Clause 169 Baseline

Michael Paul

Proposed Clause 169 text meets power objectives of 802.3da

✓Define performance characteristics of a mixing segment for 10Mb/s multidrop single balanced pair networks supporting up to at least 16 nodes, for up to at least 50m reach.

✓Specify optional plug-and-play power distribution over the mixing segment

✓Specify required electrical and mechanical characteristics for connection methods necessary to achieve communications and powering objectives that allows multiple connector types

✓Specify device characteristics necessary to enable addition and/or removal of a node or set of nodes to a powered mixing segment with a bounded interruption

Converging on a system solution

- ▶ What if:
  - Cable gauge changes?
    - Increase system reach
  - PSE Voltage Changes?
    - Change power per MPD
  - T-Connector Resistance Changes?
    - Change power per MPD
  - Node Count changes
    - Please don't ☺
- ▶ Make slight adjustments to voltage stack-up as necessary

Convergence

You Are Here

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Proposed Clause 169 Baseline Updates

Section 169.2 Updates

▶ Change section title from
"**Link Segment**" to "**Mixing Segment**"

▶ Discuss consensus on 15Ω Mixing Segment

  ▪ Allocate more power per node if mixing segment resistance decreases

Section 169.4 updates

- Removed 'the' in the first line of the section:
  - Was :
    - The MPSE provides power to the MPD.
  - Now:
    - The MPSE provides power to MPDs.

- Added authors note to not adopt section 169.4.3 until the state machine is finished
  - Replace 169.4.3 text with TBD in adopted text until the entire state machine is complete.
  - Right now the inrush and power on states are missing
  - Continue to show proposed text in place to show work in progress and intentions

Section 169.5 updates

▶ Section 169.5.2 TCI

 ▪ Changed "Mode A" and "Mode B" to "Polarity A" and "Polarity B"

 ▪ Updated labels in Table 169-6

▶ Section 169.5.3

 ▪ Moved several entries from "169.5.3.3 Variables" section to "169.5.3.2 Constants" section

   ▪ V_{Mark_th}, V_{Off_MPD}, V_{on_MPD}, V_{MPD}, V_{Reset_th}, V_{Type0_th}, and V_{Type1_th}

▶ Added state diagram for inrush / power on as shown in
https://www.ieee802.org/3/da/public/083023/Paul_da_03_2023_08_30.pdf

 ▪ Changed name of 'PON_HOLDOFF' state to 'INRUSH'

 ▪ Changed PON_NO_POWER exit flag name from 'RESET' to 'IDLE'

Section 169.6, 169.7, and 169.8 Updates

▶ Update section numbers to start with '169.'

  ▪ Ex. section numbers started with '6' instead of '169.6'

Straw Poles

Overview

- ▶ **Straw Polls for acceptance of proposed Clause 169 baseline by section**
    - 169.1 Overview
    - 169.2 Mixing Segment
    - 169.3 System type power requirements
    - 169.4 Multi-drop Power Sourcing Equipment (MPSE)
        - Exclude 169.4.3 MPD State Diagram
        - Replace with subsection 169.4.3 text with TBD for now
    - 169.5 Multi-drop Powered Device (MPD)
    - 169.6 Additional Electrical Specifications, 169.7 Environmental, 169.8 PICS
- ▶ **Editorial license to be granted for all sections**

Straw Poll #1

► I support adopting the proposed baseline text of section:
 "**169.1 Overview**"
from paul_da_169_baseline_2023_09_12.pdf, with editorial license.

- Y:

- N:

- A:

Straw Poll #2

► I support adopting the proposed baseline text of section:
 "**169.2 Mixing Segment**"
from paul_da_169_baseline_2023_09_12.pdf, with editorial license.

- Y:
- N:
- A:

Straw Poll #3

► I support adopting the proposed baseline text of section:
 "**169.3 System type power requirements**"
from paul_da_169_baseline_2023_09_12.pdf, with editorial license.

  ▪ Y:

  ▪ N:

  ▪ A:

Straw Poll #4

► I support adopting the proposed baseline text of section "**169.4 Multi-drop Power Sourcing Equipment (MPSE)**" from paul_da_169_baseline_2023_09_12.pdf with editorial license; excluding section 169.4.3 MPSE State Diagram and its sub sections. **Text of Section 169.4.3 to be replaced with TBD**.

- Y:
- N:
- A:

Straw Poll #5

▶ I support adopting the proposed baseline text of section:
 "169.5 Multidrop Powered Device (MPD)"
from paul_da_169_baseline_2023_09_12.pdf, with editorial license.

- Y:

- N:

- A:

Straw Poll #6

- I support adopting the proposed baseline text of sections:
  "169.6 Additional Electrical Specifications",
  "169.7 Environmental", and
  "169.8 PICS"
  from paul_da_169_baseline_2023_09_12.pdf, with editorial license.
  - Y:
  - N:
  - A:

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Thank You!