C/ FM	SC FM	P 13	L13	# 3	C/ <b>45</b>	SC 45.2.1.129	P 50	L <b>50</b>	# 82
Marris, Aı	rthur	Cadence Des	sign Systems		Healey, A	dam	Broadcom Inc	<b>)</b> .	
Comment	t Type E	Comment Status D		bucket	Comment	Туре Т С	Comment Status D		
IEEE	Std 802.3cm-20	20 and 802.3cq-2002 have no	w been approve	b	Chip-	to-chip transmitter equ	ualization register definiti	ons have been are	written as being
Suggeste	dRemedy				gene on a t	al for 100/200/400GA	UI-n but 100GAUI-1, 200 prent tap counts and coef	GAUI-2, and 400G.	AUI-4 appear to be
Chan	ge 802.3cm-20X	X to 802.3cm-2020 and 802.3	cq-20XX to 802.	3cq-2020 throughout	Suggeste	dRemedy			
the dr	raft				The c	correct amendment to	45.2.1.129 through 45.2.	1.132 seems to be	to indicate these
Proposed	l Response	Response Status W			regist	ers are specific to 100	)GAUI-n (n > 1), 200GAL	JI-n (n > 2) and 400	GAUI-n (n > 4) until
PROF	POSED ACCEP	T IN PRINCIPLE.			the A	nnex 120F taps count	s, coefficient step sizes,	and control scheme	are finalized. At
Appro	oval was confirm	ed in the following announcem	nent.		contr	olin it seems likely a c			Annex 1201
http://	/www.ieee802.or	g/3/email_dialog/msg01004.ht	tml		Proposed	Response R	esponse Status W		
Imple	ment the sugges	sted remedy.			PRO	POSED ACCEPT IN F	PRINCIPLE.		
C/ 1	SC 1132	P 30	/ 49	# 1	lf the	details of C2C transm	nitter equalizer specificati	ons are not determi	ned at this meeting
Marrie Au	rthur	Cadence Des	vian Systems	π	then	add the following editor	ors note with editorial lice	nce saying:	ned at this meeting
Comment		Comment Status D	sign Oysterns	hucket	"Tho	dataila of ALU ahin ta	ohin transmit aqualization	a hava nativat haan	finalized The
"Thre	e" should be und	derlined		Sucket	actua	l amendment to 45.2.	1.129 through 45.2.1.132	is likely to be to inc	dicate these
Suggeste	dRemedy				regist	ers are specific to 100	)GAUI-n (n > 1), 200GAL	JI-n (n > 2) and 400	GAUI-n (n > 4).
Unde	rline the word "T	hree"			it is li	kelv a different set of	reaisters will be needed f	or Annex 120F cont	rols."
Proposed	I Response	Response Status W							
PROF	POSED ACCEPT				If the	y are then, if necessai	y, add appropriate regist	ers in Clause 45.	
					See a	also comment 59			
C/ 1	SC 1.5	P 32	L 8	# 2	C/ 69	SC 69.1.1	P62	L13	# 4
Marris, Ar	rthur	Cadence Des	sign Systems		Marris, A	rthur	Cadence Des	ian Systems	
Comment	t Type T	Comment Status D		bucket	Commen	Tvpe E (	Comment Status D	ign cyclonic	bucket
Shoul (Norm	Id the MDI speci native references	fications listed in 162.12 be inc	cluded in 1.5 (Ab	breviations) or 1.3	"serv	ce interface or 200Gb	s or 400Gb/s providing"	does not read right	
Suggeste	dRemedy				Suaaeste	dRemedv		-	
Add S	SFP. DSFP. QSF	P and OSFP to "1.5 Abbrevia	tions", and the a	opropriate reference	Chan	ge to "service interfac	e or at 200Gb/s or 400Gl	b/s providing"	
for DS	SFP and OSFP t	o "1.3 Normative references"	,		Proposed	- Response R	esponse Status W	1 0	
Proposed	l Response	Response Status W			PRO	POSED ACCEPT.			
PROF	POSED ACCEPT	T IN PRINCIPLE.							
Abbre 802.3 for the	eviations for conr 3-2018. The norm ese are not nece	nector names have not been d native references define the re ssary.	lefined for clause lated abbreviatio	s currently in IEEE Std ns. So abbreviations					
Add n	normative referer	nces for the missing specificat	ions.						
	/toobaical reasting	and ER/aditorial required CR/	apporal required	T/toobaical E/aditatial C	/accord				Dogo 1 of E4
							(./ 64		

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

 C/
 69
 Page 1 of 54

 SC
 69.1.1
 2020-03-13
 12:54:33 P

C/ 69	SC 69.2.3	P65	/ 31	# 5	C/ 73	SC 73.6.5	P6	9 / 22	# 56
Marris, A	rthur	Cadence Des	ian Systems	<i>"</i> 0	Brown, M	att	Huaw	vei Technologies Can	ada
Comment	Type T	Comment Status D		bucket	Comment	Туре Т	Comment Status	D	
Surel	y Inverse RS-FEC	is optional?			Why i should	s the paragraph	being deleted? Instea	d, further descriptions	for the RS-FEC-Int
Suggeste	dRemedy				Suggester	dRemedy			
Chan optior for 16	ge M to O for Clau nal. Also make the 31 make both be "1	ise 152 to align with Table 8 nomenclature listed in Table 100GBASE-P RS-FEC-Int"	0-3 which has Inv es 80-3 and 69-3	erse RS-FEC as a match. For example	Show 100G	the paragraph w PHYs where RS	rithout strikethrough a -FEC-Int (See Clause	nd add the following s e 161) is an alternative	entence: "F4 is used by to the default RS-FEC
Proposea	Response	Response Status W			(See )	Clause 91).	Deserves Oferies		
PRO	POSED ACCEPT.				Proposed	Response		w	
CI 73	SC 73.6.4	P 68	L <b>26</b>	# 55	PROF	COSED ACCEPT	IN FRINCIFLE.		
Brown, M	att	Huawei Tech	nologies Canada		Керіа				
Comment	Туре Е	Comment Status D		bucket	"Bits I	F0 and F1 are on	ly used for 10 Gb/s p	er lane operation PH	's. F2 and F3 are used for
Editin would	ig instruction is ove I be helpful to show	erly descriptive given that all w the previous unchanged ro	information is sh w.	own in the table. But it	Claus	e 161) is an alter	rnative to the default F	RS-FEC (See Clause	91)."
Suggeste	dRemedy				CI 73	SC 73.6.5.a	P6	9 L 27	# 46
In the	editing instruction	delete "by adding the follow	ing new rows for	A16, A17 and A18	Brown, M	att	Huaw	vei Technologies Cana	ada
and ro In Tal the no	evising the reserve ble 73-4, add one i ew row A16.	ed row". row with ellipse at the begin	and insert uncha	nge row for A15 above	Comment forma	<i>Type</i> E	Comment Status	D	bucke
Proposea	Response	Response Status W			Suggeste	dRemedy			
PRO	POSED ACCEPT.				Use p	proper editing inst	truction format (bold +	- italic).	
					Proposed PROF	Response	Response Status	w	
					Cl 73	SC 73.6.5.a	Р6	9 L29	# 47
					Brown. M	att	Huaw	vei Technologies Cana	ada
					Comment	Type <b>T</b>	Comment Status	D	bucke
					Title o PHYs acron	describes the sco using 100 Gb/s yms, and proper	ppe incorrectly. This re per lane. Also, no cap nouns.	esolution is not for 100 pitalization in titles exc	GPHYs, rather it is for ept for first letter,
					Suggeste	dRemedy			
					Chan	ge title to "FEC re	esolution for 100GBA	SE-P PHYs using RS	-FEC-Int
					Proposed	Response	Response Status	w	
					PROF	POSED ACCEPT	-		
	Vtechnical requires	t ER/editorial required CP/	general required	T/technical E/aditorial C/	general			CL 73	Dage 2 of 54
	viechnical required	a ER/editorial required GR/	general required	r/technical E/editorial G/	yeneral			01 13	Page 2 of 54

C/ 73	SC <sup>·</sup>	73.6.5.a	P6	9 <i>L</i> 31	# 48		C/ 80	SC	80.1.5	P7	5	L <b>6</b>	# 20
Brown, M	att		Huaw	vei Technologies Cana	ida		Trowbridg	ge, Stev	'e	Noki	a		
Comment	Туре	т	Comment Status	D			Comment	Туре	ER	Comment Status	D		bucket
lt is m 91 FE reque	iore spe C. It is r sts RS-I	cifically for not an ope =EC-Int?	r PHYs which suppo rating mode, it's a c	rt RS-FEC-Int in addit hoice of sublayer to in	ion to the default voke. What if neit	Clause ther	Claus class matcl	e 80.1.4 ify 1000 n either	4 of IEEE 9 Physical as format	Std 802.3-2018 sect Layers as either 100 ted.	ion 6, page )GBASE-R (	84 line 6 ha or 100GBA	as two paragraphs that SE-P. Table 80-3 doesn't
Suggeste	dRemea	ly					Suggeste	dReme	dy				
"For 1 defau be us enabl	00GBA It RS-FE ed. If eit ed, othe	SE-P PHY C (see Cla her PHY re rwise RS-I	's which support RS ause 91) the F4 field equests RS-FEC-Int FEC sublayer is ena	FEC-Int (see Clause d is used to negotiate coperation then RS-FE bled."	161) in addition to which FEC sublay EC-Int sublayer is	o the /er is to	Split KR4/0 (1000 create and c	Table 80 CR4/CR BBASE- ed with lause c	0-3 into tw R10 PHY t R copper) 100GBAS orrelation	vo parts. The first par ypes and be re-titled ", since these are th E-KR1/KR2/KP4/CR (100GBASE-P coppo	t (Table 80- as "Nomen e PAM2 PH 1/CR2 and s er)". This wo	3) should re clature and Y types. Ne should be e ould match	atain 100GBASE- clause correlation w Table 80-3a should be entitled "Nomenclature the two paragraphs.
	Nespon			vv			Proposea	Respo	nse	Response Status	w		
PROF	USED .	ACCEPTI	IN PRINCIPLE.				PRO	POSED	ACCEPT	IN PRINCIPLE.	••		
Remo	ve "the	default" fro	om suggested reme	dy.									
Chan	na tavt i	73652	to:				Imple	ment w	ith editoria	al license.			
"For 1	00GBA	SE-P PHY	's which support RS	-FEC-Int (see Clause	161) in addition to	RS-	C/ 80	SC	80.1.5	P <b>1</b>	5	L18	# 22
FEC (	see Cla	use 91) the	e F4 field is used to	negotiate which FEC	sublayer is to be	used. If	Slavick, J	eff		Broa	dcom		
either RS-FI	PHY re C subl	quests RS aver is ena	6-FEC-Int operation 1	then RS-FEC-Int subla	ayer is enabled, of	therwise	Comment	Type	т	Comment Status	D		bucket
			_				In Ta	ble 80-3	3 we list C	UAI-4 and CAUI-10 a	as Optional :	sub-layers f	for a 100G-KR1/CR1
CI <b>73</b>	SC	73.7.6	P7	0 L6	# 49		PHY.	If thes	e are utiliz	zed, don't they use a	CI83 PMA?	So should	n't Cl83 be also marked
Brown, M	att		Huaw	ei Technologies Cana	ida		as Op	nionai.					
Comment	Туре	E	Comment Status	D		bucket	Suggeste	dReme	ay , ,				- 054
All of	the char	nges desci	ribed in the editing in	struction are obvious	from amendment	t markup	Add (	) in the	column fo	or CI 83 for 100GBAS	E-KR1 and	100GBASE	2-CR1
show	ານຣ are ເ າ.	uninecessa	ary. The changes to				Proposea	Respo	nse	Response Status	W		
Sugaeste	dRemea	V					PRO	POSED	ACCEPT				
Chan	ge editin	g instruction	on to: "Change Tabl	e73-5 (as modified by	IEEE Std 802.3c	b-2018	C/ 93A	SC	93A.1.6.1	I P1	97	L 33	# 12
and I	EEE Std	802.3cd-2	2018) as follows:"				Hidaka. Y	'asuo		Cred	o Semicond	uctor	
Incluc	le all rov	vs in the ta	able and show the pi	riority numbers change	ed to the new valu	les.	Comment	Tvpe	т	Comment Status	D		bucket
Proposed PROF	Respon POSED	ACCEPT.	Response Status	W			In the corre	definiti ct, beca	on of sign iuse this v	na_DFE^2 in equatio ralue must be calcula	n (93A-37a) ted for each	, the range potential b	of index of b'(k) is not bank location.
							Suggeste	dReme	dy				
							Chan	ge b'(k)	to b'(n+k)	).			
							In the "for e	secono ach pot	d sentence ential ban	e of step b on line 15 k location n".	, change "fo	r each pote	ential bank location" to
							Proposea	Respo	nse	Response Status	w		
							PRO	POSED	ACCEPT	•			
TYPE: TR	/technic	al required	d ER/editorial requir	ed GR/general requir	ed T/technical E	/editorial G/	general	- <b>- - - - - - - - - -</b>	la alman una		C/ 93A		Page 3 of 54

COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn SC 93A.1.6.1 2020-03-13 12:54:34 P SORT ORDER: Clause, Subclause, page, line

C/ 120	SC 120.5.7.2	P 99	L <b>46</b>	# 61
Ran, Adee		Intel		
Comment Tv	be T	Comment Status D		bucket

Comment Type T Comment Status D

Following up on comment #220 against D1.0, which suggested that "136.8.11.7.5 is an incorrect cross-reference'

After the discussion in the January meeting it became clear that it is the correct cross reference, but the text is misleading. Instead of referring to the PMD control function, it should refer to the PMD control state diagram, which is where the cross-reference points to.

#### SuggestedRemedy

#### Change from

"precoder\_tx\_out\_enable\_i and precoder\_rx\_in\_enable\_i shall be set as determined by the PMD control function on lane i (see 136.8.11.7.5)"

#### to

"precoder tx out enable i and precoder rx in enable i shall be set as determined in the LINK READY state of the PMD control state diagram on lane i (see 136.8.11.7.5)"

#### Proposed Response Response Status W

PROPOSED ACCEPT.

C/ 120F	SC 120F.1	P 201	L <b>49</b>	# 34
Ben Artsi, I	Liav	Marvell		
	_			

Comment Type Comment Status D т

C2C applications dictate external DC blocking cap even in cases when the Rx is capable of directly connecting to the Tx side

#### SuggestedRemedy

Add a sentence similar to the 802.3bj: Should the capacitor be implemented outside TP0 and TP5, it is the responsibility of implementors to consider any necessary modifications to common-mode and channel specifications required for interoperability as well as any impact on the verification of transmitter and receiver compliance.

Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE.

The suggested remedy refers to the following sentences from IEEE 802.3-2018 93.9.4:

"Should the capacitor be implemented outside TP0 and TP5, the common-mode specifications in Table 93-4 may not be appropriate."

"Should the capacitor be implemented outside TP0 and TP5, it is the responsibility of implementers to consider any necessary modifications to common-mode and channel specifications required for interoperability as well as any impact on the verification of transmitter and receiver compliance."

Clause 163 refers back to 93.9.4 and thus by reference includes the above statements.

It is therefore reasonable to include the same or similar statements in 120F.

#### Implement the following.

In 120F.4 "Channel Characteristics", create new subclause 120F.4.4 "AC-Coupling" with the following content:

"Each lane shall include AC-coupling between TP0 and TP5. The low-frequency 3 dB cutoff of the AC-coupling should be less than 100 kHz.

Should the capacitor be implemented outside TP0 and TP5, the common-mode specifications in Table 120F-1 may not be appropriate. It is the responsibility of implementers to consider any necessary modifications to common-mode and channel specifications required for interoperability as well as any impact on the verification of transmitter and receiver compliance."

Delete three instances of the following sentence in 120.1: "The low-frequency 3 dB cutoff of the AC-coupling should be less than 100 kHz."

C/ 120F SC 120F.1 Page 4 of 54 2020-03-13 12:54:34 P

-										
C/ 120F	SC 120F.1	P 202	L <b>31</b>	# 59	C/ 120F	SC 12	0F.3.1	P 201	L10	# 35
Ran, Adee		Intel			Ben Artsi,	Liav		Marvell		
Comment	Туре Т	Comment Status D			Comment	Туре '	т	Comment Status D		TPO extrapolation
"If impl may be	emented, the e used to ident	transmitter equalization feedb ify an appropriate setting"	ack mechanism	described in 120D.3.2.3	TP0a ł Tx com	nas been Ipliance p	shown t paramet	to be extremely difficult to be ers.	e used as a poin	t to measure Specified
As pres	sented in ran	3ck adboc 02 021920 that r	mechanism sunn	orts the equalizer that	Suggested	Remedy				
was sp coeffici 802.3c	ecified in the ient resolution d have kept th	original CAUI-4 C2M (Annex 8 . The PAM4 AUIs defined in 8 is structure. However, we now	i3D), which has c 02.3.bs (120D.3. v have a 5-tap eq	nly 3 taps with 5% 1.5) and re-used in ualizer with a finer	Measu be defi TP0 to	rement w ned to sp TP0a. A	vill still be becify me present	e done at TP0a, but Tx is to ethod of extrapolating/simul ation will be provided.	be specified at ating each of the	TP0. A new annex is to e Tx parameters from
resolut	ion. Even if pr	e-cursor tap c(-3) is removed a	as suggested in	120F.3.1.4 it would not	Proposed I	Response	9	Response Status W		
be ider	itical to the FF	E IN ANNEX 83D.			PROP	OSED RE	EJECT.			
Therefo defined manag	ore, re-using t d. Possible sol ement variable	nis method for 100GAUI-1 is in utions include a training proto es and registers, or combination	mpossible and ne col as in the PMI ons of the two ap	ew method should be D control function, new proaches.	The su presen	ggested tation rel	remedy ating to	does not provide sufficient of this comment is anticipated	detail to impleme for the March m	ent. However, a neeting.
Suggested	Remedy				Comm	ent #30 a	ddresse	es the same issue for Claus	e 163.	
A pres	entation with p	ossible solutions is planned.			<b>Farta</b>	ار د م		_		
Proposed I	Response	Response Status W			Fortas	k torce a	ISCUSSIO	n.		
PROP	OSED REJEC	Т.			See co	mment #	30.			
The su	ggested reme	dy does not provide sufficient	detail to impleme	ent. However, a	C/ 120F	SC 12	0F.3.1	P 203	L <b>30</b>	# 70
presen	tation relating	to this comment is anticipated	d for the March m	eeting.	Mellitz, Ric	hard		Samtec		
For tas	k force discus	sion.			Comment	Гуре '	TR	Comment Status D		TX vfmin
See co	mment #82.				C2C, k in table	(R, and C e 163-5	R devic	es may be the same ports o	on chips. Align A	Av, Afe, and Ane with Vf
					<i>Suggested</i> Replac	<i>Remedy</i> e with Vf	min=0.4	13		
					Proposed I PROP	Response OSED AC	e CCEPT I	Response Status WIIN PRINCIPLE.		
					For tas	k force d	iscussio	n.		

C/ 120F SC 120F.3.1

C/ 120F SC 120F.3.1	P 203	L 32	# 144	C/ 120F	SC 120F.3.1	1.3	P 205	L <b>48</b>	# 77
Dawe, Piers	Mellanox			Healey, Ad	am		Broadcom Ind	с.	
Comment Type TR	Comment Status D		TX FIR c(-3)	Comment T	<i>уре</i> <b>т</b>	Comment	Status D		TX FIR c(-3)
The third precursor has on worthwhile for "20 dB" char not KB or CB, it should be	ly minor value for "28 dB' nnels, yet it adds comple: done with simpler silicon	' channels, so I xity to the silicor	don't expect it will be and the tuning. This is	A 3rd p comple	re-cursor coeff xity (implemen	icient is not tha tation and conf	at useful for chip figuration) for w	p-to-chip channe hat should be a	ls. It adds incremental "lightweight" interface.
	done with simpler silicon	, IRE OZIVI.		Suggested	Remedy				
Suggesteakerneay	-			Remov	e c(-3) tap for r	n00GAU-n C2C	<u>).</u>		
	ı. 			Proposed F	Response	Response	Status <b>W</b>		
Proposed Response R	Response Status W			PROPO	DSED REJECT	Γ.			
PROPOSED REJECT.				See co	mment #144				
The following presentation channels with COM near 3 http://www.ieee802.org/3/cl	shows an improvement of dB for various channels. k/public/adhoc/mar04_20,	due to c(-3) of 0. /sun_3ck_adhoo	1 to 0.8 dB in COM for c_01_030420.pdf	Cl 120F Healey, Ad	SC <b>120F.3.2</b> am	2.3	P206 Broadcom Inc	L <b>48</b> c.	# 78
Removing the c(-3) would receiver.	result in marginal channe	ls failing or putti	ng more burden on the	Comment T I believ	<i>ype</i> <b>T</b> the intent is f	Comment or the return lo	Status <b>D</b> ss of the test se	etup to have "tes	st fixture" grade
C/ 120F SC 120F.3.1	P 203	L 38	# 151	periori	lance.				
Dudek, Mike	Marvell			Suggesteur	kennedy	nuction (TPD)"	to "Equation (1)	62 2)" (Teat fixtu	ura rafaranaa raturn
Comment Type T	Comment Status D			loss lim	it), change Ec		to Equation (1	03-2) (Test lixiu	
Footnote b to table 163-5 v should be applied to chip to	which updates the linear f o chip as well as backpla	it procedure for ne.	measuring SNDR	Proposed R	Response		Status <b>W</b>		
SuggestedRemedy							. <b>L</b> .		
Add the same footnote to t	he SNDR row in Table 12	20F-1.		For tas	k force discuss	sion.			
Proposed Response R PROPOSED ACCEPT IN F	Response Status W PRINCIPLE.			C/ <b>120F</b> Li, Mike	SC 120F.3.2	2.3	P <b>207</b> Intel	L <b>5</b>	# 156
Add the following footnote	to the SNDR parameter i	n Table 120F-1.		Comment 7 Np TBD	ype <b>TR</b>	Comment	Status D		
"Measurement uses the me fit procedure in 162.9.3.1.1	ethod described in 120D. is used."	3.1.6 with the ex	ception that the linear	SuggestedF Change	R <i>emedy</i> e it to 18 (lengtl	h of TX pre-tap	s + RX DFE tap	os+main tap)	
				Proposed R PROPC	Response DSED ACCEP <sup>-</sup>	Response - T IN PRINCIPL	Status <b>W</b> E.		
				For tas	k force discuss	sion.			

