

AUI C2M Loss - Filling in the TBD

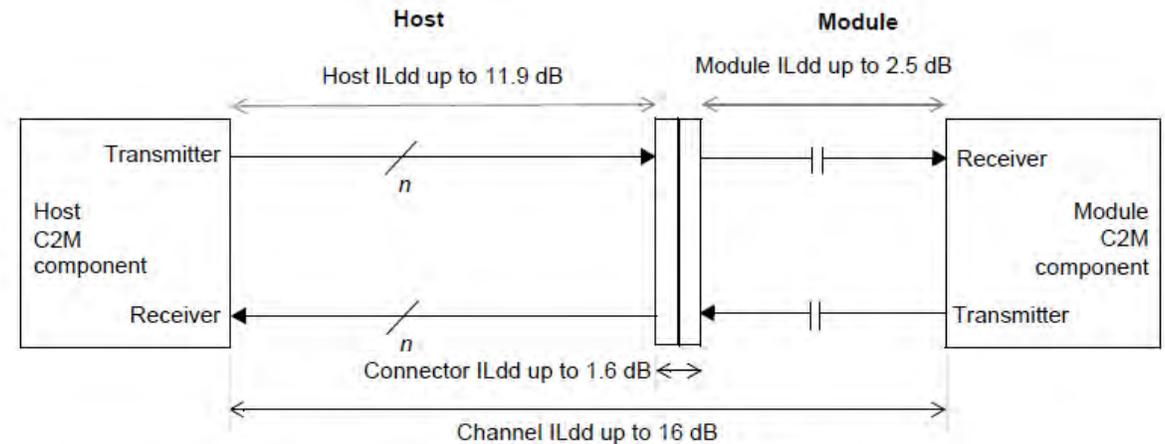
Kent Lusted, Intel Corporation, IEEE P802.3dj Task Force Electrical
Track Chair

Preface

- The AUI C2M ILdd value has been under study for a long, long, long time
- During D1.0 comment resolution, the CRG adopted many COM parameter values for AUI C2M analysis that set the reference receiver capability

AUI C2M In the Past

- In the not-so-distant past (3ck/3df), the AUI C2M ILdd number was *relatively* simple to specify
 - One host package class
 - Mostly PCB host routes
 - Explicit package and explicit host loss budgets
 - Module DSP had package



NOTE—The number of lanes n is equal to 1 for 100GAUI-1, 2 for 200GAUI-2, and 4 for 400GAUI-4.

Figure 120G-2—100GAUI-1, 200GAUI-2, and 400GAUI-4 C2M insertion loss budget at 26.56 GHz

