Cl	SC 120G.5.2	P 278	L 11	# 84	C/ 00	SC	0	P 0	L 0	# 13	
Calvin,	John	Keysight Tech	nnologies		Brown, M	latt		Huawei			
Comme	nt Type TR	Comment Status D		EO RR bbmax	Comment	t Type	Е	Comment Status A		(bucket1)	
The coel bbm Suggest	bbmax(1) is limited fficient_limits_Calv hax(1) hits the .4 lin tedRemedy	d to .4. Reference contributio in". In summary TP1a needs nit at just 16.4dB in both emp	n "DFE-TP1a- s to support an erical test setup	18.2dB channel, and the s and in COM.	In D2.2, the mixed-mode insertion loss parameter and variable names were updated to make them common throughout the draft and presumably to align with the mixed-mode return loss parameter and variable names as updated in D2.1. However, the adopted parameters names for insertion loss which include differential-mode do not match those for return loss.						
Incr	ease bbmax(1) to a	a maximum value of .55 or red	duce the maxim	um channel for TP1a to							
16.4	юв.	_			Thou	ahout th	⊶, ne draft				
Propose REJ	ed Response IECT.	Response Status Z			Chan returr Chan	ge "diffe n loss" ge "con	erential to	o common-mode return loss" to	o "differential-n ס "common-mu	node to common-mode	
This	s comment was WI	THDRAWN by the commente	er.		return loss"						
CI 00	SC 0	P 0	LO	# 1	Response	Э		Response Status C			
Brown, <i>Comme</i> Kee	Matt <i>nt Type</i> E p 802.3ck aligned	Huawei <i>Comment Status</i> A with the new revision 802.3dc		(bucket1)	ACCEPT IN PRINCIPLE. This comment does not apply to the substantive changes between IEEE P802.3ck D2.2 and D2.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the proposed change is an improvement to the draft. Implement suggested remedy with editorial license.						
Suggest	tedRemedy										
With	n editorial license, a	align 802.3ck with the lastest	draft of the new	revision 802.3dc.	CI 1	SC	13	P 32	/ 10	# 150	
Respon	SE SEPT	Response Status C			Ghiasi, A	li	1.5	Ghiasi Quantu	um/Inphi	π 139	
100					<i>Comment</i> Per u	<i>t Type</i> insatisfie	TR ed comm	Comment Status A nent from D2.2 OSFP reference	e should be up	MDI reference (bucket1) dated	
					SuggestedRemedy Update reference to Rev. 4.1, August 2nd 2021						
					Response ACCE	e EPT IN	PRINCIF	Response Status W			

Implement suggested remedy with editorial license.

C/ 1

SC 1.3

302.3ck D2.2 100/200/40	0 Gb/s Electrical Interfaces	Task Force 2nd Working	Group recirculation ballot co
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-											
C/ 1	SC 1.3	P 32	L 11	# 160	C/ 1	SC 1.3		P 32	L 53	# 152	
Ghiasi, A	Ali	Ghiasi Quant	tum/Inphi		Ghiasi, Ali			Ghiasi Quan	ntum/Inphi		
Commen	t Type TR	Comment Status A		MDI reference (bucket1)	Comment	Type TR	Comment	Status A		MDI reference (bucket3)	
Per u	unsatisfied com	ment from D2.2 QSFP-DD800	reference shou	Id be updated	Per un	satisfied com	nment from D2.2	SFP-DD112 re	eference should	be updated.	
Suggeste	edRemedy				Suggested	lRemedy					
Char 28 20	nge reference to 021	0 QSFP-DD/QSFP-DD800/QSF	P112 Hardwai	e Specifications 6.0, May	New re SFP11 2021 (eference: SFF 2 AND SFP http://sfp-dd.c	P-DD MSA SFP- DOUBLE DENSI	DD/SFP-DD11 TY PLUGGAB	2/SFP112 Hard	ware Specification for /ER, Rev 5.0, September	
Respons	e 	Response Status W			Response	intp.//oip du.	Besnonse	Status W			
ACC Imple	EPT IN PRINC	IPLE. ed remedy with editorial license	except versior	n is 6.01 rather than 6.0.	ACCE	PT IN PRINC	CIPLE.				
C/ 1	SC 1.3	P 32	L14	# 151	In sub	clause 1.3 ch	ange:				
Ghiasi, A	Ali	Ghiasi Quant		"SFP-I	DD MSA SFP	P-DD Hardware S	pecification for	r SFP double de	ensity 2X pluggable		
Commen	t Type TR	Comment Status A		MDI labels (bucket3)	To:	elver, Rev 4.2	2, August 17, 202	20.			
Per u	unsatisfied com	ment from D2.2 SFP-DD112 re	l be updated.	"SFP-DD/SFP-DD112/SFP112 Hardware Specification for SFP112 AND SFP DOUBLE							
Suggeste	edRemedy				DENS	ITY PLUGGA	ABLE TRANSCE	IVER, REVISION	15.0, October 1,	2021	
Repla	ace SFP-DD wi	th SFP-DD112 which supports	100 Gb/s oper	ation.	Add th	e following fo	ootnote:				
Respons ACC	Response Response Status W ACCEPT IN PRINCIPLE.					"SFP-DD, SFP-DD112, SFP112 specifications are available from SFP-DD MSA (www.stp- dd.com)"					
Resc	olve using the re	esponse to comment #152.			Given Chang	the reference e "SFP-DD" f	e change above, to "SFP-DD112".	throughout the	draft		
C/ 1	SC 1.3	P 32	L 14	# 153	Chang	e 3FP+ 10	SFP112.				
Ghiasi, A	Ali	Ghiasi Quant	tum/Inphi		Impler	nent with edit	torial license.				
Commen Per u	<i>t Type</i> TR unsatisfied com	Comment Status A ment from D2.2 need to add ref	erence for SF	MDI labels (bucket3) P112	Cl 1 Gbiasi Ali	SC 1.3		P 32 Ghiasi Quan	L 53	# 154	
Suggeste	edRemedy				Comment	Type ER	Comment	Status A	num/mpm	MDI reference (bucket3)	
Repla	ace SFP-DD wi	th SFP-DD112 which supports	100 Gb/s oper	ation.	Per un	satisfied corr	nment from D2.2	SFP-DD112 re	eference should	be updated.	
Respons	е	Response Status W			Suaaesteo	lRemedv				•	
ACC	EPT IN PRINC	IPLE.			SFP-D	D MSA SFP-	-DD/SFP-DD112	SFP112 Hard	ware Specification	on for SFP112 AND SFP	
Resc	olve using the re	esponse to comment #152.	DOUBLE DENSITY PLUGGABLE TRANSCEIVER, Rev 5.0, September 2021 (http://sfp- dd.com/).								
					Response		Response	Status W			
					ACCE	PT IN PRINC	CIPLE.				
					Resolv	ve using the r	esponse to comr	ment #152.			
						3		-			

302.3ck D2.2 100/200/400 Gb/s Electrical Interfaces	Task Force 2nd Working	Group recirculation ballot co
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C/ 1	SC	1.3		P 32	L 53	# 155	C/ 1	SC	1.3		P 32	L 53	# 162
Ghiasi, Ali				Ghiasi Quar	ntum/Inphi		Ghiasi, Ali	i			Ghiasi Quan	ntum/Inphi	
Comment	Туре	TR	Comment S	Status A		MDI reference (bucket3)	Comment	Туре	TR	Comment S	tatus A		MDI refere
Per ur	satisfie	ed comme	ent from D2.2 a	dd reference	for SFP112.		Per unsatisfied comment from D2.2 QSFP112 reference should be updated. The						
Suggested	Reme	dv					refere	nce for	r QSFP112	missing			
SFP-D	D MS	A SFP-DD)/SFP-DD112/S	SFP112 Hard	ware Specifica	tion for SFP112 AND SFP	Suggested	dReme	dy				
DOUBLE DENSITY PLUGGABLE TRANSCEIVER, Rev 5.0, September 2021 (http://sfp- dd.com/).						New reference: QSFP-DD/QSFP-DD800/QSFP112 Hardware Specifications are avilable from (http://www.qsfp-dd.com)							
Response			Response S	status W			Response			Response S	tatus W		
ACCE	PT IN	PRINCIPL	.E.				ACCE	PT IN	PRINCIPLE	≣.			
Resolv	/e usin	g the resp	onse to comm	ent #152.			Chang	je:					
C/ 1	SC	1.3		P 32	L 53	# 161	"QSFP-DD800 MSA QSFP-DD Specification for 800G operation, Rev 1.0, March 6, 2020" To: "QSFP-DD/QSFP-DD800/QSFP112 Hardware Specification – Rev 6.01 May 20,2021"						
Ghiasi, Ali				Ghiasi Quar	ntum/Inphi								
Comment	Туре	ER	Comment S	Status A		MDI reference	Add th	ne follo	wing footno	ote:			
Per ur referei	satisfie	ed comme QSFP-DI	ent from D2.2 C D800 now obso	QSFP-DD800 blute	reference sho	uld be updated. The	"QSFF MSA	P-DD, ((http://	QSFP-DD8 /www.qsfp-d	00, and QSFP ld.com)"	112 specifica	ations are availab	le from QSFP-DD
Suggested	Reme	dy					Given	the ref	ference cha	inde above ch	ange "OSEP-	+" to "OSEP112"	
New re	eferenc	ce: QSFP-	DD/QSFP-DD	800/QSFP11	2 Hardware Sp	ecifications are avilable	Civen						
from (I	http://w	/ww.qsfp-o	dd.com)				Impler	ment w	ith editorial	license.			
Response			Response S	Status C			C/ 45	SC	45.2.7.13.	1	P 64	L 54	# 49
ACCE Resolv	PT IN	PRINCIPL	_E.	ent #162			Ran, Adee	e			Cisco		
10001	Resolve using the response to comment #102.						Comment	Туре	Е	Comment S	tatus A		(buck
							Bit 6 is 45.2.7	s define .12.3.	ed in this su	ubclause, and	is not mentio	oned in the refere	nced subclause
					SuggestedRemedy								
							Chang	ge "bits	5 7.49.6 thro	ough 7.49.0" to	"bits 7.49.5	through 7.49.0".	

Response Response Status C

ACCEPT.

C/ 45 SC 45.2.7.13.1

C/ 69	SC 69.2.6	P 69	L 23	# 2	C/ 93A	SC 93A	P 237	L 44	# 59		
Brown, Matt		Huawei			Mellitz, Rid	chardd	Samtec				
Comment Ty	pe t C	omment Status A		EEE (bucket1)	Comment	Type TR	Comment Status A		HO AC CM voltage (CC		
EEE is no	ot supported by the	Clause 163 PMDs.			Comm	on mode measu	urements are not well enough	defined to preci	sely specify CM voltage		
SuggestedRe	emedy				at TPC be det	v, TP1a, TP4 ar rimental as illust	nd TP2. In addition, all aspect trated in mellitz_3ck_adhoc_0	ts of a common i 01_090821.	mode voltage may not		
Amend 6	9.2.6 as follows.	CC facture described :	n Clauss 70 Da	alvalana Etharnat DLIVa	SuggestedRemedy						
can achie	eve lower power co	nsumption during period	ds of low link util	ization."	Add se	ection "93A.6 Co	mmon Mode measurements	". See presentati	on		
To: "Som	e Backplane Ether	net PHYs support the o	ptional EEE feat	ure, described in	Response Response Status C ACCEPT IN PRINCIPLE.						
Clause /	8, to achieve lower	power consumption du	ring periods of lo	w link utilization."							
Response	Re	esponse Status C									
ACCEPT This com	IN PRINCIPLE. ment does not app	ly to the substantive ch	anges between l	FFF P802.3ck D2.2	The pr https:/	oposed solution /www.ieee802.oi	was discussed in rg/3/ck/public/adhoc/sept08	21/mellitz 3ck a	dhoc 01 090821.pdf.		
and D2.1	or the unsatisfied	negative comments from	n previous drafts	B. Hence it is not within	intpoin		.9, o, o, i pasilo, a ano o, o o pro o				
the scope	e of the recirculatio	n ballot.	to the draft		The ta	sk force reviewe	ed the following presentation:	Rek 012 0021 p	df		
Impleme	nt the suggested re	medy.	to the drait.		nups./	www.ieeeo02.0i		5ck_01a_0921.p			
CI 90	SC 80 1 5	P 90	1 45	# 2	There is no consensus to implement in D2.3 the decomposed common-mode parameters						
Brown Mott	00 00.1.5	Huowoi	L 4J	# 5	as pro measu	rements at TP0	_3ck_01a. However, there was v for KR and C2C are necess	as concern that s sary.	ome improvement in		
Comment Ty				(bucket1)	0						
100GAU	-1 C2C/C2M are re	elevant to the new PMD:	s specified in 80	2.3db.	Change the AC common-mode voltage specification for KR and C2C to be the ratio of common-mode peak-to-peak at 1E-4 probability to the differential mode pmax value. The						
Suggested	modu			2.000.	ratio limit is -16 dB. Add editor's note indicating the the value needs further consideration.						
Alian Tak	anedy Je 80-5 with 802 30	th including 100GBASE	-VR1/SR1 In co	lumps for 120E/120G	Impler	nent with editoria	al license.				
add "O" f	or the VR1/SR1 PM	IDs.			Straw	poll #4 (directior	n)				
Response	Re	sponse Status C			I support replacing or supplementing the "composite" AC common-mode parameter with						
ACCEPT	IN PRINCIPLE.				interfa	eparate paramet	ers for correlated and uncorre	elated portions to	or one or more		
This com	ment does not app	ly to the substantive cha	anges between l	EEE P802.3ck D2.2	A: Yes						
the scope	of the recirculatio	negative comments fror n ballot.	n previous drans	5. Hence it is not within	B: No	d more informat	tion or more work needed				
However	the proposed char	nge is an improvement	to the draft.		A: 10,	B: 8, C: 11					
Impleme	nt the suggested re	medy.			Ctrow	noll #E (decision					
					In Dra	t 2.3, I support r	replacing or supplementing th	ne "composite" A	C common-mode		
					param	eter with new se	parate parameters for correla	ated and uncorre	lated portions for one		
					or mor	e interfaces.					
					B: No						

C/ 93A SC 93A

C/ 93A	SC 93A.1	P 2	29	L 39	# 34					
Ran, Adee	e	Cisco)							
Comment	Туре Е	Comment Status	Α		(bucket1)					
In the	existing c(-2) r	ow, "2nd" is written witl	n supe	erscript, but in the n	ew c(-3) "3rd" is not.					
Also, t	the tables spec	ifying the values (120F	-8, 16	2-19) use superscr	ipt.					
Suggested	Remedy									
Forma	at "rd" in supers	script.								
Response		Response Status	с							
ACCE	PT.									
C/ 93A	SC 93A.1.2	2.3 P 2	33	L 13	# 35					
Ran, Adee	e	Cisco)							
Comment	Туре Е	Comment Status	Α		COM pkg (bucket3)					
The ne "a") ex duplica	ew equations 9 (cept for param ate equations is	3A-12a through 93A-1 leter names z_p2 and 2 s not a good service to	4a are Z_c2 i the re	identical to the existence of z_p and z ader.	sting ones (without the <u>Z_c</u> . Having essentially					
Suggested	dRemedy									
Chang	ge the paragrap	h after the editorial ins	tructic	on to the following:						
"For c param define substit	"For clauses that use a second package transmission line segment described by parameters z_p2 and Z_c2 , the scattering parameters for the second transmission line are defined by Equation (93A–12), Equation (93A–13), and Equation (93A–14), with z_p2 substituting z_p and Z_c2 substituting Z_c ."									
(with _	_ denoting subs	script).								
Delete	equations 93/	A-12a through 93A-14a								
Response		Response Status	с							
ACCE	PT IN PRINCI	PLE.	-							
Resolv	ve using the re	sponse to comment #2	7							

C/ 93A	SC	93A.1	.6 P 235	L 15	# 113
Dawe, Piers	;		Nvidia		
Comment Ty	/pe	Е	Comment Status R		b(n) eqn
The equ can see	ation that i	for b(it is re	n) is clumsy and hard to understand.	When yo	u study it enough, you

SuggestedRemedy

Make a substitution: s(n) = h(0)(ts + n.Tb)Then the equation becomes { bbmin(n) s(n)/s(0) < bbmin(n) } $b(n) = \{ bbmax(n) \ s(n)/s(0) > bbmin(n) \}$ { s(n)/s(0) otherwise } Similarly for Eq 93A-27.

Response Response Status C

REJECT.

This is a restatement of D2.1 comment #118 which was rejected by the task force due to lack of consensus. The new comment provides a new equation form to consider. The proposed solution does not improve upon the accuracy or clarity of the existing equation.

C/ 120F	SC 120F.3.1	P 242	L 13	# 63
Mellitz, Rich	nardd	Samtec		
Comment T	ype TR	Comment Status A	CO	CM voltage (CC) (bucket2)

Common mode measurements are not well enough defined to precisely specify CM voltage at TP0v. In addition, all aspects of a common mode voltage may not be detrimental as illustrated in mellitz_3ck_adhoc_01_090821.

SuggestedRemedy

Remove item "AC common-mode RMS output voltage (max)"

Response Status W

Response

ACCEPT IN PRINCIPLE.

The resolution to closed comment #50 provides an alternate parameter to constrain AC common-mode for KR and C2C TX. Resolve using the response to comment #59.

C/ 120F SC 120F.3.1

C/ 120F	SC 120F.3.2.4	P 246	L 51	# 36	C/ 120f SC 120f.
Ran, Adee		Cisco			Mellitz, Richardd
Comment ⁻ Item e transm but the	<i>Type</i> TR in the list describe litter device and patter are is no discussion	Comment Status D es transmitter parameters u ackage model options in 16 n or reference.	sed for calculation 3.9.3.5 seem to	<i>withdrawn</i> on of COM. The be relevant here too,	Comment Type TR Table 162-7 has a required to meet m same reason it was
Suggested	Remedy				SuggestedRemedy
Add ar 163.9.3	n item to the lettere 3.5, or alternatively	ed list, between items d and y copy the same content.	l e, preferably po	pinting to item e in	For the entry "minir required to meet m
Proposed I REJEC This co	Response CT. omment was WITH	Response Status Z	Pr.		Response REJECT. This comment does and D2.1 or the una
C/ 120F	SC 120F.3.2.5	P 263	L 31	# 80	Resolve using the
Dudek, Mil	ke	Marvell			C/ 120G SC 120G
Comment ⁻ The na line 48	<i>Type</i> T ame Ildd is not use	Comment Status A d in Table 120F-5 so it is co	onfusing to use i	<i>(bucket1)</i> t in the specification on	Ran, Adee Comment Type TR
Suggested Include on line Response	Remedy IIdd in the param 48.	eter name in Table 120F-5 Response Status C	(or write the par	ameter name out fully	The host output diff module input will ha receivers which ma but real CTLEs ma adaptation and CD receiver predicts.
Implen [Editor	's note: Change pa	otion in the suggested reme age from 247 to 263.]	edy with editorial	license.	Note that the modu that the receiver is limit of 600 mV. SuggestedRemedy Change the value of from 870 to 600 mV

C/ 120f	SC 120f.4	P 249	L 15	# 58				
Mellitz, Rich	nardd	Samtec						
Comment T	ype TR	Comment Status R		Channel ERL (CC)				
Table 162-7 has a note for ERL "Cable assemblies with a COM greater than 4 dB are not								

required to meet minimum ERL". The same should apply to Table 120F-7 channels for the same reason it was include included in table 162-2

For the entry "minimum ERL" add a note: "Channels with a COM greater than 4 dB are not required to meet minimum ER."

Pesponse Response Status C

This comment does not apply to the substantive changes between IEEE P802.3ck D2.2 and D2.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

Resolve using the response to comment #57.

C/ 120G	SC 120G.3.1	P 261	L 3	# 38
Ran, Adee		Cisco		
Comment Ty	pe TR	Comment Status A		HO output swing (CC)

The host output differential peak-to-peak voltage is defined at TP1a so it is close to what a module input will have. The limit of 870 mV is too high for modern module host-side receivers which may used low-voltage CMOS processes. The reference CTLE is fully linear but real CTLEs may become nonlinear with such large signals and it may messs with its adaptation and CDR functionality and create much worse BER than what the reference receiver predicts.

Note that the module output "short" setting, which assumes a low-loss host channel (such that the receiver is close to the measurement point TP4), has a differential peak to peak limit of 600 mV.

Change the value of Differential peak-to-peak output voltage (max) with transmitter enabled from 870 to 600 mV.

In addition, if the steady-state voltage specification is added (subject of another comment), set the limit of that specification to 300 mV.

Response Response Status C

ACCEPT IN PRINCIPLE.

Resolve using the response to comment #37.

C/ 120G SC 120G.3.1

C/ 120G	SC 120G.3.1	P 261	L 3	# 37
Ran, Adee		Cisco		
Comment Typ	De TR	Comment Status A		HO output swing (CC)

Following up on unsatisfied comment #37 against D2.1:

As demonstrated in https://www.ieee802.org/3/ck/public/21_07/ran_3ck_04b_0721.pdf, the differential peak to peak specification measured with PRBS13Q is broken, especially for host output, because the result is strongly dependent on the host channel and equalization applied.

Since the proposal to define/measure this parameter with other patterns was not accepted, this comment proposes a new specification, based on PRBS13Q, to verify that the output swing is not too high. Namely, v_f using the linear fit procedure, similar to 162.9.3.1.2, with the exception that the transmitter equalization is not specified (it is whatever the host sets it to).

 v_f represents the asymptote of the (linear) step response of the transmitter, including any equalization applied. It can be used to predict the effect of arbitrarily long runs which are not present in PRBS13Q itself.

The suggested limit corresponds to Vdiffptp of 900 mV which was the assumed value for the host in all earlier C2M specifications. This limit may be somewhat too high but changing it is a different topic.

SuggestedRemedy

Add a row to Table 120G–1 with Parameter: Steady-state voltage v_f (max), Reference: 120G.5.4, Value: 450, Units: mV.

Add subclause 120G.5.4 with the following text:

120G.5.4 Steady-state voltage

The steady-state voltage v_f is defined as the sum of the linear fit pulse p(1) through $p(M \times Nv)$ divided by M with the specific equalization used by the transmitter. Nv is set equal to Np. The linear fit procedure for obtaining p and the values of M and Np are defined in 162.9.3.1.1.

Response

ACCEPT IN PRINCIPLE.

Comment #38 suggests conditionally setting the limit to 300 mV.

Response Status C

The following related presentation was reviewed at a prior ad hoc meeting: https://www.ieee802.org/3/ck/public/adhoc/sept22_21/kochuparambil_3ck_adhoc_01_0922 21.pdf

According to straw polls 11 to 14 there is consensus to add the steady state voltage method and not adjust the differential peak to peak voltage to account for pattern dependency.

According to straw poll 15 and 16 there is consensus to set the steady state voltage limit to 375 mV.

According to straw poll 17 there is consensus to set the differential peak to peak output voltage to 750 mV.

Implement the suggested remedy, except set the steady-state voltage limit to 375 mV.

