

Supporting presentation to comment #1 to D1.1 of P802.3df

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Introduction

As agreed for comment #130 to P802.3df draft D1.0 the requirements for the optical compliance channel for 400GBASE-DR4-2 and 800GBASE-DR8-2 were modified.

CI 124	SC 124.8.5	P 76	L 5	# 130
Dawe, Piers		Nvidia		
<i>Comment Type</i>	E	<i>Comment Status</i>	A	<i>TX test</i>
<p>This says "The 400GBASE-DR4-2 or 800GBASE-DR8-2 transmitter is tested using an optical channel that meets the requirements for 100GBASE-FR1 in 140.7.5.2" but these PMDs have an optical return loss tolerance of 21.4 while 100GBASE-FR1 uses an optical return loss of 17.1 dB. The cable plant is different (array connectors are angled).</p>				
<i>SuggestedRemedy</i>				
Change				
The 400GBASE-DR4-2 or 800GBASE-DR8-2 transmitter is tested using an optical channel that meets the requirements for 100GBASE-FR1 in 140.7.5.2.				
to				
The 400GBASE-DR4-2 or 800GBASE-DR8-2 transmitter is tested using an optical channel with dispersion and insertion loss as for 100GBASE-FR1 in 140.7.5.2, and optical return loss at the maximum for optical return loss tolerance in Table 124-6.				
<i>Response</i>		<i>Response Status</i>	C	
ACCEPT IN PRINCIPLE.				

Comment #1 to P802.3df draft D1.1

The author of this presentation believes it's possible to create improved compliance channel requirements.

<i>Cl</i> 124	<i>SC</i> 124.8.5	<i>P</i> 107	<i>L</i> 1	# <input type="text" value="1"/>
Stassar, Peter		Huawei		
<i>Comment Type</i>	TR	<i>Comment Status</i>	D	<i>channel</i>

The text in the last bullet under 124.8.5 "The 400GBASE-DR4-2 or 800GBASE-DR8-2 transmitter is tested using an optical channel with dispersion and insertion loss as specified for 100GBASE-FR1 in 140.7.5.2, and optical return loss at the maximum for optical return loss tolerance specified in Table 124-6." was agreed as a resolution to comment #130 to D1.0. The embedded compliance channel requirements are somewhat indirect and it would be much clearer if a special section be created with details and especially a Table with channel requirements, following the style of 151.8.5.1, especially because there is no precedence for channel requirements for DR type PMDs over 2 km.

Suggested Remedy

Create a new subclause 124.8.5.1 with channel requirements for 400GBASE-DR4, 400GBASE-DR4-2, 800GBASE-DR8, and 800GBASE-DR8-2, following the specific proposal in a presentation

Proposal for new subclause 124.8.5.1

124.8.5.1 Channel requirements

The 400GBASE-DR4-2 or 800GBASE-DR8-2 transmitter is tested using an optical channel that meets the requirements listed in Table 124–11.

Table 124–11—Transmitter compliance channel specifications

PMD type	Dispersion ^a (ps/nm)		Insertion loss ^b	Optical return loss ^c	Max mean DGD
	Minimum	Maximum			
400GBASE-DR4-2 or 800GBASE-DR4-2	$0.046 \times \lambda \times [1 - (1324 / \lambda)^4]$	$0.046 \times \lambda \times [1 - (1300 / \lambda)^4]$	Minimum	21.4 dB	0.8 ps

^a The dispersion is measured for the wavelength of the transmitter lane under test (λ in nm). The coefficient assumes 2 km for 400GBASE-DR4-2 or 800GBASE-DR8-2.

^b There is no intent to stress the sensitivity of the O/E converter associated with the oscilloscope.

^c The optical return loss is applied at TP2.

Proposal for new subclause 124.8.5.1, continued

A 400GBASE-DR4-2 or 800GBASE-DR8-2 transmitter is to be compliant with a total dispersion at least as negative as the “minimum dispersion” and at least as positive as the “maximum dispersion” columns specified in Table 124–11 for the wavelength of the transmitter lane under test. This may be achieved with channels consisting of fibers with lengths chosen to meet the dispersion requirements.

To verify that the fiber has the correct amount of dispersion, the measurement method defined in IEC 60793-1-42 may be used. The measurement is made in the linear power regime of the fiber.

The channel provides an optical return loss specified in Table 124–11. The state of polarization of the back reflection is adjusted to create the greatest RIN.

The mean DGD of the channel is to be less than the value specified in Table 124–11.

Additional proposed modification

In 124.8.5 Transmitter and dispersion eye closure for PAM4 (TDECQ),
change last bullet,

From:

The 400GBASE-DR4-2 or 800GBASE-DR8-2 transmitter is tested using an optical channel with dispersion and insertion loss as specified for 100GBASE-FR1 in 140.7.5.2, and optical return loss at the maximum for optical return loss tolerance specified in Table 124–6.

To:

The 400GBASE-DR4-2 or 800GBASE-DR8-2 transmitter is tested using an optical channel specified in 124.8.5.1.

Thanks!