



**IEEE P802.3an Task Force
Motions**

**Portland, OR
July 15, 2004**

Brad Booth, Task Force Chair

Motion: Auto-negotiation

- Move that the Task Force adopt `lynskey_1_0704.pdf` as the basis for auto-negotiation and MDIO for D1.0.

- M: E. Lynskey

- S: H. Barrass

- TF: Y: 49 N: 7 A: 27

- 802.3: Y: 35 N: 4 A: 11

- Technical (75%)

- PASS

- Motion to postpone until September interim meeting. (K. Brown, P. Thaler) 50%

- TF: Y: 25 N: 35 A: 24

Motion: Modulation Code

- **10GBASE-T adopt single tone, baseband PAM as the modulation strategy**

- Moved by: L. Harrison
- Seconded by: S. Rao

- **TF Members: Y: unanimous N: A:**
- **IEEE Voters: Y: N: A:**

Motion: Channel Equalization Approach

- 10GBASE-T adopt programmable Tomlinson-Harashima precoding as part of the channel equalization strategy

- Moved by: Scott Powell
- Seconded by: J. Jover

- Task Force Members: Y: unanimous N: A:
- IEEE Voters: Y: N: A:



Motion: Channel Coding Approach

- **10GBASE-T adopt systematic Low Density Parity Check (LDPC) coding as the channel coding approach**

– Moved by: Vivek Telang

– Seconded by: S. Rao

- **Task Force Members: Y: 78 N: 0 A: 11**
- **IEEE Voters: Y: unanimous N: A:**

Motion: TSB-155

Move that 802.3an Task Force adopt the D1.0 TSB-155 NEXT loss, Power sum NEXT and Return Loss channel equations for the Draft 1.0 Clause 55 Link Segment NEXT, Power sum NEXT Loss and Return Loss.

Moved By: Chris DiMinico

Seconded By: Larry Cohen

TF: Y: 46 N: 11 A: 25

802.3: Y: 28 N: 7 A: 14

Technical: 75% PASS

•Amendment “for models 2, 3 & 4 “: T. Cobb, T. Boucino (75%)

•TF: Y: 17 N: 22 A: 37 FAIL

•Calling the question: Y: 33 N: 11 PASS

Motion: Upper frequency

Move that 802.3an Task Force adopt 500 MHz as an upper frequency for the Clause 55 link segment specifications.

Moved By: Chris Di Minico

Seconded By: Paul Kish

TF: Y: 67 N: 0 A: 12

802.3: Y: 36 N: 0 A: 7

Technical: 75%

PASS

Motion: MDI and environment

The 802.3an task force adopt the baseline text as defined in the presentation cobb_1_0704, with the addition of immunity to the electromagnetic emissions, for the MDI specifications and Environmental specifications in Draft 1.0.

M: T. Cobb

S: S. AbuGhazaleh

Technical: 75%

Task Force Y: 24 N: 11 A: 35

802.3 Voters Y: 15 N: 9 A: 15

FAILS

Motion: cable diags

- Move that the Task Force adopt into the baseline a definition of some channel diagnostic functions (the TF will investigate the inherent capabilities of the PHY to support these functions).
- M: H. Barrass
- S: D. Dove
- TF: Y: 50 N: 6 A: 20
- 802.3: Y: 26 N: 2 A: 9
- Technical (75%)
- PASS
- H. Barrass to sponsor an ad hoc teleconference during the week of 7/26 to discuss the PHY capabilities and prepare draft text.

Motion: Architecture Downselect

- Task force narrow consideration of 10GBASE-T baseline approach to the PAM8 and PAM12 proposals described in rao_1_0704.pdf and powell_1_0704.pdf.

– Moved by: Kevin Brown

– Seconded by: J. Babanezhad

- Task Force Members: Y: unanimous N: A:
- IEEE Voters: Y: N: A:
- PASS



Motion: 10GBASE-T Baseline Approach

- Task force adopt the multi-phy vendor proposal described in powell_1_0704.pdf as the baseline approach for 10GBASE-T. The main elements include: PAM-12, systematic LDPC coding, programmable Tomlinson-Harashima precoding, and clause 49-type framing modified for 64B/65B. All TBD and asterisked items (and dependents) to be determined prior to completion of Draft 1.
 - Moved by: Scott Powell
 - Seconded by: F. McCarthy
- Technical (75%)
- TF: Y: 54 N: 20 A: 14
- 802.3: Y: 33 N: 9 A: 9
- FAILS

