Cl **300** *SC* **300** *P***41** *L***1** # 1

Lewis, David Speciphy / Lumentum

Comment Type **TR** *Comment Status* **X**

Subclause does not include the 1060 nm PMDs

SuggestedRemedy

Add 200GBASE-MR1, 400GBASE-MR2, 800GBASE-MR4, and 1.6TBASE-MR8 to the heading and to any lists of PMDs in the sub-clause.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7** *P***52** *L***5** # 2

Lewis, David Speciphy / Lumentum

Comment Type **TR** *Comment Status* **X**

Table 300-6 does not include the 1060 nm PMDs

SuggestedRemedy

Add the required operating ranges for 1060 PMDs as listed in lewis_3ds_01_260429 submitted to the telephonic ad hoc meeting

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7.1** *P***52** *L***26** # 3

Lewis, David Speciphy / Lumentum

Comment Type **TR** *Comment Status* **X**

Table 300-7 does not include the 1060 nm PMDs

SuggestedRemedy

Add the transmit characteristics for 1060 PMDs as listed in lewis_3ds_01_260429 submitted to the telephonic ad hoc meeting

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7.2** *P***53** *L***42** # 4

Lewis, David Speciphy / Lumentum

Comment Type **TR** *Comment Status* **X**

Table 300-8 does not include the 1060 nm PMDs

SuggestedRemedy

Add the receive characteristics for 1060 PMDs as listed in lewis_3ds_01_260429 submitted to the telephonic ad hoc meeting

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7.3** *P***55** *L***8** # 5

Lewis, David Speciphy / Lumentum

Comment Type **TR** *Comment Status* **X**

Table 300-9 does not include the 1060 nm PMDs

SuggestedRemedy

Add the illustrative link power budget for 1060 PMDs as listed in lewis_3ds_01_260429 submitted to the telephonic ad hoc meeting

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.8** *P***57** *L***10** # 6

Lewis, David Speciphy / Lumentum

Comment Type **TR** *Comment Status* **X**

Table 300-10 does not include the 1060 nm PMDs

SuggestedRemedy

Add placeholders for new 1060 nm optimized fiber for the MR1, MR2, MR4, and MR8 PMDs with operating distances of 10m, 30m, and 50m for fiber types "L1060_800", "L1060_2400", and "L1060_4000" respectively.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.8.2** *P***58** *L***1** # 7

Lewis, David Speciphy / Lumentum

Comment Type **TR** *Comment Status* **X**

Table 300-11 does not include the 1060 nm optimized fibers.

SuggestedRemedy

Add placeholders for new 1060 nm optimized fibes "L1060_800", "L1060_2400", and "L1060_4000".

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.7** *P***64** *L***32** # 8

Lewis, David Speciphy / Lumentum

Comment Type **TR** *Comment Status* **X**

Table 300-14 does not include the 1060 nm PMDs.

SuggestedRemedy

Add a row for 200GBASE-MR1, 400GBASE-MR2, 800GBASE-MR4, 1.6TBASE-MR8 with a center wavelength range of 1052 - 1068 nm, and a 3 dB bandwidth of TBD.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7.3** *P***55** *L* # 9

Parsons, Earl Commscope

Comment Type **T** *Comment Status* **X**

The SRx-30 PMDs have separate columns for OM3, OM4, and OM5, but the SRx-50 PMDs only have a single column for OMz fiber.

SuggestedRemedy

Please add columns for SRx-50 for OM3, OM4, and OM5 showing the reach that would be supported for SRx-50 over these fiber types.
If those columns are added, those reaches should be added elsewhere in the draft including:
Clause 300.1, pg. 46, line 38
Clause 300.7, pg. 51, Table 300-6
Clause 57, pg. 57, Table 300-10

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7.1** *P***53** *L***24** # 10

Murty, Ramana Broadcom

Comment Type **TR** *Comment Status* **X**

Optical return loss tolerance (max) is TBD.

SuggestedRemedy

Set optical return loss tolerance (max) to 17 dB based on a receiver reflectance (max) of -20 dB. Calculations to support this will be presented.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7.2** *P***54** *L***16** # 11

Murty, Ramana Broadcom

Comment Type **TR** *Comment Status* **X**

Reciever reflectance (max) is TBD.