C/ 120F SC 120F.3.2.3

C/ 120F SC 120F.3.2.4 P207 L22 # 36	C/ 120F SC 120F.4.1 P209 L52 # 132
Ben Artsi, Liav Marvell	Ghiasi, Ali Ghiasi Quantum/Inphi
Comment Type T Comment Status D jitter tolerance [C	C] Comment Type TR Comment Status D
Reciever jitter tolerance test is specified at specific frequency points with no specified	Transmitter differential peak output is TBD
1.33MHz 0.05UI at 4-40MHz. Tx is measured when applying high pass filter on the litter	SuggestedRemedy
filtering out much of the low frequency jitter of a transmitter. A transmitter may still comply with the TX specifications and have much more than 0.15UI of jitter at frequecies which reside around a few handers of Hz. Since there is no Rx jitter tolerance requirement at	Replace Av with 0.413 V Replace Afe with 0.413 V Replace Ane with 0.608 V
these frequencies: A transmitter may have relatively high jitter at low frequencies and still	Proposed Response Response Status W
The interoperability between these specified Tx and Rx is questionable.	PROPOSED ACCEPT IN PRINCIPLE.
SuggestedRemedy	See comment #69, which has the same suggested remedy.
Add a sentence that the reciever is expected to meet any frequency point between the specified in table 163-9 while jitter tolerance requirement is linearly extrapolated between	Cl 120F SC 120F.4.1 P 209 L 52 # 69
any consecutive specified frequency points.	Mellitz, Richard Samtec
Proposed Response Response Status W	Comment Type TR Comment Status D
PROPOSED ACCEPT IN PRINCIPLE.	C2C, KR, and CR devices may be the same ports on chips. Align Av, Afe, and Ane with table 163-10
See comment #33.	Suggested Bornedy
C/ 120F SC 120F.4.1 P 208 L 40 # 157	replace the TBD"s with Av=0.0413,Afe=0.413,Ane=0.608
Li, Mike Intel	Proposed Response Response Status W
Comment Type TR Comment Status D	PROPOSED ACCEPT IN PRINCIPLE.
Tr TBD	For task force discussion
SuggestedRemedy	
Change it to Tr =6.5 ps, which is consistent with CEI-112G-PAM4-MR	C/ 120F SC 120F.4.1 P210 L11 # 147
Proposed Response Response Status W	Dawe, Piers Mellanox
PROPOSED ACCEPT IN PRINCIPLE.	Comment Type TR Comment Status D RR DFE length
For task force discussion.	could be used. Low power silicon will be needed if this application is to be viable.
	SuggestedRemedy
	4 taps, or 5 as Ali proposed. See my C2M comments for proposed tap weight limits.
	Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE.
	See comment #16.

C/ 120F SC 120F.4.1

-									
C/ 120F	SC 120F.4.1	P 210	L 11	# 158	C/ 120F	SC 120F.4.	1 P <b>210</b>	L11	# 16
Li, Mike		Intel			Sun, Junqi	ng	Credo Semi	conductor	
Comment	Type TR	Comment Status D		RR DFE length	Comment	Type TR	Comment Status D		RR DFE length
Nb TB	D				Simula good s	tions show 5 ta tarting point. S	ap DFE is sufficient to cover of imulation results will be provi	contributed chanr ded.	nels. Nb=5 will be a
Chanc	1 - 14	which is consistent with CEL			Suggested	Remedy			
Dremened	$\int \frac{\partial f}{\partial t} = \int \frac{\partial f}{\partial t$				set Nb	=5.			
Proposea	Response	Response Status W			Proposed I	Response	Response Status W		
PROP	OSED ACCEPT	IN PRINCIPLE.			PROP	, OSED ACCEP	, T IN PRINCIPLE.		
See co	omment #16.								
C/ 120F	SC 120F 4 1	P210	/ 11	# 133	Other of	comments suge	gest values as well as summ	arized below.	
Ghiasi, Ali		Ghiasi Quan	tum/Inphi	# 135	Comm 16   5	ent #  Nb fixed			
Comment	Type TR	Comment Status D		RR DFE length	133   5	fixed			
DFE ta	ap length missing	J			133   3	fixed, 2 floatin	g, span 12		
Suggested	lRemedy				147   4	fixed			
Replac	ce TBD with 5 or	alternatively with 3 fixed+2 f	loating taps with	span of 12 UI to	147   5	fixed			
suppo ghiasi_	rt full range of ch _3ck_02_0320.pd	annels and packages, for su df	pporting materia	lsee	For tas	k force discuss	sion.		
Proposed	Response	Response Status W			C/ 120F	SC 120F.4.	1 P 210	L13	# 134
PROP	OSED ACCEPT	IN PRINCIPLE.			Ghiasi, Ali		Ghiasi Quar	ntum/Inphi	
See co	omment #16.				Comment T Bmax	<i>Type</i> <b>TR</b> values are TBD	Comment Status D	·	RR DFE bmax
					Suggested	Remedy			
					Replac	e TBD with B1	max=0.5 and B[2-5]max=0.1	ghiasi_3ck_02_0	)320.pdf
					Proposed I	Response	Response Status W		
					PROP	, OSED ACCEP	T IN PRINCIPLE.		
					A pres	entation relatin	g to this comment is anticipa	ted for the March	meeting.
					See co	omment #17			

C/ 120F SC 120F.4.1

-											
C/ 120F	SC 120F.4.1	P 210	L13	# 159	C/ 120F	SC 120F	.4.1	P 210	L18	# 146	
Li, Mike		Intel			Dawe, Pier	S		Mellanox			
Comment	Type <b>TR</b>	Comment Status D		RR DFE bmax	Comment	Type <b>TR</b>		Comment Status D		RR noise	
bmax <sup>·</sup>	TBD				One-si	ded noise s	pectra	al density of 8.2e-9 V2//GHz	is extremely a	ggressive and optimistic	
Suggested	IRemedy				and was chosen to make 28 dB backplane channels pass COM. It is not appropriate for this 20 dB spec.						
Chang	e  it to bmax = 0.3	35, which is consistent with C	EI-112G-PAM4-W	IR	SuggestedRemedy						
Proposed PROP	Response OSED ACCEPT	Response Status W			Chang (For inf	e to 1.64e-8 fo, 50G/lane	, sam C2C	e as 50GBASE-CR but lowe (120C) has 2.6e-8.)	er than propose	ed for C2M (4.1e-8).	
See co	omment #17.				Proposed F PROP	Response OSED REJE	CT.	Response Status W			
C/ 120F	SC 120F.4.1	P 210	L 14	# 17							
Sun, Junq	ing	Credo Semico	onductor		Since t	he noise tar	get is	practical for a transmitter, it	should be pract	ctical for a C2C	
Comment	Type TR	Comment Status D		RR DFE bmax	receive	er. There is a	a trad	e off between receiver and tr	ransmitter com	plexity to consider.	
simula channe	tion shows bmax els. Simulation re	(1)=0.85. bmax(2:5)=0.2 are sults will be provided.	sufficient to cover	contributed	For tas	k force disc	ussio	n.			
Suggested	lRemedy				C/ 120F	SC 120F	.4.1	P <b>210</b>	L21	# 135	
set bm	nax(1)=0.85 and b	omax(2:4)=0.2.			Ghiasi, Ali			Ghiasi Quantu	um/Inphi		
Proposed	Response	Response Status W			Comment	Type <b>TR</b>		Comment Status D	·		
PROP	OSED ACCEPT	IN PRINCIPLE.			To kee	p C2C powe	er low	need to limit max loss incuc	ling package/fil	ter	
Other	comments sugge	est values as well as summar	ized below.		Suggested Add ne	<i>Remedy</i> w line to tak	ole 12	0F-5, Total IL_wpkgs_wTr (r	max)=28 dB		
comm	ent #   bmax(1)	bmax(2:4)			Proposed I	Response		Response Status W			
17  0	0.85   0.2 0.5   0.1				PROP	, DSED REJE	CT.				
159   0	).85										
For tas	sk force discussio	on.			I his is a minir	a new para num EH.	neter	that needs discussion. It mi	ght be better a	ddressed by specifying	
					For tas	k force disc	ussio	n.			

C/ 120F SC 120F.4.1

C/ 120F	SC	120F.4.2	P <b>21</b> 1	1 L <b>26</b>	# 90	C/ <b>120G</b>	SC 12	20G.1	P <b>216</b>	L <b>43</b>	# 84
Ghiasi, Ali			Ghiasi	Quantum/Inphi		Heck, Howa	ard		Intel		
Comment ERL is	<i>Type</i> TBD	TR	Comment Status	D	ER	Comment 7	<i>ype</i> e 120G.1	<b>E</b> 1, I think	Comment Status D "100GBASE-P" should I	be "100GBASE-R	"bucket
Suggested ERL(m	Reme iin)=14	<i>dy</i> 1.5 dB				Suggested Change	Remedy to "100	GBASE-	R"		
Proposed I PROP	Respo OSED	nse ACCEPT I	Response Status N N PRINCIPLE.	N		Proposed R PROPC	esponse SED RI	e EJECT.	Response Status W		
For tas	k forc	e discussio	n.			100GB/	ASE-P is	s correct.	100GBASE-P PHY and	100GBASE-R PI	HY are defined in IEEE
C/ 120G	SC	120G	P 221	1 L <b>20</b>	# 153	Std 802 RS(544	.3-2018 ,514) FE	1.4.31 a EC, whicl	nd 1.4.32, reproduced b n is specified for use onl	elow. 100GAUI-1 y with 100GBASE	requires use of an E-P PHYs.
Dudek, Mil Comment	ke <i>Type</i> ferenc refere	<b>T</b> ed section nce equaliz	Marvell Comment Status [ for the eye measurem er.	l D nents is not correct as	bucke 120E.4.2 uses the	et 1.4.31 <sup>-</sup> encodir (See IE	00GBA g and a EE Std 8	SE-P: Ar PMD tha 802.3, C	n IEEE 802.3 family of P at employs pulse amplitu ause 80.)	hysical Layer dev ude modulation wi	ices using 100GBASE-R th more than 2 levels.
Suggested Chang	<i>Reme</i> e 1201	<i>dy</i> =.4.2 to 120	)G.3.1.6.			1.4.32 <sup>-</sup> encodir 802.3, (	00GBA g and a Clause 8	SE-R: Ai PMD tha 30.)	n IEEE 802.3 family of F at employs 2-level pulse	hysical Layer dev amplitude modula	ices using 100GBASE-R ation. (See IEEE Std
Proposed I	Respo	nse	Response Status	w		C/ 120G	SC 12	20G.1	P <b>217</b>	L <b>20</b>	# 91
PROP	OSED	ACCEPT.				Ghiasi, Ali			Ghiasi Qu	antum/Inphi	
						Comment 7	vpe	TR	Comment Status D		
						Figure 200 and	20G-2 0  400 Gb	covers 10 ce.	00 GbE, then two additio	onal figures 120G-	·3, and 120G-4 to cover
						Suggested	Remedy				
						The thre 400GA	ee figure JI-4 ther	es can be n numbe	combined where the bo r of connecting line could	ox reads 100GAU d read 1, 2, or 4.	I-1, 200GAUIU-2, and
						Proposed R	esponse	е	Response Status W		
						PROPC	SED A	CCEPT I	N PRINCIPLE.		
						Both the Howeve rate in t	e text an er, it is re he figure	nd figures ecognize e and als	were purposely kept se d that the same informa o in the text.	parate to keep the tion is repeated th	e description clear. iree times, once for each
						Merge	he figure	es for the	e three rates.		
						Where	appropri	ate, mer	ge text for the three rate	s.	
						Modify	Annex 1	20F in th	e same way.		
						Implem	ent with	editorial	license.		
TYPE: TR/ COMMENT SORT ORI	techni STA DER: (	cal requirec TUS: D/disp Clause, Sub	ER/editorial required batched A/accepted bclause, page, line	d GR/general requirec R/rejected RESPON	T/technical E/editoria ISE STATUS: O/open	l G/general W/written C/closed	Z/withd	rawn	CI SC	120G 120G.1	Page 10 of 54 2020-03-13 12:54:3

C/ 120G SC 120G.1	P 217	L <b>29</b>	# 81	C/ 120G	SC 120G.1	P	218 L 48	# 71
Healey, Adam	Broadcom Inc			Mellitz, Ric	hard	Sam	ntec	
Comment Type E	Comment Status D		bucket	Comment 7	ype TR	Comment Status	5 <b>D</b>	
The caption of Figure 120	G-2 is cites the wrong freq	uency.		The eq	uation is only	reccomended. The wa	ay 120G-1 is anotated	d before the graph is
SuggestedRemedy				anotate	d suggest tha	at that it is required for	performance.	
Change "100GAUI-1 C2N insertion loss budget at 2	1 insertion loss budget at 2 6.56 GHz".	5.56 GHz" to "1	00GAUI-1 C2M	Suggestedi Add se	Remedy ction titled 120	0G.1.1 Informative IL		
roposed Response	Response Status W			Proposed F	Response	Response Status	w	
PROPOSED ACCEPT.				PROP	DSED ACCEF	PT IN PRINCIPLE.		
X     120G     SC 120G.1       Heck, Howard     E	P 217 Intel	L <b>29</b>	# 83	Equatio "The re illustrat	on 120G-1 is ir commended i ed in Figure 1	ntroduced in previous insertion loss budget is 20G-5."	paragraphs as follow s characterized by Eo	s: quation (120G-1) and
"25.56 GHz" is incorrect.			bucket	The Fig "Figure	jure with the g 120G-5-Recc	raph of the equation hommended channel in	nas the following title: sertion loss"	
Change to "26.56 GHz"				The rel	ated text clarif	fies that the equation i	s a recommended sp	pecification.
Proposed Response PROPOSED ACCEPT.	Response Status W			Howev subclau	ər, it would be use similar to	beneficial to package 120F.4 "Channel char	e up the channel spec acteristics".	ification in a channel
C/ 120G SC 120G.1	P 218	L <b>48</b>	# 72	Move t	ne informative	channel specification	s to a new subclause	e "120G.4 Channel
fellitz, Richard	Samtec			Charac	ensues .			
Comment Type <b>TR</b> The equation is only recomendated suggest that the	Comment Status <b>D</b> omended. The way 120G-1 ti ti s required for performa	is anotated beince.	fore the graph is	Also, s	e related con	nment #72.		
uggestedRemedy Add section titled 120G.1 and 30	.2 Informative COM based	on sun_3ck_01	a_0120.pdf slide 29					
roposed Response PROPOSED REJECT.	Response Status W							
Contrary to the comment, informative constraint on presentation.	the suggested remedy is p the channel using COM wit	proposing to add h reference to a	d an additional a previously reviewed					
The comment provide no	justification for the propos	ed changes in t	he suggested remedy.					
For task force discussion.								
Also, see comment #71.								
YPE: TR/technical required	ER/editorial required GR/g atched A/accepted R/reject	general required	I T/technical E/editorial G/g	jeneral itten C/closed	Z/withdrawn		C/ 120G SC 120G.1	Page 11 of 54 2020-03-13 12:54:

SORT ORDER: Clause, Subclause, page, line

CL 4200 SC 4200		1.00	# [22	CI 4000	SC 4000 0	Paga	1.22	# [24
C/ 120G SC 120G.	1.1 P 219	L 20	# 92		30 1 <b>20G.2</b>	P ZZU	L <b>32</b>	# 94
	Ghiasi Quar	itum/inpni		Gniasi, Ali			ım/inpni	
The bit error ratio (E	BER) not clear if this is pre or po	ost .		Comment I Compo	nent not neces	sary		buckei
SuggestedRemedy	,			Sugaestedi	Remedy			
The pre-FFC bit erro	or ratio (BER) provided that the	error statistics a	are sufficiently random	Remov	e component a	fter module		
when processed				Proposed F	Response	Posponso Status W		
Proposed Response	Response Status W			PROP	ASED RE IECT			
PROPOSED REJE	CT.				OSED REJECT			
To address the com as being measured without error correct "The bit error ratio (	ment, the leading portion of the after being processed by the P ion. BER) when processed according	e sentence (see I MA and, by exclu ng to Clause 135	below) defines the BER usion, not an FEC; thus for 100GAUI-1 C2M or	The ter that "m as well See co	m "module con odule" is used as the module mment #93.	nponent" refers roughly to the fast a label at the top of the diag component. This is consisten	transceiver dev gram to include t with labelling	ice on the module. Note the module PCB traces in Figure 120G-2/3/4.
Clause 120 for 2000	JAUI-2 or 400GAUI-4 C2M."			C/ 120G	SC 120G 3.1	I P <b>221</b>	/ 1	# 10072
The proposal in the	suggested remedy goes beyor	d the concerns r	aised in the comment.	Wu Mau-I	in	MediaTek	- 1	10072
The processing by a	a particular FEC is only relevan	t when defining a	an entire PHY. The BER	Comment 1		Comment Status D		
errors, including wo	rst case burst errors, for this int	erface.			ent resubmitter	d from Draft 1.0 Subcl 120G '	3 1 - Pa 213 - Ir	341
Concerns relating to #202. http://www.ieee802. No further specificat	the errors bursts was address org/3/ck/comments/8023ck_D1 tion is required.	ed in the respon	se to D1.0 comment omments_200128.pdf	There a prepare Suggestedi Propos	are a lot of TBD ed one contribu <i>Remedy</i> sed to change va	values in Table 120G-1 - Hos tion, wu_3ck_02_0120, to add alues in Table 120G-1 accordi	t output charac ress how to set ng to the contril	teristics at TP1a. I tle down on these. bution,
C/ 120G SC 120G	2 P 220	/ 10	# 93	wu_3cł	k_02_0120.			
Ghiasi Ali	- Chiasi Quar	tum/Innhi		Proposed F	Response	Response Status Z		
Comment Type F	Comment Status D	itum/mpm	hucket	PROPO	OSED REJECT			
Component not nec	essary		Sucker	This co	omment was WI	THDRAWN by the commente	r.	
SuggestedRemedy								
Remove component	t after host							
Proposed Response	Response Status W							
PROPOSED REJEC	CT.							
The term "host com "host" is used as a l the host component	ponent" refers roughly to the tr abel at the top of the diagram t . This is consistent with labellir	ansceiver device o include the hos ng in Figure 1200	on the host. The term st PCB traces as well as G-2/3/4.					

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

See comment #94.

C/ 120G SC 120G.3.1 Page 12 of 54 2020-03-13 12:54:34 P

					-				
C/ 120G SC	2120G.3.1	P 221	L18	# 95	C/ 120G	SC 120G.3.1	1 P <b>221</b>	L <b>20</b>	# 11
Ghiasi, Ali		Ghiasi Quant	um/Inphi		Hidaka, Ya	isuo	Credo Sem	niconductor	
Comment Type	TR	Comment Status D			Comment 7	Type <b>TR</b>	Comment Status D		VEC/EH/BMAX
ESMW is TE	3D				As we	discussed in ad	hoc in hidaka_3ck_adhoc_	_01_021920, I rec	ommend max 9dB VEC
SuggestedReme	edy				at TP1a	a with Rx noise	of eta_0 = 4.1E-8V^2/GHz	were also provide	d
Replace TBI	D with 0.12 l	JI and see ghiasi_3ck_01_0	0320		Suggested	Romody			u.
Proposed Respo	onse	Response Status W			Change	e Table 120G-1	as follows:		
PROPOSED	O ACCEPT II	N PRINCIPLE.			Change	e the value of v e the value of e	ertical eye closure (max) fro ve height, differential (min)	om TBD dB to 9 d from 15 mV to 14	B. mV.
A presentati	on relating to	o this comment is anticipate	d at the March	meeting.	enang.				
					Change	e Table 120G-9	as follows:		
For task for	ce discussioi	٦.			Change	e the value of e	ta_0 from TBD V^2/GHz to	4.1E-8V/2/GHz.	
					Change	e the value of b	$\max(2)$ from TBD to 0.15.		
					Change	e the value of b	$\max(3)$ from TBD to 0.1.		
					Change	e the value of b	$\max(4)$ from TBD to 0.05.		
					Alterna	atively, if a lower	r value of b_max(1) is prefe	erred, the following	is also OK.
					Change	e Table 120G-1	as follows:	-	
					Change	e the value of v	ertical eye closure (max) fro	om TBD dB to 9 d	B.
					Change	e the value of e	ye neight, differential (min)	from 15 mV to 13	.5MV.
					Change	e Table 120G-9	as follows:		
					Change	e the value of e	ta_0 from TBD V^2/GHz to	4.1E-8V^2/GHz.	
					Change	e the value of b	$\max(1)$ from TBD to 0.3.		
					Change	e the value of b	$\max(2)$ from TBD to 0.2.		
					Change	e the value of b	_max(4) from TBD to 0.05.		
					Proposed F	Response	Response Status W		
					PROPO	OSED ACCEPT	IN PRINCIPLE.		
					For tas	k force discuss	ion.		

C/ 120G SC 120G.3.1

C/ 120G SC 120G.3.1	P 221	L <b>20</b>	# 10056	C/ 120G	SC 120G.3.1	P 221	L <b>21</b>	# 96
Dudek, Mike	Marvell			Ghiasi, Ali		Ghiasi Quantu	um/Inphi	
Comment Type T	Comment Status D		VEC	Comment Type	e TR	Comment Status D		VEC
[Comment resubmitted	from Draft 1.0. Subcl. 120G.	3.1 - Pg 213 - In	53]	Vertical ey	e closure is	TBD		
The vertical eye height	is TBD			SuggestedRer	nedy			
SuggestedRemedy				Replace T	BD with 10 a	and see ghiasi_3ck_01_0320		
Adopt the value propos providing more informa	ed in Dudek_3ck_01_1119 (ä tion.	7.5dB). A prese	ntation will be made	Proposed Res PROPOSI	<i>ponse</i> ED ACCEPT	Response Status W IN PRINCIPLE.		
Proposed Response PROPOSED REJECT.	Response Status Z			A presenta	ation relating	to this comment is anticipate	d at the March	meeting.
This commont was W/I		r		For task for	orce discussi	on.		
		/ 20	# 454	C/ 120G	SC 120G.3.1	P 221	L 23	# 118
C/ 120G SC 120G.3.1	P 221	L 20	# 154	Ghiasi, Ali		Ghiasi Quantu	um/Inphi	
				Comment Type	e TR	Comment Status D		ERL
Comment Type I	Comment Status D		VEC	ERL is TB	D			
parameters in the test r choices in the proposed	methodology table 120G.4.2. d change.	I will have a pr	esentation to justify the	SuggestedRer ERL=10.5	<i>nedy</i> dB, see ghia	asi_3ck_03_0320		
SuggestedRemedy				Proposed Res	ponse	Response Status W		
Change the values in ta One sided spectral nois	able 120G-9 from TBD to se 5e-8			PROPOSI	ED ACCEPT	IN PRINCIPLE.		
b1max = 0.4 b2-bn max=0.15				A presenta	ation relating	to this comment is anticipate	d at the March	meeting.
Change the VEC in tab	le 120G-1 to 7.5dB.			For task for	orce discussi	on.		
Proposed Response	Response Status W							
PROPOSED ACCEPT	IN PRINCIPLE.							
[Editor's note: Subclaus	se was changed from 120G to	o 120G.3.1.]						
The following presentat http://www.ieee802.org/	ion was reviewed at the Janu /3/ck/public/20_01/dudek_3c	uary 2020 meetir k_01_0120.pdf	ng:					
For task force discussion	on.							

