IEEE P802.3dg
100 Mb/s Long-Reach Single Pair Ethernet TF: Characterizing installed cabling structures for target applications

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Background

- Defining the link segment is a key part of the project.

- There is a large installed base of cables (e.g., existing BACnet MS/TP networks) that could be addressed by this standard.

- Supporting using the installed base can significantly accelerate adoption of this standard

- We should assess existing "best practice" cabling installations as input to the link segment definition.

What to assess

- Most participants have access to at least one building automation network, i.e., their own company's facilities.

- Rather than ask for/hope for someone to assess this type of network, we should assess our own buildings.

- We need to have a common:

  - set of items/parameters to test

  - test procedure

  - reporting format

Testing basics

- Portable field test device

- Skilled test personnel

- Knowledge of installed cabling layout

- Well defined test procedure

- Standardized test reporting

First thoughts on what to test.

- Parameters
  - Length
  - Wiremap
    - *DC continuity?*
  - DC Resistance
  - Delay
  - Insertion Loss
  - Return Loss
    - *Time delay of echo to be cancelled*
    - *Complex return loss vs time domain*
  - Noise coupling
    - *Review of installation practice, e.g., shielded vs. unshielded cabling, untwist, etc.*
  - *Alien Cross Talk*
    - *Lab test vs field test?*
  - *Review "ANSI/TIA-5071, Requirements for Field Instruments and Measurements for Balanced Single Twisted-Pair Cabling."*
    - *Any feedback to TIA?*

Other items

- Live noise recording
  - Devices are on the market that can do this.
  - Can we generalize reporting?
- Characterize recommended cabling from major automation system vendors, e.g.:
  - https://partners.trendcontrols.com/trendproducts/cd/en/pdf/en-ta200541-uk8pr0321i.pdf
  - https://sid.siemens.com/v/u/A6V10308296
  - https://iportal2.schneider-electric.com/Contents/docs/SE8000%20SERIES%20BACNET%20-%20INTEGRATION%20GUIDE.PDF

What's next?

- Coalitions of the willing to:
  - define test procedure, parameters and reporting.
  - work with their companies building management team to do the testing.
  - obtain and test vendor recommend cabling.
- *Contact me if you want to contribute.*

Consensus
WE BUILD IT.

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