SuggestedRemedy

Choose receiver reflactance (max) of -20 dB. Calculations based on this value will be presented.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.1** *P***44** *L***39** # 12

Rodes, Roberto Coherent

Comment Type **TR** *Comment Status* **X**

There has been strong support, with multiple presentations from different affiliations, regarding the addition of new PMD specifications at 1060 nm using optimized multimode fiber.

SuggestedRemedy

Add a new clause covering PMD at 1060 nm. The proposed specifications and corresponding key tables will be presented in lewis_3ds_01_2605.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7.1** *P***52** *L* # 13

Bernier, Eric Huawei

Comment Type **T** *Comment Status* **X**

for Outer Optical Modulation Amplitude (OMAouter), each lane (max), the current spec is 3.5dBm, for Average launch power, each lane (max), the current spec is 5dBm, according t the calculation based on ER 3.5 dB, when AOP is 5dBm, the corresponding OMAmax is close to 4 dBm, which has already exceeded the current specification of 3.5 dBm.

SuggestedRemedy

recommend that the OMAmax specification in the Tx Baseline be updated to 4 dBm

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7.2** *P***54** *L* # 14

Bernier, Eric Huawei

Comment Type **T** *Comment Status* **X**

for Receive power (OMAouter), each lane (max), the current spec is 3.5dBm, which has the same issue as OMAouter, each lane (max)

SuggestedRemedy

recommend that the Receive OMAouter, each lane (max) specification be updated to 4 dBm

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7.1** *P***53** *L* # 15

Bernier, Eric Huawei

Comment Type **T** *Comment Status* **X**

Average launch power of OFF transmitter,each lane (max), the current specis -15dBm, which is referred to 802.3dj DR, dj DR is for SMF, not MMF, for the Average launch power of OFF transmitter spec, it is better to refer to df

SuggestedRemedy

we recommend the spec to be updated to -30dBm according to df

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.1** *P***45** *L* # 16

Bernier, Eric Huawei

Comment Type **E** *Comment Status* **X**

Figure 300-1 contains the wrong nomentlature

SuggestedRemedy

Updatre the figure to the appropriate nomentlature

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P***18** *L* # 17

Bernier, Eric Huawei

Comment Type **T** *Comment Status* **X**

1.77 has been allocated to a different project.

SuggestedRemedy

Suggest to move to register 1.78. Update the register address for the reserved field.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P***18** *L* # 18

Bernier, Eric Huawei

Comment Type **E** *Comment Status* **X**

Subclause number 45.2.1.60f is already in use by the DM project.

SuggestedRemedy

reassign to clause number : 45.2.1.60g

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.60f** *P***23** *L* # 19

Bernier, Eric Huawei

Comment Type **E** *Comment Status* **X**

Subclause number 45.2.1.60f is already in use by the DM project.

SuggestedRemedy

reassign to clause number : 45.2.1.60g (reassign 45.2.1.60f.1 and 45.2.1.60f.2, table number should be reassigneg to Table 45–58g and editor's note should be modified to take into account the change. The editor should use judgement to correct any addtional discrepency.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.60f** *P***23** *L* # 20

Bernier, Eric Huawei

Comment Type **T** *Comment Status* **X**

1.77 has been allocated to a different project.

SuggestedRemedy

Suggest to move to register 1.78. (Register should be shanged in table 45-58g, subclause 45.2.1.60f.1 and 45.2.1.60f.2 should be updated to reflect this transition to register 1.78)

Proposed Response *Response Status* **O**

Cl **116** *SC* **116.1.4** *P***27** *L***20** # 21

Maki, Jeffery HPE

Comment Type **TR** *Comment Status* **X**

ILT/RTS is not selected as Mandatory.

SuggestedRemedy

Mark as Mandatory, which causes AUI C2C and C2M to support mandatorily.

Proposed Response *Response Status* **O**

Cl **116** *SC* **116.1.4** *P***28** *L***18** # 22

Maki, Jeffery HPE

Comment Type **TR** *Comment Status* **X**

ILT/RTS is not selected as Mandatory.