Also, change the differenitial peak to peak voltage limit to 750 mV.

Implement with editorial license.

Note: Differential peak-to-peak output voltage (DPPV) Note: Straw poll #11 and #12 relate to the measurement and specification method.

Straw poll #11 (chicago) Straw poll #12 (pick one) I support the following to address host output and module output DPPV: A: no change to draft B: add steady-state voltage specification per comment #37, but leave DPPV as is C: adjust the DPPV maximum value per comments #96 and #150 to account for pattern dependency #11: A: 9 B: 10 C: 10 #12: A: 7 B: 6 C: 8

Straw poll #13 (direction)

I support the following to address host output and module output DPPV: A: add steady-state voltage specification per comment #37, but leave DPPV as is B: adjust the DPPV maximum value per comments #96 and #150 to account for pattern dependency A: 17 B: 7

Straw poll #14 (decision) I support adding steady-state voltage specification per comment #37, but leave DPPV as is. Y: 20 N: 9

Straw poll #15 (chicago) Straw poll #16 (choose one) I support setting the steady state voltage limit to: A: 375 mV B: 400 mV C: 420 mV #15: A: 20 B: 14 C: 6 #16: A: 15 B: 8 C: 4

Straw poll #17 (decision)

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 U/unsatisfied Z/withdrawn SORT ORDER: Clause, Subclause, page, line

C/ 120G SC 120G.3.1 Page 7 of 44 2021-10-12 4:06:12 PM

I support setting the DPPV as follows: A: set to 750 mV	C/ 120G SC 120G.3.1.1 P 261 L 34 # 39							
B: leave as is A·16 B· 7	Ran, Adee Cisco							
	Comment Type E Comment Status A RLdc							
C/ 120G SC 120G.3.1 P 261 L 13 # 60	This subclause specifies _limits_ to the RLdc, not the RLdc itself.							
Mellitz, Richardd Samtec	SuggestedRemedy							
Comment Type TR Comment Status R C CM voltage (CC) (bucket2)	Change "Common-mode to differential return loss of the host output is shown in Equation							
Common mode measurements are not well enough defined to precisely specify CM voltage at TP1a. In addition, all aspects of a common mode voltage may not be detrimental as	(120G–1)" to "The minimum common-mode to differential return loss of the host output is defined by Equation (120G–1)".							
illustrated in mellitz_3ck_adhoc_01_090821.	Response Response Status C							
SuggestedRemedy	ACCEPT IN PRINCIPLE.							
Replace item "AC common-mode RMS output voltage (max)""Uncorrelated AC common mode SNR (min), With "Peak fitted AC common mode (max) Pmax_ccm" using a value of 50 mV	This comment does not apply to the substantive changes between IEEE P802.3ck D2.2 and D2.1 or the unsatisfied negative comments from previous drafts. Hence it is not within							
Response Response Status W	the scope of the recirculation ballot.							
REJECT.	However, the proposed changes are and improvement to the draft.							
The resolution to closed comment #59 indicates there was no consensus to make the proposed changes to C2M host output or module output. Resolve using the response to comment #59.	Rather than using the text proposed in the suggested remedy use text consistent with return loss specifications in Clause 162 and Clause 163.							
C/ 120G SC 120G.3.1 P 261 L 16 # 150	Also, the inequality in Equation 120G-1 should be "greater than or equal" rather than "less than or equal".							
Dawe, Piers Nvidia								
Comment Type T Comment Status A HO output swing (CC) We under-estimated the pattern dependency on Vpkpk HO output swing (CC) HO output swing (CC)	Change: "Common-mode to differential return loss of the host output is shown in Equation (120G–1) and illustrated in Figure 120G–5." To:							
SuggestedRemedy Reduce 870 mV to 800 mV	"The host output common-mode to differential return loss shall meet Equation (120G-1) as illustrated in Figure 120G-5."							
Response Response Status C	In Equation (120G-1) change "less than or equal" to "greater than or equal".							
Resolve using the response to comment #37.	Implement with editorial license.							

C/ 120G SC 120G.3.1.1

C/ 120G	SC 120G.3.2	P 264	L	# 94
Dawe, Piers		Nvidia		
Comment Type	e TR	Comment Status A		MO/MI DC CM voltage

There used to be a footnote under the table: "DC common-mode voltage is generated by the host. Specification includes effects of ground offset voltage.", as in OIF VSR, and annexes 83E and 120E. That note told the reader how the system worked, and told him why these numbers aren't the same as in Table 120G-1, and everyone could get oin with earning their living. Now, there is a gratuitous, silly "DC common-mode voltage tolerance" spec row, which fussy customers will ask to see satisfied with a test report. If a module uses traditional capacitors, that's pointless. Notice that there is no equivalent spec in 162.11 Cable assembly characteristics (nor in annexes 83E and 120E).

SuggestedRemedy

Restore the DC common-mode voltage rows to the way they were and reinstate the table footnote. Delete 120G.3.2.4. Similarly in Table 120G-9, and delete 20G.3.4.5.

Response Response Status C

ACCEPT IN PRINCIPLE.

The information in the footnotes was not lost as it was moved to subclauses 120G.3.2.4 and 120G.3.4.5.

The specifications as previously written had the implication as currently specified but required some extrapolation to come to that realization. The specifications as they were previously written were ambiguous.

The assumption that there will be AC-coupling capacitors on the module is circular, since the specified common-mode voltages may force the use of a capacitor.

But the language could softened using similar text adopted in the revision project 802.3dc D2.0 comment #101.

In two places... Change: "A module shall meet all output specifications" To: "A compliant module meets the output specifications"

C/ 120G	SC 120G.3.2	P 264	L 10	# 96
Dawe, Piers		Nvidia		
Comment Ty	pe T	Comment Status A		MO DPPV value

For module output, the differential peak-to-peak output voltage (envelope) is weakly pattern dependent, predictably so because the loss to the observation point (TP4) is moderate and mostly known. The spec is clear and unambiguous and not broken because it tells the reader which pattern applies. The envelope at a "long mode" host IC would be lower than at TP4. However, it may be that we intended that the envelope at TP4 in service should be 900 mV, which I believe was the intention in other VSR-like specs.

SuggestedRemedy

If so, reduce the "900" in Table 120G-3 by ~4% to 845.

Response ACCEPT.	Response Status C		
C/ 120G SC 120G.3.2	P 264	L 11	# 93
Dawe, Piers	Nvidia		

Comment Type TR Comment Status	R MO EH
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If the eye height limit is the same at long near end as at long far end, there is huge margin at near end and the implementer is encouraged to optimise for far end or beyond, only limited by the NE VEC spec, while we want modules to be set up consistently, for the full range from near to far. EH is naturally larger at NE than FE for a well set up output and the spec should reflect that. Host designers know their own loss and medium-loss hosts can take advantage of a better signal that cost the module nothing.

SuggestedRemedy

Change the eye height, long near end, so that it is 3 dB above long far end, e.g. 15 mV (far) and 21 mV (near) if long far is not changed. 3 dB is about half the loss from long near end to long far end, so long far end remains the harder one to meet.

Response Response Status U

REJECT.

This comment is a restatement of D2.1 comment #98, for which there was no consensus to make the proposed changes.

The intent of specifications is to enforce what is necessary not what is possible. However, as this comment states, a long-mode host might be able to take advantage of the extra eye height.

There is insufficient evidence to make the proposed changes.

C/ 120G SC 120G.3.2 Page 9 of 44 2021-10-12 4:06:12 PM

C/ 120G	SC 120G.3.2	P 264	L 14	# 40	C	/ 120G						
Ran, Adee		Cisco			D	awe, Pier						
Comment T	ype E	Comment Status D		MO/MI	RLdc/RLcd C	comment T						
In Table common Similarly input dif If we us accordir	a 120G–3, RLdc f n-mode to differe y, in Table 120G- ferential to comn e the same spec paly.	or module output refers ntial return loss" and its -9, RLcd for module inp non-mode return loss" a ifications for both host	s to 120G.3.1.1 s text is specific out refers to 12 and its text is sp and module, th	which is titled "Ho to the host. DG.3.3.3 which is t pecific to the host. ey should be defin	ist output itled "Host ed	The ne implem similarl should theoret measur give the D2.1's						
SugaestedF	Remedv				S	uaaestedl						
In 120G	.3.1.1, change th	e title to "Output comm	non-mode to dif	ferential return los	s", and in	Change						
the text	the text and caption of Figure 120G-5 change "host" to "host and module" or delete it.											
Apply th	e corresponding	changes in 120G.3.3.3	3.			REJEC						
Proposed R REJEC	esponse F. mment was WITH	Response Status Z	enter			This co there w be som						
	SC 420C 2 2 4			# 64		Howev						
Mollitz Dick	3C 120G.3.2.1	F 204	L 0	# 61		Further						
Comment T	vpe TR	Comment Status R		C CM voltage (CC	C) (bucket2)	There :						
Commo	n mode measure	ements are not well enc	ough defined to	precisely specify (CM voltage -	I nere I						
at TP4.	In addition, all as	pects of a common mo	ode voltage ma	y not be detriment	al as C	/ 120G						
SuggostodE	omodu	_au100_01_090621.			R	an, Adee						
Renlace	eineuy item "AC comm	on-mode RMS output v	voltage (max)"		С	Comment 7						
With "Pe	eak fitted AC con	nmon mode (max) Pma	ax_ccm" using a	a value of 50 mV		connec						
Response		Response Status W			S	uggestedl						
REJEC ^T	F.					Change						
propose	d changes to C2	M host output or modul	le output.	consensus to mak	e trie R	esponse						
Resolve	using the respon	nse to comment #59.	·			ACCEF Resolv						

C/ 120G	SC 120G.3.2.2	.1 <i>P</i> 265	L 46	# 97
Dawe, Piers		Nvidia		
Comment Typ	e TR	Comment Status R		MO SI channel

ar end and far end should be placed far enough apart so that the module enter has little choice what emphasis to use, so that all modules are set up ly. As short is easier than long, this means that far minus near (mm or dB) for short be more than far minus near for long. As real host channels are not exactly like the ical reference host channel and host makers hate avoidable precision, rement and record-keeping, there should be a healthy overlap of short and long to e host room for its implementation. D2.0's 160 mm delivered on both these criteria, 133 mm doesn't.

Remedy

e 133 to 150, change 80 to 90

Response Status U

CT.

omment is a restatement of D2.1 comment #102 for which as no consensus to make a change. However, the response notes that there may he benefit to explore this further.

er, no further analysis or significant additional justification has been provided.

discussion indicated there are concerns with making the proposed changes.

is no consensus to make the proposed changes.

C/ 120G	SC 120G.3.2.3	P 2	P 266		# 41
Ran, Adee		Cisco)		
Comment T	ype TR	Comment Status	Α		L Tfx wording (CC) (bucket1)
When m	neasuring module ion.	ERL, the test fixtu	re (a	aka MCB) doe	s not have a host-facing

Remedy

e "host-facing" to "cable-facing".

Response Status W

PT IN PRINCIPLE.

ve using the response to comment #81.

C/ 120G	SC 120G.3.2.	3 P 266	L 5	# 81	C/ 120G	SC 1200	9.3.3	P 267	L 27	# 5
Dudek, Mil	ke	Marvell			Brown, Mat	tt		Huawei		
Comment	Туре Т	Comment Status A	2	Tfx wording (CC) (bucket1)	Comment 7	Гуре Е	С	omment Status A		(bucket1)
For the	e module test the	re is not a "host-facing conn	ection"		In Tabl	e 120G-7, f	ootnote "a	a" is redundant since the	referenced sub	clause 120G.3.3.5
Suggested	Remedy				specifie	S THE BER	requireme	ent.		
Chang	e "host facing co	nnection" to module-facing	connection"		Suggested	Remedy				
Response		Response Status C			Delete	footnote a.				
ACCEI	PT.				Response		Re	esponse Status C		
[Editor	's note: Changed	page/line from 285/24 to 26	6/5.]		ACCEF	PT IN PRIN	CIPLE.	hard data and a tan Cara aka		
C/ 120G	SC 120G.3.3	P 267	L 27	# 42	and D2	.1 or the ur	is not app isatisfied i	negative comments from	nges between i previous drafts	S. Hence it is not within
Ran. Adee	•	Cisco			the sco	pe of the re	circulatio	n ballot.		
Comment	Туре Е	Comment Status A		(bucket1)	However	er, the prop ient the suc	osed chai Igested re	nge is an improvement to emedy.	o the draft.	
The no stresse that po	ormative requirem ed input test subc pints to the same.	nent of meeting the BER spe clause, 120G.3.3.5. There is	ecification 12 no need for	0G.1.1 is stated in the host a footnote in Table 120G-7	<i>Cl</i> 120G Ran, Adee	SC 1200	6.3.3.2	P 267 Cisco	L 36	# 43
Similar	rly in Table 120G	-9 (module stressed input).			Comment 7	ype ER	С	comment Status A		(bucket1)
Suggested	Remedy				Subcla	use title is i	ncorrect.			
Delete	footnote a from I	ooth tables.			Suggested	Remedy				
Response		Response Status C			Change	e "Module"	to "Host".			
, ACCEI This co	PT IN PRINCIPL	E. apply to the substantive ch	anges betwe	en IEEE P802.3ck D2.2	Response ACCEF	PT.	Re	esponse Status W		
the sco Howev Implen	ope of the recircu ver, the proposed nent the suggeste	lation ballot. change is an improvement ed remedy.	to the draft.							

C/ 120G SC 120G.3.3.2

3.	.3.3	3			P 267	7	L	43		# 44			C/ 120G	SC	120G.3.3.5		P 268		L 29		# 117
				C	Cisco								Dawe, Piers	S			Nvidia				
	(Сс	omme	ənt Sta	atus 🖡	4					RL	.dc	Comment T	ype	TR	Commer	nt Status A			HI SI ter	minology (bucket1)
ie	fies _	inn،	nits_	to the	RLcd,	, not th	e RLcd	l itself.					802.3 is	s not a	a test spec (t	here was	a companio	n standa	rd for tha	t which h	as been
													withdrawn). I nere is no requirement to test, only to comply. We provide definitions of measurable parameters, not measurement requirements. Making the naming more								
0	to con	omn	non-r	node	return	loss of	the ho	st input	is show	wn in Eo	quation		consistent.								
defined in Equation (120G-2)".											SuggestedRemedy										
Response Response Status C										Here ar	nd in T	Fable 120G-' Change "Hos	10, chang t stresser	e "Host stre d input toler:	ssed inpu ance is m	ut test" to easured	"Host sti	ressed input			
ACCEPT IN PRINCIPLE.											procedu 120G.3	ure" to .4.2 M	Host stres	sed input	tolerance is test.	defined t	by the pro	ocedure"	Similarly in		
ot	not ap	apply	ly to t	the sul	bstanti	ive cha	inges b	etween	IEEE P	2802.3c	ck D2.2		Response			Response	e Status N	ı			
cu	culati	ation	n ball	ot.	mmen	IS HOIT	i previo	us uran	IS. Heni		not within	I	ACCEF	T IN F	PRINCIPLE.						
. d	مطملم	ahan			ad impu		ant ta th	a draft					The title	e of 12	20G.3.3.5 sh G-7 change '	ould be u	pdated to re	eflect the i	intent rat	her than t	the test.
a	eu cha	Jildii	iges a	alean	iu impi	overne		le ulait.					Change	the ti	itle of 120G.	3.3.5 to "I	Host stresse	ed input to	plerance"		
te on	e text i ions ir	xt pro s in C	opos Claus	ed in 1 3e 162	the su 2 and C	ggeste ≎lause	d reme 163.	dy use t	text con	nsistent	t with		In Table 120G-9 change "Module stressed input test" to "Module stressed input tolerance". Change the title of 120G.3.3.5 to "Module stressed input tolerance".								
Е	ו Equ	quati	ion 12	20G-2	shoul	d be "g	reater f	than or o	equal" r	rather t	han "less		C/ 120G	SC	120G.3.3.5.	1	P 269		L 12		# 120
than or equal".									Dawe, Piers	S			Nvidia								
Change:											Comment T	ype	т	Commer	nt Status R				HI SI method		
on	on-ma	mod	le ret	urn lo:	ss of th	ne hosi	t input i	s showr	n in Equ	uation ((120G–2)		short or long mode far-end <i>SuggestedRemedy</i>								
re	ire 12	1200	<i>Э</i> –8."	'																	
ent	ential	ial to	com	י-nom	mode i	return I	loss sha	all meet	t Equati	ion (120	0G-2) as		short or long mode far-end test or long mode near-end test								
20	20G-8	3-8."	,										Response Response Status C								
cł	chan	ange	e "les	s thar	n or eq	ual" to	"greate	er than c	or equal	d".			REJEC	т.							
d t	d text	∙xt "N	Meets	s equa	ation co	ontrain	ts" belc	w the li	mit line.	ı.			This co and D2	mmen .1 or ti	nt does not a the unsatisfie	pply to th d negative tion ballo	ie substantiv /e comment: *	e change s from pre	es betwee evious dr	en IEEE F afts. Hen	P802.3ck D2.2 ce it is not within
ia	rial lic	licen	nse.										The scope of the recirculation ballot. As written, the text requests that regardless of whether the host requests long mode or short mode, only the far end test and calibration is required.								
ree lis	ired E dispat	ER	₹/edite ned ≠	orial re A/acce	equirec epted	d GR/(R/rejec	general cted	require RESPO	ed T/teo NSE S ⁻	chnical TATUS	E/editori S: O/open	al G/ger W/writte	neral en C/closed	U/uns	satisfied Z/v	vithdrawn	n S	7 120G 3C 120G .	3.3.5.1		Page 12 of 44 2021-10-12 4:06
ree lis Sul	ired E dispati Subcla	ER batch	≀/edito ned <i>I</i> ise, p	orial re 4/acce bage, I	equirec epted line	d GR/(R/rejec	jeneral ted	require RESPO	ed T/teo NSE S ⁻	chnical TATUS	E/editori S: O/open	al G/ger W/writte	neral en C/closed	U/uns	sati	sfied Z/v	sfied Z/withdrawr	C sfied Z/withdrawn S	sfied Z/withdrawn C/ 120G SC 120G.	C/ 120G sfied Z/withdrawn SC 120G.3.3.5.1	C/ 120G sfied Z/withdrawn SC 120G.3.3.5.1

C/ 120G	SC 120G.3.3.5	.2 P 270	L 3	# 128	C/ 120G	SC	120G.3.3	.5.2	P 270	L 11	#	45
Dawe, Pie	rs	Nvidia			Ran, Adee				Cisco			
Comment	Туре Е	Comment Status A		HI SI method	Comment 7	ype	т	Comme	ent Status A			HI SI method
"transi These be bet genera	tion time at TP4 are the same plac ter to calibrate afte ator" (words in a di	a", "jitter profile of the sign e apart from the DC block, er it. Also 120G.3.5.2.2 say fferent order, so a search v	al at the pattern and if that mak vs "at the output von't find both).	generator output". es a difference it would of the pattern	"If the I betwee This se	PRBS	13Q patte PRBS130 e seems o	rn is used a patterns of put of place	with a common clo on one lane and a e after the calibrati	ock, there is at le ny other lane" ion of the crossta	ast 31 UI alk signal	delay transition
Suggested	Remedy				time. A	so it's	unclear v	why 31 UI a	are required with a	I PRBS13Q.		
Chang	e "at the pattern g	enerator output" to "at Tp4	a".		Looking) back	at the co	rrespondin	g text in 83E whe	re this requireme	nt was inł	nerited from, it
Response	PT IN PRINCIPI F	Response Status C			refers t stress	o PRE signal,	S31, and not to the	appears ir e calibratio	n reference to the n of the crosstalk	effect of the cros signal.	stalk sign	als on the
This co and D2 the sco	omment does not a 2.1 or the unsatisfi ope of the recircula	apply to the substantive ch ed negative comments fror ation ballot.	anges between n previous draft	IEEE P802.3ck D2.2 s. Hence it is not within	It seem to ensu	s that re tha	this text s t the diffe	should refe rent crosst	r to PRBS31Q aft alk sources are no	er the crosstalk c ot in-phase (and a	alibration: appear ur	is complete, correlated).
Note a	llso that the propos	sed change is technical, no	t editorial.		This co	mmer	nt also ap	olies to 120)G.3.4.3.2 (modul	e stressed input)		
Impier	Implement the suggested	a remeay.			Suggested	Reme	dy					
					Move the quoted sentence to the end of the paragraph (item e) and change "PRBS13Q" to "PRBS31Q".							
					Implem	ent si	milarly in	120G.3.4.3	3.2.			
					Response			Respon	se Status C			
					ACCEF This co and D2 the sco Howev The wa signals calibrat be intel accoun Delete: "If the F betwee Insert f	PT IN I mmer 1 or t pe of er, the y this while ion us nded t t. How PRBS n the	PRINCIPI nt does no he unsatis proposed procedure allowing ing PRBS o provide vever, a si 13Q patte PRBS130 owing ser	E. tapply to tapply the tapple tapped tatted tapped tapped tapped tapped tapped tapped tapped tapped tapped tatted tapped tatted tapped tatted ta	the substantive ch ive comments from ot. an improvement ritten PRBS13Q is nt with other patte nplete. The minim esparation betwe ideration for PRBS with a common cluo on one lane and a pe end of item et	anges between I m previous drafts to the draft. a candidate patt ms, including PF um pattern offse en PAM4 symbo S31Q is warrante ock, there is at le ny other lane."	EEE P802 . Hence if tern for th RBS31Q, it of 31 mi ls taking id. east 31 UI	2.3ck D2.2 t is not within e crosstalk once ight be also ISI into delay

"If the PRBS13Q or PRBS31Q pattern is used with a common clock, there is at least 31 UI delay between the PRBS13Q or PRBS31Q patterns on one lane and any other lane."

C/ 120G SC 120G.3.3.5.2

C/ 120G	SC 120G.3.3	.5.2 P 270	L 13	# 46
Ran, Adee		Cisco		
Comment Typ	pe TR	Comment Status A		HI SI method

"The pattern may be changed to PRBS31Q (see 120.5.11.2.2), scrambled idle (see 82.2.11 and 119.2.4.9), or another valid 100GBASE-R, 200GBASE-R, or 400GBASE-R signal for amplitude calibration."

The "may" in this sentence means that the pattern may also _not_ be changed, so PRBS13Q can be used as the crosstalk pattern for EH/VEC calibration. But PRBS13Q is not a representative signal and the crosstalk it creates may be different from the other signals (which have wider spectrum). This gives room for undesired variability in test conditions.

Looking back at the corresponding text in 83E, it has "The pattern is changed", not optionally "may be changed".

This comment also applies to 120G.3.4.3.2 (module stressed input).

SuggestedRemedy

Response

In the quoted sentence, change "may be" to "is", and change "for amplitude calibration" to "for amplitude and stressed signal calibration".

Implement similarly in 120G.3.4.3.2.

Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ck D2.2 and D2.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

Since the crosstalk response passes very little low frequency (e.g., less than 1 GHz) signal, PRBS13Q should be sufficient as the pattern for a crosstalk signal and thus is a relevant candidate pattern.

