Joint ACT/GMSLE draft text proposal

Contribution to 802.3dm Task Force

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Introduction

- This presentation describes updates to the ACT text presented in the Vancouver meeting in November 2024 and updated in the Phoenix meeting in January 2025
  - jonsson_sedarat_lo_3dm_01a_11_11_24.pdf
  - jonsson_sedarat_lo_3dm_01_01_20_25.pdf
- New GMSLE proposals were presented in the Atlanta meeting in March 2025, and in previous teleconference
  - GMSLE_baseline_v1p4.pdf
  - GMSLE_FDD_PHY_Simulation_Results_and_PHY_Complexity_rev1p0.pdf
- Modulation independent baseline text was proposed in the teleconference interim meeting on April 17, 2025
  - jonsson_3dm_01a_04_17_25.pdf
- This presentation unifies the ACT and GMSLE proposals in a more complete text proposal
- The detailed text can be found in the accompanying document jonsson_etal_3dm_01_05_01_25_text.pdf

This presentation unifies the ACT and GMSLE proposals in a more complete text proposal

Updates from March 2025 Meeting

What:

- The 802.3dm editor, Natalie Wienckowski, has helped us update the ACT reference text to be consistent with the latest updates from the March meeting

Why:

- In the Atlanta meeting in March 2025, there were several new agreements that resulted in some updates to the baseline text
  - See https://www.ieee802.org/3/dm/private/drafts/P802dm_D0p4.pdf

Where:

- Throughout the document

Add text for PAM2 for 2.5Gbps and 5Gbps

What:

- Update text to reflect that PAM2 will be used for 2.5Gbps and 5Gbps

Why:

- It was agreed in Atlanta to use PAM2 for 2.5Gbps and as part of unifying the ACT and GMSLE proposal the authors have agreed to propose using PAM2 for 5Gbps

Where:

- The updates are reflected in Clauses 200.1.5, 200.6, 200.7.3, and 200.7.4.

Note:

- The Task Force has agreed on PAM2 for 2.5Gb/s and PAM4 for 10Gb/s, but it has not yet agreed on PAM levels for 5Gb/s.

Updates for PCS MultiG+100MBASE-T1/V1

What:

- Add missing references to Clause 149.3 (802.3ch)

Why:

- Most of the text for the ACT/GMSLE compromise text proposal is based on 802.3ch. Adding specific references to the appropriate clauses in 802.3ch brings clarity to the text.

Where:

- The updates are reflected in subclauses of Clause 200.4.

Note:

- The state diagrams in Clauses 200.4.7 need to be updated.

Updates for PCS 100M+MultiGBASE-T1/V1

What:

- Add missing references to Clause 149.3 (802.3ch)

Why:

- Most of the text for the ACT/GMSLE compromise text proposal is based on 802.3ch. Adding specific references to the appropriate clauses in 802.3ch brings clarity to the text.

Where:

- The updates are reflected in Clauses 200.5.7 and 200.5.8.

Note:

- The state diagrams in Clauses 200.5.7 need to be updated.

Updates for MDI Communication Signals

What:

- Add missing references to Clause 149.4.3 (802.3ch)

Why:

- The text for the MDI signal in Clause 149.4.3 is generic enough that it can be used almost directly for 802.3dm.

Where:

- The updates are reflected in Clauses 200.8.4 and 200.9.4.

Text for Coax Test Modes

What:

- Add missing text for coax test modes

Why:

- The test mode text in 802.3ch is only for differential pair. The corresponding test modes and test fixtures need to be defined for coax test modes

Where:

- The updates are reflected in subclauses of Clause 200.9.1.

Note:

- The diagrams need to be redrawn, but for this version crude mark-up of the diagrams are used to show what needs to change for coax cables.

Text for Coax Electrical Specifications

What:

- Add missing text for coax electrical specifications

Why:

- The electrical specifications text in 802.3ch is only for differential pair. The corresponding electrical specifications need to be defined for coax test modes

Where:

- The updates are reflected in subclauses of Clauses 200.9.2 and 200.9.3.

Note:

- Several parameters need to be decided, including SNDR distortion in 200.9.2.2, transmit timing jitter in 200.9.2.3, transmitter peak output in 200.9.2.5, and external noise rejection in 200.9.3.2.

Text for T1 Link Segment Characteristics

What:

- Add missing text for T1 differential pair link segment characteristics

Why:

- The link segment characteristics text in 802.3ch can be leveraged for T1 links but needs some updates for 802.3dm

Where:

- The updates are reflected in subclauses of Clause 200.11.

Note:

- Several parameters need to be decided, including insertion loss in 200.11.1.1, return loss in 200.11.1.3 and maximum link delay for 100Mb/s in 200.11.1.6.

Text for V1 Link Segment Characteristics

What:

- Add missing text for V1 coax cable link segment characteristics

Why:

- The link segment characteristics text in 802.3ch can be leveraged for V1 links but needs some updates for 802.3dm

Where:

- The updates are reflected in subclauses of Clause 200.12.

Note:

- Several parameters need to be decided, including insertion loss in 200.12.1.1, return loss in 200.12.1.3, screening attenuation in 200.12.1.5, maximum link delay for 100Mb/s in 200.11.1.6, PSANEXT limit in 200.12.2.1, and PSAACRF limit in 200.12.2.2.

Text for T1 and V1 MDI Specifications

What:

- Add missing text for T1 differential pair and V1 coax cable MDI specifications

Why:

- While the MDI return loss limits have already been agreed on, there are several other MDI specifications that needed to be added

Where:

- The updates are reflected in subclauses of Clauses 200.13 and 200.14.

Note:

- There is need for more clarity on the coax connectors in 200.14.1, similar to the high-level description for differential pair connectors in 149.8.1.

Text for Environmental Specifications

What:

- Add missing text for environmental specifications

Why:

- Give more clarity to the environmental specifications for 802.3dm

Where:

- The updates are reflected in subclauses of Clause 200.15.

Note:

- The current text simply references the corresponding text in Clause 149, but there may be additional specifications that apply to the coax cables or that are specific to the camera application.

Summary

- Previously ACT reference text was shared in the Vancouver meeting in November 2024 and Phoenix meeting in January 2025
- New GMSLE proposals were presented in the Atlanta meeting in March 2025, and in previous teleconference
- This presentation reflects unified the ACT and GMSLE proposal
- This presentation also provides initial text for most of the missing sections in previous text proposals
- The updates are made in the hope that it may help build consensus within the Task Force

Comments and Collaborators Wanted

Thank You