SuggestedRemedy

Mark as Mandatory, which causes AUI C2C and C2M to support mandatorily.

Proposed Response *Response Status* **O**

Cl **116** *SC* **116.1.4** *P***35** *L***18** # 23

Maki, Jeffery HPE

Comment Type **TR** *Comment Status* **X**

ILT/RTS is not selected as Mandatory.

SuggestedRemedy

Mark as Mandatory, which causes AUI C2C and C2M to support mandatorily.

Proposed Response *Response Status* **O**

Cl **174** *SC* **174.1.4** *P***38** *L***20** # 24

Maki, Jeffery HPE

Comment Type **TR** *Comment Status* **X**

ILT/RTS is not selected as Mandatory.

SuggestedRemedy

Mark as Mandatory, which causes AUI C2C and C2M to support mandatorily.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7.1** *P***53** *L***11** # 25

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

We have TDECQ and TECQ specs but not TDECQcer, the FEC-aware ECQ. P802.3dj is rushing to go to print and TDECQcer might not be fully debugged in their desired timescale, but this follow-up project has a few months longer so it should consider adopting this promising technique.

SuggestedRemedy

Add TDECQcer, copied from P802.3dj.
As it is a standalone spec, unlike OMA (no other spec depends on it), if it doesn't work out it can easily be removed in SA ballot.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7.1** *P***53** *L***18** # 26

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

Receivers have more sophisticated equalisers than the 5-tap FFE used in ECQ for 50 and 100 G. Modern receivers tolerate amazingly slow signals in copper links. Measuring transition time relies on measuring the 0 and 3 in OMA, which turns out to be remarkably inconsistent and controversial; it is being studies in P802.3dj. But a slow signal (if it is a problem at all) is identified in a more realistic near best-fit way by the taps in ECQ. This spec has outlived its purpose; at 200 G it is an inaccurate nuisance.
There is a similar comment against P802.3dj D3.0.

SuggestedRemedy

Delete the row. Delete 300.9.12, Transmitter transition time. Delete the row in Table 300-13, Mapping of parameters to test patterns and related subclauses.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7.1** *P***53** *L***22** # 27

Dawe, Piers Nvidia

Comment Type **ER** *Comment Status* **X**

RINxxOMA should be RINxOMA as in the base standard. There is a comment against 802.3dj D3.0 to fix it there too.

SuggestedRemedy

Change RINxxOMA to RINxOMA throughout

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7.1** *P***53** *L***29** # 28

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

1. Don't put a "shall" in a footnote. If it is meant, put it in a row in the table.
2. This doesn't make sense. I don't know other extinction ratio and OMA one could one have in mind.
3. If it means anything, it is wrong. Average power, extinction ratio and OMA are three independent limits and an implementation must comply to all. It's called "linear programming".

SuggestedRemedy

Delete footnote b

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.7.2** *P***54** *L***15** # 29

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

Sensitivity is defined post-FEC now. There is one FEC per MAC, so it corrects across the group of lanes allocated to that MAC in a multi-lane PMD. In receiver sensitivity measurements, each lane can be tested individually and the error histograms for the lanes are combined according to 802.3dj Annex 174A. So, for multi-lane PMDs, sensitivity is not "each lane", as is pointed out in 300.9.2.
In practice, actual *product* is likely to be qualified as a 1-lane, 2-lane 4-lane *and* 8-lane PMD, so it doesn't make much difference in a factory. But we should be correct because it relates to determining if a deployed link (e.g. 4 lanes) is performing well enough.
There is a similar comment against P802.3dj D3.0.

SuggestedRemedy

In lines 15 and 19, delete "each lane"

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.1** *P***62** *L***14** # 30

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

The square wave is optional for transition time measurement and not used for anything else in the draft. The transition time spec should be removed (see another comment) and because one cannot reliably measure OMA on the square wave (see presentations by Laurent Alloin) and the square wave is not a valid pattern for OMA measurement already, even if transition time were kept, it should not involve the square wave.