Resolve using the response to comment #45 and #121.

C/ 120G	SC 1	20G.3.3.5.2	2 P 270	L 13	#	121
Dawe, Piers			Nvidia			
Comment Ty	be	т	Comment Status A			HI SI method

This sentence used to say "The pattern may be changed to a valid 100GBASE-R, 200GBASE-R, or 400GBASE-R signal for amplitude calibration and the stressed input test". The same sentence was used for host stressed input calibration with target amplitude and transition time, and module stressed input calibration with target amplitude and slew time. It wasn't as clear as it could have been: crosstalk pattern or victim pattern? Amplitude calibration of crosstalk or victim? I believe it meant that the crosstalk pattern could be changed to a long one when calibrating the eye height of the victim. CEI 16.3.10.3.1 says "The crosstalk signal is calibrated at TP4 or TP1a using a QPRBS13-CEI pattern, then the pattern is changed to QPRBS31-CEI for the test".

SuggestedRemedy

Change "The pattern" to "The crosstalk pattern", change "amplitude calibration" to "stressed signal eye height and VEC calibration". Also in 120G.3.4.2.2 step e.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ck D2.2 and D2.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

However, the proposed changes are an improvement to the draft.

Change the sentence as follows:

The crosstalk pattern is changed to PRBS31Q (see 120.5.11.2.2), scrambled idle (see 82.2.11 and 119.2.4.9), or another valid 100GBASE-R, 200GBASE-R, or 400GBASE-R signal for crosstalk amplitude calibration and stressed signal calibration (see step g).

C/ 120G SC 120G.3.3.5.2

C/ 120G	SC 120G.3.3	.5.2	P 270	L 16	# 122	C/ 120G	SC 1200	.3.3.5.2	P 270	L 19	# 130
Dawe, Pier	ſS		Nvidia			Dawe, Pier	S		Nvidia		
Comment T This sa	<i>Type</i> E ays "the host PC	Commen B in 120G.3	<i>t Status</i> A .2.2.1" while 120)G.3.2.2.1 says	HI SI method (bucket1) "reference host channel"	Comment T If "diffe	<i>Type</i> T rential peak	Comm to-peak volta	ent Status A ge" is supposed to	convey the idea	HI SI method that the MSB and LSB
Suggested	Remedy					are not	adjusted se poeak volta	eparately as in de is limited at	120E.3.3.2.1 and t TP4. not the PG.	D2.0, it doesn't	do it. Also, differential
Use the	e same name ir	both subcla	uses, e.g. chang	ge "host PCB" to	"reference host	Suggested	Remedv	ge ie innied d	,		
channe host P(120G.3	el". Or, change CB in 120G.3.2 3.2.2.1".	2.1" to "Th	ce host channel	is configured in at channel is cor	the same way as the figured according to	Change "differential peak-to-peak voltage are adjusted" to "amplitude are adjusted". Change "voltage tolerance given" to "voltage tolerance at TP4 given". See another comment against p268 line 45 about introducing the pattern generator.					
Response		Response	e Status C			Similar	ly in 120G.3	.4.3.2 step g.		0 1	°
This co	omment does no	.⊏. ot apply to the	e substantive ch	anges between	IEEE P802.3ck D2.2	Response		Respor	nse Status C		
and D2 the sco Howev Change	2.1 or the unsati ope of the recirc er, the propose e "host PCB" to	sfied negative ulation ballot d change is a "reference h	e comments from an improvement ost channel"	m previous draf to the draft.	s. Hence it is not within	ACCEF This cc and D2 the scc Howev	PT IN PRIN omment doe 2.1 or the un ope of the re er, the prop	CIPLE. s not apply to satisfied nega circulation bal osed change is	the substantive ch tive comments froi lot. s an improvement	anges between m previous draft to the draft.	IEEE P802.3ck D2.2 s. Hence it is not within
C/ 120G	SC 120G.3.3	.5.2	P 270	L 17	# 123	Note th	at the other	comment refe	erenced in the suge	gested remedy is	s comment #118.
Comment T "param in one Suggested parame	<i>Type</i> E neters in Table 7 case, the near 6 <i>Remedy</i> eters in Table 1	Commen 20G–5 for fa end needs a j 20G–5 for ho	ar-end host chan parameter from	nel type and the the table and the request	<i>HI SI method</i> e requested mode": but ed module output mode	Chang Eye he genera eye ma peak-to voltage referen	e the paragi ight and VE tor amplituc atches the ta p-peak volta tolerance g ice receiver	aph to the follo C are measure e and random arget value and ge measured a jiven in Table settings that n	owing: ed at TP4 as descr jitter are adjusted d VEC is within the at TP4 does not ex 120G–7. The patten ninimize VEC are u	ribed in 120G.5.3 so that the eye l limits in Table 1 acceed the differe ern generator pre- used.	2. The pattern height of the smallest 120G–8. The differential ntial peak-to-peak input semphasis and
Response		Response	Status C			C/ 120G	SC 1200	.3.3.5.2	P 270	L 19	# 7
REJEC	CT.					Brown, Ma	tt		Huawei		
This co	omment does no	ot apply to the	e substantive ch	anges between	IEEE P802.3ck D2.2	Comment	Гуре Т	Comm	ent Status A		HI SI methoc
and D2 the sco	2.1 or the unsation of the recirc	sfied negativulation ballot	e comments from	m previous draf	s. Hence it is not within	In item but this	g, the adjust is not clear	tment of jitter	, voltage, and equa	alization to minin	nize VEC are iterative,
host ch	ressed input tole nannels, so only	the far end r	nd calibration is	defined using o equired.	nly the far-end reference	Suggested	Remedy				
	,					Update similar	e the descrip way.	tion to reflect	the interative natur	re. Update item g	g in 120G.3.4.3.2 in a
						Response		Respor	nse Status C		
						ACCE	PT IN PRIN	CIPLE.			
						Change "The pa genera that the limits ir	e the secon attern gener tor preempl e eye height n Table 120	d sentence to ator amplitude hasis and refer of the smalles G–8."	the following: and random jitter ence receiver setti st eye matches the	are adjusted, whings are adjusted target value and	hile the pattern d to minimize VEC, so d VEC is within the

 TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
 C/
 120G

 COMMENT STATUS: D/dispatched A/accepted R/rejected
 RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
 SC
 120G

SORT ORDER: Clause, Subclause, page, line

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C/ 120a	SC 120g 3.3	5.2 P 270	/ 21	# 66	C/ 120G	SC 120G 3 3 5 2	P 270	/ 21	# 56
Mellitz. Rid	chardd	Samtec			Ran. Adee		Cisco		
Comment	Type TR	Comment Status A	ŀ	HI/MI SI PG EQ (bucket3)	Comment T	ype TR Com	ment Status A		HI/MI SI PG EQ
The sta preem minimi mutli-te	atement following phasis. "The pat ize VEC are used one (DMT) equali	g statement offers little cons tern generator pre-emphasi ." For example: Why couldr zer? There may be other ex	traint on what m s and reference i't the pattern ge camples.	ay be used for receiver settings that merator use a discrete	(CC - H The ten definitio	ost stressed input and l m "pattern generator pro n, and does not appear	Module stressed inp e-emphasis" is used anywhere else. Fur	ut) in both procedur thermore, it is sta	es without any ited that the "settings
Suggestea	lRemedy				that mir taken.	imize vec are used .	But it is not stated in	om which set of s	ettings the minimum is
Add a capabi	line indicating the	at the pattern generator pre-	emphasis may b	be approximately the	Dottorn	concreters used to ere	ato the atragood inpu	it signal may be	able to eaply arbitrarily
Response ACCE Resolv	PT IN PRINCIPL	Response Status W E.			Ing FF 1. An F reference without 2. An F differen The FF calibrati can be used (a make s The FF (so less used to With no do not e use diffe a stand	Secondational and the second s	Consider the followin gnal (e.g., zero-forci- setting (there is a di- tes the signal at the example, has a mo- the first case would a adding jitter to get these multiple FFEs , and each one created al life will not be opt build create a signal is actually better for emphasis" means, I the trouble of findin ifferent stressed sig- ple may use signal g	as the ISI) after the sest the ISI) after the ISI) after the form of a DUT were capable equal create the best where VEC to the tast is the "pre-emphitics a different stutimized like that. The DUT. If we are the DUT. If we are the DUT. If we are the set of the set of the tast is the set of the DUT. If we are the DUT. If we are the DUT which would enerators with share the set of the s	he test channel and the ach CTLE setting even with a receiver which is izer with lower noise). EC during stress urget). The specification asis" that should be ress. This does not s ideal in calibdation allow this FFE it can be e are equally valid; we different people can defeat the purpose of norter FFEs or no FFE
					at all, ci If we thi allowed Althoug would b 120D, v and will	reating even more varia nk the allosed "pre-emp (and thus the optimizat h any specification wou e the 5-tap FFE (3 pre, /hich was used in multij be widely implemented	bility in test condition ohasis" settings are ion space for creatir Id be better than nor 1 post) in the COM ole presentations that.	ns. not unlimited, we ng the stressed s ne, the most reas model of clauses at analyzed chan	should specify what is ignal). conable specification 162, 163, and annex nels and stress signals,
					SuggestedF	Remedy			
					Insert th test set	ne following paragraph a up):	after the 3rd paragra	ph of 120G.3.3.5	.1 (Host stressed input
					"The pa transmi	ttern genrator has pre-ettern genrator has pre-ettern genrator has pre-etterned in 12	emphasis capability 20F.3.1.2, with the co	equivalent to the pefficient values	functional model of the ranges and step sizes

 TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
 C/
 120G
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 COMMENT STATUS: D/dispatched A/accepted R/rejected
 RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
 SC
 120G
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 SC
 120G
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in Table 120F-8."

Apply similarly for module stressed input test setup in 120G.3.4.3.1.

Response

Response Status C ACCEPT IN PRINCIPLE.

This comment proposes that test results will be very inconsistent since the strength of the transmitter equalizer may very from just good enough to overkill.

A similar sentiment and proposals is echoed by comments #66, #67, and #132.

Apply chosen constraint to both 120G.3.3.5.2 and 120G.3.4.3.1.

Specify the pattern generator behaviour as follows:

The pattern generator equalization functional behaviour is equivalent to the model shown in Figure 120F-3. The tap coefficients are not specified.

Implement with editorial license.

C/ 120G	SC 120G.3.3.5	2 P 270	L 22	# 132
Dawe, Piers		Nvidia		
Comment Type	e TR	Comment Status	A	HI/MI SI PG EQ (bucket3)

Remove ambiguity. The reader doesn't know if the writer had precursor emphasis in mind, or calls any output emphasis "pre-". Also, we can reduce the search space and variation among stressed signal setups a little.

SuggestedRemedy

Change "pattern generator pre-emphasis" to "pattern generator emphasis". Add "There is no more than one pattern generator post-emphasis tap, with a positive or zero value." Similarly in 120G.3.4.3.2.

Response

ACCEPT IN PRINCIPLE.

The response to closed comment #56 provides guidance on how the pattern generator equalization is generated.

Response Status W

Resolve using the response to comment #56.

C/ 120G	SC 120G.3.3.5	.2 P 2	70	L 22	#	148
Dawe, Piers		Nvidia	а			
Comment Ty	be TR	Comment Status	R			HI SI method

The host stressed input signal is emulating a module so must obey the same rules. VEC and eve height must be in spec for both near end and far end. The signal should be adjusted to minimise VEC for both, or possibly to minimise VEC for far end while keeping in spec at near end. The eye height should match the target at far end and be graeter at near end.

SuggestedRemedy

This procedure needs road-testing before the draft can be said to be "without technical issues". In the meantime, add text to the draft to explain more fully what the procedure is.

Response Response Status U

REJECT.

Item g) instructs that the eve height of the smallest eve match the target value in Table 120G-8. Table 120G-8 provides only one value to be used for both near-end and far-end measurements.

Item g) instructs that VEC is within the limits in Table 120G-8. Table 120G-8 provide only one range (with maximum and minimum) to be used for both near-end and far-end measurements.

The module output specifications for eye height and VEC are the same for near-end and far-end.

The comment does not provide sufficient evidence to support the proposed changes. The suggested remedy does not provide sufficient detail to implement.

C/ 120G	SC 120G.3.3.	5.2 P 2	70	L 25	# 116
Dawe, Piers	5	Nvidia	a		
<i>Comment T</i> Blank lir	ype E ne	Comment Status	R		(bucket1)
SuggestedR Remove	Remedy e				
Response		Response Status	С		
REJEC This cor and D2. the scop This "bla	T. mment does not 1 or the unsatisf be of the recircul ank line" is a res	apply to the substar ied negative comme ation ballot. ult of putting the tab	ntive change ents from pre	es between IEEE evious drafts. He n its own line to p	P802.3ck D2.2 nce it is not within prevent odd

formatting as the text moves around. We can optimize spacing issues like this closer to publication once the document is more stable.

C/ 120G SC 120G.3.3.5.2 Page 17 of 44 2021-10-12 4:06:12 PM

C/ 120G	SC 120G.3.3	.5.2	P 270	L 30	# 124	C/ 120G	SC	120G.3.3.5.3	P 2	70	L 50	# 126
Dawe, Pier	S		Nvidia			Dawe, Pier	S		Nvidi	а		
Comment T	Гуре Е	Commer	nt Status A		(bucket1)	Comment	Гуре	т	Comment Status	R		HI SI method
Table f	ormat					There's	s a pro	oblem with ide	ntifying which lan	es are rele	vant. For "T	he host electrical output
Suggested	Remedy					is enab	oled o ould in	n all lanes with Include all 8 tra	n any of the patter	ns above" מסטSFP	, this is to inc or maybe all	the output lanes on the
Use a s	separate Units c	olumn as us	sual.			host if	it mak	kes a differenc	e. While for "The	host BER	is the avera	ge of the BER of each of
Response		Response	e Status C			its lane	s", or	nly the lanes in	h the PMA (AUI) ι	inder test (1, 2 or 4 lane	es) are relevant.
ACCEF This cc and D2 the scc	PT IN PRINCIPL omment does no 2.1 or the unsatis ope of the recircu	E. t apply to the fied negativulation ballot	e substantive ch e comments fror	anges between I n previous drafts	EEE P802.3ck D2.2 a. Hence it is not within	clear h "interfa 95.8.1.	ow ma ice BE 1	any lanes a m ER" occurs 19	odule has. But, t times in section (erminology 6, and is de	of this has fined in 86.8	been set up: the term 8.2.1, 86.8.4.7, 86.8.4.8,
Howev	er, the proposed	I change is a	an improvement	to the draft.		Suggestea	Reme	edy				
Impier	ient the suggest	ea remeay.				Change The rel	e para evant	agrapn to: t BER is the in	terface BER, whi	ch is the a	verage of the	e BER of each of the
C/ 120G	SC 120G.3.3	.5.3	P 270	L 48	# 125	lanes i	n the	AUI under tes	t.			
Dawe, Pier	S		Nvidia			If the te	error	counter in the	n PRBS31Q, the PMA test pattern	BER of a F	MA lane ma	y be calculated using
Comment T	Гуре Т	Commer	nt Status A		HI SI method	bit erro	rs div	ided by the nu	imber of received	bits.		
in Tabl used to others Editoria	e 162-16" then t ogether (as one are active). al: detached and	he HCB is d might for a T I plugged are	etached from the TV receiver that r e an odd pair.	MCB, implying nust receive one	that all SJ cases are channel while all	or 4000 decode divided Similar	GBAS er erro l by th ly in 1	E-R sequence or counters (se ne number of r 120G.3.4.2.3.	e, the interface Bl ee 91.6 and 119.3 eceived bits.	ER may be .1), as the	calculated u number of F	sing the host FEC EC symbol errors
Suggested	Remedy					Response		F	Response Status	С		
After th scramb The H0 electric is step	ne stress has be bled idle, or anot CB is unplugged al output is enal bed through the	en calibrated her valid 10 from the M0 bled on all la six cases in	d, the pattern get 0GBASE-R, 200 CB and is plugge anes with any of Table 162-16.	nerator is set to g GBASE-R, or 40 d into the host u the patterns abo	generate PRBS31Q, 0GBASE-R sequence. nder test. The host ve. The sinusoidal jitter	REJEC This co and D2 the sco	CT. omme 2.1 or ope of	nt does not ap the unsatisfied the recirculati	oply to the substa d negative comme fon ballot.	ntive changents from p	ges between previous draft	IEEE P802.3ck D2.2 s. Hence it is not within
Response		Response	e Status C			The ter	m "in	terface BER" i	is used exclusivel	v in Claus	a 86 and Cla	use 95 and is related to
ACCEF	PT IN PRINCIPL	.E.				optical which s	PMD	s and PMD se ies the 200GA	rvice interface. Th	ne term "h JI-8, which	ost BER" is u are a more	sed in Annex 120E relevant to 120G.
This co and D2 the sco	omment does no 2.1 or the unsatis ope of the recircu	t apply to the sfied negative ulation ballot	e substantive ch re comments fror t.	anges between I n previous drafts	EEE P802.3ck D2.2 b. Hence it is not within	There i	s no d	concensus to	make the propose	ed changes	3.	
Howev	er, the proposed	I change is a	an improvement	to the draft.								
Implerr "The te Instead	nent the suggest est is repeated w d of:	ed remedy, ith sinusoida	except use the fe al jitter set to eac	ollowing sentenc ch of the six case	e: s inTable 162-16."							
" The s	inusoidal jitter is	s stepped th	rough the six cas	ses in Table 162-	16."							
			ial required OD	(accord to a direct	Theophysical Fladitarial Cl	aanaral				01 400		
COMMENT	STATUS: D/dis	spatched A/	accepted R/reje	cted RESPO	NSE STATUS: O/open W/w	general ritten C/closed	U/ur	nsatisfied Z/w	ithdrawn	SC 1200	ء 3.3.3.5.3	Page 18 of 44 2021-10-12 4:0

SORT ORDER: Clause, Subclause, page, line

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Cl 120G SC 12 Dawe, Piers Comment Type	20G.3.3.5.3	P 271	L 7	# 127	C/ 120G	SC	120G.3.4.3	2 P 273	1 32	# 129
Dawe, Piers <i>Comment Type</i>		N							- 01	125
Comment Type		Nvidia			Dawe, Piers	5		Nvidia		
	E Co	mment Status D		HI SI method	Comment T	ype	Е	Comment Status A	l me	ethod test setup (bucket1)
"Methods of ex described abov needed for som	tracting the re ve may be use nething that sh	ceived bit pattern and d if they generate equi nouldn't need saying ea	counting errors o ivalent results" - ach time.	other than the ones more wordy than	"transition time at the input to the frequency-dependent attenuator", "jitter profile of the signal at the output of the pattern generator". These are the same place a the style guide says to use the same name for the same thing every time. Also the frequency-dependent attenuation/attenuator is not always present, and to measure					
SuggestedRemedy	/				transitio	on time	e or iitter on	e connects the scope to the	e PG not to the	attenuator. By the way.
Other methods	of extracting	the received bit pattern	and counting e	rrors may be used if	120G.3	.3.5.2	says "at the	e pattern generator output" ((see another co	omment).
Also in 120G.3	equivalent resi	uits.			SuggestedF	Remec	dy			
Proposed Respons	se Res	sponse Status Z			Change generat	e "at th or".	ne input to tl	ne frequency-dependent atte	enuator" to "at	the output of the pattern
REJECT.					Response			Response Status C		
This comment	was WITHDR	AWN by the comment	er.		ACCEP	T IN F	PRINCIPLE			
C/ 120G SC 12	20G.3.4	P 271	L 36	# 6	This comment does not apply to the substantive changes between IEEE P802.3ck D2.2 and D2.1 or the unsatisfied negative comments from previous drafts. Hence it is not within					
Brown Matt		Низмеі			the sco	pe of t	the recircula	ation ballot.		
Commont Tuno	F Co			(huckat1)	Howeve	er, the	proposes c	hange is an improvement to	o the draft.	
	E CO	"in redundent since th	a referenced auk		The cor	nmen	t refers to it	em a) in 120G.3.4.3.2 with r	reference to tra	ansition time
specifies the Bl	ER requireme	nt.	e referenced sur	Clause 1200.3.4.3	Item c)	in 120)G.3.4.3.2 r	efers to the output of the par	ttern generato	r with reference to jitter
SuggestedRemedv	,				measur	emen	t.		-	
Delete footnote	a				Both rei	erenc	e points are	e on the same node so the s	same test point	t should be referenced.
Response	Por	nonco Statulo C			implem		c suggester		30.	
ACCEPT IN PF This comment and D2.1 or the the scope of the However, the p Implement the	RINCIPLE. does not apply e unsatisfied n e recirculation proposed chan suggested rer	y to the substantive ch legative comments from l ballot. ge is an improvement nedy.	anges between n previous draft to the draft.	IEEE P802.3ck D2.2 s. Hence it is not within						

C/ 120G SC 120G.3.4.3.2

(bucket1)

(bucket1)

(bucket3)

C/ 120G	SC 120G.3.4.3	3.2 P 273	L 34	# 112	C/ 120G	SC	120G.3.4.	3.2	P 274	L1	# 105
Dawe, Pier	s	Nvidia			Dawe, Pie	rs			Nvidia		
Comment 7	Type TR	Comment Status A		HI SI method	Comment	Туре	Е	Comme	nt Status A		(bucket1
"as X a reader to be a differer langua	s possible" is bac supposed to try? chievable at a rea tial peak-to-peak ge.	d language in a standard o No expense spared!? Th asonable cost. I know in t input voltage tolerance sl	r any kind of speanis isn't a moonsh nis case, the cost nould not be a pro	c. How hard is the ot, what we ask for has of getting to the blem, but avoid bad	Not a l Suggesteo Make ' Response	ink <i>Remed</i> 'Table ´	<i>ly</i> 162-20" a	link Respons	se Status C		
Suggested	Remedy				ACCE	PT.					
Change peak-to not exc may be	e "The initial signa p-peak input volta reed the differenti s set at the high e	al level is set as high as p ge tolerance given in Tabl al peak-to-peak input volta nd of the range for jitter ca	ossible without ex e 120G-9" to "The age tolerance give alibration". Simila	ceeding the differential e initial signal level does en in Table 120G-9, but rly in 120G.3.3.5.2.	C/ 120G Dudek, Mil	SC ·	120G.3.4.	3.2	P 274 Marvell	L 3	# 82
Response ACCEF	PT IN PRINCIPLE	Response Status C			Comment The wo	<i>Type</i> ord "rep //Pomod	E presenting	Comme is strange	nt Status A e here		(bucket1
Change The init Table 1	e the sentence to tial signal level is 20G-9.	: set to the differential peal	x-to-peak input vo	Itage tolerance given in	Chang Response	e "repre	esenting" 1	to "providir <i>Respons</i>	ng" se Status C		
C/ 120G	SC 120G.3.4.3	3.2 P 273	L 54	# 8	ACCE Resolv	PT IN F 'e using	PRINCIPLI the respo	E. onse to cor	nment #106.		
Commont 7					C/ 120G	SC	120G.3.4.	3.2	P 274	L 4	# 109
In D2.2 attenua channe	a precise definiti tor was added. H I is not specified.	ion of the target insertion I lowever, the frequency rai	oss for the freque nge over which to	mi Si FDA ncy dependent "match" the real	Dawe, Piers Nvidia Comment Type T Comment Status A Lelieve that when the complex numbers are boiled down to decibels, and noting to						<i>(bucket3)</i>
Suggested	Remedy				gamm	a0 is 0	and Zc is	100 ohm, t	the respones has	the form $IIdd = I$	A.sqrt(f) + B.f exactly.
Specify approx Perban	the frequency ra mate the target in	inge over which the the fr nsertion loss.	equency depende	ent attenuator must	Suggestea Please	<i>Remed</i> give th	<i>ly</i> ne equatio	n.			
Response ACCEF	PT IN PRINCIPLE	Response Status C			Response ACCE	PT IN F	PRINCIPLI	Respons E.	se Status C		
Resolv	e using the respo	nse to comment #110.			The ec depend inform	uations dent los ative ec	s provide t ss and the quation rep	he comple ILdd in de presenting	x s-parameters n cibles is provide the insertion loss	ecessary as a ta in Figure 120G-1 would be helpfu	rget for the frequency- 1. However, providing a II.
					See sl https://	ide 41 i ⁄www.ie	n the follo ee802.org	wing prese g/3/ck/publ	entation: ic/21_09/brown_3	3ck_02a_0921.p	df
					Add th ILdd = ILdd is	e follow 1.54*so in dB,	ving inform qrt(f) +0.38 f is in GH2	national eq 865*f z	uation for the ins	ertion loss with e	ditorial license.

