C/ 1	SC 1.4	P 30	L 3	# 208	C/ 69	SC 69.1.2	P 61	L14	# 210
Ran, Ade	ee	Intel			Ran, Ade	e	Intel		
Commer 1.4.2	<i>at Type</i> E 24 is not "100GBAS	Comment Status X SE-X"			Comment In iter	<i>Type</i> E m l) there are now	Comment Status X v two MDIs.		
Suggeste Char	edRemedy nge to "100BASE->	K" (without G)			Suggeste Chan	dRemedy ge "MDI" to "MDI	s".		
Propose	d Response	Response Status O			Proposed	Response	Response Status O		
C/ 45	SC 45.2.1.11	1.8 P 40	L 30	# 209	C/ 69	SC 69.2.3	P 62	L 4	# 211
Ran, Ade	ee	Intel			Ran, Ade	e	Intel		
Commen	nt Type E	Comment Status X			Comment	Туре Е	Comment Status X		
Refe	erences to subclaus	ses of new clause 161 are ins	erted out of orde	er. Here and in other	The c	omma after Tabl	e 69–3a and the "Table69–3c" a	ire new text.	
Suggeste	edRemedy				Suggester Apply	dRemedy underline.			
Propose	d Response	Response Status O			Proposed	Response	Response Status O		
	00 15 0 1 11				C/ 69	SC 69.2.3	P62	L10	# 212
C/ 45	SC 45.2.1.11	1.8 P40	L 30	# 108	Ran, Ade	e	Intel		
Slavick,	Jeff	Broadcom			Comment	Туре Е	Comment Status X		
Commen	it lype E	Comment Status X	ting alounds to l		Unde	rscores in editori	al instruction should be spaces.		
orde	r)	as the last entry in the list (lis	ting clauses to	ook at in numerical	Suggeste	dRemedy			
Suggeste	edRemedy				Chan	ge to spaces.			
Upda CI16	ate 45.2.1.111.8, 4 1 to have Cl161 ac	5.2.1.111.9, 45.2.1.112, 45.2. dded at the end of the list.	1.113, 45.2.1.1	15 lists that insert	Proposed	Response	Response Status O		
Propose	d Response	Response Status O							

CI 69 SC 69.2.3

CI 69	SC 69.2.3	P 62	L18	# 213	C/ 73	SC 73.2	P64	L18	# 215
Ran, Ade	e	Intel			Ran, Ade	e	Intel		
Comment	Туре Т	Comment Status X			Comment	Туре Е	Comment Status X		
There backp it add	is no column fo blane table). It se ed here, althoug	r AN in this table. AN is include ems that 802.3cd omitted this h it is included in the tables that	ed in table 69.3 column in the n at were added ir	(the original 100G ew tables (3a and 3b) n clause 116.	In the Also,	new figure 73-1 in the label belo	, The label on the right of the w "Medium", there is no space	arrow looks like e after "50 Gb/s"	two separate labels.
			an the state of the de-	·	bottoo	cm-pointing brac	e above the list of PHYs (cor	npare to Figure 6	9–5).
May r	equire maintena	nce approval but I assume it w	/iii be done in th	is project.	Suggeste	dRemedy			
Suggeste	dRemedy				Add c	comma after XLC	GMII, and reduce line spacing	(or delete the ex	tra line break).
Add A	N column and p	opulate it - mandatory for all re	ows.		Add h	prace and add sr	bace after "50 Gb/s"		
Also i	n tables 69-3b a	nd 69-3c.			Proposed	Response			
Proposed	Response	Response Status 0			Toposcu	Response			
					CI 73	SC 73.6.4	P65	L10	# 77
CI 69	SC 69.2.3	P 63	L 10	# 214	Gustlin, N	/lark	Cisco Syste	ms	
Ran, Ade	e	Intel			Comment	Туре Т	Comment Status X		
Comment	Туре Т	Comment Status X			Adopt	t the details of A	N for 100GBASE-CR1/KR1		
The c	olumn for clause	78 is not required since EEE	is not defined a	t all for 400GBASE-	Suaaeste	dRemedv			
there	is no other PHY	in this table.	auses, and EEE	is not in scope) and	l will p	present the optic	ons to choose from, adopt if w	e have task force	e consensus.
Claus PMDs	e 116 also leave s.	s this column blank (not even	optional) for the	new 200G and 400G	Proposed	Response	Response Status O		
Suggeste	dRemedy				CI 73	SC 73 10 2	P67	/ 25	# 216
Delete	e this column.				Ran Ada		Intel	- 20	" 210
Proposed	Response	Response Status O			Comment		Comment Status X		
					Table	73-7 is shown v	with all rows, most of which ar	e not changed, a	nd is spread across
					two p	ages. Only one	new row is inserted.	,	
					Using "link_	some unchang] fail_inhibit_time	ged rows are not shown" here " rows would make this chan	and keeping only ge easier to unde	y the erstand.
					Suggeste	dRemedy			
					Chan	ge table per con	ment with editorial license.		
					Proposed	Response	Response Status O		

C/ 73 SC 73.10.2

-										
C/ 80	SC 80.4	P 72	L 20	# 217	C/ 80	SC	80.5	P 73	L 38	# 113
Ran, Ade	e	Intel			Nicholl, S	Shawn		Xilinx		
Comment	Туре Т	Comment Status X			Comment	t Type	TR	Comment Status X		
There subla	e should be a new yer.	w row in Table 80-5 for the dela	y constraints of	the RS-FEC-Int	Since Skew	e 161.5.3 v constra	3.1 specif aints" sho	ies the Rx deskew capabilities uld contain a reference to 161.	, then "Table 8 .5.3.1	0-6 Summary of
Suggeste	dRemedy				Suggeste	dReme	dy			
Add a	a row based on th	he constraints in 161.4 (subject	of another con	nment).	Propo	ose to u	odate Tal	ole 80-6 such that the Notes co	olumn for the "	At RS-FEC receive" row
Proposed	Response	Response Status 0			conta See 9	ains a re 91.5.3.1	ference to 161.5.3.	o Clause 161. Proposed text for 1	or the table cel	l is:
					Proposed	l Respoi	nse	Response Status O		
C/ 80	SC 80.5	P 73	L 36	# 112						
Nicholl, S	hawn	Xilinx			C/ 80	SC	80.5	P 74	L32	# 114
Comment	Type TR	Comment Status X			Nicholl, S	Shawn		Xilinx		
Since	161.5.2.2 says	that it's identical to 91.5.2.2, the	en "Table 80-6	Summary of Skew	Comment	t Tvpe	TR	Comment Status X		
const	raints' should co	ontain a reference to 161.5.2.2			Since	e 161.5.2	2.2 says t	hat it's identical to 91.5.2.2, th	en "Table 80-7	Summary of Skew
Suggeste	dRemedy				Varia	tion con	straints"	should contain a reference to 1	161.5.2.2	,
Propo row co	ontains a referer	ble 80-6 such that the Notes co oce to Clause 161 Proposed to	olumn for the "A	t RS-FEC transmit"	Suggeste	dReme	dy			
See 9	1.5.2.2, 161.5.2	.2			Propo	ose to u	odate Tal	ole 80-7 such that the Notes co	olumn for the "	At RS-FEC transmit"
Proposed	Response	Response Status O			row c See 9	ontains 91.5.2.2	a referen 161.5.2.	ce to Clause 161. Proposed to 2	ext for the table	e cell is:
					Proposea	l Respoi	nse	Response Status O		
C/ 80	SC 80.5	P 73	L 36	# 107						
Slavick, J	eff	Broadcom			C/ 80	SC	80.5	P 74	L34	# 115
Comment	Type TR	Comment Status X			Nicholl, S	Shawn		Xilinx		
New F	FEC needs to be	e referenced			Comment	t Type	TR	Comment Status X		
Suggeste	dRemedy				Since	e 161.5.3	3.1 specif	ies the Rx deskew capabilities	, then "Table 8	0-7 Summarv of
Add 1	61.5.2.2 to FEC	transmit row and 161.5.3.1 to	the FEC receive	e row into both Table	Skew	Variatio	on constra	aints" should contain a referen	ce to 161.5.3.1	
80-6 a	and 80-7				Suggeste	dReme	dy			
Proposed	Response	Response Status O			Propo conta See 9	ose to u ains a re 91.5.3.1	odate Tal ference to 161.5.3.	ble 80-7 such that the Notes co o Clause 161. Proposed text fo 1	blumn for the " or the table cel	At RS-FEC receive" row I is:
					Proposea	l Respoi	nse	Response Status O		

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C/ 82	SC 82.2.13	P 152	LO	# 132	C/ 93A	SC 93A.1.6.1	P 190	L12	# 159
Brown, M	latt	Huawei Techr	nologies Canada		Kasapi, At	hos	Cadence		
Comment	t Type T	Comment Status X			Comment	Type TR	Comment Status X		
Table	82-7 "Skew toler	ance parameters" has an ent	ry "100GBASE-F	R with RS-FEC". To be	Likely	typo; existing tex	t refers to number of taps in	bank, N_{bf}, a	s N_b
Suggeste	olete this should a odRemedy	so include RS-FEC-Int per	Clause 101.		Suggested	IRemedy			
Impor	rt Table 82-7, and	show change of "100GBASE	-R with RS-FFC	" to "100GBASE-R	Chang	je N_f - N_b + 1 t	o N_f - N_{bf} + 1		
with F	RS-FEC or RS-FE	C-Int".			Proposed	Response	Response Status O		
Proposed	l Response	Response Status 0							
					C/ 93a	SC 93a.1.6.1	P 190	L 24	# 2
C/ 93A	SC 93A.1	P186	L 36	# 47	Mellitz, Rid	chard	Samtec		
Dudek. M	1ike	Marvell			Comment	Type TR	Comment Status X		
Comment	t Type E	Comment Status X			This w	orks better as its	own clause. In future drafts	we may want to	apply to any tail ta
For st	tyle consistency tl	ne other parameters that som	ne clauses don't	use should be in a	Startin	g location.			
footno	ote.				Suggested	iReilleuy	20 1 6 1 and 020 1 2 Title 0	20162 "limitin	a nowor in tail DEE
Suggeste	dRemedy				taps".	If N_ts is define	d in the reference clause fur	ther limit the DF	E tap as specified
Add a Nbg.	a footnote c statin Nbf. Nf. bomax. s	g "Some clauses that invoke igmamax, Nts., See 93A 1.6	this method do r	not provide a value for	93a.1.	6.2. Adjust wordi	ing to accommodate if Nf is	not defined.	
Proposed	l Response	Response Status 0			Proposed	Response	Response Status 0		
	,	·····							
CL 020	SC 02-16	D490	1.04	# [4	C/ 118	SC 118.1.3	P 0	LO	# 109
	30 93a .1.0	F 109	L Z I	# 1	Slavick, Je	eff	Broadcom		
Meilitz, R		Samtec			Comment	Type TR	Comment Status X		
Lomment	t lype IR	Comment Status X	h oldor clausos	Nf should be Nb	Clause	e 118.1.3 lists the	AUI that a 200/400GXS ma	y use. The nev	w 100G serial ones
Suggosto	dPomodu	specified, for compatibility wit	n older clauses,		Should	i be included in th	iat list.		
Chan					Suggested Bring i	n 118 1 3 and ad	d 120C and 120E to both of	the 200G and 4	00G lists of suppor
are i	not specified then	no floating taps are used.			physic	ally instantiated A			
to are referr	not specified ther ing clauses.	n no floating taps are used an	nd Nf takes the v	alue of Nb from	Proposed	Response	Response Status O		
Proposed	l Response	Response Status O							
•		· -							

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/ 118 SC 118.1.3 Page 4 of 47 2020-01-06 4:46:20 PM

C/ 120	SC 120.1	P 91	L 4	# 110	C/ 120	SC ·	120.5.1	P 92	L 43	# 219
Slavick, Je	eff	Broadcom			Ran, Adee			Intel		
Comment	Туре Е	Comment Status X			Comment	Гуре	т	Comment Status	х	
The w	is missing from C	Overview			In the o	original	text, the	list of annexes had "o	r" which made it o	clear that only one of the
Suggested Add th	lRemedy ne w				annexe specifi is appr	es is ap cations opriate	propriate. in all of tl	. The new "Annex 120 he annexes should be	B through Annue met "as appropri	x 120G" reads as it all iate". It is not quite clear what
Proposed	Response	Response Status O			Note th annexe	at the ores and t	corrrespo their corre	nding transmitter spe esponding AUIs.	cification appears	in 120.5.6 with a full list of
C/ 120	SC 120.1	P 91	L 6	# 218	To ma	ke this	more read	dable and maintainab	e. I suggest addi	ng a new table mapping
Ran, Adee	9	Intel			annexe	es to Al	JIs (this c	an be done in 120.1.	1) and referring to	o this table in both places and
Comment	Туре Е	Comment Status X			everyw		se where	it can be used, instea		CAL.
Label	is "Overvie"				Alterna	tively:	change th	his sentence to	coocifications in	the corresponding Appay
Suggested Chang	<i>IRemedy</i> je to "Overview".				(120B	through	n 120G).			the corresponding Annex
Proposed	Response	Response Status O			Also a	oplies to	o 135.5 a	nd possibly other plac	es.	
	•				This co change	omment ed anyw	t is aboou vay I assu	ut existing clauses 120 ume this change is wit) and 135. Since the hin the scope of the hin the scope of the hindress of the	these clauses are being the project.
C/ 120	SC 120.4.1	P 201	L 46	# 202	Suggested	Remed	y .			
Ghiasi, Ali Comment	Type TR	Ghiasi Quantu Comment Status X	ım/Inphi		Add a (if in so	new tak	ole mappi vith editor	ng AUIs to Annexes a rial license.	ind refer to it in th	is paragraph and elsewhere
COM t some	table and analysis weired channel	s does not include penalty du	e to burst error,	current COM code on	Proposed I	Respon	se	Response Status	0	
Suggested	Remedy									
http://v penalt analys some error? an ana	www.ieee802.org/ y with pre-coding is showed that no weired channel w Assuming there alytical burst error	3/ck/public/19_03/anslow_3c on for tap weights [0.85, 0.05 on of the 115 channels would ill not in the mix that passes is interest we can bring a pro- estimator that can be added	k_01_0319.pdf 5, 0.25, -0.05, 0 be as bad but 3 dB COM but posal in future to COM.	page has 2 dB of SNR 0.15], the Anslow how can we gurantee would fail due to burst task force meeting for						

Proposed Response

Response Status 0

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/ 120 SC 120.5.1

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C/ 120	SC 120.5.7.2	P 94	L 44	# 221
Ran, Adee		Intel		

Comment Type T Comment Status X

In the text describing the precoding control for PMDs, the case where training is supported but is disabled by management is not covered. In this case the variables should be "set as required by implementation" similar to C2C.

Repeating the list of PMDs twice would make the text cumbersome. The change in the suggested remedy attempts a more general definition that should make the test easier to read and maintain.

Also applies to similar text in 135.5.7.2.

This comment is aboout existing clauses 120 and 135. Since these clauses are being changed anyway I assume this change is within the scope of the project.

SuggestedRemedy

Replace the 4th paragraph and the one inserted below it with the following:

"If the PMA is connected to the service interface of a PMD that uses the PMD control function (136.8.11), then precoder_tx_out_enable_i and precoder_rx_in_enable_i shall be set as determined by the PMD control function on lane i. The method by which the PMD control function affects these variables is implementation dependent.

If the PMA is connected to the service interface of a PMD that supports the PMD control function but training is disabled by the management variable mr_training_enable (see 136.7), or if the PMA is part of a 200GAUI-2 C2C or a 400GAUI-4 link, then precoder_tx_out_enable_i, precoder_rx_in_enable_i, precoder_tx_in_enable_i, and precoder_rx_out_enable_i are set as required by the implementation. The method described in 135F.3.2.1 may be used for 200GAUI-2 C2C or 400GAUI-4 links."

Apply a similar change in 135.5.7.2 with changes as necessary.

Implement with editorial license.

Proposed Response Response Status O

C/ 120	SC 12	20.5.7.2	P 94	L 47	# 220
Ran, Adee	•		Intel		
Comment	Туре	E	Comment Status X		
136.8. which	11.7.5 is which do	an incorre es not add	ct cross-reference - it ress precoding in any	points to the state way.	diagrams subclause
It shou approv	ıld be coı /al).	rrected to 1	36.8.11, here and als	o in clause 136 (p	ossibly with maintenance
Suggested	IRemedy				
Per co	mment.				
Proposed	Respons	e i	Response Status O		
C/ 120	SC 12	20.5.11.2.4	P95	L 32	# 148
Dawe, Pie	rs		Mellanox	[
Comment	Type	TR	Comment Status X		

This editor's note says "the assumption that the square wave test pattern will continue to be required for 200GAUI-2 and 400GAUI-4 testing". But the square wave is not used for AUI testing at all, nor is it required for anything except measuring the RIN of an optical transmitter (which is typically done on the optical module alone, not in a complete system, anyway). The text at line 21 says it's optional, not required. This project does not add or alter optical PMDs.

SuggestedRemedy

Delete this editor's note, and the first part of the editor's note in 135.5.10.2.4.

