

IEEE P802.3an Task Force
Jan. 26-28, 2005 Interim Meeting Minutes

Meeting convened at 1:20 pm Wednesday, January 26, 2005.

Sterling was volunteered by Brad to note take, George Eisler volunteered for Friday afternoon.

The agenda was approved unanimously by acclamation as presented by Brad. Seconded by Alan Flatman.

The goals for this week are to respond to comments on the draft, take presentations related to technical comments and task editor to create draft 1.3.

Review of IEEE boiler plate.

At 1:25 pm Brad read the call for patents. And it was revised as recently as December.

Brad explained that we have a worst case channel requirement but that we do not create and we do reference cabling standards from ISO, TIA, etc.

Where are we on the timeline we should have a stable document for WG review by March plenary. Last new feature at March plenary. Approval for WG ballot expected in July plenary. Otherwise we will keep churning drafts. We should go from D1.4 to D2.0 in the March April timeframe. 35 day minimum comment period including mailing on a draft. When we do a recirculation ballot, generally only changes are open for further comments until Sponsor Ballot phase at which point the whole document is opened for comment.

One requirement of technically complete is no TBD's in the document.

Future meetings Feb 23-24 at Biltmore hotel in Santa Clara, Ca. interim. March plenary week of the 14th Atlanta, May interim TBD location TBD either Austin or Pittsburgh the week has not been defined but the first choice was the week of May the 9th, second choice, the following week.

Alan Flatman gave a verbal liaison report from ISO Ixtapa which occurred last week. The work has begun on the next edition of 11801. An analysis was reported by Eric Beck on EMI performance for 1G and 10G based upon a psd mask and made some predictions for EMI performance of 10GBASE-T. This study has been posted on the 802.3an web site. The effects of temperature on insertion loss were discussed as affected by remote powering over adjacent cabling. A group has been formed within ISO to look at this and is meeting electronically to study this including Alan and Masood Shariff.

Valerie Rybinski gave a liaison report from TIA 42.7 meeting December 6-7 in Orlando, FL. Reviewed 10GBASE-T cabling needs. We do not have a formal liaison letter the latest draft 1.2 of TSB 155 has been posted and Draft 1.3 of 568 B.2-10 has been posted.

The documents have been refined to include max frequency of 500 MHz. There are not shall requirements in TSB-155 but it includes cabling guidelines It includes performance guidelines for parameters and mitigation methods as well as field tester performance guidelines for testing the installed performance of the existing cabling plant. Mitigation includes unbundling interconnect vs. xconn use of long length cors use of augm cat6 comp all of the above see tr42.7-0501-013.

568 b.2-10 aug6 additional req. most of the requirements have been specified we are looking at AFEXT levels in conjunction with request for power backoff levels. Component specifications are still in progress. Channel NEXT limits are specified to 500 MHz we agreed to include an error factor for measurements above 330 MHz. This applies to field test measurements only. The 568 C document has not progressed to the point of a draft yet.

Next meeting Feb 28 thru March 2 2005 Mesa, AZ.

Next presentation by Sanjay Kasturia on completing the draft and analysis of comments on D1.2. Draft 1.2 has been online sympathy for the participants was noted 110 comments 200 TBD's which does not specify everything that is not specified. There is still a lot of work to be done. About 22 TR, about 62 T and 20 E. Brett is now the most prolific commenter. Asked the commenters to be more specific.

A break was had for ice cream.

Brad did the book explanation again.

Sanjay continued with the analysis of the comments.

Priority:

To complete changes to existing clauses. 45, 1, 2, 49...

Are there changes needed to clause 49 registers relating to BER counts?

Clause 55 decision on scramblers/ PRBS generators

Complete spec of THP

Further dev of startup

Transmit PSD power mask, provide TX power

Transmitter linearity/distortion

Power backoff level selection

Alien FEXT spec in link segment

Loop back test patterns

Def of PMD and PCS management registers for clause 45.

Comment approved THP coefficients for FIR coefficient THPs

We now have detailed proposals for IIR coefficient set and FIR coefficient set

We have merged Seki's and Gottfried's proposals on PMA training

There are two proposals for PCS scrambler

Startup unresolved PMA training, THP coefficient definition exchange and selection procedure

Power backoff algorithm

Etc lots of open items.

Started on comment resolution.

See comment responses to D1.2:

http://www.ieee802.org/3/an/public/jan05/comments_2_0105.pdf

Review halder_1_0105.pdf in relationship to comment 32 and 33.