tation: /21_09/brown_3ck_02a_0921.pdf ation for the insertion loss with editorial license. TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general C/ 120G Page 20 of 44 COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn SC 120G.3.4.3.2 2021-10-12 4:06:12 PM SORT ORDER: Clause, Subclause, page, line

C/ 120G	SC 120G.3.4.	3.2 P 274	L 9	# 106	C/ 120G	SC 1	20G.3.4.5	P 27	6 L 5	# 9
Dawe, Piers	6	Nvidia			Brown, Mat	t		Huawe	ei	
Comment T The 18. text or i	<i>ype</i> T 2 dB is informati ust in this editor	Comment Status A ion that lets the reviwer un s note?	derstand the spec	<i>(bucket1)</i> - does it occur in the	Comment 7 The ter	<i>ype</i> n "grou	T Ind offset v	Comment Status voltage" is not define	R ed.	MO DC CM voltage
SuggestedF Add it to dB) rep	Remedy the text: chang resents	e "This represents" to "th	ne differential-mod	le insertion loss (18.2	Suggestedł Provide Response	Remedy explan	/ ation for w	hat is meant by "gro Response Status	ound offset voltag	e".
Response ACCEP	T IN PRINCIPLE	Response Status C			REJEC There is	T. s no cor	nsensus to	make any changes	to the text.	
Change 26.56 G transmi ⁿ To ". Th dB at 20 transmi	"representing IL BHz. This representing IL BHz. This representing inservation of the resulting inservation of the S.56 GHz, representing the BLS6 GHz, representing the the BLS6 GHz, representing the the state of the the the the the the state of the the the the the the the state of the the the the the the the the the state of the	Ldd from the output of the ents 16 dB channel loss wi s." tion loss from the output o senting 16 dB channel loss s."	pattern generator th an additional a f the pattern gene s with an additiona	to TP1a of 18.2 dB at lowance for host rator to TP1a is 18.2 I allowance for host	Cl 120g Mellitz, Ricl Comment 7 The sta	SC 1 nardd ype tement	20g.3.4.5. TR following s	2 P 27 Samte Comment Status statement offers little	4 L 19 c A e constraint on wh	# 67 HI/MI SI PG EQ (bucket3) hat may be used for
Cl 120G Lusted, Ker	SC 120G.3.4. : nt	3.2 P 274 Intel Corpor	L 9 ation	# 15	preemp minimiz mutli-to	nasis. e VEC ne (DM	are used." T) equaliz	rn generator pre-em ' For example: Why er? There may be of	phasis and refere couldn't the patte her examples.	rn generator use a discrete
Comment T There is and the	ype ER s an editor's note frequency range	Comment Status A to be removed in the next	t draft, pending ch	<i>MI SI FDA</i> anges to the Z_p value	S <i>uggestedl</i> Add a li capabil	Remedy ne indic ty spec	cating that	the pattern generate 3.9.2	or pre-emphasis r	nay be approximately the
SuggestedF Resolv∉	Remedy the value of z_	p and adjust the frequency	range as necess	ary	Response ACCEF	T IN PI	RINCIPLE	Response Status	w	
Response ACCEP Resolve	T IN PRINCIPLE	Response Status C			Resolve	e using	the respor	nse to comment #56 P 27	6 <i>L</i> 11	# 10
CI 1200	SC 120C 2 4	D D D D D D D D D D D D D D D D D D D	1 1 4	# [110]	Brown, Mat	t		Huawe	ei	
Dawe, Piers Comment T	s Sype T	Nvidia Comment Status A	L 14	# MI SI FDA	Comment 7 The ter and 120	<i>ype</i> m "(info)F.4.2.	E ormative)" v	Comment Status would better be "(rec	D commended)" and	I should align with 163.10.2
The forr grade n job abo	mula and target nicrowave conne ve 40 GHz. It's a	exist at all frequencies. The ctors. We should not be eater a target, there is no spec c	ne loss board cons encouraging imple on how "approxima	sists of PCB and good menters to do a bad ate" is good enough.	Suggested In the ti	Remedy tle of 12	/ 20G.4.1 cł	nange "(informative)'	to "(recommende	ed)".
SuggestedF Graph t	Remedy he target up to tl previous page	ne signalling rate as done	in Figure 163B-1,	delete the editor's note	Proposed F REJEC	espons T.	se	Response Status	Z	
Response ACCEP	T.	Response Status C			This co	mment	was WITH	IDRAWN by the con	nmenter.	
TYPE: TR/tr	echnical required STATUS: D/disj	d ER/editorial required GF batched A/accepted R/rej	R/general required ected RESPON	l T/technical E/editorial G/g ISE STATUS: O/open W/wr	general ritten C/closed	U/unsa	atisfied Z/	withdrawn	C/ 120G SC 120G.4.1	Page 21 of 44 2021-10-12 4:06:12 F

SORT ORDER: Clause, Subclause, page, line

C/ 120G	SC 120G.4.1	P 276	L 13	# 47	C/ 120G	SC 1	20G.4.1	P 276	L 14	# 48
Ran, Adee		Cisco			Ran, Adee			Cisco		
Comment T	Гуре Е	Comment Status A		channel IL (bucket1)	Comment	Гуре	т	Comment Status A		channel IL
The ins equation	sertion loss can on defines a limi	not be compared to ("equal to it; however, it is not measura	o or less than") ble, so it can or	an equation. The ly be a recommendation.	"For co be high	orrect op ner or lo	peration, t wer than	he actual differential-mode t that given by Equation (1200	o differential-mo 3–3) due to the	ode insertion loss could channel ILD, return
Suggested	Remedy				loss, a	nd cross	stalk"			
Change defined	e "is expected to by".	o be equal to or less than" to	"is recommend	ed to be within the limits	This se meanir	entence ng is.	is meanii	ngless as written, and not he	Ipful for readers	, whatever the intended
Response ACCEF The wo were cl Howev inequa Chang	PT IN PRINCIPI ord "expected" v reated with the er, the wording lity. Wording us e "is expected to	Response Status C LE. vas chosen intentionally to co assumption of a channel mea should be updated to reflect e elsewhere, e.g., 162.11.4, o be equal to or less than" to	onvey that the in eting this inserti that the equatio can be used. "is expected to	iterface specifications on loss criteria. n is in the form an meet".	Lookin Equatio recom statem This se limits, i anythir	g at 83E on (83E- nendati ent eith eems lik and that	E, there w -1) was d on. 120E er. e a stater t was a po than a re	ras no such statement; the ir escribed as "typical applicat changed it to a recommend ment from the days when ch por specification. We have n ecommendation; and as such	isertion loss that on" with no attent ation but did not annels were spe o ground for ma n it does not nee	t was provided in mpt to make it even a add the quoted ecified by insertion loss king Equation 120G-3 ed any disclaimers.
					Suggested	Remedy	/			
					Delete	the quo	ted sente	ence.		
					Response			Response Status C		
					ACCE	PT IN P	RINCIPLI	E.		
					The me the pre	erit and ference	purpose was to d	of the sentence was discuss elete the referenced sentend	ed by the task fo ced.	orce. Per straw poll #8
					Implem	nent the	suggeste	ed remedy.		
					Straw	oll #8 (decision)			

Straw poll #8 (decision) I support closing comment #48 using the provided suggested remedy. Yes: 14 No: 11

C/ 120G SC 120G.4.1

C/ 120G	SC 120G.5.2	P 277	L 17	# 104	C/ 120G SC
Dawe, Piers	6	Nvidia			Dawe, Piers
Comment T	ype T	Comment Status A		EO method	Comment Type
This new are rela expecta histogra number there ar and is ir	eds explanation, tive to the numb tition of number of am*. In convent of samples, as ny probabilities of ndeed done per	Correction/deletion: "Unless ber of PAM4 symbols mease of bad samples in the histo ional eye mask terminology sumed evenly distributed a butside eye height / VEC, v sample not per symbol.	s specified otherw sured." For a histo gram / total numb y, hit ratios are hit cross 1 UI (see 80 which is covered la	vise the probabilities ogram, it should be the er of samples *in the s in a keepout region / 6.8.3.2.1). Anyway, are ater in this subclause	This draft ha EA/VECmax 2x0.05 UI wi uncertain pro weakens it fi 1e-4, not 1e We need an
SuggestedF Delete t	Remedy the sentence.				near the bou measureme into scopes
Response		Response Status C			work well.
ACCEP	T IN PRINCIPL	Ε.			SuggestedReme
This cor and D2. the scop This ser	mment does not 1 or the unsatis pe of the recircu ntence is no lon	apply to the substantive c fied negative comments fro lation ballot. ger relevant.	hanges between l om previous drafts	EEE P802.3ck D2.2 s. Hence it is not within	Change fror 10-cornered H/2, k +/-H* H is max(E AVlow, as ir This simple
Implem	ent suggested r	emedy.			Response
C/ 120G	SC 120G.5.2	P 278	L 24	# 16	REJECT.
Lusted, Ker Comment T	nt <i>Type ER</i> s an editor's note	Intel Corpor Comment Status A e to be removed in the nex	ation t draft, pending ch	<i>(bucket1)</i> nanges to thef_b value.	This comme there was no has been pr
SuggestedF Reaffirn	Remedy n the correct f_b	value and remove the edi	tor's note		Resolve usir
Response ACCEP There w	T IN PRINCIPL	Response Status W E. hts submitted that expresse	ed concern with th	e value of f_b.	

Remove the editor's note.

C/ 120G S	C 120G.5.2	P 27	79	L 6	#	101
Dawe, Piers		Nvidia	1			
Comment Type	TR	Comment Status	R			EO mask

as a weighted rectangular eye mask spec with mask height = max(EHmin, x) and effective mask width ~2x0.03 UI, although it is described as a histogram ide. Measuring a diamond eye with a rectangular mask provides weak and otection against too much jitter; de-weighting the sides of the histogram urther; the effective BER criterion is hard to establish but seems to be around -5 as intended.

eye mask that's more eye shaped, so that a higher proportion of the samples undary are measured at full weight and contribute properly to the nt. Eye mask measurement with a 10-sided mask has been pre-programmed for about 20 years, we should use established tools and methods where they

edy

m a 4-cornered weighted mask with corners at t = ts+/-0.05, V = y +/-H/2 to a unweighted mask with corners at t = ts+/-1/16, ts+/-0.05, ts+/-3/32, V = y +/-0.4, y. y is near VCmid, VCupp or VClow (vertically floating, as in D2.2). Hmin, Eye Amplitude * 10^(-VECmax/20)). Eye Amplitude is AVupp, AVmid or D2.2

scalable method can remain as the EH and VEC limits are revised.

Response	Response Status	U
REJECT.		

ent is a restatement of D2.1 comment #106 and D2.0 comment #180 for which o consensus to make the proposed changes. No new evidence or consensus rovided.

ng the response to comment #95.

C/ 120G SC 120G.5.2

C/ 120G	SC 1	120G.5.2	P 279	L 43	# 95	C/ 136	SC 136.8.11.7.	1 P 127	L 36	# 83
Dawe, Pier	ſS		Nvidia			Kochupar	ambil, Beth	Cisco Syst	ems	
Comment 7	Туре	TR	Comment Status R		EO mask	Comment	Type E	Comment Status D		
The Ga	aussian	weighting	has the effect of destroying	g the histogram v istogram width st	vidth, allowing bad fast	Sente	nce uses absolute	language which is disco	uraged by the Styl	e Guide, "always."
weighti	ing stan	idard devia	ation of 0.02 UI, the eye hei	ght is measured	at around +/-0.03 UI	Suggestee	Remedy			
rather t	than the	e +/-0.05 L	II in the previous draft. Cor	npare 120E with	ESMW of 0.2 or 0.22	Chang set to	e "This variable is	always set to FALSE fo	r 50 Gb/s per lane	PHYs, otherwise it is
Suggested	Pomod					set to	TRUE."			
Remov	ve the G	y Gaussian w av) approp	reighting and set the eye he	ight and VEC lin	nits (which need	Proposed REJE	Response CT.	Response Status Z		
Response	ii aliywa	ay) approp	Response Status II							
REJEC	ст.					This c	omment was WITH	IDRAWN by the comme	nter.	
introdu accept: Per stra the f Straw p (direct I suppo A: weig B: weig C: unw D: mas #9: A:	ced in I ance of aw poll followin poll #9 (poll #10 cooll #10 cooll #10 cooll #10 cooll #10 cooll #10 cooll #10 cooll #10 cooll #10 cooll #2 cooll #10 cooll #10 cool	D2.2 based the respo #9 and #1 g added 2 (pick one) 0 (chicago) ollowing m indow per indow per d window per C: 6 D: 2	d on approved D2.1 commense with a ratio (yes:no) of 0 there is no consensus to 021/10/4 hethod of determining eye h Draft 2.2 (no change) Draft 2.2, except increase s er Draft 2.1 (perhaps with c ent #101	ent #39. A final si 21:11. change the mea eight and VEC: standard deviatio lifferent width)	traw poll indicated surement method.					
#10 A:	22 B: 1	20:7D:	D122	/ 40	# 75					
Dudek. Mik	ke	10 0.0. 7.2	Marvell	L 4 3	# 15					
Comment T	<i>Type</i> istent u	E se of C2C	Comment Status A		(bucket1)					
Suggested Either	Remed	y Cafter all t	he variants or just the last o	one. Also on pag	je					
Response ACCEF Put C2	PT IN P C once	RINCIPLE after all th	Response Status C e variants on page 123.							

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 U/unsatisfied Z/withdrawn SORT ORDER: Clause, Subclause, page, line C/ 136 SC 136.8.11.7.1

P 139	L 52	# 24	C/ 162	SC 1	162.8.1	P 165	L 48	# 92
Xilinx			Dawe, Pier	S		Nvidia		
omment Status A 0 Comment #162, P80 be mapped to tx_scra process described in stent with existing Clau)2.3ck/D2.1 revis mbled_am<128/ the remainder of use 119, which b	language (bucket1) sed the text to following: 4:0> in a manner that this subclause ears much similarity to	Comment 7 "differe underst it's a sy Similarl clauses mode a Suggested	<i>ype</i> ntial-me ands ju stem o y for re in the nd con Remedy	E ode to diff ust "insert or compor eturn loss. base doc nmon-mo	Comment Status R ferential-mode insertion loss ¹ ion loss" to mean differential ient that uses differential sign I twould be disruptive and use ument for this, although the de losses may be worth retro	is unnecessa mode to differ alling, which is nnecessary to erminology an fitting.	<i>IL terminology (CC)</i> rily wordy; everyone rential-mode if they know s made plain above. g othrough the many ad notation for mixed-
of P802.3ck/D2.0:			Change "differe	e "differ ntial-m	rential-mo ode to difi	de to differential-mode insert ferential-mode return loss" to	ion loss" to "in "return loss" t	sertion loss", change hroughout the document.
be mapped to am_txn ring process.	napped<1284:0>	in a manner that yields	Response REJEC	т.		Response Status C		
y to the substantive ch negative comments from ballot. Ige is an improvement	anges between m previous draft to the draft.	IEEE P802.3ck D2.2 s. Hence it is not within	"Implen present https://v Resolut differen would b No cha [Editor's	ation: www.ie tion to o t to wh be best nges to s note:	e parame ee802.org comment: at was re- to defer t o the draft CC: man	ter names and variables nam g/3/ck/public/21_07/brown_34 s against the new revision (8 cently adopted in 802.3ck D2 his topic until after the next d y]	es provided ir k_01a_0721.p)2.3dc) has re .2. To minimiz raft of 802.3dc	a slide 15 of the following odf" sulted in terminology te churn in 802.3ck, it t is published.
			C/ 162	SC 1	162.9.3	P 170	L 12	# 73
a new subclause headi er mapping" raph starting at line 48 cordered alignment ma ned and reordered alig I am_txmapped<1284: er insertion shall be inserted so it a	ng: to insert a new s rkers are mappe nment markers i 0>. uppears in the ou	ubclause heading: d every 20 × 16 384 66- s called the "alignment tput stream every 81	Dudek, Mik Comment 7 In the c do not i charact Suggestedf Change Response ACCEF Change	e ype ontext nclude eristics Remedy to "Re PT IN P to "Ch	TR of 162 the the host s y ecommen RINCIPLI hange to "	Marvell Comment Status A e "transmitter" includes the h PCB and therefore should no ded transmitter characteristis <i>Response Status</i> W E. 'Recommended transmitter of	ost PCB. The t be called jus at TP0 are pr haracteristics	TP0/TP5 (bucket3) characteristis in 162A.2 t transmitter ovided in 162A.2" at TP0 are provided in
	P 139 Xilinx mment Status A 0 Comment #162, P80 be mapped to tx_scra process described in stent with existing Clau of P802.3ck/D2.0: be mapped to am_txm ring process. sponse Status W y to the substantive ch legative comments from ballot. Ige is an improvement ; a new subclause headi er mapping" raph starting at line 48 cordered alignment ma ned and reordered alig am_txmapped<1284: er insertion shall be inserted so it a	P 139 L 52 Xilinx Numment Status A 0 Comment #162, P802.3ck/D2.1 revise be mapped to tx_scrambled_am<1284	P139 L52 # 24 Xilinx Ianguage (bucket1) 0 Comment Status A Ianguage (bucket1) 0 Comment #162, P802.3ck/D2.1 revised the text to following: be mapped to tx_scrambled_am<1284:0> in a manner that process described in the remainder of this subclause stent with existing Clause 119, which bears much similarity to of P802.3ck/D2.0: be mapped to am_txmapped<1284:0> in a manner that yields ing process. sponse Status W y to the substantive changes between IEEE P802.3ck D2.2 tegative comments from previous drafts. Hence it is not within ballot. uge is an improvement to the draft. * a new subclause heading: er mapping" raph starting at line 48 to insert a new subclause heading: sordered alignment markers are mapped every 20 × 16 384 66-ned and reordered alignment markers is called the "alignment dam_txmapped<1284:0>. er insertion shall be inserted so it appears in the output stream every 81	P 139 L 52 # 24 Cl 162 Xilinx Ianguage (bucket1) Dawe, Pier 0 Comment #162, P802.3ck/D2.1 revised the text to following: "differe be mapped to tx_scrambled_am<1284:0> in a manner that "differe process described in the remainder of this subclause Similan stent with existing Clause 119, which bears much similarity to Suggested of P802.3ck/D2.0: mode a be mapped to am_txmapped<1284:0> in a manner that yields REJEC ing process. mode an sponse Status W y to the substantive changes between IEEE P802.3ck D2.2 Response regative comments from previous drafts. Hence it is not within ballot. No cha ige is an improvement to the draft. No cha implem Present index and reordered alignment markers are mapped every 20 × 16 384 66- Dudek, Mik ned and reordered alignment markers is called the "alignment Suggested/ if am_txmapped<1284:0>. Change er insertion Suggested/ shall be inserted so it appears in the output stream every 81 Cl 162	P 139L 52# 24XilinxIanguage (bucket)0 Comment X162, P802.3ck/D2.1 revised the text to following: be mapped to tx_scrambled_am<1284:0> in a manner that process described in the remainder of this subclauseDawe, Piersstent with existing Clause 119, which bears much similarity to be mapped to am_txmapped<1284:0> in a manner that yields ing process."differential-m understands in understands in it's a system c SuggestedRemed Change "differential-m mode and corbe mapped to am_txmapped<1284:0> in a manner that yields ing process. sponse StatusWy to the substantive changes between IEEE P802.3ck D2.2 regative comments from previous drafts. Hence it is not within b ballot. uge is an improvement to the draft.Response REJECT. The resolution to different to wh would be best No changes to [Editor's note:a new subclause heading: eordered alignment markers are mapped every 20 × 16 384 66- ned and reordered alignment markers is called the "alignment am_txmapped<1284:0>.Cl 162SC Dudek, Mike Comment Type In the context d on tinclude characteristicsSuggestedRemed Change to "Re Response ACCEPT IN P	P139 L52 # 24 Xilinx Ianguage (bucket1) 0 Comment #162, P802.3ck/D2.1 revised the text to following: Dawe, Piers be mapped to tx_scrambled_am<1284:0> in a manner that "differential-mode to diffunderstands just "insert of P802.3ck/D2.0: "similarly to be mapped to am_txmapped<1284:0> in a manner that yields ing process. "differential-mode to diffunderstands just "insert sponse Status W "differential-mode to diffunderstands just "insert y to the substantive changes between IEEE P802.3ck D2.2 "Response regative comments from previous drafts. Hence it is not within ballot. The changes were mader the parameter presentation: ing process. "Implement the parameter presentation: "differential-mode to differential-mode to differential-mod	P 139 L 52 # [24] Xilinx Ianguage (bucket1) 0 Comment 7162, P802.3ck/D2.1 revised the text to following: Demapped to tx_scrambled_am Nvidia be mapped to tx_scrambled_am mamoer that Ci 162 SC 162.8.1 P 165 Dawe, Piers Nvidia comment 7162, P802.3ck/D2.1 revised the text to following: Nvidia Comment 7ype E Comment Status R be mapped to tx_scrambled_am mamoer that session Scrambled_am Ci 162 SC 162.8.1 P 165 Dowe, Piers Nvidia Nvidia Comment 7ype E Comment 7ype E Comment Status R Nvidia of P802.3ck/D2.0: be mapped to am_txmapped<1284:0> in a manner that yields SiggestedRemedy Change 'differential-mode to differential-mode insert' 'differential-mode to differential-mode insert' <td< td=""><td>P 139 L 52 # [24 Xilinx Ianguage (bucket) 0 Comment #162, P802.3ck/D2.1 revised the text to following: Dement #162, P802.3ck/D2.1 revised the text to following: be mapped to tx_scrambled_am<1284:0> in a manner that process described in the remainder of this subclause The comment Type E Comment #162, P802.3ck/D2.0: be mapped to am_txmapped<1284:0> in a manner that yields ing process. SuggestedRemedy Change "differential-mode to differential-mode insertion loss" to "return loss". y to the substantive changes between IEEE P802.3ck D2.2 legative comments from previous drafts. Hence it is not within ballot. SuggestedRemedy the aubstantive changes between IEEE P802.3ck D2.2 legative comments from previous drafts. Hence it is not within ballot. REJECT. the substantive changes between IEEE P802.3ck D2.2 legative comments from previous drafts. Hence it is not within ballot. Change "differential-mode to differential-mode insertion loss" to "recolution was to: ''Implement the parameter names and variables names provided in the recolution was to: ''Implement the parameter names and variables names provided in 802.3ck D2.2. To minimiz would be best to defer this topic until after the next draft of 802.3ck D2.3 to 2.2. To minimiz mouth to what was recently adopted in 802.3ck D2.2. To minimiz mouth to what was recently adopted in 802.3ck D2.2. To minimiz mouth to be set to defer this topic until after the next draft of 802.3ck D2.3 to 2.2. To minimiz mouth to addition to be called juso tharecresitics an</td></td<>	P 139 L 52 # [24 Xilinx Ianguage (bucket) 0 Comment #162, P802.3ck/D2.1 revised the text to following: Dement #162, P802.3ck/D2.1 revised the text to following: be mapped to tx_scrambled_am<1284:0> in a manner that process described in the remainder of this subclause The comment Type E Comment #162, P802.3ck/D2.0: be mapped to am_txmapped<1284:0> in a manner that yields ing process. SuggestedRemedy Change "differential-mode to differential-mode insertion loss" to "return loss". y to the substantive changes between IEEE P802.3ck D2.2 legative comments from previous drafts. Hence it is not within ballot. SuggestedRemedy the aubstantive changes between IEEE P802.3ck D2.2 legative comments from previous drafts. Hence it is not within ballot. REJECT. the substantive changes between IEEE P802.3ck D2.2 legative comments from previous drafts. Hence it is not within ballot. Change "differential-mode to differential-mode insertion loss" to "recolution was to: ''Implement the parameter names and variables names provided in the recolution was to: ''Implement the parameter names and variables names provided in 802.3ck D2.2. To minimiz would be best to defer this topic until after the next draft of 802.3ck D2.3 to 2.2. To minimiz mouth to what was recently adopted in 802.3ck D2.2. To minimiz mouth to what was recently adopted in 802.3ck D2.2. To minimiz mouth to be set to defer this topic until after the next draft of 802.3ck D2.3 to 2.2. To minimiz mouth to addition to be called juso tharecresitics an

