C/ 1	SC 1.3		P 32	L 14	# 50	C/ 120	SC 120	.5.7.2	P 103	L 44	# 56
Lusted, k	Kent		Intel Corporat	ion		Slavick, Je	eff		Broadcom		
Commen	t Type E	Commer	nt Status D		editorial (bucket1)	Comment 7	Туре Т	R	Comment Status D		editorial (bucket1
as sh			D MSA v4.2 was fp-dd.com/wp-cor		0, not August 10, 2020 20/08/SFP-		opper PMD		th paragph it has removed t	he requirement	of this paragraph for
Suggeste	edRemedy					00		KR4/CI	R4 to the list in the first sente	ence	
Char	nge the date to	August 17, 202	20			Proposed I			Response Status W		
,	d Response POSED ACCE	,	e Status W			•	OSED AC	CEPT.	Nesponse Status W		
						C/ 120F	SC 120	F.3.1	P 212	L 50	# 47
C/ 120	SC 120.5	.7.2	P 102	L 30	# 55	Brown, Ma	tt		Huawei		
Slavick,	Jeff		Broadcom			Comment T	Туре Т		Comment Status D		editorial (bucket1
	51		nt Status D t has removed the	e requirement o	editorial (bucket1) this paragraph for 50G		itter equal		s repeated in both 120F.3.1 y be configured via the trans		
Suggeste	edRemedy					Suggested	Remedy				
Add 2	200GBASE-K	R4/CR4 to the li	st in both the first	and second se	ntences.	Delete	the senter	nce in 1	20G.3.1.		
,	d Response POSED ACCE	,	e Status W			Proposed F PROP	Response OSED AC	CEPT.	Response Status W		
C/ 120	SC 120.5	.7.2	P 102	L 45	# 54	C/ 120F	SC 120	F.3.1.2	P 214	L 34	# 134
Slavick,	Jeff		Broadcom			Ran, Adee			Intel		
Commen			nt Status D		editorial (bucket1)	Comment	Туре Е	R	Comment Status D		TX EC
sente	ence of the pa	agraph seems t	to be too much si	nce the sentend	nction" in the second e would read et as determined in the				that pre-cursor tap om this specification if it is sh	nown to "have r	no value".
ĹINK			ntrol state diagra				as not bee d to keep		n in four comment cycles sin	ice the addition	of this note, so there is
00	,	senetence to b	e ""precoder_tx_c	ut enable i an	ч	Suggested	Remedy				
preco	oder_rx_in_en	able_i shall be s	set as determined		ntrol function in the	Delete	the editor'	s note.			
	—	on lane i (see	Fig 136-7)"			Proposed I	Response		Response Status W		
	d Response	,	e Status W			•	, OSED AC	CEPT.			
PRO	POSED ACCE	PT.									

C/ 120F SC 120F.3.1.2

C/ 120F SC 120F.3	. 1.2 P	°214	L 34	# 108	C/ 120F	SC 120	F.3.2.3	P 218	L 43	# 135
Hidaka, Yasuo	Cre	edo Semicono	luctor, Inc.		Ran, Adee			Intel		
Comment Type TR	Comment Statu		,	TX EQ	Comment T	ype E	२ Co	omment Status D		RIT IL
C(-3) has been disc	ussed and the editor's	s note should	have been ren	noved long time ago.				uiring confirmation)		
SuggestedRemedy Remove editor's not	e on the pre-cursor ta	n c(-3)						the values specified for se values are for the hig		at 26.5625 GHz" for test
Proposed Response PROPOSED ACCE	Response Statu	s W			since th	e additior		to change the values ir e, so there is no need to sal		r comment cycles
	. 1.2 P	[,] 214	L 35	# 28	https://v	vww.ieee8	02.org/3/ck		Id_0919.pdf has	a comment in slide 16
Brown, Matt	Hua	awei						in this table is not the in		
Comment Type T	Comment Statu	is D		TX EQ				ence tolerance test. The ss value", so there is no		
if it is shown to have SuggestedRemedy Remove the editor's Proposed Response PROPOSED ACCE	no value. There have note. Response Status	e been no pro s W		ap should be removed ed to remove the tap.	objectiv Suggestedh Delete Proposed F	e are met Remedy he editor' Pesponse	regardless s note.	uggests the maximum l of the value. sponse Status W RINCIPL F	oss for a channe	el, but the project's
	2.3 P	218	L16	# 136	Delete	he editor	s notes on p	bage 218 line 43 and pa	age 222 line 4.	
Ran, Adee	Inte		210	100	C/ 120F	SC 120	F.3.2.3	P 218	L 44	# 29
Comment Type T	Comment Statu			measurement BW	Brown, Mat	t		Huawei		
"Bessel-Thomson lo other corresponding This is for calibrating	w pass response with places in this draft. g the pattern generato	o 53 GHz 3 dE	Rx test setup.	we have 40 GHz in all There is no reason for		tor's note s no confii	written in D	omment Status D 1.0 indicates that the IL proposals to change th		
higher bandwidth in for Rx	this specific subclaus	e. All precede	ent cases use	the same bandwidth	Suggested	Remedy				
	e.g. 33 GHz in 120D.3	3.2.1).			Remov	e the edito	r's note.			
SuggestedRemedy					Proposed F	esponse	Rea	sponse Status W		
Change "53" to "40"							CEPT IN PF	-		
Proposed Response PROPOSED ACCE	Response Status	s W			Resolve	e using the	e response	to comment #135.		

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn SORT ORDER: Clause, Subclause, page, line

C/ 120F SC 120F.3.2.3 Page 2 of 34 2021-01-21 4:07:04 PM

.1 P 220	L 29	# 117	C/ 120F S	C 120F.4.3	P 223	L 5	# 31
Intel	-		Brown, Matt		Huawei	-	
Comment Status D		COM Cp (CC) (WG)	Comment Type	т	Comment Status D		channel ERL
the latest package technolog	gy/product (see oil	2020.224.01).	SuggestedRem	nedy			
-5 nF			PROPOSE	D ACCEPT	-		
				• •		/ 5	# 123
ses a technical change to the			-	0 1201 .4.3	-	23	π 123
commenter is invited to resub	mit this comment	during working group		TR			channel ERL
MR-PAMA Version 4 provide			(addressing	g TBD)			
org/3/private/liaison_docs/Ol 1.pdf	F/0121_OIF_liaiso	on_IEEE_CEI_Projects_	With the re	spective par	ameters, ERL (which is the		
2 P 222	L 4	# 30	SuggestedRem	nedy			
Huawei			Set channe	el ERL minim	num identical to 163.10.3 wh	ere the minimun	n is 9.7 dB.
Comment Status D		channel IL	Proposed Resp	oonse	Response Status W		
			DDODOSE	D ACCEPT	IN PRINCIPLE.		
ten in D1.0 indicates that the No proposals to change the		•			3 and update PICS.		
No proposals to change the		•	Set ERL (n			L 2	# [16
		•	Set ERL (n	nin) to 9.7 dE	3 and update PICS.	L 2	# [16
No proposals to change the note. Response Status W		•	Set ERL (n C/ 120G S	nin) to 9.7 dE C 120G.1	3 and update PICS.	L2	
No proposals to change the note. <i>Response Status</i> W PT IN PRINCIPLE.		•	Set ERL (n Cl 120G S Dudek, Mike Comment Type	nin) to 9.7 dE C 120G.1 TR	3 and update PICS. P 229 Marvell		editorial (bucket1)
No proposals to change the note. Response Status W		•	Set ERL (n Cl 120G S Dudek, Mike Comment Type	hin) to 9.7 dE C 120G.1 TR es not appea	B and update PICS. P 229 Marvell Comment Status D		editorial (bucket1)
No proposals to change the note. <i>Response Status</i> W PT IN PRINCIPLE.		•	Set ERL (n Cl 120G S Dudek, Mike Comment Type 135.1.5 do SuggestedRem Change the	nin) to 9.7 dE C 120G.1 TR es not appea nedy e reference f	B and update PICS. P 229 Marvell Comment Status D	likely to include	<i>editorial (bucket1)</i> these AUI's k and either remove the
No proposals to change the note. <i>Response Status</i> W PT IN PRINCIPLE.		•	Set ERL (n Cl 120G S Dudek, Mike Comment Type 135.1.5 do SuggestedRem Change the reference t	nin) to 9.7 dE C 120G.1 TR es not appea hedy e reference f o a tabke or	B and update PICS. P 229 Marvell Comment Status D ar to exist and if it did it is un rom 135.1.5 to 135.1.4 and i	likely to include	<i>editorial (bucket1)</i> these AUI's k and either remove the
	build be improved to provide the the latest package technolog improvement would be aligned the ecosystem at large. a-5 nF Response Status W CT. Isses a technical change to the commenter is invited to resub ents #115 (Clause 162) and # MR-PAM4 Version 4 provided iss 60 nF for Cp. .org/3/private/liaison_docs/OI 21.pdf 20F, 162, 163.] .2 P 222 Huawei	build be improved to provide the needed channe of the latest package technology/product (see oil improvement would be aligned with the latest CI the ecosystem at large. a-5 nF Response Status W cT. Uses a technical change to the draft that does no commenter is invited to resubmit this comment ents #115 (Clause 162) and #116 (Clause 163). MR-PAM4 Version 4 provided in the OIF laisso ies 60 nF for Cp. .org/3/private/liaison_docs/OIF/0121_OIF_liaiso 21.pdf 20F, 162, 163.] cT cT cT cT cT cT cT cT	build be improved to provide the needed channel/link solution margin withe latest package technology/product (see oif2020.224.01). mprovement would be aligned with the latest CEI-112G-MR-PAM4 the ecosystem at large. a-5 nF Response Status W ST. Sees a technical change to the draft that does not address technical commenter is invited to resubmit this comment during working group ents #115 (Clause 162) and #116 (Clause 163). MR-PAM4 Version 4 provided in the OIF laisson to IEEE data 7 ies 60 nF for Cp. org/3/private/liaison_docs/OIF/0121_OIF_liaison_IEEE_CEI_Projects_ 21.pdf 20F, 162, 163.] .2 P 222 L 4 # 30 Huawei	build be improved to provide the needed channel/link solution margin The specifi with elatest package technology/product (see oif2020.224.01). The specifi mprovement would be aligned with the latest CEI-112G-MR-PAM4 Provide a w the ecosystem at large. Proposed Resp. e-5 nF Response Status W CT. Status W CT. Sees a technical change to the draft that does not address technical commenter is invited to resubmit this comment during working group C/ 120F S MR-PAM4 Version 4 provided in the OIF laisson to IEEE data 7 ies 60 nF for Cp. (addressing Channel EI The ERL p. With the restor for Cp. 20F, 162, 163.] Yeap 2 L 4 # 30 SuggestedRem Status .2 P 222 L 4 # 30 SuggestedRem Status SuggestedRem Status .2 P 222 L 4 # 30 SuggestedRem Status SuggestedRem Status .2 P 222 L 4 # 30 SuggestedRem Status SuggestedRem Status .2 P 222 L 4 # 30 SuggestedRem Status SuggestedRem Status .3 Comment Status D Channel IL Proposed Resp. <td>Descriptionbuild be improved to provide the needed channel/link solution margin of the latest package technology/product (see oif2020.224.01). mprovement would be aligned with the latest CEI-112G-MR-PAM4 the ecosystem at large.The specified value for SuggestedRemedy Provide a value and up Proposed Responsebe-5 nF Response StatusWCT.Sees a technical change to the draft that does not address technical commenter is invited to resubmit this comment during working groupCl 120FSC 120F.4.3Ran, AdeeComment TypeTR (addressing TBD) Channel ERL minimumconf/3/private/liaison_docs/OIF/0121_OIF_liaison_IEEE_CEI_Projects_ 21.pdfThe ERL parameters sp With the respective par should have the same I.2P 222L 4# 30Huawei Comment StatusDchannel ILProposed ResponseSuggestedRemedy Provide a value and upProposed ResponseSuggestedRemedySuggestedRemedySet channel ERL minimum</td> <td>build be improved to provide the needed channel/link solution margin of the latest package technology/product (see oif2020.224.01). mprovement would be aligned with the latest CEI-112G-MR-PAM4 the ecosystem at large. The specified value for channel ERL is TBD. be-5 nF Response Status W T. POPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #123. Discrete the draft that does not address technical commenter is invited to resubmit this comment during working group ents #115 (Clause 162) and #116 (Clause 163). MR-PAM4 Version 4 provided in the OIF laisson to IEEE data 7 ies 60 nF for Cp. Ran, Adee Intel .org/3/private/liaison_docs/OIF/0121_OIF_liaison_IEEE_CEI_Projects_ 21.pdf 20F, 162, 163.] The ERL parameters specific to C2C take into accor With the respective parameters, ERL (which is the should have the same limit. SuggestedRemedy Proposed Response The ERL parameters specific to 163.10.3 wh Proposed Response</td> <td>build be improved to provide the needed channel/link solution marging the latest package technology/product (see oif2020.224.01). The specified value for channel ERL is TBD. best nF Response Status W c.T. Response Status W c.T. Sees a technical change to the draft that does not address technical commenter is invited to resubmit this comment during working group ents #115 (Clause 162) and #116 (Clause 163). Provide a value and update PICS. MR-PAM4 Version 4 provided in the OIF laisson to IEEE data 7 ies 60 nF for Cp. Or for Cp. org/3/private/liaison_docs/OIF/0121_OIF_liaison_IEEE_CEI_Projects_21.pdf Comment Xatus D 2.1 P 222 L 4 Huawei Comment Status D Channel IL Comment Status D Channel IL</td>	Descriptionbuild be improved to provide the needed channel/link solution margin of the latest package technology/product (see oif2020.224.01). mprovement would be aligned with the latest CEI-112G-MR-PAM4 the ecosystem at large.The specified value for SuggestedRemedy Provide a value and up Proposed Responsebe-5 nF Response StatusWCT.Sees a technical change to the draft that does not address technical commenter is invited to resubmit this comment during working groupCl 120FSC 120F.4.3Ran, AdeeComment TypeTR (addressing TBD) Channel ERL minimumconf/3/private/liaison_docs/OIF/0121_OIF_liaison_IEEE_CEI_Projects_ 21.pdfThe ERL parameters sp With the respective par should have the same I.2P 222L 4# 30Huawei Comment StatusDchannel ILProposed ResponseSuggestedRemedy Provide a value and upProposed ResponseSuggestedRemedySuggestedRemedySet channel ERL minimum	build be improved to provide the needed channel/link solution margin of the latest package technology/product (see oif2020.224.01). mprovement would be aligned with the latest CEI-112G-MR-PAM4 the ecosystem at large. The specified value for channel ERL is TBD. be-5 nF Response Status W T. POPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #123. Discrete the draft that does not address technical commenter is invited to resubmit this comment during working group ents #115 (Clause 162) and #116 (Clause 163). MR-PAM4 Version 4 provided in the OIF laisson to IEEE data 7 ies 60 nF for Cp. Ran, Adee Intel .org/3/private/liaison_docs/OIF/0121_OIF_liaison_IEEE_CEI_Projects_ 21.pdf 20F, 162, 163.] The ERL parameters specific to C2C take into accor With the respective parameters, ERL (which is the should have the same limit. SuggestedRemedy Proposed Response The ERL parameters specific to 163.10.3 wh Proposed Response	build be improved to provide the needed channel/link solution marging the latest package technology/product (see oif2020.224.01). The specified value for channel ERL is TBD. best nF Response Status W c.T. Response Status W c.T. Sees a technical change to the draft that does not address technical commenter is invited to resubmit this comment during working group ents #115 (Clause 162) and #116 (Clause 163). Provide a value and update PICS. MR-PAM4 Version 4 provided in the OIF laisson to IEEE data 7 ies 60 nF for Cp. Or for Cp. org/3/private/liaison_docs/OIF/0121_OIF_liaison_IEEE_CEI_Projects_21.pdf Comment Xatus D 2.1 P 222 L 4 Huawei Comment Status D Channel IL Comment Status D Channel IL

SORT ORDER: Clause, Subclause, page, line

Page 3 of 34 2021-01-21 4:07:04 PM

C/ 120G SC 120G.1	P 229	L 3	# 15	C/ 120G SC 120G.3.1 P 231 L 17 # 80
Dudek, Mike	Marvell			Ghiasi, Ali Ghiasi Quantum/Inphi
Comment Type E Clause 116.1.4 is inclu	<i>Comment Status</i> D uded in the draft and should b	e a hot link	editorial (bucket1)	Comment Type TR Comment Status D EH/VEC Eye height need to be adjusted to account for the 50 mUI rectangular window EH/VEC EH/VEC
SuggestedRemedy Make this a hot link.				SuggestedRemedy See ghiasi_3ck_01_0121 and reduce eye height window from 15 mV to 9.5 mV
Proposed Response PROPOSED ACCEP1	Response Status W			Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #40.
C/ 120G SC 120G.1	P 229	L 5	# 21	C/ 120G SC 120G.3.1 P 231 L 17 # 5
Dudek, Mike	Marvell			Mellitz, Richard Samtec
Comment Type E	Comment Status D		editorial (bucket1)	Comment Type TR Comment Status D EH/VEC
Annex 135A and 120A	A are part of this draft.			EH and VEC need be to computed for the histogram window.
SuggestedRemedy				SuggestedRemedy
Make these references	s hot links.			Change Eye height, differential (min) to 10 mV
Proposed Response PROPOSED ACCEPT	Response Status W			Change Vertical eye closure (max) to 13 dB Presentation available
C/ 120G SC 120G.3.1	1 P 231	L 17	# 61	Proposed Response Response Status W
Wu, Mau-Lin	MediaTek			PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #40.
Comment Type T	Comment Status D		EH/VEC	
Due to we adopted the VEC for "Table 120G-	e new EH & VEC test methods 1 - Host output characteristics parameters" shall be updated	at TP1a" and "	pecifications of EH & Table 120G-10 -	
SuggestedRemedy				
Propose to change EH	H from 15 mV to 8 mV in Table EC from 9.0 dB to 12.0 dB in 1		G-10.	