Proposed to increase the number of fixed THP coefficients to include 55m Cat6 cable or make THP programmable. Has to do with 55m Cat6 cable SNR. 100m Cat6 only has 1.2 dB SNR margin and AELFEXT has not been considered which will make the SNR negative. Request to increase the system bandwidth.

Reviewed vareljian_1_0105.pdf in relationship to comment 2.

Proposed 3-sets of coefficients long, medium and short long 80-100m, med 45-80m short <45m. Time domain sims prove that 3 sets of coefficients work reasonably well. Works with 24 tap FFE or less. Format does not preclude FIR or IIR form coefficient implementation. Supposedly this would solve Bijit's problem as well because also allows programmable THP coefficients.

Reviewed ungerboeck_1_0105.pdf starting with the pre-coding section.

Meeting re-convened at 8:42 am Thursday, January 27, 2005.

Reviewed powell_1_0105.pdf in relationship to comment 19, 75 and 64

Result better than 10-12 BER at 23.35 dB uses DSQ mapping and G and H matrices published. 2048, 1723 code.

Reviewed pagnanelli_2_0105.pdf in relationship to comment 38, 40 85, 86 and 87.

Chris explained the joint contribution replaced pagnanelli_1_0105.pdf and gupta_1_0105.pdf. Output power levels 3.2 dBm to 5.2 dBm with spectral mask as shown in slide 14 of pagnanelli_2_0105. Recommendation was to change the lower end changed to 5 MHz.

Transmitter linearity jitter and distortion. Separate specs for these are not necessary Chris presented more of the joint contribution. Linearity is not the right word. It should be called SNR plus distortion. In 1G the spec is 10mV out of 2V P-P = 46 dB The proposal is less stringent (like 40 db). Maybe the 1G spec was too tight because many devices do not meet the spec and still work. This is not a good test, since specs are designed for worst case situation. What is the frequency mask for the distortion test requirement?

Transmitter signal to noise plus distortion (SNDR) specification as per text on slides 7 and 8 from presentation pagnanelli_2_0105.pdf was offered as a replacement for linearity and jitter. The main problem is the level of distortion requirement. Proposed 55 then 60 dB by Joseph. Joseph presented page 5 of the original Gupta presentation. Straw poll on 60 dB at low freq, but some question as to what the req. is at high frequency.

Reviewed ungerboeck_2_0105.pdf in relationship to comment 9, 50 and 7.

About scrambling and CRC. There are two proposals that are very similar in terms of complexity.

Straw pole:

Self synchronizing 17

Cipher stream scrambler 4

Using the CRC8 bit and the aux bit retained as per presentation mcclellan_1_0105.pdf slide #12

Straw poll: In favor TF: 20 against TF 0 abstain 22

Comment 46 clause 55.5.9.1 george Zimmerman

“Flat noise source, with 3dB bandwidth at least 10 MHz to 400 MHz at a power spectral density of TBD dBm/Hz.”

Accept in principle

Comment 80 clause 55.5.3.1 Sandeep Gupta

See response to comment 36

Straw poll

In favor of removing transmit voltage spec from the draft

TF 12

Opposed TF 9

Postponed till tomorrow.

What is in there now 2-2.5 +/- TBD

Other option, this is the range that would be specified (1.85Vpp to 2.25Vpp) as per Pagnanelli_2_0105 slide 11.

Cabling we decided to look at some perhaps easy ones at 5:07 pm.

Meeting convened at 8:38 am Friday, January 28, 2005.

Reviewed pagnanelli_3_0105.pdf in relationship to comment 38.

From slides 17 and 18 pagnanelli_3_0105.pdf. Table with all TBD's

Discussion on linearity, distortion, etc.

Discussion: Late at night what were the numbers? There does not seem to be any agreement from the breakout group on the numbers. A couple of late night agreements: We would allocate .4 dB implementation loss (if the SNR was 25.4 or better) to transmit SNDR. These specifications would apply only to full power and another table would apply to power back-off.

Discussion: delete text “in a broadband sense” replace with “as defined in table 55x” or “integrated signal power divided by integrated noise power in the band from 1 to 400 MHz”

Vote on the slides as presented:

For TF: 10 Against TF: 6 abstain TF: 22

Motion fails

Reviewed powell_2_0105.pdf and reviriego_1_0105.pdf in relationship to THP comments.

Powell_2_0105 makes programmable precoder optional. Reviriego_1_0105.pdf proposes not having fixed set of precoders. Source of some disagreement.

Reviewed zimmerman_2_0105.pdf in relation to comment 94.

Original presentation zimmerman_1_0105.pdf has been updated with new numbers.

