Cl **155** *SC* **155** *P* **42** *L* **4** # 23

Dawe, Piers Nvidia

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

sluyski_3cw_01a_220328.pdf said
Other Standards Organizations that have specified and released 400G 16QAM specifications with demonstrated interoperability by:
...
Identifying a common set(s) of Test vectors and test methodologies.

agreeing with unsatisfied comments 20427, 21281 and 2318: this over-complicated PCS/PMA needs examples, as in Annex 91A, RS-FEC codeword examples, or Annex 76A, FEC Encoding example, or the OIF test vectors for 400ZR, or P802.3df Annex 172A.

SuggestedRemedy

Either:
add the codeword examples / test vectors as needed to get to a complete draft,
or
don't, and cancel the project.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.3** *P* **48** *L* **27** # 30

Dawe, Piers Nvidia

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

This document uses "multi-frame" 27 times and multiframe once. G.709.2 uses "multi-frame".

SuggestedRemedy

Change multiframe to multi-frame

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.6** *P* **51** *L* **32** # 29

Dawe, Piers Nvidia

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

This document uses "CRC32" 20 times and "CRC" 6 times, contrary to style guide 10.1.1 Homogeneity: The same term should be used throughout each standard or series of standards to designate a given concept. The use of an alternative term (synonym) for a concept already defined should be avoided. As far as possible, only one meaning should be attributed to each term used.

SuggestedRemedy

Change CRC to CRC32 (6 places)

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7** *P* **52** *L* **30** # 20

Dawe, Piers Nvidia

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

Figure 155-7 shows CRC32, MBAS and a pad as part of the SC-FEC input block. The text above says that the pad is not transmitted, and that the CRC and MBAS fields are transmitted at the end of each parity block. Is it says that the pad is not transmitted as part of the SC-FEC input block, and does not say the same for the CRC32 and MBAS, it gives the impression that they are transmitted here (as well as at the end of each parity block).

SuggestedRemedy

At line 1, change " The 34-bit of additional pad is not transmitted. The CRC and MBAS fields are transmitted at the end of each parity block." to "After parity generation, the CRC and MBAS fields are not included with the transmitted 244 664 bits of Bj; instead, they are transmitted at the end of each parity block."
At line 9, change "parity bits are mapped into columns 10 280 to 10 969" to "parity bits, CRC32 and MBAS are mapped into columns 10 280 to 10 969".

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.11** *P* **54** *L* **30** # 38

Dawe, Piers Nvidia

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

As in unsatisfied comments 20463 and 2338: this says "The generic operation of the Hamming encoder is specified in ITU-T G.709.3 Annex D". Generic is not adequate; we need a complete and unambiguous specification. G.709.3 Annex D is one page long. Unfortunately, it relies on undefined items that look like s, S, ^ V and overbar, so it does not specify. Also it is not clear what they mean by matrix multiplication, for example.

SuggestedRemedy

Write out the relevant material, similar to what 400ZR has done, defining all the terms and symbols in the usual way for equations, and correcting any mistakes. Of course, write it so that 119-bit message m (instead of b) is encoded to 128-bit codeword c.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.11** *P* **54** *L* **34** # 39

Dawe, Piers Nvidia

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

Unsatisfied comments 20427, 21281 and 2318: this over-complicated PCS/PMA needs examples, as in Annex 91A, RS-FEC codeword examples, or Annex 76A, FEC Encoding example, or the OIF test vectors for 400ZR, or P802.3df Annex 172A. Even this comparatively simple systematic double-extended Hamming encoder has opportunities for ambiguity and misunderstanding.

SuggestedRemedy

Add tables for g, H, B, P and G, and an example of c and m.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.3.3.2.2** *P* **71** *L* **29** # 33

Dawe, Piers Nvidia

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

This document uses I-Q offset 17 times and IQ offset five times.

SuggestedRemedy

Change the 6 to match the 17

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P* **101** *L* **21** # 17

Dawe, Piers Nvidia

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

Now that we have an explicit formula, the equation is the master, the table samples it, the figure illustrates it, and there is no interpolation.