Propose to change VEC from 9.0 dB to 12.0 dB in Table 120G-1. Propose to change VEC (max) from 9.5 dB to 12.5 dB in Table 120G-10. Propose to change VEC (min) from 9.0 dB to 12.0 dB in Table 120G-10. Detailed analysis is included in wu_3ck_01_0121.pdf

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #40.

Cl 120G	SC	120G.3.1	P 231	L 18	# 72
Healey, Ad	am		Broadcom Ind	.	
Comment 7	Гуре	т	Comment Status D		EH/VEC
a vertic height a eye spa measu	al slic and v anning remer	ce of the eye ertical eye c g -50 to +50 nt results im	cal eye closure limits were l e at the nominal sampling tin losure in 120G.5.2 has bee mUI around the nominal sa plies that the change in the al eye closure and a similar	me. The measur n modified to us ampling time. Co measurement n	rement method for eye as a vertical slice of the comparison of nethod results in up to
Suggestedl	Reme	dy			
differen eye clo In Tabl "Near-e In Tabl (min)" t Proposed F	ntial (r sure (e 120 end ve e 120 to 12 Respo	nin) ["] to 17 r (max)" to 10 G-7, change ertical eye c G-10, chang dB. <i>nse</i>	e "Near-end eye height" and losure" and "Far-end vertica ge "Eye height" to 10 mV, "\ <i>Response Status</i> W	ye closure (max l "Far-end eye h ll eye closure" to	()" and "Far-end vertical leight" to 17 mV and to 10.5 dB.
			N PRINCIPLE. nse to comment #40.		
C/ 120G	SC	120G.3.1	P 231	L 19	# 81
Ghiasi, Ali			Ghiasi Quant	um/Inphi	
Comment 7 VEC ne		TR be adjuste	<i>Comment Status</i> D d to account for the 50 mUI	rectangular win	EH/VEC
Suggestedl See gh		•	1 and reduce eye height wir	ndow from 7.5 d	B to 14 dB
	, DSED	ACCEPT I	Response Status W N PRINCIPLE. nse to comment #40.		

C/ 120G	SC 120G.3.1	P 231	L 25	# 83
Ghiasi, Ali		Ghiasi Quant	um/Inphi	
Comment T	ype TR	Comment Status D		TP1a transition time
At TP1a	a it is no possibl	e to get 7.5 ps, please put so	mething reaso	nable
Suggested	Remedy			
A fast A	SIC with 7.6 ps	output rise time when passe	s through a ma	ated board with just 5 dB

loss produces 12 ps 20-80% rise time. I suggest 12 ps but no less than 10 ps.

Proposed Response Response Status W

PROPOSED REJECT.

This comment proposes a technical change to the draft that does not address technical completeness. However, there are proposals to other comments relating to technical completeness that include changes to the transition time. Resolve using the response to comments 17 and 20.

Cl 120G	SC 120G.3.1	P 231	L 33	# 32
Brown, Matt		Huawei		
Comment Ty	be T	Comment Status D		CM noise, PP voltage, RLCC

The editor's note written in D1.0 indicates that the specified values for host output AC CM noise, PP output voltage, and RLCC require confirmation. No proposals to change the specified values have been submitted.

Suggested Remedy

Remove the editor's note.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE. Implement the suggested remedy. For task force discussion.

C/ 120G SC 120G.3.1 Page 5 of 34 2021-01-21 4:07:04 PM

C/ 120G SC 120G.3.1.5 P 233 L 17 # 62	C/ 120G SC 120G.3.1.5 P 233 L 17 # 124
Nu, Mau-Lin MediaTek	Ran, Adee Intel
Comment Type T Comment Status D TP1a EH/VEC EO XTALK	Comment Type TR Comment Status D TP1a EH/VEC EO XTAL
There are some TBDs for crosstalk calibration specs for Host Output test. According to the analysis explored in wu_3ck_adhoc_02_010621.pdf, the target swing at TP4 shall be aligned with that of Module output spec, which is 900 mV. Similarly, the output voltage swing at TP1a, which is 870 mV now, shall be aligned among Host output, Module output, Host input, & Module input specs.	"The crosstalk generator is calibrated at TP4 (without the use of a reference receiver) with target differential peak-to-peak amplitude of TBD mV and slew time of TBD ps between –TBD V and +TBD V" This is the host output test; the crosstalk generator represents the module output. We
SuggestedRemedy	specify the PtP amplitude and transition time for modules at TP4 in Table 120G–3. The calibration should use the maximum amplitude and minimum transition time values from
Propose the following paragraph to replace the original one	that table.
Host output: 120G.3.1.4 (Page 233, L17) " with target differential peak-to-peak amplitude of 900 mV and slew time of 12 ps	SuggestedRemedy
between -2.7 V and +2.7 V."	Change the quoted sentence to:
Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #14.	"The crosstalk generator is calibrated at TP4 (without the use of a reference receiver) with targets equal to the Differential peak-to-peak output voltage (max) and Transition time (min, 20% to 80%) in Table 120G-3".
C/ 120G SC 120G.3.1.5 P 233 L 17 # 33	Proposed Response Response Status W
Brown, Matt Huawei	PROPOSED ACCEPT IN PRINCIPLE.
Comment Type T Comment Status D TP1a EH/VEC EO XTALK	Resolve using the response to comment #14.
The specified values for the host output EH/VEC crosstalk parameters (4x) are TBD.	C/ 120G SC 120G.3.1.5 P 233 L 17 # 14
SuggestedRemedy	Dudek, Mike Marvell
Provide values.	Comment Type TR Comment Status D TP1a EH/VEC EO XTAL
Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE.	The host output signal should be measured with a crosstalk signal equivalent to the largest and fastest signal that a module is allowed to create and the crosstalk signal risetime should be measured from 20% to 80%.
Resolve using the response to comment #14.	SuggestedRemedy
	Change to a target differential peak-to-peak amplitude of 900mV and the slew time to be 7.5ps measured between -270mV and +270mV
	Proposed Response Response Status W
	PROPOSED ACCEPT IN PRINCIPLE. Comments 14, 84, 62, 68, and 124 propose a variation of values. Presentation brown_3ck_02 provides a summary of the proposals.

For task force discussion.

C/ 120G SC 120G.3.1.5

Cl 120G	SC 120G.	3.1.5	P 233	L 17	# 84	C/ 120G	SC	120G.3.2	P 234	L 10	# 145
Ghiasi, Ali			Ghiasi Quant	um/Inphi		Dawe, Pier	S		Nvidia		
Comment T	ype TR	Comme	ent Status D		TP1a EH/VEC EO XTALK	Comment 7	Гуре	TR	Comment Status D		EH/VEC
Address	sing the TBI) in the parag	aph						module (or test equipment i		
SuggestedF						swing h 120E h			sively reduced to deliver only	y 24 mV at near	end, short setting.
					nated board with just 5 dB ew from -400 mV to + 400	Suggestedl	Reme	dy			
					ed is due assumption that	Eye he	ight lir	nits should	be set sensibly for short an	d long modes, r	near and far - not all the
			for this measurem is reasonable.	ent otherwise	one could go with 900	same. Change	e the N	NEEH from	24 mV to 40 mV.		
Proposed R	esponse	Respon	se Status W			Proposed F	Respo	nse	Response Status W		
		PT IN PRINC esponse to co				-			N PRINCIPLE.		
C/ 120G	SC 120G.	3.1.5	P 233	L 17	# 68	C/ 120G	SC	120G.3.2	P 234	L 10	# 13
Healey, Ada	am		Broadcom Ind	C.		Dudek, Mik	æ		Marvell		
Comment T	уре т	Comme	ent Status D		TP1a EH/VEC EO XTALK	Comment 7	Гуре	т	Comment Status D		editorial (bucket1)
	get different d at TP4, a		ak amplitude and s	lew time of th	e crosstalk generator, as				near and far eye measurem to the module output	ents in table 12	0G-3 are to the host
SuggestedF	Remedy					Suggestedl	Reme	dy			
Since th	ne crosstalk	generator is u	sed to represent n	ear-end aggre	ession from the the	Change	e the r	eference fr	om 120G.3.1.5 to 120G.3.2	.2	
					ansition time allowed for a worst-case aggression.	Proposed F	Respo	nse	Response Status W		
Change "The cro target d	e: osstalk gene ifferential pe	erator is calibra ak-to-peak ar	ated at TP4 (without	ut the use of a	reference receiver) with ne of TBD ps between -	In Tabl	e 1200	G-3, for row	N PRINCIPLE. /s for NE EH, NE VEC, FE 20G.3.2.2".	EH, and FE VEC	C change the reference
TBD V a To:	and +TBD V	."				C/ 120G	SC	120G.3.2	P 234	L 11	# 75
					to-peak output voltage	Ghiasi, Ali			Ghiasi Quant	um/Inphi	
and trar practica		as measured	at TP4, are as clos	se to the limits	s in Table 120G-3 as	Comment 7	Гуре	TR	Comment Status D		EH/VEC
Proposed R		Pesnon	se Status W			Given t	hat no	w we have	AUI-S/L near end eye wou	d be AUI-S min	eye opening
	•	PT IN PRINC				Suggestedl	Reme	dy			
		esponse to co				The ey ghiasi_) mUI rectangular window fo	or AUI-S is VEO	=20 mV, see
						Proposed F	Respo	nse	Response Status W		
									N PRINCIPLE.		

C/ 120G SC 120G.3.2

C/ 120G SC	120G.3.2	P 234	L 11	# 77		C/ 120G	SC ·	120G.3.2	P 234	L 14	# 146
Ghiasi, Ali		Ghiasi Quantu	m/Inphi			Dawe, Piers	6		Nvidia		
Comment Type	ER	Comment Status D			EH/VEC	Comment T	ype	TR	Comment Status D		TP4 EQ settings
SuggestedReme	<i>dy</i> ning with 50	AUI-S/L near end VEC need		=12.5 dB, see		work. I it is offe is set to	f the m red is the lo	nodule is so smaller the	e 2-settings method with or et to the short setting, and an 24 mV because of loss, and the host isn't that long ting is usable.	the host receiver and out of tune a	isn't that near, the eye as well. If the module
Proposed Respo	nse	Response Status W				Suggested	Remed	'y			
Resolve usin	g the respo	N PRINCIPLE. nse to comment #40.				120G.	ln 120	G.3.2.2.1,	EC limit pairs: short near a give the four zp values: for the four zp values: for the four species of the second states of the second s		
C/ 120G SC	120G.3.2	P 234	L 13	# 76		Proposed F	espon	se	Response Status W		
Ghiasi, Ali		Ghiasi Quantu	m/Inphi			PROPO	SED I	REJECT.	,		
Comment Type	TR	Comment Status D			EH/VEC				line number from 26.]		
Given that no	ow we have	AUI-S/L far end eye would b	e AUI-S min ey	ye opening		This co comple			a technical change to the	draft that does no	ot address technical
SuggestedReme	dy								provided sufficient eviden	ce to support the	proposed changes.
The eye ope ghiasi_3ck_0		mUI rectangular window for	AUI-L is VEO=	=11 mV, see		C/ 120G	SC ·	120G.3.2	P 234	L 17	# 34
Proposed Respo	nse	Response Status W				Brown, Mat	t		Huawei		
		N PRINCIPLE. nse to comment #40.				Comment 7 In Table		T 6-3, the spe	Comment Status D ecified value for ERL at mo	odule output (TP4	<i>TP4 ERL</i>) is TBD.
C/ 120G SC	120G.3.2	P 234	L14	# 78		Suggested	Remed	'y			
Ghiasi, Ali		Ghiasi Quantu	m/Inphi			Provide	a valu	ie and upd	ate PICS.		
Comment Type	TR ow we have	Comment Status D AUI-S/L far end VEC need t			EH/VEC		, SED /	ACCEPT I	Response Status W N PRINCIPLE.		
SuggestedReme The eye ope ghiasi_3ck_0	ning with 50	mUI rectangular window for	AUI-L is VEC=	=14.5 dB, see		Resolve	e using	the respo	nse to comment #125.		
Proposed Respo	nse	Response Status W									
PROPOSED	ACCEPT I	N PRINCIPLE.									
		nse to comment #40.									

C/ 120G SC 120G.3.2

CI 120G	SC 120G.3.2	P 234	L 17	# 125	C/ 120G SC	120G.3.2	P 234	L 20	# 85
Ran, Adee		Intel			Ghiasi, Ali		Ghiasi Quanti	um/Inphi	
Comment Ty	pe TR	Comment Status D		TP4 ERL	Comment Type	т	Comment Status D		TP4 transition time
(address					At TP4 it is r	no possible	to get 7.5 ps, please put son	nething reasona	able
Module	output ERL (mir	i) is TBD			SuggestedReme	edy			
fixture. In to enable	another comme measurement	TP4 the module ERL will be ent I am suggesting setting of the internal host circuitry.	the minimum E	RL of a MTF to 10.3 dB	loss produce	es 12 ps 20	output rise time when passe -80% rise time, given that rea e reasonable rise time.		
module	annot exceed	10.3 dB.			Proposed Respo	onse	Response Status W		
impleme	ntation.	ws 1.3 dB difference for Tx a module input ERL at TP1.	and 1.8 dB for F	X for module	This comme completenes	e: subclaus nt proposes ss. Howeve	e, page, and line changed from s a technical change to the d r, there are proposals to othe	raft that does n r comments re	ot address technical
SuggestedR	emedy						ide changes to the transition onse to comments 14 and 19		
Change	TBD to 9 dB for	Tx ERL and 8.5 dB for Rx E	RL.			• •			
Proposed Re	sponse	Response Status W				120G.3.2	P 234	L 30	# 126
PROPOS	SED ACCEPT I	, N PRINCIPLE.			Ran, Adee		Intel		
#79: 8.5 #125: 9 o Select a	dB JB	values for module output E his for both module output (n.			Editor's note	indicates t ned that the	Comment Status D te requiring confirmation) hat AC common-mode speci e existing limit of 17.5 mV RM value.		
C/ 120G	SC 120G.3.2	P 234	L 17	# 79	Work is plan	ned to refir	he the measurement method	to allow separa	tion of different sources
Ghiasi, Ali		Ghiasi Quantu	um/Inphi		of common r	mode signa	I and fine-tuned specification		
Comment Ty	pe TR	Comment Status D	·	TP4 ERL	phases of P8	802.3ck.			
ERL is T	BD				This should	not preclud	e progressing to WGB with th	ne current meth	od and limit.
SuggestedR	emedy				SuggestedReme	edy			
00		B and see ghiasi_3ck_01_0	121		Delete the e	ditor's note			
Proposed Re		Response Status W			Proposed Respo PROPOSED		Response Status W		