SuggestedRemedy

Delete the row for square wave

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.1** *P***62** *L***35** # 31

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

As discussed in P802.3dj, it may not be feasible to measure OMA, and therefore extinction ratio straightforwardly and accurately with pattern 4, PRBS13Q. In principle this point applies to RIN too, but in the that context, the inaccuracy probably doesn't matter.

SuggestedRemedy

If Pattern 4 is relegated to an approximate method (not normative) or deprecated for OMA and extinction ratio, remove it from the appropriate rows in this (normative) table or add a footnote to explain.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.3** *P***63** *L***28** # 32

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

This sentence extends over 4 lines and it is hard to parse. It can be divided cleanly. Also we should be clear whether it's the Bessel-Thomson response that should not exceed, or what.
There is a similar comment against P802.3dj D3.0.

SuggestedRemedy

IEEE Std 802.3db has a partial fix but use the wording in IEEE Std 802.3dk: change: at least 1.3 x 106.25 GHz, and at frequencies above 1.3 × 106.25 GHz, the response should ...
to: at least 1.3 x 106.25 GHz. At frequencies above 1.3 × 106.25 GHz, *its* response should ...
Make the equivalent two changes for TDECQ, 300.9.7, p 64 L 16.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.3** *P***63** *L***28** # 33

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

The choice of fourth-order Bessel-Thomson response is a historical accident. Fifth order has a better phase response and rolls off a bit steeper at high frequencies, which is more realistic. The better roll-off leads to better measurements. This is also true for measurements where reflections at an instrument's electrical connectors are a concern.
This is our chance to make the change, as the industry transitions to a new speed and new test equipment.
There is a similar comment against P802.3dj D3.0, although scopes for MMF are not the ones for SMF, so this project can move ahead independently.

SuggestedRemedy

Change fourth-order to fifth-order throughout the draft.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.7** *P***64** *L***6** # 34

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

The appropriate probability for ECQ, for the right correlation, should be considered. It won't be the same as the target pre-FEC SER because of geometrical factors. The target pre-FEC SER should not be 4.56e-4 anyway; we know that is not adequate for the FLR objective.
There is a similar comment against P802.3dj D3.0.

SuggestedRemedy

Choose a more appropriate probability. Adjust Qt consistent with this.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.7** *P***64** *L***25** # 35

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

The threshold adjust range of 2% was adopted long ago. Real receivers are pretty tolerant of unequal eyes so we can modernise this a little.
There is a similar comment against P802.3dj D3.0.

SuggestedRemedy

Change +/-2% to +/-2.5%

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.7** *P***64** *L***27** # 36

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

A histogram is a table of value, count pairs. A histogram *window* is a box on the scope screen. Also we should be clear whether it is measured to edges or centres.
There is a similar comment against P802.3dj D3.0.

SuggestedRemedy

Change "histogram spacing" to: "spacing of the centers of the histogram windows"

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.7** *P***64** *L***27** # 37

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

The apparent TDECQ or TECQ is a very strong function of histogram window spacing. Reducing the spacing from the traditional 0.1 UI does not make the signal any better, but it lowers our guard against signals with a jitter problem. This should be treated very carefully. A narrower histogram window should improve ECQ accuracy/repeatability.
There is a similar comment against P802.3dj D3.0.

SuggestedRemedy

Set the histogram window spacing at 0.09 UI and width at 0.02 UI (if sampling at 50 s/UI is feasible) or 3/32 = 0.09375 UI and 0.03125 UI (if sampling at 32/UI is preferred or 0.09375, 0.015625 if 64/UI is preferred).

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.7.1** *P***65** *L***13** # 38

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

A floating main tap is not attractive, whether in a reference equalizer (software) or a real product equalizer - it is more trouble than small floating taps well after the main tap.
There is a similar comment against P802.3dj D3.0.

