Cl **98** *SC* **98.5.4.5.1.4** *P* **147** *L* **21** # 130

Shariff, Masood CommScope

Comment Type **E** *Comment Status* **A**

Typo

SuggestedRemedy

Remove \ at the beginning of the section

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.5.4.5.1.10** *P* **150** *L* **47** # 131

Shariff, Masood CommScope

Comment Type **ER** *Comment Status* **A**

This section is theoretical and should come before the practical specifications in 98.5.4.5.1.9

SuggestedRemedy

Move entire section before section 98.5.4.5.1.9. Also make it clear that PS ACRF (cabling standards terminology) is the same as MDACRF (IEEE termonology)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See resolution to comment #163.

Cl **98** *SC* **98.7.2.4.5** *P* **164** *L* **3** # 132

Shariff, Masood CommScope

Comment Type **T** *Comment Status* **D**

Equation 98-45 is about MDFEXT, not MDACRF

SuggestedRemedy

Change MDACRF to MDFEXT

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

To ensure the total FEXT coupled
into a duplex channel is limited, multiple disturber ACRF is specified as the power sum of the individual ACRF disturbers.
98-45 corresponds to Category 8 Cabling D2.0.

Cl **98** *SC* **98.7.2.4.5** *P* **164** *L* **29** # 133

Shariff, Masood CommScope

Comment Type **T** *Comment Status* **A**

Missing equation for PSACRF including length dependency

SuggestedRemedy

Add PSACRF equation similar to equation 98-44 anchored at 64.8 instead of 67.8

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Page 163 delete informative text from line 28-40.

Cl **98** *SC* **98.5.4.5.1.2** *P* **146** *L* **36** # 134

Shariff, Masood CommScope

Comment Type **T** *Comment Status* **A**

Equation 98-13 is not correct

SuggestedRemedy

Change the x after B to a +
ILD is an additional term following the contribution of IL by two connectors

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.7.2.4.4** *P* **163** *L* **16** # 135

Shariff, Masood CommScope

Comment Type **TR** *Comment Status* **A**

Equatin 98-43 is about FEXT not MDNEXT

SuggestedRemedy

Change MDNEXT to FEXT

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
In 98-43 change MDNEXT loss to ACRF

Cl **99** *SC* *P* **2** *L* **6** # 142

Chalupsky, David Intel Corp.

Comment Type **T** *Comment Status* **A**

leftover 10G reference

SuggestedRemedy

replace "XAUI" with "XLAUI" replace "XGMII" with "XLGMII"

Response *Response Status* **C**

ACCEPT.

Cl **00** *SC* **0** *P* *L* # 143

Chalupsky, David Intel Corp.

Comment Type **T** *Comment Status* **A**

There is no Clause 80 in this draft. Clause 80 should contain references to 40GBASE-T

SuggestedRemedy

Add Clause 80 with appropriate content for 40GBASE-T

Response *Response Status* **C**

ACCEPT.

Cl **00** *SC* **0** *P* *L* # 144

Chalupsky, David Intel Corp.

Comment Type **T** *Comment Status* **A**

No Clause 81.

SuggestedRemedy

Add Clause 81. Add 40GBASE-T to diagram in 81.1.

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.1.5** *P* **65** *L* **3** # 145

Chalupsky, David Intel Corp.

Comment Type **T** *Comment Status* **A**

XLGMII is a logical interface. there is no physical / electrical spec.

SuggestedRemedy

replace 98.1.5 with:
All 40GBASE-T PHY implementations are compatible at the MDI and at a logical XLGMII, if implemented. Implementation of the XLGMII is optional. Designers are free to implement circuitry within the PCS and PMA in an application-dependent manner provided that the MDI and XLGMII
(if the XLGMII is implemented) specifications are met. System operation from the perspective of signals at
the MDI and management objects are identical whether the XLGMII is implemented or not.

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.2** *P* **65** *L* **28** # 146

Chalupsky, David Intel Corp.

Comment Type **T** *Comment Status* **A**

incorrect reference for XLGMII

SuggestedRemedy

replace "Clause 46" with "Clause 81"

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.3.2.2.14** *P* *L* # 147

Chalupsky, David Intel Corp.

Comment Type **T** *Comment Status* **A**

legacy reference to XGSX

SuggestedRemedy

Either
delete "the XGSX and"
or
replace "XGSX" with "XLAUI"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Delete "XGXS and", so that the sentence now reads, "The /E/ allows physical sublayers such the PCS to propagate received errors."

Cl **98** *SC* **98.3.2.2.20** *P* **87** *L* **43** # 148

Chalupsky, David — Intel Corp.