Cl 120G SC 120G.3.2

The editor's note indicates tha requires confirmation. No prop However, it should be noted th SuggestedRemedy Remove the editor's note. Proposed Response Resp PROPOSED ACCEPT IN PRI Resolve using the response to CI 120G SC 120G.3.3 Ran, Adee Comment Type T Corr For module output (120G.3.4, table differential return loss (min)" is There is one subclause that d output.	boosals to change the s that there is ongoing dis boonse Status W NCIPLE. comment #126. P 237 Intel mment Status D table 120G-3), host in 120G-9), the reference s incorrect - 120G.3.1.	specified values iscussion on this <i>L</i> 37 nput (120G.3.3, t ce subclause for .2 discusses ER	# 138 <i>TP4a/TPRLCD (bucket1)</i> table 120G-6), and "Common-mode to RL.	What the modu (emphasis), an there is no stat SuggestedRemedy Change "two en long." Change output mode co modes". Proposed Respons PROPOSED A The two "states amplitude. Change "two en Change subcla mode control". Change table to Implement with	ule output is being d it may have to a e machine. , qualization states subclause title fro ontrol". Change ta ee Respon CCEPT IN PRING " provide signals qualization states use title from "Mo	om "Module output able title from "Mod nse Status W CIPLE. with a different set : short and long." to odule output transm state mapping" to "	 The two modes "two output modes transmit equalized ule state mapping of characterisitic "two output modes tequalizer control 	s aren't states and des, called short and er control" to "Module g" to "Module output es including shape and des: short and long." rol" to "Module output
The editor's note indicates that requires confirmation. No prop However, it should be noted the SuggestedRemedy Remove the editor's note. Proposed Response Resp PROPOSED ACCEPT IN PRI Resolve using the response to CI 120G SC 120G.3.3 Ran, Adee Comment Type T Correst For module output (120G.3.4, table differential return loss (min)" is There is one subclause that d output.	t the value specified for posals to change the s nat there is ongoing dis ponse Status W NCIPLE. o comment #126. P 237 Intel nment Status D table 120G-3), host in 120G-9), the reference s incorrect - 120G.3.1.	specified values iscussion on this <i>L</i> 37 nput (120G.3.3, t ce subclause for .2 discusses ER	# 138 <i>TP4a/TPRLCD (bucket1)</i> table 120G-6), and r "Common-mode to RL.	What the modu (emphasis), an there is no stat SuggestedRemedy Change "two en long." Change output mode co modes". Proposed Respons PROPOSED A The two "states amplitude. Change "two en Change subcla mode control". Change table ti Implement with	ule output is being d it may have to a e machine. qualization states subclause title fro ontrol". Change ta re Respon CCEPT IN PRING " provide signals qualization states use title from "Module	asked to do is not adjust its swing also short and long." to om "Module output able title from "Mod nse Status W CIPLE. with a different set short and long." to odule output transm	 The two modes "two output modes transmit equalized ule state mapping of characterisitic "two output modes tequalizer control 	t the opposite s aren't states and des, called short and er control" to "Module g" to "Module output cs including shape and des: short and long." rol" to "Module output
requires confirmation. No prop However, it should be noted the SuggestedRemedy Remove the editor's note. Proposed Response Resp PROPOSED ACCEPT IN PRI Resolve using the response to C/ 120G SC 120G.3.3 Ran, Adee Comment Type T Corr For module output (120G.3.4, table differential return loss (min)" is There is one subclause that d output.	boosals to change the s that there is ongoing dis boonse Status W NCIPLE. comment #126. P 237 Intel mment Status D table 120G-3), host in 120G-9), the reference s incorrect - 120G.3.1.	specified values iscussion on this <i>L</i> 37 nput (120G.3.3, t ce subclause for .2 discusses ER	# 138 <i>TP4a/TPRLCD (bucket1)</i> table 120G-6), and "Common-mode to RL.	(emphasis), an there is no stat SuggestedRemedy Change "two en long." Change output mode co modes". Proposed Respons PROPOSED A The two "states amplitude. Change "two en Change subcla mode control". Change table ti Implement with	d it may have to a e machine. qualization states subclause title fro ontrol". Change ta e Respon CCEPT IN PRING s" provide signals qualization states use title from "Module	adjust its swing also : short and long." to om "Module output able title from "Mod nse Status W CIPLE. with a different set : short and long." to odule output transm state mapping" to "	 The two modes "two output modes transmit equalized ule state mapping of characterisitic "two output modes tequalizer control 	s aren't states and des, called short and er control" to "Module g" to "Module output es including shape and des: short and long." rol" to "Module output
Proposed Response Resp PROPOSED ACCEPT IN PRI Resolve using the response to Cl 120G SC 120G.3.3 Ran, Adee Comment Type T For module output (120G.3.2, module input (120G.3.4, table differential return loss (min)" is There is one subclause that d	NCIPLE. P 237 Intel mment Status D table 120G-3), host in 120G-9), the reference s incorrect - 120G.3.1.	nput (120G.3.3, t ce subclause for .2 discusses ER	<i>TP4a/TPRLCD (bucket1)</i> table 120G-6), and r "Common-mode to RL.	Change "two er long." Change output mode co modes". Proposed Respons PROPOSED A The two "states amplitude. Change "two er Change subcla mode control". Change table ti Implement with	qualization states subclause title fro ontrol". Change ta e Respon CCEPT IN PRING s" provide signals qualization states use title from "Module	om "Module output able title from "Mod nse Status W CIPLE. with a different set : short and long." to odule output transm state mapping" to "	transmit equalize ule state mappin of characterisitic o "two output moo it equalizer contro	er control" to "Module ag" to "Module output as including shape and des: short and long." rol" to "Module output
Proposed Response Resp PROPOSED ACCEPT IN PRI Resolve using the response to Cl 120G SC 120G.3.3 Ran, Adee Comment Type T For module output (120G.3.2, module input (120G.3.4, table differential return loss (min)" is There is one subclause that d output.	NCIPLE. P 237 Intel mment Status D table 120G-3), host in 120G-9), the reference s incorrect - 120G.3.1.	nput (120G.3.3, t ce subclause for .2 discusses ER	<i>TP4a/TPRLCD (bucket1)</i> table 120G-6), and r "Common-mode to RL.	long." Change output mode co modes". Proposed Respons PROPOSED A The two "states amplitude. Change "two e Change subcla mode control". Change table ti Implement with	subclause title fro pontrol". Change ta e Respon CCEPT IN PRING s" provide signals qualization states use title from "Module	om "Module output able title from "Mod nse Status W CIPLE. with a different set : short and long." to odule output transm state mapping" to "	transmit equalize ule state mappin of characterisitic o "two output moo it equalizer contro	er control" to "Module ag" to "Module output as including shape and des: short and long." rol" to "Module output
PROPOSED ACCEPT IN PRI Resolve using the response to Cl 120G SC 120G.3.3 Ran, Adee Comment Type T Corr For module output (120G.3.2, module input (120G.3.4, table differential return loss (min)" is There is one subclause that d output.	NCIPLE. P 237 Intel mment Status D table 120G-3), host in 120G-9), the reference s incorrect - 120G.3.1.	nput (120G.3.3, t ce subclause for .2 discusses ER	<i>TP4a/TPRLCD (bucket1)</i> table 120G-6), and r "Common-mode to RL.	output mode co modes". Proposed Respons PROPOSED A The two "states amplitude. Change "two e Change subcla mode control". Change table ti Implement with	ontrol". Change ta e Respon CCEPT IN PRING s" provide signals qualization states use title from "Module itle from "Module	able title from "Mod nse Status W CIPLE. with a different set : short and long." to odule output transm state mapping" to "	ule state mappin of characterisitic o "two output moo it equalizer contr	ng" to "Module output es including shape and des: short and long." rol" to "Module output
Cl 120G SC 120G.3.3 Ran, Adee Comment Type T Corr For module output (120G.3.2, module input (120G.3.4, table differential return loss (min)" is There is one subclause that d output.	P 237 Intel Inment Status D table 120G-3), host in 120G-9), the reference s incorrect - 120G.3.1.	nput (120G.3.3, t ce subclause for .2 discusses ER	<i>TP4a/TPRLCD (bucket1)</i> table 120G-6), and r "Common-mode to RL.	PROPOSED A The two "states amplitude. Change "two e Change subcla mode control". Change table ti Implement with	CCEPT IN PRING " provide signals qualization states use title from "Mo itle from "Module	CIPLE. with a different set : short and long." to odule output transm state mapping" to "	o "two output moo it equalizer contr	des: short and long." rol" to "Module output
Ran, Adee <i>Comment Type</i> T <i>Com</i> For module output (120G.3.2, module input (120G.3.4, table differential return loss (min)" is There is one subclause that d output.	Intel mment Status D table 120G-3), host in 120G-9), the reference s incorrect - 120G.3.1.	nput (120G.3.3, t ce subclause for .2 discusses ER	<i>TP4a/TPRLCD (bucket1)</i> table 120G-6), and r "Common-mode to RL.	The two "states amplitude. Change "two e Change subcla mode control". Change table ti Implement with	s" provide signals qualization states use title from "Mo itle from "Module	with a different set : short and long." to odule output transm state mapping" to "	o "two output moo it equalizer contr	des: short and long." rol" to "Module output
Comment Type T Corr. For module output (120G.3.2, module input (120G.3.4, table differential return loss (min)" is There is one subclause that d output.	nment Status D table 120G-3), host in 120G-9), the reference s incorrect - 120G.3.1.	nput (120G.3.3, t ce subclause for .2 discusses ER	table 120G-6), and r "Common-mode to RL.	amplitude. Change "two e Change subcla mode control". Change table ti Implement with	qualization states use title from "Mo	: short and long." to odule output transm state mapping" to "	o "two output moo it equalizer contr	des: short and long." rol" to "Module output
For module output (120G.3.2, module input (120G.3.4, table differential return loss (min)" is There is one subclause that d output.	table 120G-3), host in 120G-9), the reference incorrect - 120G.3.1.	nput (120G.3.3, t ce subclause for .2 discusses ER	table 120G-6), and r "Common-mode to RL.	Change "two e Change subcla mode control". Change table ti Implement with	use title from "Mo itle from "Module	odule output transm state mapping" to "	it equalizer contr	rol" to "Module output
module input (120G.3.4, table differential return loss (min)" is There is one subclause that d output.	120G-9), the references incorrect - 120G.3.1.	ce subclause for .2 discusses ER	r "Common-mode to RL.	mode control". Change table ti Implement with	itle from "Module	state mapping" to "		
output.	scusses RLCD, 120C	G.3.1.1, but it is c	currently specific to host					
SugaestedRemedv				C/ 120G SC 1	20G.3.2.1	P 234	L 38	# 147
				Dawe, Piers		Nvidia		
Change reference from 120G.	3.1.2 to 120G.3.1.1 in	n the 3 tables.		Comment Type	T Comm	nent Status D		TP4 EQ settings
Rephrase the text in 120G.3.1	.1 to refer to both hos	st and module, or	output and input.		tput doesn't have as to actually do t		ings (e.g. receive	e, co-operate, enable,
Proposed Response Resp	oonse Status W			SuggestedRemedy				
PROPOSED ACCEPT IN PRI The reference to 120G.3.1.2 is	s incorrect and should			,		all support two" to	"The module out	tput shall operate in
By convention, it is common to changing the text in the refere				Proposed Respons	,	nse Status W		
required. For RLCD in Table 120G-3, Ta 120G.3.1.1.	able 120G-6, and Tab	ble 120G-9, chan	ige the reference to	PROPOSED R The proposed of		g does not improve	the quality of the	draft.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn SORT ORDER: Clause, Subclause, page, line

C/ 120G SC 120G.3.2.1

C/ 120G SC 120G.3.2	2.1 P 234	L 41	# 150	C/ 120G SC 1200	6.3.2.1	P 235	L 8	# 152
Dawe, Piers	Nvidia			Dawe, Piers		Nvidia		
Comment Type T	Comment Status D		TP4 EQ settings	Comment Type E	Comment	Status D		TP4 EQ settings
document and in this s	variable" means, as I don't b subclause it's "implementation from S and L to 0 and 1 is he	dependent". A	so I wonder whether	"IEEE Interface Ty Unwarranted. SuggestedRemedy	rpe" is too grand: I	EEE is much w	vider than 802.3,	and the Capitals Are
SuggestedRemedy	0.			Change to "IEEE 8	302.3 interface typ	e"		
	ory without "control variable", 0 and 1 to S and L.	0 and 1, and cha	ange the middle column	Proposed Response PROPOSED ACC	Response EPT.	Status W		
Proposed Response	Response Status W			C/ 120G SC 1200	6.3.2.1	P 235	L 10	# 74
PROPOSED ACCEPT	-		a dh a tao ann a ta ta	Ghiasi, Ali		Ghiasi Quant	-	
variable and related 0	e output modes as "short" and and 1 states.	"long", replacing	g the tx_eq_state	Comment Type TR	Comment			TP4 EQ settings
Implement with editoria		L 41	# 149	In table 120G-4 Al and AUI-L are!	JI-short and long a	are introduced b	out there is no de	scription what AUI-S
	Nvidia	L 4 I	# 149	SuggestedRemedy				
·	Comment Status D	e receive path.	TP4 EQ settings	We need to define ghiasi_3ck_01_01 indicate 10 dB is a the proposal is to u	21 investigates po bout optimum but	ssible channel given how clos	loss ranges for A e 10 dB is to CR	host loss of 10.975 dB
SuggestedRemedy	to "module output mode".			Proposed Response	Response			
Proposed Response PROPOSED ACCEPT Implement suggested	Response Status W IN PRINCIPLE. remedy with editorial license.			PROPOSED REJI The intent is that the of characteristics of characteristics). It proposed in the su	he host would sele of the host PCB, co is therefore not ne	onnector, and d	levice (e.g., pack	
C/ 120G SC 120G.3.2		L 2	# 151	C/ 120G SC 1200	3.3.2.2	P 235	L 33	# 36
Dawe, Piers	Nvidia		TD 4 50	Brown. Matt		Huawei		
5 Host Electrical Interfa	Comment Status D st Electrical Interface Codes" ace Codes, and the column is air of host electrical interface	s headed "specif	ication". "Application"	Comment Type T	Comment es for the module	Status D	crosstalk param	<i>TP4 EO XTALK</i> neters (2x) are TBD.
SuggestedRemedy				Provide values.				
Change "application na	ame" to "host electrical interfa	ace" or "module o	electrical interface".	Proposed Response	Response	Status W		
Proposed Response	Response Status W			PROPOSED ACC				
	uals participating in related up ler review right now. Update t			Resolve using the	response to comr	nent #17.		
ΓΥΡΕ: TR/technical requir	ed ER/editorial required GR/	general required	T/technical E/editorial G/o	general		C/ 12	20G	Page 11 of 34

COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn SORT ORDER: Clause, Subclause, page, line

Cl	120G	
SC	120G.3.2.2	

Page 11 of 34 2021-01-21 4:07:04 PM

C/ 120G	SC	120G.3.2.2	P 235	L 33	# 63
Wu, Mau-L	in		MediaTek		
Comment	Гуре	т	Comment Status D		TP4 EO XTALK
Accord TP4 sh output	ling to Iall be voltag	the analysis aligned with ge swing at T	r crosstalk calibration spece explored in wu_3ck_adhoo that of Module output spece P1a, which is 870 mV now, tt, & Module input specs.	_02_010621.p , which is 900	odf, the target swing at mV. Similarly, the
Suggested	Reme	edy			
Module	e outp h targ	ut: 120G.3.2	ragraph to replace the origi .2 (Page 235, L33) I peak-to-peak amplitude of		arget transition time of
Proposed I	Respo	onse	Response Status W		
			N PRINCIPLE. Inse to comment #17.		
C/ 120G	SC	120G.3.2.2	P 235	L 33	# 69
Healey, Ac	lam		Broadcom Inc		
Comment	Гуре	т	Comment Status D		TP4 EO XTALK
The tai are TB		ifferential pea	ak-to-peak amplitude and tr	ansition time, a	as observed at TP1a,
Suggested	Reme	dy			

Since the crosstalk generator is used to represent near-end aggression from the the host transmitter outputs, the largest amplitude and smallest transition time allowed for a host output (as observed at TP1a) should be used to represent worst-case aggression. Change:

"The crosstalk generator is calibrated at TP1a (without the use of a reference receiver) with target differential peak-to-peak amplitude of TBD mV and target transition time of TBD ps." To:

"The crosstalk generator is calibrated so that the differential peak-to-peak output voltage and transition time, as measured at TP1a, are a close to the limits in Table 120G-1 as practical."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #17.

C/ 120G	SC 120G.3.2.2	P 23	5	L 34	# 127
Ran, Adee		Intel			
Comment Ty	pe TR	Comment Status	D		TP4 EO XTALK

(addressing TBD)

"The crosstalk generator is calibrated at TP1a (without the use of a reference receiver) with target differential peak-to-peak amplitude of TBD mV and target transition time of TBD ps"

This is the module output test; the crosstalk generator represents the host output. We specify the PtP amplitude and transition time for hosts at TP1a in Table 120G–1. The calibration should use the maximum amplitude and minimum transition time values from that table.

SuggestedRemedy

Change the quoted sentence to:

"The crosstalk generator is calibrated at TP1a (without the use of a reference receiver) with targets equal to the Differential peak-to-peak output voltage (max) and Transition time (min, 20% to 80%) in Table 120G-1".

/ 120G SC 120G.3.	2.2 P 2	35	L 34		
PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #17.					
roposed Response	Response Status	W			

120G S	C 120G.3.2.2	P 2 3	35	L 34	# 17
udek, Mike		Marve	ell		
mment Type	TR	Comment Status	D		TP4 EO XTALK

The module near-end output signal should be measured with a crosstalk signal equivalent to the largest and fastest signal that the host can supply. The risetime for the far -end signal can be slower.

SuggestedRemedy

Change "The crosstalk generator is calibrated at TP1a (without the use of a reference receiver) with target differential peak-to-peak amplitude of TBD mV and target transition time of TBD ps." to "The crosstalk generator is calibrated at TP1a (without the use of a reference receiver) with target differential peak-to-peak amplitude of 870 mV and target transition time of 7.5 ps for the near end measurement and target transition time of 15 ps for the far-end measurement."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Comments 17, 63, 69, 86, 127 propose values for these parameters. Presentation brown_3ck_02 provides a summary of the proposals.