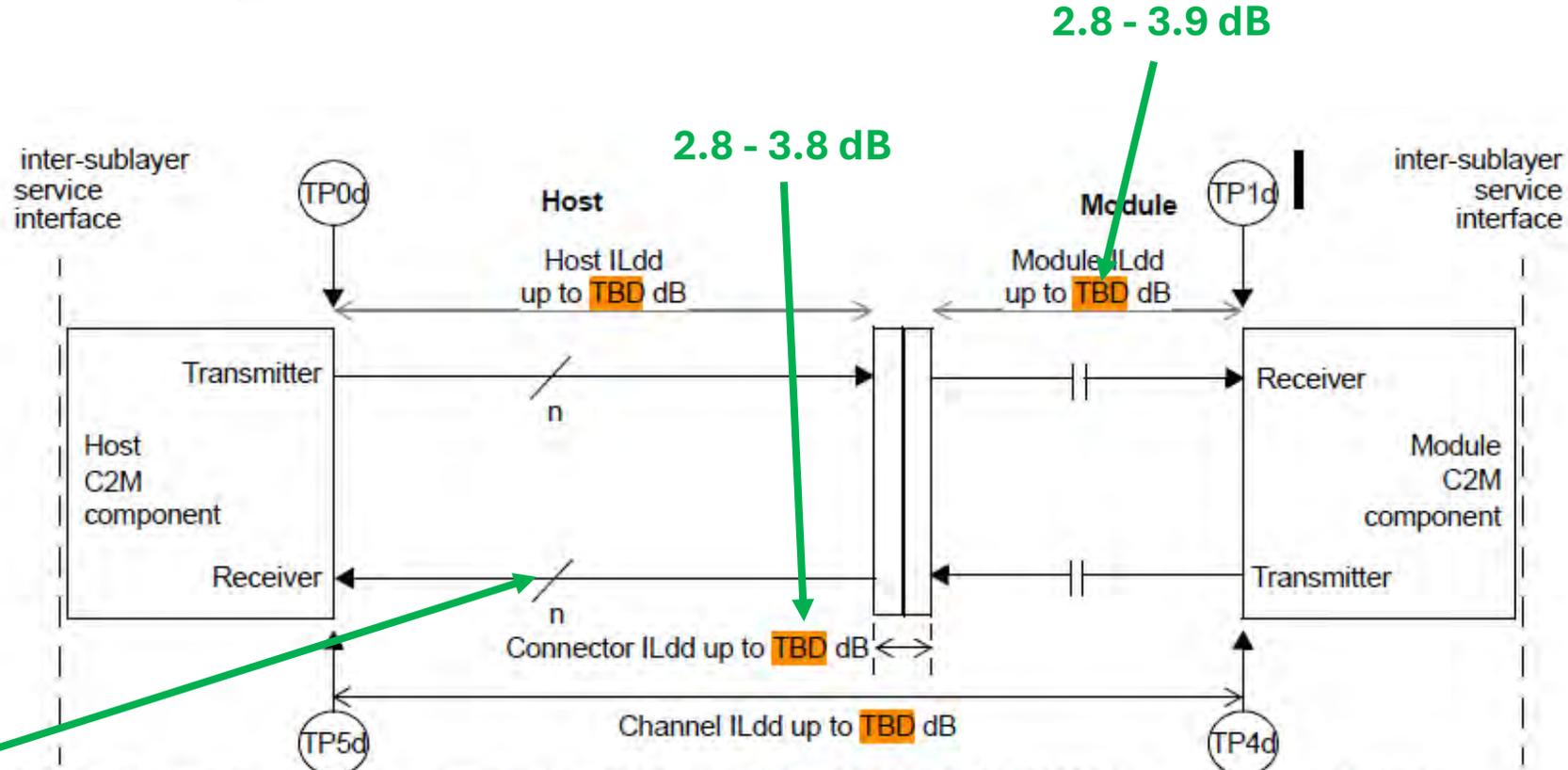
AUI C2M for 3dj

- Seems like AUI C2M is trickier to specify now
 - One host package class → Two host package classes (and a longer route of 45mm)
 - Mostly PCB host routes → High mix of PCB and in-box cables
 - Explicit package and explicit host loss budgets → Combined package and host loss budget
 - Module DSP had package → Mix of packaged and Package-less DSP in modules

Parameter Values in Recent Contributions

Contribution	ILdd (die-die) Recommendation
kareti_3dj_elec_01a_2408	~34 dB for PCB host ~31 dB for cabled host
ghiasi_3dj_01_2407	30 dB 32 dB with extra care
noujeim_3dj_elec_01_240822	26 dB

