3§	7§
QSFP+§	4§	3§	3§	3§	7§
QSFP-DD800 or OSFP§	8§	7§	7§	7§	7§

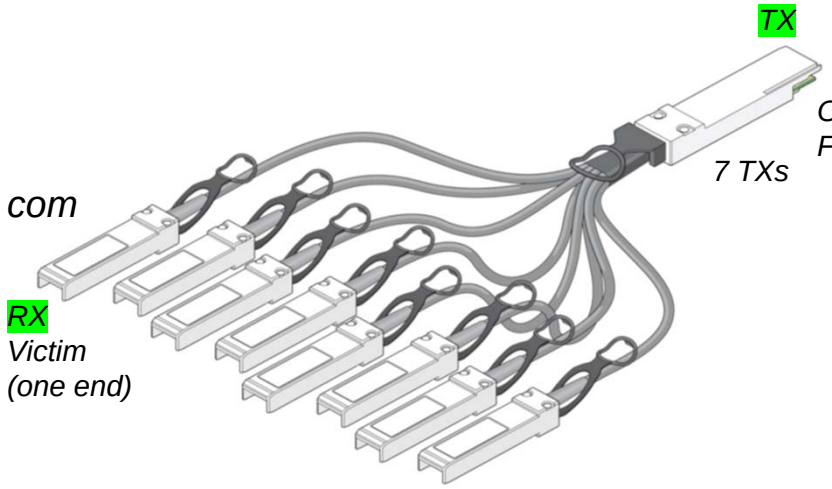

Figure 136D–4—QSFP-DD to 8×SFP28 cable assembly