› Copper Cable at 400Gbps

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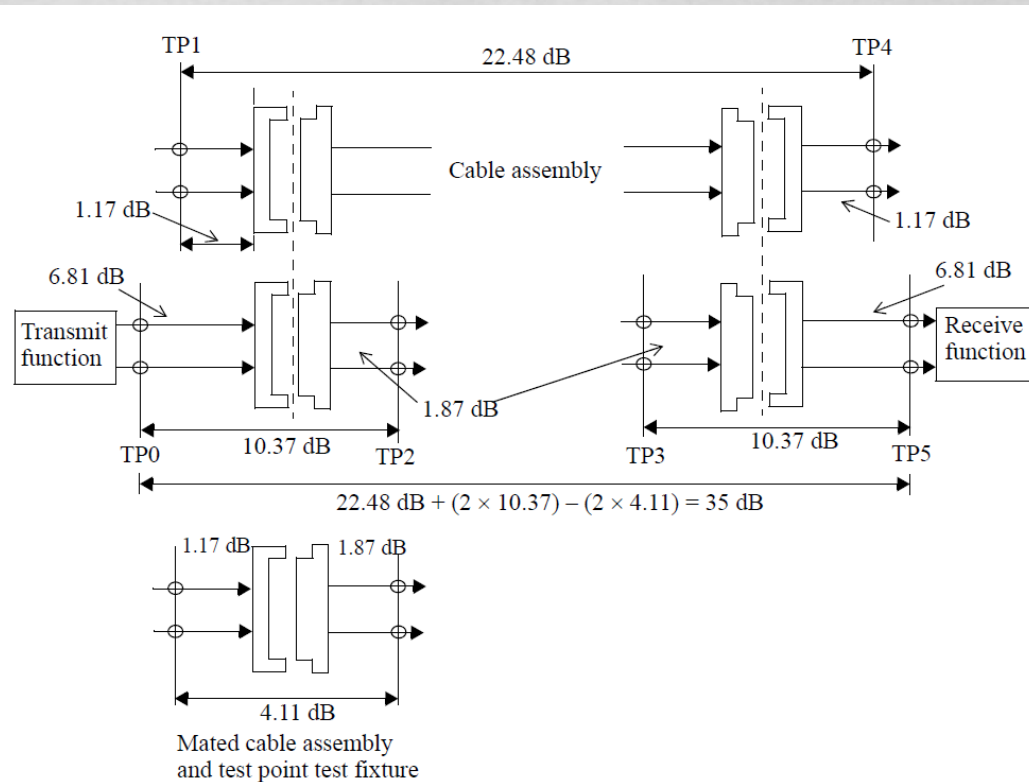
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400Gbps System needs

› **System connectivity constraints**

- – Power
- – Thermal Management
- – Link Length
- – Mechanical and routing constraints

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400Gbps Copper Cable Link Budget

Figure 92A–2—35 dB channel insertion loss budget at 12.8906 GHz

> **Link budget based on IEEE 802.3bj D1.3**

400Gbps Copper Cable Link Budget

Component	Loss at 12.89 GHz	Total Loss 3m 28 AWG	Total Loss 2m 30 AWG
Host PCB (1 via)	6.81dB	13.62dB	13.62dB
Connector	1.5dB	3.0dB	3.0dB
Paddle Card	0.5dB	1.0dB	1.0dB
Bulk Cable 28 AWG	4.75dB/m	14.25 dB	
Bulk Cable 30 AWG	6.03dB/m		12.06dB
Total		31.87 dB	29.68

❯ **>3m 28AWG cable, and >2m 30AWG cable could be supported with a 35dB loss channel similar to the one proposed in P802.3bj**

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400Gbps Copper Cable Mechanical

› 30 AWG bundle of 32 discrete differential pairs is ~ 13mm diameter

› 28 AWG bundle of 32 discrete differential pairs is ~15mm in diameter

› Bend radius for 30AWG is ~65mm

› Bend radius for 28AWG is ~75mm

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400Gbps Copper Cable

› **16X25 Copper cable can provide connectivity for 400Gbps**

- Low power

- No thermal management necessary

- 16x25Gbps 3m is achievable with a passive cable assembly with a reasonable bend radius

- Aggregate cable assemblies(Octopus), 16x25 to 4 QSFP28+ ends

- Fully and half active 16x25 will extend reach

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