SuggestedRemedy

Fix the main tap position e.g. at position 4, updating the row at line 13 to (straddled) 3. If it's really necessary, and the evidence so far is that it's not, add up to 3 more FFE taps to preserve the FFE's effectiveness.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.7.1** *P***65** *L***15** # 39

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

The main tap minimum 0.8 allows an excessively over-emphasised signal which can cause BER floor issues as shown in kimber_3dj_01a_2505. This is not affected by the addition of the DFE which operates when the signal is slow and the main tap is >1. Relative to the signalling rate, 200G silicon is slower than 100G or 50G silicon, and 200G receivers are designed to cope well with such signals. Designing them to cope with badly set-up signals as well would be wasteful. We allow somewhat less than 1 for tolerancing, but 20% off is too much. A properly revised overshoot spec can catch some of these signals, but we should write down what we mean here in any case.
There is a similar comment against P802.3dj D3.0.

SuggestedRemedy

Change 0.8 to 0.9.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.7.1** *P***65** *L***19** # 40

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

The tap weights were created by drawing limit lines that passed a population of SMF transmitters, some time ago. The main tap maximum and the other FFE tap limits need review, taking the DFE into account and considering what is cost-effective for receivers. In particular, the we will see less of the characteristic alternating FFE tap weights because the DFE can do that job better, so taps 4+ should be tightened up.
There is a similar comment against P802.3dj D3.0, although there might be a reason to have different limits for this PMD family.

SuggestedRemedy

Review the tap weight limits and make changes as appropriate.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.7.1** *P***65** *L***27** # 41

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

Causal vs. anticausal pulse shapes
This pre-post equalizer coefficient difference limit |w(1)/w(0) - b(1) - w(-1)/w(0)| seeks to keep the attack and decay of the signal pulse similar. Yet the evidence from https://ieee802.org/3/dj/public/25_05/chayeb_3dj_01_2505.pdf#page=8 and 9, plotted in https://ieee802.org/3/dk/public/2511/3dk_dawe_2511_1.pdf , shows that for a real receiver, the situation is very far from symmetrical; relatively fast attack (c(-1) close to zero) and slow decay (c(+1) strongly -ve) is tolerated well, but the opposite is not.
There is a similar comment against P802.3dj D3.0.

SuggestedRemedy

Remove the absolute bars | |

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.7.1** *P***65** *L***28** # 42

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

Setting the "DC gain" to 1 worked when the 5-tap DFE was shorter than the 6- or 7-UI run length for defining OMA. Now that the equaliser is longer than the runs, it doesn't work any more; it contributes to forcing the ECQ optimiser to sub-optimal solution and making acceptable signals look bad. "DC gain" is no longer a valid concept; the signal is AC coupled anyway, there is no response at DC, and what there is may be significantly different to typica or "average". It is a distraction.
This comment comes out of the study of OMA measurement problems in P802.3dj.

SuggestedRemedy

Change "Equalizer DC gain" to "The sum of equalizer coefficients w(i) from i = -3 to 3".
Delete the footnote which is no longer needed.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.7.1** *P***65** *L***34** # 43

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

The DFE tap limit might be too weak. Copper clauses use a limit of 0.85, but with a different definition. Note that the way the DFE coefficient is defined in P802.3dj is expected to change to be more like the one in COM; I believe that 0.4 would be 0.667 in the new definition (needs checking). Note also that an emulation of the fibre bandwidth is included in TDECQ for MMF.
There is a similar comment against P802.3dj D3.0, although there is a different DFE limit for this PMD family.

SuggestedRemedy

Set the limit to at least 0.7 on the new scale or as defined in copper clauses and COM.

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.9** *P***66** *L***2** # 44

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

Note that in P802.3dj, it is proposed to change the hit ratio for overshoot and similar to 1e-4.

SuggestedRemedy

Change 1e-3 to 1e-4, here and in 300.9.10 Transmitter power excursion

Proposed Response *Response Status* **O**

Cl **300** *SC* **300.9.15** *P***67** *L***18** # 45

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **X**

The sinusoidal interferer in SRS is causing problems. There is a comment in P802.3dj to impose a minimum frequency, but that is not enough of a fix.

SuggestedRemedy

Set a limit for the amount of SI, at pk-pk max 1/15 of OMAouter, and/or use a near line-rate second PRBS (different length) instead of a single tone.

Proposed Response *Response Status* **O**