Cl 120G SC 120G.3.2.2 Page 12 of 34 2021-01-21 4:07:04 PM

C/ 120G	SC 120G.3.2.	2 P 235	L 34	# 86	C/ 120G SC 120G.3.
Ghiasi, Ali		Ghiasi Quantu	um/Inphi		Ran, Adee
Comment	Type TR	Comment Status D		TP4 EO XTALK	Comment Type TR
Suggested A fast loss p PCB r 350 m that si	ASIC with 7.6 ps roduces 12 ps 20 nay have lower th V and with amplit gnal will have pre	the paragraph output rise time when passe -80% rise time, the full swing han HCB loss, then I suggest tude of 700 mV, the reason a -emphasis on for this measu n't believe that is reasonable.	is about 2x. Bi t 20 ps for the s implitude is redu rement otherwis	ut given that module lew from -350 mV to + uced is due assumption	(addressing TBD) "The counter propaga asynchronous with ta target transition time This is the host stress host's own transmitte maximum amplitude a then it may benefit fro
Proposed	Response	Response Status W			host output specificat
Resol	o .	onse to comment #17.			We specify the PtP a calibration should use that table.
C/ 120G	SC 120G.3.3.		L 6	# 18	SuggestedRemedy
Dudek, Mi Comment		Marvell Comment Status D		TP4a SIT	Change the quoted se
clear i Suggested	n this ["] shall" state IRemedy		·		"The counter-propaga signal and are calibra equal to the Differenti to 80%) in Table 1200
		all satisfy the input tolerance fy the input tolerance with eit			Proposed Response
	eters in Table 12				PROPOSED ACCEP
Proposed PROP	Response	Response Status W			Resolve using the res

A statement later in the subclause indicates that the host input need only meet one of the two stressors. See page 239 line 38.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general	
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn	
COMMENT STATUS. D/dispatched A/accepted R/rejected RESPONSE STATUS. D/open W/whiten C/closed Z/withdrawh	
SORT ORDER: Clause, Subclause, page, line	

C/ 120G SC 120G.3.3.2.1 Page 13 of 34 2021-01-21 4:07:04 PM

C/ 120G	SC 1	20G.3.3.2.	1 P 2	38	L 54	# 128
Ran, Adee			Intel			
Comment Ty	/pe	TR	Comment Status	D		TP4a SIT XTALK
(1.1	·					

gating crosstalk signals during calibration of the stressed signal are target amplitude of TBD mV peak-to-peak differential and 20% to 80% e of TBD ps"

ssed input test; the actual counter-propagating signals are from the ter. For calibration purposes we can assume that the host uses the and minimum transition time. If the host does not reach the limits. rom less crosstalk during the actual test - but as long as it meets the ations, it is acceptable.

amplitude and transition time for hosts at TP1a in Table 120G–1. The se the maximum amplitude and minimum transition time values from

sentence to:

gating crosstalk signals are asynchronous with respect to the input rated at TP1a (without the use of a reference receiver) with targets ntial peak-to-peak output voltage (max) and Transition time (min, 20% 0G-1".

Response Status W PT IN PRINCIPLE. esponse to comment #19.

	SC 120G.3.3.2	2.1 <i>P</i> 238	L 54	# 70	C/ 120G SC 120
Healey, Adam	ı	Broadcom Inc	2.		Wu, Mau-Lin
Comment Typ	e T	Comment Status D		TP4a SIT XTALK	Comment Type T
The targe are TBD.	t differential pe	eak-to-peak amplitude and tr	ansition time, a	s observed at TP1a,	There are some T According to the a
SuggestedRe	modu				TP4 shall be align
00	2	erator is used as a proxy for	the host transm	itter(s) during stressed	output voltage swi Module output, Ho
input sign	al calibration, t	the amplitude and transition	times should be		,
values me Change:	easured at the	output of the host under tes	t (TP1a).		SuggestedRemedy Propose the follow
	nter propagatin	g crosstalk signals during ca	alibration of the	stressed signal are	Host input: 120G.
		et amplitude of TBD mV pea			" with target am transition time of 2
receiver).		TBD ps as measured at TP1	a (without the u	se of a reference	
To:				111 di 6 di	Proposed Response PROPOSED ACC
		g crosstalk signals are asyn sstalk generator is calibrate			Resolve using the
output vol	tage and trans	ition time, as measured at T	P1a, are as clo	se as practical to the	C/ 120G SC 120
values me reference		output of the host under tes	t (at TP1a) with	but the use of a	Brown, Matt
Proposed Res	sponse	Response Status W			Comment Type T
PROPOS	ED ACCEPT II	•			
					The specified valu
		inse to comment #19.			The specified valu
Resolve u		onse to comment #19.	L 54	# [19	The specified valu SuggestedRemedy Provide values.
Resolve u	ising the respo	onse to comment #19.	L 54	# 19	SuggestedRemedy
Resolve u	ising the respo	P 238	L 54	# <u>19</u> TP4a SIT XTALK	SuggestedRemedy Provide values. Proposed Response PROPOSED ACC
Resolve u Cl 120G Dudek, Mike Comment Typ The cross	Ising the response SC 120G.3.3.2 The TR talk used in the	Anse to comment #19. 2.1 P 238 Marvell Comment Status D e calibration of the host stre	-	TP4a SIT XTALK	SuggestedRemedy Provide values. Proposed Response PROPOSED ACC
Cl 120G Cl 120	Ising the respo SC 120G.3.3.2 The TR talk used in the he test for the	2.1 P 238 Marvell Comment Status D	-	TP4a SIT XTALK	SuggestedRemedy Provide values. Proposed Response PROPOSED ACC Resolve using the
Cl 120G Cl 120	SC 120G.3.3.2 BC TR talk used in the he test for the medy	Anse to comment #19. 2.1 P 238 Marvell Comment Status D e calibration of the host stre module output	ssed signal sho	<i>TP4</i> a SIT XTALK uld match thecrosstalk	SuggestedRemedy Provide values. Proposed Response PROPOSED ACC Resolve using the
Cl 120G Cl 120	Ising the respo SC 120G.3.3.2 The TR talk used in the talk used in the test for the medy The counter pr	Anse to comment #19. 2.1 P 238 Marvell Comment Status D e calibration of the host stre	ssed signal sho during calibratio	TP4a SIT XTALK uld match thecrosstalk n of the stressed signal	SuggestedRemedy Provide values. Proposed Response PROPOSED ACC Resolve using the Cl 120G SC 1200 Ghiasi, Ali
Cl 120G Comment Typ Dudek, Mike Comment Typ The cross used for ti SuggestedRed Change " are async 80% target	Ising the respo SC 120G.3.3.2 The TR talk used in the talk used in the talk used in the medy The counter pr hronous with ta et transition tim	Anse to comment #19. 2.1 P 238 Marvell Comment Status D e calibration of the host stre module output opagating crosstalk signals arget amplitude of TBD mV he of TBD ps." to "The count	ssed signal sho during calibratio peak-to-peak di er propagating o	TP4a SIT XTALK uld match thecrosstalk n of the stressed signal fferential and 20% to crosstalk signals during	SuggestedRemedy Provide values. Proposed Response PROPOSED ACC Resolve using the Cl 120G SC 1200 Ghiasi, Ali Comment Type TF
Cl 120G Cl 120G Cl 120G Cl 120G Comment Typ The cross used for tl SuggestedRea Change " are async 80% targe calibratior	Ising the respo SC 120G.3.3.2 The TR talk used in the talk used in the talk used in the medy The counter pr hronous with ta et transition tim of the stresse	Anse to comment #19. 2.1 P 238 Marvell Comment Status D e calibration of the host stre module output opagating crosstalk signals arget amplitude of TBD mV	ssed signal sho during calibratic peak-to-peak di er propagating o with target diffe	TP4a SIT XTALK uld match thecrosstalk n of the stressed signal fferential and 20% to crosstalk signals during rential peak-to-peak	SuggestedRemedy Provide values. Proposed Response PROPOSED ACC Resolve using the Cl 120G SC 1200 Ghiasi, Ali
Cl 120G Cl 120	sing the respo SC 120G.3.3.2 The TR talk used in the talk used in the test for the medy The counter pr hronous with ta to transition tim of the stresse of 870 mV and	Anse to comment #19. 2.1 P 238 Marvell Comment Status D e calibration of the host stre module output opagating crosstalk signals arget amplitude of TBD mV ne of TBD ps." to "The count ed signal are asynchronous of	ssed signal sho during calibratio peak-to-peak di er propagating o with target diffe 5 ps for the near	TP4a SIT XTALK uld match thecrosstalk n of the stressed signal fferential and 20% to crosstalk signals during rential peak-to-peak	SuggestedRemedy Provide values. Proposed Response PROPOSED ACC Resolve using the Cl 120G SC 1200 Ghiasi, Ali Comment Type TF Addressing the TE SuggestedRemedy A fast ASIC with 7
Resolve u Cl 120G Dudek, Mike Comment Typ The cross used for ti SuggestedRe. Change " are async 80% targe calibratior amplitude target trar	SC 120G.3.3.2 SC 120G.3.3.2 The TR talk used in the talk used in the talk used in the medy The counter pr hornous with ta tat transition time of the stresse of 870 mV and the stresse of 870 mV and the stresse	Anse to comment #19. 2.1 P 238 Marvell Comment Status D e calibration of the host stre module output opagating crosstalk signals arget amplitude of TBD mV re of TBD ps." to "The count ed signal are asynchronous d target transition time of 7. 15 ps for the far-end calibra Response Status W	ssed signal sho during calibratio peak-to-peak di er propagating o with target diffe 5 ps for the near	TP4a SIT XTALK uld match thecrosstalk n of the stressed signal fferential and 20% to crosstalk signals during rential peak-to-peak	SuggestedRemedy Provide values. Proposed Response PROPOSED ACC Resolve using the C/ 120G SC 1200 Ghiasi, Ali Comment Type TF Addressing the TF SuggestedRemedy A fast ASIC with T loss produces 12
Resolve u Cl 120G Dudek, Mike Comment Typ The cross used for th SuggestedRet Change " are async 80% targe calibratior amplitude target trar Proposed Res PROPOS	SC 120G.3.3.2 SC 120G.3.3.2 TR talk used in the talk used in the test for the is medy The counter pr hronous with ta transition time of the stresse of 870 mV and istion time of sponse ED ACCEPT II	Anse to comment #19. 2.1 P 238 Marvell Comment Status D e calibration of the host stre module output opagating crosstalk signals arget amplitude of TBD mV ne of TBD ps." to "The count ed signal are asynchronous of d target transition time of 7.5 15 ps for the far-end calibra Response Status W N PRINCIPLE.	ssed signal sho during calibratio peak-to-peak di er propagating o with target diffe 5 ps for the near ation"	TP4a SIT XTALK uld match thecrosstalk n of the stressed signal ferential and 20% to crosstalk signals during rential peak-to-peak end calibration and	SuggestedRemedy Provide values. Proposed Response PROPOSED ACC Resolve using the Cl 120G SC 1200 Ghiasi, Ali Comment Type TF Addressing the TF SuggestedRemedy A fast ASIC with T loss produces 12 ps but would be d the signal will hav
Resolve u Cl 120G Dudek, Mike Comment Typ The cross used for ti SuggestedRe. Change " are async 80% targe calibratior amplitude target trar Proposed Res PROPOS Comment	SC 120G.3.3.2 SC 120G.3.3.2 TR talk used in the talk used in the test for the is medy The counter pr hronous with ta transition time of the stresse of 870 mV and istion time of sponse ED ACCEPT II	Anse to comment #19. 2.1 P 238 Marvell Comment Status D e calibration of the host stre module output opagating crosstalk signals arget amplitude of TBD mV te of TBD ps." to "The count ed signal are asynchronous of d target transition time of 7. 15 ps for the far-end calibra Response Status W N PRINCIPLE. 0, 128, 37 propose new valu	ssed signal sho during calibratio peak-to-peak di er propagating o with target diffe 5 ps for the near ation"	TP4a SIT XTALK uld match thecrosstalk n of the stressed signal ferential and 20% to crosstalk signals during rential peak-to-peak end calibration and	SuggestedRemedy Provide values. Proposed Response PROPOSED AC Resolve using the Cl 120G SC 120 Ghiasi, Ali Comment Type T Addressing the T SuggestedRemedy A fast ASIC with loss produces 12 ps but would be of

For task force discussion.

Presentation brown_3ck_02 provides a summary of the proposals.

C/ 120G	SC	120G.3.3.2	.1 P 2	38	L 54	# 64
Wu, Mau-L	in		Media	aTek		
Comment T	Гуре	т	Comment Status	D		TP4a SIT XTALK
Accord TP4 sh output	ing to all be voltage	the analysis aligned with e swing at T	that of Module out	k_adhoc_02 put spec, w mV now, sh	2_010621.p hich is 900	df, the target swing at
Suggested	Reme	dy				
Host in " with	put: 12 targe	20G.3.3.2.1 t amplitude	ragraph to replace (Page 238, L54)) of 870 mV peak-to s measured at TP1	-peak differe		0% to 80% target
	DSED	ACCEPT IN	Response Status N PRINCIPLE. hse to comment #1			
C/ 120G	SC	120G.3.3.2	.1 P2	38	L 54	# 37
Brown, Ma	tt		Huaw	/ei		
Comment		T	Comment Status	-		TP4a SIT XTAL
•			the host stressed ir	iput crossta	ik paramete	ers (2x) are TBD.
Suggested Provide						
	DSED	ACCEPT IN	Response Status N PRINCIPLE. hse to comment #1			
C/ 120G	SC	120G.3.3.2	.1 P2	38	L 54	# 87
Ghiasi, Ali			Ghias	si Quantum/	Inphi	
Comment 7	Гуре	TR	Comment Status	D		TP4a SIT XTAL
Addres	sing th	ne TBD in th	ne paragraph			
	Remed	dy				
Suggested A fast / loss pro ps but the sign	ASIC v oduces would nal will	vith 7.6 ps o s 12 ps 20-8 be difficult t	80% rise time. I su o generate such fa mphasis enabled g	ggest 12 ps st rise time t	rise time ar through ma	ated board with just 5 dB nd possibly as fast as 10 ted board. Given that N could be difficult. I

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn SORT ORDER: Clause, Subclause, page, line

Cl	120G
SC	120G.3.3.2.1

Page 14 of 34 2021-01-21 4:07:05 PM

C/ 120G	SC 1	20G.3.3.2.	1 P 23	9	L 40	#	67	
Healey, Adar	n		Broade	com Inc.				
Comment Ty	be	т	Comment Status	D		7	TP4a SIT leve	ls

The stressed input signal calibration procedure states that "random jitter and the pattern generator output levels are adjusted (without exceeding the differential peak-to-peak input voltage tolerance specification as shown in Table 120G–6) to result in the eye height for all three eyes given in Table 120G–7 with the setting of the CTLE that minimizes the vertical eye closure." The term "output levels" is ambiguous. It could be interpreted to be "pattern generator output amplitude" or "individual PAM-4 signal levels". It seems that the latter is intended but the individual PAM-4 signal levels should not be allowed to be adjusted so far that the level separation mismatch ratio ("RLM") is too low.

SuggestedRemedy

Replace the sentence with the following text:

"The pattern generator output is adjusted so that the height of the smallest eye matches the value in Table 120G-7, and the height of all three eyes agree to the largest extent possible, for the CTLE setting that minimizes vertical eye closure. The differential peak-to-peak input voltage tolerance given in Table 120G-6 is not exceeded. Individual PAM-4 signal levels may be adjusted to improve the agreement of the three eye heights but the level separation mismatch ratio (RLM) is at least 0.95. RLM is defined in 120D.3.1.2 and is calculated using VM0, VM1, VM2, and VM3 as defined in 120G.5.2 in place of V0, V1, V2, and V3 respectively. Random jitter amplitude may also be adjusted to acheive the eye height targets.

A similar change is suggested for 120G.3.4.1.1 (page 242, line 17).

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Implement the suggested remedy in 120G.3.3.2.1 and a similar change in 12G.3.4.1.1 with editorial license.

C/ 120G SC 120G	6.3.4 P 240	L 17	# 38
Brown, Matt	Huawei		
Comment Type T	Comment Status D		TP1 ERL

In table 120G-9, the specified value for module input ERL (min) is TBD.

SuggestedRemedy

Provide a value.

Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #125.

C/ 120G	SC 120G.3.4.1	P 240	L 46	# 88
Ghiasi, Ali		Ghiasi Qua	intum/Inphi	
Comment T	ype TR	Comment Status D		EH/VEC
Table 1	20G-10 needs to	be updated now that me	asurements are w	ith 50 mUI window
Suggested	Remedy			
		and reduce eye height and reduce eye height		
Proposed R	Response	Response Status W		
	DSED ACCEPT IN e using the respor	N PRINCIPLE. use to comment #40.		
C/ 120G	SC 120G.3.4.1	.1 P 242	L 2	# 71

0/ 1203 00	1200.3.4.1.		L Z	π (1
Healey, Adam		Broadcom Inc.		
Comment Type	т	Comment Status D		TP1 EH/VEC XTALK

The target differential peak-to-peak amplitude and slew time of the crosstalk generator, as observed at TP4, are TBD.

SuggestedRemedy

- -

Since the crosstalk generator is used as a proxy for the module transmitter(s) during stressed input signal calibration, the amplitude and transition times should be set to agree with the values measured at the output of the module under test (TP4). Change:

"The counter propagating crosstalk signals during calibration of the stressed signal are asynchronous with target amplitude of TBD mV peak-to-peak differential and target slew time between -TBD mV and TBD mV of TBD ps as measured at TP4 (without the use of a reference equalizer)."

To:

"The counter propagating crosstalk signals are asynchronous during calibration of the stressed signal. The crosstalk generator is calibrated so that the differential peak-to-peak output voltage and transition time, as measured at TP4, are as close as practical to the values measured at the output of the module under test (at TP4) without the use of a reference receiver."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #20.

