

ISO/IEC 11801-1 Amd1

SPE channels

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- This is not an official Liaison report!
- The described single pair channels (links), backed up by IEC standards for cables and connectors, are currently discussed at ISO/IEC. These channels are presented by two experts expressing their private opinion.
- FYI: There is a standard ISO/IEC 11801-6 (information technology- generic cabling for customer premises- Part 6: Distributed building services), where an amendment in development describes an overlay network as a mixture of 4 pair and 1 pair cabling.
- FYI: IEEE802.3 link segment = ISO/IEC channel

T1-A Channels 0.1 to 20 MHz (ISO/IEC 11801-1 Amd1, IEEE 802.3 Enhancements to Point to Point Single Pair Ethernet Study Group. Schicketanz September 1)

Channel length

- T1-A-100 100m
- T1-A-250 250m
- T1-A-400 400 m*
- T1-A-1000 1000 m*

*: Similar to ANSI/TIA-568.5

Cable diameter

- T1-A-100/ -250/ -400**: ~4mm
- T1-A-400**/ -1000: ~9mm

Cable diameter

- ~0.573 mm (AWG 23)
- ~0.573 mm (AWG 23)
- ~0.573 mm (AWG 23)**
- ~1.024 mm (AWG 18)

** : Might change to 1.024mm (AWG 18)



T1-B and T1-C Channels (ISO/IEC 11801-1 Amd1)

IEEE 802.3 Enhancements to Point to Point Single Pair Ethernet Study
Group. Schicketanz September 1

Goal for T1-B-100 and T1-C-100 update

Create channels with longer length (at least 100m) and higher bandwidth to build the physical base for higher data rates for future SPE channels

Channel length, frequency

- T1-B-100 100m, 0.1 MHz - 600MHz
- T1-C-100 100m, 0.1 MHz-1250MHz

Wire diameter

- ~0.573 mm (AWG 23)
- ~0.573 mm (AWG 23)

SPE and PoDL

- All presented channels (link segments) support all PoDL classes of IEEE 802.3cg
- Depending on the DC loop resistance the channel length has to be reduced to meet the requirements for higher PoDL classes.
- How this has to be specified is currently under discussion at ISO/IEC.

How can these channels meet the long reach 100 Mb/s requirements?

- T1-A-1000 and T1-A-400 are possible with the thick cable, when the maximum frequency would be extended to ~70 MHz (easily possible), then 100 Mb/s should have starting link values
- T1-A-100 and T1-A-250 should not change and reserved with the thin cable for 10Mb/s (with cg PHY) for IoT general usage

How can these channels meet the 1000Mb/s requirements?

- T1-B-100 with the thin cable up to 600 MHz:
 - This channel can support 10Mb/s, 100Mb/s and 1000Mb/s TBD
 - But does not support 1000Mb/s of IEEE 802.3bp on 40m
- T1-C-100 with the thin cable up to 1250 MHz and higher noise margin:
 - For future higher speeds and additional EMC margin
 - Does support 1000Mb/s of IEEE 802.3bp on 40m

Questions?

THANK YOU