C/ 162 SC 162.9.3

C/ 162	SC 16	62.9.3	P 170	L 24	# 62	C/ 162	SC 162.9.3	P 170	L 32	# 87
Mellitz, Ri	chardd		Samtec			Dawe, Pie	ers	Nvidia		
Comment	Туре -	TR	Comment Status R	C	CM voltage (CC) (bucket2	Comment	Type TR	Comment Status R		CR loss budget
Comm at TP2 illustra	non mode 2. In additi ated in me	measure ion, all as ellitz_3ck_	ements are not well en spects of a common m _adhoc_01_090821.	ough defined to pro ode voltage may n	ecisely specify CM voltage ot be detrimental as	The d losses The re	raft CR loss but s, $6.875/2.3 = 3$ ecommendation	dget wastes over 3 dB in ne :1, is too small for switch la for the host traces plus BG (and paceful with C3M's both	early every case. yout yet not need SA footprint and h	The relative range of host ed for NICs. ost connector footprint, to 11.9 dB, making
Suggestee	dRemedy					passi	ve copper to this	s draft expensive and unatti	ractive for a switc	h, yet a full range of NICs
Repla With "	ce item "A Peak fitte	AC comm d AC con	ion-mode RMS output mmon mode (max) Pm	voltage (max)" ax_ccm" using a v	alue of 50 mV	can b QSFF	e made with on P-DD to 2 x QSF	y 3.75 dB. Server-switch li P) and will get made with a	nks are asymmet an asymmetric los	ric in form factor (e.g. s budget, so it would be
Response	•		Response Status W	,		better	for the standar	d to regularise what will hap	open anyway. C2	V already has short and
REJE The re propos Resol	CT. esolution t sed chang ve using t	o closed ges to CR he respo	comment #59 indicate R TX. nse to comment #59.	es there was no co	nsensus to make the	This c get cr The s LOM,	orts. hange would al edit for their low ymmetric budge so it is kept hei	so benefit CR switch-switch / loss. et is used for some designs re, and the better way adde	n links because th under way and n d.	ne shortest ports would nay be useful in future for
						Suggeste	dRemedy			
						As in 3 clas A con Use 2 In Tat 162.9 In Tat loss: <i>J</i> highe In 162 162A- ILMay Add M	dawe_3ck_01a, ses of CR ports nects to C, B to bits in the train ble 162-10, add .3.1.2 to refer to ble 162-14, add A: 6.875-3.75 = r (26.25 dB to 2 A.4, add equat 1 and 2. In 162 Host differ). Ad IDIO registers to ory and diagno	_0721.pdf: s, host loss allocations of A B or C, C to A, B or C. ing control field to advertise limits A and C for linear fit o the table. columns for Test 2 (high lo 3.125 dB lower (20.5 dB to 7.25 dB). No change need ions for IL_PCBmax and IL 2A.5, add Value columns A, djust figures 162A-3 and 4. o report local and remote h stics.	10, B 6.875, C 3. e A, B or C to the pulse peak ratio (ss), A and C, with 21.5 dB), and C: ed for Test 1. HostMax A and B , C in Table 162A ost ability to statio	75 dB. B is as D2.1. other end. min). Change text in n test channel insertion 9.5-6.875 = 2.625 dB and show them in Fig -1 (ILChmin and on management, for
						Response	•	Response Status U		
						REJE This of task f relate was n July 2 Straw I supp Y: 7	CT. comment is a re prce. This new of d straw poll (#1) o consensus to 021 Straw Poll poll #10 (direction port P802.3ck sp N: 24 A: 8	statement of comment #92 comment provides only min 0) indicated strong oppositi make the proposed chang #10 is reproduced here for on) becifying multiple CR host t	against D2.1, wh or changes to the on to adopting thi es. reference ypes such as in c	ich was rejected by the e suggested remedy. A s proposal therefore there lawe_3ck_01_0721.

C/ 162 SC 162.9.3

C/ 162	SC 162.9.3	P 170	L 46	# 65
Mellitz, Rid	chardd	Samtec		
Comment	Type TR	Comment Status R		TX jitter

Since the jitter at TP2 may be viewed though a channel with a loss of approximately 17 dB (package, host interconnect, HCB) there will likely be measurements error from the phase modulation of the voltage time quantization. The consequence is the measured jitter will be larger than in table 162-10

SuggestedRemedy

Increase J_RMS, J3u, Even-odd jitter, pk-pk to [#,#, #] respectively. As consequence the jitter specified in the receiver interference tolerance (162.9.4.2) step d needs to change since it measured near the beginning of the channel. Change the reference on page 179 step d form table 162-10 to table 163-5

Response Status C

Response

REJECT.

This comment does not apply to the substantive changes between IEEE P802.3ck D2.2 and D2.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

Per Figure 162A-3 the insertion loss from TP0 to TP2 is 10.975 dB and there is an additional loss of around 4 dB due to the transmit function package for a total of around 15 dB. This is lower insertion loss than considered in the comment.

Increasing the specified jitter values is not a good solution since it could allow higher jitter when the measurement is accurate.

The following related presentation was reviewed by the task force: https://www.ieee802.org/3/ck/public/adhoc/sept22_21/calvin_3ck_adhoc_01_092221.pdf

During the presentation, the presenter recognized that the insertion loss assumptions were incorrect and subsequently withdrew his related comments #85 and #86.

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

C/ 162	SC 162.9.3	P 170	L 47	# 86
Calvin, Joh	n	Keysight Tec	hnologies	
Comment T	vpe T	Comment Status D		withdrawn

Table 162.10 suggests a TP2 Jrms value of 23mUI and a J3u of 115mUI. The best possible case channel between TP0 and TP2 is 10.975dB which will support these Jitter numbers. The problem is nobody comes close to 10.975dB and most systems operate typically at 15.27dB which requires a higher value of J3u and Jrms.

SuggestedRemedy

The principal of conducting a precison jitter measurment at the end of a 10.975 or a 15.27dB channel should be re-visted. The loss driven slew rate limitations of the signal at say 15.27dB results in a higher AM to jitter conversion factor. This measurment should either be removed, or increased to J3u < 160mUI to allow for channel induced jitter amplification.

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

C/ 162 SC 162.9.3

C/ 162	SC 162.9.3.1.1	P 17	72	L 8	# 50	
Ran, Adee		Cisco				
Comment Typ	pe TR	Comment Status	Α			TX Np

Following up on unsatisfied comment #29 against D2.1:

The linear fit procedure is defined with Np=29, so the pulse response length is 29. Nv, the number of UIs that are considered for v_f calculation, cannot be higher than Np. In the multiple places that Nv is used, it needs an exception to use Np=200. This does not make sense.

As an example, in 163A.3.2.1 we have "where p(i) and M are defined in 162.9.3.1.1 and Nv is 200". This does not make sense if Np=29.

If 162.9.3.1.1 uses Np=200, this will be the default value, and there will be one exception in the case of SNDR where it should be set to 29. This would result in fewer exceptions.

SuggestedRemedy

1. In 162.9.3.1.1, change Np from 29 to 200.

2. In 162.9.3.3 (Output SNDR), change "with the exceptions that a test system with response as specified in 162.9.3 and the linear fit procedure in 162.9.3.1.1 are used" to "with the exceptions that the test system response is specified in 162.9.3, and the linear fit procedure in 162.9.3.1.1 with Np=29 is used".

3. In 162.9.3.1.2 (Steady-state voltage and linear fit pulse peak) change "The steady-state voltage v_f is defined in 136.9.3.1.2, and is determined from the linear fit pulse calculated by the procedure in 162.9.3.1.1 with the exception that Np and Nv are equal to 200" to "The steady-state voltage v_f is calculated as defined in 136.9.3.1.2 with the exception that Nv=200, and is determined from the linear fit pulse calculated by the procedure in 162.9.3.1.1".

4. In 163A.3.2.1 change "Nv is 200" to "Nv is set by the clause that invokes this method". (it is currently invoked only by 163.9.2.4 (Difference steady state voltage) which states "with Nv = 200").

Response

Response Status C

ACCEPT IN PRINCIPLE. [Editor's note: CC: 163, 162, 163A]

Based on straw polls #1, #2, and #3, there is consensus to use the value 200 for Np and Nv for the subclauses under discussion.

Implement the suggested remedy for 162.9.3.1.1, 162.9.3.3, and 163A.3.2.1 using the value 200 for Np.

For 162.9.3.1.2, change the first paragraph to the following:

"The steady-state voltage vf is defined as the sum of the linear fit pulse p(1) through $p(M \times Nv)$ divided by M, measured with transmit equalizer set to preset 1 (no equalization). Nv is set equal to 200. The linear fit procedure for obtaining p and the values of M and Np are defined in 162.9.3.1.1."

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 U/unsatisfied Z/withdrawn SORT ORDER: Clause, Subclause, page, line

Implement with editorial license.

Straw poll #1 (choose 1) For CR TX SNDR, I support Np value of: A: 29 B: 200 A: 6 B: 21 Straw poll #2 (choose 1) For KR TX SNDR, I support Np value of: A: 29 B: 200 A: 5 B: 22 Straw poll #3 (choose 1) For CR TX steady state voltage and pulse peak, I support Nv value of: A: 29 B: 200 A: 10 B: 17 SC 162.9.3.1.1 C/ 162 P 172 L 8 # 55 Hidaka, Yasuo Credo Semiconductor Comment Type ER Comment Status A TX Np (bucket2) Np for TX SNDR in clause 162.9.3.1.1 was changed from 200 in D2.0 to 29 in D2.1. However, I cannot find any comment on D2.0 to change Np for TX SNDR from 200 to 29. It seems that this was an editorial error to implement the resolution of comment #197 on D2.0 which was closed to change Np for RX ITT from 15 to 29 in clause 162.9.4.3.3. I cannot find a record of consensus to change Np for TX SNDR from 200 to 29 in clause 162.9.3.1.1 So, I think Np for TX SNDR in clause 162.9.3.1.1 should remain 200. SugaestedRemedv Change Np for TX SNDR from 29 back to 200 on line 8 in page 172, clause 162.9.3.1.1. Response Response Status W ACCEPT IN PRINCIPLE. The resolution to comment #50 changes the value of N p to 200. Resolve using the response to comment #50.

> C/ 162 SC 162.9.3.1.1

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C/ 162	SC 162.9.3.1.1	P 1	72	L 8		# 23	
Wu, Mau	-Lin	Media	aTek Inc.				
Comment	Type TR	Comment Status	Α			TX Np (b	ucket2)
For th instea Relate wu_3	ne linear-fit procedu ad of N_p = 29. N_l ed rationale had be ck_adhoc_01b_07	re adopted for TX S = 29 was used for een disclosed in pre 1421.pdf.	NDR calcu SNR_TX c vious contri	ation, N_ alibration bution,	p = 200 sh in RITT te	all be ador st instead.	oted,
Suggeste	dRemedy						
Chan	ge 'N_p = 29' to 'N	_p = 200'.					
Response	è	Response Status	w				
ACCE The re Resol	EPT IN PRINCIPLE esolution to comme lve using the respo	ent #50 changes N_ nse to comment #5	_p to 200. 0.				
C/ 162	SC 162.9.3.1.2	2 P 1	73	L 3		# 25	
Ran, Ade	e	Cisco)				
Comment	Type TR	Comment Status	Α			TX Vf (b	ucket2)
The d esser (162.9	lefinition of the stea ntially three excepti 9.3.1.2), and Np an	ady-state voltage is ons: the fitted pulse d Nv are different. 2	currently a sis calculate	pointer to ed by and itself is a	o 136.9.3.1. other proced simple def	2 with dure inition of a	sum

essentially three exceptions: the fitted pulse is calculated by another procedure (162.9.3.1.2), and Np and Nv are different. 136.9.3.1.2 itself is a simple definition of a sum of Nv values; there is no need for a reference to this definition, when all other things are exceptions.

What the reader is not told is that the required specification is with equalization turned off; this is written in 136.9.3.1.2 but as part of a normative requirement for the limits, which does not hold here (the values are different). One could interpret it as if it is required for all equalization settings (as implied by the text in 162.9.3.1.2), which is clearly not what we intend.

SuggestedRemedy

Change the first paragraph of 162.9.3.1.2 to the following:

The steady-state voltage v_f is defined as the sum of the linear fit pulse p(1) through $p(M \times Nv)$ divided by M, measured with transmit equalizer set to preset 1 (no equalization). Nv is set equal to Np. The linear fit procedure for obtaining p and the values of M and Np are defined in 162.9.3.1.1.

Response

ACCEPT IN PRINCIPLE.

The resolution to closed comment #50 provides updated text that resolves this comment. Resolve using the response to comment #50.

Response Status W

C/ 162 S	C 162.9.3.1.	2 P 173	L 4	# 69
Healey, Adam		Broadcom Inc.		
Comment Type	e T	Comment Status A		TX Vf (bucket2)

Steady state voltage is measured at the output of a lossy host channel without equalization and its value will be larger for larger Nv (at least up to a point). Setting Nv to 200 may overestimate the amplitude that the receiver will actually see since that amplitude will only be realized when Nv consecutive identical symbols are transmitted. The number of consecutive identical symbols transmitted during normal operation is likely to be much lower. This suggests that the value of Nv should be lower so that the measured steady state voltage is closer to the amplitude the receiver might see in practice.

SuggestedRemedy

Change Nv for the Clause 162 steady-state voltage calculation to 29.

Deselu	e using the response to a	comment $#50$		
The res	solution to closed comme	ent #50 retains the	value of N_v to 2	00. Straw poll #3
ACCE	PT IN PRINCIPLE.			
sponse	Respo	onse Status C		

C/ 162 S	SC 162.9.3.4	P 17	'4	L 47	#	102	
Dawe, Piers		Nvidia					
Comment Typ	e TR	Comment Status	R			TX EC)J

Having alternative normative patterns to measure one thing when the choice makes a difference, adds cost because the test has to be done both ways (if one way passes and the other fails). Also, the spec limit was relaxed from 0.019 UI to 0.025 to allow for PRBS13. We understand that the result would look better with PRBS9. There is no requirement to generate PRBS9.

SuggestedRemedy

Make PRBS13 normative, as usual. Use a different set of PRBS13Q pattern symbols used for jitter measurement vs. Table 120D-4 to reduce the pattern dependency issue.

Response

Response Status W

REJECT.

This is a restatement of comment #109 against D2.1 which was rejected by the task force (insufficient remedy and lack of consensus to make the change). The comment does not provide new data or analysis to support it.

C/ 162 SC 162.9.3.4

	SC 162.9.3.4	P 174	L 49	# 103
Dawe, Pie	ers	Nvidia		
Comment	Type TR	Comment Status R		TX EO
We k an un must	now that CRU cor bounded "4 MHz the tester try befo	ner frequency makes a differ or anything you like that's low re he can fail a bad part?	ence to EOJ me /er" is very bad:	easurement. Allowing how many attempts
Suggeste	dRemedy			
Pick a that w corne	a single definitive ve expect that if it r frequency.	CRU corner, e.g. 1 MHz or 2 passes with the usual 4 MHz	MHz. Add infor , it would also p	mative NOTE saying ass with the lower
Response	9	Response Status W		
This i (insuf provid	s a restatement o ficient remedy and le new data or an	f comment #109 against D2.1 d lack of consensus to make alysis to support it.	I which was reje the change). Th	ected by the task force the comment does not
C/ 162	SC 162.9.3.5	P 176	L 11	# 149
Dawe, Pie	ers	Nvidia		
Dawe, Pie Comment	ers <i>Type</i> T	Nvidia Comment Status R		Т
Dawe, Pie Comment Trans 86A.5 Iow-p state	ers <i>Type</i> T ition time is define 3.3 which says " ass filter response of emphasis.	Nvidia Comment Status R ed by the referenced 93A.5 w for electrical signals, the wave e (such as a Bessel-Thomsor	hich refers to 93 eform is observe n response)", an	7 3A.2 which refers to ed through a 12 GHz d it's dependent on
Dawe, Pie Comment Trans 86A.5 Iow-p state Suggeste	ers <i>Type</i> T ition time is defini- i.3.3 which says " ass filter response of emphasis. <i>dRemedy</i>	Nvidia Comment Status R ed by the referenced 93A.5 w for electrical signals, the wave e (such as a Bessel-Thomsor	hich refers to 93 eform is observe n response)", an	7 3A.2 which refers to ed through a 12 GHz d it's dependent on
Dawe, Pie Comment Trans 86A.5 Iow-p state Suggeste Chan neutra	ers <i>Type</i> T ition time is define .3.3 which says " ass filter response of emphasis. <i>dRemedy</i> ge "Transition tim al emphasis. Coc	Nvidia <i>Comment Status</i> R ed by the referenced 93A.5 w for electrical signals, the wave e (such as a Bessel-Thomsor e" to "Rise time". Explain that irdinate with the maintenance	hich refers to 9: eform is observe n response)", an t that is 20-80%	7 3A.2 which refers to ed through a 12 GHz d it's dependent on 5, unfiltered, as if at
Dawe, Pie Comment Trans 86A.5 Iow-p state Suggeste Chan neutra Response	ers <i>Type</i> T ition time is define 3.3 which says " ass filter response of emphasis. <i>dRemedy</i> ge "Transition tim al emphasis. Coo e	Nvidia <i>Comment Status</i> R ed by the referenced 93A.5 w for electrical signals, the wave e (such as a Bessel-Thomson e" to "Rise time". Explain that irdinate with the maintenance <i>Response Status</i> C	hich refers to 93 eform is observe n response)", an t that is 20-80% project.	7 3A.2 which refers to ed through a 12 GHz d it's dependent on , unfiltered, as if at
Dawe, Pie Comment Trans 86A.5 Iow-p state Suggeste Chan neutra Response REJE The te Any n incorr	ers <i>Type</i> T ition time is defini- ition time is defini- ition time is defini- ass filter response of emphasis. <i>dRemedy</i> ge "Transition time al emphasis. Coole CT. erminology is cons- elated changes in borated in the pex- tion	Nvidia <i>Comment Status</i> R ed by the referenced 93A.5 w for electrical signals, the wave e (such as a Bessel-Thomson e" to "Rise time". Explain that irdinate with the maintenance <i>Response Status</i> C sistent with 93A.5 in both 802 the new revision (802.3dc) cat t draft	thich refers to 93 eform is observe n response)", an t that is 20-80% project. 2.3cd-2018 and - an be considere	7 3A.2 which refers to ed through a 12 GHz d it's dependent on b, unfiltered, as if at the latest 802.3dc draft. ed once they are
Dawe, Pic Comment Trans 86A.5 Iow-p state Suggeste Chan neutra Response REJE The te Any n incorp	ers <i>Type</i> T ition time is define .3.3 which says " ass filter response of emphasis. <i>dRemedy</i> ge "Transition tim al emphasis. Coc CT. erminology is con- elated changes in porated in the nex	Nvidia <i>Comment Status</i> R ed by the referenced 93A.5 w for electrical signals, the wave e (such as a Bessel-Thomson e" to "Rise time". Explain that irdinate with the maintenance <i>Response Status</i> C sistent with 93A.5 in both 802 the new revision (802.3dc) cont t draft.	thich refers to 93 eform is observe n response)", an t that is 20-80% project. 2.3cd-2018 and an be considere	7 3A.2 which refers to ed through a 12 GHz d it's dependent on 5, unfiltered, as if at 5, unfiltered, as if at the latest 802.3dc draft. d once they are
Dawe, Pie Comment Trans 86A.5 Iow-p state Suggeste Chan neutra Response REJE The te Any re incorp	ers <i>Type</i> T ition time is define .3.3 which says "hass filter response of emphasis. <i>dRemedy</i> ge "Transition tim al emphasis. Coole CT. erminology is consel elated changes in porated in the nex	Nvidia <i>Comment Status</i> R ed by the referenced 93A.5 w for electrical signals, the wave e (such as a Bessel-Thomson e" to "Rise time". Explain that rdinate with the maintenance <i>Response Status</i> C sistent with 93A.5 in both 802 the new revision (802.3dc) cont t draft.	thich refers to 93 eform is observe n response)", an t that is 20-80% project. 2.3cd-2018 and an be considere	7 3A.2 which refers to ed through a 12 GHz d it's dependent on , unfiltered, as if at , unfiltered, as if at the latest 802.3dc draft.