C/ 120G SC 120G.3.4.1.1 Page 15 of 34 2021-01-21 4:07:05 PM

C/ 120G	SC	120G.3.4.1.	1 P 24	42	L 2	# 65
Wu, Mau-Lir	n		Media	aTek	ς.	
Accordir TP4 sha output v Module SuggestedR	re sor ng to all be oltage outpu Remed	the analysis aligned with e swing at T it, Host inpu dy	that of Module out P1a, which is 870 t t, & Module input s	on s k_a put mV pec	dhoc_02_010621 spec, which is 90 now, shall be alig s.	TP1 EH/VEC XTALK tput test. .pdf, the target swing at 0 mV. Similarly, the ned among Host output,
Module " with	input: targe	120G.3.4.1 t amplitude (ragraph to replace .1 (Page 242, L2) of 900 mV peak-to- s as measured at T	pea	k differential and	target slew time between -
	SED	ACCEPT IN	Response Status I PRINCIPLE. Ise to comment #2			
C/ 120G	SC	120G.3.4.1.	1 P 2 4	42	L 2	# 20
Dudek, Mike	e		Marve			
crosstall SuggestedR Change	sstalk k use <i>emec</i> to "a	d for the tes <i>ly</i> target ampl	t for the host outpu	nod It	Ŭ	TP1 EH/VEC XTALK al should match the and target slew time
The follo	SED Swing	ACCEPT IN comments	Response Status I PRINCIPLE. propose values for 02 provides a sum	the		ers: 20, 65, 71, 129, 89. s.
C/ 120G	SC	120G.3.4.1.	1 P 24	42	L 2	# 39
Brown, Matt			Huaw	ei		
Comment Ty The spe		T values for t	Comment Status he module stresse		out crosstalk para	TP1 EH/VEC XTALK meters (4x) are TBD.
SuggestedR Provide		•				
	SED	ACCEPT IN	Response Status I PRINCIPLE. ise to comment #2			

C/ 120G	SC 120G.	3.4.1.1	P 242	L 2	# 129
Ran, Adee		Ir	ntel		
Comment Ty	pe TR	Comment Sta	tus D		TP1 EH/VEC XTALK

(addressing TBD)

"The counter propagating crosstalk signals during calibration of the stressed signal are asynchronous with target amplitude of TBD mV peak-to-peak differential and target slew time between -TBD mV and TBD mV of TBD ps as measured at TP4"

This is the module stressed input test; the actual counter-propagating signals are from the module's own transmitter. For calibration purposes we can assume that the module uses the maximum amplitude and minimum transition time. If the module does not reach the limits, then it may benefit from less crosstalk during the actual test - but as long as it meets the module output specifications, it is acceptable.

We specify the PtP amplitude and transition time for modules at TP4 in Table 120G-3. The calibration should use the maximum amplitude and minimum transition time values from that table.

SuggestedRemedy

Change the quoted sentence to:

"The counter-propagating crosstalk signals are asynchronous with respect to the input signal and are calibrated at TP4 (without the use of a reference receiver) with targets equal to the Differential peak-to-peak output voltage (max) and Transition time (min, 20% to 80%) in Table 120G-3".

Proposed Response	Response Status	w
i iopoood i toopoilloo	neoponoc oluluo	

PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #20.

C/ 120G	SC 1	20G.3.4.1.1	P 2 4	42	L 3	# 8	39]
Ghiasi, Ali			Ghias	si Quantum/Inp	ohi			-
Comment Ty	pe	TR (Comment Status	D		TP1 EF	I/VEC XTAL	<
Addrocci	na tha	TRD in the	naragraph					

Addressing the TBD in the paragraph

SuggestedRemedy

A fast ASIC with 7.6 ps output rise time when passes through a mated board with just 5 dB loss produces 12 ps 20-80% rise time, the full swing is about 2x. But given that module PCB may have lower than HCB loss, then I suggest 20 ps for the slew from -350 mV to + 350 mV and with amplitude of 700 mV, the reason amplitude is reduced is due assumption that signal will have pre-emphasis on for this measurement otherwise one could go with 900 mV amplitude I don't believe that is reasonable.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Resolve using the response to comment #20.

TYPE: TR/technical required ER/editorial required GR/gener	al required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected	RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Clause, Subclause, page, line	

Cl	120G
SC	120G.3.4.1.1

Page 16 of 34 2021-01-21 4:07:05 PM

gCD2 = to vary li SuggestedR	vpe TR C ing stronger gDC w -1 but up to 16 dB f ke that. emedy	Nvidia omment Status D ith stronger gDC2, we ca or gDC2 = -3 - yet we do		
By allow gCD2 = to vary li SuggestedR For TP1; is 13).	, ing stronger gDC w -1 but up to 16 dB f ke that. <i>emedy</i>	ith stronger gDC2, we ca or gDC2 = -3 - yet we do		dB of peaking for
gCD2 = to vary li <i>SuggestedR</i> For TP1: is 13).	-1 but up to 16 dB f ke that. <i>emedy</i>	or gDC2 = -3 - yet we do		
For TP1 is 13).		1d -12 to -11, and -13 to		
is 13).	a, change the secor	nd -12 to -11, and -13 to		
Proposed Re		,	-10 (so the stror	igest "CTLE peaking"
i iopoood i ii	esponse Re	esponse Status W		
complete ballot.	eness. The commer	echnical change to the d nter is invited to resubmi	t this comment d	luring working group
C/ 120G	SC 120G.5.2	P 245	L 18	# 90
Ghiasi, Ali		Ghiasi Quante	um/Inphi	
Comment Ty	rpe TR C	omment Status D		TP4 gDC (WG
FIR is op		It in some cases VEC to e middle and when that i sive peaking!		
SuggestedR	emedy			
Please r	educe gDC for TP4	near end from -2 dB to	-1 dB	
Proposed Re	esponse Re	esponse Status W		
This con		echnical change to the d nter is invited to resubmi		

C/ 120G SC	120G.5.2	P 24	5	L 18	# 73
Ghiasi, Ali		Ghiasi	i Quantum/Ir	nphi	
Comment Type	TR	Comment Status	D		TP4 NE/FE names

In table 120G-11 we refer to TP4 near end and TP4 far end, but table 120G-4 we refer to AUI-S and AUI-L short and long. It would be helpful to be consistent with the terminology.

SuggestedRemedy

I suggest replacing TP4 near end with TP4-S or short and TP4 far end with TP4-L or long to align with AUI-S/L.

The AUI short covers from TP4 near end up to 10.975 dB, and AUI long covers from >10.975 dB to 16 dB channels.

Proposed Response Response	e Status	w
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PROPOSED ACCEPT IN PRINCIPLE.

Resolve using the responses to comments #74 and #148.

Cl 120G	SC 120G.5.2	P 246	L 23	# 154
Dawe, Piers		Nvidia		
Comment Typ	e TR	Comment Status D		EO method

Of all the options in dawe_3ck_01a_1020, this draft has the most primitive (rectangular eye mask) although it is described as a histogram. It's an inefficient/inaccurate way of measuring a signal and provides weak and uncertain protection against too much jitter. This will get worse if we relax the VEC limits, and is a particular concern for very short host channels (see Mike Dudek's work).

SuggestedRemedy

Change from a 4-cornered mask with corners at t = ts+/-0.05, V = +/-Hmin/2 to a 10cornered mask with corners at t = ts+/-0.05, ts+/-0.07, ts+/-0.1, V = +/-Hmin/2, +/-Hmin*0.4, +/-0.

(In case it's not clear, Hmin, already specified, is the greater of EH and Eye Amplitude - VEC. There will be discussion about changing those limits from other comments, but this is a simple scalable method that can remain as the EH and VEC limits are revised.)

Proposed Response Response Status W

PROPOSED REJECT.

This comment proposes a technical change to the draft that does not address technical completeness.

The comment does not provide sufficient evidence to support the proposed changes.

C/ 120G SC 120G.5.2

C/ 120G SC 120G.5.2 P 246 L 23 # 4	CI 136 SC 136.8.11.7.1 P 114 L 37 # 48
Mellitz, Richard Samtec	Lusted, Kent Intel Corporation
Comment Type TR Comment Status D EO method (bucket1)	Comment Type TR Comment Status D training (bucket1)
Step h and j in 120G.5.2 Eye opening measurement method indicate "over the time interval ts s ± 0.05 UI and not "within 0.025 UI of time TCmid" Comment 41 was resolved with "Alt. 2" with TBD = 50 mUI from healey_3ck_02_1020 indicating 1 window around Ts for histogram measurements.	Based on the link training change proposed in https://www.ieee802.org/3/ck/public/20_10/lusted_3ck_02_1020.pdf, a new variable "use_quiet_in_training" was defined in Clause 136.8.11.7.1. This variable has an explicit setting of FALSE for 50 Gb/s per lane PHYs. However, no specific mention of the variable value is made for 100 Gb/s per lane PHYs. This could lead to confusion in the industry as
SuggestedRemedy remove "and not within 0.025 UI of time Tcmid from steps h and j in 120G.5.2	some vendors may interpret the "use_quiet_in_training" capability as optional to implement, while it was intended to be mandatory for 100 Gb/s per lane PHYs.
Proposed Response Response Status W	SuggestedRemedy
PROPOSED ACCEPT IN PRINCIPLE. The reference text is intended to point out that the phase "within 0.025 UI of time TCmid" is no longer relevant. However, as written it is somewhat ambiguous.	In Cl 162.8.11, add a new entry to the list as follows: h) the variable "use_quiet_in_training" (see 136.8.11.7.1) is always set to TRUE for 100 Gb/s per lane PHYs."
Change: 'and not "within 0.025 UI of time TCmid" To: 'instead of "within 0.025 UI of time TCmid"	Proposed Response Response Status W
	PROPOSED ACCEPT IN PRINCIPLE.
C/ 120G SC 120G.5.2 P 246 L 38 # 40	Resolve using the response to comment #53.
Brown, Matt Huawei	C/ 136 SC 136.8.11.7.1 P 114 L 39 # 52
Comment Type T Comment Status D EH/VEC	Slavick, Jeff Broadcom
The editor's note indicates that the specified values for EH/VEC value may need to be updated due to measurement method being updated in D1.4.	Comment Type TR Comment Status D training (bucket1)
Suggested Remedy	The use_quiet_in_training variable controls access to certain states. When TRUE it indicates access to the state is allowed. So the "and is set to FALSE otherwise" is just
Provide updated values for host output, module output, host input, and module input if necessary and remove editor's note.	confusing since a boolean is either TRUE or FALSE and the first sentence is defining what happens when it's TRUE not what makes it TRUE
Proposed Response Response Status W	SuggestedRemedy
PROPOSED ACCEPT IN PRINCIPLE. Many comments propose new values for EH and VEC at TP1a, TP1, TP4, and TP4 as summarized in the presentation brown_3ck_01_0120.	Remove "and is set to FALSE otherwise" from the first sentence in the definition of use_quiet_in_training

C/ 136 SC 136.8.11.7.1 Page 18 of 34 2021-01-21 4:07:05 PM

C/ 136	SC 136.8.11.	7.1 <i>P</i> 11	4	L 39	# 53	C/ 162
Slavick, J	Jeff	Broad	com			Ran, Ade
Comment	t Type TR	Comment Status	D		training (buck	et1) Comment
featu		UIET state is to make adlock situation. So				
	dRemedy					In clau
Chan	ge the last senten	ce of the use_quiet_i r 50 Gb/s per lane Pł				e is cable
Proposed	l Response	Response Status	w			The c
PRO	POSED ACCEPT.					compl since
CI 400	SC 162.8.11	P 15		L 34	# 49	compa
C/ 162			-	L 3 4	# 49	Suggestee
Lusted, K			Corporation			Add a
Comment		Comment Status	-	4h	training (buck	equati
		sert local_tf_lock p es at the PMD input"				Proposed
receiv	ver should react to	a signal that is comp	oliant with res	spect to amplit	ude, jitter, etc but	
		aining frame format. re malformed logicall				For ta
	rements.	re manormed logicali	y yet meet u	ie electrical co	inpliance	C/ 162
Suggeste	dRemedy					Dawe, Pie
	ge item g) to be ". es at the PMD inpu	provided that there it."	is a complia	nt signal conta	aining valid trainin	g Comment Clums
Proposed	l Response	Response Status	w			Suggestee
PRO	POSED ACCEPT.					Use "l
C/ 162	SC 162.9.3	P 15	:o	L 30	# 00	chang
-				2 30	# 23	Proposed
Brown, M		Huaw				PROF
Comment		Comment Status			TX RL	LCD This c
	ble 162-10, the sp n loss is TBD.	ecified value for trans	smitter comm	ion-mode to di	ifferential mode	ballot.
Suggeste	dRemedy					
Provi	de a value or equa	ation and update PICS	S.			
Proposed	l Response	Response Status	W			
-	POSED ACCEPT	IN PRINCIPLE.	18.			

C/ 162	SC 162	.9.3 <i>P</i> 1	52 L 30	# 118	8
Ran, Adee		Intel			
Comment	Type T I	R Comment Status	D		TX RLCD
	ssing TBD to differen) tial return loss refers to 92	8.3.3 with equatio	n TBD.	

In clause 92 the RLCD of Tx and Rx have the same specifications - eq (92-2) in 92.8.3.3 and eq (92-21) in 92.8.4.3, respectively, which are identical; and there is no RLCD for cable assembly.

The conversion loss specifications may need more work, but for the purpose of technical completeness, it is suggested to use the same equation used for the cable assembly, since in both cases the measurement involves mated connectors and results should be comparable.

SuggestedRemedy

Add a subclause for Tx differential to common mode return loss, with equation identical to equation (162–9), or point to (162–9).

C/ 162	SC 162.9.3	P 152	L 35	# 141
Dawe, Pie	ers	Nvidia		
Comment	Type E	Comment Status D		pulse peak (WG)
0		· Caller Barrier Charles a set. (s		

Clumsy "x vf" way of defining linear fit pulse peak (min)

SuggestedRemedy

Use "Linear fit pulse peak ratio" as in 163 and 163A.3.2.1. Note the unit in the table changes to V/V.

Proposed Response Response Status W

PROPOSED REJECT.

This comment proposes a technical change to the draft that does not address technical completeness. The commenter is invited to resubmit this comment during working group ballot.

C/ 162	SC 162.9.3	P 152	L 35	# 140
Dawe, Piers		Nvidia		
Comment Ty	pe TR	Comment Status D		assymmetric hosts (WG)

The recommended maximum insertion loss allocation for the host traces plus BGA footprint and host connector footprint, of 6.875 dB, compares very poorly with C2M's host insertion loss up to 11.9 dB, making passive copper expensive and unattractive for a switch, while 6.875 dB is overkill for a NIC. Server-switch links will get made with an asymmetric loss budget, so it would be better for the standard to regularise what will happen anyway. By the way, many server-switch cables will be asymmetric too (different form factors at server and switch ends), and that's already allowed in this draft.

SuggestedRemedy

As we have done for C2M, create two kinds of CR ports. Host loss allocations of 3.75 dB and 10 dB. Short can connect to short or long; long to long is not supported. Add entries in Clause 73 Auto-Negotiation to advertise short and long to the other end.

In Table 162-10, provide separate limits for Linear fit pulse peak (min).

In Table 162-14, provide separate rows for Test channel insertion loss: for testing the short host input the values for Test 2 are 10-6.875 = 3.125 dB higher (26.75 dB and 27.75 dB), while for the long host input the values for Test 2 are 6.875-3.75 = 3.125 dB lower (20.5 dB and 21.5 dB). No change needed for Test 1.

In 162A.4, provide two equations for IL_PCBmax and for ILHostMax and show them in Fig 162A-1 and 2. Provide two Value columns in Table 162A-1. Adjust figures 162-3 and 4.

In 162.11.7.1.1, zp, representing the extra loss a host has above an MCB, could be made asymmetric but I believe that would not bring an improvement in accuracy. There could be a third kind of CR port with 6.875 dB but this would be useful for only a subset of switch-switch links, for which passive copper is a subset anyway, so it doesn't seem worthwhile.

Proposed Response Response Status W

PROPOSED REJECT.

This comment proposes a technical change to the draft that does not address technical completeness. The commenter is invited to resubmit this comment during working group ballot.

C/ 162	SC 162.9.3.1	P 154	L 6	# 51
Mellitz, Ri	chard	Samtec		
Comment	Type TR	Comment Status D		LF resolution (WG)

Samples per UI, M, may not be as straight forward for measurement equipment because architectures may vary amongst instruments. All things being ideal, as in simulation, specification of M would seem straight forward. However, what seems most important is the confidence of the results especially when we are evaluating sigma_e, sigma_n, and values extracted from histograms. For the example of histogram measurement, and good argument could be made for M to be at least 100. Setting M to at least 32 might be sufficient for V_f r c(i) measurements.

SuggestedRemedy

Add a line to line 7. Interpolations and raw measurement adjustments shall be sufficient to support a least a 95% confidence of all derived values for voltage and noise specifications.

Proposed Response Response Status W

PROPOSED REJECT.

This comment proposes a technical change to the draft that does not address technical completeness. The commenter is invited to resubmit this comment during working group ballot.

C/ 162	SC 162.9.3.1.4	P 155	L4	l6	# 59
Wu, Mau-Lir	ı	MediaTe	ek		
Comment Ty	rpe T	Comment Status D			TX EQ (bucket1)

The step size of TX EQ coefficient had been changed from 2% to 2.5%. The "coefficient step size" shall be modified from 0.02 to 0.025.

SuggestedRemedy

Change <... to a request to "increment" shall be between 0.005 and 0.02, ...> to <... to a request to "increment" shall be between 0.005 and 0.025, ...>.

Proposed Response Response Status W

PROPOSED ACCEPT.

C/ 162	SC	162.9.3.1	.4 P 155	L 47	# 60
Wu, Mau-Li	in		MediaTek		
Comment T	уре	т	Comment Status D		TX EQ (bucket1)
Tho sto	n ciza		coofficient had been cha	nand from 2% to 2	5% The "coefficient

The step size of TX EQ coefficient had been changed from 2% to 2.5%. The "coefficient step size" shall be modified from -0.02 to -0.025.