Proposed Response Response Status **O**

C/ 120	SC 120.7.3	P 97	L 3	# 222
Ran, Ade	e	Intel		
Comment	Type E	Comment Status X		
Font s	size is inconsisten	it in this table (existing and n	ew text).	
Suggestee use c	dRemedy onsistent font size)		
Proposed	Response	Response Status O		

C/ 120 SC 120.7.3

C/ 120A SC 120A	P 0	L 0	# 136	C/ 120F	SC 120F.1	P 193	L 22	# 266
Brown, Matt	Huawei Tech	nologies Canada		Ran, Adee		Intel		
Comment Type T	Comment Status X			Comment T	vpe T	Comment Status X		
Some layer diagrams addition to 200GAUI-4	in Annex 120A should show t /8 and 400GAUI-8/16.	he new 200GAUI	-2 and 400GAUI-4 in	In some routing	applications A imitations and	AC coupled is required to be in can provide signal integrity in	side the receive	er. This can result from
SuggestedRemedy Import portions of Ann diagrams to include th	ex 120A and add 200GAUI-2 ese.	and 400GAUI-4	or alternately add new	C2C is a capabili	an engineered y.	link so the channel can be de	signed with kno	wledge of the Rx
Proposed Response	Response Status O			It would that cas	be good to me e the channel	ention that the receiver may in is not required to have additio	plement interna nal AC coupling	al AC coupling and in
	D400	1.00	# 10	SuggestedF	emedy			
C/ 120F SC 120F.1	P 192	L 22	# 48	Add a N	OTE where co	onvenient:		
Comment Type T The 100G Phys using	Marvell Comment Status X RS544,514 are 100GBASE-I	P not 100GBASE	-R	NOTE: choose design o	Some devices not to include hoice.	include internal AC-coupling. AC-coupling in the channel if t	Applications than the devices are	t use such devices ma compatible with this
SuggestedRemedy Chage 100GBASE-R	o 100GBASE-P in figure 120	F-1		Proposed R	esponse	Response Status O		
Proposed Response	Response Status O			C/ 120F	SC 120F.1	P 193	L 26	# 267
				Ran, Adee		Intel		
C/ 120F SC 120F.1	P192	L 39	# 49	Comment T	/pe E	Comment Status X		
Dudek Mike	Marvell			The text	for three AUIs	s (100G, 200G, 400G) is repet	itive and the fig	ures are almost
Comment Type T	Comment Status X			identica				
There are no example	s of these C2C interfaces in	120A or 135A		Merging	to a single fig	ure and text would help the re	aders.	
SuggestedRemedy				SuggestedF	emedy			
Fither delete the refer	ences to these annexes or br	ing these Annexe	s into 80.3ck and add	Per com	ment, Implem	ent with editorial license.		
examples (e.g. add n=	1 to Figure 135A-8			Proposed R	esponse	Response Status 0		
examplee (eigi aaa ii						· · · · · · · · · · · · · · · · · · ·		

C/ 120F SC 120F.1

C/ 120F	SC 120F	.1	P 194	L 33	# 268	C/ 120F	SC	120F.2	P 194	L6	# 270
Ran, Adee			Intel			Ran, Adee			Intel		
Comment	Гуре Т	Comme	nt Status X			Comment	Гуре	т	Comment Status X		
"If impl may be	emented, the used to ide	e transmitter ec entify an approp	ualization feedbac	k mechanism o	lescribed in 120D.3.2.3	This su 1/(1+D	bclaus) preco	e's title is ding, but	"Transmitter electrical charac precoding does not affect ele	cteristics". The ctrical charact	e first paragraph is about eristics.
That m (Annex in 802. Howev is remo Re-usin from w Also ap Suggested I am pl	echanism s 83D), whic 3.bs (120D. er, in we no oved as sug ng this meth hat it was ir oplies to 45. <i>Remedy</i> anning a pr	upports the equ h has only 3 tap 3.1.5) and re-us w have a 5-tap gested in 120F. nod for 100GAU Annex 83D. A 2.1.129. esentation with s	alizer that was spe s with 5% coefficie ed in 802.3cd have equalizer with 2% i 3.1.4 it would not b I-1 is impossible if new method should some possible solu	ecified in the ori ent resolution. T e kept this struct resolution. Even be identical to the the specified T d be defined.	ginal CAUI-4 C2M he PAM4 AUIs defined ture. n if pre-cursor tap c(-3) he FFE in Annex 83D. k equalizer is different	Also, th Suggested Delete use pro Proposed I CI 120F Ran, Adee Comment	ne "sha Remed this pa ecoding Respon SC SC	III" here is ly ragraph. I g in the PM se 120F.2 E f this subo	not required from the electric Maybe add instead some text A client. <i>Response Status</i> O <i>P</i> 194 Intel <i>Comment Status</i> X clause is	to the introdu	ut from the PMA above it. ction about the option to # 269
Proposed I	Response	Respons	e Status O			"The e C2C in	ectrica terface	l characte sare as d	ristics for the 100GAUI-1 C20 efined in 163.9.1"	C, 200GAUI-2	C2C, and 400GAUI-4
Cl 120f Ghiasi, Ali Comment T Missing	SC 120f . <i>Type</i> TR g informativ	1 <i>Comme</i> e channel loss	P 194 Ghiasi Quantu <i>nt Status</i> X	L 38 Im/Inphi	# 177	This se charac Where definiti	entence teristic: are the /e text.	e is not ab s) and it c e compliar	out compliance points; it sho an replace the existing conter nce points defined? The edito	uld be in 120F ht there. r's note should	.3 (electrical d be replaced by
Suggested Add inf Insertic Proposed I	Remedy formative ch on_Loss(f)= Response	annel loss 1.083+1.25√ƒ+(Respons	0.47 <i>f</i> 0.01≤ <i>f≤</i> 50 G. e Status O	Hz		Suggested Move t Add a clause Proposed I	Remea he sen descrip Resport	ly tence to 1 tion of the	20F.3. e compliance points or refer to <i>Response Status</i> O	o the correct p	lace in the backplance

C/ 120F SC 120F.2

C/ 120F SC 120F.3.1 P195 L 22 # 271	C/ 120F SC 120F.3.1 P195 L40 # 27
Ran, Adee Intel	Mellitz, Richard Samtec
Comment Type T Comment Status X	Comment Type TR Comment Status X
The current Tx specs in 93.8.1.3 allow common mode voltage up to 1.9 V. This precludes internal AC coupling when the Rx operates on lower voltages, since EMI diodes will cause	If Nv is set to 200 UI then and packages in Table 120F-5 are the same as KR, then Signal- to-noise-and-distortion ratio SNDR (min) should be the same as for KR
nonlinear effects.	SuggestedRemedy
Many devices will have lower common mode voltages in the Tx which will enable using internal AC coupling in the Rx, which can help routing and signal integrity.	Change Signal-to-noise-and-distortion ratio SNDR (min)from TBD to 33 dB. This matches SNR_Tx in 120F-5
Since C2C is an engineered link, the integrator may benefit from knowing if the Tx has lower CM voltage and if the Rx has internal AC coupling. If both are true, then the	Proposed Response Response Status O
integrator does not need to add AC caps on the channel.	C/ 120F SC 120F.3.1.1 P196 L6 # 176
I suggest defining the following as optional features:	Ghiasi, Ali Ghiasi Quantum/Inphi
1. Tx common mode voltage between 0 and 900 mV.	Comment Type TR Comment Status X
	Transmitter differential output return loss is redundent given that ERL will be used
Both are to be included in the PICS and AC coupling is required only if either of them is not	SuaaestedRemedv
supported.	Remove section and reference 163.9.2.1
SuggestedRemedy	Proposed Response Response Status
Discuss this idea; if it is plausible, we should think about possible ways to write it down.	
Proposed Response Response Status O	
	C/ 120F SC 120F.3.1.1 P196 L14 # 272
Z/ 120F SC 120F.3.1 P195 L 33 # 26	Ran, Adee Intel
Aellitz, Richard Samtec	Comment Type T Comment Status X
Comment Type TR Comment Status X	This return loss mask can allow unacceptable reflections with most of the BW allowed to
The dependence of Vf on Nv is has proved to be confusing. The result is that a single	old 25G RL specs in 93.8.1.4.
device with a C2C and KR transmitter may have two specification which is confusing for	
performing tests. Since we specify that ratio of Pmax to Vf there really is no good reason	We should use ERL for this annex, with similar specs to the PMDs.
reference.	SuggestedRemedy
unaestedRemedy	Refer to the ERL specs in 163.
Add a subsection detailing "Transmitter output waveform" similar to 163.9.3.1 Add	Proposed Response Response Status O
exception and exception list for this subclause setting Nv to 200 for the determination of Vf. Refer to clause "136.9.3.1 Transmitter output waveform" : Change k = -2 to 1 to k = -3 to 1 Refer to clause "120D.3.1.3 Linear fit to the measured waveform": Change Dp= 3 to Dp. 4 See Mellin, 20th 0.010 for reference.	

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

Response Status 0

Proposed Response

C/ 120F SC 120F.3.1.1 Page 9 of 47 2020-01-06 4:46:21 PM

C/ 120F SC 120F.3.1	I.4 <i>P</i> 197	L 39	# 140	C/ 120f SC 120f.4	l.1 P 203	L11	# 178
Dawe, Piers	Mellanox			Ghiasi, Ali	Ghiasi Quar	ntum/Inphi	
Comment Type T	Comment Status X			Comment Type TR	Comment Status X		
The third precursor ha	as only minor value for "28 dB"	" channels, so I o	don't expect it will be	DFE tap length mis	sing		
	channels, yet it auus comple	xity to the shicon	rand the turning.	SuggestedRemedy			
SuggesteaRemedy				Replace TBD with N	Nb=5 and see ghiasi_3ck_02_0	120	
Remove the third prec	cursor.			Proposed Response	Response Status O		
Proposed Response	Response Status O				,		
				C/ 120f SC 120f.4	l.1 P 203	L15	# 179
C/ 120F SC 120F.3.2	2.3 <i>P</i> 199	L 51	# 50	Ghiasi, Ali	Ghiasi Quar	ntum/Inphi	
Dudek, Mike	Marvell			Comment Type T	Comment Status X		
Comment Type T	Comment Status X			C2M doesn't have f	loating taps		
The sentence does no	ot make sense. (missing refer	rence equation).		SuggestedRemedy	0		
SuggestedRemedy				Remove the floating	n tans		
Change to "The filtere uses the filter Ht(f) de	d voltage transfer function H(l fined by Equation (93A–46),"	k)(f) calculated ir	n Equation (93A–19)	Proposed Response	Response Status O		
Proposed Response	Response Status O						
				C/ 120F SC 120F.	4.1 P 203	L15	# 52
C/ 120F SC 120F.4.1	P 202	L 36	# 51	Dudek, Mike	Marvell		
Dudek, Mike	Marvell			Comment Type T	Comment Status X		
Comment Type T	Comment Status X			If there are floating then Bmaxg should	taps then multiple additional round to be in the table.	ws are required to	descibe them. If not
The step size for C(1)	in table 120F-5 (0.05) does n	ot match the ma	x value in Table 120F-1.	SuggestedRemedy			
SuggestedRemedy				Fither delete Bmax	n row or add the other rows (se	e table in Annex (93A) Values TBD
Either change the step Or change Table 120F with the step size for 2	p size in table 120F-5 to 0.02 F-1 to indicate that the max st 162 and 163 which has similar	ep size for C(1) i r comments).	s 0.05. (Be consistent	Proposed Response	Response Status O		Jony. Values TDD.
Proposed Response	Response Status O						

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

C/ 120F SC 120F.4.1 Page 10 of 47 2020-01-06 4:46:21 PM

C/ 120F SC 120F.4	.1 P 203	L15	# 141	C/ 120G	SC 120G.1	P 209	L 43	# 53
Dawe, Piers	Mellanox			Dudek, Mike		Marvell		
Comment Type T	Comment Status X			Comment Ty	pe T	Comment Status X		
C2C should have a l	DFE floating tap tail root-sum-o	f-squares limit a	s CR and KR do,	The 1000	G Phys using F	RS544,514 are 100GBASE	-P not 100GBASE	-R
aitriougn trie innit mit	yn uner.			SuggestedRe	emedy			
Add a DEE floating to	an tail root our of aquaraa limi			Chage 10	00GBASE-R to	0 100GBASE-P in figure 12	20G-1	
Proposed Response		ι.		Proposed Re	sponse	Response Status O		
CL 120E SC 120E 4	1 D 202	/ 15	# 70	C/ 120G	SC 120G.1	P 210	L 5	# 54
5/ 120F 50 120F.4	.I F 203	L 15	# 70	Dudek, Mike		Marvell		
VVU, Mau-Lin				Comment Ty	pe T	Comment Status X		
In Table 120F-5 the	parameter of "Max DEE value	for floating tans"	shall be removed since	There are	e no examples	of these C2M interfaces in	n 120A or 135A	
we don't have conse	nsus on applying DFE floating	taps to C2C.		SuggestedRe	emedy			
SuggestedRemedy				Either de examples	lete the refere s (e.g. add n=1	nces to these annexes or l I to Figure 135A-8	bring these Annexe	es into 80.3ck and add
Remove the raw of "	Max DFE value for floating taps	" from Table 12	0F-5.	Proposed Re	sponse	Response Status O		
Proposed Response	Response Status O							
				C/ 120G	SC 120G.1.1	P 212	L 27	# 55
C/ 120F SC 120F.4	.1 P 203	L 19	# 142	Dudek, Mike		Marvell		
Dawe, Piers	Mellanox			Comment Ty	pe T	Comment Status X		
Comment Type TR	Comment Status X			Clause 1	20 does not ap	oply to 100GAUI-1		
One-sided noise spe and was chosen to m	ctral density of 8.2e-9 V2//GHz nake 28 dB backplane channel:	s pass COM. It	gressive and optimistic is not appropriate for	SuggestedRe	emedy	1000 0111 1"		
Children and Child				Add of t				
Change to 1.64e-8, s	ame as 50GBASE-CR. (For ir	nfo, 50G/lane C2	C (120C) has 2.6e-8.)	Proposed Re	sponse	Response Status 0		
Proposed Response	Response Status O			C/ 120G	SC 120G.3.1	P 213	L 30	# 180
				Ghiasi, Ali		Ghiasi Qua	antum/Inphi	
				Comment Ty Transmit	pe TR ter 4th order B	Comment Status X T4 filter BW is TBD		
				SuggestedRe Replace	emedy TBD with 39.8	GHz		
				Proposed Re	sponse	Response Status O		
						· · · · · · · · · · · · · · · · · · ·		
YPE: TR/technical requ	ired ER/editorial required GR	aeneral required	T/technical F/editorial G/	general		Cl	120G	Page 11 of 47

 COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
 SC 120G.3.1
 2020-01-06 4:46:21 PM