General Agreement Points

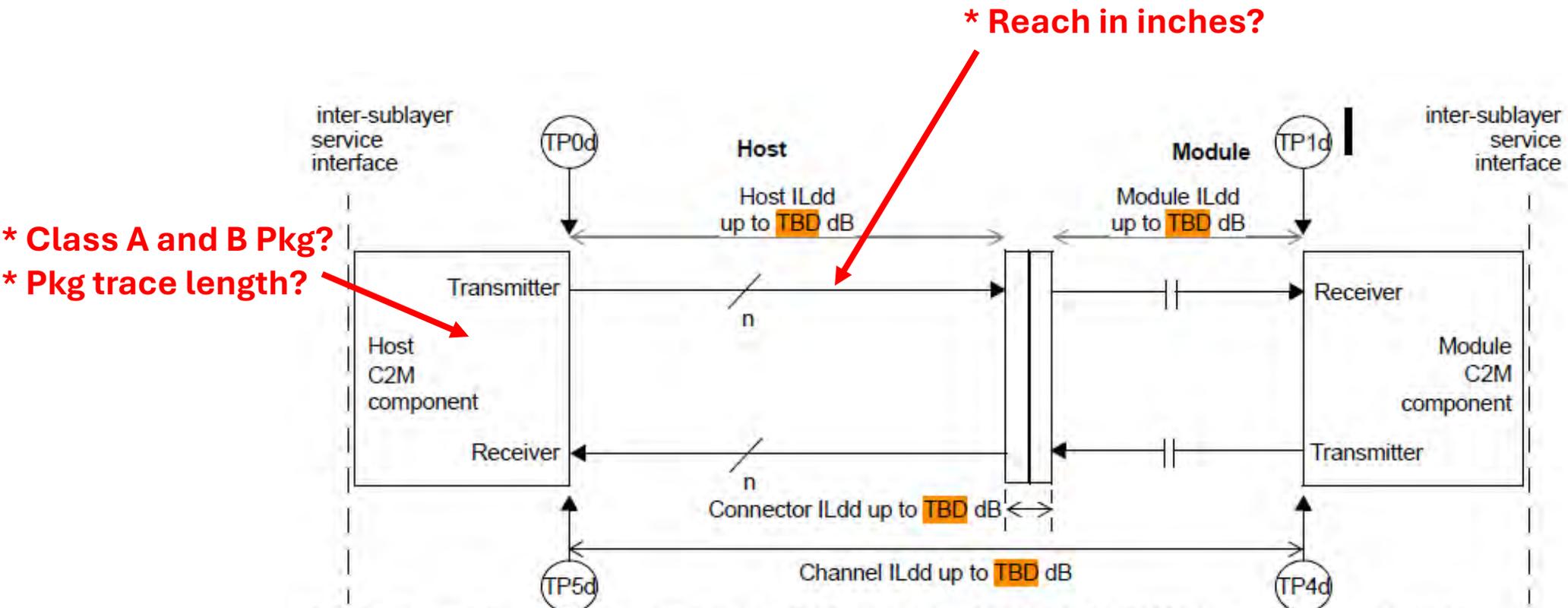


NOTE—The number of lanes n is equal to 1 for 200GAUI-1, 2 for 400GAUI-2, 4 for 800GAUI-4, and 8 for 1.6TAUI-8.

Figure 176E-2—Components of a 200 Gb/s per lane AUI-C2M and insertion loss budget at 53.125 GHz

1.1 - 1.3 dB per inch
(Room Temp)

Current Disagreement Points



NOTE—The number of lanes n is equal to 1 for 200GAUI-1, 2 for 400GAUI-2, 4 for 800GAUI-4, and 8 for 1.6TAUI-8.

Figure 176E-2—Components of a 200 Gb/s per lane AUI-C2M and insertion loss budget at 53.125 GHz

Decision to Make

- Does the specification need to support the “full range” of host package losses with the “full range” of host PCB reaches?
- Contribution values
 - Host package losses: 2 dB (Class A, 8 mm) to 10 dB (Class B, 45 mm)
 - Host PCB reaches: 3, 5, 7, 9, 10 inches
 - [Akinwale C2M contribution](#) had [0.5, 13.0] inches

Direction Check

- Option #1: Any combination of package class & length with any host PCB length
 - Allow max loss package with max length PCB route
 - E.g. Class B 45mm Package (10 dB) + 10 inch trace (11-13 dB) = 21-23 dB host allocation
- Option #2: Constrained combinations of package class & length and host PCB length
 - E.g. Max loss package has reduced PCB route
 - E.g. Max PCB route has reduced package loss

Thanks!