C/ 120G SC 120G.3.1 Page 14 of 54 2020-03-13 12:54:34 P

C/ <b>120G</b>	SC 120G.3.1.2	P 222	L <b>2</b>	# 119	C/ 120G	SC 120G.3	.1.3	P 222	L 33	# 10059
Ghiasi, Ali	i	Ghiasi Quant	tum/Inphi		Dudek, Mił	ke		Marvell		
Comment	Type TR	Comment Status D			Comment	Туре Е	Comme	nt Status D		ERL
RLCD	return loss can be	e improved			[Comm	nent resubmitte	ed from Draft	1.0. Subcl. 120G.	3.1.3 - Pg 215 -	ln 25]
Ghiasi, Ali Comment RLCD Suggested RLCD See gl Proposed PROP [Editol The co output The co A pres For ta: The re Also, f In Tab Chang To: "C	i <i>Type</i> <b>TR</b> return loss can be <i>dRemedy</i> =30-30*f/25.78 dB =15 dB 12.89 to 55 hiasi_3ck_03_032 <i>Response</i> POSED ACCEPT II r's note: The subcl comment relates to t as specified in Ta comment does not p sentation related to sk force discussion eference in Table 1 for consistency thre ble 120G-1 and ber ge: "Common to di common-mode to common-mode to common-mod	Ghiasi Quant Comment Status D e improved , from 10 MHz to 12.89 GH 3 GHz 0 <i>Response Status</i> W N PRINCIPLE. ause was changed from 12 common-mode to different ble 120G-1 and 120G.3.1.2 provide a justification for im this comment is anticipate to this comment is anticipate of the proposed changes. 20G-1 for RLDC is incorrect oughout 802.3ck heath Equation (120G-2) fferential mode return loss"	tum/Inphi Iz 20G.3.4.1 to 120 ial return loss" ( 2. proving the RL0 ed at the March ct. Change "120	)G.3.1.2.] (RLCD) for the host CD. meeting. )G.3.1.3" to "120G.3.1.2".	Dudek, Mil Comment 7 [Comment 7 [Comment 7 Suggested Either a this set for the Proposed R PROPO Create module Implem C/ 120G Wu, Mau-L Comment 7 [Comm In the p twice th becaus output is not a Suggested The se being u specific	ke Type E hent resubmitte ection labelled le Host input te Remedy add separate s ction to include Host tests (us Response OSED ACCEP a new ERL su e output using hent with edito SC 1206.3 .in Type T hent resubmitte baragraph of "I he delay assoc se the section of ERL, Module i appropriate. Remedy entence of "The used" shall be c test fixture be Pageageageageageageageageageageageageagea	Comme ed from Draft Host output e est and the m sections for the the other poo- ing the HCB) <i>Respons</i> T IN PRINCI bolause for e 120G.3.1.3 a rial license. <b>1.3</b> <i>Comme</i> ed from Draft Host output e ciated with the of 120G.3.1.3 nput ERL, an e value of T_f changed as " eing used."	Marvell <i>nt Status</i> <b>D</b> 1.0. Subcl. 120G.3 effective return loss odule input test. The module output E sints. I think it ma and one for the M <i>the Status</i> <b>W</b> PLE. each of the following s a template. Upda <i>P</i> 222 MediaTek <i>nt Status</i> <b>D</b> 1.0. Subcl. 120G.3 effective return loss a TP1a test fixture B is used not only fi d Host input ERL. x is twice the delay The value of T_fx	3.1.3 - Pg 215 - s is referenced b FRL test or broad y be better to had odule tests (using g: host input, m ate references at <i>L</i> 36 3.1.3 - Pg 215 - ", the sentence being used" is Nor Host output E Based on this, for y associated witt is twice the delated	ERL In 25] by the Module output den the title and text of ave two sections one ing the MCB). odule input, and ppropriately. # 10071 ERL In 28] of "The value of T_fx is NOT appropriate ERL, but also Module the current description h the TP1a test fixture y associated with the
					Proposed i	Response	Respons	e Status W		
					PROP	USED ACCEP	I IN PRINCI	PLE.		
					For tas	sk force discus	sion.			
					See co	omment #1005	7.			

C/ 120G SC	120G.3.1.3	P 222	L 37	# 10057	C/ <b>120G</b> S	C 120G.3.2	P 224	L <b>28</b>	# 10191
Dudek, Mike		Marvell			Ghiasi, Ali		Ghiasi Quantur	m/Inphi	
Comment Type	T Commer	nt Status D		ERL	Comment Type	F TR	Comment Status D		
[Comment re	esubmitted from Draft	1.0. Subcl. 120G	.3.1.3 - Pg 215 -	ln 29]	[Comment	resubmitted	from Draft 1.0. Subcl. 120G.3.	.2 - Pg 217 - In 28]	
The test fixtu that is remove	ire delay should be cla ved	rified so that the	connector is not	included in the delay	Need impr	ove test meth	dology for moulde ouptut com	npliance	
SuggestedReme	dy				See chiasi	3ck 03 012	20		
Change "ass beginning of	ociated with the TP1a the TP1a the TP1a test fixture N	test fixture" to fr IDI connector".	om the measurer	nent point TP1a to the	Proposed Res	oonse	Response Status Z		
Proposed Respo	nse Response	e Status W			PROPOSE	D REJECT.			
PROPOSED	ACCEPT IN PRINCIP	LE.			This comm	nent was WIT	HDRAWN by the commenter.		
See commer	nt #10071.				C/ 120G S	C 120G.3.2	P 224	L 36	# 10193
C/ 120G SC	120G 3 1 3	P <b>???</b>	/ 37	# 19	Ghiasi, Ali		Ghiasi Quantur	m/Inphi	
Sup lunging	1200.0.1.0	Crada Samia	anductor	" 15	Comment Type	TR	Comment Status D		C2M vec
Sun, Junqing	<b>TD</b>		onductor		[Comment	resubmitted	from Draft 1.0. Subcl. 120G.3.	.2 - Pg 217 - ln 28]	
Comment Type	IR Commen	it Status D		ERL				-	
IND IS DEFINED	In Table 120G-9				Module ou	tput VEC is T	BDs and need values		
SuggestedReme	dy				SuggestedRen	nedy			
Chang to "in	Table 120G-9"				See ghiasi	_3ck_03_012	20 and		
Proposed Respo	nse Response	e Status W			Far end TE	P4 VEC = 7	.0 0B 7 5 dB		
PROPOSED	ACCEPT.				Far end TF	25-L2 VEC =	7.5 dB		
C/ 120G SC	1206.3.1.3	P 223	/ 12	# 120	Proposed Res	oonse	Response Status Z		
Chingi Ali		Chiasi Quant			PROPOSE	D REJECT.			
Griidsi, Ali	TD Common		um/mpm	EDI	This comm	ont was W/IT	HDRAWN by the commenter		
ERL is TBD	IR Commen			ERL			ndrawn by the commenter.		
SuggestedReme	dy								
ERL=10.5 dE	3, see ghiasi_3ck_03_	0320							
Proposed Respo	nse Response	e Status W							
PROPOSED	ACCEPT IN PRINCIP	LE.							
A presentation	on relating to this comr	ment is anticipate	ed at the March n	neeting.					
For task forc	e discussion.								

C/ 120G SC 120G.3.2

C/ 120G	SC 120G 3 1	2	P 224	/ 36	# 127	C/ 120G	SC	120G 3 2	P 224	/ 37	# 60
Chiosi Ali	1200.3.	-	hiaci Quant			Pan Adaa		1200.3.2	Intol	201	# 00
Comment		Comment St		um/mpm		Comment	Tuno	т			
Module	e ouptut also ne	eds common mo	de return los	s		Signal	swina	and Tx equ	alization are important in PA	M4 since the	receiver has a limited
Suggested	Pomodu					linear r	ange.	A large swi	ng at the host input may pre-	vent linear ope	eration and detection of
RI CC-	-12-9*f dB from	0 10 MHz to 1 CH	17			PAM4.	Atten	uation has l	been used in past Rx designs	s, but it is bec	oming harder to
RLCC= See gh	=3 dB 1 to 53 G niasi_3ck_03_0	Hz 320	IZ.			The cu	irrent n	nodule outr	but specifications have limited	d information a	about output swing and
Proposed I	Response	Response Sta	atus W			ISI (on	ly impl	icitly throug	h far-end eye height and far-	-end precursor	r ISI ratio, which are
PROP	OSED ACCEPT	IN PRINCIPLE.				defined large ra	d with a ange o	a single cha of C2M host	annel), and do not mention and channels, it is unlikely that a	ny control of th a fixed Tx setti	ne Tx setting. With the ng will be usable for all
[Editor	's note: Since th	ne comment refer	s to module	output the subcl	ause, page, and line	nosts.					
were c	hanged to 1200	G.3.2, 224, and 36	6, respective	ly.]		Actual	modul	es even in	50G have some control of ec	qualization and	d swing. There are
A pres	entation relating	g to this comment	is anticipate	ed at the March r	neeting.	indicat	ions th	at this cont	rol is required for actual oper	ration.	
		•			-	If we ig	nore t	his capabili	ty in the specifications, some	e hosts may no	ot be able to operate
For tas	sk torce discuss	ion.				with the	e settir	ngs used fo	r module output compliance;	; this means th	ne module compliance
C/ 120G	SC 120G.3.	2	P <b>224</b>	L 36	# 10192	specs	ale us	eless and n	neasuring them is a waste of	ume.	
Ghiasi, Ali		C	Shiasi Quant	um/Inphi		The sta	andard	I should at I	east mention the module's T	x control capa	bilities (with reference to
Comment	Type TR	Comment Sta	atus D		C2M eye opening	externa variabl	al docu es and	iments) and control rec	d preferably define requirements	the Tx specific	with management
[Comm	nent resubmitte	d from Draft 1.0.	Subcl. 120G	.3.2 - Pg 217 - In	28]	capabi	lities.				
Module	e output EH is T	BDs and need va	alues			Suggested	Reme	dy			
Suggested	Remedy					A pres	entatio	on is planne	d with further details.		
See af	niasi 3ck 03 0	120 and				Proposed I	Respoi	nse	Response Status W		
Neare	nd TP4 $EH = 5$	50 mV				PROP	OSED	ACCEPT I	N PRINCIPLE.		
Far en	d TP5-L1 EH = d TP5-L2 EH= '	32 mV 20 mV				A prop	ontotio	n rolating t	a this commant is avported a	ot the March R	acting
Proposed	Response	Response Sta	atus 7			A pres	entatio	in relating to	o this comment is expected a		leeting.
PROP	OSED REJECT										
This co	omment was W	ITHDRAWN by th	ne commente	er.							

C/ 120G SC 120G.3.2

C/ 120G	SC 120G.3.2	P 224	L <b>44</b>	# 97	C/ 120G	SC 120G.3	.2	P 224	L 47	# 99
Ghiasi, Ali		Ghiasi Quantu	m/Inphi		Ghiasi, Ali			Ghiasi Quanti	um/Inphi	
Comment	Type TR	Comment Status D			Comment 7	Type TR	Comme	ent Status D		
Near e	nd ESMW is TBD				Far end	d ESMW is TE	D			
Suggested	Remedy				Suggestedl	Remedy				
Replac	e TBD with 0.175	UI see ghiasi_3ck_01_0320			Replac	e TBD with 0.	175 UI see g	hiasi_3ck_01_032	0	
Proposed I	Response	Response Status W			Proposed F	Response	Respon	se Status W		
PROP	OSED ACCEPT II	N PRINCIPLE.			PROPO	OSED ACCEF	T IN PRINC	IPLE.		
A pres	entation related to	this comment is expected at	t the March meetin	g.	A prese	entation relate	d to this com	nment is expected a	at the March me	eeting.
For tas	k force discussior	٦.			For tas	k force discus	sion.			
Cl 120G	SC 120G.3.2	P 224	L <b>44</b>	# 100	C/ 120G	SC 120G.3	.2	P 224	L <b>50</b>	# 10144
Ghiasi, Ali		Ghiasi Quantu	m/Inphi		Dawe, Pier	S		Mellanox		
Comment	Type <b>TR</b>	Comment Status D			Comment 7	Type <b>TR</b>	Comme	ent Status D		
Far-en	d eye height is TB	D			[Comm	ent resubmitte	ed from Draft	t 1.0. Subcl. 120G.	3.2 - Pg 217 - lı	n 50]
Suggested Replac	Remedy e TBD with 20 m\	/ see ghiasi_3ck_01_0320			Far-eno specs.	d pre-cursor IS Better to cho	I ratio has n ose the refer	ot been justified ar ence receiver tap l	nd doesn't fit we imits wisely.	ell with the other C2M
Proposed	Response	Response Status W			Suggestedl	Remedy				
PROP	OSED ACCEPT II	N PRINCIPLE.			Remov	e the row for f	ar-end pre-c	ursor ISI ratio from	the table.	
	entation related to	this comment is expected at	the March meetin	9	Proposed F	Response	Respon	se Status W		
A pics				g.	PROPO	OSED REJEC	т.			
For tas	k force discussion	٦.			The ref	erence receiv	are haina die	cussed do not inclu	ude precursor e	acualization and thus will
C/ 120G	SC 120G.3.2	P 224	L <b>46</b>	# 98	not imp	pact precursor	ISI.			
Ghiasi, Ali		Ghiasi Quantu	m/Inphi		The co	mment does r	ot provide si	ufficient evidence t	hat removing th	nis parameter will result
Comment	Type <b>TR</b>	Comment Status D			an inter	roperable inte	face.		<b>J</b>	
Near-e	nd eye height is T	BD			For tas	k force discus	sion			
Suggested	Remedy									
Replac	e TBD with 50 mV	see ghiasi_3ck_01_0320								
Proposed	Response	Response Status W								
PROP	OSED ACCEPT I	N PRINCIPLE.								
A pres	entation related to	this comment is expected at	t the March meetin	g.						
For tas	k force discussior	٦.								

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

C/ 120G SC 120G.3.2 Page 18 of 54 2020-03-13 12:54:34 P

C/ 120G	SC	120G.3.2	P 224	L 52	# 125	C/ 120G	SC 120G.3.2	P 224	L <b>52</b>	# 126
Ghiasi, Ali			Ghiasi Quar	tum/Inphi		Ghiasi, Ali		Ghiasi Qua	ntum/Inphi	
Comment	Туре	TR	Comment Status D			Comment	Type <b>TR</b>	Comment Status X		
RLCD	return	loss can b	e improved			Module	e ouptut also nee	eds common mode return le	oss	
Suggested	lReme	dy				Suggested	Remedy			
RLCD RLCD See gl	=30-30 =15 dB niasi_3	0*f/25.78 dE 3 12.89 to 5 3ck_03_032	8, from 10 MHz to 12.89 GI 3 GHz 20	Ηz		RLCC= RLCC= See gh	=12-9*f dB, from =3 dB 1 to 53 GF niasi_3ck_03_03	10 MHz to 1 GHz Hz 20		
Proposed	Respo	onse	Response Status W			Proposed I	Response	Response Status W		
PROP	OSED	REJECT.				PROP	OSED ACCEPT	IN PRINCIPLE.		
The co output	ommei as sp	nt relates to ecified in Ta	common-mode to differen able 120G-3 by reference t	tial return loss" (F c Equation (120G	RLCD) for the module -2).	A pres	entation related	to this comment is anticipa	ted at the March r	neeting.
The co	ommei	nt does not	provide a justification for ir	nproving the RLC	D.	101 (83	sk loice leview.			
A prog	ontoti	on related t	a this commont is antisinat	ad at the March m	acting	C/ <b>120G</b>	SC 120G.3.2	P <b>224</b>	L 53	# 121
A pres	entalio		o this comment is anticipat	eu al lite March fi	ieeung.	Ghiasi, Ali		Ghiasi Qua	ntum/Inphi	
For tas	sk forc	e discussio	n of the proposed changes			Comment T ERL is	<i>Type</i> <b>TR</b> TBD	Comment Status X		
The sa	ame cł	nange is bei	ing proposed by comment	#119 for Equatior	(120G-2).	Sugaested	Remedv			
The re	ferenc	e in Table <sup>-</sup>	120G-3 for RLDC is incorre	ct. Change "1200	G.3.1.3" to "120G.3.1.2".	ERL=1	1.5 dB, see ghia	asi_3ck_03_0320		
Also, f	or con	sistency thr	roughout 802.3ck…	-		Proposed PROP	Response OSED ACCEPT	Response Status W		
In Tab Chang To: "C	le 120 le: "Co ommo	G-1 mmon-moc n-mode to	de to differential mode retu differential return loss"	n loss"		A pres	entation related	to this comment is anticipa	ted at the March r	neeting.
						For tas	sk force review.			
						C/ 120G	SC 120G.3.3	P 226	L <b>43</b>	# 122
						Ghiasi, Ali		Ghiasi Qua	ntum/Inphi	
						Comment T ERL is	<i>Type</i> <b>TR</b> TBD	Comment Status X		
						Suggested ERL=1	Remedy 0.5 dB, see ghia	asi 3ck 03 0320		
						Proposed B	Response	Response Status W		
						PROP	OSED ACCEPT	IN PRINCIPLE.		
						A pres	entation related	to this comment is anticipa	ted at the March r	neeting.
						For tas	sk force review.			
TYPE: TR	techni	cal required	d ER/editorial required GF	deneral required	T/technical E/editorial G/	general		Cl	120G	Page 19 of 54

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			. age to et et
COMMENT STATUS: D/dispatched A/accepted R/rejected	RESPONSE STATUS: O/open W/written C/closed Z/withdrawn	SC 120G.3.3	2020-03-13 12:54:34 P
SORT ORDER: Clause, Subclause, page, line			

C/ 120G	SC 120G.3.3	P 226	L 60	# 10060		C/ 120G	SC 1	20G.3.3.2	P 22	2 <b>7</b> L	19	# 103
Dudek, Mik	e	Marvell				Ghiasi, Ali			Ghiasi	i Quantum/Inpl	hi	
Comment 7	ype E	Comment Status D			ERL	Comment 7	уре	TR	Comment Status	D		
[Comm	ent resubmitted	from Draft 1.0. Subcl. 120G.	3.3 - Pg 219 - In	43]		Far-end	d eye he	ight is TBD	)			
The ref section	erence to ERL in 120G.3.3.1 (but	table 120G-4 is directly to 1 it points directly to 120G.3.1	20G.3.1.3 but th	nere is a separate nment)		Suggestedl Replac	R <i>emedy</i> e TBD v	, vith 20 mV :	see ghiasi_3ck_01	_0320		
Suggested	Remedy					Proposed F	Respons	e l	Response Status	w		
Either o	elete section 12	0G.3.3.1 or change the refe	rence in table 12	0G-4 to 120G.3.3.1	1	PROPO	DSED A	CCEPT IN	PRINCIPLE.			
Proposed F PROPC	Response DSED ACCEPT I	Response Status W N PRINCIPLE.				A prese	entation	related to t	his comment is exp	pected at the M	Aarch meeting.	
See co	mment #10059.					For tas	k force o	discussion.				
	SC 4000 0 0	D D D D D D D D D D D D D D D D D D D	145	# 404		C/ 120G	SC 1	20G.3.3.2	P 22	2 <b>7</b> L	20	# 10194
	SC 120G.3.3.		L 15	# 101		Ghiasi, Ali			Ghiasi	i Quantum/Inpł	hi	
Comment 7 Farend	<i>ype</i> <b>TR</b> ESMW is TBD	Gniasi Quant Comment Status X	um/inpni			Comment 7 [Comm	<i>ype</i> ent resu	TR ubmitted fro	Comment Status om Draft 1.0. Subcl	<b>D</b> . 120G.3.3.2 -	Pg 220 - ln 6]	C2M eye opening
Suggested	Remedy					Far end	l eye he	ight is TBD	)			
Replace	e TBD with 0.175	5 UI see ghiasi_3ck_01_032	0			Suggestedl	Remedy					
Proposed F	Response	Response Status W				Replac	e TBD v	vith 50 mV				
PROPO	DSED ACCEPT I	N PRINCIPLE.				Proposed F PROPO	Respons DSED R	e / EJECT.	Response Status	Z		
A prese	entation related to	o this comment is anticipate	d at the March m	eeting.		This co	mmont		PAWN by the cor	nmenter		
For tas	k force review.					1115 00	minem		JRAWN by the col	innentei.		
C/ 120G	SC 120G.3.3.3	2 P 227	L16	# 102		C/ 120G	SC 1	20G.3.3.2.1	P 22	27 L	.52	# 109
Ghiasi, Ali		- Ghiasi Quant	um/Inphi			Ghiasi, Ali	_		Ghiasi	i Quantum/Inpl	hi	
Comment 7	ype TR	Comment Status X	~, <b>p</b>			Table r	<i>ype</i> eference	is TBD	Comment Status	D		
Farend	EW is TBD					Sugaestedl	Remedv					
Suggested	Remedy					Replac	e TBD v	vith table 12	20F-1			
Replace	e TBD with 0.175	5 UI see ghiasi_3ck_01_032	0			Proposed F	Respons	e l	Response Status	z		
Proposed F	Response DSED ACCEPT I	Response Status W N PRINCIPLE.				PROPO	, DSED R	EJECT.		-		
A prese	entation related to	o this comment is anticipate	d at the March m	eeting.		This co	mment	was WITHI	DRAWN by the cor	nmenter.		
For tas	k force review.											
TYPE: TR/t COMMENT	echnical required	d ER/editorial required GR/ patched A/accepted R/reje	general required cted RESPON	T/technical E/edi	torial G/g ben W/wr	jeneral itten C/closed	Z/withc	Irawn		C/ 120G SC 120G.3.3	.2.1	Page 20 of 54 2020-03-13 12:54:34

SORT ORDER: Clause, Subclause, page, line

C/ 120G SC 120G.3.	3.2.1 P 227	L <b>52</b>	# 108		Cl 120G	SC 120G.3	.3.2.1	P 228	L 39	# 10063
Ghiasi, Ali	Ghiasi Qua	ntum/Inphi			Dudek, Mike	e		Marvell		
Comment Type TR Table reference is TB	Comment Status <b>D</b>		jitter	profile	Comment Ty [Comme	ype <b>T</b> ent resubmitte	<i>Comm</i> ed from Draf	<i>ent Status</i> <b>D</b> t 1.0. Subcl. 120G	.3.3.2.1 - Pg 221	l - In 39]
SuggestedRemedy Replace TBD with tab Proposed Response PROPOSED REJECT The comment is refer "Random jitter and bo jitter are added such t profile given in Table" The suggested remed electrical characteristi	le 120F-1 <i>Response Status</i> <b>W</b> - ring to this sentence at the e unded uncorrelated hat the output of the pattern TBD." ly proposes to point to Table cs for C2C (not C2M).	nd of page 227: generator approx 120F-1 which sp	kimates the output j pecifies the transmit	itter ter	The drat SuggestedR Insert th output le specifica eye widt maximiz The far- it shall n specifica generate meet thi is the be	ft is missing t Remedy the following (r evels are adju- ation as show th for the sma- tes the produ- end pre-curs neet the ation in Table or to is requirement est criteria or us	the information modified from usted (without where it is the second mathematical secon	on for how to set u n 120E.3.3.2.1) " ut exceeding the di 20G-4) to result in ren in Table 120G- ght and eye width. measured using t e-emphasis capab r consider whether ould be better to re	p the stressed re Random jitter ar fferential pk-pk i the eye height f 5 with the setting the method defin illity is likely to be the product of e eplace "that max	eceiver input signal. Ind the pattern generator nput voltage tolerance or all three eyes and g of the CTLE that ed in 120E.3.2.1.2 and e required in the pattern eye height and eye width imizes the product of ove deaute
For task force discuss	sion.		litter prome.		Proposed R PROPO	esponse SED ACCEF	Respon T IN PRINC	se Status <b>W</b>		sye closule.
See also comment #1	07		Insert the following, with the selected optimization <optimization criteria="">: "Random jitter and the pattern generator output levels are adjusted (without exceedin differential peak-to-peak input voltage tolerance specification as shown in Table 1200 result in the eye height for all three eyes and eye width for the smallest eye given in T 120G-5 with the setting of the CTLE that <optimization criteria="">. The far-end pre-cursor ISI ratio is measured using the method defined in 120E.3.2.1. it meets the specification in Table 120G-3. Pre-emphasis capability is likely to be req in the pattern generator to meet this requirement".</optimization></optimization>							
					(a) "max (b) "min	kimizes the p imizes the va	roduct of eye lue of vertica	e height and eye w al eye closure"	idth"	
					For task	torce discus	sion.			