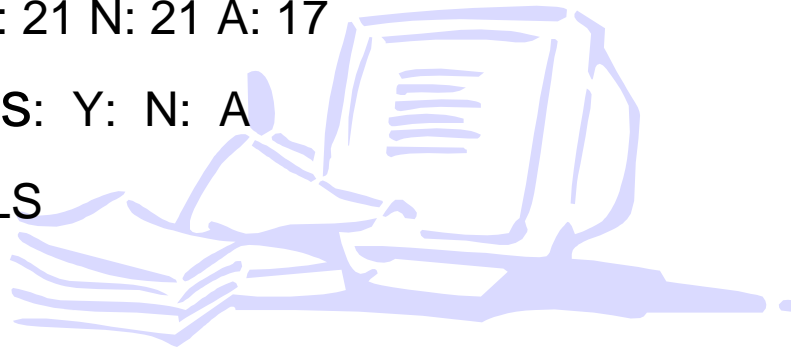
- Motion to postpone until September interim meeting. (J. Jover, D. Dove)
- TF: Y: 28 N: 49 A: 12
- FAILS

Motion

- **Adopt the maximum peak to peak differential transmitted voltage of 2-2.5V at the MDI for the 10GBASE-T transmitter as summarized in slide #3, (exclusive of baseline wander) of the presentation gupta_1_0704.pdf and use that as the baseline for defining various transmitter test modes for Draft 1.0**
- Motion Type: Technical (75% required)
- Moved By: Sandeep Gupta
- Seconded by: J. Babanezhad
- TF Voters Y: unanimous N: A:
- 802.3 Voters: Y: N: A
- Results: PASS

Motion

- **Adopt the filter assumptions in slide 6 of the presentation gupta_1_0704.pdf for the purpose of defining transmit waveform templates. This is summarized as “At least two pole continuous time low pass filter with upper -3dB frequency varying from $f_s/2$ to TBD, and a single pole continuous time high pass filter with pole $\leq 100\text{kHz}$ ”**
- Motion Type: Technical (75% required)
- Moved By: Sandeep Gupta
- Seconded by: V. Telang
- TF Voters Y: 21 N: 21 A: 17
- 802.3 Voters: Y: N: A
- Results: FAILS



Motion

- **Adopt a part of the distortion methodology as specified in the slide 17 gupta_1_0704.pdf summarized as follows: “A normative spec is specified for the transmit distortion required for the interoperability of the far end device, and a recommended, though not normative, number provided for the local device to maintain link performance as a baseline for Draft 1.0”**
- Motion Type: Technical (75% required)
- Moved By: Sandeep Gupta
- Seconded by: J. Tellado
- TF Voters Y: by acclimation N: A:
- 802.3 Voters: Y: N: A
- Results: PASS

Motion

- Adopt a part of the common mode rejection methodology as specified in the slide 21 of the presentation gupta_1_0704.pdf summarized as follows: “The common mode rejection spec of the receiver widened up-to 500MHz such that the common mode output signal that the transceiver has to tolerate while maintaining 10G link performance, should be $\leq 2.8V$ for $f \in (1, f_1]$ MHz, and $\leq 2.8 * f_1/f$ for $f \in (f_1, 500]$ MHz, parameter f_1 subject to further investigation, (initial value for $f_1 = 80\text{MHz}$) based on real environment conditions.”
- Motion Type: Technical (75% required)
- Moved By: Sandeep Gupta
- Seconded by: J. Babanezhad
- TF Voters Y: 25 N: 9 A: 24
- 802.3 Voters: Y: N: A
- Results: FAILS

Motion: ANEXT and IL for augmented Class E/Cat 6

Move that 802.3an Task Force adopt Ed2:2002 Class F insertion loss and ANEXT for augmented Category 6 (proposed Class E ed2.1) Cabling as per June 11, 2004 TR42 Liaison response to IEEE 802.3 on Augmented Category 6 Cabling and the 802.3an augmented Class E objective.

1. Augmented Category 6 (proposed Class E ed2.1) Channel Insertion Loss (IL) shall meet ISO/IEC11801 Ed2:2002 Class F channel specification

2. Augmented Category 6 (proposed Class E ed2.1) Channel Power Sum Alien Near End Crosstalk (PSANEXT) shall meet:
 $PSANEXT \geq 60 - 10\log(f)$, $1 \leq f \leq 100$ MHz
 $PSANEXT \geq 60 - 15\log(f)$, $100 < f \leq 625$ MHz

Moved By: Paul Kish

Seconded By: Paul Vanderlaan

Y: unanimous N: Abstain:

Technical: 75% PASS

Motion: Class E parameters

- Accept the cabling parameters for Class E cabling from the ISO liaison letter shown below.
- The changes are in bold red.