C/ 162	SC 162.9.3.7	P 176	L 48	# 78
Dudek, Mike		Marvell		
Comment Ty	pe E	Comment Status A		RL terminology (bucket1)

"common-mode to differential-mode insertion loss" appears to be used thoughout the document and "common-mode to differential-mode return loss" is used in 162B however "common-mode to differential return loss" is used here and in other places

SuggestedRemedy

Change all instances to "common-mode to differential-mode return loss"

			477	1.00	
ACCEPT I Resolve us [Editor's no	N PRINCIPLE. sing the response to ote: Changed page	comment # from 188 to	[:] 13. 176.]		
Response	Res	oonse Status	3 C		

C/ 162 SC	\$ 162.9.4	P 177	L 29	# 74
Dudek, Mike		Marvell		
Comment Type	TR	Comment Status A		TP0/TP5 (bucket3)

In the context of 162 the "receiver" includes the host PCB. The characteristis in 162A.3 do not include the host PCB and therefore should not be called just receiver characteristics

SuggestedRemedy

Change to "Recommended receiver characteristis at TP5 are provided in 162A.3"

esponse	Response Status	w
	ricoponico otatao	

ACCEPT IN PRINCIPLE.

Change to: "Recommended receiver characteristics at TP5 are provided in 162A.3"

C/ 162	SC 162.9.4.3	P 178	L 47	# 22
Wu, Mau-l	Lin	MediaTek Inc.		
Comment	Type TR	Comment Status A		(bucket1)
The se	entence refers to '	162.9.4.3.3 item f' for SNR T	X calibration.	However, there are no

item f in 162.9.4.3.3. It shall be 'item e' in 162.9.4.3.3 for SNR_TX calibration. However, there are no

SuggestedRemedy

Change 'item f' to 'item e'.

Response Response Status W

ACCEPT.

C/ 162 SC 162.9.4.3

-									
C/ 162	SC 162.9.4.3	.3 P 179	L 46	# 108	C/ 162	SC 162.11	P 184	L 29	# 88
Dawe, Pie	ers	Nvidia			Dawe, Piers		Nvidia		
Comment	Туре Т	Comment Status A		RITT cal (bucket1)	Comment T	/ре Т	Comment Status R		CA IL budget
As far 12 (fb little le	as I can see, sig and f_hp) are co ess than 1.	ma_bn is a number to be fo nstant in the draft: so the ra	ound, all the othe tio sigma_hp/sig	r inputs to Equation 162- ma_bn is fixed too, at a	The poo switch h needed.	r max cable lo ave host loss	oss makes CR unattractive, wi going to waste. Enabling long	hile all NICs and ger cables on a	some ports on any minority of links is
Suggestee	dRemedy				and the	cable's loss c	lass from its I2C compliance of	code. so no extra	a management features
Please	e tell the reader v	vhat that ratio is			needed	in the spec fo	r the long cable class.	,	
Response)	Response Status C			SuggestedF	emedy			
ACCE Chang sigma	PT IN PRINCIPL ge equation (162- _bn^2.	E. 12) to show the constant va	llue (0.6954) to b	e multiplied by	2 classe 19.75+2 Long ca	es of cable, wh *(6.875-3.75) bles connect a valid combi	hich could be called "short" (19 = $19.75+6.25 - 0.5 = 25.5 \text{ dB}$ port types C (see another compation of A B C	9.75 dB, as toda max (achievable nment) at both e	y) and "long", e cable length 3 m). nds, short cables
C/ 162	SC 162.9.4.3	.3 <i>P</i> 180	L 34	# 107	In 162.1	1.2, cable ass	sembly insertion loss, change	text to refer to T	able 162-17.
Dawe, Pie	ers	Nvidia			In 162.1	1.7.1.1, add z	p = 30.7 mm for the "short" ca	able.	
Comment	Туре Т	Comment Status R		RITT cal	In Table 162A-1, add a column for the A-short-A scenario (ILCamax differs).				
Help t	he reader unders	tand what is going on			Response	, in ligaroo ro	Response Status C		
Suggested	dRemedy				REJEC	r			
Please	e add the plot of I	Hhp to Figure 162-5, NSD(f)) constraints		This cor	nment is a res	statement of D2.1 comment #	93 which was re	jected as there were no
Response Response Status C REJECT. The referenced equation is a simple first order high pass filter with 6 CHz corpor			changes to the host port types. The suggested remedy is predicated on the adoption of Comment #87, Comment #87 was rejected. No changes to the draft.						
freque	ency. Plotting this	simple, well understood res	sponse is unnece	essary. Adding to the	C/ 162	SC 162 11 3	P 186	/ 43	# 76
[Edito	r's note: Changed	d page from 179 to 180.]	ı.		Dudek Mike	00 1 02 .11.	, , , , , , , , , , , , , , , , , , ,	L 43	# 10
-	C C				Commont T	, 100 T		<i>יו</i> דו	fy wording (CC) (bucket1)
			While te	sting the Cab	le ERL there isn't a "host-facir	ng connection'	x wording (CC) (buckett)		
					SuggestedF	emedy			
					Change	"host facing o	connection" to cable-facing co	nnection"	
					Response		Response Status C		
					ACCEP Resolve	T IN PRINCIP using the res	LE. ponse to comment #26.		

C/ 162	SC 162.11.3	P 186	L 43	# 26
Ran, Adee	e	Cisco		
Comment	Type TR	Comment Status A	L Tf	x wording (CC) (bucket1)
When facing	measuring cable connection.	assembly ERL, the test fix	ture (aka MCB) d	oes not have a host-
Suggested Chang	<i>lRemedy</i> ge "host-facing" to	"cable-facing".		
Response ACCE	PT.	Response Status W		
C/ 162	SC 162.11.6	P 189	L 38	# 89
Dawe, Pie	ers	Nvidia		_
Comment	Type TR	Comment Status R		CA RLcc
As in r	previous commen	ts: this common mode retu	irn loss spec RLc	c becomes useless at

the frequency when the MCB loss is 1.8/2 dB, which is only 8.5 GHz. We need a common mode return loss spec to stop large common-mode voltages building up through multiple low-loss reflections. The revised proposed remedy for D2.1 comment 79 seems OK: 1.8 dB 0.5<= f <= 4 GHz, 1.4+0.1*f dB 4< f <= 30 GHz. The 30 GHz fmax allows margin for real-world coax-PCB transitions (although the mated compliance boards are specified >=3 dB to 50 GHz); the cable itself should pass this comfortably because it is insulated from the test by the MCB loss.

SuggestedRemedy

Use a frequency-dependent mask 1.8 dB 0.5<= f <= 4 GHz, 1.4+0.1*f dB 4< f <= 30 GHz. f is in GHz. Similarly for Tx, Table 162-11, 162.9.3.6.

Response

REJECT.

This comment is a restatement of D2.1 comment #79.

The suggested remedy does not provide sufficient additional justification to support the change to the draft.

Per straw poll #6, there was no consensus to make the proposed changes.

Response Status U

However, there was concern that the limits should be tightened. Further work and consensus is required.

Straw poll #6 (decision) I support adopting the changes in comment #89 suggested remedy. Yes: 11

No: 19

C/ 162	SC 162.11.7	P 191	L 38	# 91
Dawe, Piers		Nvidia		
Comment Ty	/pe TR	Comment Status R		COM DFE RSS (CC)

The spec allows a cable to have its COM calculated with 9 taps in the range 13 to 24 clipped at +/-0.05 - which means that the channel's pulse response could be worse than +/-0.05 for all these 9 taps. That's a very bad cable! and not likely to get made: there won't be that many reflections in the same area. (Remember, these are reference receiver limits

not hard cable limits anyway; a cable can go beyond a tap limit if it makes up the COM another way, e.g. with acceptable crosstalk.)

We don't need to provide all the receiver power and complexity to cope with unreasonably bad cables.

SuggestedRemedy

Use another DFE root-sum-of-squares limit for positions 13-24. A limit of 0.045 works well with Bch2 b2p5 7 t. Similarly in 163.

Response Response Status W

REJECT.

This is a restatement of comment #96 against D2.1 which was rejected by the task force due to incomplete remedy and insufficient analysis. This new comment provides some new, but unsubtantiated information.

[Editor's note:	CC: 162,163]
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C/ 162	SC 162.11.7	P 191	L 39	# 90
Dawe, Piers		Nvidia		
Comment Ty	pe TR	Comment Status R		COM DFE bgmax/min (CC)

Comment Type TR Comment Status R

The normalized DFE coefficient minimum limit bbmin for taps 3 to 12 is -0.03. It doesn't make sense that taps 13 to 40 could be worse, -0.05. I know of only example channel with a tap like this. Remember, these are reference receiver limits not hard cable or channel limits anyway: a cable or channel can go beyond a tap limit if it makes up the COM another way, e.g. with acceptable crosstalk. In the case of Bch2_b2p5_7_t, reducing |bmaxg| from 0.05 to 0.03 increases COM by less than 0.1 dB, and the channel still passes comfortably. In this example, there were no taps that would be affected by reducing +ve bgmax from 0.05 to 0.03: one -ve tap was limited.

SuggestedRemedy

Change bgmax 0.05 to bbgmax 0.05, bbgmin -0.03. Also in 163.

Response

Response Status W

REJECT.

This is a restatement of comment #95 against D2.1 which was rejected by the task force due to insufficient supporting evidence. Some new information on the analysis of one channel is provided, but this is insufficient evidence to support the proposed changes. [Editor's note: CC: 162, 163]

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 U/unsatisfied Z/withdrawn SORT ORDER: Clause, Subclause, page, line

C/ 162 SC 162.11.7 Page 32 of 44 2021-10-12 4:06:13 PM

C/ 162	SC 162.11.7.	1 <i>P</i> 192	L 8	# 27	C/ 162	SC 1	62.11.7.2	P 194	L 18	# 156
Ran, Adee		Cisco			Ghiasi, Ali			Ghiasi Quantu	m/Inphi	
Comment	Туре Е	Comment Status A		CA COM pkg (bucket3)	Comment	Туре	ER	Comment Status A		MDI labels (bucket3)
The ne existing equation	ew equations 93A g equations 93A- ons should be ref	A-13a and 93A-14a use a pa -13 and 93A-14). The text he ferenced instead.	rameter z_p2 (in ere refers to z_p	nstead of z_p in the , so the existing	Per ur Modul	satisfied es in tab	d comment ble 162-21	t from D2.2. must be updated with ones a	actually supp	ooritng 100 Gb/s operation
Suggested	Remedy				Suggested	Remedy	V	40		
Chang	e 93A-13a to 93/	A-13 and 93A-14a to 93A-14	ŀ.		Updat SFP-D QSFP	e SFP+ D with \$ + with Q	With SEP1 SEP-DD11 SEP112	12 2		
Consid	ler merging equa	ations 93A-12a, 93A-13a, 93	A-14a with their	existing counterparts.	chang	es applli	ies to claus	ses 162, 162C and 162D		
Response		Response Status C			Response			Response Status W		
ACCEI Implem	PT IN PRINCIPL	E. ed remedy with editorial lice	nse including m	erging the equations.	ACCE For SF For Q	PT IN P P+ and SFP, res	RINCIPLE SFP-DD r solve using	esolve using the response to the response to comment #	o comment # 162.	152.
Also, fi	x grammar on pa	age 192 line 9			C/ 162A	SC 1	62A.4	P 287	L 45	# 18
change	e "has different" t	to "has a different".			Wu, Mau-	_in		MediaTek Inc.		
C/ 162	SC 162.11.7.	1.1 <i>P</i> 192	L 37	# 77	Comment	Туре	TR	Comment Status A		Host PCB ILdd
Dudek, Mik Comment T typo Suggested Chang Response	ke Type E Remedy e "an differential"	Marvell Comment Status A " to "a differential". Also on Response Status C	page 193 line 2	(bucket1)	The re define equati respor https:/ the ec "0.980 "0.980	comme d in (162 on, ILdd ase of co /www.ie juation o 9*(0.477 9*(0.477	nded maxin 2A-1). How PCBmax pomment #1 ee802.org/ of (162A-1) 1*SQRT(f)- 7*SQRT(f)-	mum IL for TX or RX PCB is rever, the equation of (162A- (26.56) ~= 6.6 dB, which is N 8 in 3/ck/comments/draft1p3/802 shall be modified as +0.1194*f+0.002*(f^2))". Hor +0.1194*f+0.002*(f^2))" was	6.875 dB at 1) is not corn NOT 6.875 d 23ck_D1p3_f wever, the en adopted, ins	26.56 GHz, which is rect. By quick check of the B. According to the closed final_closedcomments.pdf, quation of tead, which is wrong.
ACCE	PT.				Suggested	Remed	V			
					Chang "0.980 neces	e (162A 9*(0.47 <i>*</i> sary.	1) from "(1*SQRT(f)-).9809*(0.417*SQRT(f)+0.11 +0.1194*f+0.002*(f^2))". Rec	94*f+0.002* Iraw Figure 1	(f^2))" to 62A-1 accordingly if
					Response			Response Status C		
					ACCE Chang to "0.9 Figure	PT IN P e (162A 809*(0.4 162A-1	RINCIPLE 1) from "(471*SQRT uses corre).9809*(0.417*SQRT(f)+0.11 (f)+0.1194*f+0.002*(f^2))". ect equation.	94*f+0.002*	(f^2))"
					-					

C/ 162A SC 162A.4

					-					
C/ 162A	SC 162A.4	P 288	L 42	# 85	C/ 162B	SC	162B.1.1	P 293	L 23	# 135
Calvin, Jol	hn	Keysight Te	chnologies		Dawe, Pier	s		Nvidia		
Comment	Туре Т	Comment Status D		Host PCB ILdd	Comment	Туре	Е	Comment Status A		formatting (bucket1)
The te insertion the su (6.875 4.1dB 8.4dB.	ext of "Note that if on loss from TP m of the minimu) which adds up matted test fixtu . We should ha	the recommended maximum 0 to TP2 or from TP3 to TP5 m mated test fixture insertic 0 to 10.975dB. In light of th rre, and that the nominal ma ve a higher recomended val	n differential-moo 5 is 10.975 dB at on loss (4.1dB) + ere not being an tted test fixture lo lue to reflect actu	le to differential-mode 26.56 GHz." represents the host channel loss existance proof of a oss is 7dB and a max of iall test systems.	There's contair <i>Suggested</i> Promo test fixi	s only only only only only only on the second se Second second se	one subcla a the conten dy B.1.1 TP2 a 162B.3, pr	use in this annex, plus PICS hts. or TP3 test fixture to 162B.2 omote 162B.1.3 Mated test	, which makes , promote 162E fixtures to 162E	it hard to find the what it 3.1.2 Cable assembly 3.4.
Suggested	Remedy				Response			Response Status C		
Revise host c	e the "maximum hannel loss (6.8	TP0-TP2 to a nominal value 75dB) = 13.875dB.	e of 7dB (typical	MTF performance) +	ACCEI Implem	PT IN I	PRINCIPLE e suggeste	E. d remedy with editorial licen	ce.	
Proposed	Response	Response Status Z			C/ 162B	SC	162B.1.3	P 295	L 25	# 137
REJE	CT.				Dawe, Pier	s		Nvidia		
This c	omment was WI	THDRAWN by the commen	ter.		Comment	Type P2 or ⁻	E TP3 and ca	Comment Status A	sounds like thre	wording (bucket1)
C/ 162A	SC 162A.4	P 289	L 1	# 19	Suggested	Domo				
Wu, Mau-l	Lin	MediaTek Ir	nc.		Chang		ly he TP2 or '	TP3 test fivture and the cabl	a assembly top	et fixturo"
Comment	Type TR	Comment Status A		Host PCB ILdd	Descusion				e assembly tes	
The re define equati closed https:/ the ec "1.565 "1.565	commended ma d in (162A-3). H on, ILdd_HostM I response of co /www.ieee802.o quation of (162A 8*(0.471*SQRT 8*(0.417*SQRT	aximum IL from TP0 to TP2 owever, the equation of (162 $ax(26.56) \sim = 10.54$ dB, whic mment #19 in rg/3/ck/comments/draft1p3/s -3) shall be modified as (f)+0.1194*f+0.002*(f^2))" . I (f)+0.1194*f+0.002*(f^2))" w	is 10.975 dB at 2 2A-3) is not corre th is NOT 10.975 8023ck_D1p3_fii However, the equ as adopted, inste	26.56 GHz, which is act. By quick check of the a dB. According to the nal_closedcomments.pdf, uation of ead, which is wrong.	ACCE	PT.		Response Status C		
Suggested	Remedy									
Chang "1.565 neces	ge (162A-3) from 8*(0.471*SQRT sary.	"1.5658*(0.417*SQRT(f)+0 (f)+0.1194*f+0.002*(f^2))". F	.1194*f+0.002*(f Redraw Figure 16	^2))" to 2A-2 accordingly if						
Response		Response Status C								
ACCE Chang from " to "1.5	PT IN PRINCIP ge (162A-3) 1.5658*(0.417*S 658*(0.471*SQI	LE. QRT(f)+0.1194*f+0.002*(f^2 RT(f)+0.1194*f+0.002*(f^2))'	2))" '.							

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 U/unsatisfied Z/withdrawn SORT ORDER: Clause, Subclause, page, line

Figure 162A-2 uses correct equation.

C/ 162B SC 162B.1.3

C/ 162B SC	162B.1.3.3	P 297	L 36	# 138	C/ 162D	SC 162D.1	P 316	L 14	# 139
Dawe, Piers		Nvidia			Dawe, Piers		Nvidia		
Comment Type	T Comm	nent Status A		MTF ILdc/ILdc	Comment Typ	e E	Comment Status A		MDI pins (bucket3)
If common-n However, we 120G. Ther I'm not sure	node to differential-r want to control bot e is an argument tha it always holds.	node insertion loss h ILdc and Ilcd, as at they are the relate	is what we want we have both RI ed, and specifyir	to control, that's ILdc. Lod and RLdc specs in ng one is enough, but	A host ca 162C.1, th how many SuggestedRe	n have other t hird sentence. y types there a medy	han six MDI connector recep The text mentions what's s are for cables. This text can	ptacles. Aligning specified for host be simplified.	g terminology with ts but doesn't discuss
SuggestedReme Specify both other in the connector th thought thro	dy ILcd and ILdc. It m other: Scd21 and Sc at would be connect ugh which we need,	ay be possible to s lc12, or Sdc21 and ted to a pattern gen or maybe we need	pecify one in on Scd12, where 1 herator) and 2 is all four. It is sin	e direction and the is an input (instrument an output. I haven't npler to require all four.	Change: There are to There are or, change 162D–1 re	six MDI conn six MDI conn e "There are s eferences for i	ector "receptacles" specified ector types. ix MDI connector "receptacl receptacle and plug requirer	d for hosts. les" specified for nents." to "Table	hosts. See Table 162D-1 lists the six
		nse Status C			MDI conn	ector types sp	ecified for hosts and cables	i."	
This comme	nt does not apply to	the substantive cha	anges between	EEE P802.3ck D2.2	Response		Response Status C		
and D2.1 or	the unsatisfied nega	ative comments fror	m previous drafts	s. Hence it is not within	ACCEPT	IN PRINCIPL	E.		
As pointed c Since ILcd12 loss mode c directions. T improved. Also, the var	a proposed change i ut by the comment i 2 and ILdc21 are rec ponversion can be co he text as written wa iable "Ilcd" should b	is an improvement of both IIcd and IIcc of siprocal and ILcd21 unstrained by measu as intended to requi the "IIdc" to correctly	to the draft. f the MTF must I and ILdc12 rec uring either IIcd ire this but the w reflect the subc	be similarly constrained. iprocal, the insertion (or Ildc) in both ording could be lause title and text.	"This annu CR1, 200 receptacle types with	etwo paragrap ex describes o GBASE-CR2, es specified an different com	photo together and change tex cable assembly types specifi or 400GBASE-CR4 Physica re given in Table 162D–1. The binations of the plug connect P 316	to the following ied in 162.11 for al Layers. The si his enables mult ctors at each en	; hosts with 100GBASE- ix MDI connector tiple cable assembly d." # [158
To "measure	ed in both directions		ce		Ghiasi, Ali		Ghiasi Quant	tum/Inphi	
and					Comment Typ	e TR	Comment Status A		MDI labels (bucket3)
Change vari	able name "llcd" to '	'lldc".			Table 162	2D-1, 162D-2, t 53 1 GBd, ci	162D-3, and 162D-4 should irrenity what is specified are	l be updated with MDIs that eithe	n MDI that actually
ମ 162C SC	162C.1	P 306	L 10	# 157	or 25.78 0	GBd	anomity what is speemed are		
Shiasi, Ali		Ghiasi Quant	tum/Inphi		SuggestedRe	medy			
Comment Type Per unsatisfi Table 162C- SuggestedReme	TR Comm ed comment from D 3 needs to be better dy	nent Status R 12.2. r organized	sited as abiasi f	MDI pins table	Please re http://sfp-t SFP-DD v http://sfp-t QSFP+ w	place SFP+ w dd.com with SFP-DD1 dd.com ith QSFP112	ith SFP112 12 for reference see		rduero Devíč 01 odť
An improved	and beter organize	d table will be subm	nited as gniasi_3	sck_01_0921.pdf	nttp://wwv	v.qsrp-aa.com	/wp-content/uploads/2021/0	љ/QSFP-DD-на	raware-Rev6.01.pdf
Response	Respoi	nse Status U			Response		Response Status U		
REJECT.					For SFP+	and SFP-DD	resolve using the response	to comment #15	52.
The following https://www.	g related presentatio eee802.org/3/ck/pu	on was considered b blic/21_09/ghiasi_3	by the task force ck_01_0921.pdf	:	For QSFF	P, resolve usin	g the response to comment	#162.	
There is no	consensus to make	the proposed chang	ae.						
			-						

 TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
 C/
 162D
 Page 35 of 44

 COMMENT STATUS: D/dispatched A/accepted R/rejected
 RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
 SC
 162D
 2021-10-12 4:06:13 PM