 SORT ORDER: Clause, Subclause, page, line
 SC 120G.3.1
 2020-01-06 4:46:21 PM

Wu, Mau-Lin MediaTek Dudek, Mike Marvell Comment Type T Comment Status X Comment Status X The variae a lot of TED values in Table 120G-1 - host output characteristics at TP1a. I prepared one contribution, wu, 3ck, 02_0120, to address how to settle down on these. Suggested/Remedy Vaggested/Remedy Proposed Response Response Status O Critical SC 120G.3.1 P213 L52 # 189 Critical SC 120G.3.1 P213 L52 # 189 Dudek, Mike Marvell Critical SC 120G.3.1 P213 L52 # 189 Dudek, Mike Marvell Suggested/Remedy Comment Status X Comment Status X Comment Status X C Suggested/Remedy Comment Status X Comment Status X Comment Status X Comment Status X Suggested/Remedy Suggested/Remedy Suggested/Remedy Suggested/Remedy Note the status X Proposed Response Response Status O O Cri 120G SC 120G.3.1 P213 L52 # 190 Cri 120G SC 120G.3.1 P213 L52 # 190 This status X Suggested/Remedy Suggested/Remedy Suggested/Remedy Suggested/Remedy Suggested/Remedy	C/ 120G SC	C 120G.3.1	P 213	L34	# 72	C/ 120G	SC 120G.3.1		P 213	L 53	# 56
Comment Type T Comment Status X There are a lot of TBD values in Table 120-1 - Host output characteristics at TP1a.1 prepared one contribution, wu_3ck_02_0120, to address how to settle down on these. SuggestedRemedy Proposed Change values in Table 120-1 according to the contribution, wu_3ck_02_0120. Response Status O C1 200 SC 1206.3.1 P213 L52 # [89] Comment Status X Comment Status X Comment Status X Cy add Comment Status X Comment Status X Comment Status X Comment Status X Comment Status X Comment Status X Comment Status X Comment Status X Comment Status X SuggestedRemedy For Comment Status X Comment Status X Proposed Response Response Status O C1 120G SC 1206.3.1 P213 L52 # [89] C1 120G SC 1206.3.1 P213 L52 # [190 This section Isolateled Host output test. SuggestedRemedy For the Host input test. SuggestedRemedy This section Iso include the other points. It his kin the WdB. Proposed Response Response Status O C C1 20G SC 1206.3.1.3 P215 L28 # [71 Comment Type TR Comment Status X Comment Status X	Wu, Mau-Lin		MediaTek			Dudek, Mi	ke	Ν	larvell		
There are a lot of TED values in Table 120G-1 - Host output characteristics at TP1a. I The ventical eye height is TBD Suggested/Remedy Proposed to change values in Table 120G-1 according to the contribution, wu_3ck_02_0120. Adopt the value proposed in Dudek_3ck_01_1119 (7.5dB). A presentation will be made providing more information. Proposed Response Response Status O O C1 120G SC 120G.3.1 P213 L52 # [189] Comment Type TR Comment Status X Eye height min is TBD Suggested/Remedy Comment Status X Suggested/Remedy per http://www.ieee602.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 15 mV Proposed Response Response Status O C1 120G SC 120G.3.1 P213 L52 # [190] Ghiasi, Ali Ghiasi Quantum/Inphi Comment Status X Suggested/Remedy per http://www.ieee602.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 15 mV Proposed Response Response Status O C1 120G SC 120G.3.1 P213 L52 # [190] Ghiasi, Ali Ghiasi Quantum/Inphi Comment Status X Comment Status X VEC is TBD Suggested/Remedy Response Status O Ci 120G SC 120G.3.1.3 P215 L28 # [1] Ghiasi, Ali	Comment Type	т	Comment Status X			Comment	Туре Т	Comment Sta	atus X		
prepared one contribution, wu_3ck_02_0120, to address how to settle down on these. SuggestedRemedy Proposed Ic change values in Table 120G-1 according to the contribution, wu_3ck_02_0120. Proposed Response Response Status O CI 120G SC 120G.3.1 P213 L52 # 189 Comment Type TR Comment Status X Comment Status X Dudek, Mike Marvell SuggestedRemedy per http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 15 mV This section labeled Host output ERL test or broaden the tilte and text of this section to include the other points. I think it may be better to have two sections on the Hodule cutput ERL test or broaden the tilte and text of this section to include the other points. CI 120G SC 120G.3.1 P213 L52 # 190 CI 120G SC 120G.3.1 P215 L28 # [71 Comme	There are a	a lot of TBD	values in Table 120G-1 - Hos	t output charac	eristics at TP1a. I	The ve	ertical eye height	t is TBD			
SuggestedRemedy Adopt the value proposed in Dudek_3ck_01_1119 (7.5dB). A presentation will be made providing more information. Proposed Response Response Status O Cl 120G SC 120G.3.1 P213 L52 # 189 Ghiasi, Ali Ghiasi Quantum/Inphi Marvell Comment Type TR Comment Status X Marvell SuggestedRemedy Per http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 15 mV This section labelied Host output effective return loss is referenced by the Module output test and the module output ERL test or broaden the tile and text of this section to include the other points. Cl 120G SC 120G.3.1 P213 L52 # 190 Cl 120G SC 120G.3.1 P213 L52 # 190 Ghiasi, Ali Ghiasi Quantum/Inphi SuggestedRemedy Either add separate sections for the module output ERL test or broaden the tile and text of this section in include the other points. Cl 120G SC 120G.3.1 P213 L52 # 190 Ghiasi, Ali Ghiasi Quantum/Inphi Comment Type T Comment Status X VEC is TBD SuggestedRemedy Proposed Response Response Status O SuggestedRemedy Prof T Comment Type T Comment Type T Comment Type T Comment Type T Comm	prepared or	ne contributi	on, wu_3ck_02_0120, to add	ress how to set	le down on these.	Suggested	IRemedy				
Proposed to change values in Table 120C-1 according to the contribution, w3ck_20_100.providing more information.Proposed ResponseResponse Status OC/ 120G SC 120G.3.1 P 213 L 52 # 169C/ 120G SC 120G.3.1 P 213 L 52 # 169C/ 120G SC 120G.3.1 P 213 L 52 # 169C/ 120G SC 120G.3.1 P 213 L 52 # 169Comment Status XSuggestedRemedy Proposed ResponseResponse Status OC/ 120G SC 120G.3.1 P 213 L 52 # 110Cl 120G SC 120G.3.1 P 213 L 52 # 110Cl 120G SC 120G.3.1 P 213 L 52 # 110Ghiasi, Ali Comment Type TR Comment Status X 	SuggestedRem	nedy				Adopt	the value propos	sed in Dudek_3c	<_01_1119	(7.5dB). A prese	ntation will be made
Proposed Response Response Status O Cl 1206 SC 1206.3.1 P213 L52 # [189] Chiasi, Ali Chiasi Quantum/Inphi Comment Type TR Comment Status X SuggestedRemedy per http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 15 mV Proposed Response Response Status O Cl 1206 SC 1206.3.1 P213 L52 # [190] Chiasi, Ali Ghiasi Quantum/Inphi Comment Type TR Comment Status X SuggestedRemedy Pert http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 8.5 dB if El + (5 mV) SuggestedRemedy VEC - 0.1667* Ell -15. if Ell/sbetween15and30m VEC - 0.1667* Ell -15. if Ell/sbetween15and30m VEC - 0.1667* Ell -15. if Ell/sbetween15and30m VEC - 0.1667* Ell -15. if Ell/sbetween15and30m VEC - 0.1667* Ell -15. if Suite the delay associated with the TP1 a test fixture being used'. Shall be changed as "The value of T_k is twice the delay associated with the P1 a test fixture being used'. Shall be changed as "The value of T_k is twice the delay associated wi	Proposed to wu 3ck 02	o change val	lues in Table 120G-1 accordin	ng to the contril	bution,	providi	ing more informa	ation.			
Cl 120GSC 120G.3.1P 213L 52# 189Ghiasi, AliGhiasi Quantum/InphiComment TypeTRComment Status XEye height min is TBDSuggestedRemedyper http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 15 mVProposed ResponseResponse Status OCl 120GSC 120G.3.1P 213L 52# 190Ghiasi, AliGhiasi Quantum/InphiCl 120GSC 120G.3.1P 213L 52# 190Ghiasi, AliGhiasi Quantum/InphiCl 120GSC 120G.3.1P 213L 52# 190Ghiasi, AliGhiasi Quantum/InphiComment TypeTRComment Status XVEC is TBDSuggestedRemedyper http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 8.5 dB if EH <15 mV	Proposed Resp	onse	Response Status O			Proposed	Response	Response Sta	tus O		
Cli Log The Log	CL 120C S(C 120G 3 1	P213	/ 52	# 190	C/ 120G	SC 120G.3.1	.3	P 215	L 25	# 59
Ginasi, AllComment Status XComment TypeTRSuggestedRemedyper http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 15 mVProposed ResponseResponse Status OC/ 120GSC 120G.3.1P213L52L52# 190Ghiasi, AliGhiasi Quantum/InphiComment Type TRComment Status XVEC is TBDSuggestedRemedyper http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 8.5 dB if EH + 15 mVVEC is TBDSuggestedRemedyper http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 8.5 dB if EH + 15 mVVEC - 0.1667* EH -15. i/ EHisbetween15and30m VEC - 2.3dB, i/ EH -30mVProposed ResponseResponse Status OCl 120GCl 120GSuggestedRemedyper http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 8.5 dB if EH + 15 mV VEC - 0.1667* EH -15. i/ EHisbetween15and30m VEC - 2.3dB, i/ EH -30mVProposed ResponseResponse Status OCharles A Response Status OProposed ResponseResponse Status OProposed ResponseRes		0 1200.3.1	Chicai Ouentu	L JZ	# 109	Dudek, Mi	ke	Ν	larvell		
Comment Type TK Comment Status X Suggested/Remedy Filter add separate section labelled Host output effective return loss is referenced by the Module output Proposed Response Response Status O Cl 120G SC 120G.3.1 P213 L 52 # [190] Ghiasi, Ali Ghiasi Quantum/Inphi Comment Type TK Comment Status X VEC is TBD Suggested/Remedy Comment Status X O Suggested/Remedy This section labelled Host output effective return loss is referenced by the Module output VEC is TBD Comment Status X O Suggested/Remedy This section to include the other points. I think it may be better to have two sections one for the Host tests (using the HCB) and one for the Module tests (using the MCB). Proposed Response Response Status X O Suggested/Remedy Comment Status X O per http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 8.5 dB if EH <15 mV	Gniasi, Ali	TD		m/mpm		Comment	Туре Е	Comment Sta	atus X		
SuggestedRemedy per http://www.iee6802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 15 mV Proposed Response Response Status O C/ 120G SC 120G.3.1 P 213 L 52 # 190 Ghiasi, Ali Ghiasi Quantum/Inphi C/ Comment Type TR Comment Status X VEC is TBD VEC is TBD SuggestedRemedy mediaTek Perphosed Response Response Cong/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 8.5 dB if EH < 15 mV	Eye height	min is TBD				This so test, th	ection labelled H ne Host input tes	lost output effection t and the module	ve return lo input test.	oss is referenced l	by the Module output
per http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 15 mV Proposed Response Response Status O Cl 120G SC 120G.3.1 P213 L 52 # 190 Ghiasi, Ali Ghiasi Quantum/Inphi Comment Status X VEC is TBD C/ 120G SC 120G.3.1.3 P215 L 28 # 111 SuggestedRemedy per http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 8.5 dB if EH <15 mV	SuggestedRem	nedy				Suggested	IRemedy				
Cl 120G SC 120G.3.1 P213 L52 # 190 Ghiasi, Ali Ghiasi Quantum/Inphi Ghiasi Quantum/Inphi Cl 120G SC 120G.3.1.3 P215 L28 # [71] Comment Type TR Comment Status X Wu, Mau-Lin MediaTek VEC is TBD SuggestedRemedy per http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 8.5 dB if EH <15 mV	per http://ww Proposed Resp	ww.ieee802. oonse	org/3/ck/public/19_11/sun_30 Response Status 0	ck_01b_1119.p	df should be 15 mV	Either this se for the	add separate se ction to include Host tests (usin	ections for the mo the other points. In the HCB) and	dule output I think it m one for the	t ERL test or broa hay be better to ha Module tests (usi	den the title and text of ave two sections one ng the MCB).
Cl 120G SC 120G.3.1 P 213 L 52 # 190 Ghiasi, Ali Ghiasi Quantum/Inphi Comment Type TR Comment Status X VCC is TBD VCC is TBD MediaTek SuggestedRemedy per http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 8.5 dB if EH <15 mV						Proposed	Response	Response Sta	tus O		-
Ghiasi, Ali Ghiasi Quantum/Inphi Comment Type TR Comment Status X VEC is TBD SuggestedRemedy MediaTek per http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 8.5 dB if MediaTek VEC - 0.1667* EH -15, if EH isbetween15and30m VEC - 2.5dB , if EH > 30mV Proposed Response Response Status O Response Status O	C/ 120G SC	C 120G.3.1	P 213	L 52	# 190						
Comment Type TR Comment Status X VEC is TBD VEC is TBD SuggestedRemedy In the paragraph of "Host output effective return loss", the sentence of "The value of T_fx is twice the delay associated with the TP1a test fixture being used" is NOT appropriate because the section of 120G.3.1.3 is used not only for Host output ERL, but also Module output ERL, Module input ERL, and Host input ERL. Based on this, the current description is not appropriate. Proposed Response Response Status O SuggestedRemedy The sentence of "The value of T_fx is twice the delay associated with the TP1a test fixture being used" is NOT appropriate because the section of 120G.3.1.3 is used not only for Host output ERL, but also Module output ERL, Module input ERL, and Host input ERL. Based on this, the current description is not appropriate. Proposed Response Response Status O SuggestedRemedy The sentence of "The value of T_fx is twice the delay associated with the TP1a test fixture being used." Proposed Response Response Status O	Ghiasi, Ali		Ghiasi Quantu	ım/Inphi		C/ 120G	SC 120G.3.1	.3	P 215	L 28	# 71
VEC is TBD SuggestedRemedy per http://www.ieee802.org/3/ck/public/19_11/sun_3ck_01b_1119.pdf should be 8.5 dB if EH <15 mV	Comment Type	TR	Comment Status X			Wu, Mau-I	Lin	Ν	/lediaTek		
SuggestedRemedy In the paragraph of "Host output effective return loss", the sentence of "The value of T_fx is twice the delay associated with the TP1a test fixture being used" is NOT appropriate because the section of 120G.3.1.3 is used not only for Host output ERL, but also Module output ERL, Module input ERL, and Host input ERL. Based on this, the current description is not appropriate. Proposed Response Response Status O SuggestedRemedy The sentence of "The value of T_fx is twice the delay associated with the TP1a test fixture being used" is not appropriate. Proposed Response Response Status O Proposed Response Response Status O	VEC is TBD	D				Comment	Туре Т	Comment Sta	atus X		
Proposed Response Response Status O SuggestedRemedy The sentence of "The value of T_fx is twice the delay associated with the TP1a test fixture being used" shall be changed as "The value of T_fx is twice the delay associated with the specific test fixture being used." Proposed Response Response Status O	SuggestedRem per http://w EH <15 mV VEC - 0.166 VEC-2.5dB	nedy ww.ieee802. / 67* EH -15, ? ,ifEH>30m	org/3/ck/public/19_11/sun_3c if <i>EHisbetween</i> 15and30m V	ck_01b_1119.p	df should be 8.5 dB if	In the twice t becaus output is not a	paragraph of "He he delay associa se the section of ERL, Module in appropriate.	ost output effectiv ated with the TP1 f 120G.3.1.3 is us put ERL, and Ho	ve return los a test fixtur sed not only st input ER	ss", the sentence re being used" is I / for Host output E L. Based on this,	of "The value of T_fx is NOT appropriate ERL, but also Module the current description
The sentence of "The value of T_fx is twice the delay associated with the TP1a test fixture being used" shall be changed as "The value of T_fx is twice the delay associated with the specific test fixture being used." <i>Proposed Response Response Status O</i>	Proposed Resp	oonse	Response Status 0			Suggested	IRemedy				
Proposed Response Response Status O	· ·					The se being specifi	entence of "The used" shall be ch c test fixture bei	value of T_fx is tw hanged as "The w ng used."	vice the del alue of T_f	lay associated wit x is twice the dela	th the TP1a test fixture ay associated with the
						Proposed	Response	Response Sta	tus O		

C/ 120G SC 120G.3.1.3

C/ 120G SC 120G.3.1.3 P215 L29 # 57	C/ 120G SC 120G.3.2 P217 L28	# 193
Dudek, Mike Marvell	Ghiasi, Ali Ghiasi Quantum/Inphi	
Comment Type T Comment Status X	Comment Type TR Comment Status X	
The test fixture delay should be clarified so that the connector is not included in the delay	Module output VEC is TBDs and need values	
that is removed	SuggestedRemedy	
SuggestedRemedy	See ghiasi_3ck_03_0120 and	
Change "associated with the TP1a test fixture" to from the measurement point TP1a to the beginning of the TP1a test fixture MDI connector".	Near end TP4_VEC = 7.0 dB Ear end TP5-L1 VEC = 7.5 dB	
Proposed Response Response Status O	Far end TP5-L2 VEC = 7.5 dB	
	Proposed Response Response Status O	
C/ 120G SC 120G.3.1.5 P216 L 30 # 181		
Ghiasi, Ali Ghiasi Quantum/Inphi	CI 120G SC 120G.3.2 P217 L28	# 192
Comment Type TR Comment Status X	Ghiasi, Ali Ghiasi Quantum/Inphi	
Transmitter 4th order BT4 filter BW is TBD	Comment Type TR Comment Status X	
SuggestedRemedy	Module output EH is TBDs and need values	
Replace TBD with 39.8 GHz	SuggestedRemedy	
Proposed Response Response Status O	See ghiasi_3ck_03_0120 and	
	Near end TP4 EH = 50 mV Far end TP5-L1 EH = 32 mV	
	Far end TP5-L2 EH= 20 mV	
C/ 120G SC 120G.3.1.6 P216 L 30 # 58	Proposed Response Response Status O	
Dudek, Mike Marvell		
The counter propagating signals should be asynchronous so that crossfalk is properly	C/ 120G SC 120G.3.2 P217 L28	# 191
evaluated. (in the system the counter-propagating signals will be asynchronous).	Ghiasi Ali Ghiasi Quantum/Innhi	
SuggestedRemedy	Comment Type TR Comment Status X	
Change "synchronous" to "asynchronous".	Need improve test methology for moulde ouptut compliance	
Proposed Response Response Status O	SuagestedRemedy	
· · · ·	See ghiasi 3ck 03 0120	
	Proposed Response Response Status O	

C/ 120G SC 120G.3.2

C/ 120G	SC 120G.3.2	P 217	L 30	# 182	C/ 120G	SC 12	0G.3.3.2	P 220	L 6	# 194
Ghiasi, Ali		Ghiasi Quant	um/Inphi		Ghiasi, Ali			Ghiasi Quant	um/Inphi	
Comment T Transm	<i>ype</i> TR nitter 4th order B⊺	Comment Status X T4 filter BW is TBD			Comment Far en	<i>Type</i> d eye heig	TR Co ght is TBD	mment Status X		
SuggestedF Replace	R <i>emedy</i> e TBD with 39.8 (GHz			Suggested Replac	<i>Remedy</i> ce TBD wi	ith 50 mV			
Proposed R	Response	Response Status O			Proposed I	Response	e Res	sponse Status O		
C/ 120G	SC 120G.3.2	P 217	L 50	# 144	C/ 120G	SC 12	0G.3.3.2.1	P 221	L 39	# 63
Dawe, Piers	S	Mellanox			Dudek, Mil	ke		Marvell		
Comment T	ype TR	Comment Status X			Comment	Туре Т	T Co	mment Status X		
Far-enc	d pre-cursor ISI ra	atio has not been justified a	nd doesn't fit we	II with the other C2M	The dr	aft is miss	sing the inforr	mation for how to set u	p the stressed r	eceiver input signal.
Suggested	Deller to choose		innus wisery.		Suggested	Remedy				
Remov	e the row for far-	end pre-cursor ISI ratio from	the table		Insert t	the follow	ing (modified	from 120E.3.3.2.1) "	Random jitter a	nd the pattern generator
Proposed R	Response	Response Status O			specific eye wid maxim	cation as dth for the izes the p	shown in Tab smallest eye product of eye	ble 120G–4) to result in e given in Table 120G– height and eye width.	the eye height 5 with the settin	for all three eyes and ig of the CTLE that
C/ 120G	SC 120G.3.3	P 219	L 43	# 60	it shall	r-ena pre- meet the	-cursor 151 rat	tio is measured using ti	ne metnod defin	ied in 120E.3.2.1.2 and
Dudek, Mik	e	Marvell			specifi	cation in	Table 120G-3	3. Pre-emphasis capab	ility is likely to b	e required in the
Comment T	ype E	Comment Status X			meet t	his require	or to ement". How	ever consider whether	the product of e	eve height and eve width
The refe section	erence to ERL in 120G.3.3.1 (but	table 120G-4 is directly to 7 it points directly to 120G.3.	120G.3.1.3 but tl 1.3 see other co	nere is a separate mment)	is the t eye he	best criter	ria or whether eye width" wit	it would be better to re h "that minimizes the v	eplace "that max alue of vertical	imizes the product of eye closure.
SuggestedF Either c	Remedy delete section 120	0G.3.3.1 or change the refe	rence in table 12	20G-4 to 120G.3.3.1	Proposed I	Response	e Res	sponse Status O		
Proposed R	Response	Response Status 0			C/ 120G	SC 12	0G.3.4.1	P 222	L 32	# 195
					Ghiasi, Ali			Ghiasi Quant	um/Inphi	
					Comment	Type 1	TR Co	mment Status X	·	
					Module	e stress ir	nput eye heig	ht is TBD		
					Suggested	Remedy				
					Replac Add 2r	ce TBD wi	ith 15 mV @ ndition 30 m\	nominal VEC of 8.5 dB / @ nominal VEC of 11	l dB	
					Proposed I	Response	e Res	sponse Status O		