Comment Type **E** *Comment Status* **A**

typo in the sentence "The encoder process k message symbols to generate 2t parity symbols, which are then appended to the message to produce a codeword of n=k+2t symbols. "

SuggestedRemedy

replace "process" with "processes"

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.3.2.2.20** *P* **87** *L* **45** # 149

Chalupsky, David — Intel Corp.

Comment Type **T** *Comment Status* **A**

RS-FEC description could be more informative by indicating what the (n,k) values are.

SuggestedRemedy

Replace
"For the purposes of this clause, the particular Reed-Solomon code is denoted RS-FEC(n,k)."
with
"For the purposes of this clause, the particular Reed-Solomon code in the form RS-FEC(n,k)is denoted RS-FEC(140,136)."

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.3.2.2.18** *P* **87** *L* **23** # 150

Chalupsky, David — Intel Corp.

Comment Type **T** *Comment Status* **A**

Figure 98-11, PCS Scrambler, is misplaced. the figure currently sits in the RS-FEC sublause, 98.3.2.2.20.

SuggestedRemedy

Move figure 98-11 from 98.3.2.2.20 to 98.3.2.2.18.

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.4.6.5** *P* **138** *L* **36** # 151

Cibula, Peter — Intel Corporation

Comment Type **E** *Comment Status* **A**

Subclause 98.4.6.5 Fast retrain state diagram is missing the associated figure. The corresponding state diagram, Figure 98-34 - Fast retrain control state diagram, is incorrectly located in the middle of Subclause 98.5.2 Test Modes (Page 138, Line 34).

SuggestedRemedy

Appears to be a formatting issue. Move Figure 98-34 to Subclause 98.4.6.5.

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.4.6.4** *P* **137** *L* **31** # 152

Cibula, Peter — Intel Corporation

Comment Type **E** *Comment Status* **A**

Subclause 98.4.6.4 EEE Refresh monitor state diagram is missing the associated figure. The corresponding state diagram, Figure 98-33 - EEE Refresh monitor state diagram, is incorrectly located in the middle of Subclause 98.5.1 Isolation Requirement (Page 137, Line 44).

SuggestedRemedy

Appears to be a formatting issue. Move Figure 98-33 to Subclause 98.4.6.4.

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.5.2** *P* **139** *L* **42** # 153

Cibula, Peter — Intel Corporation

Comment Type **T** *Comment Status* **A**

Table 98–13 — MDIO management register settings for test modes identifies Test mode 4 as being used for a transmit distortion test. The subsequent description of Test mode 4 (Page 140, Line 13) identifies Test mode 4 as being used for transmitter linearity testing. The test mode description in the table should be aligned with the description in the body of the subclause. (Note: The text appears to be directly carried over from Clause 40, Table 40-7.)

SuggestedRemedy

Change the text in Table 98-13 for Test mode 4 from "Test mode 4 - Transmit distortion test." to "Test mode 4 - Transmit linearity test."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Change references to "transmitter linearity" to read "transmitter nonlinear distortion" - it is the more general term for what is measured. Request commenter to submit a maintenace request on Clause 40 & 55 which follow the same nomenclature.

Cl **98** *SC* **98.8.2.2** *P* **169** *L* **7** # 154

Cibula, Peter — Intel Corporation

Comment Type **T** *Comment Status* **A**

Subclause 98.8.2.2 states that the impedance balance of the MDI shall meet the relationship defined in Equation (98-53) when the transmitter is transmitting random or pseudo-random data, and that Test-mode 4 may be used to generate an appropriate transmitter output. However, Subclause 98.5.2, Table 98-14 defines Test mode 4 as a set of two-tone frequency pairs used for transmitter linearity testing. A more appropriate test mode for Subclause 98.8.2.2 would be Test Mode 5 (Normal operation with no power backoff.).

SuggestedRemedy

For discussion. While Test mode 5 seems to be an appropriate way for the 40GBASE-T transmitter to emulate random or pseudo-random data, it is possible that other defined test modes could be used for the impedance balance measurement. If Test mode 5 is in fact appropriate, change the text in Subclause 98.8.2.2, Page 169, Line 7 from "Test mode 4 may be used to generate an appropriate transmitter output." to "Test mode 5 may be used to generate an appropriate transmitter output."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Replace Test mode 4 with Test mode 5 in the text.

Add editors note for PHY designers to look carefully at measurement for MDI impedance balance and determine whether a similar change to 10GBASE-T is desirable.