C/ 120G SC 120G.3.3.2.1

C/ 120G	SC 120G.3.4	P 229	L15	# 124		C/ 120G	SC 1	20G.3.4.1	P 229	L 36	# 10195
Ghiasi, Ali		Ghiasi Quant	um/Inphi			Ghiasi, Ali			Ghiasi Qu	uantum/Inphi	
Comment	Type TR	Comment Status D				Comment T	ype	TR	Comment Status D		C2M eye opening
RLCD	return loss can l	be improved				[Comm	ent res	ubmitted fr	om Draft 1.0. Subcl. 12	20G.3.4.1 - Pg 222 -	In 32]
Suggested	Remedy					Module	stress	input eye h	neight is TBD		
RLCD=	=30-30*f/25.78 d	B, from 10 MHz to 12.89 GH	z			SuggestedF	Remedy	/	C C		
See gh	=15 0B 12.89 t0 hiasi_3ck_03_03	20				Replace	e TBD v	with 15 mV	@ nominal VEC of 8.5	5 dB	
Proposed I	Response	Response Status W				Add 2nd	d test c	ondition 30	) mV @ nominal VEC o	of 11 dB	
PROP	OSED REJECT.					Proposed R PROPC	espons SED F	se REJECT.	Response Status Z		
The co input a	omment relates t as specified in Ta	o common-mode to differenti able 120G-7 by reference Equ	al return loss" (R ation (120G-2).	LCD) for the module		This co	nment	was WITH	IDRAWN by the comm	enter.	
The co	omment does no	t provide a justification for im	proving the RLCI	D.		C/ 120G	SC 1	20G.3.4.1	P <b>229</b>	L <b>40</b>	# 104
A	antation related	to this commont is opticing to	d at the March m	aating		Ghiasi, Ali			Ghiasi Qu	uantum/Inphi	
A pres		to this comment is anticipate	u at the March m	leeting.		Comment T	ype	TR	Comment Status D		
The sa	ame change is b	eing proposed by comment #	119 for Equation	(120G-2).		ESMW	is TBD	)			
For tas	sk force discussi	on of the proposed changes.				SuggestedF Replace	Remedy e TBD v	/ with 0.12 U	II see ahiasi 3ck 01 0	320	
Howev "120G.	ver, reference in .3.1.2".	Table 120G-7 for RLDC is in	correct. Change	'120G.3.1.3" to		Proposed R	espons		Response Status W		
Also f	for consistency th	proughout 802 3ck				PROPU	ISED P		PRINCIPLE.		
						A prese	ntation	related to	this comment is anticip	bated at the March r	neeting.
In Tabl Chang To: "Co	le 120G-8 ge: "Common to c common-mode to	differential mode conversion	eturn loss"			For task	force	review.			
CI 420C	SC 120C 2 4	Daap	1.42	# 400		C/ 120G	SC 1	20G.3.4.1	P 229	L <b>46</b>	# 105
	30 1 <b>20G.3.</b> 4	F ZZ9		# 123		Ghiasi, Ali			Ghiasi Qu	uantum/Inphi	
Comment			um/mpm	F	PI	Comment I	ype abt in T		Comment Status D		
FRI is				Li			gnuis i	ы			
Suggested	Remedy					Suggestear	emeay דע ספד	/ // 15 m\/ /	soo ahiasi 2ek 01 02	20	
ERL=1	11.5 dB. see ghia	asi 3ck 03 0320				Dropood D				20	
Proposed I	Response	Response Status W									
PROP	OSED ACCEPT	IN PRINCIPLE.									
						A prese	ntation	related to	this comment is anticip	pated at the March r	neeting.
A pres	sentation related	to this comment is anticipate	a at the March m	eeting.		For tasl	force	review.			
For tas	sk force review.										
TYPE: TR/ COMMENT	/technical require T STATUS: D/dis	ed ER/editorial required GR/ spatched A/accepted R/reje	general required cted RESPON	T/technical E/editori SE STATUS: O/open	al G/ge W/writ	eneral ten C/closed	Z/with	drawn	CI SC	120G 2 120G.3.4.1	Page 22 of 54 2020-03-13 12:54:34 P

SORT ORDER: Clause, Subclause, page, line

C/ 120G SC 120G.3.4.1 P229 L 47 # 106	C/ 120G SC 120G.3.4.1.1 P231 L9 # 110							
Ghiasi, Ali Ghiasi Quantum/Inphi	Ghiasi, Ali Ghiasi Quantum/Inphi							
Comment Type TR Comment Status D Eye width is TBD	Comment Type TR Comment Status D loss at TP1a is TBD plus two more TBDs on the same line							
SuggestedRemedy Replace TBD with 0.12 UI see ghiasi_3ck_01_0320	SuggestedRemedy TP1a is 19.2 dB. The 19.2 dB loss represents 16 dB channels loss .							
Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE.	Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE.							
A presentation related to this comment is anticipated at the March meeting.	For task force discussion.							
For task force review.	C/ 120G SC 120G.3.4.1.1 P231 L11 # 10061							
Cl     120G     SC     120G.3.4.1.1     P 230     L 14     # 107       Ghiasi, Ali     Ghiasi Quantum/Inphi       Comment Type     TR     Comment Status     D	Dudek, Mike     Marvell       Comment Type     T     Comment Status     D     bucket       [Comment resubmitted from Draft 1.0. Subcl. 120G.3.4.1.1 - Pg 224 - In 12]							
Table reference is TBD	The sections referenced for measuring Eye height and VEC don't have the correct							
SuggestedRemedy	SugaestedRemedy							
Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE.	Change "Eye height and VEC are then measured at TP1a based on the measurement methodology given in 120E.4.2 and vertical eye closure is measured according to 120E.4.3." to Eye height and VEC are then measured at TP1a as described in 120G.4.2."							
[Editor's note: The line number was changed from 52 to 14.]	Proposed Response Response Status W PROPOSED ACCEPT.							
The comment relates to the following sentence.	C/ 120G SC 120G.3.4.1.1 P231 L16 # 111							
"Random jitter and bounded uncorrelated jitter are added such that the output of the pattern generator approximates the output jitter profile given in Table TBD." The suggested remedy proposes to point to Table 120F-1 which specifies the transmitter	Ghiasi, Ali Ghiasi Quantum/Inphi Comment Type TR Comment Status D CTLE setting for max loss is TBD							
electrical characteristics for C2C (not C2M).	SuggestedRemedy							
It is not clear which parameters in Table 120F-1 specify the output jitter profile.	add table of supported CTLE per ghiasi_3ck_01_0320 where includes min g_DC and g_DC_HP, min g_DC=10 dB and min g_DC_HP=2 dB							
For task force discussion.	Proposed Response Response Status W							
See also comment #108.	PROPOSED ACCEPT IN PRINCIPLE.							
	A presentation related to this comment is anticipated at the March meeting.							
	For task force review.							

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn SORT ORDER: Clause, Subclause, page, line C/ 120G SC 120G.3.4.1.1 Page 23 of 54 2020-03-13 12:54:34 P

01 4000	00 4000 0		Deed	1.00	"	01 4000	00		Daga	1.0	"		
C/ 120G	SC 120G.3.	4.1.1	P 231	L 22	# 10062	C/ 120G	30	120G.4.2	P 232	L <b>3</b>	# 10273		
Dudek, Mi	ke		Marvell			Hidaka, Ya	asuo		Credo Sem	liconductor			
Comment	Туре Т	Comme	nt Status D		C2M VEC	Comment T	Туре	TR	Comment Status D		C2M VEC		
[Comn	nent resubmitte	ed from Draft	1.0. Subcl. 120G	6.3.4.1.1 - Pg 224	4 - ln 22]	[Comm	nent res	submitted f	from Draft 1.0. Subcl. 120	G.4.2 - Pg 225 -	In 28]		
Multipl perforr	e presentations mance than jus	s have showr t the eye ope	n that the VEC at ening.	TP1a is more cr	itical for end to end	Our study showed that VEC (vertical eye closure) is not a good performance metric of whole link performance, if we take account of receiver impairments. This is partly be							
Suggested	Remedy					VEC is not a function of channel insertion loss. EVEC (effective vertical eye closure) as							
Add a	VEC min speci	fication to Ta	ble 120G-8. Val	ue TBD. Move t	he sentence on line 22	propos	t of FF	un_3CK_02 1 (eve heia	2_1119.pdf (page 3) is a b	nel insertion los			
beginn	in with "In both	cases" to a	separate paragra	ph (to emphasis	that it applies to both	Suggosted	Domoo						
the hig	h and low loss	cases) and c	change it to "In bo	oth cases, the in	put VEC is less than	Boploo		iy tiaal aya ak	oqura (max)" in Tabla 120	C 1 with "Effort	ive vertical ave alcoure		
TBD u	Danu greater t					(max)".	,e ven	lical eye ci			ive ventical eye closule		
Proposed	Response	Respons	e Status W			Add a s	sub seo	ction to def	fine effective vertical eye of	closure.			
PROP	OSED ACCEP	I IN PRINCI	PLE.			A prese	entatio	n of a deta	il proposal will be given at	the January me	eeting.		
Move t	he sentence to	a new parag	graph and change	e to the following	:	Proposed F	Respon OSED	ise REJECT.	Response Status Z				
"In bot than th	h the low-loss and the low-loss and the low-loss and the low-loss and the loss and	and high-loss e 120G-8."	cases, the input	VEC is less that	n TBD dB and greater	This comment was WITHDRAWN by the commenter.							
The TE	3D value might	be chosen if	the value in Tab	le 120G-8 is also	o chosen.	C/ 120G	SC	120G.4.2	P 232	L <b>9</b>	# 116		
For tas	sk force discus	sion				Ghiasi, Ali			Ghiasi Qua	ntum/Inphi			
						Comment T	Туре	TR	Comment Status D				
C/ 120G	SC 120G.3.	4.1.1	P 231	L 23	# 112	TP4 ne	ed its	own refere	nce receiver table				
Ghiasi, Ali			Ghiasi Quan	tum/Inphi		Suggested	Remea	ly					
Comment	Type <b>TR</b>	Comme	nt Status D			Create	a new	table that	references table of gDC/g	DC2 for TP4. II	n the new table		
CTLE	setting for min	loss is TBD				DFE no	ormaliz	ed coeffice	ent b1max=0.15, b[2-4]ma	x=0.05 and n0=	8.37e-9		
Suggested	Remedy					Proposed F	Respon	ise	Response Status W				
add tal g DC	ble of supporte HP, min g DC	d CTLE per g =4 dB and m	ghiasi_3ck_01_03 iin g_DC_HP=1 c	320 where includ	les min g_DC and	PROP	OSED	REJECT.					
Proposed	Response	Respons	e Status W			A new	table is	s only requ	ired if there is more than r	ninor difference	s from Table 120G-9.		
PROP													
1101													
A pres	entation related	d to this com	ment is anticipate	ed at the March r	meeting.								

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

For task force review.

C/ 120G SC 120G.4.2 Page 24 of 54 2020-03-13 12:54:34 P

C/ 120G	SC 1	20G.4.2	P 232	L <b>9</b>	# 117	C/ 120G	SC 120G.4.2	P 232	L15	# 143
Ghiasi, Ali			Ghiasi Quantu	ım/Inphi		Dawe, Pie	rs	Mellanox		
Comment T	Туре	TR	Comment Status D			Comment	Type <b>TR</b>	Comment Status D		
TP5 ne	ed its o	wn referen	ce receiver table			The all end, a	lowed CTLE setti nd as Ali and I ha	ngs for TP4 near end are neare proposed, should not be	ot the same as for simple min/max	or TP1a and TP4 far limits anyway.
Suggested	Remedy	/ 				Suggested	Remedy		·	
DFE no	ormalize	able that re	nt b1max=0.3, b[2-4]max=0	.08 and n0=8.3	re new table 7e-9	Replac	ce with tables from	m Ali or me. Also see D1.0	comment 157	
Proposed F	Respons	se	Response Status W			Proposed	Response	Response Status W		
PROP	OSED R	EJECT.				PROP	OSED REJECT.			
TP5 is	not spe	cified for C	2M in Annex 120G.			See co	omments #10157	and #114.		
C/ 120G	SC 1	20G.4.2	P 232	L15	# 10158	C/ 120G	SC 120G.4.2	P 232	L15	# 10197
Dawe, Pier	rs		Mellanox			Ghiasi, Ali		Ghiasi Quar	tum/Inphi	
Comment 7	Туре	TR	Comment Status D		(IR)	Comment	Type TR	Comment Status D		
[Comm	nent resu	ubmitted fr	om Draft 1.0. Subcl. 120G.	4.2 - Pg 225 - In	40]	[Comn	nent resubmitted	from Draft 1.0. Subcl. 1200	6.4.2 - Pg 226 - li	n 40]
These	look like	the CTLE	limits for TP1a and TP4 fa	r end.		gDC m	nax gian of 14 dB	is unecessary with a DFE i	eceiver and cha	nnel <=16 dB
Suggested	Remedy	/				Suggested	Remedy			
Where	are the	limits for T	P4 near end?			12 dB	would be more th	nan adequete and with furth	er study we can	even further reduce the
Proposed F	Respons	se	Response Status W			gDC.	_			
PROP	OSED R	EJECT.				Proposed I PROP	Response OSED REJECT.	Response Status Z		
[The pr specific	roposed c change	change in es that sati	the comment does not con sfy the commenter.]	tain sufficient d	etail to understand the	This co	omment was WIT	HDRAWN by the comment	er.	
It is as	sumed t	hat the cor	mment is referring to the co	ntinuous-time fi	lter (CTF) parameters	C/ 120G	SC 120G.4.2	P 232	L15	# 114
in Tabl	e 120G-	·9.	Ũ		· · ·	Ghiasi, Ali		Ghiasi Quar	tum/Inphi	
There i	is no iss	ue stated i	n the comment nor any pro	posed changes	in the suggested	Comment	Type <b>TR</b>	Comment Status D		
remedy	y.			g		Is not	necessary to allo	w all combination of gDC ar	nd gDC2	
The CI	TE narar	notors sno	cified in this Table 120G-9	are for either ca	60	Suggested	Remedy			
500 00		#111				Move g	gDC and gDC2 ir	nto a new table with 3 colum	ins for TP1a, TP	4, and TP5 per
See co	mment	#114.				Proposed	Besnonse	Posponso Status W		
						PROP				
						A pres	entation related t	to this comment is anticipate	ed at the March I	meeting.
						For tas	sk force discussio	on.		
						1 67 100				

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn SORT ORDER: Clause, Subclause, page, line C/ 120G SC 120G.4.2 Page 25 of 54 2020-03-13 12:54:35 P

IEEE P802.3ck D1.1 10	00/200/400 Gb/s Elect	rical Interfaces Tasl	k Force 2nd Task Fo	orce review comments
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C/ 120G SC 120G.4.2	P 232	L 19	# 10199	C/ 120G	SC 120G.4.2	P <b>232</b>	L19	# 10157
Ghiasi, Ali	Ghiasi Quante	um/Inphi		Dawe, Pier	s	Mellanox		
Comment Type TR	Comment Status D			Comment T	Type <b>TR</b>	Comment Status D		RR ctle
[Comment resubmitted	from Draft 1.0. Subcl. 120G.	4.2 - Pg 226 - lı	n 40]	[Comm	nent resubmitted	from Draft 1.0. Subcl. 120	G.4.2 - Pg 225 - Ir	n 44]
To speed up testing an	d eliminating weired cases or	ne should gDC/	gDC2 combinations	This all	lows combinatio	ns such as gDC=-3, gDC2	=-3 that should no	t happen, receivers
SuggestedRemedy				don't n	eed to design fo	r, and waste time in the "fo	or each valid comb	nation of gDC and
See ghiasi_3ck_03_01	20 for table of allowed CTLE	combinations.		gDO2		locedule.		
Proposed Response	Response Status Z			Suggestea	Remeay			
PROPOSED REJECT.				aDC2	aDC			
				0 or 1	3 to 14			
This comment was WIT	THDRAWN by the commente	er.		2	6 to 14			
C/ 120G SC 120G.4.2	P 232	L19	# 10143	3	9 to 14	<b>D</b>		
Dawe, Piers	Mellanox			Proposed F	Response			
Comment Type T	Comment Status D			PROPU	JSED ACCEPT	IN PRINCIPLE.		
[Comment resubmitted	from Draft 1.0. Subcl. 120G.	4.2 - Pg 225 - lı	n 46]	See co	mment #114.			
Are 1 dB steps for gDC	2 fine enough?			C/ 120G	SC 120G.4.2	P 232	L <b>30</b>	# 113
SuggestedRemedy				Ghiasi, Ali		Ghiasi Qua	antum/Inphi	
Change to 1/2 dB?				Comment T	Type TR	Comment Status D		RR DFE taps
Proposed Response	Response Status W			DFE ta	p weights are TI	BD		
PROPOSED REJECT.				Suggested	Remedy			
				Replac	e bmax(1)=0.3 a	and bmax[2-4]=0.1, see gh	iasi_3ck_01_0320	supporting presentation
The comment provides	The comment provides no justification for the changing the step size. The suggested				Response	Response Status W		
Ternedy does not propo				PROP	OSED ACCEPT	IN PRINCIPLE.		
				A prese	entation related	to this comment is anticipa	ited at the March n	neeting.

For task force discussion.

C/ 120G SC 120G.4.2

C/ 120G SC	120G.4.2	P 232	L <b>30</b>	# 140	C/ 120G	SC 1	20G.4.2	P 232	L 32	# 10155	
Dawe, Piers		Mellanox			Dawe, Pier	s		Mellanox			
Comment Type	TR	Comment Status D		RR DFE taps	Comment 7	Гуре	TR	Comment Status D		RR noise (IR)	
The C2M no the reference implementat separate ma weights foun	rmalized DF e receiver is ions. Optica ix and min ta id.	E coefficient magnitude lim not better than, or grossly al modules probably won't u ap limits. See hidaka_3ck_	its need to be ch different to, a rar ise this classic D adhoc_01_0219	nosen carefully so that nge of real receiver FE. This requires 20 for example tap	[Comm In the s "added so that This so	ent res ame wa " noise the refe	ubmitted fr ay that CO to represe erence rece	Tom Draft 1.0. Subcl. 1200 M has eta0, this measure nt noise that a product m eiver is not better than a m ( or ) (20/CHz	G.4.2 - Pg 226 - Ir ement should have ight have but the r range of real recei	n 11] e a standardised measurement doesn't, iver implementations.	
SuggestedReme	edy				Further	it nee	ds a secon	Ind noise term to account f	or reflections that	a product might have	
Tap 1 min 0. Tap 2 min -0 Taps 3_4 mi	.15 max 0.4 ).1 max 0.1	5			but the measurement doesn't. This is proportional to the signal, so can be a set ratio to sum(AVupp + AVmid + AVIow).						
Adjust name	s of limits a	nd 93A.1 to support separa	te max and min	limits; see another	Suggested	Remedy	/				
comment, ag Proposed Respo	gainst 162.1 Inse	1.7. Response Status W			Include set rationsignal.	two no to sur Allow I	vise items i n(AVupp + RSSing ou	n the measurement, one AVmid + AVlow). To be t the scope noise (as don	a constant in mV RSSd with the m e in TDECQ) if it's	or V^2/GHz, the other a easured, equalised significant.	
PROPOSED	ACCEPT I	N PRINCIPLE.			Proposed F	Respons	se	Response Status W	,	0	
See commer	nt #113.				PROPO	DSED F	REJECT.				
C/ 120G SC	120G.4.2	P 232	L <b>31</b>	# 10145	This ap	pears t	o be overta	aken by new comment #1	41.		
Dawe, Piers		Mellanox			See co	mmont	#1/1				
Comment Type	TR	Comment Status D		(IR)	0000	minem	#141.				
[Comment re	esubmitted f	rom Draft 1.0. Subcl. 120G	.4.2 - Pg 226 - Ir	i 10]	C/ <b>120G</b>	SC 1	20G.4.2	P 232	L <b>32</b>	# 115	
We need min backplane th	nimum limit: nat the minir	s for the C2M normalized D num limits should be very d	FE coefficient m	agnitudes. We saw for aximum limits.	Ghiasi, Ali Comment 7	Гуре	TR	Ghiasi Qua Comment Status D	ntum/Inphi	RR noise	
SuggestedReme	edy				One sid	ded nois	se spectral	density is TBD			
Add bmin lim	nits.				Suggested	Remedy	/				
Proposed Respo	onse	Response Status W			Replae	TBD w	vith 8.2e-9	V^2/GHz			
PROPOSED	REJECT.				Proposed F PROPO	Respon: DSED A	se ACCEPT IN	Response Status W N PRINCIPLE.			
[The propose specific char	ed change in nges that sa	n the comment does not con tisfy the commenter.]	ntain sufficient d	etail to understand the	For tas	k force	discussion	).			
The paramet value is alrea -b_max(n). S	ter b_max(n ady specifie See Equatio	) defines the "magnitude" o d has n 93A-26.	f the coefficient a	and thus the minimum							
The suggest	ed remedy	provides no recommendatio	on for alternate b	min values.							

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

C/ 120G SC 120G.4.2 Page 27 of 54 2020-03-13 12:54:35 P

C/ 120G	SC 120G.4.2	P 232	L 32	# 149	C/ 120G	SC 120G.4.2
Dawe, Pier	rs	Mellanox			Hidaka, Ya	suo
Comment	Type <b>TR</b>	Comment Status D		RR noise	Comment T	ype TR
For the hidaka sepctra	e one-sided noise _3ck_adhoc_01_ al density may be	spectral density, currently TI 021920 looks promising. Ho more clumsy and complicate	3D V^2/GHz, th wever, express ed than necess	ne middle option in ing this as a noise ary.	[Comm In the p	ent resubmitted
Suggested	Remedy				V^2/GH recever	z was added at described in 12
Use 4.	1e-8 for now.				the sco	pe, measurd eye
Proposed I	Response	Response Status W			hole in t	the specification
PROP	OSED ACCEPT I	N PRINCIPLE.			An easy	y fix is to add eta
See co C/ <b>120G</b> Dawe, Pier	SC <b>120G.4.2</b>	P 232 Mellanox	L 33	# [141	Another receive to add e re-doing	r option is to re-c r in order to estir eta_0 noise in the g the performance
Comment	Type <b>TR</b>	Comment Status D		(IR)	Suggested	Remedy
Need a analyse imprac	a way to account tes, but trying to p	for the additional reflections t ut capacitors on the software	hat are plaguin transmission l	g our short-channel ine in the scope seems	Add eta Add a s Here, e	_0 noise of 8.20 tep to add eta_0 ta_0 noise is a g
Suggested	Remedy				Proposed R	lesponse
Add a AVlow)	second noise iten ).  To be RSSd wi	ns in the measurement, a se ith the measured, equalised s	t ratio to sum(A signal.	Vupp + AVmid +	PROPC	SED REJECT.
Proposed I	Response	Response Status W	-		This co	mment was WIT
PROP	OSED REJECT.					
[The pi	roposed change i	n the comment does not con	tain sufficient d	letail to understand the		

specific changes that satisfy the commenter.]

The suggested remedy does not provide sufficient detail to implement.

C/ 120G	SC 120G.4.2	P 232	L33	# 10274
Hidaka, Yasi	ou	Credo S	emiconductor	
Comment Ty	pe TR	Comment Status D		RR noise

from Draft 1.0. Subcl. 120G.4.2 - Pg 226 - In 28]

dy at TP1a in sun\_3ck\_02\_1119.pdf, eta\_0 noise of 8.20E-9 the CTLE input. However, eta\_0 noise is not added in the reference 20G.4.2. If we do not add the eta 0 noise in the reference receiver in e opening will be larger than the performance study. This will creat a

a\_0 noise in the reference receiver.

do the performance study without eta\_0 noise in the reference mate the performance accurately, but it will take time. I recommend e reference receiver for now. We can remove it later, after we finish ce study without eta\_0 noise in the reference receiver.