C/ 120G SC 120G.3.4.1

C/ 120G	SC 120G.3.4.1	.1 P 224	L 12	# 61	C/ 120G	SC 120G.4.	2 P	L	# 162	
Dudek, Mik	e	Marvell			Li, Mike		Intel			
Comment 1	Гуре Т	Comment Status X			Comment	Type ER	Comment Status X			
The se referen	ctions referenced ce receiver and se	for measuring Eye height a ection 4.2 has more details	nd VEC don't hat about how to m	ave the correct easure these.	"with a had be	n effective sam en defined in 1	pling period of Tb/M with pa 62.9.3.1.1 and references t	arameter M greater herein, there is not	r than or equal to 32" need to repeat.	
Suggested	Remedy				Suggested	Remedy				
Change methoo 120E.4	e "Eye height and lology given in 12 .3." to Eye height	VEC are then measured at 0E.4.2 and vertical eye close and VEC are then measure	TP1a based or sure is measure ed at TP1a as de	the measurement d according to escribed in 120G.4.2 "	delete 32"	"with an effectiv	ve sampling period of Tb/M	with parameter M	greater than or equal to	С
Proposed F	Response	Response Status 0			Proposed i	Response	Response Status 0			
					C/ 120G	SC 120G.4.	2 P 225	L 28	# 273	
C/ 120G	SC 120G.3.4.1	.1 P 224	L 22	# 62	Hidaka, Ya	asuo	Credo Sen	niconductor		
Dudek, Mik	æ	Marvell			Comment	Type TR	Comment Status X			
Multiple perforn S <i>uggested</i> Add a ^v beginn the hig TBD df	e presentations ha hance than just the Remedy /EC min specifica in with "In both cas h and low loss cas 3 and greater than	tive shown that the VEC at a seve opening. tion to Table 120G-8. Valueses" to a separate paragrapses) and change it to "In bo the value in table 120G-8	TP1a is more cr le TBD. Move th oh (to emphasis th cases, the inp	tical for end to end ne sentence on line 22 that it applies to both but VEC is less than	whole VEC is propos accour Suggested Replac (max)"	ink performand not a function ed in sun_3ck_ t of EH (eye he <i>Remedy</i> ce "Vertical eye	closure (max)" in Table 120	eiver impairments. VEC (effective ver petter alternative, b nnel insertion loss	This is partly because tical eye closure) as because it takes e vertical eye closure	
Proposed I	Response	Response Status O			Add a A pres	sub section to o entation of a de	define effective vertical eye etail proposal will be given a	closure. It the January mee	ting.	
					Proposed I	Response	Response Status O			
C/ 120G	SC 120G.4.1	P 224	L 51	# 64						
Dudek, Mik	e	Marvell			C/ 120G	SC 120G.4.	2 P 225	L 29	# 65	_
Comment 1	Гуре Е	Comment Status X			Dudek Mil	(P	Marvell			
This se module	ction appears to b and host Tx (not	be a direct copy of 120E.3.1 calibration of the stressed	except that it o	nly applies to the	Comment	Туре Т	Comment Status X			
Suggested	Remedy				In the section	capture of the s	ignals to be analyzed there Butterworth noise filter in ac	is a BT filter with ⁻ dition.	TBD bandwidth. This	
Replac	e the text in the se	ection with "The signal leve	is are as defined	1 in 120E.3.1"	Suggested	Remedy				
Proposed F	Response	Response Status O			Consic the two	ler whether bot o filters on VEO	h filters should be used. I h and VEC for the next meet	ope to have inform	nation on the effect of	

Proposed Response Response Status **0**

Cl	120G
SC	120G.4.2

C/ 120G	SC 120G.4.2	P 225	L 31	# 275	Cl 120G	SC 120G.4.	2 P 225	L 44	# 157
Hidaka, Ya	asuo	Credo Semico	onductor		Dawe, Piers	S	Mellanox		
Comment [·]	Туре Т	Comment Status X			Comment T	ype TR	Comment Status X		
The reasonable should	ference receiver	has a receiver noise filter as h-order BT filter.	defined in 93A.	1.4.1. Hence, we	This all don't ne gDC2"	ows combination eed to design for measurement	ons such as gDC=-3, gDC2=- or, and waste time in the "for procedure.	3 that should no each valid comb	t happen, receivers ination of gDC and
On the for all د	e other hand, 1200 output signal mea	G.3.1 and 120G.3.2 specify tasurements, unless otherwise	hat a 4th-order e specified.	BT filter is to be used	SuggestedF Limit th	Remedy le combination:	s:		
Howev	ver, this otherwise	condition is not clearly state	ed in 120G.4.2		gDC2	gDC			
Suggested	IRemedy				0 or 1 2	3 to 14 6 to 14			
Add th	e following stater	nent to 120G.4.2 prior to Tak	ole 120G-9.		3	9 to 14			
When Thoms	this eye opening son low-pass resp	measurement method is use oonse in the output signal me	ed, do not use th easurements.	ne fourth-order Bessel-	Proposed R	Response	Response Status O		
Proposed I	Response	Response Status O			C/ 120G	SC 120G.4.	2 P 225	L 46	# 143
					Dawe, Piers	s	Mellanox		
C/ 120G	SC 120G.4.2	P 225	L 38	# 160	Comment T	Гуре Т	Comment Status X		
Li. Mike		Intel			Are 1 d	B steps for gD	C2 fine enough?		
Comment 3/4 is r	<i>Type</i> E not a normal num	Comment Status X erical representation			Suggested Change	Re <i>medy</i> e to 1/2 dB?			
Suggested change	<i>Remedy</i> e it to 0.75				Proposed R	Response	Response Status O		
Proposed I	Response	Response Status 0			C/ 120G	SC 120G.4.	2 P 226	L 9	# 154
					Dawe, Piers	S	Mellanox		
C/ 120G	SC 120G.4.2	P 225	L 40	# 158	Comment T	Type TR	Comment Status X		
Dawe, Pie	rs	Mellanox			The C2	M normalized	DFE coefficient magnitude lim	its need to be c	hosen carefully so that
Comment These	<i>Type</i> TR look like the CTL	Comment Status X E limits for TP1a and TP4 fa	ır end.		the refe this ma comme	erence receiver by not be a part ent about noise	 is not better than a range of licularly good way of ensuring loading. 	the spec has m	olementations. Although argin - see another
Suggested	Remedy				Suggested	Remedy			
Where	are the limits for	TP4 near end?			Start wi	ith bmax(1)=0.2	25, bmax(2:4)=0.1?		
Durant	Deenenee	Deenenee Statue			Proposed R	Pasnonsa	Response Status		

CI	120G
SC	120G.4.2

C/ 120G	SC 120G.4.2	P 226	L 9	# 196	C/ 120G	SC 120G.4	4.2	P 226	L13	# 156
Ghiasi, Ali		Ghiasi Quant	um/Inphi		Dawe, Pier	S		Mellanox		
Comment	Type TR	Comment Status X			Comment 7	Type TR		Comment Status X		
Bmax	values are TBDs				This re	cipe is a weir	d com	bination of the existing C2N	A measureme	nt method and COM,
Suggested	lRemedy				which i backpla	s a simulatior	n not a smitt	a measurement method, for er training not low power C2	Channels not	signals, and for
Limit B	31(max)<=0.3 and	d B[2,3,4](max)<=0.1			Suggested	Remedy				
Proposed I	Response	Response Status O			Unless 112G-\	someone ca /SR.	n sho	w that it works, change to th	ne CTLE/FFE	method as in OIF CEI-
					Proposed F	Response		Response Status O		
Cl 120G	SC 120G.4.2	P 226	L 10	# 145						
Dawe, Pie	rs	Mellanox			C/ 120G	SC 120G.4	4.2	P 226	L14	# 161
Comment	Type TR	Comment Status X			Li. Mike			Intel		
We ne backpl	ed minimum limitane that the mini	ts for the C2M normalized DI mum limits should be very d	E coefficient m	agnitudes. We saw for aximum limits.	Comment T	Type TR	na ref	Comment Status X		
Suggested	Remedy				0	D	ig iei	erence		
Add br	nin limits.				Suggesteal	Kemeay	1 1 +	be correct		
Proposed I	Response	Response Status O			Dramanard					
					Proposed r	Response		Response Status 0		
C/ 120G	SC 120G.4.2	P 226	L11	# 155						
Dawe, Pie	rs	Mellanox			C/ 120G	SC 120G.4	4.2	P 226	L 23	# 164
Comment [*]	Type TR	Comment Status X			Li, Mike			Intel		
In the	same way that C	OM has eta0, this measurem	nent should have	e a standardised	Comment T	Type TR		Comment Status X		
"addec	d" noise to repres	ent noise that a product mig	ht have but the r	neasurement doesn't,	"136.9.	3.1.1" is not t	he rig	ht reference.		
This ca	an be a constant	in mV or V^2/GHz.	nge of real recei	ver implementations.	Suggested	Remedy				
Furthe	r, it needs a seco	ond noise term to account for	reflections that	a product might have	Change	e it to "85.8.3	.3.5 a	nd 85.8.3.3.6"		
but the sum(A	e measurement d Vupp + AVmid +	AVlow).	o the signal, so	can de a set fatio to	Proposed F	Response		Response Status O		
Suggested	IRemedy									
Include	e two noise items	in the measurement, one a	constant in mV	or V^2/GHz, the other a						

set ratio to sum(AVupp + AVmid + AVlow). To be RSSd with the measured, equalised signal. Allow RSSing out the scope noise (as done in TDECQ) if it's significant.

Proposed Response Response Status **0**

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 17 of 47 2020-01-06 4:46:21 PM

C/ 120G SC 120G.4.	.2 P 226	L 23	# 163	C/ 120G SC 120G.4.2	P 226	L 28	# 274
Li, Mike	Intel			Hidaka, Yasuo	Credo Semico	onductor	
Comment Type E	Comment Status X			Comment Type TR	Comment Status X		
"of p2(k)" does not re	ad right			In the performance stud	y at TP1a in sun_3ck_02_11	19.pdf, eta_0 r	oise of 8.20E-9
SuggestedRemedy				v^2/GHz was added at t recever described in 120	CILE input. However, eta	a_0 noise is no eta 0 noise in f	t added in the reference
delete "of"				the scope, measurd eye	opening will be larger than t	he performanc	e study. This will creat a
Proposed Response	Response Status O			hole in the specification.			
				An easy fix is to add eta	_0 noise in the reference rec	eiver.	
C/ 120G SC 120G.4.	.2 P 226	L 24	# 166	Another option is to re-d	o the performance study with	nout eta_0 nois	e in the reference
Li, Mike	Intel			receiver in order to estim	nate the performance accura	tely, but it will t	ake time. I recommend
Comment Type TR	Comment Status X			re-doing the performanc	e study without eta_0 noise i	in the reference	e receiver.
"Np equal to 200" is r	not appripriate as UI becomes	half in second.		SuggestedRemedy			
SuggestedRemedy				Add eta_0 noise of 8.20	E-9 V^2/GHz to table 120G-s	Э.	
"Np equal to 200" to "	'Np equal to 400"			Add a step to add eta_0	noise after step b in page 22	26. h the third term	of (03A-41)
Proposed Response	Response Status 0			Pronosed Response			01 (00/141).
					Response Status 0		
C/ 120G SC 120G.4.	.2 P 226	L 24	# 165	C/ 120G SC 120G.4.2	P 226	L 33	# 66
Li, Mike	Intel			Dudek, Mike	Marvell		
Comment Type TR	Comment Status X			Comment Type E	Comment Status X		
"Dp equal to 3" is not	right as there are 3 pre-taps f	or the host		The paragraph describin	ng what the measured values	of Eye height,	Eye width and VEC are
SuggestedRemedy				is difficult to follow.			
change "Dp equal to :	3" to ""Dp equal to 4".			SuggestedRemedy			
Proposed Response	Response Status O			Consider replacing this p vertical eye closure are produces an eye height closure.	paragraph with "The measure the values obtained with the above the target value and the	ed values of ey combination of he minimum va	e height, eye width and gDC and gDC2 that lue of vertical eye
				Proposed Response	Response Status 0		

C/ 120G SC 120G.4.2

C/ 120G SC 120	G.4.2 P 226	L 33	# 167	C/ 120G	SC 120	G.4.2	P 226	L 40	# 197
Li, Mike	Intel			Ghiasi, Ali			Ghiasi Quanti	um/Inphi	
Comment Type TF	Comment Status X			Comment	Туре Т	ર	Comment Status X		
"Within the set of	combinations of gDC and gDC2 v	vith eye height m	neeting the target	gDC m	ax gian of	14 dB is	unecessary with a DFE re	ceiver and char	nnel <=16 dB
requirement, for the resulting in the sn closure are used as the meas needs to be the c whole sentences	he combination nallest vertical eye closure, the ey sured values.", VEC alone will not ombination of VEC and EH, which is not good.	e height, eye wie be a good FOM h is EVEC. Furth	dth, and vertical eye for optmization, it er, the clarity of the	Suggested 12 dB gDC. Proposed I	Remedy would be r Response	nore than I	adequete and with furthe	r study we can e	even further reduce the
SuggestedRemedy									
change the whole	e sentence to: "Within the set of co	ombinations of gl	DC and gDC2, the eye	C/ 135	SC 135	.1.4	P 98	L 42	# 223
height, eye width,	and vertical eye closure, resulting	g in the smallest	effective vertical eye	Ran, Adee			Intel		
Proposed Response	Response Status			Comment	Туре Е		Comment Status X		
r roposed Response	Nesponse Status			This pl	hrasing "53	.GBd by	one-lane" is unnatural. It s	should be either	by-1 or one-lane.
				Prefera	ably the lat	ter.			
C/ 120G SC 120	G.4.2 P 226	L 40	# 199						
Ghiasi, Ali	Ghiasi Quant	tum/Inphi		This pł	nrasing is u	ised exis	ting text, and is also awkw	ard there. It sho	ould be changed.
Comment Type TF	Comment Status X			Suggested	Remedy				
To speed up testi	ng and eliminating weired cases o	one should gDC/	gDC2 combinations	Remov	/e "by" in it	ems 2-4	(the result would be simply	y four-lane, two	lane, and one-lane).
SuggestedRemedy				Proposed I	Response	ŀ	Response Status O		
See ghiasi_3ck_0	3_0120 for table of allowed CTLE	combinations.							
Proposed Response	Response Status O			C/ 135	SC 135	.1.4	P 99	L15	# 224
				Ran, Adee			Intel		
C/ 120G SC 120	G.4.2 P 226	L 40	# 198	Comment	Туре Т		Comment Status X		
Ghiasi, Ali	Ghiasi Quan	tum/Inphi		In Figu PMA(4	re 135-2, v p) and PN	vith the n 1A(p:n) re	ew variable p, PMAs abov espectively.	e and below the	≥ 100GAUI-p should be
Comment Type TF	Comment Status X			Suaaested	Remedv	. ,			
gDC max gian of	14 dB is unecessary with a DFE r	eceiver and chai	nnel <=16 dB	Chang	e labels pe	r comme	nt.		
SuggestedRemedy				Proposed	Resnanse		Response Status C		
12 dB would be m gDC.	nore than adequete and with furthe	er study we can	even further reduce the	i ioposed i	Copulse	г			
Proposed Response	Response Status O								

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/ 135 SC 135.1.4 Page 19 of 47 2020-01-06 4:46:21 PM

C/ 135	SC 135.1.4	P 99	L15	# 30	C/ 135A	SC 135A	P 0	LO	# 139
Dudek, M	like	Marvell			Brown, Ma	tt	Huawei Techno	ologies Cana	da
Comment	t Type T	Comment Status X			Comment	Туре Т	Comment Status X		
There	e are errors in the N	MMD8 and MMD1 100G PM	A's in figure 135	-2	Some	layer diagrams	in Annex 135A should include	the RS-FEC	(Clause 91), Inverse RS-
Suggeste	dRemedy				FEC (C	Jause 152), an	d RS-FEC-Int (Clause 161).		
Chan PMA(ge the MMD8 1000 (4:p) and change th	G PMA between 100GAUI-4 ne PMA (2:n) to PMA (p:n).	and 100GAUI-F	P from PMA(4:2) to	Suggested Add lag	<i>Remedy</i> yer diagram sho	owing RS-FEC, Inverse RS-FEC	C, and RS-FE	C-Int.
Proposed	l Response	Response Status O			Proposed I	Response	Response Status O		
C/ 135	SC 135.5.7.2	P 101	L 29	# 225	C/ 135A	SC 135A.2	P 0	LO	# [111
Ran, Ade	e	Intel			Slavick, Je	ff	Broadcom		
Comment	t Type E	Comment Status X			Comment	Type TR	Comment Status X		
The b	ottom brace below	the "MEDIUM" and the text	t "50GBASE-R c	or 100GBASE-P" don't	We've	added 100GAL	JI-1 so need to update Figure 13	35A-8 to indic	cate that
seem or me	edia. Also these are	e all the families in which thi	s clause is used	HYS, NOT SPECIFIC PIMIDS	Suggested	Remedy			
saying	g.			,	Chang	e n = 2 or 4 to	n = 1 or 2 or 4		
Suggester Delete	dRemedy e the brace and the	e label.			Proposed I	Response	Response Status O		
Proposed	l Response	Response Status O			C/ 161	SC 161.3	P107	L3	# 226
					Ran, Adee		Intel		
Cl 135A Brown, M	SC 135A latt	Р 0 Huawei Tech	L 0 nologies Canada	# <u>135</u>	Comment Missing	<i>Type</i> E g period after th	Comment Status X		
Comment	t Type T	Comment Status X			Suggested	Remedy			
Some	e layer diagrams in	Annex 135A should show the	he new 100GAU	II-1 C2C and C2M in	Add a	period.			
additi	on to 100GAUI-2 a	and 100GAUI-1.			Proposed I	Response	Response Status O		
Suggestee Impor are sh	dRemedy rt portions of Anne: hown.	x 135A and include 100GAL	JI-1 where 100G	AUI-2 and 100GAUI-4					
Proposed	l Response	Response Status O							