 SORT ORDER: Clause, Subclause, page, line
 SC
 162D
 2021-10-12 4:06:13 PM

C/ 162D SC	162D.1.1	P 317	L 6	# 141	C/ 163	SC	163.9.2	P 207	L 43	# 64
Dawe, Piers		Nvidia			Mellitz, Rid	chardd		Samtec		
Comment Type	Е	Comment Status A		wording (bucket1)	Comment	Туре	TR	Comment Status A	CC	M voltage (CC) (bucket2)
other end					Comm	non moo	de measu	rements are not well enough	defined to prec	isely specify CM voltage
SuggestedReme	dy				at TPC illustra)v. In ac ated in r	ddition, all nellitz_3cl	aspects of a common mode <_adhoc_01_090821.	voltage may no	ot be detrimental as
other end(s)					Suggested	Remec	dy			
Response		Response Status C			Remo	ve item	n "AC com	mon-mode RMS output volta	ige (max)"	
ACCEPT.	nt does not	apply to the substantive cha	andes hetween	IEEE P802 3ck D2 2	Response			Response Status W		
and D2.1 or t the scope of However, the Implement th	the unsatist the recircul proposed e suggeste	ied negative comments from lation ballot. change is an improvement t ed remedy.	o the draft.	s. Hence it is not within	ACCE The re comm Resolv	PT IN F solution on-moc ve using	PRINCIPL n to closed de for KR a g the resp	E. d comment #59 provides an a and C2C TX. onse to comment #59.	alternate param	eter to constrain AC
C/ 162D SC	162D.1.1	P 317	L 6	# 140	C/ 163	SC	163.9.2	P 208	L 12	# 68
Dawe, Piers		Nvidia			Healey, A	dam		Broadcom Inc		
Comment Type	Е	Comment Status R		CA types	Comment	Туре	TR	Comment Status A		TX SNDR (CC) (bucket2)
In table head "supportable Number"	ers: PMDs				The re Reflec UI whi	ference tions fro ch will o	e for the S om the tes degrade th	NDR specification is 162.9.3. st fixture can easily have a ro ne SNDR measurement. How	3 which specifi und-trip delay e vever, such refle	es Np to be 29. exceeding 25 (29-1-Dp) ections have no
SuggestedRemed	dy				ISI RE	nsnip to ES spec	cification i	n Draft 2.2 limits intersymbol	interference an	roduction of the
Change to: N following tabl If changing to	laximum ni es. o "maximur	umber of PMDs (merge two n", change "supportable" to	cells vertically). "maximum" in t	Similarly in the he text and table	to consider it again in the SNDR measurement. The purpose of SNDR, as suggests, is to limit noise and distortion. Prior specifications have used and 200 to avoid including intersymbol interference in the result.					
captions too,	and in 162	C.1.			Suggested	Remed	dy			
Response		Response Status C			Chang	je Np fo	or the Clau	use 163 SNDR specification to	o 200.	
REJECT.	at doos not	apply to the substantive cha	naos hotwoon	IEEE DOOD Bok DO D	Response			Response Status W		
and D2.1 or t the scope of The suggeste	the unsatisf the recircul ed change	lation ballot. is not necessary.	n previous draft	s. Hence it is not within	ACCE The re referen [Editor	PT IN F solution nced fro r's note:	PRINCIPL n to comm om the SN : Changeo	E. Ient #50 changes the value o IDR specification in Table 163 I page from 207 to 208.]	f N_p to 200 in 3-5.	162.9.3.3, which is

C/ 163 SC 163.9.2

C/ 163 SC 163.9.2.1.2 P 209 L 15 # 70	C/ 163 SC 163.9.2.1.3 P 209 L 33 # 14
Healey, Adam Broadcom Inc.	Lusted, Kent Intel Corporation
Comment Type T Comment Status A ERL parameter	Comment Type ER Comment Status A TF RLo
In Table 163-6, N is set to 20 UI but this seems to be too small given the 5 dB insertion loss allowance for the test fixture given in 163.9.2.1.1. Using the transmission line parameters in Table 162-20, a transmission line with 5 dB loss at 26.6 GHz can have a propagation delay almost twice N (and therefore a round-trip delay almost four times N). The significance of the N value is that reflections with delay larger than N are not considered in the ERL value. The N value should be extended so that all reflections added by the longest test fixtures allowed by the standard are counted in the ERL value. There is no obvious downside to increasing this value.	There is an editor's note to be removed in the next draft, pending improvements to the test fixture specification. SuggestedRemedy Resolve the test fixture improvements and remove the editor's note Response Response Status C ACCEPT IN PRINCIPLE.
SuggestedRemedy	Resolve using the result of comment #79.
Change the "length of the reflection signal" N to 200.	C/ 163 SC 163.9.2.6 P 210 L 38 # 71
Response Response Status C	Healey, Adam Broadcom Inc.
and D2.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. However, the proposed change is an improvement to the draft. Implement the suggested remedy.	The ISI_RES metric does not discriminate between the ISI caused by the test fixture and the ISI intrinsic to the transmitter under test. We are only interested in the latter and the impact of the test fixture should be considered. The test fixture impact is considered in ERL measurements by calculating the difference between the expected ERL and the measured ERL where the expected ERL is computed using a reference transmitter model and a
C/ 163 SC 163.9.2.1.3 P 209 L 27 # 79	measurement of the test fixture. It seems a similar process could be used to compute the
Dudek, Mike Marvell Comment Type T Comment Status A TF RLcc As is stated in the editor's note the existing specification on the test fixture is not adequate to test the DUT. There is no reason that this test fixture can't use high quality RF	difference between an expected ISI_RES and measured ISI_RES. However, effectiveness of such a process, or other processes, has not yet been demonstrated. At a minimum, it seems that a note like the one in 120D.3.1.7 (which defines a similar measurement for a similar purpose) should be included to advise users of the impact of the test fixture and encourage users to mitigate the impact.
connectors and therefore a significantly better performance should be obtainable.	SuggestedRemedy
SuggestedRemedy Change 2 dB to 6dB. Response Response Status C	Add the following note to the end of 163.9.2.6: "NOTE- The observed ISI_RES can be significantly influenced by the measurement setup, e.g., reflections in cables and connectors. Careful calibration of the measurement setup is recommended."
ACCEPT IN PRINCIPLE. In addition to the change in value clarify in the text that this pertains to the test fixture.	Also change the title of 163.9.2.6 to "Residual intersymbol interference" (remove the hyphen per https://www.ieee802.org/3/WG_tools/editorial/requirements/words.html).
Change the paragraph to: "The common-mode to common-mode return loss of the test fixture shall be greater than or equal to 6 dB at all frequencies between 0.2 GHz and 40 GHz "	Response Response Status C ACCEPT.
Remove the editor's note.	[Editor's note: Changed page from 211 to 210.]

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 U/unsatisfied Z/withdrawn SORT ORDER: Clause, Subclause, page, line C/ 163 SC 163.9.2.6 Page 37 of 44 2021-10-12 4:06:13 PM

C/ 163	SC	163.9.3.4	P 213	L 12		# 12	C/ 163	SC 16	3.9.3.5	P 21	1 2 L	53	# 28
Brown, M	latt		Huawei				Ran, Adee			Cisco			
Comment	t Type	т	Comment Status A		RITT	transition time (CC)	Comment	Type 1	ſR	Comment Status	Α	R	ITT transition time (CC)
In 163 In 163 the in H(0)(1 this m	3.9.3.4, 3A.3.1. voking f) from nethod.	step e, the 3 the pulse clause. "Ot Equation (1 " The paran	reference transition time is response is calculated as fo tain the output pulse respon 63A–2), where Av and fb ar neters Av and fb are not pro	"determined blows, requir nse, h(t), as e specified b vided in 163	l accordin ring Av ar defined ir by the cla 5.9.3.4. Fo	ng to 163A.3.1.3". nd fb as input from n 93A.1.5,with use that invokes or calculation of	"Tr is c measu die ele correct	letermine rement at ments (as	d at the t the die s in the r	die bump" suggests bump is not feasible eference model, Fig	that it should b , and the S-pa ure 93A-2), so	e measure rameters r "at the die	ed or calculated; but nay include some on- bump" is not always
transi 1.	ition tim	ie the ampli	tude is not important so AV	could be set	to an arc	Ditrary value, e.g.,	Just as	em is abo s the s-pa	ut a case	e where Tris _knowl s, Tr should be a val	n ue provided wi	th the tran	smitter describing the
Suggeste	dReme	dy					signal	red to the	s-paran	neters network.			
In 163	3.9.3.4	specify fb e	qual to 53.125 GBd and Av	equal to 400	DmV.		Suggested	Remedy					
Altern	nately						Chang	e					
In 163	3.9.3.4	specify fb e	qual to 53.125 GBd. In 163	A.3.1.3 spec	ify that th	ne value of Av is 1.	"Tr is c	letermine	d at the	die bump and define	ed according to	the metho	od in 120G.3.1.4
Response	e		Response Status C				to	that there	5 10 0	DServation miler			
ACCE	EPT IN	PRINCIPLE	Ξ.				"Tr sho	ould be pr	ovided a	as the value at the in	put of the devic	ce S-paran	neters network, as
Reso	lve usir	ig the respo	onse to comment #30.					111 1200	.3.1.4 DC		n miler .		
							Response			Response Status	С		
[Edito	or's note	e: Changed	line number from blank to 1	2.]			ACCE	PT IN PR	INCIPLE	Ξ.			
							Chang "Tr is tl input o	e the sen he transiti f the devi	tence ur ion time ce S-par	nder discussion to: (see 120G.3.1.4, ex rameter network"	cept that there	is no obse	ervation filter) at the
							Implem	nent with	editorial	license.			

C/ 163 SC 163.9.3.5

C/ 163	SC	163.9.3.5		₽213	<i>L</i> 1		# 29	C/ 163	SC	163.9.3.5		P 213	L 9	# 30
Ran, Adee	е		Ci	sco				Ran, Adee)			Cisco		
Comment	Туре	т	Comment Stat	us A		RITT t	ransition time (CC)	Comment	Туре	ER	Comme	nt Status A		RITT transition time (CC)
120G. modifi definit	3.1.4 is ied mea ion of t	s referenced asurement f he transitio	d by all three iten ïlter, and 120E.3 n time.	ns in the list .1.5 itself is	. It is a pointe not a "meas	er to 120 surement	E.3.1.5 with method" but a	The th the tra contain	ird iter nsmitt ns son	m in this list er is a pack ne test fixtu	is very un aged devic re (defined	clear. My unders ce with unknown as TP0-TP0a in	tanding is tha S-parameter 93C) with kr	at it is about a case where rs and transition time, but it nown S-parameters, and the
Suggestee	dReme	dy						signai	can be	e measured	at TP0a.			
Chang	ge "def	ned accord	ing to the metho	d in" to "def	ined in", in al	ll three bu	ullets.	In this	case,	the _refere	nce_trans	mitter model sho	uld be used,	but its transition time
Chang	ge "and	l adjusted" 1	o "adjusted" in th	ne second b	ullet.			should TP0a.	l be ad	djusted so th	hat the refe	erence value mat	ches the _m	easured_ transition time at
Response	•		Response State	us C				This el	hould l	ha writtan m	ore clearly	,		
ACCE	PT IN	PRINCIPLE									iole clearly			
Pocol	vo tho	concorn ob	out the first bulle	tucing the r	osponso to o	ommont	#29	Suggested	Reme	eay				
Resol	ve lite			i using the t	esponse to c	Johnneni	#20.	Chang "If the	e the t	third item to	ises a dev	ice with unknow	S-naramote	ars and transition time, and
In the	secon	d bullet						a TP0	to TP	0a trace wit	h known S	-parameters. the	n the transm	itter device package model
chang	le: "Tr i	s the transr	nitter transition ti	me measur	ed using the	method i	n 120G.3.1.4 and	S^(tp)	in 93A	A.1.2 is used	d, and Tr is	determined from	n measureme	ent at TP0a and the TP0 to
adjust	ed to r	emove the e	effect of the obse	ervation filte	r" >> 120C 2 1	<i>4</i>)"		TP0a S	S-para	ameters. The	e transmitt	er's transition tim	e (as define	d in 120G.3.1.4) is
10. 11	15 1110	illeasuleu i			200.3.1.4	4)		measu	ired at	1 PUa with	transmitter	equalization tur	ned off by se	tting coefficients to preset 1
Resol	ve the	concern ab	out the third bulle	et using the	response to	comment	t #30.	the ref	erence	e transition	time Tr(ref), determined ac	cording to 16	i3A.3.1.3, being equal to
Implei	ment w	ith edtorial	license.					Response	200010		Bospons	o Status C		
								ACCE	PT IN	PRINCIPLE				
								Chang "If the transit is dete transm	e the t transn ion tim rmine	third item to nitter is com the then the t d from mea	posed of a transmitter surement a	a device with unk device package at TP0v and the 0G 3 1 4) is mea	nown S-para model S^(tp) FP0 to TP0v sured at TP0	ameters or unknown) in 93A.1.2 is used, and Tr S-parameters. The ly with transmit equalization

transmitter transition time (see 120G.3.1.4) is measured at TP0v with transmit equalization turned off by setting coefficients to preset 1 values (see 162.9.3.1.3). Tr is set as the value in Equation (93A–46) that would result in the reference transition time Tr(ref), determined according to 163A.3.1.3 with fb and Av equal to values in Table 163-11, being equal to the measured transition time."

Implement with editorial license.

C/ 163 SC 163.9.3.5

C/ 163	SC 163.9.3.5	P 213	L 11	# 4	C/ 163	SC 163.9.3.5	P 213	L 13	# 32
Brown, Ma	tt	Huawei			Ran, Adee		Cisco		
Comment	Туре Е	Comment Status A		RITT transition time (CC)	Comment	Type TR	Comment Status A		RITT transition time (CC)
Some	words are missing] .			In the	hird case, the m	easured value is compared	to a reference	value Tr(ref); there is no
Suggestea	Remedy				need to	b have the meas	surement "adjusted to remov	e the effect of t e calculation of	he observation filter", Tr(ref) in 163A 3 1 3
Chang To: "de	e "determined acc etermined accord	cord to 163A.3.1.3 is the tra to 163A.3.1.3 is equal to th	nsmitter tran e transmitter	sition time" transition time"	(H_BT	(f) in Equation 1	63A-2).		
Response ACCE	PT IN PRINCIPLE	Response Status C			Follow missin (subjed	ng up on unsati g from Figure 16 ct of another con	sfied comment #21 against i3A-3. If the calibration of th nment), then the editor's not	D2.1 it seems the ITT in 120F be te in 163A.3.1.3	hat the filter is indeed ecomes aligned to 163 will be addressed.
Resolv	e using the resolu	ition to comment #30.			Suggested	Remedy			
CI 402	<u> </u>	Data	1.40	# 04	In the	hird item, delete	e "and adjusted to remove th	ne effect of the c	bservation filter".
C/ 103	30 103.9.3.3		L 1 Z	# 31	Response		Response Status C		
Commont		Cisco	f er	consistion time (CC) (bucket1)	ACCE	PT IN PRINCIPL	.E.		
"with ti 162.9.	ansmitter equaliza	ation off by setting coefficie d: equalization not "off by",	nts to preset it is "turned c	1 values (see off by", not "off by".	In the	hird item, delete	and adjusted to remove th	ne effect of the c	bservation filter".
Suggestea	Remedy				In Figu	re 163A–3 add 1	he measurement filter H_B	T(f).	
Chang	e "transmitter equ	alization off " to "transmitte	r equalizatior	n turned off".	C/ 163	SC 163.10.1	P 215	L 9	# 57
Response		Response Status C			Mellitz, Ric	hardd	Samtec		
ACCE	PT IN PRINCIPLE				Comment	Type TR	Comment Status R		Channel ERL (CC)
For co equaliz Chang	nsistency with oth zation". e "transmitter equ	er clauses refer to "transmi alization off" to "transmit ed	t equalizatior qualization tu	" rather than "transmitter rned off".	Table require same	162-7 has a note d to meet minim reason it was inc	e for ERL "Cable assemblies num ERL". The same should slude included in table 162-2	with a COM gr apply to Table	eater than 4 dB are not 163-10 channels for the
					Suggested	Remedy			
					For the are no	e entry "minimun required to mee	n channel ERL" add a note: et minimum ER."	"Channels with	a COM greater than 4 dB
					Response		Response Status C		
					REJEC Comm The cc The fo footnot https:// The cc There [CC: 1	CT. ent #58 request: mment likely wa btnote a in Table e in Table 136-1 www.ieee802.or mment does no was no consens 63, 120F]	s a similar change for the Casin intending to refer to Table 162-17 was inherited from 6 was added in 802.3cd Dr. g/3/cd/comments/8023cd_It provide sufficient evidence us to make the proposed ch	2C channel cha 162-17 rather t Clause 136 in 8 aft 3.3 per Draft 032_comment_r to make the pro- nange.	racteristics. han Table 162-7. 302.3cd-2018. The 3.2 comment #r02-23. received_by_clause.pdf oposed change.