Proposal 1: specify PSANEXT/PSAELFEXT averaging across pairs in channel model for models 1,2,3, as specified on slides 16 and 17

Proposal 2: Specify PSAELFEXT

New suggested remedy as presented in zimmerman_2_0105.pdf slides 16, 17

On slide 16 2nd column title change text to “PSAELFEXR loss (dB) (@ 100 MHz, min)”

A. Flatman presented flatman_2_0105.pdf in conjunction with Comment 5. Suggested remedy for resolution: Y 2 N 1 A 17 Failed. Second proposal to accept only the text below the table: Y 11 N 5 A 15. Comment resolution efforts failed; comment remains unresolved.

Further effort was made to resolve comments relating to TX Linearity.

Comment 38 was reconsidered in conjunction with pagnanelli_4_1015, with modifications. Y 16 N 7 A 4. Comment resolution failed; comment remains unresolved.

Comment 2 resolution, in conjunction with varejian_1_0105, was Accepted in Principle without opposition.

Comment 39, in conjunction with pagnanelli_1_0105, was reconsidered. Suggested remedy to remove text but retain heading was Accepted in Principle without opposition.

Comment 88 was accepted, Comment 89 was accepted with modifications, both without opposition.

Comment 37 was withdrawn.

Comment 84 was resolved, deemed editorial.

Comment 85 was accepted as methodology, but not specific frequencies.

Meeting motions:

Move that the Task Force approve the minutes of the November Plenary meeting (minutes_1_1104.pdf).

M: G. Eisler

S: B. Jones

Procedural (>50%)

TF: unanimous by voice

PASSES

Move that the Task Force grant editorial license to the P802.3an editors to resolve the editorial comments as they see fit.

M: G. Eisler
S: A. Flatman
Technical ($\geq 75\%$)
TF: unanimous by voice
PASSES

Move that the Editor generate draft D1.3 for Task Force review.

M: G. Eisler
S: B. Jones
Procedural ($> 50\%$)
TF: unanimous by voice
PASSES

Move to adjourn.

M: G. Zimmerman
S: A. Flatman
Procedural ($> 50\%$)
TF: unanimous by voice
PASSES

Attendees:

Last name	First Name	Company
Adriaenssens	Luc	Systemax
Alexander	Jan	Nexans
Babanezhad	Joseph N.	Plato Networks
Barazanderur	Majid	Vitesse
Belhadi	Med	Cortina Systems
Bennett	Mike	LBL
Bohbot	Michel	Nordx-CDT
Booth	Brad	Intel
Bublil	Baruch	Intel
Chang	Luke	Intel
Cobb	Terry	Systemax
Cohen	Larry	Independent
DiMinico	Chris	MC Communications
Dinh	Thuyen	Pulse
Eilser	George	SolarFlare
Fallahi	Siavash	Broadcom
Flatman	Alan	Independent
Gupta	Sandeep	Teranetics
Halder	Bijit	Plato Networks
Hammond	Bernie	ADC

He	Runsheng	Marvell
Hess	John	Bel Fuse
Higuchi	Tetsuya	AIST
Jones	Willian	SolarFlare
Jover	Juan	Independent
Kasturia	Sanjay	Teranetics
Koeman	Henriecus	Fluke Networks
Kwentus	Alan	KeyEye Communications
Lynskey	Eric	UNH IOL
Magram	Luis	Intel
McClellan	Brett	SolarFlare
McConnell	Mike	KeyEye Communications
Mei	Richard	Systimax
Mezer	Amir	Intel
Miao	Tremont	ADI
Muller	Shimon	Sun
Pagnanelli	Chris	SolarFlare
Popescu	Petre	Quake
Powell	Scott	Broadcom
Rao	Sailesh	Phyten Technologies
Reviriego	Pedro	Agere Systems
Rybinski	Valerie	Siemon
Sahli	Sondes	Intel
Savi	Olindo	Siemon
Seki	Katsutoshi	NEC
Sigmon	Ned	Tyco Electronics
Sparrowhawk	Bryan	Leviton
Suzuki	Kenji	Cortina Systems
Takeuchi	Junichi	NEC Electronics
Tazebay	Mehmet	Broadcom
Tellado	Jose	Teranetics
Thaler	Pat	Agilent
Ungerboeck	Gottfried	Broadcom
Vaden	Sterling	Superior Modular Products
Valliappan	Magesh	Vitesse
Van Bavel	Nick	Vitesse Semi
Vareljian	Albert	KeyEye Communications
Woodruff	Bill	Aquantia
Zimmerman	George	SolarFlare