	Existing cabling	New cabling
Return loss	1-10 MHz: 19 dB	1-10 MHz: 19 dB
	10-40 MHz: 24-5log(f) dB	10-40 MHz: 24-5log(f) dB
	40-400 MHz: 32-10log(f) dB	40-250 MHz: 32-10log(f) dB
	400-625 MHz: 6 dB	250-625 MHz: 8 dB
Insertion loss	$(L/100)(1.05)(1.82\sqrt{f})+.0169f+.25/\sqrt{f}+4x.02\sqrt{f}$	$1.05(1.8\sqrt{f})+.01f+.2/\sqrt{f}+4x.02\sqrt{f}$
NEXT	1-330 MHz: $-20\log\left(\left(1.928 \cdot 10^{-4} \cdot f^{0.75}\right) + \left(3.991 \cdot 10^{-5} \cdot f\right)\right)$	$-20\log\left(\left(1.928 \cdot 10^{-4} \cdot f^{0.75}\right) + \left(3.991 \cdot 10^{-5} \cdot f\right)\right)$
	330-625 MHz: 31-50log(f/330)	

- **Motioned: W. Larsen**
- **Seconded: T. Cobb**
- **Technical (75%) Results: FAIL**
- **Task Force: Yes: 31 No: 19 Abstain: 14**
- **802.3 members: Yes: No: Abstain:**



Thank You!

Straw Poll: 10GBASE-T Baseline Approach

- Task force adopt the multi-phy vendor proposal described in powell_1_0704.pdf as the baseline approach for 10GBASE-T. The main elements include: PAM-12, systematic LDPC coding, programmable Tomlinson-Harashima precoding, and clause 49-type framing modified for 64B/65B. All TBD and asterisked items (and dependents) to be determined prior to completion of Draft 1.
- Task Force Members: Y: 44 N: 15 A: 21



Motion: Modulation Code

- 10GBASE-T adopt 12 level PAM (PAM12) as the modulation code

- Moved by 5
- Seconded

Withdrawn

- Task Force Members: Y: N: A:
- IEEE Voters: Y: N: A:
- Withdrawn

Motion: Framing & Control

- 10GBASE-T adopt a 64B/65B code, based on Clause 49 64B/66B code

– Moved by: Jose Tellado

– Seconded by: [unclear]

- Task Force vote: Y: [unclear] N: [unclear] A: [unclear]
- IEEE Voter: Y: [unclear] N: [unclear] A: [unclear]
- Postponed

Postponed

Motion: Framing & Control

- **10GBASE-T adopt a framing methodology consisting of blocks of information, check, uncoded, and phy control/pad bits interspersed with frame alignment symbols, as described in powell_1_0704.pdf**

- Moved by: [Name] S [Name]
- Seconded by: [Name]

Postponed

- **Task Force Members: Y: N: A:**
- **IEEE Voters: Y: N: A:**
- **Postponed**

Motion: Power Backoff

- 10GBASE-T adopt a power backoff mechanism adapted on startup for use on shorter lines – levels and metrics TBD

– Moved by: Hiroshi Takahashi

– Seconded

- Task Force Member: [unclear] A.
- IEEE Voters: Y: [unclear] N: [unclear]
- Postponed

Postponed

Motion

- Adopt the following methodology from slide 17 of the presentation, gupta_1_0704.pdf summarized as follows:

“The normative spec on transmit distortion required for interoperability of the far end device, should be defined in a frequency mask as following:

a) The SFDR of the transmitter when subject to single tone inputs producing output with peak to peak transmit amplitude shall be

better than X_{nonlin} dB in the frequency range, $f \in (100\text{kH}; f_1]$ MHz,

AND better than $X_{\text{nonlin}} - 20 \cdot \log_{10}(f/f_1)$ dB, for $f \in (f_1/2; f_1)$ MHz

b) Signal to Inter-modulation Distortion (S/IMD) of the transmitter, for dual tone inputs, with frequency separation of 100 kHz, and peak to peak transmit amplitude of 100 mW, shall be better than X_{nonlin} dB, for peak to peak output with peak to

peak transmit amplitude of 100 mW, for $f \in (100\text{kH}; f_1]$ MHz, parameters X_{nonlin}, f_1

subject to further investigation.

- Motion Type: Technical (75% required)
- Moved By: Sandeep Gupta
- Seconded by:
- TF Voters Y: N: A:
- 802.3 Voters: Y: N: A:
- Postponed