E-9 V^2/GHz to table 120G-9. D noise after step b in page 226. aussian noise consistent with the third term of (93A-41).

Proposed Response	Response Status	7
r ropodou ricopondo	nesponse otatus	~

HDRAWN by the commenter.

C/ 120G SC 120G.4.2

C/ 120G	SC	120G.4.2	P <b>23</b> 2	2 L 36	# 10156	C/ 120G	SC 1200	3.4.2	P 232	L <b>37</b>	# 137			
Dawe, Pie	rs		Mellan	ох		Dawe, Pier	S		Mellanox					
Comment	Туре	TR	Comment Status	D		Comment	Type TR	c Co	mment Status D					
[Comn This re	nent re ecipe is	submitted t	from Draft 1.0. Subcl.	120G.4.2 - Pg 226 - In ting C2M measuremen	13] It method and COM,	This is incomplete: "Capture the signal according the method defined in 162.9.3.1.1", because it throws away the noise and jitter in the signal. This method could be used to find the pulse response, DFE tap weights and sampling phase, but								
which backpl	is a sin lanes w	nulation no vith transmi	t a measurement met itter training not low p	thod, for channels not sower C2M.	signals, and for	SuggestedRemedy								
Suggested	Reme	dy	0 1			Make it clear that the signal that is used in step e "Compute the receiver input signal yrx(k) by applying the effect of the DEE" is captured acording to 120E but with a different								
Unless 112G-	s some VSR.	one can sh	ow that it works, char	nge to the CTLE/FFE m	nethod as in OIF CEI-	observ proces	ation filter. sed (e.g. av	Actually, th veraged) to	obtain the signal of 1	nent, and the mea 62.9.3.1.1.	sured signal is			
Proposed	Respor	nse	Response Status	w		Proposed I	Response	Res	sponse Status 🛛 🛛 🛛 🛛 🛛 🖤					
PROP	OSED	REJECT.				PROP	OSED ACC	EPT IN PR	RINCIPLE.					
The m	ethodo	logy specif	ied is consistent with	the adopted baseline (	DFE not FFE).	It is int transm	ended that itter output	the eye ope	ening measurement i	ncludes the effect	of noise at the			
The re Noven Move t followi Y:49	nber 20 nber 20 to adop ng exco N:0. A	notion is re 19 Motion ot slides 5, eptions: ::5)	plicated here: #6 7, 8, 12 of sun_3ck_0	)1b_1119 as a C2M ba	seline, with the	162.9.3.1.1 references 85.8.3.3.4 "Waveform acquisition" which includes the following statement: "Averaging multiple waveform captures is recommended."								
The comment does not provide evidence to support the proposal in the suggested remedy.			the suggested remody	The me	ethodology	further limi	ts the number of sam	ples to the length	of the test pattern.					
			In order to retain the reference to 162.9.3.1.1, one or more exceptions would have to be added for it to be appropriate.											
						Since t VEC, it	his eye ope makes ser	ening methonse to use t	hods in 120E.4.2 apture method.	to derive EH, EW, and				
						In orde referrir	r to use the g to 120E,	e methodolo it is better t	ogy from 120E, some to include the capture	changes are requered method in 120G.	ired. Rather than			
						Procec	ure step e) I.	is not clea	r regarding to which s	signal the effect of	the DFE should be			
						Change item a) in the procedure by removing the reference to 162.x.x.x and adding the capture method from item 1) in 120E.4.2 and change the minimum number of samples to a minimum of 32 instead 3 per symbol and noting "Interpolation of the captured waveform may be used to achieve this."								
						For ref "a) Cap and slo equiva allow fo of 10–4	erence item oture the Pf ope of 20 df ent. Collec or construct o without ex	n 1) from 12 RBS13Q us 3/decade. 1 t sufficient : tion of a no trapolation	20E.4.2 is shown here sing a clock recovery The capture includes samples equivalent to rmalized cumulative o	e: unit with a corner a minimum of 3 sa o at least 1.2 millio distribution functio	frequency of 4 MHz amples per symbol, or in PAM4 symbols to n (CDF) to a probability			
TYPE: TR/	/technic	al requirec	ER/editorial require	d GR/general required	T/technical E/editorial	G/general			Cl ·	120G	Page 29 of 54			

COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn SC 120G.4.2 2020-03-13 12:54:35 P SORT ORDER: Clause, Subclause, page, line

	C/ 120G SC 120G.4.2 P232 L45 # 10166
Change:	Li. Mike Intel
"applying the effect of the DFE using"	Comment Type TR Comment Status D
applying the effect of the DFE to y2(k) using	[Comment resubmitted from Draft 1.0. Subcl. 120G.4.2 - Pg 226 - In 24]
For task force discussion.	"Np equal to 200" is not appripriate as UI becomes half in second.
C/ 120G SC 120G.4.2 P232 L 38 # 13	SuggestedRemedy "No equal to 200" to "No equal to 400"
Hidaka, Yasuo Credo Semiconductor	Proposed Response Response Statue M
Comment Type <b>T</b> Comment Status <b>D</b>	bucket PROPOSED REJECT.
plural parameters. However, the receiver noise filter H_r(f) defined by equation (93A has a single parameter f_r. A reference by a singular noun with the parameter symb recommended for clarification.	Based on discussion at the 802.3ck ad hoc meeting on $2020/2/26$ , there is no consensus to change the value according to the suggested remedy.
SuggestedRemedy Change "associated parameters in Table 120G-9" to "associated parameter f_r in Ta	Further analysis is required to determine if changes to the parameter are necessary and beneficial.
120G-9".	C/ 120G SC 120G.4.2 P232 L45 # 10165
Proposed Response Response Status W	Li, Mike Intel
PROPOSED ACCEPT.	Comment Type TR Comment Status D
C/ 120G SC 120G.4.2 P232 L 39 # 142	[Comment resubmitted from Draft 1.0. Subcl. 120G.4.2 - Pg 226 - In 24]
Dawe, Piers Mellanox	"Do equal to 3" is not right as there are 3 pre-taps for the host
Comment Type TR Comment Status D	(IR) Suggested Remedy
Should account for scope noise as TDECQ does.	change "Dp equal to 3" to ""Dp equal to 4".
SuggestedRemedy	Proposed Response Response Status W
Allow RSSing out the scope noise (as done in TDECQ) if it's significant.	PROPOSED REJECT
Proposed Response Response Status W	
PROPOSED REJECT.	Based on discussion at the 802.3ck ad hoc meeting on 2020/2/26, there is no consensus to change the value according to the suggested remedy.
[The proposed change in the comment does not contain sufficient detail to understa specific changes that satisfy the commenter.]	d the Further analysis is required to determine if changes to the parameter are necessary and beneficial.
The TDECQ method inferred in the suggested remedy may be found in IEEE 802.3- Section 8 121.8.5.3. The scope noise term sigma_s is discussed at the top of pages and 136. It is not clear how this would be incorporated into the eye opening measure in 102G.4.2.	:018 133 ment
The suggested remedy does not provide sufficient detail to implement.	
For task force discussion.	
TYPE: TR/technical required ER/editorial required GR/general required T/technical E/	editorial G/general C/ 120G Page 30 of 54
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: C	open W/written C/closed Z/withdrawn SC 120G.4.2 2020-03-13 12:54

SORT ORDER: Clause, Subclause, page, line

2020-03-13 12:54:35 P

C/ 120G	SC 120G.4.2	P 233	L <b>6</b>	# 10066	C/ 135A	SC	135A.2	P 238	L12	# 29
Dudek, Mik	e	Marvell			Slavick, Je	eff		Broadcom		
Comment T	ype E	Comment Status D			Comment	Туре	Е	Comment Status D		bucket
[Comm	ent resubmitted	from Draft 1.0. Subcl. 120G	.4.2 - Pg 226 - I	n 33]	MMD 9	) looks	like it migh	nt be bold while MMD8 and M	/MD1 are not	
The par	agraph describin It to follow.	ng what the measured value	es of Eye height	, Eye width and VEC are	Suggested Fix the	Remea font fo	<i>ly</i> or MMD 9			
Suggested	Remedy				Proposed I	Respor	ise	Response Status W		
Conside	er replacing this	paragraph with "The measu	red values of ey	ve height, eye width and	PROP	OSED	ACCEPT.			
vertical produce closure	eye closure are es an eye height	above the target value and	the minimum va	alue of vertical eye	C/ 152	SC	152	P110	L1	# 50
Proposed R	esponse	Response Status W			Brown, Ma	itt		Huawei Techr	ologies Canac	da
PROPC					Comment	Туре	E	Comment Status D		bucket
The crit	eria at the end c	of the proposed text might re	sult in candidat	es for multiple	Clause amenc	e 152 w Iments	as updated are require	d in 802.3ct Draft 1.2 such th ed.	at the Inverse	FEC is generic and no
parame	ter combinations	s. The criteria as written is in	ntended to resul	t in a single (i.e., greater	Suggested	Remed	ły			
than 0,	less than 2) can	didates.			Delete	Clause	e 152.			
See cor	nment #167.				Proposed	Respor	ise	Response Status W		
C/ 120G	SC 120G.4.2	P 233	L <b>6</b>	# 10167	PROP	OSED	ACCEPT.			
Li, Mike		Intel			C/ 161	SC	161.5.2.6	P114	L3	# 23
Comment T	ype TR	Comment Status D			Slavick, Je	eff		Broadcom		
[Comm	ent resubmitted	from Draft 1.0. Subcl. 120G	.4.2 - Pg 226 - I	n 33]	Comment	Туре	Е	Comment Status D		bucket
"Within	the set of combi	inations of gDC and gDC2 v	vith eye height r	neeting the target	In a) a should	nd c) the	ne first sent same	tence if is "if" while the second	nd sentence "if	" is "If". Seems like the
resultin	g in the smallest are	t vertical eye closure, the ey	e height, eye wi	dth, and vertical eye	Suggested Chang	Remea e them	<i>ly</i> to all be "i	f"		
used as	the measured	values.", VEC alone will not	be a good FOM	for optmization, it	Broposod	Docnor		Deenenee Statue M		
whole s	o be the combin entences is not	ation of VEC and EH, which	IS EVEC. Furth	ier, the clarity of the				Response Status W		
Suggested	emedy	9000			T KOI	USLD	ACCEL 1.			
change height, closure	the whole sente eye width, and v , are used as the	ence to: "Within the set of co rertical eye closure, resulting e measured values."	ombinations of g g in the smallest	DC and gDC2, the eye effective vertical eye						
Proposed R	esponse	Response Status Z								
PROPC	SED REJECT.									
This co	mment was WIT	HDRAWN by the commenter	er.							

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

C/ 161 SC 161.5.2.6 Page 31 of 54 2020-03-13 12:54:35 P

01 404												
C/ 161	SC 161.5.2.6	P114	L <b>7</b>	# 24	C/ 161 SC	161.6	P123	L3	# 42			
Slavick, Jef	f	Broadcom			Gustlin, Mark		Cisco Syst	ems				
Comment T	ype E	Comment Status D		bucket	Comment Type	т	Comment Status D					
Missing	coma after the >	x <= 3			FEC histogra	m counte	r are very useful for unders	tanding the perfo	ormance of an interfac			
SuggestedF	Remedy				Add in option	al histogr	am counters for the RS-FE	C decoder.				
Add the	coma				Suggested Remedy							
Proposed R PROPC	esponse DSED ACCEPT.	Response Status W			Add into the F error per code registers). 32	Add into the RS-FEC-Int MDIO function mapping the following registers: RS- error per codeword 1 through RS-FEC symbol error per codeword 15 (a total registers). 32b each. Each counter counts the number of codewords that con						
C/ 161	SC 161.5.2.6	P115	L <b>39</b>	# 88	codewords th	at are rec	ceived (errored or not), also	32 bits. Note the	at each of these count			
Nicholl, Sha	awn	Xilinx			counts all codewords or symbol errors from both interleaved codew these out by interleaved instance.							
Comment T	vpe TR	Comment Status D		bucket		nieneave						
Figure ' through	161-4 contains th out the sub-clau	ne text "am_mapped" while the se.	ne term "am_txn	napped" is used	PROPOSED	ACCEPT						
SuggestedF	Remedy											
SuggestedF Propose location	Remedy e to update Figur s.	re 161-4 to change "am_map	oped" to "am_txr	napped" in two								
SuggestedF Propose location Proposed R	Remedy e to update Figur s. Pesponse	re 161-4 to change "am_map Response Status W	oped" to "am_txr	napped" in two								
SuggestedF Propose location Proposed R PROPC	Remedy e to update Figur s. Pesponse DSED ACCEPT.	re 161-4 to change "am_map Response Status W	oped" to "am_txr	mapped" in two								
SuggestedF Propose location Proposed R PROPC Cl <b>161</b>	Remedy e to update Figur s. Pesponse DSED ACCEPT. SC 161.5.4.3	re 161-4 to change "am_map Response Status W P122	bped" to "am_txr	mapped" in two # <u>89</u>								
SuggestedF Proposed Iocation Proposed R PROPC C/ 161 Nicholl, Sha	Remedy e to update Figur is. <i>Pesponse</i> DSED ACCEPT. SC <b>161.5.4.3</b> awn	re 161-4 to change "am_map Response Status W P122 Xilinx	bped" to "am_txr	mapped" in two # <u>89</u>								
SuggestedF Propose location Proposed R PROPC Cl 161 Nicholl, Sha Comment T	Remedy e to update Figur s. Pesponse DSED ACCEPT. SC 161.5.4.3 awn type TR	re 161-4 to change "am_map Response Status W P 122 Xilinx Comment Status D	bped" to "am_txr	mapped" in two # <u>89</u> <i>bucket</i>								
SuggestedF Proposed Proposed R PROPC Cl 161 Nicholl, Sha Comment T Figure 2	Remedy e to update Figur s. Pesponse DSED ACCEPT. SC 161.5.4.3 awn type TR 161-6 incorrectly	re 161-4 to change "am_map Response Status W P 122 Xilinx Comment Status D contains "pcs_enable_skew	bped" to "am_txr L122	mapped" in two # <u>89</u> <i>bucket</i> <i>W</i> state.								
Suggestedf Proposed Proposed R PROPC Cl 161 Nicholl, Sha Comment T Figure <sup>-</sup> Suggestedf	Remedy e to update Figur is. Pesponse DSED ACCEPT. SC 161.5.4.3 awn type TR 161-6 incorrectly Remedy	re 161-4 to change "am_map Response Status W P122 Xilinx Comment Status D contains "pcs_enable_skew	bped" to "am_txr L 122	mapped" in two # <u>89</u> <i>bucket</i> W state.								
Suggestedf Proposed Proposed R PROPC Cl 161 Nicholl, Sha Comment T Figure T Suggestedf Propose "fec_en	Remedy e to update Figur is. DSED ACCEPT. SC 161.5.4.3 awn Type TR 161-6 incorrectly Remedy e to update the D able_deskew".	re 161-4 to change "am_map <i>Response Status</i> W <i>P</i> <b>122</b> Xilinx <i>Comment Status</i> <b>D</b> contains "pcs_enable_skew DESKEW state of Figure 161	<i>L</i> <b>122</b> " in the DESKEN	mapped" in two # <u>89</u> <i>bucket</i> W state. cs_enable_skew" to								

C/ 161 SC 161.6

C/ 161	SC 161.6	P 123	L 25	# 21	C/ 162	SC 1	62.2	P134	L10	# 6
Slavick, J	eff	Broadcom			Marris, Art	hur		Cadence Desi	gn Systems	
Comment	Type TR	Comment Status D			Comment	Туре	E	Comment Status D		bucke
PHY s	stackup is based u	pon the given PHY type. W	hen layers with	in that stackup is	Make	Clause 1	19 a cro	ss reference		
option	al to implement the	en the existence of that lave	er in the stackup	maybe there or not.	Suggested	Remedy				
use th	en a method to by	pass it's function is provide	d for the cases	when it's implemented	Add cr	oss refei	ence to	Clause 119		
but fu	nctionality is being	skipped. Cl74 (74.8.2) , Cl	108 (108.6.3), 0	CI73 (73.6.10) all	Proposed	Respons	e	Response Status W		
provid CI161	le methods to "byp don't have this by	ass" the functionality of the	clause when no	ot in use. Cl91 and	PROP	OSED A	CCEPT.			
Suggester	don mave this by	pass function in the draft.								
In Tak	ole 161-1 add man	ning to register 1 200 5 as F	RS FEC Int en	able Add sub-clause	C/ 162	SC 1	62.5	P135	L18	# 164
descr	ibing this bit as "16	51.6,.14 RS_FEC_Int_enabl	e		Palkert, To	om		Molex		
The R	S-FEC-Int sublaye	er shall have the capability to	o enable or disa	ble the FEC function.	Comment	Туре	т	Comment Status D		LATE
An Mi variat	DIO interface or an	equivalent management in nable for the RS-FEC-Int su	terface shall be iblaver When R	provided to access the	One w	ay delay	thru me	dium of 14ns is insufficient fo	DAC delay tin	nes.
variat	ble is set to a one, t	the RS-FEC-Int sublayer pe	rforms the trans	smit function as	Suggested	Remedy				
specif	ied in 161.5.2 and	the receive function as spe	cified in 161.5.3	When the variable is	Chang	e value b	back to 2	20 ns		
set to bypas	sed, effectively co	and receive functions are d	e to the service	interface of its	Proposed	Respons	е	Response Status W		
under	lying sublayer. Thi	is variable is mapped to the	bit defined in 4	5.2.1.110.aa."	PROP	OSED R	EJECT.			
In Tak	ble 45-88 assign bi	t 6 to be RS-FEC Enable w	ith 1-RS-FEC is	enabled, 0 - RS-FEC is	<b></b> .					
Descr	iption for this bit "E	Bit 1.200.6 enables the Ree	d-Solomon FEC	described in Clause 91	I his c	omment	was rece	eived after the task force revie	w was closed.	
for PH	IYs that include bo	th Clause 161 and Clause	91.		The co	mment o	does not	provide sufficient evidence to	support the pi	roposed changes.
Bring	in Table 91-2 from	802.3cd-2018 and add a ro	ow for RS-FEC E	Enable,	<b>F</b> an ta					
Add n	ew sub-clause to c	describe the FEC_enable va	ariable as "91.6.	2a RS_FEC_enable	Fortas	sk torce o	discussio	on.		
For P	HYs supporting RS	S-FEC-Int operation this sub	layer shall have	the capability to enable	C/ 162	SC 1	62.7	P 137	L <b>6</b>	# 7
or dis shall l	able its FEC functions of the second se	on. An MDIO interface or ar	n equivalent mai	nagement interface	Marris, Art	hur		Cadence Desi	gn Systems	
RS_F	EC_Enable variabl	le is set to zero, the RS-FE	C sublayer perfo	orms the transmit	Comment	Туре	т	Comment Status D		
functi	on as specified in 9	91.5.2 and the receive funct	ion as specified	in 91.5.3. When the	Many	of the co	ntrol and	status variables in Tables 16	2-5 and 162-6	are not described or
variac	ver is bypassed ef	the transmit and receive fur	ictions are disat	the service interface of	referer	nced in C	lause 16	62.		
its un	derlying sublayer.	This variable is mapped to t	he bit defined in	45.2.1.110.xx."	Suggested	Remedy				
Proposed	Response	Response Status W			Remo	/e rows f	rom Tab	le 162-5 and 162-6 that refer	to variables that	at are not mentioned in
PROF	POSED ACCEPT II	N PRINCIPLE.			Clause	9 162				
					Proposed	Respons	e	Response Status W		
A pres	sentation related to	o this comment is anticipate	a at the March r	neeting.	PROP	USED A	CCEPT	IN PRINCIPLE.		
1 01 10					Resolv	ve per co	mment #	<i>‡</i> 25.		

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

C/ 162 SC 162.7 Page 33 of 54 2020-03-13 12:54:35 P

C/ 162 SC 162.7 P137 L 24 # 25	C/ 162 SC 162.8.11 P145 L 23 # 18
Slavick, Jeff Broadcom	Sun, Junqing Credo Semiconductor
Comment Type TR Comment Status D	Comment Type TR Comment Status D max_wait_timer [CC]
Table 162-5 has a bunch of new entries that don't map to anything. Some of the existing mappings are wrong as well	max_wait_timer nees to be extended for 100G due to high complexity. 15 seconds has been discussed.
SuggestedRemedy	SuggestedRemedy
Using editorial license. Rename Table 162-5 to "MDIO/PMD variable mapping". Copy fire	t set max_wait_timer equal to 15 seconds. 10s is the second choice.
7 rows from Table 162-6 to Table 162-5, inserting before Restart training row. Delete         Table 162-6. Replace the rows after Seed 0 in Table 162-5 with the following information         for each lane         Receiver status #         BASE-R PMD status   1.151.(0+4*#)   local_trained_#         Frame lock #         BASE-R PMD status   1.151.(1+4*#)   local_tf_lock_#         Start-up protocol status #         BASE-R PMD status   1.151.(2+4*#)   training_#	Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Set the value for max_wait_timer to 15 s in 162.8.11.
Training failure #  BASE-R PMD status   1.151.(3+4*#)   training_failure_# Receiver ready #  LP status #  1.(1220+#) 15   remote_rx_ready	Also update link_fail_inhibit_timer in Table 73–7 with min and max values of 15.1 and 15.2.
Modulation and precoding status #   LP status #  1.(1220+#).11:10   remote_tp_modeRx frame lock #  LP status #  1.(1220+#).9   remote_tf_lockInitial condition request #  LP control #  1.(1120+#).4:2   ic_reqCoefficient select #  LP control #  1.(1120+#).4:2   coef_selCoefficient request #  LP control #  1.(1120+#).1:0   coef_reqReceiver ready #  LD status #  1.(1420+#).15   loca_rx_readyInitial condition status #  LD status #  1.(1420+#).8   ic_stsCoefficient status #  LD status #  1.(1420+#).2:0   coef_stsModulation and precoding request #  LD control #  1.(1320+#).11:10   local_tp_mode	For task force discussion.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Updating references to variables is necessary, but the rearrangement of the tables is not.

The format we've used for previous PMD Clauses has one table for status variables and another for control variables. The context here is relative to the register not the function where control means RW and status means RO.

A presentation relating to this comment is anticipated for the March meeting.

For task force discussion.

C/ 162 SC 162.8.11

Cl 162	SC 162.8.11	P 145	L 34	# 10247
Ran. Adee		Intel		

Comment Type T Comment Status D

[Comment resubmitted from Draft 1.0. Subcl. 162.8.11 - Pg 138 - In 32]

The PMD control function as currently specified is only effective during start up.

Operation across a wide range of temperatures in some environments may cause slow changes in channel and device characteristics that may require occasional changes of the Tx equalization, preferably without link flaps. It would be good to enable doing it while the link is up.

In Data mode, the startup (training) protocol is inactive. We can specify that when mr\_training\_en set to 0, instead of exchanging the control and status fields through the protocol, these fields will be written to and read from management registers if MDIO is implemented. Management can relay the control and status fields to/from the link partner through higher level messaging (such as LLDP).

A detailed proposal is planned, but the requested addition in the PMD clauses is a subclause for behavior of the PMD control function when training is false (data mode).

#### SuggestedRemedy

Add the following paragraphs:

When the training variable is set to false (see 136.8.11.7.1), the PMD control function may optiionally continue using Equalization control as defined 136.8.11.4 in the SEND\_DATA state, using MDIO registers or alternative methods to exchange control and status fields with the link partner instead of the training frame specified in 136.8.11.1.