SuggestedRemedy

Change <... to a request to "decrement" shall be between -0.02 and -0.005.> to <... to a request to "decrement" shall be between -0.025 and -0.005.>.

Proposed Response Response Status W

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/gener	al required T/technical E/editorial G/general	C/ 162	Page 20 of 34
COMMENT STATUS: D/dispatched A/accepted R/rejected	RESPONSE STATUS: O/open W/written C/closed Z/withdrawn	SC 162.9.3.1.4	2021-01-21 4:07:05 PM

SORT ORDER: Clause, Subclause, page, line

C/ 162	SC 162.9.3.4	P 156	L 46	# 110
Hidaka, Yasu	0	Credo Semicor	nductor, Inc.	
Comment Typ	be T	Comment Status D		PRBS9Q (WG)

A detail definition of twelve edges in PRBS9Q is recommended to improve reproducibility of even-odd jitter measurement.

SuggestedRemedy

Add a new table "PRBS9Q pattern symbols used for even-odd jitter measurements" similar to Table 120D-4, but replacing the values as follows:

Label: Description : Gray coded PAM4 symbol : first : TR begins : TR ends : last

REF : Reference : 33333	:1 :-	:- :5
R03 : 0 to 3 rise : 1000 331	: 260 : 263	: 264 : 266
F30 : 3 to 0 fall : 233333 001	:511 :5	:6 :8
R12 : 1 to 2 rise : 3111 23	: 265 : 268	: 269 : 270
F21 : 2 to 1 fall : 1222 10	: 466 : 469	: 470 : 471
R01 : 0 to 1 rise : 2000 13	:195 :198	: 199 : 200
F10 : 1 t0 0 fall : 21111 0003	: 256 : 260	: 261 : 264
R23 : 2 to 3 rise : 3222 330	:210 :213	: 214 : 216
F32 : 3 to 2 fall : 0333 20	: 401 : 404	: 405 : 406
R02 : 0 to 2 rise : 2000 23	: 275 : 278	: 279 : 280
F20 : 2 to 0 fall : 12222 001	: 321 : 325	: 326 : 328
R13 : 1 to 3 rise : 0111 331	:166 :169	: 170 : 172
F31 : 3 to 1 fall : 0333 10	:107 :110	:111 :112

Add an exception to use the new table instead of Table 120D-4, when PRBS9Q is used as the test pattern for even-odd jitter measurement.

Proposed Response Response Status W

PROPOSED REJECT.

This comment proposes a technical change to the draft that is not necessary for technical completeness. However, adding information as provided in the comment may improve the quality of the draft. The commenter is encouraged to resubmit this comment during working group ballot.

C/ 162 SC	62.9.3.4	P 1	56	L 46	# 109
Hidaka, Yasuo		Credo	o Semicondi	uctor, Inc.	
Comment Type	т	Comment Status	D		PRBS9Q (WG)

A detail definition of PRBS9Q with the entire sequence is recommended to avoid implementation errors.

SuggestedRemedy

Define PRBS9Q as a new clause in clause 120.5.11.2 using clause 120.5.11.2.1 as a template.

Modify the second paragraph of 120.5.11.2.1 as follows:

When the PRBS9Q test pattern enabled, it replaces the signal on the output lane(s) for which it is enabled. The PRBS9Q test pattern is a repeating 511-symbol sequence formed by Gray coding pairs of bits from two repetitions of the PRBS9 pattern into PAM4 symbols as described in 120.5.7. The PRBS pattern generator produces the same result as the implementation shown in Figure XX-X, which implements the generator polynomial shown in Equation (YY-Y). Since the PRBS9 pattern is an odd number of bits in length, bits which are mapped as the first bit of a PAM4 symbol during one repetition of the PRBS9 sequence are mapped as the second bit of a PAM4 symbol during the next repetition of the PRBS9 sequence, and bits which are mapped as the second bit of a PAM4 symbol are mapped as the first bit of the following symbol in the next repetition of the PRBS9 sequence. For example, if the PRBS9 generator used to create the PRBS9Q sequence is initialized to a seed value of 111111111 (with the leftmost bit in S0 and the rightmost in S8), the PRBS9Q sequence is the following Gray coded PAM4 symbols, transmitted left to right: 0012322303231310010331213302202231320111030230213332303130303000 1003020031203332002123313231011003321022213103113222031333131300 0201311013311222101130233203202201221210013321323200113322333330 0110332203232300120233102211211010301312003221320210023220022223 3010130102311113013221021203033011133122320310321223102110202000 1302033021032223303201211311312302232330021132121300321122111100 033111231121200023121031233233303100202301123213133012123012222.

Draw Figure XX-X "PRBS9 pattern generator" similar to Figure 94-6 but according to polynomial $1 + x^{5} + x^{9}$.

Define Equation (YY-Y) as $G(x) = 1 + x^5 + x^9$ or make a reference to the polynomial in Table 68-6.

Make a reference to the new clause from 162.9.3.4.

Proposed Response Response Status W

PROPOSED REJECT.

This comment proposes a technical change to the draft that is not necessary for technical completeness. However, adding information as provided in the comment may improve the quality of the draft. The commenter is encouraged to resubmit this comment during working group ballot.

TYPE: TR/technical required ER/editorial required GR/gene	ral required T/technical E/editorial G/general	C/ 162	Page 21 of 34
COMMENT STATUS: D/dispatched A/accepted R/rejected	RESPONSE STATUS: O/open W/written C/closed Z/withdrawn	SC 162.9.3.4	2021-01-21 4:07:05 PM

SORT ORDER: Clause, Subclause, page, line

<u>.</u>												
C/ 162 SC	C 162.9.3.6	P 157	L 30	# 14	3	C/ 162	SC 1	62.9.4	P 158	1	L 16	# 119
Dawe, Piers		Nvidia				Ran, Adee			Intel			
Comment Type	TR	Comment Status D		RX	RLCC (WG)	Comment	Гуре	TR	Comment Status)		RX RLCL
specified to end up as c voltage on t issues it wo specs such differential t 2. This is a	ifeduce reflect differential. The the line that is ould be a tight as Rx Differe mode return lo standard, no	s that the minimum commo ctions of signals that were g his is not the case: it is incl s otherwise unbounded. If i ter spec, but that's not viable ential to common-mode retu oss address the problem st ot an attempt at a textbook. is no reason that this one s	generated origina uded to contain a it were intended le for front-panel urn loss and Tx C tated. We don't give a	ally as differe a gross build to address m connectors. Common-mod	ntial and -up of CM nixed-mode Other de to	Rx diff TBD. In clau and eq cable a	se 92 the (92–21) Issembly	o commo e RLCD o) in 92.8.4 /.	of Tx and Rx have the 4.3, respectively, whicl	same spe n are ident	ecifications tical; and th	ers to 92.8.4.3 with value - eq (92–2) in 92.8.3.3 here is no RLCD for
SuggestedRem Delete the p	edy						h both ca		ested to use the same measurement involves			
Proposed Resp	onse	Response Status W				As an	alternativ	/e consid	er removing this speci	ification (th	he Rx owns	s its performance).
	ent proposes	a technical change to the c menter is invited to resubm					subclaus	se for Rx	differential to commor nt to (162–9).	n mode ret	turn loss, w	vith equation identical to
This commu completene ballot. C/ 162 SC Brown, Matt	ent proposes ess. The comr				ng group	Add a equatio <i>Proposed I</i> PROP Implen	subclaus on (162– Respons DSED A nent the	se for Rx 9), or poi e CCEPT I	nt to (162–9). <i>Response Status</i> V N PRINCIPLE. ed remedy.		turn loss, w	vith equation identical to
This comme completene ballot. C/ 162 SC Brown, Matt Comment Type In Table 16	ent proposes ass. The comr C 162.9.4 T	menter is invited to resubm P 158 Huawei	it this comment o	during workir # 24	RX RLCD	Add a equatio <i>Proposed I</i> PROP Implen	subclaus on (162– Respons DSED A nent the k force o	se for Rx 9), or poi e CCEPT I suggeste	nt to (162–9). <i>Response Status</i> V N PRINCIPLE. ed remedy.	v	turn loss, w	with equation identical to
This commu completene ballot. Cl 162 So Brown, Matt Comment Type In Table 16 TBD	C 162.9.4 T 2-13, the spec	menter is invited to resubm P 158 Huawei Comment Status D	it this comment o	during workir # 24	RX RLCD	Add a equation Proposed I PROP Implen For tas	subclaus on (162– Respons DSED A nent the k force of SC 10	se for Rx 9), or poi e CCEPT I suggeste discussio	nt to (162–9). <i>Response Status</i> V N PRINCIPLE. ^I d remedy. n.	v		
This comme completene ballot. Cl 162 So Brown, Matt Comment Type In Table 16 TBD SuggestedRem Provide a v	T 2-13, the spe edy alue or equati	P 158 P 158 Huawei Comment Status D cified value for receiver diff	it this comment o	during workir # 24	RX RLCD	Add a equation Proposed in PROP Implen For tas Cl 162 Brown, Ma Comment	subclaus on (162– Respons DSED A hent the k force of SC 10 tt	se for Rx 9), or poi e CCEPT I suggeste discussio 62.9.4.1 T	nt to (162–9). <i>Response Status</i> V N PRINCIPLE. d remedy. n. <i>P</i> 158	V ;		
This commu completene ballot. Cl 162 So Brown, Matt Comment Type In Table 16 TBD SuggestedRem Provide a v Proposed Resp PROPOSE	T 2-13, the spered conse D ACCEPT IN	menter is invited to resubm <i>P</i> 158 Huawei <i>Comment Status</i> D scified value for receiver diff	it this comment o	during workir # 24	RX RLCD	Add a equation Proposed I PROP Implem For tas C/ 162 Brown, Ma Comment The lis Suggested	subclaus nn (162– Respons DSED A tent the k force of SC 10 tt Type t of relat Remedy	se for Rx 9), or poi e CCEPT I suggeste discussio 62.9.4.1 T ed subcla	nt to (162–9). <i>Response Status</i> V N PRINCIPLE. d remedy. n. <i>P</i> 158 Huawei <i>Comment Status</i> [v 3 0 162.9.4.2.	L 23	# 46

C/ 162 SC 162.9.4.1

C/ 162	SC 162.11	P 162	L 36	# 91	C/ 162	SC 162.11	P 163	L 17	# 113
Haser, Alex		Molex			Kocsis, Sa	m	Amphenol		
		Comment Status D rts achievable cable length	of at least 2 m	<i>withdrawn</i> '; spec is written	Comment T CA ER Suggested	L requirement i	Comment Status D s TBD		CA ERL
SuggestedR Change	-	vable cable length of at least	1.75 m"		Replac	e TBD with 9dE	3		
Proposed Re PROPO	esponse SED REJECT.	Response Status Z HDRAWN by the commenter			Resolv	OSED ACCEPT	Response Status W IN PRINCIPLE. se to comment#103		
C/ 162	SC 162.11	P 162	L 38	# 92	C/ 162	SC 162.11	P 163	L 17	# 25
Haser, Alex	00 102111	Molex	- 00		Brown, Ma		Huawei		
Comment Ty	,	Comment Status D		withdrawn	Comment 7 In Tabl		Comment Status D pecified value for cable asser	nby ERL is TBD	CA ERL
around a	a 1.75 m cable	rts achievable cable length	of at least 2 m	; spec is written	Suggested		ation and undate PICS		
SuggestedR	•						ation and update PICS.		
Proposed Re		vable cable length of at least Response Status Z	1.75 m"			DSED ACCEPT	Response Status W IN PRINCIPLE. se to comment#103		
		HDRAWN by the commenter	·.		C/ 162	SC 162.11	P 163	L 17	# 120
C/ 162	SC 162.11	P 162	L 40	# 93	Ran, Adee		Intel		
laser, Alex		Molex			Comment 7	Type TR	Comment Status D		CA ERL
Comment Ty "Cable a		Comment Status D rts achievable cable length	of at least 2 m	<i>withdrawn</i> '; spec is written		ssing TBD) Im cable assem	bly ERL is TBD.		
around a SuggestedR	a 1.75 m cable emedy	vable cable length of at least			enable	measurement	am suggesting setting the mi of the internal host circuitry. E t exceed 10.3 dB.		
Proposed Re PROPO	esponse SED REJECT.	Response Status Z				be assumed that Il be closer to the	t the cable has more uniform nat of a MTF.	impedance than	the host board, so its
This con	nment was WIT	HDRAWN by the commenter	·.		The su	ggested value a	allows 1.3 dB difference for ca	able assembly in	plementation.
					Suggested	Remedy			
					Change	e TBD to 9 dB.			
					Proposed F	Response	Response Status W		
					-		IN PRINCIPLE.		

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general	C/ 162	Page 23 of 34
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn	SC 162.11	2021-01-21 4:07:05 PM
SORT ORDER: Clause, Subclause, page, line		

				-					
C/ 162 SC 162.11	P 163	L 18	# 94	C/ 162	SC 162.11.4	P 1	65	L 8	# 101
laser, Alex	Molex			Champion	, Bruce	TE C	onnectivity		
Comment Type TR Con Fill in TBD for CA ERL limit SuggestedRemedy Replace TBD with 7.4 dB base	nment Status D	02_1020.pdf slic	CA ERL	testing	Assembly Diff-to- at the higher free se of poor cable a	quencies. Failures a	urn loss is t re occuring	because of	CA RLC igh volume production testing artifacts and not requested to account
Proposed Response Resp PROPOSED ACCEPT IN PRI Resolve using response to cor 7 162 SC 162.11 Champion, Bruce	NCIPLE. mment#103 P 163 TE Connectiv mment Status D 5 TBD in Table 162-16	L 18 Vity	# <u>103</u> CA ERL	Suggested It is re Returr Returr See p Proposed PROP Impler Pendir	Remedy commended to us Loss(f) \ge 22-10(i Loss(f) \ge 19 - 7(i resentation Response OSED ACCEPT nent suggested re ng review of cited	emedy.	< 26.56 ≤ 40 GHz ₩		.pdf
ů –	oonse Status W	.oo_o.pa.		C/ 162	SC 162.11.6	P 1	66	L 37	# 102
PROPOSED ACCEPT IN PRI The comment proposes 7.4 dE 7.4 dB, comment#25 proposes dB,comment#113 proposes 9 For task force discussion. Update PICS with accepted va	B; see champion_3ck_ s a value or equation, dB.			assem The M used i limit. Suggested It is re design	Type T is a disrepancy b bbly CM-to-CM RL TF CM-to-CM RL n cable assembly <i>IRemedy</i> commended to us to b Loss(f) ≥ 1.8 for	Comment Status etween what is spec limit is set to -3 dB. Tp1-Tp4 channels, se the following equa	When MT the Tp1-Tp	Fs designed 4 CM-to-CM	CA RLC CM RL and the cable close to this limit are RL will fail the -2 dB t the worst case MTF
				PROP Impler	OSED ACCEPT	•	ew of cited		

