Link segment topology proposal for testing

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Automotive STP cable measurements

Rosenberger

Scope

The following points suggest it useful to have a common link segment configuration.

1. Silicon manufacturers are asking to have more short links biased to the near end of the silicon under test.
2. Cable and connector manufacturers have endless configuration requests coming from many different sources.
3. Having a universal configuration provides consistent and fewer variables in the interpretation of the measured test data.
4. A set of configurable link types will ease the request and manufacturing process to deliver when needed. “Testable Cable Link Set”

Copied from “https://www.ieee802.org/3/ch/public/adhoc/Gardner_3NGAUTO_01a_061417.pdf”

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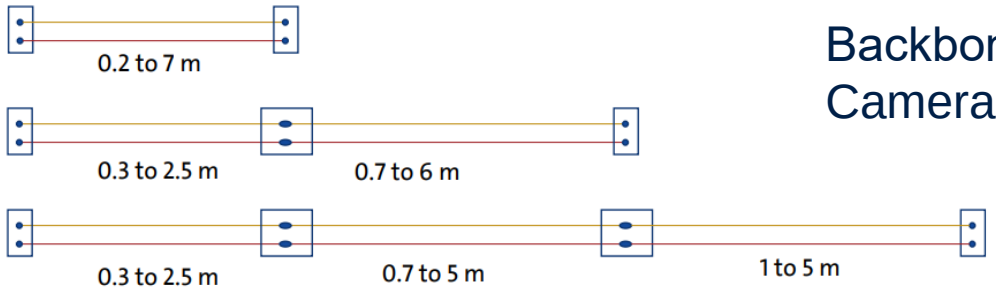
Scope

- A link segment of up to 11 m can consist of a up to three cable assemblies
- The 802.3ch proposed configurations that allows testing from 1 to 15 m link segments and up to 4 inlines are given here https://www.ieee802.org/3/ch/public/adhoc/Gardner_3NGAUTO_01a_061417.pdf
- B10G OEM consolidated topologies are given here https://www.ieee802.org/3/B10GAUTO/public/may19/wienckowski_3+10G_01a_0519.pdf



Backbone / Display ≤ 7 m
Cameras ≤ 11 m

➡ real world worst case
RL channel 3 x 1 m

- Proposed link segments for data collection are given in the adhoc minutes https://www.ieee802.org/3/cy/public/adhoc/wienckowski_3cy_ad_hoc_01_200805.pdf

0.9 m with 2 inlines (3 x 0.3 m)
11 m with 2 inlines (1 m, 8 m, 2m)
10 m with 2 inlines (1 m, 1 m, 8 m)
11 m with 2 inlines (3 x 3.67 m)

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Proposed topology

1 m	2 m	3 m	4 m	7 m	1 m	Total length	Inlines
Socket - Plug	Socket - Plug	Socket - Plug	Socket - Socket	Socket - Socket	Socket - Socket		
					✓	1	0
✓					✓	2	1
	✓				✓	3	1
			✓			4	0
		✓			✓	4a	1
✓	✓				✓	4b	2
✓			✓			5	1
	✓		✓			6	1
	✓	✓			✓	6a	2
				✓		7	0
		✓	✓			7a	1
✓	✓		✓			7b	2
✓				✓		8	1
✓		✓	✓			8a	2
	✓			✓		9	1
		✓		✓		10	1
✓	✓			✓		10a	2
✓		✓		✓		11	2

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Summary

Benefits

- Allows testing link segments from 1 m to 11 m with 0 to 2 inlines
- Partly multiple number of inlines for the same link length possible

Limitations

- Worst case RL channel with 3 x 1 m would require one more 1 m assembly
- EMC tests with 2 m assembly length must use 2 x 1 m
- Longer channels always comprise inlines
- Adhoc configurations not covered