NOTE--When training is false, any update to variables corresponding to a change of the Modulation and precoding request bits or the Initial condition request bits, or to setting the Coefficient request bits to "No equalization", can be disruptive to a network.

#### Proposed Response Response Status W

PROPOSED REJECT.

Based on discussion at the March 4 ad hoc there appeared to be no consensus at this time to make the proposed changes.

For task force discussion.

C/ 162	SC 162.9.3	P 140	L <b>8</b>	# 62
Ran, Adee		Intel		
Comment Typ	pe T	Comment Status D		c(n) max

The maximum step size for c(1) is 0.05, while for all other coefficient it is 0.02.

Having a larger size for c(1) than for c(0) in the transmitter can create unexpected complexities to an optimization algorithm in the receiver (which has no way to tell if the sizes are equal or not). Training algorithms can be made simpler if the steps are nominally equal for all coefficients, so that decrements/increments in c(1) have the same effect on signal swing as other coefficients.

From the transmitter's point of view, there is little benefit, if at all, from having c(1) with a larger step size than all others.

Note that this commend is specific to the Tx electrical specifications. The COM search grid does not necessarily have to change (especially since c(1) is usually set to 0 in COM).

A presentation with further explanations is planned.

#### SuggestedRemedy

Change step size limits for c(1) to align with all other coefficients.

Add a recommendation that implementations should have the same nominal step size for all coefficients, with editorial license.

Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE.

The commenter requested that this comment be considered for Clause 163 and Annex 120F, as well.

The proposed c(1) step size limit was implemented in D1.1 in Table 162-8, p. 147, line 8.

Add proposed recommendation with editorial license.

C/ 162 SC 162.9.3

C/ 162	SC 162.9.3	P 140	L 10	# 63
Ran, Adee		Intel		
Comment Typ	pe T	Comment Status D		c(n) max

The maximum step size of 2% for a PAM4 equalizer creates a significant increase in complexity for a DAC-based transmitter implementation, compared to the step size required in the 802.3cd specs.

A PAM4 DAC with the 2.5% specification in 802.3cd is required to be able of outputting 6/0.025=240 possible values, while with a 2% step size it is requires 6/0.02=300 possible values. This means an additional bit should be used in the logic implementing the FFE and DAC control, and the analog circuits should enable more combinations.

The estimated cost in power consumption of the FFE+DAC logic and analog circuits from this small change in resolution, with a non-naive design, is about 0.3-0.4 pJ/bit. This additional power is going to be consumed regardless of the channel in question.

As presented in ran\_3ck\_adhoc\_01\_021920, COM sensitivity analysis shows the benefit from this finer resolution is negligible. It is expected that real life performance will also have little dependence on the step size. Therefore, requiring a smaller maximum step than 2/5% will just waste power.

#### SuggestedRemedy

Change the (max.) values for c(-3), c(-2), c(-1), and c(0) to 0.025.

Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE.

The commenter requested that this comment be considered for Clause 163 and Annex 120F, as well.

Refer to ran\_3ck\_adhoc\_01\_021920.

For task force discussion.

	00 102.0.0		40	L 19	# 13					
Healey, J	Adam	Broa	dcom Inc.							
Commen	nt Type <b>T</b>	Comment Status	D							
A +/- refer Incre highe	-100 ppm freque rence clocks with emental improve er precision refe	ency tolerance on the sign of this tolerance on the sign of this toler ments to receiver performence.	ignaling rate erance are ormance ma	e is "tradition available at argin are ava	nal" but I understand similar costs. ailable with the use of a					
Suggeste	edRemedy									
Char 1200	nge the frequen G-1, 120G-3. 12	cy tolerance to +/-50 pp 0G-4, and 120G-7.	om in Table	s 162-8, 162	2-11, 163-5, 120F-1,					
Proposed	d Response	Response Status	w							
PRO	POSED ACCE	PT IN PRINCIPLE.								
For t	ask force discu	ssion.								
C/ 162	SC 162.9.	<b>3</b> <i>P</i> 1	46	L <b>27</b>	# 10003					
Mellitz, F	Richard	Sam	tec							
Commen	nt Type <b>TR</b>	Comment Status	D		ERL					
Suggeste In tal Proposee PRO	SuggestedRemedy In table 162-8 change ERL(min) to 11 dB as suggested on slide 5 of mellitz_3ck_04_1119. Proposed Response Response Status W									
For t	ask force discu	ssion.								
C/ 162	SC 162.9.	<b>3</b> <i>P</i> 1	47	L <b>9</b>	# 74					
	Adam	Broa	dcom Inc.							
nealey, i										
Commen	nt Type T	Comment Status	D							
Commen The	<i>nt Type</i> <b>T</b> maximum step :	Comment Status size for the transmitter	<b>D</b> equalizer co	pefficients is	s unnecessarily small.					
Commer. The Suggeste	nt Type <b>T</b> maximum step : edRemedy ease the maximu	Comment Status size for the transmitter um step size to 0.025 fo	D equalizer co or all coeffic	pefficients is	s unnecessarily small.					
Commer The Suggeste Incre Proposed	nt Type <b>T</b> maximum step : edRemedy ease the maximu d Response DPOSED ACCE	Comment Status size for the transmitter um step size to 0.025 fo Response Status PT IN PRINCIPLE.	D equalizer co or all coeffic W	cefficients is	s unnecessarily small.					
Commer The Suggeste Incre Proposed PRO Reso	nt Type <b>T</b> maximum step = edRemedy ease the maximu d Response DPOSED ACCEI DIVe per comme	Comment Status size for the transmitter um step size to 0.025 fo Response Status PT IN PRINCIPLE. nt #63.	D equalizer co or all coeffic W	pefficients is	s unnecessarily small.					

C/ 162	SC 162.9.3	P <b>147</b>	L 10	# 10249	C/ 162	SC	162.9.3	P147	L <b>24</b>	# 10252
Ran, Adee	e	Intel			Ran, Adee			Intel		
Comment	Туре Т	Comment Status D			Comment 7	Гуре	т	Comment Status D		(IR)
[Comr	ment resubmitted	from Draft 1.0. Subcl. 162.9.	3 - Pg 140 - In	10]	[Comm	nent res	submitted	from Draft 1.0. Subcl. 162	2.9.3 - Pg 140 - In	24]
The m compl in the	aximum step size exity for a DAC-b 802.3cd specs.	e of 2% for a PAM4 equalizer ased transmitter implementa	r creates a sign tion, compared	ificant increase in to the step size allowed	Maximum for even-odd jitter is specified here. This is mainly required for transmitters which are driven by a half-rate clock.					
A PAN 6/0.02 values DAC o The e this sr additio	A4 DAC with the 2 5=240 possible v 5. This means an control, and the ar stimated cost in p nall change in res onal power is goin	2.5% specification in 802.3cd alues, while with a 2% step s additional bit should be used halog circuits should enable i ower consumption of the FFI olution, with a non-naive des g to be consumed regardles	is required to l ize it is require in the logic imp more combinati E+DAC logic ar ign, is about 0. s of the channe	be able of outputting s 6/0.02=300 possible blementing the FFE and ons. and analog circuits from 3-0.4 pJ/bit. This el in question.	For >53 rate. Th quarter With qu and be betwee measu	3.1 GB his is a r-rate c uarter-r tween tween en phas rement	d signalin high freq locking (1 rate signa 1:3) is co ses 0:1 ar ts do not o	ng, a >26.3 GHz clock is n uency for current CMOS p 3.3 GHz clock) should be ling, even if the even-odd ntrolled to meet the specifi d between 2:3) can be lar cover this impairment.	eeded to drive the processes and imp considered. jitter (mismatches ications, the quadr ge, and the curren	transmitter clock in half- lementations with between phases 0:2 rature jitter (mismatches t even-odd jitter
The b	enefit from this fin	er resolution has not been a	nalyzed thoroug	, ghly enough to justify	We nee	ed to li	mit quadr	ature jitter so a similar por	tion of the UI.	
such a	an increase in imp	elementation burden and pow	er consumption	n.	New specification for quadrature jitter will be provided in future contributions. I assume it will be similar to the EQ I measurment with slight modifications. For the time being the					
Suggestee	dRemedy				measu	rement	t method	can be left as TBD.	modifications. For	the time being the
Chang of 256	ge the (max.) valu s output values).	es for c(-3) to c(0) to 0.024 (	which can be m	et with a DAC capable	SuggestedRemedy					
Proposed	Response	Response Status 7			Add a I	ine for	"Quadrat	ure jitter, Pk-Pk", with sub	clause reference T	BD, and value 0.019 UI.
PROF	OSED REJECT.				Proposed F	Respor	nse	Response Status W		
This c	omment was WIT	HDRAW/N by the commente	r		PROPO	OSED	REJECT.			
C/ 162	SC 162.9.3	P147	L 20	# 65	[The pr specific	opose c chan	d change ges that s	in the comment does not atisfy the commenter.]	contain sufficient c	detail to understand the
Mellitz, Ri	chard	Samtec			Commo	enter p	oroposes a	a new parameter that has i	not been discusse	d previously.
Comment SNDR subject	<i>Type</i> <b>TR</b> t needs be 0.5 dB t was done witho	Comment Status <b>D</b> less than SNR_Tx to account ut proper presented data.	nt for measurer	nents. Straw poll on this	A test r is there	methoo efore in	dology for	this new parameter has no	ot been provided.	The suggested remedy
Suggested Repla	<i>lRemedy</i> ce SNDR 32.2 dB	with 31.5 dB			For tas	k force	e discussi	on.		
Proposed	Response	Response Status W								
PROF	OSED ACCEPT	IN PRINCIPLE.								
For ta	sk force discussio	n.								

C/ 162 SC 162.9.3

C/ 162	SC 162.9.3.1	P 148	L1	# 57	C/ 162	SC 162.9.3.1	.5 <i>P</i> 150	L34	# 51	
Ran, Ade	e	Intel			Brown, Ma	att	Huawei Tec	hnologies Canad	a	
Comment	Type <b>T</b> Com	ment Status D			Comment	Туре Е	Comment Status D	-	bucket	
The C	OM parameter b_max(n)	for n=2 is 0.3. This	resulted from ob	servations that for some	There	are 3 taps so "b	oth" should be deleted.			
chanr calcul	nels there is a large 2nd p lation	ostcursor after the li	near equalizatior	n performed in the COM	Suggested	IRemedy				
Galoai					Chang	e "both set to ze	ero" to "set to zero".			
Howe	ver, it is likely that many i	eal implementations	s will not impleme	ent a 2nd DFE tap and	Proposed	Response	Response Status W			
the Ty	k equalizer c(+1) too) to h	andle this ISI.		eceiver, and possibly	PROP	OSED ACCEPT	IN PRINCIPLE.			
If linea	ar equalization is required	I for the 2nd postcur	sor then it may b	e beneficial to make it	Resolv	/e per comment	#27.			
availa transr	available in the transmitter by adding c(+; transmitter is simple (impact on power et		nentation of anot Receivers may c	her tap in the hose whether to use	C/ 162	SC 162.9.3.1	.5 <i>P</i> 150	L <b>43</b>	# 26	
intern	al equalization or utilize the	ne training protocol t	o control c(+2).		Slavick, Je	eff	Broadcom			
Note t	that this additional coeffic	ient does not neces	sarily need to ha	ve an equivalent in	Comment	Туре Е	Comment Status D		bucket	
COM; additio result	it is observed that in CO on of another tap may jus s. However, c(+1) (and th	M results, even c(+1 t increase run time a e proposed c(+2)) c	) is left at 0 for m and is not expect an be used in ac	nost channels, so the ed to change the tual implementations	For teaminim and c(	sting the range c um values, but v -2) is at it's minir	of c(1) and c(-1) you lump the vith c(-3) you use the form u mum.	at both c(0) and the sed for c(-2) when	ne tap are at "their" re c(0) is at it's minmum	
where	the Rx may have different	nt structure than the	COM reference.		Suggested	IRemedy				
Suggestee	dRemedy				chang	e "With c(-2), c(-	1) and c(1) set to zero, c(0)	having received s	sufficient "decrement"	
A pres	sentation is planned with	further details.			reques	sts so that it is at	t its minimum value, and c(-3)	<ol> <li>having received all be less than one</li> </ol>	d sufficient "decrement"	
Proposed	Response Resp	onse Status W			requests so that it is at its minimum value, c(-3) shall be less than or equal to -0.06." to be					
PROF	POSED REJECT.				"With	c(-2), c(-1) and c	c(1) set to zero and both $c(0)$	) and c(-3) having	received sufficient	
The s	uggested remedy propos	es no specific solution	on. However, a p	resentation relating to	less th	an or equal to -(	0.06."	becuve minimum v	7alues, c(-3) shall be	
this co	omment is anticipated for	the March meeting.			Proposed	Response	Response Status W			
C/ 162	SC 162.9.3.1.5	P 150	L <b>33</b>	# 27	PROP	OSED ACCEPT				
Slavick, J	eff	Broadcom			C/ 162	SC 162.9.3.1	.5 <i>P</i> 150	L 47	# 52	
Comment	Type ER Com	ment Status D		bucket	Brown. Ma	att	Huawei Tec	hnologies Canad	a	
There	e are 3 taps being set to z	ero now, however bo	oth refers to just	2.	Comment	Type E	Comment Status D		bucket	
Suggestee	dRemedy				Unnec	essary comma.	Not needed to separate two	distinct phrases.		
Delete	e the "both" after c(-1)				Suggested	IRemedy				
Proposed	Response Resp	esponse Status W			Chang	۔ او "162.8.11, or l	oy" to "162.8.11 or by".			
PROF	POSED ACCEPT.				Proposed	Response	Response Status W			
					PROP	OSED ACCEPT	, ,			

C/ 162 SC 162.9.3.1.5

C/ 162	SC 162.9.3.4	P151	L <b>21</b>	# 10009	C/ 162	SC 162.9.4	P152	L14	# 10010
Mellitz, Ri	ichard	Samtec			Mellitz, Ri	chard	Samtec		
Comment	Type <b>TR</b>	Comment Status D		ERL	Comment	Type <b>TR</b>	Comment Status D		ERL
[Com	ment resubmitted fro	m Draft 1.0. Subcl. 162.9	.3.4 - Pg 144 - In	26]	[Comr	nent resubmitted	from Draft 1.0. Subcl. 162.9	9.4 - Pg 145 - In 1	[5]
The re	elation between Pma	x/Vf and ERL has not be	en established fo	r this data rate	ERL o mellitz	f 11 dB seems to _3ck_04_1119	o capture most of posted cha	annel data as sug	gested in slide 5
Chan N, an	ge line 36 to ERL >= d N_bx to 2.4 GHz, 0	11 dB. Change TBD para .3, 1000 UI, and 12 UI re	ameters in table a	162-10 beta_x, rho_x, ggested on slide 6 of	Suggested Chang	<i>IRemedy</i> Je ERL min to 1 <sup>-</sup>	1 dB		
Proposed PROF	Z_SCK_04_1119. Response F POSED ACCEPT IN I	Response Status W PRINCIPLE.			Proposed PROP	Response OSED ACCEPT	Response Status W		
Eor to	ak force discussion	-			C/ 162	SC 162.9.4	P 152	L15	# 129
FUI la					Ghiasi, Ali		Ghiasi Quan	tum/Inphi	
Cl 162 Ghiasi, Al	SC <b>162.9.3.4</b> li	P <b>151</b> Ghiasi Quan	L <b>26</b> :um/Inphi	# 128	Comment ERL is	<i>Type</i> <b>TR</b> TBD	Comment Status D		
Comment Nbx a	<i>Type</i> <b>TR</b> and ERL, TBD, Bx, N,	Comment Status D Rho are TBDs			Suggested ERL=	<i>IRemedy</i> I1.0 dB, see ghia	asi_3ck_03_0320		
Suggester Nbx= See g	<i>dRemedy</i> 12, ERL =11 dB, Bx= jhiasi_3ck_03_0320	2.3047e9, Bx=0.19, and	N=300		Proposed PROP	Response OSED ACCEPT	Response Status W IN PRINCIPLE.		
- Proposed	Response F	Response Status W			Resolv	e per comment	#10010.		
PROF	POSED ACCEPT IN	PRINCIPLE.			C/ 162	SC 162.9.4	P152	L16	# 130
A pres	sentation relating to t	his comment is anticipate	ed for the March	meeting.	Ghiasi, Ali		Ghiasi Quan	tum/Inphi	
Comr	nent #10009 propose	es different values.			Comment ERL is	<i>Type</i> <b>TR</b> TBD	Comment Status D		RLCD
See c	comment #10009.				Suggested	IRemedy			
C/ <b>162</b> Marris, Ar	SC <b>162.9.4</b>	P <b>151</b> Cadence De	L <b>44</b> sian Systems	# 8	RLCD RLCD See a	=30-30*f/25.78 d =15 dB 12.89 to hiasi 3ck 03 03	B, from 10 MHz to 12.89 GH 53 GHz 20	łz	
Comment	Type E	Comment Status D		bucket	Proposed	Response	Response Status W		
Make	162A.3 a cross refer	rence			PROP	OSED ACCEPT	IN PRINCIPLE.		
S <i>uggeste</i> Add c	dRemedy cross reference to 162	2A.3			[Editor mode	's note: the com return loss]	ment refers to ERL, but actu	ally addresses d	fferential-to-common-
Proposed PROF	Response F POSED ACCEPT.	Response Status W			Pending task force review of the referenced presentation.				
					Impler	nent with editoria	al license.		
	/technical required	-R/editorial required GR	deneral required	T/technical E/editorial G/	general		C/ 1	62	Page 39 of 54

 COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
 C/ 162
 Page 39 of 54

 SORT ORDER: Clause, Subclause, page, line
 C/ 162
 Page 39 of 54

-						-					
C/ 162	SC 162.9.4.3	P 152	L 38	# 37		C/ 162	SC 162.9.4.3	.3	P154	L <b>1</b>	# 9
Ben Artsi,	Liav	Marvell				Marris, Arth	ur	C	adence Des	sign Systems	
Comment Receiv at the	<i>Type</i> <b>T</b> ver characteristics reciever input	Comment Status D lacks the definition of capa	bility to tollerat	CM noise tolerand e common mode no	<i>ce (IR)</i> bise	Comment Ty Define t	ype <b>T</b> he acronyms S	Comment Sta CHS, CTSP, HO	<i>tus</i> <b>D</b> SP, CASP		bucke
Suggested	Remedy					SuggestedRemedy Explain these acronyms here or in 1.5					
Add th TBD a	ne required capable at least for now	lity of Rx common mode bro	oadband noise	tolerance and set it	at	Proposed R	esponse	Response Sta	tus <b>W</b>		
Proposed	Response	Response Status W				PROPO	SED REJECT.				
PROF [The p specif The ca	POSED REJECT. proposed change i ic changes that sa	n the comment does not co atisfy the commenter.] provide a justification for the	ntain sufficient	detail to understand	d the	The refe in 1.5. SCHS is S(HOSF S(CASE	erenced terms a s defined in iter P) is defined on D is defined on	are parts of varial n a) on p. 154. p.160, line 48. p. 161 line 6	ole names a	and thus do not re	quire formal definitions
The s	uggested remedy	does not provide a complete	e solution with	test method and val	lues.	S(CTSP	) is defined on	p. 153, line 2.	<b></b>		
For ta	sk force discussio	n.				C/ 162 Palkert, Ton	SC <b>162.9.4.5</b> n	Ν	P <b>156</b> Iolex	L14	# 163
C/ 162	SC 162.9.4.3	P 153	L 28	# 53		Comment Ty	ype T	Comment Sta	tus <b>D</b>		LATE
Brown, Ma	att	Huawei Tech	nologies Cana	da		ERL me	asurement sho	ould not be requir	ed for high v	values of COM	
Comment Editor	<i>Type</i> <b>E</b> 's note has expire	<i>Comment Status</i> <b>D</b> d.			bucket	SuggestedR Add ser	Remedy Intence 'If COM	is greater than 4	dB the ERL	. limit does not ap	ply
Suggested Delete	dRemedy e editor's note.					Proposed R PROPO	esponse SED REJECT.	Response Sta	tus <b>W</b>		
Proposed PROF	Response POSED ACCEPT.	Response Status W				This comment was received after the task force review w				riew was closed.	
						The con	nment does not	t provide sufficier	t evidence	to support the pro	posed changes.
						For task	force discussi	on.			

C/ 162 SC 162.9.4.5

C/ 162	SC 162.9.4.5	P 156	L14	# 10011		C/ 162	SC 162.11.	2	P157	L11	# 10079
Mellitz, R	ichard	Samtec				Palkert, Tor	n		Molex		
Comment	Type TR	Comment Status D			ERL	Comment T	уре Т	Comm	ent Status D		
[Com	ment resubmitted	from Draft 1.0. Subcl. 162.9.	4.5 - Pg 148 - In	48]		Comme	ent resubmitte	d from Draft	1.0. Subcl. 162.1	1.2 - Pg 150 - ln 3	3]
ERL o mellit	of 11 dB seems to z_3ck_04_1119 dPomody	capture most of posted char	nnel data as sug	gested in slide 5		Differer Commo specifiy	tial to commo n-mode to co Cable Assem	n-mode reti mmon-mod ibly charact	urn loss, Differenti e return loss are n eristics.	al to common mc ot required if ERI	de conversion loss and _ and COM are used to
Chan	ae to "Receiver El	RL at TP3 shall be greater th	an or equal to 11	1dB"		SuggestedF	Remedy				
Proposed PROF	Response POSED ACCEPT.	Response Status W				Delete loss and charact	Differential to d Common-m eristics summ	common-mo ode to comr ary)	ode return loss, Di non-mode return l	fferential to comr oss from Table 1	non mode conversion 62-13 (Cable assembly
C/ 162	SC 162 9 4 5	P156	/ 15	# 131		Proposed R	esponse	Respor	se Status W		
Ghiasi, A	li	Ghiasi Quantu	um/Inphi			PROPC	SED REJEC	Т.			
<i>Comment</i> ERL i	<i>Type</i> <b>TR</b> is TBD	Comment Status D				The cat measur paths	ements of the	Channel Op cable asse	erating Margin (C0 mbly signal, near- pe path calculation	DM) for each lane end crosstalk and us defined in 162	e is derived from d far-end crosstalk 11 7 1 and the
Suggeste	dRemedy					procedu	re in 93A.1.	ace comy a			
ERL=	11.0 dB, see ghia	si_3ck_03_0320					la accombly	ional and a	reactally nother are	imposted by the	noromotoro roquestad
Proposed PROF	Response POSED ACCEPT	Response Status W IN PRINCIPLE.				to be re cable a cable a	moved. We h ssembly meet ssembly spec	ave an expli ing ERL, IL ification par	cit bound on these and these specifi ameters independ	e parameters with cation parameter ent of COM. At le	the expectation that a s will pass COM i.e., east one benefit of the
Reso	lve per comment #	¥10011.				specific measur	ation paramei ement.	ers is to ena	able characterizati	on of the cable a	ssembly by direct

For task force discussion.