Cl **98** *SC* **98.8.2.2** *P* **168** *L* **44** # 155

Cibula, Peter — Intel Corporation

Comment Type **T** *Comment Status* **A**

Subclause 98.8.2.2 describes two approaches to measure MDI impedance balance, one using a time-domain technique described on Page 169, Line 8 through Line 38, and a second using a frequency-domain technique described in Page 169, Line 39 through Line 49.
The time-domain technique is implied as a primary approach ("... impedance balance is measured..." on Page 169, Line 28) and the frequency-domain technique is implied as an alternative method ("... may also be measured..." on Page 169, Line 39).

SuggestedRemedy

For discussion. It is believed that the frequency-domain approach may be more reproducible than the time-domain approach. It is suggested that the Task Force review both measurement approaches and the associated test and calibration circuits for each, and (if supported by such a review) update the text to identify the frequency-domain technique as a primary approach to making the measurement - basically flipping the order of the two approaches.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. -

Replace Equation 98-54 and subsequent text defining impedance balance with Sdc11 - based equations in cibula_3bq_02_0115.pdf. Replacing lines 10-37 until the start of the description of the network analyzer test.

Change wording around network analyzer test to remove "also".

Delete figures 98-42 and 98-43

Cl **98** *SC* **98.3.4** *P* **66** *L* **10** # 156

Feyh, German — Broadcom

Comment Type **T** *Comment Status* **A**

Periodically resetting the training sequence is not used by current PHYs. Exiting the resetting of the resetting of the training sequence earlier in the start-up sequences makes the mode more usable.

SuggestedRemedy

IN PMA_PBO_Exch, when the receiver detects a valid requested transmitter PBO setting (Oct7 Valid<7>), then the receiver stops reinitializing the values of its scrambler state.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Presenter to provide specific text change for the draft.

Cl **98** *SC* **98.3.2.2.20** *P* **87** *L* **42** # 157

Langner, Paul — Aquantia

Comment Type **T** *Comment Status* **A**

Current RS-FEC implmentation has correction capability of 2x 11-bit symbols. A more appropriate solution would be to correct 3x 8-bit symbols.

SuggestedRemedy

A presentation will be provided for the January meeting

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See presentation for detail.
Straw Poll:
Adopt the 512/513b transcoding & 8-bit RS FEC proposal in langner_3bq_01_0115.pdf
Y: 10
N: 5
No consensus to make the change.
(DEFERRED TO AFTER THE BREAK)

Motion:
Adopt the 512/513b transcoding & 8-bit RS FEC proposal in langner_3bq_01_0115.pdf
M: Hossein Sederat
S: Kamal Dalmia
Technical (>= 75%)
Y:24
N:7
A:3
MOTION PASSES

Cl **55** *SC* **55.6.2** *P* **51** *L* **13** # 158

McClellan, Brett — Marvell

Comment Type **E** *Comment Status* **A**

typo, xBASE-T should be xGBASE-T

SuggestedRemedy

change xBASE-T to xGBASE-T

Response *Response Status* **C**

ACCEPT.

Cl **00** *SC* **0** *P* **0** *L* **0** # 159

McClellan, Brett — Marvell

Comment Type **ER** *Comment Status* **A**

A couple of comments approved in draft 1.0 don't appear to have been implemented and I did not see an editor's comment as a placeholder. Comment #61 did not get implemented
Add edit to normative Annex 28B, clause 28B.3 to insert 40GBASE-T above 10GBASE-T on the priority resolution list and renumber list accordingly

comment #63 was not implemented
Insert as section 28D.8, with same text as 28D.6 and change references to reflect 40GBASE-T and Clause 98, including variable 40GigT

comment 80 was not implemented
Add Link Interruption Ordered_set to XLGMII in Clause 81 similar to 46.3.4 and change reference

SuggestedRemedy

editor to review approved comments and implement in next draft

Response *Response Status* **C**

ACCEPT. See also comment 161
Editor to review maintenance Task Force actions regarding use of ordered_set

Cl **98** *SC* **98.5.4.3** *P* **145** *L* **10** # 160

Zimmerman, George — CME Consulting Inc

Comment Type **E** *Comment Status* **A**

Common mode noise rejection test has no requirements, and is purely informative.