C/ 162 SC 162.11.6

C/ 162 SC 162.11.7 P 167	L 21	# 115	C/ 162 S	C 162.9.3.3	P 156	<i>L</i> 31	# 142
Li, Mike Intel			Dawe, Piers		Nvidia		
Comment Type TR Comment Status D		COM Cp (CC) (WG)	Comment Type	т	Comment Status D		TX SNDR (bucket1
Cp of 8.7x1e-5 nF could be improved to provide			The transm	itter SNDR i	measurement uses the meth	od described in	
and it is suppoted by the latest package techno Moreover, such an improvement would be align			SuggestedRem	ledy			
spec, and benifiting the ecosystem at large.			Transmitter	SNDR is de	efined by the [measurement]	method {of de	scribed in}
SuggestedRemedy			Proposed Resp	onse	Response Status W		
change Cp to 6.0x1e-5 nF				D ACCEPT	IN PRINCIPLE.		
Proposed Response Response Status W			Change: "The transm	nitter SNDR	measurement uses the met	hod described ir	120D 3 1 6 with the
PROPOSED REJECT.			exception tl		r fit procedure in 162.9.3.1.1		
This comment proposes a technical change to the completeness. The commenter is invited to result			To: "The transm	nitter SNDR	is defined by the the measu	rement method	described in 120D 3.1 f
ballot.		5 55 1			the linear fit procedure in 16		
Resolve with comments #116 (Clause 163) and Note that CEI-112G-LR-PAM4 Version 11 provi			C/ 162A S	C 162A.2	P 253	L 24	# 57
January 2021 specifies 60 nF for Cp.			Wu. Mau-Lin		MediaTek		
https://www.ieee802.org/3/private/liaison_docs/ cover drafts 07Jan21.pdf	OIF/0121_OIF_liais	on_IEEE_CEI_Projects_	Comment Type	т	Comment Status D		editorial (bucket
[Editor's note: CC: 120F, 162, 163.]					d by TP0v in Clause 163.9.2	2.	outonal (Sucher
				•	2		
7 162 SC 162 11 7 2 P 171	/ 1	# 95	SuggestedRem	ieav			
	L 1	# 95	SuggestedRem Change "Th	-	nded transmitter characteris	tics at TP0 as m	neasured at TP0a are
Haser, Alex Molex	L 1		Change "Th described in	ne recomme n 163.9.2." s	nded transmitter characteris shall be changed to "The rec	ommended trans	
Haser, AlexMolexComment TypeEComment StatusD		COM XTALK (bucket1)	Change "Th described in at TP0 as n	ne recomme n 163.9.2." s neasured at	hall be changed to "The rec TP0v are described in 163.9	ommended trans	
laser, Alex Molex	en in Table…"; the ta	COM XTALK (bucket1)	Change "Th described in at TP0 as n Proposed Resp	ne recomme n 163.9.2." s neasured at	hall be changed to "The rec TP0v are described in 163.s <i>Response Status</i> W	ommended trans	
Haser, Alex Molex Comment Type E Comment Status D "The crosstalk paths for each MDI type are give number of crosstalk paths, not the paths thems	en in Table…"; the ta	COM XTALK (bucket1)	Change "Th described in at TP0 as n Proposed Resp	ne recomme n 163.9.2." s neasured at	hall be changed to "The rec TP0v are described in 163.s <i>Response Status</i> W	ommended trans	
Haser, Alex Molex Comment Type E Comment Status D "The crosstalk paths for each MDI type are give number of crosstalk paths, not the paths thems	en in Table…"; the ta elves	COM XTALK (bucket1)	Change "Th described in at TP0 as r Proposed Resp PROPOSE	ne recomme n 163.9.2." s neasured at	hall be changed to "The rec TP0v are described in 163.s <i>Response Status</i> W	ommended trans	
Haser, Alex Molex Comment Type E Comment Status D "The crosstalk paths for each MDI type are give number of crosstalk paths, not the paths thems SuggestedRemedy	en in Table…"; the ta elves	COM XTALK (bucket1)	Change "Th described in at TP0 as r Proposed Resp PROPOSE	ne recomme n 163.9.2." s neasured at <i>ponse</i> D ACCEPT.	hall be changed to "The rec TP0v are described in 163.s <i>Response Status</i> W	ommended trans	smitter characteristics
Haser, Alex Molex Comment Type E Comment Status D "The crosstalk paths for each MDI type are give number of crosstalk paths, not the paths thems SuggestedRemedy Change text to "The number of crosstalk paths	en in Table…"; the ta elves	COM XTALK (bucket1)	Change "Th described in at TP0 as n Proposed Resp PROPOSE	ne recomme n 163.9.2." s neasured at oonse D ACCEPT. C 162A.3	thall be changed to "The rec TP0v are described in 163.9 <i>Response Status</i> W <i>P</i> 253	ommended trans	smitter characteristics
laser, Alex Molex omment Type E Comment Status D "The crosstalk paths for each MDI type are give number of crosstalk paths, not the paths thems uggestedRemedy Change text to "The number of crosstalk paths roposed Response Response Status W	en in Table…"; the ta elves	COM XTALK (bucket1)	Change "Th described in at TP0 as n Proposed Resp PROPOSE C/ 162A So Wu, Mau-Lin Comment Type	ne recomme n 163.9.2." s neasured at oonse D ACCEPT. C 162A.3	thall be changed to "The rec TP0v are described in 163. <i>Response Status</i> W <i>P</i> 253 MediaTek	ommended trans 9.2." <i>L</i> 29	smitter characteristics # <u>58</u>
laser, Alex Molex omment Type E Comment Status D "The crosstalk paths for each MDI type are given number of crosstalk paths, not the paths thems D uggestedRemedy Change text to "The number of crosstalk paths roposed Response Response Status W	en in Table…"; the ta elves	COM XTALK (bucket1)	Change "Th described in at TP0 as n Proposed Resp PROPOSE C/ 162A So Wu, Mau-Lin Comment Type	ne recomme n 163.9.2." s neasured at borse D ACCEPT. C 162A.3 T been replace	thall be changed to "The rec TP0v are described in 163. <i>Response Status</i> W <i>P</i> 253 MediaTek <i>Comment Status</i> D	ommended trans 9.2." <i>L</i> 29	smitter characteristics # <u>58</u>
Haser, Alex Molex Comment Type E Comment Status D "The crosstalk paths for each MDI type are given number of crosstalk paths, not the paths thems D Status D "uggestedRemedy Change text to "The number of crosstalk paths Status W proposed Response Response Status W	en in Table…"; the ta elves	COM XTALK (bucket1)	Change "Th described in at TP0 as n Proposed Resp PROPOSE Cl 162A Si Wu, Mau-Lin Comment Type TP5a had b SuggestedRem Change "Th described in	ne recomme n 163.9.2." s neasured at borse D ACCEPT. C 162A.3 T been replace nedy ne recomme n 163.9.3." s	thall be changed to "The rec TP0v are described in 163. <i>Response Status</i> W <i>P</i> 253 MediaTek <i>Comment Status</i> D	ommended trans 0.2." <i>L</i> 29 3. s at TP5 as mea ommended rece	smitter characteristics # <u>58</u> editorial (bucket
Haser, Alex Molex Comment Type E Comment Status D "The crosstalk paths for each MDI type are given number of crosstalk paths, not the paths thems D StuggestedRemedy Change text to "The number of crosstalk paths Change text to "The number of crosstalk paths Proposed Response Response Status	en in Table…"; the ta elves	COM XTALK (bucket1)	Change "Th described in at TP0 as n Proposed Resp PROPOSE Cl 162A Si Wu, Mau-Lin Comment Type TP5a had b SuggestedRem Change "Th described in	ne recomme n 163.9.2." s neasured at D ACCEPT. C 162A.3 T been replace nedy ne recomme n 163.9.3." s asured at TF	thall be changed to "The rec TP0v are described in 163.9 <i>Response Status</i> W <i>P</i> 253 MediaTek <i>Comment Status</i> D d by TP5v in Clause 163.9.3 nded receiver characteristics shall be changed to "The rec	ommended trans 0.2." <i>L</i> 29 3. s at TP5 as mea ommended rece	# 58 <i>editorial (bucket</i>

C/ 162A	Page 25 of 34
SC 162A.3	2021-01-21 4:07:05 PM

	C/ 162B SC 162B.1.3 P 262 L 36 # 111
Dudek, Mike Marvell	Kocsis, Sam Amphenol
Comment Type TR Comment Status D test fixture (bucket1)	Comment Type TR Comment Status D MTF FOMILD
The measurements at TP2 or TP3 etc. are made with the Test fixture (162B.1.1) not the mated test fixture (162B.1.3)	MTF FOM_ILD requirement is TBD
SuggestedRemedy	SuggestedRemedy
On line 17 change 162B.1.3 to 162B.1.1	Replace TBD with 0.18dB
Proposed Response Response Status W	Proposed Response Response Status W
PROPOSED ACCEPT.	PROPOSED ACCEPT IN PRINCIPLE. Comments 111, 97 and 104, propose 0.18 dB, comment 107 proposes 0.18 dB with Tr=9.6 ps, comment 130 proposes deletion, comment 40 requests a value. Update PICS if
C/ 162B SC 162B.1 P 259 L 17 # 6	specification is not deleted
Dudek, Mike Marvell	https://www.ieee802.org/3/ck/public/adhoc/jan13_21/kocsis_3ck_adhoc_01_011321.pdf
Comment Type TR Comment Status D test fixture (bucket1)	C/ 162B SC 162B.1.3.1 P 262 L 36 # 130
The measurements at TP1 or TP4 etc. are made with the Cable Assembly Test fixture	Ran, Adee Intel
(162B.1.2) not the mated test fixture (162B.1.3)	Comment Type TR Comment Status D MTF FOMILD
SuggestedRemedy	(addressing TBD)
On line 18 change 162B.1.3 to 162B.1.2	"FOMILD shall be less than (TBD) dB"
Proposed Response Response Status W PROPOSED ACCEPT.	The importance of this parameter for quality of test fixtures in the context of this project has not been presented. ERL likely covers what FOMILD originally intended to cover.
C/ 162B SC 162B.1 P 259 L 20 # 96	The specification should be deleted without loss of technical completeness.
Haser, Alex Molex	SuggestedRemedy
Comment Type T Comment Status D MTF IL	Delete the quoted sentence.
The reference MTF IL at 26.56 GHz is 6.66 dB	Proposed Response Response Status W
	Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE.
The reference MTF IL at 26.56 GHz is 6.66 dB	PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment
The reference MTF IL at 26.56 GHz is 6.66 dB SuggestedRemedy	PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #111.
The reference MTF IL at 26.56 GHz is 6.66 dB SuggestedRemedy Change text from 6.6 dB to 6.7 dB to capture rounding correctly Proposed Response Response Status W PROPOSED REJECT.	PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #111. C/ 162B SC 162B.1.3.1 P 262 L 36 # 41
The reference MTF IL at 26.56 GHz is 6.66 dB SuggestedRemedy Change text from 6.6 dB to 6.7 dB to capture rounding correctly Proposed Response Response Status W PROPOSED REJECT. MTF 6.6 dB. CA 19.75 dB, Host 10.975 dB consistent with channel algebra =	PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #111. C/ 162B SC 162B.1.3.1 P 262 L 36 # 41 Brown, Matt Huawei
The reference MTF IL at 26.56 GHz is 6.66 dB SuggestedRemedy Change text from 6.6 dB to 6.7 dB to capture rounding correctly Proposed Response Response Status W PROPOSED REJECT.	PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #111. C/ 162B SC 162B.1.3.1 P 262 L 36 # 41 Brown, Matt Huawei Comment Type T Comment Status D MTF FOMILD
The reference MTF IL at 26.56 GHz is 6.66 dB SuggestedRemedy Change text from 6.6 dB to 6.7 dB to capture rounding correctly Proposed Response Response Status W PROPOSED REJECT. MTF 6.6 dB. CA 19.75 dB, Host 10.975 dB consistent with channel algebra =	PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #111. C/ 162B SC 162B.1.3.1 P 262 L 36 # 41 Brown, Matt Huawei Comment Type T Comment Status D MTF FOMILD The specified value for MTF FOM_ILD upper limit is TBD.
The reference MTF IL at 26.56 GHz is 6.66 dB SuggestedRemedy Change text from 6.6 dB to 6.7 dB to capture rounding correctly Proposed Response Response Status W PROPOSED REJECT. MTF 6.6 dB. CA 19.75 dB, Host 10.975 dB consistent with channel algebra =	PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #111. CI 162B SC 162B.1.3.1 P 262 L 36 # 41 Brown, Matt Huawei Comment Type T Comment Status D MTF FOMILD The specified value for MTF FOM_ILD upper limit is TBD. SuggestedRemedy
The reference MTF IL at 26.56 GHz is 6.66 dB SuggestedRemedy Change text from 6.6 dB to 6.7 dB to capture rounding correctly Proposed Response Response Status W PROPOSED REJECT. MTF 6.6 dB. CA 19.75 dB, Host 10.975 dB consistent with channel algebra =	PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #111. Cl 162B SC 162B.1.3.1 P 262 L 36 # 41 Brown, Matt Huawei Comment Type T Comment Status D MTF FOMILD The specified value for MTF FOM_ILD upper limit is TBD. SuggestedRemedy Provide a value.
The reference MTF IL at 26.56 GHz is 6.66 dB SuggestedRemedy Change text from 6.6 dB to 6.7 dB to capture rounding correctly Proposed Response Response Status W PROPOSED REJECT. MTF 6.6 dB. CA 19.75 dB, Host 10.975 dB consistent with channel algebra =	PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #111. Cl 162B SC 162B.1.3.1 P 262 L 36 # 41 Brown, Matt Huawei Comment Type T Comment Status D MTF FOMILD The specified value for MTF FOM_ILD upper limit is TBD. SuggestedRemedy Provide a value. Proposed Response Response Status W
The reference MTF IL at 26.56 GHz is 6.66 dB SuggestedRemedy Change text from 6.6 dB to 6.7 dB to capture rounding correctly Proposed Response Response Status W PROPOSED REJECT. MTF 6.6 dB. CA 19.75 dB, Host 10.975 dB consistent with channel algebra =	PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #111. Cl 162B SC 162B.1.3.1 P 262 L 36 # 41 Brown, Matt Huawei Comment Type T Comment Status D MTF FOMILD The specified value for MTF FOM_ILD upper limit is TBD. SuggestedRemedy Provide a value.
The reference MTF IL at 26.56 GHz is 6.66 dB SuggestedRemedy Change text from 6.6 dB to 6.7 dB to capture rounding correctly Proposed Response Response Status W PROPOSED REJECT. MTF 6.6 dB. CA 19.75 dB, Host 10.975 dB consistent with channel algebra =	PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #111. Cl 162B SC 162B.1.3.1 P 262 L 36 # 41 Brown, Matt Huawei Comment Type T Comment Status D MTF FOMILD The specified value for MTF FOM_ILD upper limit is TBD. SuggestedRemedy Provide a value. Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #111.

C/ 162B SC 162B.1.3.1 P 262 L 36 # 107	Cl 162B SC 162B.1.3.2 P 262 L 43 # 8
DiMinico, Christopher MC Communications	Dudek, Mike Marvell
Comment Type TR Comment Status D MTF FC Provide value for mated test fixture FOMILD TBD. SuggestedRemedy SuggestedRemedy <t< td=""><td>DMILD Comment Type TR Comment Status D MTF ERL The ERL of the mated test fixture should be significantly better than the specification for the ERL of the device under test. The ERL of the QSFP-DD improved connector used for channel modeling in e.g Didel_3ck_01_0320. has an ERL of 15.7dB.</td></t<>	DMILD Comment Type TR Comment Status D MTF ERL The ERL of the mated test fixture should be significantly better than the specification for the ERL of the device under test. The ERL of the QSFP-DD improved connector used for channel modeling in e.g Didel_3ck_01_0320. has an ERL of 15.7dB.
See diminico_3ck_adhoc_01a_121620 Update PICS	SuggestedRemedy Change TBD to 14dB. Also put this in TF2 of the PICS. Proposed Response Response Status W
Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE.	PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response comment #112.
Resolve using the response to comment #111.	Cl 162B SC 162B.1.3.2 P 262 L 43 # 106
CI 162B SC 162B.1.3.1 P 262 L 36 # 104 Champion, Bruce TE Connectivity Comment Type T Comment Status D MTF FC FOM_ILD is listed at TBD. SuggestedRemedy TBD to be changed to 0.18 dB Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Resolve using comment #111. N N	DiMinico, Christopher MC Communications Comment Type TR Comment Status D MTF ERI Provide value for mated test fixture ERL TBD. SuggestedRemedy The mated test fixture ERL shall be greater than or equal to 9 dB. Update PICS. See diminico_3ck_adhoc_01a_121620 slide 6. Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response comment #112.
C/ 162B SC 162B.1.3.1 P 262 L 36 # 97 Haser, Alex Molex Comment Type TR Comment Status D MTF FC Fill in TBD for MTF FOM_ILD limit	C/ 162B SC 162B.1.3.2 P 262 L 43 # 112 DMILD Kocsis, Sam Amphenol Comment Type TR Comment Status D MTF ERL MTF ERL requirement is TBD (also in PICS TF2)
SuggestedRemedy Fill in a value of 0.18 dBrms based on haser_3ck_adhoc_01c_062420.pdf slide 7 Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response to comment #111.	SuggestedRemedy Replace TBD with 10dB Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Comment #112 proposes 10 dB, comment#105 and #106 propose 9 dB, comment#8 proposes 14 dB, comment#131 proposes 10.3 dB. For committee discussion of cited presentations. Update PICS. https://www.ieee802.org/3/ck/public/adhoc/jan13_21/kocsis_3ck_adhoc_01_011321.pdf

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn SORT ORDER: Clause, Subclause, page, line

C/ 162B SC 162B.1.3.2 Page 27 of 34 2021-01-21 4:07:05 PM

C/ 162B	SC 162B	.1.3.2 P 2	62 L 43	# 42
Brown, Mat	t	Huaw	vei	
Comment 7 The sp		Comment Status for MTF ERL is TBD.	D	MTF ERL
Suggestedl Provide		d update PICS.		
	DSED ACCE	Response Status PT IN PRINCIPLE. esponse comment #112		
C/ 162B	SC 162B	.1.3.2 P 2	62 L 43	# 131
Ran, Adee		Intel		
Comment 7	<i>ype</i> TR sing TBD)	Comment Status	D	MTF ERL

We have adopted a minimum of 7.3 dB for a host ERL in Table 162–10 (with parameters in 162.9.3.5). The parameters for MTF are the same, except that "Time-gated propagation delay" is 0 instead of 0.2 ns.

The value 0 was accepted explicitly (comment #122 against D1.3) but the differnece does not seem to be justified, since the MTF includes the test fixture used for host ERL measurement (where the connector is time gated). Different time gating creates difference in the meaning of ERL.

The ERL from a high-quality MTF is the upper bound for any measurement of a DUT which uses any one of the test fixtures. Therefore, it should be significantly higher than 7.3 dB.

It is suggested to divide the budget evenly to allow about the same reflection power from the DUT's internal circuitry as from the mated connectors; if each one is 10.3 dB then their combination (RSS, since reflections are independently distributed) would be 7.3 dB.

SuggestedRemedy

Change minimum ERL from TBD to 10.3 dB.

In Table 162B–1, change T_fx from 0 to 0.2 ns.

Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Resolve using the response comment #112.