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 161.3

C/ 161	SC	161.4		P 107	L7	7	# 116	C/ 161	SC 16	1.4	P 107	L 7	# 227
Nicholl, S	hawn			Xilinx				Ran, Adee	9		Intel		
Comment	Type	TR	Comme	ent Status X				Comment	Туре 1	Г	Comment Status X		
Since the m	CL161 aximum	sublayer o delay cor	delay is lar Istraint nee	ger than CLS	91 due to the i dated accordir	nterleaving of ngly.	f two codewords,	Delay	constraint	t of an inte	erleaved FEC are likely no	ot the same as	those of clause 91.
Suggeste	dRemed	ly 						Interle pause	aved FEC _quanta, c	is define compared	ed in the PCS of clause 11 d to 80 pause_quanta in cl	9. The delay co ause 91.	onstraint there is 313
Propo The r delay 512 n and p	osed to u naximun s at one is). A de pause_qu	update text n delay co end of the scription o uanta can	t in 161.4 f ntributed k e link) shal of overall s be found i	to following: by the RS-FE Il be no more ystem delay n 80.4 and it	C-Int sublaye than 51200 b constraints ar s references.	r (sum of tran bit times (100 nd the definitio	nsmit and receive pause_quanta or ons for bit times	l would and fo add th 2*80+6	d expect th r interleav e delay of 59=229, fa	hat the de yed FEC if the 1000 ar from 31	elay constraint is mainly af t should be twice the delay GBASE-R PCS (69 pause 13.	fected by the b / constraint of (_quanta), the n	uffering and decoding, clause 91. But even if I umbers don't match -
Propo The r * 100	ose to up new row GBASE-	odate Tabl to contain -R RS-FE0	e 80-5 to o following o C-Int	contain a nev cell values:	w row after 10	0G-BASE-R I	RS-FEC entry.	The pr 91) bu consid	oposed cl t if there is lered.	hange is l s a reaso	based on the smaller num n behind the larger numbe	ber (doubling t er of bit times ir	he constraint of clause n clause 119 it should be
* 100	00							Suggested	lRemedy				
* 512 * 161	.4							Replac numbe	ce the con ers):	ntent of th	is subclause with the follo	wing (taken fro	m clause 91, doubling all
Proposea	l Respor	ise	Respons	se Status C)			The m delays the lini descrij systen in 80.4 referee	aximum d at one er k) shall be ption of ov n delay co l and its nces.	lelay cont nd of e no more verall onstraints	tributed by the RS-FEC-In than 81920 bit times (160 and the definitions for bit	t sublayer (sum) pause_quanta times and paus	n of transmit and receive a or 819.2 ns). A se_quanta can be found
								Proposed	Response	9	Response Status O		
								C/ 161	SC 16	1.5.2.4	P107	L 35	# 228
								Ran, Adee)		Intel		
								Comment	Туре В	E	Comment Status X		
								"EEE i suppo	is unsuppo rted".	orted" is c	only used here, similar tex	t elsewhere in	this draft uses "not
								Suggested	lRemedy				
								Chang	je to "not s	supported	J".		
								Proposed	Response)	Response Status O		

C/ 161 SC 161.5.2.4

											—
C/ 161	SC 161.5.2.6	P 108	L 53	# 103	C/ 161	SC 161.5.2.	6	P 109	L 20	# 105	
Slavick, J	eff	Broadcom			Slavick, Je	eff		Broadcom			
Comment	Type TR	Comment Status X			Comment	Туре Т	Comme	ent Status X			
The s	ame alignment m	arker scheme is used for bot	th Cl91 and Cl16	51. So if one direction	The p	rocess of creatir	ng am_txma	pped is not option	al		
sends	the opposite form	nat from expected, then the l	FEC engine will	Alignment lock but will	Suggested	dRemedy					
Suggester	Remedy				Chang	ge "may then be	" to "is"				
Chan	n emedy ne steps a) throug	nh e) to be either:			Proposed	Response	Respons	se Status O			
Optior	1 (Flip-flop AM4	-19 M0,1,2 and M4,5,6):									
a) if x	<= 3 amp_tx_x<2	23:0> is set to M0, M1, and M Table 82–2 for PCS lane num	12 as shown in F	Figure 82–9 (bits 25 to	CI 464	SC 464 E 2	c	P400	1 46	# 000	_
to M4,	M5, and M6 as s	shown in Figure 82–9 (bits 57	7 to 34) using th	e values in Table 82–2		30 101.3.2.	0		L 40	# 229	
for PC	S lane number x.				Ran, Adee		Commo				
b) am c) if x	p_tx_x<31:24> = <= 3 amp_tx_x<5	am_tx_x<33:26> i5:32> is set to M4. M5. and	M6 as shown in	Figure 82–9 (bits 57 to	Comment			ent Status X	d to rood with the	a ana ao in tha number	
34) us	ing the values in	Table 82–2 for PCS lane nul	mber 0. if x >= 4	amp_tx_x<55:32> is	16384	(and possibly n	nisleading, i	t can be interprete	d as the number	¹ 1638466).	
set to 82_2 f	M0, M1, and M2 or PCS lane num	as shown in Figure 82–9 (bit	s 25 to 2) using	the values in Table							
d) am	p_tx_x<63:56> =	am_tx_x<65:58>			I his s helpfu	pace does not a I here. and it is i	ppear in the	e similar text in cla prv outside of table	use 91. The sepa s.	arator convetion is not	
Option		ommon Marker instead of Cl	82 4 MO).								
a) if x	<= 3 amp_tx_x<2	23:0> is set to CM0, CM1, an	Id CM2 as show	n in Figure 119-4 (bits	Also a	ipplies in some o	other similar	r phrases in this su	ibclause and in 1	61.5.4.3.	
23 to (0) using the value	es in Table 119-1 for PLCS la	ane number x. if	$x \ge 4 \operatorname{amp}_{tx}_{x<23:0>}$	Suggested	dRemedy					
15 Set 82–2 1	o NU, NI, and M or PCS lane num	iz as snown in Figure 82–9 (iber x.	DILS 25 LO 2) USI	ng the values in Table	Chang	ge "16 384" to "1	6384".				
b) am	p_tx_x<31:24> =	am_tx_x<33:26>			Apply	for other large r	umbers with	hin the text in this	clause.		
c) if x	<= 3 amp_tx_x<5	i5:32> is set to CM0, CM1, a les in Table 119-1 for PCS la	nd CM2 as show	wn in Figure 119-4 (bits	Proposed	Response	Respons	se Status O			
amp_t	$x_x<55:32$ is se	t to M4, M5, and M6 as show	vn in Figure 82–	9 (bits 57 to 34) using							
the va	lues in Table 82-	2 for PCS lane number x.			CI 161	SC 161 E 2	6	P100	/ 47	# 220	_
u) ani	$p_ix_x<03.50> =$	am_tx_x<00.00>				30 101.3.2.	0		L41	# 230	_
And u	pdate the paragra	aph that follows to align with	the chosen Opti	on.	Ran, Adee		Commo				
Proposed	Response	Response Status 0			Comment The "w	/ype E	COMME 57 hit blook		"257 bit" is not a	number. This is also	
					incons	sistent with the t	ext in the pr	evious line, which	does not have a	n "x" betore "66-bit	
					Also ir	n the next sente	nce and in 1	61.5.3.5.			

SuggestedRemedy

Delete the "x" occurrences listed.

Proposed Response Response Status **0**

TYPE: TR/technical required ER/editorial required GR/generation	al required T/technical E/editorial G/general	C/ 161	Page 22 of 47
COMMENT STATUS: D/dispatched A/accepted R/rejected	RESPONSE STATUS: O/open W/written C/closed Z/withdrawn	SC 161.5.2.6	2020-01-06 4:46:21 PM
SORT ORDER: Clause, Subclause, page, line			

C/ 161	SC 161.5.2.6	P 109	L 48	# 231	C/ 161	SC 161.	5.2.9	P111	L16	# 234
Ran, Adee	Э	Intel			Ran, Adee	•		Intel		
Comment	Type E	Comment Status X			Comment	Туре Е		Comment Status X		
The part repeat	aratraph starting ir ting what was alrea	n line 46 seems to be unfinis ady stated in this one.	shed. The next p	paragraph starts by	Per sty	/le manual, i	in gen	eral text, isolated numbers	less than 10 sho	ould be spelled out.
Perha	ps this paragraph	should be			Applie with no	s here and in o units follow	n seve /ing).	ral other places in this clau	se (where numb	pers are isolated, i.e.
"One (group of aligned a	nd reordered alignment mar	kers are mappe	d every 20 × 16384 66-	<i>Suggested</i> Chang	<i>Remedy</i> e "4" to to "f	our". /	Apply in other places in this	clause.	
"alignr group	ment marker group shall be inserted s	o" and is labeled am_txmap to it appears in the output st	ped<1284:0>. A ream every 819	n alognment marker 20 257-bit blocks."	Proposed	Response		Response Status O		
And th	nen the first line in	the next paragraph can be i	emvoed.							
Suggested	dRemedy									
Modify	y per comment.									
Proposed	Response	Response Status O								
C/ 161	SC 161.5.2.6	P110	L 16	# 232						
Ran, Adee	Э	Intel								
Comment In figu not tal inserte	<i>Type</i> T ire 161-3, the label ken _from_ the cou ed _into_ the streat	Comment Status X Is A and B appear within the dewords as the legend state m of symbols that creates the	amp_tx blocks s - according to he codewords.	, but these blocks are figure 161-5 they are						
Also, t	the labels do not a	ppear in the tx_scrambled a	rea which conta	ains the real traffic.						
Suggested Chang	dRemedy ge the legend to ha	ave "to FEC codeword A" an	id "to FEC code	word B" .						
Contir	nue the labeling int	o symbol in columns 32 and	1 33.							

Proposed Response Response Status **0**

C/ 161 SC 161.5.2.9

C/ 161	SC 161.5.2.9	P 111	L16	# 233
Ran, Adee		Intel		

Comment Type T Comment Status X

If we create four FEC lanes then a PMA(4:1) will be required to create a single-lane PMD interface. This PMA will bit-mux symbols from the four lanes.

Bit muxing of four lanes significantly weakens the RS-FEC in case of error bursts, since bursts are always going to impact more than one symbol. 8 errors in a block of 16 bits (8-UI burst) can corrupt 4 FEC symbols in each of the codewords (A/B). Without bit-muxing, similar corruption would require a bursty block of more than 70 bits (35 UI). This burst length is much less liklely, so the probability of uncorrected codewords (and FLR) will be dramatically lower for the same SNR. Alternatively, the same FLR can be achieved with lower SNR, enabling power reduction.

Assuming this new FEC is intended only for single-lane 100G PHYs and that there are no lower-rate AUIs _below_ it, using a single FEC lane (serial output) instead would prevent this degradation of the FEC coding gain. This can be done with the current definitions by simply changing the number of FEC lanes from 4 to 1.

Even if we do want to support bit-muxing below the FEC, e.g. for the near future devices that may not have 100G I/O, we should consider not imposing a large performance penalty for all future products.

We can consider having two modes of the FEC, with either 4 or 1 FEC lanes, in both directions, and choosing between them in auto-negotiation. The additional complexity should be much lower than having both clause 91 and clause 161.

We can also apply a similar choice for the clause 91 RS-FEC if desired.

SuggestedRemedy

Add a management variable to control the number of FEC lanes, either 4 or 1. Add a bit in the AN page for supporting 1 FEC lane - if both sides advertise it, then 1-lane mode will be used (symmetrically).

P112

Intel

Proposed Response Response Status O

C/ 161 SC 161.5.2.10

- -

Ran, Adee

Comment Type E Comment Status X

The number "256" appears on the boundary of the block "tx_scrambled",

SuggestedRemedy

Move the number to the interior of the box.

Proposed Response Response Status **0**

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

L13

235

C/ 161	SC 161.5.3.1	P113	L 7	# 106
Slavick, Je	əff	Broadcom		
Comment	Type TR	Comment Status X		
FEC s	ynchronization F	SM is not Figure 161-6		
Suggested Chang	<i>IRemedy</i> ge "161-6" to "91-	-8"		
Proposed	Response	Response Status O		
C/ 161	SC 161.5.3.3	<i>P</i> 113	L 26	# 76
Gustlin, M	ark	Cisco System	IS	
Comment	Туре Т	Comment Status X		
802.30 of the	cd added in subc FEC performanc	lause 91.5.3.3.1 FEC degrad e. Add this into clause 161.	ed SER (optiona	al) to allow monitoring
Suggested	Remedy			
Add in directl	i the equivalent o y.	of 91.5.3.3.1 and its related te	xt (variables etc	;), either by reference or
Proposed	Response	Response Status O		
C/ 161	SC 161.5.3.3	<i>P</i> 113	L 34	# 236
Ran, Adee	e	Intel		
Comment	Туре Е	Comment Status X		
A cros	s-reference to th	e subclause which defines "b	ypass error indi	ication" would be helpful.
Suggested Insert	lRemedy "(see 161.5.3.3. ⁻	1)" between "If bypass error ir	ndication" and "i	s not supported".
Proposed	Response	Response Status 0		

Cl	161	
SC	161.5.3.3	

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C/ 161	SC 161.5.3.3	P 113	L 36	# 81	C/ 161	SC 1	161.5.3.3.1	Р	113	L 42	# 237
Koehler, D	Daniel	MorethanIP			Ran, Adee			Inte			
Comment	Type TR	Comment Status X			Comment	Гуре	т	Comment Statu	5 X		
Does	not reflect that the	ere are 2 codewords to perform	n error indicatio	n for.	802.3c	d addeo	d the FEC I	Degraded SER as	an optio	nal feature in 9	1.5.3.3.1. Do we intend
Suggested	dRemedy				to add	it in this	s draft too?				
replac	e 'the codeword' w	vith 'the two associated codew	vords'		I am no	ot sure	this feature	e is useful, so I an	fine with	not having it ir	n this clause. It can be
Proposed	Response	Response Status O			more u as was This ta	seful to propos sk force	o monitor co sed in ran_(e may want	odewords instead 083017_3cd_adh t to reconsider ad	(classify oc) and th ding it as	based on numb his method is be a standard feat	per of errors corrected, eing used in practice. ture.
C/ 161	SC 161.5.3.3	P113	L 38	# 104	Suggested	Remed	У				
Slavick, Je	eff	Broadcom			lf degra here, a	aded SI Ind the	ER is to be correspond	supported, the de ling variables and	escription MDI map	(based on 91.5 ppings should b	5.3.3.1) should be placed e added.
There	are 40 257b block an uncorrectable	ks that go into the FEC engine codeword occurs, it needs to n	per pair of FE nark across 40	C codewords. So 257b blocks.	If code be use	word m d as ba	onitoring is seline (edit	s desired, the prop torial changes suc	osal in ra h in clau	an_083017_3cd se numbers, et	l_adhoc slides 8-14 can c., will be required).
Suggested Chang	dRemedy ge "20th" to "40th"				Proposed I	Respon	se	Response Status	0		
Proposed	Response	Response Status 0			C/ 161	SC 1	161.5.3.3.1	Р	113	L53	# 83
					Koehler. D	aniel		Mor	ethanIP		
C/ 161	SC 161 5 3 3	P113	/ 39	# 82	Comment	Гуре	т	Comment Statu	S X		
Koehler, D	Daniel	MorethanIP	200	" 52	The rea hi_ber	action c instead	of hi_ser sh using it in	ould cause error i Fig. 161-6.	ndication	as described ir	n 91.5.3.3 to trigger PCS
Comment	Type TR	Comment Status X			Suggested	Remed	y				
As it is are 2 (s two codewords t codewords	he last 257-bit is the 40th not 2	20th. Also need	is to reflect that there	Keep to	ext of lin	ne 53 but a	dd new sentence	like:		
Suggester	dRemedy				While I	ni_ser is ed<1.0	s asserted,	the Reed-Solomo	on decode	er shall cause s t is delivered to	synchronization header
replac to 11.	e 'last 11.' with	'last (40th) 257-bit block in the	e two associate	d codewords are set	a value receive	e of 00 c ed pack	or 11. As a ets. When	result, the PCS s Auto-Negotiation	ets hi_be is suppor	r=true, which in ted and enable	hibits the processing of d, assertion of hi_ber
Proposed	Response	Response Status O			Proposed P	Respon	se	Response Status	0		
					1 1000001	00000			U		

C/ 161 SC 161.5.3.3.1

-										
C/ 161	SC 161.5.4.1	P 115	L 10	# 238	C/ 161	SC 1	61.5.4.3	P117	L1	# 75
Ran, Adee	Э	Intel			Gustlin, M	lark		Cisco Systems	3	
Comment	Туре Е	Comment Status X			Comment	Туре	т	Comment Status X		
"Com	prised on" is argua	able language. 802.3bs used	d "composed of"	, other projects used	Repla	ce figure	161-6 wi	th a reference to figure 119-1	3.	
"conta diagra	ains" or omitted th	is paragraph altogether (sinc	e 21.5 already s	states that state	Suggested	dRemedy				
ulagra	inis take piecedei				Add th	nat some	signals o	hange name: align_status ->	fec_align_sta	atus, pcs_enable_status -
l sugg	est "composed of	".			> fec_	enable_s	tatus. If	this change is not made, then	there is one	correction to be made in
Suggestee	dRemedy				0-101-0		ance or p		enable_deske	W.
Chang	ge "comprised" to	"composed".			Proposed	Respons	е	Response Status O		
Proposed	Response	Response Status 0								
					C/ 161	SC 1	61.5.4.3	P117	L 2	# 84
C/ 161	SC 161 5 4 2	1 P115	/ 25	# 117	Koehler, D	Daniel		MorethanIP		
Nicholl SI	bowp	Viliny	23	π 117	Comment	Туре	т	Comment Status X		
Comment Need	<i>Type</i> ER to remove some e	Comment Status X editorial text related to cw_ba	ad		hi_ser 161.5. Claus	should b 3.3.1 (se) 91 RSF	e remove e other c EC does	ed, not to cause LOSS_OF_A omment) relying on the hi_be	LIGNMENT. r feature of th	Its behavior is defined in ne PCS same as the
Suggested	dRemedy				Suggested	dRemedy				
Remo	ve the text:				remov	/e '+ hi_se	er' at top	of figure.		
No cw	_bad variable, ins	stead we have:			Proposed	Respons	е	Response Status O		
Proposed	Response	Response Status O			,	,		•		
					C/ 161	SC 1	61.7.3	P122	L 6	# 239
C/ 161	SC 161.5.4.2.	3 P116	L 3	# 78	Ran, Adee	e		Intel		
Gustlin, M	lark	Cisco System	IS		Comment	Туре	т	Comment Status X		
Comment Remo	<i>Type</i> T ve redundancy fro	Comment Status X om counters, make reference	es instead.		Item " for CR the pu	*KR1" is i 81/KR1 Pl irpose of	marked " HYs), an this item	optional", but there is no anot d no PICS item is defined as	ther option (th conditional o	nis sublayer is only used n this feature. I don't see
amp_l 119.2.	bad_count - refer .6.2.4	to 91.5.4.2.3, cwA_bad_cou	nt and cwB_bad	l_count, refer to	Suggested Remo	<i>dRemedy</i> ve item " [•]	*KR1".			
Proposed	Response	Response Status 0			Proposed	Respons	е	Response Status 0		