SuggestedRemedy

Move clause 98.5.4.3 and any extensions which are not normative requirements to an informative annex.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Ad hoc to provide recommendations for whether an annex is required, and whether any normative requirements are likely.
Straw polls:
Do you believe this clause needs a normative requirement?
Y: 0
N: 10
No Opinion/Not enough Information: 17
(NO CHANGE REQUIRED TO THE TEXT)

Cl **28B** *SC* **0** *P* **24** *L* **1** # 161

Zimmerman, George CME Consulting Inc

Comment Type **ER** *Comment Status* **A**

Changes to include 40GBASE-T in clause 28 Annexes B,C,and D and reflect name change to Technology message code are not made as agreed on Draft 1.0

SuggestedRemedy

Implement comments 61, 62, and 63 making changes to clauses 28B, 28C and 28D from draft 1.0 comment resolution

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement with comment 159

Cl **00** *SC* **0** *P* **0** *L* **0** # 162

Zimmerman, George CME Consulting Inc

Comment Type **ER** *Comment Status* **A**

Roll in Clause renumbering, changing Clause 98 to Clause 105 as per chief editor

SuggestedRemedy

Editor to change all references of clause 98 to clause 105

Response *Response Status* **C**

ACCEPT.
Ed note - chief editors numbering changed to have bq as clause 113.

Cl **98** *SC* **98.5.4.5.1** *P* **146** *L* **20** # 163

Zimmerman, George CME Consulting Inc

Comment Type **ER** *Comment Status* **A**

IEEE style guidelines allow no more than 5 levels of numbering, organization of this subclause goes to 6 levels

SuggestedRemedy

Reorganize parameters of short reach test channel to conform to IEEE 5-level numbering. Recommend separating the direct attach channel parameters to a new normative annex and referencing it on line 23.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Reorganize this subclause to conform to IEEE 5-level numbering. Rather than duplicate, provide references for definitional subclauses already specified in 98.7 such as 98.7.2.4.3 Multiple disturber power sum near-end crosstalk i.e., replace [98.5.4.5.1.7 Multiple disturber power sum near-end crosstalk (PSNEXT) loss] with reference to [98.7.2.4.3].

Cl **98** *SC* **98.5.4.5.1.2** *P* **146** *L* **47** # 164

Zimmerman, George CME Consulting Inc

Comment Type **ER** *Comment Status* **A**

Equation 98-4 equation and frequency ranges run together on second line, making it difficult to read

SuggestedRemedy

Increase spacing between equation and frequency range for Equation 98-14.

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.5.4.5.1.3** *P* **147** *L* **9** # 165

Zimmerman, George CME Consulting Inc

Comment Type **ER** *Comment Status* **A**

Equation 98-15 log10 should have 10 subscripted. It is not.
Also, equation 98-25 and 98-26 have this problem

SuggestedRemedy

Subscript the 10 in the log10 on first 2 lines of Equation 98-15, and in equations 98-25 and 98-26.

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.6.2** *P* **156** *L* **35** # 166

Zimmerman, George CME Consulting Inc

Comment Type **ER** *Comment Status* **A**

Implement editors note and remove note

SuggestedRemedy

Implement editors note and remove note.

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.8.2.3** *P* **170** *L* **46** # 167

Zimmerman, George CME Consulting Inc

Comment Type **ER** *Comment Status* **A**

Editors note has been considered in last comment cycle - remove

SuggestedRemedy

Remove editors note.

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.5.4.5.1** *P* **146** *L* **23** # 168

Zimmerman, George CME Consulting Inc

Comment Type **T** *Comment Status* **A**

Remove TBD next to 5 meters. TIA direct attach channel is currently 5 meters in Cat 8 draft out for ballot.

SuggestedRemedy

Remove (TBD) from 5 meter length.

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.3.2.2.6** *P* **82** *L* **1** # 169

Zimmerman, George CME Consulting Inc

Comment Type **TR** *Comment Status* **A**

Figure 98-9 shows control code alignments for a 32-bit wide MII, such as XGMII. 40GBASE-T will use the XLGMII which is 64-bits wide, eliminating many of these possibilities, and is shown in Figure 82-5. The invalid block formats (with a start (S) or ordered set (O) character at position 4 are not allowed in the 64 bit format and should be eliminated.

SuggestedRemedy

Align Figure 98-9 with 64 bit format as in Figure 82-5.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Add a note to the table indicating which codes are not allowed for 40Gbps Ethernet Transmission

Cl **98** *SC* **98.12.2** *P* **173** *L* **38** # 170

Zimmerman, George CME Consulting Inc

Comment Type **TR** *Comment Status* **A**

Change support of loop timing to Mandatory.

SuggestedRemedy

Change support of loop timing to Mandatory.

Response *Response Status* **C**

ACCEPT.

Cl **98** *SC* **98.12.3** *P* **174** *L* **22** # 171

Zimmerman, George CME Consulting Inc

Comment Type **TR** *Comment Status* **A**

CRC8 functionality has been deleted and replaced by RS-FEC coding.

SuggestedRemedy

Delete PIC PCT10 for CRC8, and insert PICS for RS-FEC as appropriate

Response *Response Status* **C**

ACCEPT.