

Liaison letter from IEEE 802.3 to TIA TR42 regarding 1-pair cabling and applications

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Subject: Liaison letter from TIA TR42 of February 10, 2017 regarding Single-Pair Ethernet

Dear Ray,

Thank you for your liaison on IEEE 802.3 balanced single pair applications. IEEE 802.3 reviewed your requests for information and has developed the responses below to each question regarding IEEE P802.3cg 10 Mb/s Single Pair Ethernet project:

- the frequency limits under consideration
IEEE 802.3: Link segment strawman proposals that have been accepted (TBD insert baseline discussion outcome) use a frequency range from 100 kHz to 20 MHz along with consideration for DC resistance. The project may consider additional link segment specifications as it progresses.
- number of connections for envisioned use cases
IEEE 802.3: The maximum number of mated connections in the 1000 m link segment is 10.
- gauge of cables contemplated for different use cases
IEEE 802.3: We do not expect our standard to directly specify the cabling gauge, except as it may impact the insertion loss and other parameters of the link segment. The link segment IL in the supported strawman proposal (TBD insert baseline discussion outcome) is based on 18 AWG conductors to support 1000 m but smaller diameter conductors are allowed for shorter use cases. Alternative thicker conductors may be required depending on optional power delivery for extended distances up to 1000 m.
- use case environments beyond those described in the MICE table
IEEE 802.3: There are a variety of use cases under consideration including in-building applications, industrial automation, process control that will extend into outside plant installations. At present there are some indications of use cases that go beyond the worst case MICE tables in ANSI/TIA-568-0-D (this is an item for further study).

Regarding your questions on the published IEEE Std 802.3bw-2015 and IEEE Std 802.3bp-2016 specifications, we have the following input:

First, generally, IEEE Std 802.3bw-2015 and IEEE Std 802.3bp-2016 are published amendments, and, if a change is required, the method would be to have an individual submit a maintenance request to the IEEE 802.3 Working Group. Information on the maintenance process for IEEE Std 802.3 may be found on the 802.3 website at <http://www.ieee802.org/3/maint/index.html>.

- Mode conversion requirements for 1000BASE-T1 Optional link segment type B
IEEE 802.3: Mode conversion in the 1000BASE-T1 Type B is managed by shielding with a coupling attenuation requirement. Coupling attenuation by definition includes shielding effectiveness.
- Delay characteristics for 100BASE-T1.

IEEE 802.3: We assume you are referring to the propagation delay of the link segment, not the PHY delay. Link segment propagation delay is not specified in IEEE Std. 100BASE-T1 and not considered to be a key parameter..

The IEEE P802.3cg Task Force is actively considering many proposals for different link segments with different reaches in a variety of use cases. It is also aware of the benefits offered by generic cabling infrastructure in supporting other applications, and is supportive of this concept inside buildings.

Please let us know if you have any questions and if you need any further information on these activities.

Sincerely,

David Law