C/ 161 SC 161.7.3

C/ 161	SC 161.7.4.2	P 124	L 19	# 240	C/ 162	SC ·	162.1	P125	L 35	# 242
Ran, Adee)	Intel			Ran, Adee			Intel		
Comment	Туре Т	Comment Status X			Comment T	Гуре	Е	Comment Status X	(
The m corres	ethod of indicati ponding PICS ite	ng errors has a "shall ensure em.	e" (161.5.3.3) but t	here is no	Table 1 as requ	62-1 is iired by	s carried the style	over into the next page, e manual.	but the continuation	is not marked as such,
Compa Corrup	are to item RF8 i ots 66-bit block s	in clause 91 which states "En ynchronization headers for	rror indication fund	tion 91.5.3.3	Also in	Table	162-3 an	d perhaps other tables	will turn out to be bro	ken in future drafts.
uncorr	ected errored co	odewords ()			There i	s also : the last	a custom t draft or	ary "thin line at bottom" to publication (it is not r	rule. We can perhap	os defer applying this
Suggested	IRemedy					Romod	hy analised by			
Add P	ICS item based	on the quoted RF8.			Add the	e "conti	y inued tab	ble" option for all tables.		
Proposed	Response	Response Status O			Proposed F	Respon	se	Response Status)	
					. Topocou I	1000001				
C/ 162	SC 162.1	P 125	L 27	# 241	C/ 162	SC ·	162.1	P125	L 45	# 137
Ran, Adee) 	Intel			Brown, Ma	t		Huawei	Technologies Canad	
Comment	<i>lype</i> T	Comment Status X		t This is the first times	Comment 7	 Tvne	т	Comment Status X		
The di which	fference betweet one should be u	n the two is not described an sed. Compare with clause 1	id readers may fin 10 (100.1 Overviev	d it hard to decide w) where the FEC	In Tabl Option	e 162-1 al in the	, the Cla second	ause 161 RS-FEC-Int is column.	specified as TBD rat	her than Required or
choice	affects the cabl	e reach.			Suggested	Remed	'y			
The di	fferences betwee	en the FEC sublayers may s	eem obvious for p	articipants of the task	Specify	RS-FE	EC-Int as	either "Optional" or "Re	equired".	
force b	out we are writing	g the standard for other peop	le too.	·	Proposed F	Respon	se	Response Status)	
In this	clause we shoul	ld indicate that the interleave	d FEC provides b	etter FEC protection						
but ha	s a larger delay	associated with it. It would be	e good to also rela	te the choice to the	CI 162	SC /	162 1	P125	/ 45	# 133
auto-n	egotiation.				Brown Ma	+ 30	102.1		Tachnologias Canad	# 155
Also a	pplies to clause	163.			Commont 7	ll Typo	т		,	la
Suggested	lRemedy				Tables	ישט 162-1	list two F	EC types (RS-EFC and	RS-FFC-Int) that mi	ght be used by a
Add te when f	ext in the overvie forming a 100GE	w that describes the different BASE-CR1 PHY, and note th	ces between RS-F at the choice betw	EC and RS-FEC-Int reen the two can be	100GB that se	ASE-C	R1 PHY, is made,	, but never explains the nor the implications (e.	criteria for selecting of g., conversion from F	one or the other, how RS-FEC to RS-FEC-Int).
Dranaaad	n auto-negotiatic Deenenee				Suggested	Remed	'y			
Proposed	Response	Response Status 0			Add a selecte	subclau d, and	ise to ex the impli	plain the relationship of cations of the selection	the two FEC types, h	now an FEC type is
					Proposed F	Respon	se	Response Status C)	
TYPE: TR/ COMMEN ^T SORT ORI	/technical require T STATUS: D/dis DER: Clause. St	ed ER/editorial required GR spatched A/accepted R/reje ubclause, page. line	/general required ected RESPON	T/technical E/editorial G/g SE STATUS: O/open W/wi	general ritten C/closed	Z/with	Idrawn	(C/ 162 SC 162.1	Page 27 of 47 2020-01-06 4:46:22 PN

C/ 162	SC	162.1	P 126	L15	# 31	C/ 162	SC	C 162.5	P 129	L 45	# 243
Dudek, M	like		Marvell			Ran, Adee	9		Intel		
Comment	Туре	т	Comment Status X			Comment	Туре	т	Comment Status X		
The ir (544,5	nverse 514)	RS-FEC is	also required to change betw	een RS-FEC (528,514) and RS-FEC	The as where	ssume the lo	ed maximu ongest mee	m one way delay through the dium was a 3 meter cable. No	medium was 20 w with 2 meters) ns in clause 136, the number should be
Suggeste	dReme	dy				scaled	l dowr	n to 14 ns.			
Add to	o footn	ote b. "and	between RS-FEC (528,514)	and RS-FEC (544,514)"	There	is a n	notivation	for decreasing the assumed ca	able medium de	lay - it would allow
Proposed	Respo	nse	Response Status O			more o PMD i previo	delay mpler usly d	in the PMI mentations lefined PH	D, which is currently left with o , with no penalty to upper laye Ys.	nly 20.96 ns. Th rs which still as	his can help with some sume 40.96 ns as in
C/ 162	SC	162.2	P127	L 53	# 32	This c	an als	so be appli	ed to the specifications of bac	kplane PMDs. /	Although the physical
Dudek, M	like		Marvell			length	of the	e backplan	e is not specified, the existing	medium delay	matches the delay for
Comment	Туре	т	Comment Status X			cable : So a s	assen imilar	nblies, and change sl	I the same numbers were use hould be made in 163.5	d in previous ba	ckplane/cable PMDs.
FEC i 200 a	s also nd 400	used in "FE G PCS.	C symbol error rate" etc. whe	ere it also refers	s to the FEC within the	These	chan	iges should	d also be applied in the new ro	ows in tables 80 [.]	-5 and 116-5.
Suggestee	dReme	dy									
Add to 200G	o the se BASE-	entence "fo CR2 and 4	r 100GBASE-CR1 or the RS- 00GBASE-CR4".	FEC within the	Clause 119 PCS for	Suggested Chang	<i>Rem</i> e ge the	edy maximum	delay through the medimum f	from "20 ns" to '	'14 ns" here, in 163.5,
Proposed	Respo	nse	Response Status 0			and in	the n	ew rows ir	tables 80-5 and 116-5.		
			-			Proposed	Resp	onse	Response Status O		

C/ 162 SC 162.5

Ran, Adee Intel Ran, Adee Intel Comment Type T Comment Status X Ran, Adee Intel S02.3cd added management registers for the control/status fields. The LP (Link Partner) registers are mapped in tables 162-5 and 162-6 so the link partner's training messages can be observed. I wonder why lane-by-lane Tx disable is optional, when AN is mability to disable all but one lane. A PMD in a PHY that supports include implementation of LBLTD in some way. However, The PAM4 PMD training LD (Local Device) control and PAM4 PMD training LD status registers, defined in 45.2.1.137a and 45.2.1.138a respectively (Register 1.1120 through 1.1123 and Register 1.1420 through 1.1423), do not appear in tables 162-5 and Ran, Adee Intel Digging into history - LBLTD was mandatory in 10GBASE-KX4 I subsequent multi-lane PMDs I don't know the reasoning. It se implementation should be optional, but LBLTD should be mandatory. Digging into history - LBLTD was mandatory in 10GBASE-KX4 I subsequent multi-lane PMDs I don't know the reasoning. It se implementation should be optional, but LBLTD should be mandatory.	andatory and requires the s AN as specified must but optional in all
Comment Type T Comment Status X 802.3cd added management registers for the control/status fields. The LP (Link Partner) registers are mapped in tables 162-5 and 162-6 so the link partner's training messages can be observed. I wonder why lane-by-lane Tx disable is optional, when AN is m ability to disable all but one lane. A PMD in a PHY that supports include implementation of LBLTD in some way. However, The PAM4 PMD training LD (Local Device) control and PAM4 PMD training LD status registers, defined in 45.2.1.137a and 45.2.1.138a respectively (Register 1.1120 through 1.1123 and Register 1.1420 through 1.1423), do not appear in tables 162-5 and Digging into history - LBLTD was mandatory in 10GBASE-KX4 I subsequent multi-lane PMDs I don't know the reasoning. It se implementation should be optional, but LBLTD should be mandatory.	andatory and requires the s AN as specified must but optional in all
 802.3cd added management registers for the control/status fields. The LP (Link Partner) registers are mapped in tables 162-5 and 162-6 so the link partner's training messages can be observed. However, The PAM4 PMD training LD (Local Device) control and PAM4 PMD training LD status registers, defined in 45.2.1.137a and 45.2.1.138a respectively (Register 1.1120 through 1.1123 and Register 1.1420 through 1.1423), do not appear in tables 162-5 and I wonder why lane-by-lane Tx disable is optional, when AN is mability to disable all but one lane. A PMD in a PHY that supports include implementation of LBLTD in some way. 	andatory and requires the s AN as specified must but optional in all
However, The PAM4 PMD training LD (Local Device) control and PAM4 PMD training LD status registers, defined in 45.2.1.137a and 45.2.1.138a respectively (Register 1.1120 through 1.1123 and Register 1.1420 through 1.1423), do not appear in tables 162-5 and bigging into history - LBLTD was mandatory in 10GBASE-KX4 subsequent multi-lane PMDs I don't know the reasoning. It se implementation should be optional, but LBLTD should be mandatory in 10GBASE-KX4 subsequent multi-lane PMDs I don't know the reasoning. It se	but optional in all
162-6. These registers allow control and observation of the local messages (visibility is lane signal detect in 162.8.5.	ems to me that the MDIO atory, similar to the lane-by-
I am considering maintenance request for making it mandatory These registers should be R/W or RO as listed in clause 45.	in existing PMD clauses sed in 802.3ck.
The LD mappings are also missing from clause 136, this should be considered in Applies also to 163.8.9.	
maintenance. SuggestedRemedy	
SuggestedRemedy Remove the (optional) in the heading and change the text to ma	ake it mandatory.
Add rows corresponding to registers in subclauses 45.2.1.137a and 45.2.1.138a.	
Proposed Response Response Status O	
"If the MDIO interface is implemented, then PMD_transmit_disa the corresponding PMD transmit disable i bit as specified in 45.	able_i shall be mapped to
Cl 162 SC 162.8.1 P136 L 2 # 33 Proposed Response Response Status O Dudek, Mike Marvell Marvell <td></td>	
Comment Type E Comment Status X The cable assembly specifications are in 162.11 not 162.10	
SuggestedRemedy Change the clause cross-reference from 162.10 to 162.11. Also on line 3 and line 19	
Proposed Response Response Status O	

C/ 162 SC 162.8.7

	SC 162.8.11	P 138	L 22	# 246	C/ 162	SC 162.8.11	1 P138	L32	# 247		
Ran, Adee		Intel			Ran, Adee	•	Intel				
Comment	Туре Т	Comment Status X			Comment	Туре Т	Comment Status X				
The lis except	t of exceptions to t ions:	he PMD control definition i	n 136.8.11 shou	ld include two more	The PM	MD control func	ction as currently specified is	only effective du	ring start up.		
In clau betwee	se 136, Table 136 en c(-2) and c(+1),	–9 and Table 136–10 defin but don't have an encoding	e the encoding f g for c(-3) which	or coefficient selection, is required in 162.	Operat change Tx equ link is u	tion across a wi es in channel a lalization, prefe up.	ide range of temperatures in a nd device characteristics that rably without link flaps. It wou	some environme may require occ ld be good to en	nts may cause slow casional changes of the able doing it while the		
Also th for c(-2	e text in 136.8.11. ?) to c(+1) but does	2.4 "Coefficient request" de s not mention c(-3).	efines the effeco	t of "no equalization"	In Data	a mode, the sta	artup (training) protocol is inac	tive. We can spe	ecify that when		
Suggested	Remedy				mr_trai	ining_en set to	0, instead of exchanging the will be written to and read from	control and statu	IS fields through the		
Add the	e following items:				impler	nented. Manage	ement can relay the control a	nd status fields to	o/from the link partner		
d) The	Coefficient select	bits in the Control field (Ta	ble 136–9) and t	he Coefficient select	through	n nigher level n	nessaging (such as LLDP).				
echo b selecti	its in the Status fie ng c(-3).	eld (Table 136–10) have an	additonal comb	ination, 1 0 1, for	A deta subcla	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).					
e) The	"No equalization"	value (see 136.8.11.2.4) of	c(-3) is 0.		Suggested	Remedy					
Proposed I	oposed Response Response Status O				Add the following paragraphs:						
					When optiion state, u with the	the training var ally continue us using MDIO reg e link partner in	riable is set to false (see 136. sing Equalization control as d gisters or alternative methods nstead of the training frame sp	3.11.7.1), the PM efined 136.8.11.4 to exchange cor pecified in 136.8.	ID control function may 4 in the SEND_DATA htrol and status fields 11.1.		
					NOTE- Modula Coeffic	When training ation and preco cient request bit	g is false, any update to varial oding request bits or the Initial ts to "No equalization", can be	les correspondir condition reques disruptive to a	ng to a change of the st bits, or to setting the network.		
					Proposed I	Response	Response Status O				
					C/ 162	SC 162.9.3	P 139	L 6	# 168		
					Ghiasi, Ali		Ghiasi Quar	tum/Inphi			
					Comment Transm	<i>Type</i> TR nitter BW is TB	Comment Status X				
					<i>Suggested</i> Replac	<i>Remedy</i> ce TBD with 39.	.8 GHz				

C/ 162 SC 162.9.3

-					-				
C/ 162	SC 162.9.3	P 139	L 27	# 3	C/ 162	SC 162.9.3	P140	L 8	# 248
Mellitz, R	ichard	Samtec			Ran, Adee		Intel		
Comment	t Type TR	Comment Status X			Comment 7	<i>уре</i> т	Comment Status X		
ERL	of 11 dB seems to	capture most of posted cha	nnel data.		The ma	aximum step s	size for c(1) is 0.05, while for	all other coefficie	ent it is 0.02. From
Suggeste In tab	edRemedy ble 162-8 change E	ERL(min) to 11 dB as sugges	sted on slide 5 of	f mellitz 3ck 04 1119.	implem than all	entation point others.	of view, there is no benefit fi	rom having c(1) v	with a larger step size
Proposed	Response	Response Status O			Training algorithms can be made simpler if the steps are equal for all coefficients, so that decrements/increments in c(1) have the same effect on signal swing as other coefficients.				
					Suggestedl	Remedy			
C/ 162	SC 162.9.3	P 139	L 31	# 6	Change	e step size lim	its for c(1) to align with all ot	her coefficients.	
Mellitz, R	ichard	Samtec			Proposed F	Response	Response Status 0		
Comment	t Type TR	Comment Status X							
TBD Nv=2	for Vf min may be 00 is accepted for	determined since the baselin Vf then Vf min will be Av mi	ne for device pao nus dc host and	ckage was accepted. If HCB losses.	C/ 162	SC 162.9.3	<i>P</i> 140	L 9	# 35
Suggeste	dRemedy				Dudek, Mik	e	Marvell		
Set th mellit	ne TBD Transmitte z 3ck 01b 0919	er steady-state voltage, vf (m	in.) to 0.387 V a	as suggested for Av in	Comment 7 The ab	<i>ype</i> T s step size for	Comment Status X	.05 which is diffe	erent from the other taps
Proposed	l Response	Response Status 0			but does match the value in the COM table 102-0 is 0.00 which is unrelefit from the other taps 162.9.3.1.4. It is 0.02 in the C2C spec in 120F				
					Suggestedl	Remedy			
C/ 162	SC 162.9.3	P 139	L 34	# 8	Either (Change 0.05 t	o 0.02 here and in table 162-	15 and in 162.9.	3.1.4 change "-3,-2 or -1"
Mellitz, R	ichard	Samtec			to "-3,-2 Or Ad	2,-1 or 1" (and d an extra nai	d make the equivalent chang ragraph in 162 9 3 1 4 stating	e in clause 163 s I "When coef, se	see separate comment)
Comment	t Type TR	Comment Status X			normali	zed transmit	equalizer coefficient c(coef_s	el) correspondin	g to a request to
TBD for the peak value of p(k) may be determined since the baseline for device package was accepted. If Nv=200 is accepted. If The peak value of p(k) in terms Vf may be determined based on the collection of posted channels as suggested in					"increment" shall be between 0.005 and 0.05, and the change in the normalized transmit equalizer coefficient c(coef_sel) corresponding to a request to "decrement" shall be between –0.05 and –0.005.				
mellit	mellitz_3ck_01b_0919.					Response	Response Status 0		
Suggeste	dRemedy								
Chan	ge entry for the L	inear fit pulse peak (min.) pe	ak value to 0.39	7 × vf.					
Proposed	l Response	Response Status 0							

C/ 162 SC 162.9.3

C/ 162	SC 162.9.3	P140	L 10	# 249
Ran, Adee		Intel		

Comment Type T Comment Status X

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 allowed 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.

The benefit from this finer resolution has not been analyzed thoroughly enough to justify such an increase in implementation burden and power consumption.

SuggestedRemedy

Change the (max.) values for c(-3) to c(0) to 0.024 (which can be met with a DAC capable of 256 output values).

L 20

251

Proposed Response Response Status O

C/ 162	SC 162.9.3	P 140
Ran, Adee		Intel
Comment Ty	me T	Comment Status X

SNDR (min) is currently TBD.

As an initial proposal for this value, I suggest re-using the values from 802.3cd: 32.5 dB for backplane/C2C and 32.2 dB for cable assembly.