C/ 162 SC 162.11.2

C/ 162	SC 162.11.2	P 157	L15	# 10276	C/ 162	SC	162.11.3	P15	7	L 43	# 10012	
DiMinico,	Christopher	MC Commun	ications		Mellitz, Rich	nard		Samte	C			
Comment	туре т	Comment Status D			Comment T	ype	TR	Comment Status	D			ERL
[Com	ment resubmitted	from Draft 1.0. Subcl. 162.1	1.2 - Pg 150 - In	6]	[Comm	ent res	submitted	from Draft 1.0. Subcl	. 162.11.3	- Pg 150 - In 39]		
Comr	ment#2				ERL of mellitz_	13.5 c 3ck_0	dB seems t 04_1119	to capture most of po	sted chann	nel data as sugge	ested in slide 3	
Min C	able/PCB calculat	tion for 802.3cd assumed line	ear scaling for ca	able and PCBs.	SuggestedF	Remed	dy					
Use s			Sable Assembly.		Change	line 3	39 to Cable	assembly ERL at T	P1 and at T	P4 shall be grea	ter than or equ	ual to
Table GHz 1 11.09	e 162-13-Cable ass 162.11.2 11.09 dB 9 dB]	sembly characteristics summ ] Table 162A-1-Insertion loss	ary [Minimum in s budget values :	sertion loss at 26.56 at 26.56 GHz [ILCamin	13.5 dB parame UI resp	for ca ters in pective	able assem table 162 ely as sugg	hblies that have a CC -14 beta_x, rho_x, N jested on slide 4 of n	M less tha , and N_bx ellitz_3ck_	n 4 dB. Also cha ( to 2.4 GHz, 0.2 _04_1119.	nge TBD 1, 3000 UI, an	d 12
Suggeste	dRemedy				Proposed R	lespor	nse	Response Status	w			
See d	liminico_3ck_2_02	220.pdf.			PROPC	DSED	ACCEPT I	N PRINCIPLE.				
<i>Proposed</i> PROF	Response POSED REJECT.	Response Status Z			For task	< force	e discussio	n relating to slide 4 r	nellitz_3ck_	_04_1119.		
<b>T</b> 1.1					Resolve	e with	comment a	#10013.				
I NIS C	comment was will	HDRAWN by the commente	er.		C/ 162	SC	162.11.7	P15	8	L <b>26</b>	# 66	
C/ 162	SC 162.11.3	P 157	L11	# 10013	Mellitz, Rich	nard		Samte	C			
Mellitz, Ri	ichard	Samtec			Comment T	ype	TR	Comment Status	D			
Comment	Type TR	Comment Status D		ERL	Tr shou	ld be s	scaled fror	n 50G BaseKR beca	use other ti	iming parameter	were scaled.	
[Com	ment resubmitted	from Draft 1.0. Subcl. 162.1	1.3 - Pg 150 - In	8]	SuaaestedF	Remed	lv					
ERI (	of 13 5 dB seems	to canture most of posted ch	annal data as si	indested in slide 3	Replace	e TBD	for Tr with	6.01e-3 ns				
mellit	z_3ck_04_1119				' Proposed R	Pesnor	150	Pernanse Status	w			
Suaaeste	dRemedv				PROPC				vv			
Chan	ge Minimum cable	assembly ERL to 13.5 dB ir	n table 162-13.			JOLD	AUGENTI					
Pronosed	- I Response	Pesnonse Status W			For task	< force	e discussio	n.				
PROF					C/ 162	SC	162.11.7	P15	8	L 38	# 54	
1 KOI	OULD AOULI I				Brown Mat	+		Низи	ai Technolo		" 01	
For ta	ask force discussio	on relating to slide 3 mellitz_3	3ck_04_1119.		Commont T	i ivno	-	Commont Status		gies Carlada		huakat
Resol	lve with comment	#10012.			Editor's	note i	E is no longe	er required.	U			ouckei
					SuggestedF	Remec	dy s noto					
							5 HUL <del>C</del> .	D 0/ -				
					Proposed R PROPC	espor SED	nse ACCEPT.	Response Status	W			
									01 400		Davis 40	4 5 4
COMMEN	IT STATUS: D/dis	patched A/accepted R/reject	cted RESPON	SE STATUS: O/open W/wr	itten C/closed	Z/with	ndrawn		SC 162.1	1.7	Page 42 0 2020-03-1	n 54 3 12:54::

SORT ORDER: Clause, Subclause, page, line

C/ 162	SC 162.11.7	P 159	L <b>21</b>	# 75	C/ 162	SC ·	162.11.7	P1	60	L 6	# 10014
Healey, Ad	am	Broadcom Inc.			Mellitz, Ric	hard		Samt	ec		
Comment 7	Гуре Т	Comment Status D			Comment	Гуре	TR	Comment Status	D		
The tra search	nsmitter equalize time and the pos	er coefficient ranges are unne ssibility that an exepected cha	eccesarily broad	. This leads to wasted he COM requirements.	[Comm	ent res	submitted I	from Draft 1.0. Subc	l. 162.11.7	- Pg 152 - ln 33]	
Suggested	Remedy				To mo	e forw	ards a valu	ue for SNR_Tx need	s to be cho	sen	
Reduce	e the coefficient r	anges to the minimum requir	ed to support re	asonable channels	Suggested	Remed	ly				
submit	ted for Task Forc	e consideration. Make simila	r changes to Ta	ble 163-10.	Replac	e TBD	with 32 dE	3 as in slide 8 of me	litz_3ck_03	8_1119, slide 9 of	lim_3ck_01_1119
Proposed F	Response	Response Status W			III Tabl		15.	Deenenee Cteture			
PROPO	OSED REJECT.				Proposed i	respon			w		
The su	agested remedy	does not propose specific ch	anges to the dr	aft. However, a	PROP	JSED	ACCEPTI	N PRINCIPLE.			
presen	tation related to t	his comment is anticipated fo	or the March me	eting.	For tas lim_3c	k force <_01_1	discussio 119 in Tal	n relating to slide 8 o	of mellitz_3	ck_03_1119 and s	slide 9 of
For tas	k force discussio	n.			C/ 162	SC	162.11.7	P1	60	L11	# 136
C/ 162	SC 162.11.7	P 160	L <b>6</b>	# 162	Dawe, Pier	S		Mella	nox		
Palkert, To	m	Molex			Comment	Гуре	TR	Comment Status	D		
Comment 7	Гуре Т	Comment Status D		LATE	Slide 6	of hec	k_3ck_01_	_0919 shows that the	e DFE taps	are 2 and 3 are a	Iways strongly
Need v	alue for SNRtx				positiv	e, and r	no taps str	ongly negative, yet t	he draft wo	uld allow such	can't cono with
Suggested	Remedy				kasapi	_3ck_0	1_1119 sli	ide 7 shows the first	tap also.	u not, and maybe	carri, cope with.
Make S	SNRtx = 33dB (Se	ee supporting presentation)			We ne	ed sens	sible minin	num tap limits.			
Proposed F	Response	Response Status W			Suggested	Remed	ly				
PROPO	OSED ACCEPT I	N PRINCIPLE.			Add m	nimum	tap weigh	t limits:			
This co	mment was rece	ived after the task force revie	w was closed		Tap 1: Tap 2:	min +0 min +0	.3				
1110 00					Remer	nbering	that a tap	weight limit isn't a h	nard pass-fa	ail limit; channels	can go outside it
For tas	k force discussio	n.			but pay	a (ver	y small, fo	r one or two small e	xcursions) i els are smo	ncrease in COM f	or the excess ISI
C/ 162	SC 162.11.7	P160	L <b>6</b>	# 64	can ha	ve high	ier loss:				
Mellitz, Ric	hard	Samtec			All othe	er taps:	min -0.03	(tighter than for KR	). nt magnitud	la limit"a inta "Na	
Comment T	Type TR	Comment Status D			coeffic	e exist ent lim	it"s.	alized DFE coefficie	ni magnitud		
SNR_T	x needs to accou	unt for host board crosstalk a	s suggested in	mellitz_3ck_03b_1119	Update	definit	tion of COI	M in 93A.1.			
and lim	_3ck_01_1119.p	df			Proposed I	Respon	se	Response Status	w		
Suggested	Remedy				PROP	OSED	REJECT.				
Replac	e TBD for SNR_	Tx with 32 dB			The co	mmont	does not	nrovide sufficient ius	tification to	support the prop	osed changes in
Proposed F	Response	Response Status W			the sug	gestec	d remedy.	provide sumerent ju			
FROP					For tas	k force	discussio	n.			
Resolv	e with comment #	#10014.									
TYPE: TR/t	echnical required	d ER/editorial required GR/g	eneral required	T/technical E/editorial G/	general				C/ 162		Page 43 of 54
COMMENT SORT ORE	STATUS: D/disp ER: Clause, Sub	patched A/accepted R/rejectoclause, page, line	ted RESPON	ISE STATUS: O/open W/w	ritten C/closed	Z/with	ndrawn		SC 162.1	1.7	2020-03-13 12:54:35 P

C/ 162	SC 162.11.7	P 160	L18	# 10151	C/ 162	SC 162.11.7	P 160	L 27	# 161
Dawe, Pie	ers	Mellanox			Palkert, To	om	Molex		
Comment	Type TR	Comment Status D			Comment	Туре Т	Comment Status D		LATE
[Com	ment resubmitted	from Draft 1.0. Subcl. 162.1	1.7 - Pg 152 - Ir	45]	One s 1x10-8	ided noise spectr 3. This went too f	al density for passive coppe ar causing adverse impacts	r cables was cha on COM results	anged from 8.2x10-9 to
40 UI Cable	span was choser channels are sm	n to fit data on backplane cha oother. Very short low loss o	nnels, and is ex ables should pa	cessive even for them. ass easily anyway.	Suggested	Remedy		40.04.40.0	
Suggeste	dRemedy				preser	je One-sided nois	se spectral density from to 1	x10-8 to 1x10-9.	Supporting
Chan	ge 40 to an appro	priate number, e.g. 24.			Proposed	Response	Response Status W		
Proposed PROF	Response	Response Status W			PROP	OSED REJECT.			
11(01					This c	omment was rec	eived after the task force rev	iew was closed.	
The c	omment does not	t provide sufficient evidence t	o support the p	oposed change.	The co	omment does not	provide sufficient evidence	to support the p	roposed changes.
		on.		"	For tag	sk force discussio	on.		
C/ 162	SC 162.11.7	P160	L 18	# 148	C/ 162	SC 162.11.7	P180	L <b>45</b>	# 160
Dawe, Pie	ers Tomo <b>T</b>	Mellanox			Kareti, Up	en Reddy	Cisco		
Comment	<i>Type</i> I	Comment Status D		adad. The apon of the	Comment	Type <b>TR</b>	Comment Status D		
floatir	ig taps in this draf	t is $40-12 = 28$ .	n what was inte	nded. The span of the	DFE f	oating tap tail roo	ot-sum-of-squares limit 0.02	, which is chang	ed from from adopted
Suggeste	dRemedy				This c	onstraint was cre	ated to avoid test programs	to create unrela	stic channel and
Chan	ge the name or th	e number. Adjust 93A.1 if ap	opropriate.		subjec	t serdes to pass	such a channel This is not ir	ntended to limit	resonable real channels.
Proposed PROF	Response POSED ACCEPT	Response Status W IN PRINCIPLE.			l he va combi idendi	alue 0.03 is arrive nation. Constrain fied must pass ca	d by looking KR and CR cha g further only fails some of th ahnnels.	annels for possil he channels inc	ble package luding Task Force
The n	ame of the variab	le is somewhat ambiguous	Rather than cha	nging the name or the	Suggested	Remedy			
numb	er, a footnote to e	explain the variable may be m	ore helpful.		Chang	e back to Adopte	ed base line value of 0.03 or	eliminate this co	onstatint altogether
In Tal	nle 93A-1 add a f	ootnote to "DEE floating tap	snan 40 I II" as t	ollows.	Proposed	Response	Response Status W		
"N_f i	s the total span of	f a DFE with floating taps inc	luding both the	ixed and floating taps."	PROP	OSED REJECT.			
Resol	ve with comment	#10151			The cl based	nange to 0.02 wa on straw poll #12	s adopted as a result of clos 2.	ing comment D <sup>r</sup>	1.0 comment #152
For ta	sk force discussio	on.			For ta	sk force disussio	٦.		

C/ 162 SC 162.11.7

Ben Artsi, Liav       Marvell       Mellitz, Richard       Samtec         Comment Type       T       Comment Status       D       Comment Type       TR       Comment Status       D         Cable assembly, "include PCB" section lacks the representation of host board       IComment resubmitted from Draft 1.0. Subcl. 162 11.7.1 - Pg 153 - In 28]	
Comment Type T Comment Status D Comment Type TR Comment Status D Cable assembly "include PCB" section lacks the representation of host board [Comment resubmitted from Draft 1.0, Subcl. 162.11.7.1 - Pg 153 - In 28]	
Cable assembly, "include PCB" section lacks the representation of host board [Comment resubmitted from Draft 1.0, Subcl. 162 11.7.1 - Pg 153 - In 28]	
discontinuities as were presented in benartsi_3ck_01a_0919.pdf slide #6	
SuggestedRemedy Fill in Zp TBD's with data from slide 8 of benartsi_3ck_01a_0719.	
Update section 162.11.7.1 to accommodate the "include PCB" representation as described in benartsi_3ck_01a_0919.pdf slide #6 e.g. add two capacitive discontinuities and set their values to 19fF and 29fF. Update the trace parameters according to the supplied in the slide Proposed Response Response Status W	im in 5 100 O,
PROPOSED ACCEPT IN PRINCIPLE.       Proposed Response       Response Status       W         PROPOSED ACCEPT IN PRINCIPLE.       PROPOSED ACCEPT IN PRINCIPLE.	
Implement suggested remedy with editorial license Implement suggested remedy with editorial license.	
C/ 162 SC 162.11.7.1 P160 L 42 # 41 C/ 162 SC 162.11.7.1 P160 L 48 # 10	)17
Commont Tuno T Commont Status D Mellitz, Richard Samtec	
Cable assembly "include PCP" section lacks the appropriate trace loss representation Comment Type TR Comment Status D	
Cable assention include PCB section lacks the appropriate frace loss representation [Comment resubmitted from Draft 1.0. Subcl. 162.11.7.1 - Pg 153 - In 28]	
Suggesteakerneay	0740
"include PCB" representation as described in benartsi_3ck_01a_0919.pdf slide #6 trace parameters should be updated accordingly, thus set trace parameters according to the supplied in slide #6 of benartsi_3ck_01a_0919.pdf	la_0719.
Proposed Response Response Status W Proposed Response Response Status W	
PROPOSED ACCEPT IN PRINCIPLE. PROPOSED ACCEPT IN PRINCIPLE.	
Implement suggested remedy with editorial license. Implement suggested remedy with editorial license.	
C/ 162 SC 162.11.7.1.2 P161 L19 # 10	018
Mellitz, Richard Samtec	
Comment Type TR Comment Status D	
[Comment resubmitted from Draft 1.0. Subcl. 162.11.7.1.2 - Pg 153 - In 51]	
Fill in TBD's with data from slide 8 of benartsi_3ck_01a_0719.	
SuggestedRemedy	
use same data as for signal path	
Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE.	
Implement comment and suggested remedy with editorial license.	
TVPE: TP/technical required EP/editorial required CP/general required T/technical E/editorial C/general	15 of 54

······································			
COMMENT STATUS: D/dispatched A/accepted R/rejected	RESPONSE STATUS: O/open W/written C/closed Z/withdrawn	SC 162.11.7.1.2	2020-03-13 12:54:35 P
SORT ORDER: Clause, Subclause, page, line			

C/ 162A	SC 162A.5	P 241	L 13	# 138	C/ 162B	SC	162B.1.3	P 245	L <b>25</b>	# 10277	
Dawe, Pie	rs	Mellanox			DiMinico,	Christo	opher	MC Com	munications		
Comment	Туре Т	Comment Status D		bucke	et Comment	Туре	TR	Comment Status D			
In Figu the MC	re 162A-1, TP4 B, while TP1 ar	and TP5 are shown aligned the end of the MCB, and T ure 924-2	with each other, P2 and the end	and TP0 and the end of of the HCB, are not	[Comi	ment re	esubmitted 1	from Draft 1.0. Subcl. 1	62B.1.3 - Pg 23	35 - In 24]	
Suggested Show <sup>-</sup> TP0 to end of	<i>Remedy</i> FP5 further right the left of the ei the HCB.	than TP4, and nd of the MCB. Align TP1 ar	nd the end of the	MCB, and TP2 and the	Provic 162B. (162B 162B. 162B. (162B)	le valu 1.3.1 M -5). 1.3.3 M 1.3.5 M	Mated test fi Mated test fi	ixtures differential insert ixtures common-mode o ixtures common-mode t	tion loss Equation conversion inse to differential m	on (162B-3) and Equation rtion loss Equation (162B- ode return loss Equation	9).
Proposed I	Response	Response Status W			Suggester	-10). NRomo	du				
PROP	USED ACCEPT	IN PRINCIPLE.			Suggested See d	iminico	uy 3 3ck 1 02	20 ndf			
Show The	TP5 further right	than TP4, and			Proposed	Posno	0_00K_1_02	Posnonso Status 7			
I P0 to	the left of the el	nd of the MCB.			– PROF	POSED	REJECT				
C/ 162A	SC 162A.5	P 241	L <b>45</b>	# 145	This c	00000	nt was W/IT		nenter		
Dawe, Pier	rs 					omme					
I wond Figure	<i>Type</i> T er if there is an i 162A-2. The 0.	nconsistency between the nu 2 dB "MCB via allowance" co	umbers in Table ould be the caus	<i>(IR</i> ) 162A-1 and those in e of the confusion.	C/ 162B Zambell, A	SC Andrew	♡ <b>162B.1.3.</b> € v	6 P 249 Luxshare	2 <b>7</b> ∋-ICT	# 43	<b>I</b>
Suggested	Remedy				<i>Comment</i> Shoul	<i>Type</i> d we st	T till be saying	Comment Status D g SFP28?		bu	cket
Proposed I PROP	Response OSED REJECT.	Response Status W			<i>Suggester</i> Repla (like ta	<i>dReme</i> ce SFF ables 1	edy P28 with eith 62B-3 & 16	her SFP112 (like it's sta i2B-4).	ited in 162.12 a	nd 162.D) or Single-lane	
[The p specifi	roposed change c changes that s	in the comment does not co atisfy the commenter.]	ntain sufficient c	letail to understand the	Proposed PROF	<i>Respo</i> POSED	onse ) ACCEPT I	Response Status W N PRINCIPLE.			
The su	ggested remedy	r provides no changes to the	draft.		Resol	ve with	n comment#	152.			
The fol ILCam termina	lowing shows th ax 19.75 dB (Ta ation)+2*2.3(MC	at there is no inconsistency: ble 162A-1) =11.55(cable an B)+2*1.6(connector)+2*0.2(v	d wire ria)		<i>Cl</i> <b>162B</b> Dudek, M	SC ike	C 162B.1.3.6	6 P 249 Marvell	L <b>27</b>	# 152	
ILCam	in 11 dB (Table	162A-1) =2.8(cable and wire			Comment	Туре	т	Comment Status D		bui	icket
termina ILChm	ation)+2*2.3(MC ax 28.5 dB (Tab	B)+2*1.6(connector)+2*0.2(v le 162A-1) =19.75(CA)+2*10	ria) .975(ILMaxHost	Table 162A-1)-	This s 162C.	ection 2.1 wh	is describin hich have dif	ng the test fixtures for 1 <sup>2</sup> Iferent specifications to	12G use which a those for SFP2	are called SFP112 in :8.	
2 6.6(1 ILChm 2*6.6(1	in 19.75 dB (Table I Material I Materia Naturial I Material I Mate	≥ 162A-1) ble 162A-1) =11(CA)+2*10.97 ≥ 162A-1)	75(Host Table 10	62A-1 )-	Suggestee Chan	dReme ne SFP	edy P28 to SEP1	12 in 4 places in annex	(162B)		
For tas	k force discussi	on.			Proposed	Respo	DACCEPT.	Response Status W			
TYPE: TR/	technical require	ed ER/editorial required GR	/general required	d T/technical E/editorial	G/general			C	/ 162B	Page 46 of 5	54

COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn SC 162B.1.3.6 2020-03-13 12:54:35 P SORT ORDER: Clause, Subclause, page, line

C/ 162B	SC 162B.1.3.6	P 249	L 32	# 44	C/ 162C	SC 162C.2.6	P 262	L <b>29</b>	# 85
Zambell, A	Andrew	Luxshare-ICT			Kocsis, Sar	n	Amphenol		
Comment	Туре Т	Comment Status D		bucket	Comment T	ype ER	Comment Status D		bucket
Should	d we still be saying	SFP28?			Figure 2	62C-12 descrip	tion says "OSFP"		
Suggested	lRemedy				SuggestedF	Remedy			
Replac	ce SFP28 with eithe	r SFP112 (like it's stated in	162.12 and 162.I	D) or Single-lane	Replace	e "OSFP" with "I	DSFP"		
Proposed	Dies 1020-3 & 1021	D-4). Boononoo Statua W			Proposed R	esponse	Response Status W		
PROP	OSED ACCEPT IN				PROPC	SED ACCEPT.			
1101					C/ 162C	SC 162C.2.6	P 262	L 29	# 87
Resolv	ve with comment#1	52.			Kocsis, Sar	n	Amphenol		
C/ 162B	SC 162B.1.3.6	P 249	L <b>43</b>	# 45	Comment T	ype ER	Comment Status D		bucket
Zambell, A	ndrew	Luxshare-ICT			Figure ?	62C-12 missing	g image		
Comment	Туре Т	Comment Status D		bucket	SuggestedF	Remedy			
Should	d we still be saying	SFP28?			Include	"receptacle" ima	age referenced in kocsis_3ck	_adhoc_01_030	0420
Suggested	IRemedy				Proposed R	esponse	Response Status W		
Replao (like ta	ce SFP28 with eithe bles 162B-3 & 162l	r SFP112 (like it's stated in 3-4).	162.12 and 162.I	D) or Single-lane	PROPC	SED ACCEPT.			
Proposed	Response	Response Status W			C/ 162D	SC 162D	P <b>306</b>	L <b>1</b>	# 150
PROP	OSED ACCEPT IN	PRINCIPLE.			Dudek, Mik	e	Marvell		
Resolv	ve with comment#1	52.			Comment T	ype T	Comment Status D	a 400D dualiaat	in a late of information
C/ 162C	SC 162C.2.6	P 262	L15	# 86	with tec	hnically obvious	changes.	o 136D duplicat	ling lots of information
Kocsis. Sa	im	Amphenol			SuggestedF	Remedy			
Comment	Type ER	Comment Status D		bucket	Conside	er deleting this s	ection		
Figure	162C-11 missing ir	nage			Proposed R	esponse	Response Status W		
Suggested	Remedy				PROPC	SED ACCEPT	IN PRINCIPLE.		
Includ	e "plug" image refer	enced in kocsis_3ck_adhoc	_01_030420		Cable a	ssembly lengths	s and MDIs are different in 13	6D.	
Proposed	Response	Response Status W							
PROP	OSED ACCEPT.				136C a MDIs -	nd 136D (cable SEP28 QSEP28	assembly enabling a 3 m leng	gth)	
					162C a	nd 162D (cable	assembly enabling a 2 m leng	gth)	
					SFP112	,QSFP112,QSF	P112-DD, OSFP, SFP112-D	D, DSFP	
					Editoria	l license to gene	erate Annex 162D content wh	ile minimizing d	uplication with 136D.