SuggestedRemedy

In Table 156-9, change "See Table 156-10" to "See Equation (156-1). At line 32, delete "interpolation between the defined frequencies is not possible as the curve is not linear"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P* **101** *L* **31** # 2

Maniloff, Eric Ciena

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

Equation 156-1 uses the function "ln(2)" with what appears to be a capital "i" rather than "log_e(2)". Annex 156A uses log_e in Eq 156A-1, this should be maintained for consistency.

SuggestedRemedy

Replace all terms in Eq 156-1 reading "ln" with log_e

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P* **101** *L* **31** # 1

Maniloff, Eric Ciena

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

Equation 156-1 line 2 term (1-10^(Floor/10)) should be 10^(Floor/10)

SuggestedRemedy

Update equation to be consistent with https://www.ieee802.org/3/cw/public/23_0925/maniloff_3cw_01_230925.pdf

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P* **101** *L* **36** # 18

Dawe, Piers Nvidia

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

Double square brackets

SuggestedRemedy

Can be reduced to single.
Or, change 10log10{10^L/10[[...][...]]} to
10log10[10^L/10{ ... }{ ... }] or
L+10log10[{ ... }{ ... }]
alternating {} and [] for readability
or use angle brackets, but they are not common.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P* **101** *L* **36** # 19

Dawe, Piers Nvidia

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

In (a variable, in italics with a capital i)

SuggestedRemedy

In (a function, upright, with a lower case L). Twice

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.1** *P* **104** *L* # 15

Dawe, Piers Nvidia

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

It is not apparent what "Relative to TP2 transmit channel spectral power dependence" means. Both ripple and adjacent channel spectral isolation are frequency-domain properties of the black link and do not depend on a transmitter's spectrum at TP2. Also, this is the wrong place to give obscure technical hints; this is a housekeeping table of test patterns and subclauses.

SuggestedRemedy

Delete this note. If something needs to be said, say it in 156.9.25 and/or 156.9.29.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.1** *P* **104** *L* **15** # 13

Dawe, Piers Nvidia

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

Ripple, polarization dependent loss, polarization rotation speed, adjacent channel (spectral) isolation and interferometric crosstalk at TP3 are frequency-domain properties of the black link which as far as I know would be measured for any black link for any coherent link type, with equipment that might have no knowledge of P802.3cw.
Interferometric crosstalk may be different.
D2.4 comment 13.
D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

For Ripple, polarization dependent loss, polarization rotation speed, and adjacent channel (spectral) isolation, change 5 to Not applicable.
If appropriate, add a reference to IEC 61300-3-29 Spectral transfer characteristics of DWDM devices (Edition 2.0 2014-03).

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.1** *P* **104** *L* **21** # 16

Dawe, Piers Nvidia

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

Adjacent channel isolation

SuggestedRemedy

Adjacent channel spectral isolation

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.4** *P* **105** *L* **5** # 32

Dawe, Piers Nvidia

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

This says that f (DC to some tens of GHz) is the frequency. As this is an optical spectrum, it isn't, it's the frequency offset, as in the text on the previous page.
D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Change frequency to frequency offset

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.4** *P* **105** *L* **27** # 14

Dawe, Piers Nvidia

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

The vertical scale of the transmit spectral mask is not defined. We are told that it is in dB, but not what 0 dB means. Also the usual axis labels are missing.
D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

In the text, say what 0 dB means, e.g. the peak of the spectrum, or that the implementer can slide the spectrum up or down for best fit, or whatever is meant. Label the y axis appropriately. Label the x axis, Frequency offset from the signal's center frequency

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P* **105** *L* **48** # 37

Dawe, Piers Nvidia

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

"by interpolating" is ambiguous: each dimension could be extrapolated on a linear or log basis, for example.

SuggestedRemedy

Say explicitly what kind of interpolation. Log-log would be a good choice.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P* **106** *L* **5** # 10

Dawe, Piers Nvidia

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

This says "Laser frequency noise is measured using an unmodulated laser as specified in Table 156-11" but frequency noise is not measured directly, it is derived from a measurement of something else. This doesn't say what is measured, or how, or how what is measured (power spectrum or phase noise) is converted into frequency noise.
D2.1 comments 285, optical parameters are inadequately defined, D2.4 comment 9, and other comments on frequency noise.