The effect of SNDR is known so further analysis is not required. These values are more challenging to meet and to measure at 53 GBd, but it should not be impossible.

SuggestedRemedy

Change SNDR from TBD to values in the comment, here and in 163.9.2.

Proposed Response Response Status O

C/ 162	SC 162.9.3	P 140	L 20	# 250
Ran, Adee		Intel		

Comment Type T Comment Status X

The reference for SNDR (min) is 120D.3.1.6. The method there includes a reference to the linear fit procedure in 120D.3.1.3, which has $D_p = 2$ and coefficient calculations (in 92.8.3.5.1) suitable for a 3-tap equalizer. An exception should be made to use the fitting procedure in 162.9.3.1.1 (which is suitable for a 5-tap equalizer) instead. A table footnote can be used.

A similar change may also be required in clauses 136 and 137 (maintenance).

SuggestedRemedy

Add the following sentence as a footnote to the referenced subclause:

The measurement uses the method described in 120D.3.1.6 with the exception that the linear fit procedure in 162.9.3.1.1 is used.

Proposed Response Respo	ise Status O
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C/ 162	SC 162.9.3		P 140	L 24	# 252
Ran, Adee			Intel		
	_	_			

Comment Type T Comment Status X

Maximum for even-odd jitter is specified here. This is mainly required for transmitters which are driven by a half-rate clock.

For >53.1 GBd signaling, a >26.3 GHz clock is needed to drive the transmitter clock in halfrate. This is a high frequency for current CMOS processes and implementations with quarter-rate clocking (13.3 GHz clock) should be considered.

With quarter-rate signaling, even if the even-odd jitter (mismatches between phases 0:2 and between 1:3) is controlled to meet the specifications, the quadrature jitter (mismatches between phases 0:1 and between 2:3) can be large, and the current even-odd jitter measurements do not cover this impairment.

We need to limit quadrature jitter so a similar portion of the UI.

New specification for quadrature jitter will be provided in future contributions. I assume it will be similar to the EOJ measurment with slight modifications. For the time being the measurement method can be left as TBD.

SuggestedRemedy

Add a line for "Quadrature jitter, Pk-Pk", with subclause reference TBD, and value 0.019 UI.

Proposed Response Response Status **O**

TYPE: TR/technical required ER/editorial required GR/generation	C/ 162	Page 32 of 47	
COMMENT STATUS: D/dispatched A/accepted R/rejected	RESPONSE STATUS: O/open W/written C/closed Z/withdrawn	SC 162.9.3	2020-01-06 4:46:22 PM
SORT ORDER: Clause, Subclause, page, line			

C/ 162	SC 162.9.3	P 141	L 39	# 253		C/ 162	SC 1	62.9.3.1.2	P14	42 L	. 38	# 4
Ran, Adee		Intel				Mellitz, Ric	hard		Samt	ec		
Comment	Туре Т	Comment Status X				Comment 7	Туре	TR	Comment Status	Х		
The ac 1. D_p	ldition of coefficie should be chang	ent c(-3) requires several ch ged from 3 to 4	anges in the fitting	g procedure:		The dependence of Vf on Nv is has proved to be confusing. Since we specify that ratio of Pmax to Vf there really is no good reason not to make Nv more like a real steady state voltage. See Mellitz 3ck 01b 0919 for reference.						
2. The	dimensions of R	_m should be M*N_p-by-5 (instead of by-4)			Suggestedl	Remedy	/				
4. In e	quation 162-1, th	e left-hand term should be l	R_m(j, i+4) (instea	d of i+3).		Add ex	ception	in the exce	eption list for this su	ubclause settin	g Nv to 200 fo	or the
Suggested	Remedy					determ Refer to	ination (of Vf. • "136 9 3 ′	1 Transmitter outpu	it waveform" · (Change k = -2	? to 1 to k = -3 to 1
Chang	e per comment.					Refer	to claus	e "120D.3.	1.3 Linear fit to the	measured way	veform": Cha	nge Dp= 3 to Dp=
Proposed I	Response	Response Status O				4 See Me	ellitz 3c	k 01b 091	19 for reference			
						Proposed F	Respons	se	Response Status	0		
C/ 162	SC 162.9.3.1	.1 <i>P</i> 141	L 50	# 34						0		
Dudek, Mil	ke	Marvell				C/ 162	SC 1	629312	P1	12 /	42	# 7
Comment	Туре Т	Comment Status X				Mellitz Ric	hard	02.3.3.1.2	Samt		- 72	<i>π</i> 1
There	are three pre-cur		Comment 1	Tvpe	TR	Comment Status	x					
SuggestedRemedy Change "-2 to 1" to "-3 to 1" Proposed Response Response Status O						TBD fo was ac determ mellitz	or the pe cepted. ined bas 3ck 01	ak value of If Nv=200 sed on the b 0919.	f p(k) may be deter) is accepted. If The collection of poste	mined since th e peak value of d channels as	e baseline for f p(k) in terms suggested in	r device package Vf may be
						Suggested	Remedy	/				
C/ 162	SC 162.9.3.1 .	2 P142	L 38	# 5		Change	e to line it equali	42 to: The izer initial c	e peak value of p(k) condition has been	shall be greate set to preset 1	er than 0.397 (no equalizat	× vf after the ion). See slide 15
Comment	Type TR	Comment Status X				mellitz_	_3CK_01	b_0919	-	-		
TBD fc Nv=20	or Vf min may be 0 is accepted for	determined since the basel Vf then Vf min will be Av m	ine for device pac inus dc host and I	kage was accepted. ICB losses.	. If	Proposea F	respons	se	Response Status	0		
Suggested	Remedy					C/ 162	SC 1	62.9.3.1.2	P14	42 L	42	# 254
Set the	e TBD Vf min 0.3	87 V as suggested for Av in	mellitz_3ck_01b_	_0919		Ran, Adee			Intel			
Proposed I	Response	Response Status O				Comment 7 Missing	<i>Type</i> g space	E after v_f	Comment Status	X		
						<i>Suggestedl</i> Add sp	Remedy ace.	/				
						Proposed F	Respons	se	Response Status	0		

C/ 162 SC 162.9.3.1.2 Page 33 of 47 2020-01-06 4:46:22 PM

C/ 162	SC 162.9.3.1.3	P 143	L 5	# 255	C/ 162	SC	162.9.3.1.5	<i>P</i> 143	L 39	# 36
Ran, Adee	e	Intel			Dudek, Mik	æ		Marvell		
Comment	Туре Т	Comment Status X			Comment 1	Гуре	т	Comment Status X		
The to coeffic	blerances in Table cient in Table 162–	162–9 should correspond to 8.	o the maximum	step size of each	The ma COM ta	ax/min able 16	values in tł 62-15	his section need to match t	hose in table 162	2-8 and those in the
Currer may a	ntly all should be +/ also be 0.02).	/-0.02 except c(1) which is	0.05 (but subjec	t to another comment	Suggestedl on line	Remeo 39 cha	<i>dy</i> ange -0.25 t	to -0.2, on line 42 change	-0.25 to -0.34, or	n line 46 change 0.1 to
Suaaested	, dRemedv				0.12.					
Chanc	ge all values after th	he +/- signs per comment.			Proposed F	Respoi	nse	Response Status 0		
Proposed	Response	Response Status 0								
, opeced					C/ 162	SC	162.9.3.1.5	<i>P</i> 143	L 49	# 258
CI 162	SC 162 9 3 1 4	P1/3	/ 15	# 256	Ran, Adee			Intel		
Bon Ador	00 102.0.0.1.4	Intol	215	# 230	Comment 7	Гуре	т	Comment Status X		
Commont					This pa	aragrap	ph specifies	the maximum value of c(-	3) when it is set t	o the minimum setting.
"\\/bor	<i>Type</i> I	Comment Status	and 0.02"		But the	text s	avs			
viller	ii coei_sei is –3, –2	1, 01 - 1, () between 0.005	anu 0.02		"and c(-2) ha	aving receive	ed sufficient "increment" re	quests so that it i	s at its maximum
Accord	ding to Table 162–	8 c(0) has the same maxim	ium step size. c	(1) subject to another	value" `	,	0			
Suggostor	dDomody				which is	s inco	rrect.			
Chanc	no "or 1" to " 1 or	- ∩ "			Suggestedl	Reme	dy			
Chang	ge 01-1 to -1, 01	0.			Change	e to	-			
lf my o	other comment is a	ccepted, also add 1 to the	list.		"and c	−3) ha	aving receive	ed sufficient "decrement" re	equests so that it	is at its minimum
Proposed	Response	Response Status 0			value".					
					Proposed F	Respoi	nse	Response Status O		
C/ 162	SC 162.9.3.1.4	P143	L 20	# 257						
Ran. Adee	e	Intel			C/ 162	SC	162.9.3.4	P 144	L18	# 37
Comment	- Type T	Comment Status X			Dudek, Mik	e		Marvell		
"Wher	n coef selis 0 the	change in the normalized t	ransmit equaliz	er coefficient c(–2)"	Comment 7	Гуре	т	Comment Status X		
Should	d be "coef sel is 1"	and "coefficient c(+1)". Bu	it I suggest in ar	nother comment to	The tes that is r	st fixtu remov	re delay sho ed	ould be clarified so that the	connector is not	included in the delay
make	c(1) have the same	e steps as all others.			Suggested	Reme	dv			
Suggested	dRemedy				Change	e "ass	, ociated with	the TP2 test fixture" to fro	m the measurem	ent point TP2 to the
lf my o	other comment is a	ccepted, delete this paragr	aph. Otherwise	, change per comment.	beginni	ing of	the TP2 tes	t fixture MDI connector".	Aake the equivale	ent change in section
Proposed	Response	Response Status O			Proposed F	Respor	nse Receive	Response Status 0		
								-		
								<i></i>		

TYPE: TR/technical required ER/editorial required GR/gener	al required T/technical E/editorial G/general	C/ 162	Page 34 of 47
COMMENT STATUS: D/dispatched A/accepted R/rejected	RESPONSE STATUS: O/open W/written C/closed Z/withdrawn	SC 162.9.3.4	2020-01-06 4:46:22 PM
SORT ORDER: Clause, Subclause, page, line			

C/ 162	SC 162.9.3.4	P 144	L 26	# 9	C/ 162	SC 162.9.4.3.1	P 146	L 9	# 170
Mellitz, Ric	hard	Samtec			Ghiasi, Ali		Ghiasi Quanti	um/Inphi	
Comment 7	Type TR	Comment Status X			Comment Typ	e TR	Comment Status X		
The relation	ation between P	max/Vf and ERL has not bee	en established fo	r this data rate	Replace I	L TBD test case	2		
Suggested	Remedy				SuggestedRe	medy			
Change	e line 36 to ERL	>= 11 dB. Change TBD para	meters in table	162-10 beta_x, rho_x,	Min=28 dl	B, Max=29 dB			
N, and mellitz_	N_bx to 2.4 GH: _3ck_04_1119.	z, 0.3, 1000 UI, and 12 UI re	spectively as su	ggested on slide 6 of	Proposed Res	sponse	Response Status O		
Proposed F	Response	Response Status 0							
					C/ 162	SC 162.9.4.3.3	P 146	L 37	# 38
C/ 162	SC 162.9.4	P145	L 15	# 10	Dudek, Mike		Marvell		
Mellitz Ric	hard	Samtec			Comment Typ	e T	Comment Status X		
Comment 7	Comment Type TR Comment Status X					-12 only provide	s the COM value not all th	e parameters.	
ERL of	11 dB seems to	capture most of posted cha	nnel data as sug	gested in slide 5	SuggestedRe	medy			
mellitz_	_3ck_04_1119		-	-	Change to	the equivalent	wording of clause 136 "The	e COM paramet	ers are as modified by
Suggested	Remedy				Table 162	-12.	_		
Change	e ERL min to 11	l dB			Proposed Res	sponse	Response Status O		
Proposed F	Response	Response Status 0							
					C/ 162	SC 162.9.4.3.5	P147	L1	# 259
C/ 162	SC 162.9.4.3	.1 <i>P</i> 146	L 9	# 169	Ran, Adee		Intel		
Ghiasi. Ali		Ghiasi Quant	um/Inphi		Comment Typ	e E	Comment Status X		
Comment 7	Type TR	Comment Status X			"per-lane	FEC symbol erro	or counters (see 91.6)"		
Replac	e IL TBD test ca	ise 1			this refers	to RS-FEC, but	RS-FEC-Int can be used	instead.	
Suggested	Remedy				SuggestedRe	medy			
Min=19 2(10.97).84 dB, Max=21 75-6.6)	.84 dB, Delta Loss Between	Test channel an	d cable assembly =	Change to	o "per-lane FEC	symbol error counters (see	e 91.6 or 161.6)	".
Proposed F	Response	Response Status 0			Proposed Res	sponse l	Response Status O		

C/ 162 SC 162.9.4.3.5

C/ 162	SC 162.9.4.5	P 148	L 48	# 11	C/ 162	SC 162.11.3	P 150	L8	# 13
Mellitz, Rich	ard	Samtec			Mellitz, Rid	chard	Samtec		
Comment Ty	vpe TR	Comment Status X			Comment	Type TR	Comment Status X		
ERL of 7 mellitz_3	11 dB seems to 3ck_04_1119	capture most of posted char	nnel data as sug	gested in slide 5	ERL o mellitz	f 13.5 dB seems _3ck_04_1119	to capture most of posted ch	nannel data as s	uggested in slide 3
SuggestedR	Remedy				Suggested	IRemedy			
Change	to "Receiver EF	RL at TP3 shall be greater th	an or equal to 1	1dB"	Chang	e Minimum cable	e assembly ERL to 13.5 dB in	n table 162-13.	
Proposed R	esponse	Response Status O			Proposed	Response	Response Status O		
C/ 162	SC 162.11	P149	L 26	# 39	C/ 162	SC 162.11.3	P150	L 22	# 40
Dudek, Mike	e	Marvell			Dudek, Mi	ke	Marvell		
Comment Ty	vpe T	Comment Status X			Comment	Туре т	Comment Status X		
Sentenc	e does not mak	e sense.			The de	elay being remov	ed from the measurement sh	nould be better s	pecified.
SuggestedR	Remedy				Suggested	IRemedy			
Delete " those in	The are" if other Annex 162C	r MDI's are allowed, or just d	elete "are" if the	MDI's are restricted to	Chang or TP4	e "delay associa to the connecto	ted with the specific cable as r of the specific cable assem	sembly test fixtu bly test fixture"	ure" to "delay from Tp1
Proposed R	esponse	Response Status O			Proposed	Response	Response Status O		
C/ 162	SC 162.11.2	P150	L 3	# 79	C/ 162	SC 162.11.3	P150	L 39	# 12
Palkert, Ton	n	Molex			Mellitz, Rid	chard	Samtec		
Comment Ty	vpe T	Comment Status X			Comment	Type TR	Comment Status X		
Different Commo	tial to common- n-mode to comr	mode return loss, Differentia mon-mode return loss are no	I to common mo ot required if ER	ode conversion loss and L and COM are used to	ERL o mellitz	f 13.5 dB seems _3ck_04_1119	to capture most of posted ch	nannel data as s	uggested in slide 3
specifiy	Cable Assembly	y characteristics.			Suggested	IRemedy			
SuggestedR	Remedy				Chang	e line 39 to Cabl	e assembly ERL at TP1 and	at TP4 shall be	greater than or equal to
Delete E loss and characte	Differential to co d Common-mode eristics summary	mmon-mode return loss, Dif e to common-mode return lo y)	ferential to comi ss from Table 1	non mode conversion 62-13 (Cable assembly	13.5 d param UI res	B for cable assen eters in table 162 spectively as sug	mblies that have a COM less 2-14 beta_x, rho_x, N, and N gested on slide 4 of mellitz_3	than 4 dB. Also I_bx to 2.4 GHz, 3ck_04_1119.	change TBD 0.21, 3000 UI, and 12
Proposed R	esponse	Response Status 0			Proposed	Response	Response Status 0		

C/ 162 SC 162.11.3

CI 162	SC 162 11 4	P150	1 43	# 260	CI 162	50	162 11 7	P152	/ 22	# 14
Ran Adee	00 102.11.4	Intel	L 43	# 200	Mollitz Ri	chard	102.11.7	7 152 Samtec	L 33	# [14
Comment 7		Comment Status Y			Comment	Type	тр	Comment Status X		
The co	ypc I	ter specifications were define	d in clause 92	and re-used for all the	To me	ve form	ards a val	ue for SNR. Tx needs to be c	hosen	
cable a project	ssembly specs a needs new spec	It rates where the Nyquist fre s for the first time since 802.	quencies were a 3bj.	about 13 GHz. This	Suggestee	dRemed	dy			0 -6 11
My pror	oosal in the suga	ested remedy creates simila	r shapes but wit	th frequencies scaled	in Tab	ce 160 le 162-	⁷ with 3∠ di 15.	3 as in slide 8 of mellitz_3CK_	03_1119, slide	9 0FIIM_3CK_01_1119
by appr	oximately the sig	gnaling rate ratio (2*68/66).			Proposed	Respor	nse	Response Status 0		
If this p placeho	roposal is not ac olders.	cepted, numbers can be left	as TBDs and fig	gures can be empty as						
Sugaested	Remedv				C/ 162	SC	162.11.7	P 152	L 38	# 150
Copy th	ne text and equat	ions from clause 92 and app	ly the following	changes:	Dawe, Pie	ers		Mellanox		
					Comment	Туре	TR	Comment Status X		
D2CRL 12.89 to	(162.11.4): base 5 26.5625, and 1	ed on equation 92–28 chang 9 to 39.	ing frequencies	: 25.78 to 53.135,	Slide draft v	6 of heo vould al	k_3ck_01 llow such u	_0919 shows that the DFE ta intypical/hypothetical channel	ps are never si ls.	trongly negative, yet the
D2CCL 15.7 to C2CRL	(162.11.5): base 32.4 and 19 to 4 (162.11.6): base	ed on equation 92–29 chang 0. ed on equation 92–30 (2 dB)	ing frequencies changing frequ	: 12.89 to 26.5625, nencies: 19 to 40.	Suggested Reme don't g smoot Add a	dRemed mber th get a fre her tha minimu	<i>dy</i> hat a tap w ee pass for n backplar um tap wei	eight limit isn't a hard pass-fa the excess ISI noise that the e channels. ght limit of -0.03 or greater fo	il limit; channe y cause, and t r all taps, inclu	ls can go outside it but hat cable channels are ding the floating taps.
Add Fig	gures with update	ed graphs.			Proposed	Respor	nse	Response Status O		
Proposed F	Response	Response Status O				,				
C/ 162	SC 162.11.7	P 151	L 24	# 200						
Ghiasi, Ali		Ghiasi Quantu	m/Inphi							
Comment 7	vpe TR	Comment Status X								
COM ta some w	able and analysis veired channel	does not include penalty du	e to burst error,	current COM code on						
Suggestedl	Remedy									
http://w penalty analysis some w error?	ww.ieee802.org/3 with pre-coding 5 s showed that no veired channel wi Assuming there i vitcal burst error	3/ck/public/19_03/anslow_3c on for tap weights [0.85, 0.05 in of the 115 channels would ill not in the mix that passes is interest we can bring a pro- estimator that can be added	k_01_0319.pdf 5, 0.25, -0.05, 0 be as bad but h 3 dB COM but v posal in future f	page has 2 dB of SNR .15], the Anslow how can we gurantee vould fail due to burst task force meeting for						

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

Response Status 0

Proposed Response

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C/ 162	SC 162.11.7	P 152	L 39	# 261
Ran, Adee		Intel		

Comment Type T Comment Status X

b_max(n) for n=2 was changed from the baseline proposal value 0.2 to 0.3. This change was accepted by Motion #13 in the November 2019 meeting without sufficient technical discussion on the benefits or costs. According to the minutes there was only 6 minutes of discussion just before the meeting closing time, and the motion was not announced beforehand.