C/ 162D SC 162D

C/ 163	SC 163.7	P173	L <b>54</b>	# 10		C/ 163	SC	163.9.1	P175	L35	# 58
Marris, Art	thur	Cadence Des	ign Systems			Ran, Adee	!		Intel		
Comment	Туре Е	Comment Status D			bucket	Comment	Туре	т	Comment Status D		
Make	162.7 a proper o	cross reference				As was	s discu	ssed in th	e January 2020 meeting ther	e is interest in e	enabling DC-coupled
Suggested Conve	<i>Remedy</i> ert 162.7 to a cro	ss reference				suppor design	t this c , imprc	ome appli peration. ove signal	Avoiding AC coupling capaci integrity, and reduce costs, a	tors in the chan and it is becomin	nels can help board ng a common
Proposed	Response	Response Status W				require	ement.				
PROP	OSED ACCEPT	-				Curren	t chan	nel specs	refer back to 93.9.4 where it	is stated that A	C coupling capacitors
C/ 163	SC 163.9.1	P175	L 26	# 30		may no modific	ot exist cations	between for intero	TP0 and TP5, but in that cas perability (without stating the	e some specific modifications e	ations may need
Ben Artsi,	Liav	Marvell				the bur	rden of	s and integrators - with			
Comment	Туре Т	Comment Status D		TPO ext	rapolation	no star	ndard t	o assist tr	nem.		
TP0a I Tx cor	has been shown npliance parame	to be extremely difficult to be eters.	used as a point	to measure Sp	pecified	Indeed	l, the c	urrent trar de voltage	up to 1.9 V, which is detrime	F.3.1 and in 163 ental for DC cou	3.9.1 allow high pling with modern
Suggested	lRemedy					CMOS	device	es. This hi	gh value is also not useful fo	r I x design with	modern applications.
Measu A new param A pres	arement will still annex is to be o eters from TP0 centation will be	be done at TP0a, but Tx is to defined to specify method of e to TP0a. provided.	be specified at a xtrapolating/sim	ΓΡ0. ulating each of	the Tx	DC cou reason change	upling ( able a e for D(	can be su nd useful C coupled	pported by limiting the Tx cor range. If this is done, the exis channels (although receiver	mmon mode vol sting specs may s may still need	tage to a more be useable without special support for this).
Proposed PROP	Response OSED REJECT	Response Status W				This pr couplir they ne	roposal ng; CR eed a s	l is specifi and C2M separate d	c for KR and C2C specification have AC coupling in the cab iscussion.	ons which requi le and in the mo	re on-board AC odule, respectively, so
[The p	roposed change	e in the comment does not co	ntain sufficient d	etail to underst	and the	Suggested	Remed	dy			
specifi	c changes that	satisfy the commenter.]				In the t commo	transm on moo	itter chara de voltage	acteristics tables of Clause 16 to be between 0.2 and 0.8 v	63 and Annex 12 olts.	20F, Change the Tx
A pres	entation relating	to this comment is anticipate	ed for the March	meeting.		Additio some t	nal co ext in a	ntent may a presenta	be beneficial for the AC cou ation, to complement the sug	pling subclause gested Tx spec	s. I intend to provide
Comm	-	,	1205	-		Proposed I	Respor	nse	Response Status W	0 1	
Comm	ient #35 address	ses the same issue for Clause	9 120F.			PROP	OSED	ACCEPT	IN PRINCIPLE.		
For tas	sk force discuss	ion.				A nres	entatio	n related t	to this comment is anticinate	d at the March r	neeting
See co	omment #35.					In Tabl DC cor	le 163- mmon-	5 and Tab mode volt	ble 120F-1, change DC comn tage (min.) to 0.2 V.	non-mode volta	ge (max.) to 0.8 V, and
						For tas	sk force	e discussio	on.		

C/ 163 SC 163.9.1

C/ 163	SC 163.9.1	P 175	L <b>44</b>	# 68	C/ 163	SC 163	3.9.1.1	P 176	L <b>27</b>	# 80	
Mellitz, R	chard	Samtec			Healey, A	dam		Broadcom I	nc.		
Comment	Type TR	Comment Status D	NL 000		Comment	Туре Т		Comment Status D		1. 1. A.	ERL
Vfmin	should align with	Av in COM table 163-10 sin	ce Np=200		As ob	served in h	ealey_3	3ck_01a_0120, effective re	turn loss (ERL), a	as it is currently defined to the receiver. This is	ined,
Suggeste	dRemedy				argua	bly its prima	ary fun	ction and the method/parar	meters need to be	e re-evaluated.	0
Repla	ce 0.4 with 0.413	3			Suggestee	dRemedy					
Proposed PROF	Response POSED ACCEPT	Response Status W IN PRINCIPLE.			Modify and se	y paramete et the limit a	rs and/ accordi	or method to achieve bette ingly. Similar change would	r correlation to re apply to Annex	<ul> <li>reflection interferer</li> <li>120F.</li> </ul>	nce
For ta	sk force discussio	on.			Proposed PROF	Response	JECT.	Response Status W			
C/ 163	SC 163.9.1	P 176	L <b>8</b>	# 76							
Healey, A	dam	Broadcom In	с.		[The p	proposed cl	nange i	in the comment does not contractively the commenter 1	ontain sufficient d	letail to understand	the
Comment	Туре Т	Comment Status D			opeon	lo onangoo	that of	anoly the commenter.			
The n Table	naximum step size 162-8 (0.02) for r	e for c(1) (0.05) does not agr 000GBASE-CRn. There is no	ee with the same reason that the	e value specifed in y should be different.	Based metho	d on Januar odology bas	ry straw sed on t	vpoll #3 (see below), there the presentation referenced	was consensus to d in the comment	o revisit the ERL t.	
Suggeste	dRemedy				The s	trawpoll det	tails ma	ay be found in the meeting	minutes here:		
Align	the coefficient ste	p size requirements betweer	n Tables 162-8, <sup>2</sup>	163-5, and 120F-1.	http://	www.ieee8	02.org/	3/ck/public/20_01/index.htm	nl		
Proposed		Response Status W			Howe	ver, the sug	ggested	d remedy does not provide	sufficient detail to	o implement.	
	OOED AOOEI I				For ta	sk force dis	scussio	n.			
There 162.	are similar comm	nents #62 and #63 addressir	ng the coefficient	step size in Clause							
For ta	sk force discussio	on.									
See c	omment #62 and	#63.									

C/ 163 SC 163.9.1.1

0, 100	SC	163.9.1.1	P 176	L 27	# 10069
Wu, Mau-	-Lin		MediaTek		
Comment	Туре	т	Comment Status D		ERI
[Com	ment res	submitted f	rom Draft 1.0. Subcl. 163.9.	2.1 - Pg 171 - In	5]
Curre very s enhar	nt ERL o sensitive nce ERL	calculation across "N calculation	doesn't consider DFE "float _bx" boundary as raised in v n methodology.	ing-tap". The co vu_3ck_02a_11	ncern is the ERL is 19. We need to
Suggeste	dRemec	ły			
follow 162.9 163.9 163.9	ving subo .3.4 Tra .2.1 Tra .3 Rece	shall be ap clauses. nsmitter ef nsmitter El iver charac	fective return loss (ERL) 162 RL cteristics	TX, & KR RX E	RL calculations in the
Proposed	Respor	ise	Response Status W		
PROF	POSED	REJECT.	,		
Pendi	ina decia	sion relatin	a to FRI methodology and r	narameters ner (	comment #80
Pendi See c	ing decis	sion relatin	g to ERL methodology and p	parameters per o	comment #80.
Pendi See c	ing decis commen	sion relatin t #80. 163 9 1 1	g to ERL methodology and p	barameters per o	# 10020
Pendi See c <i>Cl</i> <b>163</b> Mellitz, R	ing decis commen SC ichard	sion relatin t #80. <b>163.9.1.1</b>	g to ERL methodology and p P <b>176</b> Samtec	L 30	comment #80. # 10020
Pendi See c <i>CI</i> 163 Mellitz, Ri <i>Comment</i>	ing decis commen SC ichard	sion relatin t #80. 163.9.1.1 TR	g to ERL methodology and p P 176 Samtec Comment Status D	L 30	comment #80. # <u>10020</u> ERI
Pendi See c Cl 163 Mellitz, R Comment [Com	ing decis commen SC ichard <i>Type</i> ment res	sion relatin t #80. <b>163.9.1.1</b> <b>TR</b> submitted f	g to ERL methodology and p P176 Samtec Comment Status D irom Draft 1.0. Subcl. 163.9.	Darameters per o <i>L</i> <b>30</b> 2.1 - Pg 171 - In	comment #80. # [ <u>10020</u> ERI 15]
Pendi See c Cl 163 Mellitz, R Comment [Com Nbx= Nbx=	ing decis commen SC ichard : <i>Type</i> ment res Nb has I 24 seem	sion relatin t #80. 163.9.1.1 TR submitted f peen show	g to ERL methodology and p P 176 Samtec Comment Status D from Draft 1.0. Subcl. 163.9. n not correlate well to COM petter choice	<i>L</i> <b>30</b> 2.1 - Pg 171 - In in mellitz_3ck_a	comment #80. # <u>10020</u> ERL 15] idhoc_02_100219.
Pendi See c Cl 163 Mellitz, R Comment [Com Nbx= Nbx= Surgeste	ing decis commen SC ichard <i>Type</i> ment res Nb has I 24 seem	sion relatin t #80. 163.9.1.1 TR submitted f peen show is to be a b	g to ERL methodology and p P176 Samtec Comment Status D from Draft 1.0. Subcl. 163.9. n not correlate well to COM better choice	L 30 L 30 2.1 - Pg 171 - In in mellitz_3ck_a	comment #80. # [ <u>10020</u> <i>ERL</i> 15] Idhoc_02_100219.
Pendi See c Cl 163 Mellitz, R Comment [Com Nbx= Nbx= Suggeste Chan	ing decis commen SC ichard : <i>Type</i> ment res Nb has I 24 seem <i>dRemec</i> ge "Nbx	sion relatin t #80. 163.9.1.1 TR submitted f been show is to be a b dy is set to th	g to ERL methodology and p P176 Samtec Comment Status D from Draft 1.0. Subcl. 163.9. n not correlate well to COM better choice we value of Nb in Table 163-	<i>L</i> 30 <i>L</i> 30 2.1 - Pg 171 - In in mellitz_3ck_a	comment #80. # [ <u>10020</u> <i>ERI</i> 1 5] dhoc_02_100219.
Pendi See c Cl 163 Mellitz, R Comment [Com Nbx= Suggeste Chan	ing decis commen SC ichard ' <i>Type</i> ment res Nb has I 24 seem dRemec ge "Nbx	sion relatin t #80. 163.9.1.1 TR submitted f peen show to be a b fy is set to th	g to ERL methodology and p P176 Samtec Comment Status D from Draft 1.0. Subcl. 163.9. In not correlate well to COM better choice re value of Nb in Table 163-7 Rosponce Status, W	<i>L</i> 30 <i>L</i> 30 2.1 - Pg 171 - In in mellitz_3ck_a 10" to "Nbx is se	comment #80. # [ <u>10020</u> <i>ERL</i> s 5] dhoc_02_100219. t to 24 UI"
Pendi See c Cl 163 Mellitz, R Comment [Com Nbx= Nbx= Suggeste Chan Proposed PROF	ing decis commen SC ichard ' Type ment res 24 seem dRemec ge "Nbx POSED	sion relatin t #80. 163.9.1.1 TR submitted f peen show is to be a b fy is set to th ase REJECT.	g to ERL methodology and p P176 Samtec Comment Status D from Draft 1.0. Subcl. 163.9. In not correlate well to COM better choice the value of Nb in Table 163-7 Response Status W	<i>L</i> 30 <i>L</i> 30 2.1 - Pg 171 - In in mellitz_3ck_a 10" to "Nbx is se	comment #80. # [ <u>10020</u> <i>ERI</i> n 5] ndhoc_02_100219. t to 24 UI"

See comment #80.

C/ 163	SC 163.9.1.1	P17	76	L 34	# 10021
Mellitz, Ri	chard	Samte	ес		
Comment	Type TR	Comment Status	D		ERL
[Comr	ment resubmitted f	rom Draft 1.0. Subc	l. 16	3.9.2.1 - Pg 171 - In 10	)]
<b>T</b> - 1-1 -	100.0	and the shifts and the	- 4		
Recor	nmendation were	proposed in mellitz_	ata r 3ck_	_01_1119 slide 7.	age assumption.
Suggested	dRemedy				
In Tab	ole 163-3 set: beta	_x=2.4 GHz , rho_x=	=.3		
Proposed	Response	Response Status	w		
PROF	OSED REJECT.				
Dend	e e de cicio e e latio				
Penal	ng decision relatin	g to ERL methodolo	gy a	nd parameters per con	iment #80.
See c	omment #80.				
This s	hould be for Table	163-6 instead of Ta	hle	163-3	
1110 0				100 0.	
C/ 163	SC 163.9.1.2	P17	76	L <b>47</b>	# 31
Ben Artsi,	Liav	Marve	ell		
Comment	Туре Т	Comment Status	D		TP0A TF
A refe betwe measu	rence TP0 - TP0a en the test fixture a urement. It is not s	test fixture is specifi and the actual imple tated how to do this	ied. mer adju	It is also indicated that ntation is to be taken in ustment.	the difference to account in the
Suggested	dRemedy				
Specif ERL?	fy an achievable ra A presentation is t	ange for the TP0 - The to be provided with t	P0a he a	test fixture: Loss @ ~2 ctual suggestion	6GHz <6dB ; ILD ;
Proposed	Response	Response Status	w		
PROF	OSED REJECT.				
I he si	uggested remedy (	does not provide suf	ticie	nt detail to implement. ted at the March meeti	However, a
p.030	including to t		cipu		·9·

C/ 163 SC 163.9.1.2

C/ 163	SC 163.9.1.2	P 176	L 53	# 14	C/ 163	SC	163.9.2.1	P1	78	L <b>52</b>	# 10022
Sun, Junqing		Credo Semiconductor		Mellitz, Richard				ec			
Comment Type         TR         Comment Status         D         bucket           0.01dB is found to be a typo.         bucket         bucket </td <td><i>Comment</i> [Comr</td> <td><i>Type</i> nent res</td> <td>TR submitted f</td> <td>Comment Status from Draft 1.0. Subo</td> <td><b>D</b> I. 163.9.</td> <td>.3.1 - Pg 171 - I</td> <td>ERL In 44]</td>			<i>Comment</i> [Comr	<i>Type</i> nent res	TR submitted f	Comment Status from Draft 1.0. Subo	<b>D</b> I. 163.9.	.3.1 - Pg 171 - I	ERL In 44]		
Suggeste Char	edRemedy nge 0.01dB to 0.1d	B as in clause 93.8.1.1.			Nbx=N Nbx=2	Nb has l 24 seem	been show is to be a b	n not correlate well petter choice	to COM	in mellitz_3ck_	adhoc_02_100219.
Proposed PRO	d Response POSED ACCEPT.	Response Status W			Suggested Chang	d <i>Remec</i> ge "Nbx	<i>ly</i> is set to th	ne value of Nb in Ta	ole 163-	10" to "Nbx is s	et to 24 UI"
C/ 163 Ben Arts	SC <b>163.9.2</b>	P 178 Marvell	L <b>45</b>	# 38	Proposed PROP	Respor POSED	nse REJECT.	Response Status	W		
Commen	t Type T	Comment Status D		CM noise tolerance (IR)	Pending decision relating to FRI methodology and parameters per comment #80						
Rece at the	eiver characteristics e reciever input	s lacks the definition of capa	bility to tollera	te common mode noise	See c	ommen	t #80.	0			
SuggestedRemedy					C/ 163	SC	163.9.2.2	P1	79	L <b>21</b>	# 32
Add the required capability of Rx common mode broadband noise tolerance and set it at TBD at least for now					Ben Artsi,	Liav		Marv	ell		
					Comment	Туре	т	Comment Status	D		(IR)
Proposed Response       Response Status       W         PROPOSED REJECT.       [The proposed change in the comment does not contain sufficient detail to understand the specific changes that satisfy the commenter.]					The Rx test fixture is embedded as part of the interconnect used for the interference tolerance test. Thus, there is no reason to limit the loss and behavior so tightly as done on line 21. Doing so will not enable connecting more than very few (if any!) Rx lanes to TP5a for testing. SuggestedRemedy						
The suggested remedy does not provide a complete solution with test method and values.						Proposed Response Response Status W PROPOSED REJECT.					
For ta	ask force discussio	n.									1 4 11 4 1 4 1 4 1 4
See comment #37.						[I ne proposed change in the comment does not contain sufficient detail to understand the specific changes that satisfy the commenter.]					
					The suggested remedy does not provide a complete solution. For instance, a new insertion loss equation for Equation 163-1 is required.						
					For ta	sk force	e discussio	n.			

C/ 163 SC 163.9.2.2

C/ 163	SC 163.9.2.2	P 179	L <b>22</b>	# 15	C/ 163	SC	163.9.2.4	P 180	L <b>47</b>	# 33		
Sun, Juno	qing	Credo Semico	nductor		Ben Artsi,	Liav		Marvell				
Comment	Type TR	Comment Status D		bucket	Comment	Туре	т	Comment Status D		jitter tolerance		
0.01d	B is found to be a	typo.			Recie	ver jitte	er tolerance	test is specified at specif	c frequency point	s with no specified		
Suggeste	dRemedy				extrap 1.33M	olation	between fi 501 at 4-40	requency points. More spe MHz. Tx is measured who	ecificaly, 501 at 40 en applving high p	IKHZ, 0.1501 at bass filter on the iitter		
Chan	ge 0.01dB to 0.1dE	3 as in clause 93.8.2.1.			filterin	ig out n	nuch of the	low frequency jitter of a ti	ansmitter. A trans	smitter may still comply		
Proposed PROF	Response	Response Status W		with the TX specifications and have much more than 0.15UI of jitter at frequecies which reside around a few handers of Hz. Since there is no Rx jitter tolerance requirement at these frequencies. A transmitter may have relatively high jitter tolerance requirement at								
C/ 163	SC 163.9.2.3	P 179	L 34	# 79	be co The ir	mpliant	t. The Rx m rability bety	ay not be able to tolerate veen these specified Tx a	this jitter while be	ing compliant as well.		
Healey, A	dam	Broadcom Inc.			Suggeste	dReme	dy					
Comment Type <b>T</b> Comment Status <b>D</b> bucket The receiver interference tolerance procedure defined in 120F.3.2.3 includes guidance on the output return loss of the test setup (item b). This guidance does not appear to be						Add a sentence that the reciever is expected to meet any frequency point between the specified in table 163-9 while jitter tolerance requirement is linearly extrapolated between any consecutive specified frequency points.						
prese	nt in this description	on of a similar test procedure	for n00GBAS	E-KRn.	Proposed Response Response Status W							
Suggeste	dRemedy				PROPOSED ACCEPT IN PRINCIPLE.							
Add an item stating "The return loss of the test setup in Figure 93C-4 measured at TP5 replica towards TPt meets the requirements of Equation (163-2)."						Add the following new text and equation:						
Proposed	Response	Response Status W			"Although the jitter tolerance test is specified at discrete frequencies, a compliant receiver tolerates jitter at any frequency between 40 kHz and 40 MHz with peak-to-peak amplitude							
PROF	POSED ACCEPT.				according to equation 163-new.							
					Equat jitter(f jitter(f	tion 163 ) = (0.0 ) = 0.05	3-new: )5*4 MHz / 1 5 for 4 MHz	f) for 40 kHz < f < 4 MHz < f < 40 MHz				
					C/ 163	SC	163.10	P 181	L 26	# 39		
					Ben Artsi,	Liav		Marvell				
					Comment	Туре	т	Comment Status D				
					Differential to common mode conversion loss is not defined for a TP0 to TP5 interconnect channel characteristics SuggestedRemedy							
					Specify that the differential to common mode conversion loss of TP0 to TP5 shall be [TBD] and correlated to the capability defined in 162.11.5 when measured with an MCB							
					Proposed	Respo	nse	Response Status W				
				PROPOSED ACCEPT IN PRINCIPLE.								
					For ta	sk forc	e discussio	n.				
TYPE: TR	R/technical required	d ER/editorial required GR/g	eneral require	d T/technical E/editorial G/c	peneral			Cl	163	Page 52 of 54		

C/ 163	SC 163.10	P 181	L 28	# 67	C/ 163	SC 163.10	P183	L13	# 139			
Mellitz, Ri	ichard	Samtec			Dawe, Pie	ers	Mellanox					
Comment	Type TR	Comment Status D			Comment	Type TR	Comment Status D					
Tr sho Suggestee Repla	ould be scaled fro <i>dRemedy</i> ice TBD for Tr wit	om 50G BaseKR because oth th 6.01e-3 ns	er timing parame	eter were scaled.	Slide ( positiv untypi kasap	6 of heck_3ck_0 /e, and no taps s cal/hypothetical i_3ck_01_1119 s	1_0919 shows that the DFE trongly negative, yet the dr channels that a real receive slide 7 shows the first tap a	E taps are 2 and 3 aft would allow su er need not, and n Iso.	are always strongly ch naybe can't, cope with.			
Proposed	Response	Response Status W			Wene	eed sensible min	imum tap limits.					
PROF	POSED ACCEPT	IN PRINCIPLE.			Suggested	dRemedy						
Comn	nent #155 sugge	sts an alternate value of 6.5 p	S.		Add m Tap 1 Tap 2	ninimum tap weig : min +0.3 : min +0.05	ght limits:					
For ta	isk force discussi	on.			Reme	mbering that a ta	ap weight limit isn't a hard p	ass-fail limit; cha	nnels can go outside it			
Cl 163 Li, Mike Comment Tr TB	SC <b>163.10</b> <i>Type</i> <b>TR</b> D	P 181 Intel Comment Status D	L 29	# 155	<ul> <li>but pay a (very small, for one or two small excursions) increase in COM for the excess noise that they cause:</li> <li>All other taps: min -0.04 (looser than for CR).</li> <li>Turn the existing "Normalized DFE coefficient magnitude limit"s into "Normalized DFE coefficient limit"s.</li> </ul>							
Suggester	dRemedy				Proposed Response Response Status W							
Chang	ge it to Tr =6.5 ps	s, which is consistent with CE	-112G-PAM4-LF	2	PROF	OSED REJECT						
Proposed PROF	Response	Response Status W			The co reaso	omment does pro nable, practical c	ovide sufficient evidence th hannels.	at the suggested	remedy will not hinder			
See c	comment #67				For ta	sk force discussi	on.					
					C/ 163	SC 163.10.2	P 184	L <b>24</b>	# 10024			
					Mellitz, Ri	chard	Samtec					
					Comment	Type TR	Comment Status D		ERL			
					[Comr	ment resubmitted	d from Draft 1.0. Subcl. 163	.10.2 - Pg 177 - Ir	ı 13]			
					Table Recor	163-11 was devent	eloped for a different data r e proposed in mellitz_3ck_(	ate and reference	package assumption.			
					Suggested In Tab	dRemedy ble 163-11 set: be	eta_x=2.4 GHz , rho_x=.19					
					Proposed PROF	Response POSED REJECT	Response Status W					
					Pendi	ng decision relat	ing to ERL methodology an	d parameters per	comment #80.			
					See c	omment #80.						

C/ 163	SC 163.13.4.2	P1	88	L <b>26</b>	# 28					
Slavick, Jeff	•	Broad	dcom							
Comment Ty	vpe TR	Comment Status	D			bucket				
References in 162 go to 136 when possible										
SuggestedR	Remedy									
Change PC3 to r PC5 to r PC6 to r PC7 to r PC8 to r PC9 to r	: refer to 136.8.11 refer to 136.8.11 refer to 136.8.11 refer to 136.8.11 refer to 136.8.11 refer to 136.8.11	.1.3 .3.3 .4.1 .6 .7.5 .7.5								
Proposed R	esponse	Response Status	w							
PROPO	SED ACCEPT.									

C/ 163 SC 163.13.4.2