

IEEE P802.3cw D2.4 400 Gb/s over DWDM systems 4th Working Group recirculation ballot comments

Cl 156 SC 156.8 P 101 L 31 # 1

Maniloff, Eric

Ciena

Comment Type T Comment Status A

The comment "interpolation between the defined frequencies is not possible as the curve is not linear" doesn't provide sufficient detail. The derivation of the values in Table 156-10 should be provided.

SuggestedRemedy

Add an equation to 156.8 that provides the values at arbitrary frequencies. A contribution with the equation will be provided.

Response Response Status C

ACCEPT IN PRINCIPLE.

In 156.8 change "The limit for adjacent channel spectral isolation is given in Table 156-10 and illustrated in Figure 156-6."

to "The limit for adjacent channel spectral isolation is given equation 156-1 which results in the values in Table 156-10 and illustrated in Figure 156-6."

Before Table 156-10 insert equation as documented on slide 6 of https://www.ieee802.org/3/cw/public/23_0925/maniloff_3cw_01_230925.pdf.

With editorial license.

Cl 156 SC 156.8 P 102 L 13 # 2

Maniloff, Eric

Ciena

Comment Type E Comment Status A

Fig 156-8 should be replaced with a figure based on the actual values. Current figure is illustrative but not sufficiently accurate.

SuggestedRemedy

Update Fig 156-6 with a more accurate figure.

Response Response Status C

ACCEPT IN PRINCIPLE.

Update figure 156-6 using the values from the calculation as documented in the response to comment #1.

With editorial license.

Cl 156 SC 156.9.4 P 104 L 52 # 3

Dawe, Piers

Nvidia

Comment Type E Comment Status A

where lists are single spaced

SuggestedRemedy

Change the line spacing to single spaced. Also for Eq. 156A-1

Response Response Status C

ACCEPT.

Cl 156 SC 156.10.1.2.4 P 112 L 21 # 4

Dawe, Piers

Nvidia

Comment Type TR Comment Status R

The measurement already has significant filtering: "The coherent receiver has a bandwidth of at least 30 GHz". Filtering it again without taking this into account would be too much. D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Say that the signal is further filtered so that the combined effect of the observation filter in 156.10.1.1 Calibrated coherent receiver and this filter is the RRC response.

Response Response Status U

REJECT.

There is an understanding there are 2 stages of filtering. It is not clear if the RRC filter is adjusted based on the electrical bandwidth.

There was no consensus to make a change at this time.

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CI 156 SC 156.9.27 P 109 L 40 # 5

Dawe, Piers Nvidia

Comment Type TR Comment Status A

The optical path OSNR penalty defined in Recommendation ITU-T G.698 uses a reference receiver based on the G.698 EVM, which is different to the EVM here. So the Rx and channel specs are not consistent.

D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Define optical path OSNR penalty with a reference receiver based on the EVM of this clause.

Response Response Status C

ACCEPT IN PRINCIPLE.

In 156.9.27 change

"The optical path OSNR penalty, as defined in Recommendation ITU-T G.698.2, shall be within the limit given in Table 156-9."

to

"The optical path OSNR penalty, as defined in Recommendation ITU-T G.698.2, with the following exceptions:

Lowest OSNR at TP2 is the lowest OSNR that meets the maximum BER of the application from a reference receiver as defin in 156.10.1.

Lowest OSNR at TP3 is the lowest OSNR that meets the maximum BER of the application from a reference receiver as defined 156.10.1.

and shall be within the limit given in Table 156-9.

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CI 156 SC 156.9.22 P 108 L 1 # 6

Dawe, Piers Nvidia

Comment Type TR Comment Status A

This spec item "Transmit output power control absolute accuracy" duplicates 156.9.19 Transmit output power absolute accuracy (in spite of the slightly different names, they specify the same thing).

D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

The definition in 156.9.19 is more complete, so delete 156.9.22. Consolidate the two entries in Table 156-7. The +/- way is preferable.

Response Response Status C

ACCEPT IN PRINCIPLE.

Delete 156.9.22 and associated entry in Table 156-7.

CI 156 SC 156.9.17 P 108 L 20 # 7

Dawe, Piers Nvidia

Comment Type TR Comment Status A

I did not find the term "limits of the C-band" in this document or in G.689.2.