C/ 163 SC 163.10.1

Wu, Mau-Lin MediaTek Inc. Comment Type T Comment Status A Comment Type T Common-mode to differential-mode insertion loss, IL_dc' shall be Equation (163-7)'. Duplication Suggested/Remedy Suggested/Remedy Suggested/Remedy Suggested/Remedy Suggested/Remedy ACCEPT. Comment Type T Comment Status A Cocket3 In term TC14 value/comment has the nominal value. But the mandatory requirement is a range specified in Table 163-5" in both items. (bucket3) Response Status C Suggested/Remedy Comment Status A (bucket3) Cluscket3 Interm TC14 value/comment has the nominal value. But the mandatory requirement is a range specified in Table 163-5" in both items. Response Status C Suggested/Remedy Change Value/comment to "Per Table 163-5" in both items. Response Response Status C Suggested/Remedy Change Value/comment to "Per Table 163-5" in both items. (bucket3) Interference pulse response peak, v4(ref)_feeak) must be the max value of h(t), if h(t) hereoficial mathe is 63-5". Suggested/Remedy Change Value/comment to "Per Table 163-5" in both items. Comment Type T	C/ 163	SC 163.10.1	P 215	L 13	# 21	C/ 163A	SC 163A.3.1	.1 <i>P</i> 321	L 15	# 143
Comment Type TR Comment Status A (bucket1) The 'value' of 'Common-mode to differential-mode insertion loss, IL_dc' shall be 'Equation (163-7); is sented of Equation (163-7); 'to 'Equation	Wu, Mau-	Lin	MediaTek Inc			Dawe, Pier	rs	Nvidia		
The value of Common-mode to differential-mode insertion loss, IL_dc' shall be 'Equation (1634); instead of 'Equation (1637); to 'Equation (1638); IL_dc' from 'Equation (1637); to 'Equation (1638); IL_dc' from 'Equation (1637); to 'Equation (1638); IL_dc' from 'IL_dc' from 'IL_dc	Comment	Type TR	Comment Status A		(bucket1)	Comment	Туре Е	Comment Status A		COM pkg (bucket3)
(163-8): instead of 'Equation (163-7). Suggested/Remedy Change the value' of 'Common-mode to differential-mode insertion loss, IL_dc' from 'Equation (163-7). Kesponse Response Status W ACCEPT. C/ 163 SC 163.13.4.3 P 226 L 7 # 33 C/ 163 SC 163.13.4.3 P 226 L 7 # 33 In item C14 value/comment has the nominal value. But the mandatory requirement is a range specified in Table 163-5. For consistency, item TC12 should also refer to the table. (bucket3) Suggested/Remedy C/ 163A SC 163A.3.1 P 320 L 23 # [142] Kesponse Response Status A (bucket3) In item TC12 should also refer to the table. Suggested/Remedy C/ 163A SC 163A.3.1 P 320 L 23 # [142] Make it easier to see what S(0) is Suggested/Remedy Change "the peak value" to "the maximum value" on line 15 and line 29 in page 321. Careerr. C/ 163A SC 163A.3.1.1 P 321 L 16 # [33] Comment Type E Comment Status A (bucket1) Indiaka, Yasuo Credo Semiconductor Corerr. C/ 163A SC 163A.3.1.1 P 321 L 16	The 'v	alue' of 'Common	-mode to differential-mode in	sertion loss, IL	_dc' shall be 'Equation	Duplica	ation			
SuggestedRemedy Change the value' of Common-mode to differential-mode insertion loss, IL_dc' from "Equation (163-7)" to "Equation (163-8)". <i>ACCEPT</i> . <i>Comment Status A Comment Type</i> T <i>Comment Status C ACCEPT</i> . <i>Comment to "Per Table 163-5" in both items. Response Response Status C SuggestedRemedy Comment Status</i> A <i>(bucket1) Cl</i> 163A <i>SC</i> 163A.3.1 <i>P</i> 20 <i>L</i> 23 # [142] <i>ACCEPT</i> . <i>Cl</i> 163A <i>SC</i> 163A.3.1 <i>P</i> 20 <i>L</i> 23 # [142] <i>AccEPT</i> . <i>Cl</i> 163A <i>SC</i> 163A.3.1 <i>P</i> 20 <i>L</i> 23 # [142] <i>AccEPT</i> . <i>Cl</i> Comment Status A <i>(bucket1) has</i> multiple peaks. <i>SuggestedRemedy C C Cl</i> Cl Comment Status A <td< td=""><td>(163-8</td><td>3)', instead of 'Equ</td><td>iation (163-7)'.</td><td></td><td></td><td>Suggested</td><td>Remedy</td><td></td><td></td><td></td></td<>	(163-8	3)', instead of 'Equ	iation (163-7)'.			Suggested	Remedy			
Change the value of Common-mode to differential-mode insertion loss, IL_dc' from "Equation (163-7)" to "Equation (163-9)". Response Response Status W ACCEPT. If 63 SC 163.13.4.3 P 226 L 7 # [33] Ran, Adee C lisco C locket3) In item TC14 value/comment has the nominal value. But the mandatory requirement is a range specified in Table 163-5. For consistency, item TC12 should also refer to the table. C / 163A SC 163A.3.1.1 P 321 L 15 # [51] Suggested/Remedy Change value/comment to "Per Table 163-5" in both items. C / 163A SC 163A.3.1 P 320 L 23 # [142] Comment Type E Comment Status A (bucket1) Nake it easier to see what S(0) is Suggested/Remedy Cl 163A SC 163A.3.1 P 320 L 23 # [142] Dawe, Piers Nvidia (bucket1) Make it easier to see what S(0) is Suggested/Remedy C / 163A SC 163A.3.1.1 P 321 L 16 # [53] Suggested/Remedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" K (bucket1) (bucket1) Make it easier to see what S(0) is Suggested/Remedy C / 163A SC 163A.3.1.1 P 321 L 16 # [53] <td>Suggested</td> <td>dRemedy</td> <td></td> <td></td> <td></td> <td>Move t</td> <td>his sentence to</td> <td>p 320 line 53: "If the invok</td> <td>king clause lists me</td> <td>ore than one set of</td>	Suggested	dRemedy				Move t	his sentence to	p 320 line 53: "If the invok	king clause lists me	ore than one set of
Response Response Status W ACCEPT. CI 163 SC 163.13.4.3 P 226 L 7 # 33 Ran, Adee Cisco Cisco Response Status C ACCEPT IN PRINCIPLE. Ran, Adee Cisco Cisco Cisco Cisco In item TC14 value/comment has the nominal value. But the mandatory requirement is a range specified in Table 163-5. For consistency, item TC12 should also refer to the table. Ci 163A SC 163A.3.1.1 P 321 L 15 # [51] SuggestedRemedy Change value/comment to "Per Table 163-5" in both items. Response Response Status A (bucket) Ci 163A SC 163A.3.1 P 320 L 23 # [142] Change "the peak value" to "the maximum value" on line 15 and line 29 in page 321. Ci 163A SC 163A.3.1 P 320 L 23 # [142] Dawe, Piers Nvida (bucket1) Kesponse Response Status C Ci 163A SC 163A.3.1.1 P 321 L 16 # [53] SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel tag a m22.1 to this location. SuggestedRemedy	Chang "Equa	tion (163-7)" to "E	common-mode to differential- Equation (163-8)".	mode insertion	loss, IL_dc' from	referer length.	nce package par "At line 35, del	ameters, the calculation is ete "If the invoking clause	s performed with the lists more than or	e longer package trace e set of reference
ACCEPT. Description CI 163 SC 163.13.4.3 P 226 L 7 # 33 Ran, Adee Cisco Comment Type T Comment Status A (bucket3) In item TC14 value/comment has the nominal value. But the mandatory requirement is a range specified in Table 163-5. Comment Type T Comment Status A (bucket3) For consistency, item TC12 should also refer to the table. Suggested/Remedy C 163A SC 163A.3.1.1 P 321 L 15 # 51 Suggested/Remedy Change value/comment to "Per Table 163-5" in both items. Comment Type T Comment Type T Comment Status A (bucket1) ACCEPT. CI 163A SC 163A.3.1 P 320 L 23 # 142 Dawe, Piers Nvidia (bucket1) The reference pulse response Status C ACCEPT. Comment Type E Comment Status A (bucket1) Kasponse Response Status C Make it easier to see what S(0) is Suggested/Remedy C 163A SC 163A.3.1.1 P 321 L 16 # 53 Undage Tease To see what S(0) is Suggested/Remedy C 163A SC 163A.3.1.1 P 321 L 16 # 53 In figures 163A-2, 3 and 4, change "Reference channel" to "Reference	Response		Response Status W			packag	ge parameters, ti ne trace length "	he calculation in Equation	(163A–3) is perfo	med with the longer
Cl163SC 163.13.4.3P 226L 7# 33Ran, AdeeCiscoComment TypeTComment StatusAComment TypeTComment StatusA(bucket3)In item TC14 value/comment has the nominal value. But the mandatory requirement is a range specified in Table 163-5.(bucket3)For consistency, item TC12 should also refer to the table.C/163ASC 163A.3.1.1P 321L 15# 51SuggestedRemedy Change value/comment to "Per Table 163-5" in both items.C/163ASC 163A.3.1.1P 321L 15# (bucket3)Cl163ASC 163A.3.1P 320L 23# 142142Change "the peak value" to "the maximum value" on line 15 and line 29 in page 321.Cl163ASC 163A.3.1P 320L 23# 142Sc 163A.3.1.1P 321L 16# 53Dawe, PiersNvidia(bucket1)Make it easier to see what S(0) isSc 163A.3.1.1P 321L 16# 53SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel" to "Reference channel S(0)"Comment TypeTComment TypeComment TstatusA(bucket1)Hidaka, YasuoCredo SemiconductorComment TypeTComment TstatusA(bucket1)Make it easier to see what S(0) isSuggestedRemedyC163ASC 163A.3.1.1P 321L 16# 53SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)"This location.SuggestedRemedyC<	ACCE	PT.				Response	je trace tength.	Posponso Status		
Ran, Adee Cisco Comment Type T Comment Status A In item TC14 value/comment has the nominal value. But the mandatory requirement is a range specified in Table 163-5. Implement the suggested remedy with editorial license, maintaining consistency with the resolution to comment #52 and #53. For consistency, item TC12 should also refer to the table. Cited Semiconductor SuggestedRemedy Change value/comment to "Per Table 163-5" in both items. Response Response Status C ACCEPT. Cited 163A SC 163A.3.1 P 320 L 23 # 142 Dawe, Piers Nvidia (bucket1) Make it easier to see what S(0) is SuggestedRemedy Cited Semiconductor SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel" to "Reference channel" to "Reference channel" to "Reference channel S(0)" Cited Semiconductor Response Response Status C ACCEPT. Cited Semiconductor Cited Semiconductor Comment Type E Comment Status A Make it easier to see what S(0) is SuggestedRemedy Cited Semiconductor SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" Credo Sem	C/ 163	SC 163.13.4.3	B P 226	L 7	# 33	ACCE	PT IN PRINCIPI	F		
Initem TC14 value/comment Status A (bucket3) In item TC14 value/comment has the nominal value. But the mandatory requirement is a range specified in Table 163-5. For consistency, item TC12 should also refer to the table. SuggestedRemedy Change value/comment to "Per Table 163-5" in both items. C Response Response Status C ACCEPT. C/ 163A SC 163A.3.1 P 320 L 23 # 142 Dawe, Piers Nvidia (bucket1) C/ 163A SC 163A.3.1 P 320 L 23 # 142 Dawe, Piers Nvidia (bucket1) Make it easier to see what S(0) is SuggestedRemedy C 163A SC 163A.3.1 P 321 L 16 # 53 SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" C 163A SC 163A.3.1 P 321 L 16 # 53 Response Response Status C ACCEPT. C 163A SC 163A.3.1 P 321 L 16 # 53 SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" C 163A SC 163A.3.1.1 P 321 L 16 # 53 Response Response Status C C credo Semiconductor C comment Type T Comment Status A (buc Nis	Ran Ade		Cisco			NOOL				
Common Type T Common Type T Common Type C ACCEPT. C// 163A SC 163A.3.1.1 P 321 L 16 L 16 C C ACCEPT. C// 163A SC 163A.3.1.1 P 321 L 16	Comment	- Type T	Comment Status A		(bucket3)	Implen	nent the suggest	ted remedy with editorial li	cense, maintaining	g consistency with the
range specified in Table 163-5. For consistency, item TC12 should also refer to the table. C/ 163A SC 163A.3.1.1 P 321 L 15 # 51 SuggestedRemedy Change value/comment to "Per Table 163-5" in both items. Credo Semiconductor Comment Type T Comment Status A (buck thas multiple peaks. Response Response Status C SuggestedRemedy Change "the peak value" to "the maximum value" on line 15 and line 29 in page 321. C/ 163A SC 163A.3.1 P 320 L 23 # 142 Dawe, Piers Nvidia Comment Type E Comment Status A (bucket1) Make it easier to see what S(0) is SuggestedRemedy C/ 163A SC 163A.3.1.1 P 321 L 15 # 53 SuggestedRemedy In figures 163A-2.3 and 4, change "Reference channel" to "Reference channel S(0)" C/ 163A SC 163A.3.1.1 P 321 L 16 # 53 Kesponse Response Status C C/ 163A SC 163A.3.1.1 P 321 L 16 # 53 Understand In figures 163A-2.3 and 4, change "Reference channel" to "Reference channel S(0)" C/ 163A SC 163A.3.1.1 P 321 L 16 # 53 KocePr. In figures 163A-2.3 and 4, change "Reference channel" to "Reference channel S(0)" Comment Type T Comment Type T Comment Type T <td>In iten</td> <td>n TC14 value/com</td> <td>ment has the nominal value</td> <td>But the manda</td> <td>atory requirement is a</td> <td>Tesolut</td> <td>ion to comment</td> <td>#52 and #55.</td> <td></td> <td></td>	In iten	n TC14 value/com	ment has the nominal value	But the manda	atory requirement is a	Tesolut	ion to comment	#52 and #55.		
For consistency, item TC12 should also refer to the table. SuggestedRemedy Change value/comment to "Per Table 163-5" in both items. Response Response Status C ACCEPT. C/ 163A SC 163A.3.1 P 320 L 23 # 142 Dawe, Piers Nvidia Comment Type E Comment Status A (bucket1) Make it easier to see what S(0) is SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" Response Response Status C ACCEPT. C/ 163A SC 163A.3.1 P 320 L 23 # 142 Dawe, Piers Nvidia Comment Type E Comment Status A (bucket1) Make it easier to see what S(0) is SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" Response Response Status C ACCEPT. C/ 163A SC 163A.3.1.1 P 321 L 16 # 53 Hidaka, Yasuo Credo Semiconductor Comment Type T Comment Status A (bucket) Hidaka, Yasuo Credo Semiconductor Comment Type T Comment Status A (bucket) Hidaka, Yasuo Credo Semiconductor Comment Type T Comment Status A (bucket) Hidaka, Yasuo Credo Semiconductor Comment Type T Comment Status A (bucket) Hidaka, Yasuo Credo Semiconductor Comment Type T Comment Status A (bucket) Hidaka, Yasuo Credo Semiconductor Comment Type T Comment Status A (bucket) Hidaka, Yasuo Credo Semiconductor Comment Type T Comment Status A (bucket) Hidaka, Yasuo Credo Semiconductor Comment #23 on D2.1. Apply the same change as comment #23 on D2.1 to this location. SuggestedRemedy Change "the longer package trace length" to "the longest transmitter package trace length" to "the longest t	range	specified in Table	e 163-5.			C/ 163A	SC 163A.3.1	.1 <i>P</i> 321	L 15	# 51
For consistency, nem Tor 22 should also refer to the table. SuggestedRemedy Comment Type T Comment Status A (buck the table). SuggestedRemedy Change value/comment to "Per Table 163-5" in both items. Comment Type T Comment Type T Comment Status A (buck the table). C/ 163A SC 163A.3.1 P 320 L 23 # [142] Comment Type T Comment #23 on D2.1. Apply the same change as comment #23 on D2.1 to this location. SuggestedRemedy Change "the longer package trace length" to "the longest transmitter package trace length		naiotonov itom T	C12 about also refer to the	tabla		Hidaka, Ya	asuo	Credo Ser	miconductor	
SuggestedRemedy Change value/comment to "Per Table 163-5" in both items. Response Response Status C ACCEPT. ACCEPT. C/ 163A SC 163A.3.1 P 320 L 23 # 142 Dawe, Piers Nvidia Make it easier to see what S(0) is Comment Status A (bucket1) Make it easier to see what S(0) is SuggestedRemedy Credo Semiconductor Credo Semiconductor SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" Comment Type T Comment Status A (bucket1) Response Response Status C Comment Type T Comment Status A (bucket1) Make it easier to see what S(0) is SuggestedRemedy Credo Semiconductor Comment Type T Comment Status A (bucket1) In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" This location was overlooked in comment #23 on D2.1. Apply the same change as comment #23 on D2.1 to this location. SuggestedRemedy ACCEPT. Comment Type T Comment Type T Comment Type The reference plane as comment #23 on D2.1. Apply the same change as comment #23 on D2.1 to this loca				lable.		Comment	Туре Т	Comment Status A		(bucket1)
Response Response Status C ACCEPT. ACCEPT. C/ 163A SC 163A.3.1 P 320 L 23 # 142 Dawe, Piers Nvidia Make it easier to see what S(0) is Comment Status A CL 163A SC 163A.3.1. P 320 L 23 # 142 Dawe, Piers Nvidia Nvidia (bucket1) ACCEPT. C/ 163A SC 163A.3.1.1 P 321 L 16 # 53 SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel" to "Reference channel S(0)" Comment Type To Comment Status A (bucket1) Response Response Status C Comment Type Comment Status A (bucket1) In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel" to "Reference channel S(0)" Comment Type To Comment Status A (bucket1) Response Response Status C Comment #23 on D2.1 to this location. SuggestedRemedy SuggestedRemedy SuggestedRemedy Change "the longer package trace length" to "the longest transmitter pack	Suggester Chang	g <i>Remedy</i> ge value/commen	t to "Per Table 163-5" in both	items.		The re has mu	ference pulse re ultiple peaks.	sponse peak, v^(ref)_{pea	ak} must be the ma	x value of h(t), if h(t)
ACCEPT. Cl 163A SC 163A.3.1 P 320 L 23 # 142 Dawe, Piers Nvidia (bucket1) Make it easier to see what S(0) is (bucket1) SuggestedRemedy (bucket1) In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" Comment Type T Comment Status A Response Response Status C (bucket1) ACCEPT. Comment Status A (bucket1) In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" Comment Type T Comment Status A (bucket1) Response Response Status C Make it easion use overlooked in comment #23 on D2.1. Apply the same change as comment #23 on D2.1 to this location. SuggestedRemedy ACCEPT. SuggestedRemedy C Comment Type T Comment Status A (bucket1) Response Response Status C SuggestedRemedy Comment #23 on D2.1 to this location. SuggestedRemedy ACCEPT. SuggestedRemedy Comment #23 on D2.1 to this location. SuggestedRemedy Change "the longer package trace length" to "the longest transmitter package trace length" to "the longest transmitte	Response	1	Response Status C			Suggested	Remedy			
Cl 163A SC 163A.3.1 P 320 L 23 # 142 Dawe, Piers Nvidia Comment Type E Comment Status A Make it easier to see what S(0) is (bucket1) SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" C/ 163A SC 163A.3.1.1 P 321 L 16 # 53 Response Response Status C Comment Type To Comment Status A (bucket1) Nake it easier to see what S(0) is SuggestedRemedy This location was overlooked in comment status A (bucket1) Response Response Status C Comment Type To Comment Status A (bucket1) Response Response Status C Comment Type To Comment Status A (bucket1) ACCEPT. Comment #23 on D2.1 to this location. SuggestedRemedy	ACCE	PT.				Chang	e "the peak valu	e" to "the maximum value	" on line 15 and lir	ie 29 in page 321.
Comment Type E Comment Status A (bucket1) Cl 163A SC 163A.3.1.1 P 321 L 16 # 53 Make it easier to see what S(0) is SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" Hidaka, Yasuo Credo Semiconductor Response Response Status C C ACCEPT. Comment Type T Comment Status A (bucket1)	C/ 163A Dawe, Pie	SC 163A.3.1	<i>P</i> 320 Nvidia	L 23	# 142	Response ACCEI	PT.	Response Status C		
Make it easier to see what S(0) is Hidaka, Yasuo Credo Semiconductor SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" T Comment Type T Comment Status A (bucket) Response Response Status C SuggestedRemedy SuggestedRemedy SuggestedRemedy This location was overlooked in comment #23 on D2.1. Apply the same change as comment #23 on D2.1 to this location. SuggestedRemedy Sug	Comment	Туре Е	Comment Status A		(bucket1)	C/ 163A	SC 163A.3.1	.1 P 321	L 16	# 53
SuggestedRemedy In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" Comment Type T Comment Status A (bucklessing to the status of	Make	it easier to see w	nat S(0) is			Hidaka, Ya	isuo	Credo Sei	miconductor	
In figures 163A-2, 3 and 4, change "Reference channel" to "Reference channel S(0)" Response Response Status C ACCEPT. This location was overlooked in comment #23 on D2.1. Apply the same change as comment #23 on D2.1 to this location. SuggestedRemedy Change "the longer package trace length" to "the longest transmitter package trace length" to "t	Suggestee	dRemedy				Comment	Туре Т	Comment Status A		(bucket1)
Response Response Status C comment #23 on D2.1 to this location. ACCEPT. SuggestedRemedy Change "the longer package trace length" to "the longest transmitter package trace length" to "the longest transmitter package trace length"	In figu	res 163A-2, 3 and	d 4, change "Reference char	nel" to "Referer	nce channel S(0)"	This lo	cation was overl	ooked in comment #23 or	n D2.1. Apply the s	ame change as
ACCEPT. SuggestedRemedy Change "the longer package trace length" to "the longest transmitter package trace lengt	Response		Response Status C			comme	ent #23 on D2.1	to this location.		
Change "the longer package trace length" to "the longest transmitter package trace length	ACCE	PT.				Suggested	Remedy			
	-					Chang	e "the longer pa	ckage trace length" to "the	e longest transmitte	er package trace length".
Response Response Status C						Response		Response Status C		
ACCEPT.						ACCEI	PT.			

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 U/unsatisfied Z/withdrawn SORT ORDER: Clause, Subclause, page, line

C/ 163A SC 163A.3.1.1

C/ 163A	SC 1	63A.3.1.1	P3	321	L 36	# 52		C/ 163A	SC 1	63A.3.1.1		P 322	L 23	# 54
Hidaka, Ya	asuo		Cred	o Semicondu	ctor			Hidaka, Ya	suo			Credo Semio	conductor	
Comment	Туре	т	Comment Status	Α			(bucket1)	Comment 7	ype	TR	Comment S	Status A		RITT transition time (CC)
Comm "transn Apply t	ent #23 nitter" p :he sam	on D2.1 v ackage tra e change	vas not correctly im ace length. on line 52 in page 3	iplemented. Ii 322.	should be the	e longest		As a re remove test in o the calo	sult of r d from clause ? culation	resolution f the measu 163.9.3.5, of transm	for comment urement of tra step e. There itter reference	#73 on D2.1, ansmitter trans fore, the obse e transition tir	the observat sition time for ervation filter me.	ion filter (i.e. BT4 filter) was r RX interference tolerance should be removed from
Suggested	Remed	/	1 0					Beside	s, Figur	re 163A-3 s	should includ	e the step res	sponse.	
Chang length	e "the lo	ongest pac	kage trace length	to "the longe	st transmitter p	package trac	е	This co	mment	is continu	ation from co	mment #21 o	n D2.1.	
Response	•		Response Status	c				Suggested	Remedy	V				
ACCEI	PT.		Response Status	C				Add a r This ne	nem edr M edna	uation to de ation is labe	efine H^(0)_n eled as (163A	ioBT(f) by rem A-X) below.	noving H_BT	(f) from Equation (163A-2).
								On line (163A-)	23, cha <)".	ange "H^(0	0)(f) from Equ	ation (163A-2	<u>?</u>)" to "H^(0)_ _!	noBT(f) from Equation
								Change	e h(t) to	h_noBT(t)) on line 23 a	nd in Equatio	n (163A-5) or	n line 37.
								Change	e u(t) to	u_noBT(t)) on line 26 a	nd line 43 and	d in Equation	(163A-5) on line 37.
								In Figu 5) (or ju	e 163A Ist a ca	A-3, change pital Sigma	e h(t) to h_no a) followed by	BT(t). After h <u></u> y u_noBT(t) w	_noBT(t), add vith a label of	d a block of Equation (163A- "Step response".
								Remov	e editor	r's note at t	the top of pag	ge 322.		
								Response			Response S	tatus C		
								ACCEF	PT IN P	RINCIPLE				
								The res	olution	to closed	comment #32	2 adds the BT	filter to the f	figure 163A-3.
								Implem	ent the	following	with editorial	license.		
								Add a b	lock to	Figure 16	3A-3 to conv	ert h(t) to u(t).		
								Remov	e editor	r's note at t	the top of pag	ge 322.		
								Straw p I suppo Y: 14 N: 8	oll #18 rt addir	(decision) ng a transfo) ormation fron	n h(t) to u(t) ir	۱ Figure 163A	A-3.

C/ 163A SC 163A.3.1.1

. <u></u>							
C/ 163A SC 163A.3.	.1.2 <i>P</i> 321	L 45	# 134	C/ 163A SC 163A.3	.1.3 <i>P</i> 322	L 24	# 11
Dawe, Piers	Nvidia			Brown, Matt	Huawei		
Comment Type E	Comment Status A		ERL RV (bucket1)	Comment Type E	Comment Status A		(bucket1)
This says "The refere	ence ERL value is determined f	from the referen	ce	This is sequence of s	steps in method to determine	transition time.	
Waveform Reff(t) by	g the method in 93A.5.2" yet time gating and weighting the	93A.5.2 finds th PTDR waveform	ne effective reflection	SuggestedRemedy			
PTDR(t).			,	Convert the method	to a lettered list.		
SuggestedRemedy				Response	Response Status C		
Do you mean 93A.5.2	2 to 93A.5.5?			ACCEPT.			
Response	Response Status C			C/ 163A SC 163A.3	.1.3 P 322	L 27	# 145
ACCEPT IN PRINCIP	PLE.	((((((Dawe Piers	Nvidia		
Change the text to "I	ne reference ERL value is det	ermined using tr	ne method in 93A.5"	Comment Type F	Comment Status R		(bucket1)
C/ 163A SC 163A.3.	.1.3 <i>P</i> 321	L 53	# 144	Out of order			(2001017)
Dawe, Piers	Nvidia			SuggestedRemedy			
Comment Type E	Comment Status A		wording (bucket1)	Swap equations 163	A-5 and 4		
The method for obtain	ning the reference transition tir	me using the me	easured test fixture	Response	Response Status C		
below, and are outline	ed in Figure 163A–3.	гало раскаде п	lodels are defined	REJECT			
SuggestedRemedv	0			The ordering of the e	quations follows convention.		
method is is				C/ 163A SC 163A.3	.2.2 P 323	L 44	# 146
Response	Response Status C			Dawe, Piers	Nvidia		
ACCEPT.				Comment Type T	Comment Status A		(bucket1)
CI 162A SC 162A 2	1.2 D 2 2 2	1.2	# 47	Give the units			(100 10)
Lusted Kent		LJ	# 17	SuggestedRemedy			
		luon	PITT transition time (CC)	Say that ERL(ref) an	d ERL(meas) are in decibels		
There is an editor's n	ote to be removed in the next (draft to align the		Response	Response Status C		
120G.		dian, to aligh the		, ACCEPT.			
SuggestedRemedy				[Editor's note: Chang	ed page from 232 to 323.]		
Align the ITOL tests a	and remove the editor's notes						
Response	Response Status C						
ACCEPT IN PRINCIF	PLE.						

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 U/unsatisfied Z/withdrawn SORT ORDER: Clause, Subclause, page, line

Resolve using the response to comment #54.

C/ 163A SC 163A.3.2.2 Page 43 of 44 2021-10-12 4:06:13 PM

C/ 163A	SC 163	3A.4	P3	23	L 53	# 20
Wu, Mau-L	in		Medi	aTek Ir	IC.	
Comment 7	⁻ уре т		Comment Status	Α		(bucket1)
The set here is TP5v.	ntence of not corre	"An exar ct, due to	nple test fixture ar the example test	nd its re fixture	ference values are shown in 163B.3 is	e provided in 163B.3." s for TP0v, instead of
Suggestedl	Remedy					
Remov 163B.3	e the sen ."	tence of	An example test	iixture a	and its reference va	alues are provided in
Response			Response Status	С		
ACCEF	РТ.					
C/ 163B	SC 163	3B.2	P3	25	L 21	# 147
Dawe, Pier	s		Nvidi	a		
Comment 7	⁻ уре т		Comment Status	R		Example TF
Comple	ete the ex	ample				
Suggestedl	Remedy					
As this in 163E in the ta Delete referen here." - referen	is a Claus 3.3, e.g. ir able is ba the sente ce value t as far as ce value t	se 163 ex the text sed on. nce "Alth o be calo I know, s o be calo	kample, there's an with the lower va Better, use two cc ough clauses usin culated at more th all clauses using t culated two packa	other p lue in T lumns ng the T an one he TPC ge leng	ackage length zp able 163B-1, and in table 163B-1. P0v methodology package length, or v methodology rec ths.	= 12. Give both ERLs say which zp the ERL may require the ERL nly one is shown quire the ERL
Response			Response Status	С		
REJEC	т.					
This co and D2 the sco	mment do .1 or the o pe of the	pes not a unsatisfie recircula	pply to the substa ed negative comm tion ballot.	ntive cl ents fro	nanges between IE om previous drafts.	EE P802.3ck D2.2 Hence it is not within
The exa sufficie	ample is t nt.	o help ch	eck calculation re	sults a	s in table 163B-1.	One package length is
This co implem	mment de ent, e.g. e	ecribes a exact val	general suggestion ues to be put in Ta	on but o able 16	loes not provide su 3B-1.	ufficient details to

C/ 163B SC 163B.2 Page 44 of 44 2021-10-12 4:06:13 PM