

Issues to resolve to evolve 802.3bz draft 0.1

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Overview of drafting process

- Scope of this presentation is Clause 126
- Began with 802.3bq D2.1 base text, except Clause 126.7 which is from Clause 55.7
 - Convert XLGMII 64 bit references to XGMII 32 bit references
 - Convert DSQ128 references to PAM16
 - Convert PCS to 64/65b + LDPC coding, & frequency scale PMA electricals per motion (Shirani_3bz_02_0515.pdf)
 - Includes startup timing
 - Modify Autoneg and infofield parameter exchanges per Lo proposal (already in bq base)
 - Modify equations in 126.7 per zimmerman_3bz_0515.pdf
- Carry forward all Clause 55 features included in bq.
- Add Editor's notes on features to be decided

Two PHYs, Nomenclature and Scalings

- Two PHYs in the draft: 2.5GBASE-T and 5GBASE-T
 - Referred to separately in text requirements
 - e.g., 2.5GBASE-T or 5GBASE-T PHYs shall...
 - Except where a state or control for shared functionality is required
 - e.g., DISABLE_2.5/5GBASE-T_TRANSMITTER
- For parameters which scale with the PHYs data rate, the parameter S is used for scaling
 - $S = 0.5$ for 2.5GBASE-T, and $S = 1$ for 5GBASE-T

Timing Issues to be Resolved

- *Startup timing stays as Cl 55*
 - *Transition counter start values adjusted by $\frac{1}{2}$ to $\frac{1}{4}$ from Cl 55, to maintain timing in wall-clock time*
- *lfer_timer interval is assumed scaled with bit rate in this draft*
 - *Should we keep it constant 125us?*
 - *802.3bz D2.1 is inconsistent on this issue and needs a comment to fix*
- *Only loop-timed Delete non-loop timed option*
 - *Currently deleted in the text, as in bq, but Clause 55 text is shown in strikeout*

EEE Issues

- Need to accept fast retrain functionality
 - Assumed accepted, in the text
 - Counters are scaled /2 and /4 from 10GBASE-T
- EEE timing changes in bq were carried into bz
 - SLEEP reduced to 6 LDPC frames (from 9 in Cl 55)
 - REFRESH to 6 LDPC frames (from 4 in Cl 55)
- LPI sleep and wake times (Clause 78) were scaled with frame time, not bit time

Training issues

- Periodic Training Sequence is incomplete
 - Existing Clause 55 text is nonfunctional, to be deleted by maintenance included in 802.3bq
 - No autonegotiation bit allocated in 802.3bz motions
- Need to determine whether periodic reinitialization is:
 - Deleted (as 10G amended), and no bit allocated
 - Per 802.3-2012 Clause 55 (broken), and bit wasted
 - Modified (as in draft Clause 113), and bit allocated
- Editor's recommendation - delete text

PMA Electrical Issues

- Most PMA electrical specifications scale nicely with symbol rate
- A few may need adjustment (shirani_3bz_01_0615.pdf)
 - Transmitter droop specification –
 - Controlled by highpass corner of transformer – keep same time constant as 10G (shirani slide 11)
 - Transmit SFDR specification –
 - Recover some implementation margin here (dominated by echo canceller needs in 10G) (shirani slide 11)
 - Out of band transmit PSD mask-
 - Relaxing rolloff will better enable multi-speed PHYs (shirani slides 5&6)
- Will need motions to accept

PMA Rejection of External Noise

- Currently draft proposes Clause 55/113 alien crosstalk rejection test
 - Summed wideband AWGN noise source
 - Levels and bandwidths are TBD
- Currently draft proposes Clause 113 rejection of EM fields text and references Clause 113A cable clamp
 - Refinement of cable clamp from Clauses 40 & 55
 - 802.3bz text requires some genericizing

Link Segment Related

- Frequency extensions of internal parameters
 - IL, RL, NEXT, FEXT beyond 100 MHz Cat5E
 - Do those matter for 2.5GBASE-T
- Alien Crosstalk levels
- Alien Crosstalk Margin Computation, or other sliding scale test