D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Rather than use this unsourced terminology, say what the limits are. According to Table 156-5, 191.3 THz to 196.175 THz might be appropriate.

Response Response Status C

ACCEPT IN PRINCIPLE.

In 156.9.27 change

"spectral mask points out to the limits of the C-band."

to

"spectral mask points within the limits of the frequencies shown in Table 156-5."

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CI 156 SC 156.9.12 P 108 L 33 # 8

Dawe, Piers Nvidia

Comment Type TR Comment Status A

This doesn't make sense: "the center value between the proportional amplitude difference of..."

D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Say what is meant, for example, the unsigned ratio of the amplitudes of I and Q. Clarify whether the amplitudes found with or without their offsets.

Response Response Status C

ACCEPT IN PRINCIPLE.

In 156.9.12 change

"The I-Q amplitude imbalance (mean) is the center value between the proportional amplitude difference of the in-phase component I and quadrature component Q of the signal"

to

"The I-Q amplitude imbalance (mean) is the proportional amplitude difference of the in-phase component I and quadrature component Q of the signal"

CI 156 SC 156.9.5 P 105 L 46 # 9

Dawe, Piers Nvidia

Comment Type TR Comment Status R

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, and other comments specifically on frequency noise.

SuggestedRemedy

Change this spec to power spectrum or phase noise, or add the missing information so that "frequency noise" is defined.

Response Response Status U

REJECT.

There was no consensus to make a change.

CI 156 SC 156.9.5 P 106 L 4 # 10

Dawe, Piers Nvidia

Comment Type TR Comment Status R

The units of frequency noise are Hz²/Hz. No watts or dB involved. Frequency noise is not a power spectral density.

D2.1 comments 285, optical parameters are inadequately defined, 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 (Hz²/Hz)" in the table and "One-sided frequency noise power spectral density [Hz²/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 .

Response Response Status U

REJECT.

No consensus to make a change.

CI 156 SC 156.9.5 P 106 L 6 # 11

Dawe, Piers Nvidia

Comment Type TR Comment Status R

"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, and other comments specifically on frequency noise.

SuggestedRemedy

In the text, say which is meant.

Response Response Status U

REJECT.

No consensus to make a change.

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Cl 156 SC 156.9.9 P 107 L 11 # 12

Dawe, Piers Nvidia

Comment Type TR Comment Status A

This says that EVMmax is the RMS addition of the normalised EVM values. I believe it is the RMS average (standard deviation), not the sum.

D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

Change RMS addition to standard deviation

Response Response Status C

ACCEPT IN PRINCIPLE.

Change the second paragraph in 156.9.9 from

"EVMmax is the RMS addition of the EVM values of the sampled symbols for each polarization divided by the maximum amplitude of the theoretical constellation."

To

"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."

Cl 156 SC 156.9.1 P 104 L 5 # 13

Dawe, Piers Nvidia

Comment Type TR Comment Status A

As well as the pattern for frequency noise, some other patterns should be corrected.

Ripple, polarization dependent loss, polarization rotation speed, adjacent channel isolation and interferometric crosstalk at TP3 do not involve patterns at all.

D2.1 comments 285, optical parameters are inadequately defined.

SuggestedRemedy

For these, change 5 to Not applicable

Response Response Status C

ACCEPT IN PRINCIPLE.

In Table 156-12 for ripple and adjacent channel isolation add a footnote

"Relative to TP2 transmit channel spectral power dependence."

Cl 156 SC 156.9.1 P 103 L 47 # 14

Dawe, Piers Nvidia

Comment Type T Comment Status A

If it's OK to use a valid 400GBASE-ZR signal for average channel output power, transmit output power stability, and transmit output power absolute accuracy it should be OK for minimum average channel power at maximum adjustable power setting, and transmit output power control absolute accuracy.

SuggestedRemedy

For these, change 5 to 5 or valid 400GBASE-R signal

Response Response Status C

ACCEPT IN PRINCIPLE.

In Table 156-12, for Adjustable range of transmit output power, Minimum average channel power at maximum adjustable power setting and Transmit output power control absolute accuracy change the pattenen from "5" to "5 or valid 400GBASE-R signal".