SuggestedRemedy

Change this spec to power spectrum or phase noise, or:
Add the missing information so that "frequency noise" is defined, and indicate how it might be measured.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P* **106** *L* **12** # 12

Dawe, Piers Nvidia

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

"One-sided" is ambiguous and does not appear in the text. It might mean that only one side is shown, and the other is the same, or it might mean that both sides are to be summed (presumably in an RMS way).
D2.1 comments 285, optical parameters are inadequately defined, D2.4 comment 11, and other comments specifically on frequency noise.

SuggestedRemedy

In the text, say which is meant.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P* **106** *L* **12** # 11

Dawe, Piers Nvidia

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

The units of frequency noise are Hz^2/Hz. No watts or dB involved. So frequency noise, unlike a normal spectrum, is not a power spectral density.
The table and graph show the mask, not an actual noise frequency.
The figure has both "... power spectral density" and " spectral power density".
D2.1 comments 285, optical parameters are inadequately defined, D2.4 comment 10, and other comments specifically on frequency noise.

SuggestedRemedy

Change this spec to power spectrum or phase noise, or:
Change Table 156-13--Frequency vs spectral power density to 156-13--Frequency noise mask
Change "One-sided frequency noise power spectral density (Hz^2/Hz)" in the table and "One-sided frequency noise power spectral density [Hz^2/Hz]" in the figure, to "One-sided frequency noise (Hz2/Hz)
Change Figure 156-8--Frequency vs spectral power density to Figure 156-8--Frequency noise mask .

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P* **106** *L* **47** # 36

Dawe, Piers Nvidia

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

Frequency [Hz]
D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Frequency offset (Hz)

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P* **106** *L* **50** # 21

Dawe, Piers Nvidia

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

This says "The mask frequencies are relative to the laser center frequency from *less than* 100 Hz to half the signaling rate". The table goes from 100 Hz to 1 GHz. The figure goes from 100 Hz to somewhere above 100 GHz.
A spec cannot have such vagueness and contradictions.

D2.1 comments 285, optical parameters are inadequately defined, and other comments specifically on frequency noise.

SuggestedRemedy

Delete "less than".
To make the spec simpler and clearer, change "half the signaling rate" (which is 59.84375/2) to "30 GHz".
In the table, add an extra row, 3 x 10^10 1.6 x 10^5.
Make the line in the figure end at 30 GHz.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.9** *P* **107** *L* **11** # 24

Dawe, Piers Nvidia

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

It is hard to find this subclause because its name doesn't match Table 156-7 and Table 156-12 "EVMmax" or 156.10 "EVM conformance test setup and calculation"

SuggestedRemedy

Change the subclause title from "Error vector magnitude" to "Error vector magnitude (EVM)"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.9** *P* **107** *L* **16** # 27

Dawe, Piers Nvidia

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

156.9.9 says "The EVM calculation is defined in 156.10.1.2.7" and then says "EVMmax, is defined as a ratio of the root mean square (RMS) value of all the error vectors to the maximum magnitude of the *theoretical* constellation points" but 156.10.1.2.7, EVMmax calculation, says "The EVMmax calculations are defined in OIF-400ZR-02.0 ... section 20.4", which says "EVM_MAX, is defined as a ratio of the root mean square (RMS) value of all the error vectors (averaged over N symbols) to the maximum magnitude of all the *reference* constellation points" and provides formulae. There should not be two definitions of the same thing. Editorial: gratuitous comma.
D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Change this text "EVMmax, is defined as a ratio of the root mean square (RMS) value of all the error vectors to the maximum magnitude of the theoretical constellation points" to "NOTE--In this clause, EVM is defined by EVMmax, which is the ratio of the root mean square (RMS) value of all the error vectors to the maximum magnitude of all the reference constellation points."

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.12** *P* **107** *L* **36** # 25

Dawe, Piers Nvidia

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

This says "I-Q amplitude imbalance (mean)" but there is no indication of what should be averaged, nor any reference to a definition.
Also it is not stated whether the I and Q amplitudes include the offsets found in 156.9.11.
The response to D2.4 comment 8 improved this text but not enough.
D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Write out clearly and completely what is meant by "I-Q amplitude imbalance (mean)", and indicate how it might be measured.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.12** *P* **108** *L* **38** # 3

Dawe, Piers Nvidia

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

This is still not clear: "proportional amplitude difference". Maybe ratio is intended. Note also that if the proportional amplitude difference of I and Q means proportional amplitude difference of I *to* Q, it is not the same as proportional amplitude difference of Q to I.