C/ 162B	SC 162B.1.3.2	P 262	L 43	# 105
Champion,	Bruce	TE Con	nectivity	
Comment T	ype T RL is listed at TBI	Comment Status D D in draft)	MTF ERL
SuggestedF TBD to		B. See diminico_3ck	_03a_1020.pdf	
	, SED ACCEPT IN	Response Status V N PRINCIPLE. nse comment #112.	v	
C/ 162B	SC 162B.1.3.2	P 262	L 43	# 98
Haser, Alex		Molex		
Comment T	<i>ype</i> TR BD for MTF ERL	Comment Status D limi)	MTF ERL
SuggestedF	Remedy			
Replace	e TBD with 9 dB b	based on diminico_3c	k_03a_1020.pdf sli	de 7
	, SED ACCEPT IN	Response Status V N PRINCIPLE. nse comment #112.	v	
C/ 162B	SC 162B.1.3.2	P 263	L 16	# 99
Haser, Alex		Molex		
Comment T	ype ER	Comment Status)	MTF ERL Tfx
value fo		add one here too, es		ude a note explaining the ifferent than the other

SuggestedRemedy

Add a note to Table 162B-1 containing the following text: "The specified T_fx value represents a propagation delay of zero which captures to electrical characteristics of the entire test fixture, including the test connector and test fixture transmission line in its entirety."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Add note to Tfx as follows:

"NOTE—The mated test fixture test connector and transmission line are not time-gated."

C/ 162B SC 162B.1.3.2

C/ 162B SC 162B.1.3.3 P 263 L 34 # 114	C/ 162C SC 162C.2.2 P 275 L 12 # 43
Kocsis, Sam Amphenol	Brown, Matt Huawei
Comment Type TR Comment Status D MTF RL mask	Comment Type T Comment Status D MDI graphic (bucket
Recommended MTF RL mask does not provide useful information to the reader	The graphics in Figure 162C-3 and Figure 162C-44 are missing.
SuggestedRemedy	SuggestedRemedy
Remove the mask from the spec	Provide graphics.
Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Delete subclause 162B.1.3.3 Mated test fixtures differential return loss.	Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Insert graphics provided in the following presentation: diminico_3ck_02_0120.
C/ 162B SC 162B.1.3.6 P 265 L 36 # 100	C/ 162D SC 162D.1.1 P 283 L 31 # 9
Haser, Alex Molex	Dudek, Mike Marvell
Comment Type ER Comment Status D MTF RLDC name (bucket?)	Comment Type T Comment Status D editorial (bucket
CMDRL(f) is defined as common-mode return loss; this is incorrect	The 100GBASE-CR2 in the Title of Table 162D-3 should be 200GBASE-CR2.
SuggestedRemedy	
Define CMDRL(f) as common-mode to differential mode return loss	SuggestedRemedy Chapters it
Proposed Response Response Status W	Change it
PROPOSED ACCEPT.	Proposed Response Response Status W
C/ 162B SC 162B.1.3.2 P 262 L 41 # 7	PROPOSED ACCEPT IN PRINCIPLE. Change Title of Table 162D-3 to "200GBASE-CR2".
Dudek, Mike Marvell	C/ 162D SC 162D.1.1 P 283 L 50 # 10
Comment Type T Comment Status D VITF ERL reference (bucket1)	Dudek. Mike Marvell
Table 162B-2 is related to crosstalk parameters not ERL	Comment Type E Comment Status D formatting (bucket)
SuggestedRemedy	There is an unfortunate page break in the middle of Table 162D-3
Change 162B-2 to 162B-1 (two places0	SuggestedRemedy
Proposed Response Response Status W	Adjust formatting so that this table is all on one page
PROPOSED ACCEPT.	
	Proposed Response Response Status W
	PROPOSED REJECT. There is a trade-off between large tables spanning pages and leaving big holes; leave as is; also the tables are going to be shifting around until the text becomes stable; wait for SA ballot to refine.

C/ 162D SC 162D.1.1

C/ 163	SC 163.9.2	P 185	L 28	# 133	C/ 163	SC 1	63.9.3	P 187	L 41	# 121
Ran, Adee		Intel			Ran, Adee			Intel		
Comment T	ype E	Comment Status D		withdrawn	Comment	Гуре	TR	Comment Status D		RX RLCD
reference referring change SuggestedF Delete t Proposed R	ce is not approp g to the frequence to this reference Remedy the editor's note Response	that "In Table 163–5, commeriate". But it is appropriate; co sy range of the test fixture's se e (the problem is in the respondent) without any change to the ta <i>Response Status</i> Z	omment #228 ag pecification and nse).	gainst D1.3 was	Rx Diff TBD. T The co comple Bounda GHz si	This subo nversior eteness, ary lines gnaling	to comm clause us n loss sp it is sug are sug frequenc		e the limit. work, but for the near equation sin sed in OIF CEI-1	purpose of technical nilar to (93-5). 12G-LR for the 53.125
	DSED REJECT.	HDRAWN by the commente	r		As an a	alternativ	ve consi	der removing this specificat	on (the Rx owns	its performance).
		,			Suggested	Remedy	/			
C/ 163	SC 163.9.2.3	P 187	L 16	# 66	Add a	new sub	clause fo	or Rx differential to commor	n mode return loss	s with the equation:
Healey, Ada Comment T Subclau		Broadcom Inc Comment Status D ect.		(bucket1)	RLdc(f) ≥ 15 fo	or fb/2 < 1	or 0.05 ≤ f ≤ fb/2 f ≤ 40 y in GHz and fb=53.125.		
SuggestedF	Remedy				Proposed I	Respons	se	Response Status W		
Change	e subclause title	to "Difference steady-state ve	oltage".		-			IN PRINCIPLE.		
Proposed R PROPC	Response DSED ACCEPT.	Response Status W			RLcd(f RLcd(f) = 25-20) = 15 fo	0*(f/fb) fo or fb/2 < f			
C/ 163	SC 163.9.3	P 187	L 4 1	# 26	where Update		requenc	y in GHz and fb=53.125.		
Brown, Mat	t	Huawei			Implem	nent with	n editoria	I license.		
Comment T In Table TBD	<i></i>	Comment Status D cified value for receiver differ	ential to commo	<i>RX RLCD</i> on-mode return loss is						
SuggestedF										
	•	tion and update PICS.								
	, DSED ACCEPT	Response Status W IN PRINCIPLE. e to comment #121								

C/ 163 SC 163.9.3

C/ 163	SC 163.10	P 190	L 28	# 139	C/ 163	SC 163	8.10.1	P 190	L 46	# 116
Ran, Adee		Intel			Li, Mike			Intel		
Comment T	ype T	Comment Status D		channel RLCD (CC)	Comment 7	Туре Т	R	Comment Status D		COM Cp (CC) (WG
Without that will	t such specification be fed into the T	for RLDC for the KR chann on, a channel can cause a s x - and since Tx RLCD/RLC	strong common CC are not defin	mode reflection signal ed either, a differential	and it is Moreov	s suppote /er, such a	d by the l an improv	e improved to provide the atest package technology/ rement would be aligned w cosystem at large.	product (see oif	2020.224.01).
or comr	non mode signal	can be reflected back with	out control.		Suggested	Remedy				
		cifications may need more nel RLDC from 162.11.4 ca		e purpose of technical	change Proposed F	e Cp to 6.0		Response Status W		
						OSED RE				
	missing 120F.				-			technical change to the d	raft that does no	ot address technical
162.11. Apply s Proposed R PROPC	ew subclause for 4 with the same I imilarly in 120F. <i>Response</i> DSED ACCEPT IN			rn loss, based on	ballot. Resolv Note th Januar https:// cover_d	e with cor hat CEI-11 y 2021 sp www.ieee drafts_07.	nments # 2G-LR-P ecifies 60 802.org/3 Jan21.pdf	enter is invited to resubmi 115 (Clause 162) and #11 AM4 Version 11 provided) nF for Cp. /private/liaison_docs/OIF/ i 162, 163.]	7 (Annex 120F) in the OIF laisso	on to IEEE data 7
	ent the suggeste k force discussior				C/ 163	SC 163	8.10.2	P 192	L 28	# 144
[Editor's	s note: CC 163, 1	20F]			Dawe, Pier	S		Nvidia		
/ 163	SC 163.10.1	P 190	L 26	# 137	Comment 7	Гуре Т		Comment Status D		channel li
Ran, Adee		Intel			The lim	nit at 40 G	Hz (not 4	5 as in the figure) exclude	s some accepta	ble channels.
Comment T	ype E	Comment Status D		editorial (bucket1)	Suggested	Remedy				
		Channel Operating margin' Ind ERL requirements.	so it should on	ly discuss COM, not		e the stra ax in Figu		of the limit with one that cu	rves down. (wit	h an f^2 term). Correct
There a	ure additional requ	uirements not listed here (e	a mode conve	reion loss 163 10 1)	Proposed F	Response	1	Response Status W		
SuggestedF			.g. mode conve	1310111033, 103.10.4)				PRINCIPLE.		
Move th		aph (which points to 163.10).2 and 163.10.3	3) to the parent	Change The su	e figure 16 ggested r	3-5 so cu emedy ha	ing the figure that should b urve ends at 40 GHz to ma as not provided sufficient d not required for technical	tch the equatio etails to change	
Conside	er adding a summ	nary table in 163.10 as in th	e Tx and Rx ch	aracteristics.	curve.		shange is	not required for teermear	completeness.	
roposed R	Response	Response Status W								
Move th subclau	ise 163.10. Imple	N PRINCIPLE. aph (which points to 163.10 ment with editorial license. may be an improvement to								

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn SORT ORDER: Clause, Subclause, page, line

C/ 163 SC 163.10.2 Page 31 of 34 2021-01-21 4:07:05 PM

C/ 163	SC 163.10.4	P 192	L 44	# 122	C/ 163A	SC 163A.3.1	P 28	6 <i>L</i> 16	# 2
Ran, Adee		Intel			Mellitz, Richa	ard	Samte	с	
Comment	Type TR	Comment Status D		channel ILDC	Comment Ty	pe TR	Comment Status	D	TP0v/TP5v method (WG)
For the		hannel "differential to commo	n-mode convers	ion loss of TP0 and			using and not entirely c or a reflection and hard		ne filter used for ERL is F_r gram.
TP5" is	IBD.				SuggestedRe	emedy			
cable a		arameter is specified in 162.1 ntial to common-mode conver lation (162-10).				erence to ERL	in the first sentence of 63-A-3.1.	f 163A.3.1 and figu	ıre 163A-2.
	• •	nnical completeness, a simila	r equation can be	e used for KR.			loss at TP0v is used to channel S^(0) cascaded		e channel used to compute ircuit for Rd.
Suggested					Proposed Re		Response Status	•	
	e this subclause bly" with editoria	based on 162.11.5, substituti al license.	ng "TP0 to TP5	channel" for "cable	PROPOS	, SED REJECT			
Proposed I PROP	Response DSED ACCEPT.	Response Status W							es not address technical ent during working group
C/ 163	SC 163.10.4	P 192	L 44	# 27	C/ 163A	SC 163A.3.1	I.1 P 28	7 L 21	# 1
Brown, Ma	it	Huawei			Mellitz, Richa	ard	Samte	с	
Comment	Туре Т	Comment Status D		channel ILDC	Comment Ty	pe TR	Comment Status	D	TP0v/TP5v method (WG
		channel differential to commo	on-mode conver	sion loss is TBD.			ns incorrect for a pulse action of t. I believe the		_ref is intended to be a add up Nv UI(T_b) shifted
Suggested					pulse res	ponses.			
	•	ation and update PICS.			SuggestedRe	emedy			
-	DSED ACCEPT	Response Status W IN PRINCIPLE. oonse to comment #122			Replace V_f^(ref) Or V_f^(ref)		lue of v(t). s+nV*T_b)	aragraph as the tim	ne where h(t) reaches the
					Proposed Re	sponse	Response Status	w	
					This com		es a technical change t		es not address technical ent during working group

C/ 163A SC 163A.3.1.1

	SC	163A.4.1	P 2	89	L 1	# 3
Mellitz, Rich	nard		Samt	ec		
Comment Ty	ype	TR	Comment Status	D		TP0v/TP5v method (WG)
			ing and not entirely a reflection and hard			filter used for ERL is F_r m.
SuggestedR	?emec	ly				
Omit ref	erenc	e to ERL ir	the first sentence	of 164A.3.1 ar	nd figure	164A-2.
Add a li	ine at	end of 164	-A-3.1.			
			ss at TP5v is used annel S^(0) cascade			channel used to compute uit for Rd.
Proposed R	espor	ıse	Response Status	W		
		REJECT.				
						not address technical t during working group
ballot.	eness	s. The com	inenter is invited to		comment	
C/ 163A	SC	163A.4.1.2	P 2	89	L 46	# 11
Dudek, Mike	e		Marve	ell		
Comment T		Е	Comment Status	D		editorial (bucket1)
missing	spac	e between	"in" and "93A.5"			,
SuggestedR	Remed	<i>l</i> v				
fix it		,				
Proposed R	espor	nse	Response Status	w		
		ACCEPT.				
	SC	163B.2	P 2	91	L 9	# 12
C/ 163B		100BIL	· _		-•	
	د		Marve	2		
C/ 163B Dudek, Mike		TR	Marve Comment Status		PO	v/TP5v example (bucket1)
Dudek, Mike Comment Ty With this	ype s exai		Comment Status	D Annex it is nec		v/TP5v example (bucket1) o refer to the relevant
Dudek, Mike Comment Ty With this clause t	ype s exai hat pi	mple test fix rovides the	Comment Status	D Annex it is nec		, , ,
Dudek, Mike Comment Ty With this clause t SuggestedR Change methodo values c	ype s exain hat pr Remed "For ology detern	mple test fix rovides the dy this test fixt in 163A.3 a nined accor	Comment Status sture moved to an A package parameter ture, the reference of are listed in Table 10	D Annex it is nec rs etc. values determ 63B–1" to "Fo	essary to ined acco r this test	o refer to the relevant
Dudek, Mike Comment Ty With this clause t SuggestedR Change methodo values c	ype s exain hat pr Remed "For ology detern se 163	mple test fix rovides the dy this test fixt in 163A.3 a nined accor 3 are listed	Comment Status sture moved to an A package parameter ture, the reference of are listed in Table 10 rding to the methodo	D Annex it is nec rs etc. values determ 63B–1" to "Fo ology in 163A.	essary to ined acco r this test	o refer to the relevant ording to the t fixture, the reference

C/ 163B	SC 163B.2	P 290	L 16	# 132
Ran, Adee		Intel		
Comment Ty	pe TR	Comment Status D		TP0v/TP5v example

(addressing TBD)

The example test fixture is defined only by the magnitude of its insertion loss. Therefore it is impossible for a reader to calculate reference values at TP0a, and this example does not help.

The lack of full channel information also prevents calculation of consensus values to replace the TBDs in Table 163B–1.

It is suggested to replace the definition to a full s-parameters model based on the equations in 162.11.7.1.1 with the same z_p , creating an IL of 4.33 dB at 26.56 GHz. This will enable calculation of the reference values.

Alternatively, use a smaller value for z_p to create an IL of 2.8 dB.

SuggestedRemedy

Replace the text of this paragraph with text referring to 162.11.7.1.1 and equation 162-12 and update the reference values (currently TBD) accordingly.

A presentation with a more detailed proposal is planned.

Proposed Response	Response Status	w
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PROPOSED REJECT.

This comment proposes a technical change to the draft that does not address technical completeness.

Although this Annex is informative, this subclause is incomplete as written. Phase information is missing for the existing test fixture specification. The suggested remedy does not provide sufficient details for implementation.

However, the comment mentions that a presentation may be provided.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn SORT ORDER: Clause, Subclause, page, line

C/ 163B SC 163B.2

C/ 163B SC	C 163B.2	P 290	L 23	# 82	C/ 163B	SC 163B.2	P 291	L 20	# 45
Ghiasi, Ali		Ghiasi Quant	tum/Inphi		Brown, Matt	I	Huawei		
Comment Type	TR	Comment Status D		TP0v/TP5v example	Comment T	ype T	Comment Status D		TP0v/TP5v example
		be better defined			For the is TBD.	example test f	ixture, the reference value for	r transmitter line	ar fit pulse peak voltage
SuggestedRem	-				SuggestedR	Pamadu			
See ghiasi_		21 tructed from 2 mm section of	DCP trace with	102 Ohma (via modal)	Provide				
		2.5 Ohms strip line, followed							
ohms (via n	nodel) the to	otal loss of this model at 26.5	55 GHz is 2.8 dE	B. The PCB model is	Proposed R	•	Response Status W		
per table 93 GHz.	3-12. The e	quation for the loss =0.006+0	0.25*SQRT(f)+0	0.057*f, where f is in			IN PRINCIPLE.	draft that does n	not address technical
Proposed Resp	0000	Deserves Clature M			complet	eness.	C		
, ,		Response Status W			Resolve	using the res	ponse to comment #132.		
	D REJECT. ent propose	es a technical change to the c	draft that does n	not address technical					
completene									
		i provideo more ecourate II d	than equation 1	63B-1 Phase					
		y provides more accurate IL t	and oquation is						
information	is still miss	ing for the test fixture.	•						
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information Pending rev https://www Resolve wit C/ 163B So Brown, Matt Comment Type	is still missi view of the f t.ieee802.or h comment C 163B.2 T mple test fiv	ing for the test fixture. ollowing presentation and tag g/3/ck/public/21_01/ghiasi_3 #132. P 291 Huawei	sk force review. ck_02_0121.pd 	lf # 44 TP0v/TP5v example					
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C/ 163B SC 163B.2