ACT text proposal updates

Contribution to 802.3dm Task Force

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Introduction

- This presentation describes updates to the ACT text that the authors presented in the Vancouver meeting in November 2024
- Main updates are
  - New nomenclature for high and low data rate links, as discussed in the Vancouver meeting
  - Updates to the 100M transmit power levels
  - Change 100M block encoding from 16B/17B to 64B/65B
  - Update FEC framing to reflect the change to 64B/65B
  - Change 100M MII to XGMII
  - New training frame

New Nomenclature

What:

- The 802.3dm editor, Natalie Wienckowski, has helped us update the ACT reference text to be consistent with the new nomenclature from Vancouver

Why:

- In the Vancouver meeting in November 2024, there was discussion about what nomenclature to use to describe different data rates, different cable types, and different directions of the link
  - See https://www.ieee802.org/3/dm/public/1124/wienckowski_3dm_02a_NOV2024.pdf

Where:

- Throughout the document

100M Transmit Power

What:

- The 100M transmit powers have been updated to be 0dBm nominal transmit power for balance pair (T1) links and -3dBm for coax (V1) links

Why:

- This update is made based on recent discussions of defining higher echo levels for 802.3dm than have traditionally been used on existing automotive links
- The updated transmit power levels will ensure reliable operation over the 100M link without needing any form of echo cancelation at the camera receiver, even in the presence of extreme echo levels
- The updated transmit power will also improve immunity against RF disturbers

Where:

- The updates are reflected in Clauses 2xx.8.2.4 and 2xx.9.2.4

Using 64B/65B Blocks

What:

- The 100M framing has been updated to use 64B/65B blocks instead of 16B/17B blocks

Why:

- This update is made based on recent discussions of 64B/65B blocks and XGMII interface being desirable for both directions
- There may be an opportunity to build consensus within the Task Force to adopt 64B/65B blocks and XGMII

Where:

- The updates are mainly reflected in Clauses 2xx.1.4.2, 2xx.5.2.2, 2xx.5.2.2.3, and 2xx.5.2.3

Use XGMII for 100M

What:

- The 100M media independent interface has been updated to use XGMII instead of MII

Why:

- This update is made based on recent discussions of 64B/65B blocks and XGMII interface being desirable for both directions
- There may be an opportunity to build consensus within the Task Force to adopt 64B/65B blocks and XGMII

Where:

- The updates are mainly reflected in Clauses 2xx.1.4.2, 2xx.1.7, 2xx.3, 2xx.5.1, 2xx.5.2.2, 2xx.5.2.2.1, 2xx.5.2.2.3, 2xx.5.2.3, 2xx.5.2.3.2 , and 2xx.8.3.1

New FEC Framing for 100M

What:

- The 100M FEC framing has been updated to use 64B/65B blocks
- The change frees up 12 bits in each frame that are currently reserved

Why:

- This update is made to reflect the use of 64B/65B blocks (see previous slide)

Where:

- The updates are mainly reflected in Clauses 2xx.1.4.2, 2xx.5.2.2, 2xx.5.2.2.3, and 2xx.5.2.3

New Training Frame for 100M

What:

- The specification of the training frame for the 100M has been added
  - See https://www.ieee802.org/3/dm/public/0125/Lo_3dm_01_0125.pdf

Why:

- This is adding previously missing component to the reference text

Where:

- The updates are reflected in Clause 2xx.5.5

Summary

- Several updates have been made to the ACT reference text previously shared in the Vancouver meeting in November 2024
- The updates to use 64B/65B blocks and XGMII interface for the 100M direction are made in the hope that it may help build consensus within the Task Force
- The updates to the 100M transmit power are made in the hope that they may make it easier to reach consensus on return-loss requirements within the Task Force

Comments and Collaborators Wanted

Thank You