SuggestedRemedy

State clearly what is meant.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.13** *P* **107** *L* **43** # 8

Dawe, Piers Nvidia

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

It is not apparent what "the largest phase difference of the in-phase component I and quadrature component Q of the signal" means. It might be the phase difference of all the UI in the measurement, or it might be that I and Q phases are averaged somehow and the larger of the two is meant.
D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Write out clearly and completely what is meant by " I-Q phase error magnitude (max)", and indicate how it might be measured.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.13** *P* **107** *L* **44** # 9

Dawe, Piers Nvidia

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

This says "measured relative to local oscillator" but no local oscillator has been introduced. There is one in EVM, but the draft does not make any connection between I-Q phase error magnitude and EVM.
Also, I would expect that I-Q phase error magnitude would be abs (I phase - Q phase - 90 degrees), and would not rely on a local oscillator, except as a smoothing or averaging method in the measurement (see another comment).
Or it could be defined as max (I phase - best fit), (Q phase - best fit - 90 degrees) which would be about half the first definition, but doesn't go well with the name "I-Q"...
It is too ambiguous.
D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Write out clearly and completely what is meant by " I-Q phase error magnitude (max)", and indicate how it might be measured.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.15** *P* **108** *L* **5** # 7

Dawe, Piers Nvidia

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

This and 156.9.16 say "in the range of the *central* frequency plus and minus the maximum spectral excursion as defined in OIF-400ZR-02.0, Implementation Agreement 400ZR section 13.4.2." 400ZR says "32 GHz ... Measured between the *nominal* central frequency of the channel and the -3.0dB points of the transmitter spectrum furthest from the nominal central frequency measured at point Ss.
Includes Laser frequency accuracy (13.1.200) error value from nominal center frequency."
156.9.2 has "Optical *center* frequency" (vs. central)
156.9.6 has "Offset between the *carrier* and the *nominal center frequency*
156.9.17 has within / outside of *the signal's* -20 dB spectral mask points
Figure 156-7 shows an upper mask -20 dB point at 40.4 GHz and the lower mask crosses -20 dB, at about 31 GHz which is much nearer the OIF number.
D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Use consistent names. Throughout 156.7 and 156.9, change "the carrier" and "central frequency" to "center frequency" (or "transmitter center frequency" if necessary to distinguish the signal from the black link).
Add or remove "nominal" as needed to make it explicit which one is being used in each case (including in 156A.3).
Change the two references to 400ZR section 13.4.2 and to the signal's -20 dB spectral mask points, to a new reference within this document:
Add a row in Table 156-7, Spectral half-width for OSNR, or some such name, and refer to that (one could put the number in GHz in 159.9.15, 16, 17 but that would make it harder to refer to this material in future). Use a consistent number for all three sections.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.26** *P* **110** *L* **44** # 5

Dawe, Piers Nvidia

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

The reference receiver for optical path OSNR penalty should be qualified as it is understood that the G.698.2 Annex A reference receiver is.
I believe that an EVM calculation for assessing a transmitter does not do chromatic dispersion and differential group delay compensation (because EVM would be measured at TP2), while a measurement at TP3 after the black link needs chromatic dispersion and differential group delay compensation. For consistency, that should be done at both ends of the black link.

SuggestedRemedy

Say that the reference receiver is as defined 156.10.1, with additional steps to compensate for chromatic dispersion and differential group delay. Two places in this subclause.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1.1** *P* **111** *L* **25** # 22

Dawe, Piers Nvidia

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

16QAM encodes 2 bits per dimension. Measuring a 16QAM signal with an ENOB of only 4 may be inaccurate (4 minus 2 is only 2!), depending on the FFE tap weights that are needed. In general, it is the implementer's responsibility to consider the accuracy and margin needed for any measurement, but saying "4 bits" here forces the implementer to provide margin so that if his customer measures with such an instrument, the implementation still passes. Effectively it moves the spec from 12% to some other unintended limit, maybe 10%, but variable. This is bad.
802.3 is not a specification for testing.
Unless there is something special or non-obvious about the requirements, we should leave choosing instrument quality to the professionals, so that 12% means 12%.

SuggestedRemedy

Change:
The ENOB and sampling rate of the digitizers have at least 4 bits (from 10 MHz to 29.9 GHz) and at least 1.15 times the signaling rate.
to:
The sampling rate of the digitizers is at least 1.15 times the signaling rate.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1.2** *P* **112** *L* **28** # 26

Dawe, Piers Nvidia

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

According to the style guide, causes and subclauses should be divided into further subclauses only when there is more than one
subclause. For example, Clause 1 should not have a 1.1 unless there is also a 1.2. There is no 156.10.2.

SuggestedRemedy

Promote 156.10.1.2 Offline digital signal processing to become 156.10.2 Offline digital signal processing and EVMmax calculation

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1.2.2** *P* **112** *L* **13** # 31

Dawe, Piers Nvidia

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

The draft seems inconsistent about the importance of low frequencies.
The frequency noise mask goes as low as 100 Hz, it is particularly strict at 1 MHz, and it mentions a laser linewidth of 500 kHz.
The transmit spectrum is defined from zero frequency offset.
The recommended receiver for EVM has "ENOB ... from 10 MHz".
The EVM calculation uses blocks of 1000 UI for polarization demux, frequency offset recovery, carrier phase recovery and I-Q offset compensation.
D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Increase each block size for polarization demux, frequency offset recovery, carrier phase recovery and I-Q offset compensation to whatever is appropriate for that step.
If possible, make each block size a power of 2.
e.g. 16384 UI to give a corner around 2 MHz for frequency offset recovery and carrier phase recovery.
Change any remaining 1000 UI to 1024 UI.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1.2.2** *P* **112** *L* **13** # 35

Dawe, Piers Nvidia

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

Inconsistent terminology

SuggestedRemedy

Change symbols to unit intervals

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1.2.4** *P* **112** *L* **21** # 4

Dawe, Piers Nvidia

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

The waveform capture for EVM can have significant filtering already, but it's not controlled: "The coherent receiver has a bandwidth of at least 30 GHz". It would be surprising if the intent were to filter it again with another 30 GHz filter in 156.10.1.2.4, but it were, the definition would have to say so, and "at least 30 GHz" would need to be more precise. The later RRC filter could be adjusted to take the front end filtering into account, but it at appears that EVM measurements in practice avoid double filtering by using more than 30 GHz bandwidth or equalising out the coherent receiver's roll-off as necessary, in the calibrated coherent receiver.
D2.4 comment 4, filtering it again without taking this into account would be too much.
D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Modify and re-order the text:
The front-end correction removes impairments of the realized hardware implementation of the coherent receiver. The coherent receiver has a bandwidth of at least 30 GHz.
to
The coherent receiver has a bandwidth of at least 30 GHz. The front-end correction removes impairments of the realized hardware implementation of the coherent receiver and the effect of the coherent receiver's bandwidth, so that the subsequent RRC filter (see 156.10.1.2) dominates the filtering.
And it may be desirable (see another comment) to delete the sentence "The coherent receiver has a bandwidth of at least 30 GHz", as 802.3 is not a specification for testing.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1.2.5** *P* **112** *L* **23** # 34

Dawe, Piers Nvidia

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

Offset

SuggestedRemedy

offset

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1.2.7** *P* **112** *L* **36** # 28

Dawe, Piers Nvidia

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

This says "The EVMmax calculations are defined in OIF-400ZR-02.0, Implementation Agreement 400ZR section 20.4", which says EVM_MAX, is defined as a ratio of the root mean square (RMS) value of all the error vectors (averaged over N symbols) to the maximum magnitude of all the reference constellation points" but it doesn't define reference constellation points.
D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Define reference constellation points - or define the magnitude of the reference constellation, which may be simpler because it should contain the same 16 points over and over again, and it may be that all four corners are the same distance from the origin.

Proposed Response *Response Status* **O**

Cl **156A** *SC* **156A.2** *P* **122** *L* **42** # 6

Dawe, Piers Nvidia

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

Table 156-1 uses a mix of "central frequency", "center frequency" and "target frequency demux frequency".
"target frequency demux frequency" seems ungrammatical?
D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Change them all to "center frequency" or "nominal center frequency" or "channel center frequency"as appropriate, to be consistent with 156.6.

Proposed Response *Response Status* **O**