The original 0.2 was the value which was used in all presentations and made the candidate channels work.

Allowing a large coefficient such as 0.3 for n=2 combined with the even higher limit (0.85) for n=1 results in a situation that the ISI the DFE has to cope with is >100% of the desired signal. This means that the receiver needs to have large dynamic ranges and low internal noises (including detection sensitivity). These parameters are not included in COM, but the implications are becoming impractical for real implementations, especially ADC/DSP based ones which are considered likely.

In order to match channel complance with actual operation, we should make the reference receiver close to the expected performance of actual implementation, and not make it too capable. Real receivers will likely use linear equalization (Tx or CTLE) to cope with most of the loss-related ISI, If the reference Tx equalization and CTLE leave too much ISI, maybe they should be made more flexible and capable, rather than leave the ISI to a DFE with large taps. For example, we could add another zero-pole pair in the CTLE or another coefficient in the Tx.

This change was hasty and should be reverted, until a technical discussion (that did not take place in November) is conducted, including options, benefits and consequences.

SuggestedRemedy

Set b_max(2) back to 0.2.

Proposed Response Response Status O

C/ 162	SC 162.11.7	P 152	L 45

Dawe, Piers

		-
- IV/I	ella	INOX

Comment Type TR Comment Status X

40 UI span was chosen to fit data on backplane channels, and is excessive even for them. Cable channels are smoother. Very short low loss cables should pass easily anyway.

SuggestedRemedy

Change 40 to an appropriate number, e.g. 24.

Proposed Response Response Status **0**

C/ 162	SC 162.11.7	P 152	L 48	# 149
Dawe, Piers	S	Mellanox		

Comment Type TR Comment Status X

This DFE floating tap tail root-sum-of-squares limit is 0.03. For the worst of 7 borderline channels in kasapi_3ck_01_1119 slide 12 (kareti1, which is an outlier and probably should not be supported), the value is 0.022. Even for this channel with the most unlucky combination of package lengths including out-of-scope ones, it's <= 0.025 (slide 13). We should not encourage even worse channels than this, such as the failing channels on slides 16-17, and cable channels are smoother than backplane channels.

SuggestedRemedy

Remember that this parameter isn't a hard pass-fail limit; channels can exceed the limit but don't get a free pass for the excess ISI noise that they cause. Change 0.03 to 0.02 or less.

Proposed Response Response Status **O**

C/ 162	SC 162.11.7	P 152	L 48	# 262
Ran, Adee		Intel		

Comment Type T Comment Status X

The bound on sigma_tmax is practically making the DFE floating taps not worth implementing. Which is a good thing, because the power cost of this method is prohibitive with the very challenging power budgets demanded by real applications, and it requires automatic optimization of the placement of taps - another challenge that may not be easy to handle in practice.

The reference receiver should represent a minimum receiver implementation. A floating-tap DFE as modeled here isn't what a minimum implementation will likely have, and most practical future channels will not need it. Therefore it should not be included in the reference receiver.

Applications that need better receivers may look for better than minimum ones, for example, ones that implement floating taps (since that seems to solve a specific problem), or that need less than 3 dB of COM.

SuggestedRemedy

Remove the floating tap banks from the reference receiver - including the new parameters related to it and all the new text in 93A.1.6.

Proposed Response Response Status **O**

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	

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4:46:22 PM

C/ 162 SC 162.11.7	P 152	L 50	# 171	C/ 162 SC	162.11.7.1	P 153	L 28	# 16
Ghiasi, Ali	Ghiasi Quantu	um/Inphi		Mellitz, Richard		Samtec		
Comment Type TR	Comment Status X			Comment Type	TR C	Comment Status X		
The DFE taps for RSS	is on different line and not cle	ear		Fill in Zp TBE	O's with data fr	om slide 8 of benartsi_3c	k_01a_0719.	
SuggestedRemedy				SuggestedReme	dy			
Combine the requirements suggested wording "DF	ent of DFE location and RSS FE floating tail taps [25-40] roo	limit in the sing ot-sum-of-squai	e line. Here is a es limit	Change Line length and th	28ff to Equation an insertion lo	on (93A–13) and Equatior alues given in {new table} ss of 4 33 dB at 26 56 Gb	n (93A–14) usin , with the excep	g zp = 110.3 mm in _v tion that Zc is 100 Ω, B
Proposed Response	Response Status O			Proposed Respo	nse R	esponse Status O		-
C/ 162 SC 162.11.7	P153	L 4	# 15	CI 462 SC	460 44 7 4	D462	1.29	
Mellitz, Richard	Samtec			0/162 30	102.11.7.1	F 155	L 20	# 17
Comment Type TR	Comment Status X			Mellitz, Richard		Samtec		
Eta_0 needs to include COM.	the effects of host NEXT noi	se. Thus canno	t be the same as for KR	Comment Type add {new tab	TR C le for 93A tran	<i>Comment Status</i> X smission line with data fro	om slide 8 of be	nartsi_3ck_01a_0719.
SuggestedRemedy				SuggestedReme	dy			
Replace 8.2e-9 V^2/GI 9 of lim_3ck_01_1119	Hz with 9e-9 V^2/GHz as in sl in Table 162-15.	ide 8 of mellitz_	3ck_03_1119 ans slide	gamma0, a1,	, a2 = [0 3.820	06e-04 9.5909e-05]; tau=	5.790E-03 ns/m	ım
Proposed Response	Response Status O			Froposed Respor				
C/ 162 SC 162.11.7	P153	L6	# 146	C/ 162 SC	162.11.7.2	P153	L 5 1	# 18
Dawe Piers	Mellanox	-•		Mellitz, Richard		Samtec		
Comment Type T	Comment Status X			Comment Type	TR C	Comment Status X		
One-sided noise spect being half that for 50Gl with issues pass COM. should not be so despe	ral density of 8.2e-9 V2//GHz BASE-CR, and was chosen to . As high loss cable channels erate in this clause.	is extremely agonate of the sector of the se	gressive and optimistic, ar backplane channels han backplanes, we	Fill in TBD's v SuggestedRemed use same da	with data from <i>dy</i> ta as for signa	slide 8 of benartsi_3ck_0	1a_0719.	
SuggestedRemedy				Proposed Respo	nse R	esponse Status O		
Change to 1e-8, which	is 61% of 50GBASE-CR.							
Proposed Response	Response Status O							

C/ 162 SC 162.11.7.2

C/ 162 SC 162.1	14.4.2 P159	L 23	# 263	C/ 162A SC 162	A.5 P 231	L 47	# 206
Ran, Adee	Intel			Kocsis, Sam	Amphenol		
Comment Type T	Comment Status X			Comment Type TF	R Comment Status X		
In Item PC4, The re exceptions listed in	eference should be 162.8.11 and 1 162.8.11 for including c(-3).	d the value/comm	nent should include the	Table 162A-1, Pa diminico_3ck_01a	rameter Ilcamin is based on an ir a_0719. ILch0.5m is derived from	ncorrect assumpt Ilcamin, so it is a	ion from also invalid.
Item PC5 has a ref clause 136.	ference to a subclause in 162 the	at does not exist	0 it should point to	SuggestedRemedy Change Ilcamin to ILch0.5m to TBD,	o TBD, pending future contribution pending future contribution record	n recommendation mmendation and	on and motion. Change motion.
Per comment.				Proposed Response	Response Status 0		
Proposed Response	Response Status 0						
				C/ 162A SC 162	A.5 P 232	L10	# 203
C/ 162 SC 162.1	14.4.5 P160	L 50	# 264	Kocsis, Sam	Amphenol		
Ran. Adee	Intel			Comment Type TF	Comment Status X		
Comment Type F	Comment Status X			Figure 162A-1 has	s "MCB Via" included in the MCB	allocated budge	t of 2.3dB.
In item CA3, space	es should be inserted between n	umbers and units	S.	SuggestedRemedy			
SuggestedRemedy Per comment.				Remove the mark is an additional 0. diminico_3ck_01a	ters including the "MCB Via" in th 2dB via allowance for an MCB im a_0719 contribution.	e MCB allocated plemenation, pe	budget of 2.3dB. There r adopted
Proposed Response	Response Status O			Proposed Response	Response Status O		
C/ 162A SC 162A	5 <i>P</i> 231	L 20	# 205	C/ 162A SC 162	A.5 P232	L 30	# 204
Kocsis, Sam	Amphenol			Kocsis, Sam	Amphenol		
Comment Type ER	Comment Status X			Comment Type TF	Comment Status X		
Eq. 162A-1 defines	s Ilchmax using Ilcamax, but Eq.	162A-2 defines	ILch0.5m using Ilcamin.	Figure 162A-1 has	s an incorrect note regarding the	MCB implementa	ation
SuaaestedRemedv				SuggestedRemedy			
Change notation of	f "ILch0.5m" to be "ILchmin"			Change wording, includes test poin	per adopted diminico_3ck_01a_0 t IL. Allowance for MCB via IL is (0719 contribution 0.2dB.	. "NOTE - MCB PCB
Proposed Response	Response Status O			Proposed Response	Response Status O		

C/ 162A SC 162A.5

C/ 162A SC 162a.5	P 232	L 32	# 80	C/ 162B	SC 162B.1.3	P 235	L 28	# 67
Palkert, Tom	Molex			Dudek, Mike		Marvell		
Comment Type T	Comment Status X			Comment Typ	e T Col	mment Status X		
Need to clarify that in board	sertion loss values include the	sma connector	on the compliance	It is confu apply.	sing to just refer to S	92.11.3 where there a	re multiple specif	ications that don't
SuggestedRemedy				SuggestedRei	medy			
Add a note or modify include loss of sma c	diagrams in Fig 162A-1 to ma onnectors on compliance boar	ke it clear that ir ds.	nsertion loss values	Change to	92.11.3 as modifie	ed by 162B.1.3.1 to 1	62B.1.3.6"	
Proposed Response	Response Status 0			Froposed Res	sponse Res			
	11 P234	/ 16	# 192	C/ 162B	SC 162B.1.3.1	P 235	L 32	# 185
Chingi Ali	Chiaci Quant		# 103	Ghiasi, Ali		Ghiasi Quan	tum/Inphi	
Griidsi, All		um/mpm		Comment Typ	e TR Col	mment Status X		
The test fixture PCB	frequnecy max of 40 GHz too I	ow		Mated tex replaced v	t fixtue loss need sli with proposed limits	ght adjustment and m	nin and max loss	TBD need to be
SuggestedRemedy				SuggestedRei	medy			
Replace 40 GHz with	53 GHz			Nom IL=				
Proposed Response	Response Status 0			0.9503*(0 Max Loss: 6.905+0.5 MIN II. –(($.471^{*}$ SQR1(A3)+0.1 =(0.1+0.471× \sqrt{f} +0.7 $562 \times f$ 26.55< f ≤50 0.0656*SQRT(A2)+(41*A3+0.0012*A3^2) 41×f)×0. 9503 <i>dB</i> 0.) GHz) 164*A2)	01≤ <i>f</i> ≤26.55 GHz	2
C/ 162B SC 162B.1.	.2.1 P 225	L 46	# 184	See ghias	i_3ck_01_0120	J. 104 AZ)		
Ghiasi, Ali	Ghiasi Quant	um/Inphi		Proposed Res	sponse Res	ponse Status O		
Comment Type TR	Comment Status X							
The test fixture PCB	frequnecy max of 40 GHz too I	ow		C/ 162B	SC 162B.1.3.2	P 237	L35	# 188
SuggestedRemedy				Ghiasi, Ali		Ghiasi Quan	tum/Inphi	
Replace 40 GHz with	53 GHz			Comment Typ	e TR Col	mment Status X	·	
Proposed Response	Response Status O			Differentia	al return loss is TBD			
				SuggestedRei	medy			
				DRL=20-9 = 18 = 5 see ghiasi	0*f from 0.01 <f<=3.1 8-0.32*f dB 3.1 GHz dB 32.5<f<=50 gh;<br="">i_3ck_01_0120</f<=50></f<=3.1 	GHz : <f<=32.5 ghz<br="">z</f<=32.5>		
				Proposed Res	sponse Res	ponse Status O		

C/ 162B SC 162B.1.3.2

C/ 162B	SC 162B.1.3.	3 P 237	L1	# 129	C/ 162B	SC 162B.1.3	3.5	P 237	L 30	# 187
Brown, Ma	att	Huawei Techr	nologies Canada		Ghiasi, Ali			Ghiasi Quantu	um/Inphi	
Comment	Туре Т	Comment Status X			Comment	Type TR	Comment	Status X		
What is	s meant by comr	non-mode conversion insertio	on loss? Is this c	ommon-mode to	Comm	on mode to diff	erential transfe	is TBD		
aitterer	ntial insertion los	S?			Suggested	Remedy				
Suggested	IRemedy			·	CMCIL	=30+0.935*f fro	om 0.01 <f<=15< td=""><td>GHz</td><td></td><td></td></f<=15<>	GHz		
insertic	e "common-mod on loss". 4 instan	e conversion insertion loss" to ces	o "common-mod	e to differential	see gh	= 16 dB 15 GHz iasi_3ck_01_01	z <t<=50 ghz<br="">120</t<=50>			
Proposed I	Response	Response Status O			Proposed F	Response	Response S	Status O		
C/ 162B	SC 162B.1.3.	4 P 237	L 32	# 130	C/ 162B	SC 162B.1.3	3.6	P 239	L 20	# 131
Brown, Ma	att	Huawei Techr	nologies Canada		Brown, Ma	tt		Huawei Techr	nologies Canada	a
Comment	Туре Т	Comment Status X			Comment T	Гуре Т	Comment	Status X		
No uni	ts specified.				In Tabl	e 162B-4, there	e are a few issu	es with the sec	ond column. Th	e table title indicates
Suggested	Remedy				that the the sec	e table is for inte cond column sh	egrated crossta ould be "Value'	lk noise for mu ' or similar. The	Iti-lane mated te values specifie	est fixture; so the title of ed include text "less
Chang	e "common-mod	e return loss" to "common-me	ode return loss ir	ı dB".	than"; t	his is typically i	inidicated with t	he text "(max.)"	in the paramet	er column.
Proposed I	Response	Response Status O			Suggested	Remedy				
					Change For the	e the title of col	umn 2 to "Value	e". es than"		
C/ 162B	SC 162B.1.3.	5 P 237	L 30	# 186	For eac	ch parameter in	n column 1 add	"(max.)".		
Ghiasi, Ali		Ghiasi Quantu	um/Inphi		Proposed F	Response	Response S	Status O		
Comment	Type TR	Comment Status X								
Comm	on mode to differ	rential RL is TBD			C/ 162C	SC 162C		P 242	L14	# 207
Suggested	Remedy				Kocsis, Sa	m		Amphenol		
CMDR	L=30+30*f/25.78	from 0.01 <f<=12.89 ghz<="" td=""><td></td><td></td><td>Comment T</td><td>Type ER</td><td>Comment</td><td>Status X</td><td></td><td></td></f<=12.89>			Comment T	Type ER	Comment	Status X		
:	= 10 dB 35 <f<=5< td=""><td>0 GHz</td><td></td><td></td><td>The ad</td><td>opted baseline</td><td>at</td><td></td><td></td><td></td></f<=5<>	0 GHz			The ad	opted baseline	at			
see gh	iasi_3ck_01_012	20			"http://v	www.ieee802.o	rg/3/ck/public/1	8_09/palkert_3	ck_01_0918.pd	f" should include
Proposed I	Response	Response Status O			"http://v	www.ieee802.o	rg/3/ck/public/1	8_09/mcsorley_	_3ck_01a_0918	3.pdf" for the DSFP MDI
					Suggested	Remedy				
					Update	Table162C-3,	with details in S	Sheet1		
					Proposed F	Response	Response S	Status O		

C/ 162C	P
SC 162C	20

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Dudek, Mike Marvell Comment Type Comment Status X Incorrect Interances SuggestedRemedy C1 face SC fee.C1 P24 and 162.10 b f2.9 and 162.10 b f2.9 and 162.10 Proposed Response Response Status O C1 face SC fee.C2.1 P24 L12 # [25] Dudek, Mike Marvell Comment Type T Comment Status X The TBD in the tile of table f52C-2 Interaction of the Sector Status O Ci face SC fee.C2.2.5 P249 L11 # [25] Dudek, Mike Marvell Comment Type E Comment Status X In Table first in the Clause first consections of the sector clause in the relationship of the two FEC types. Now an FEC type is a sector and the relationship of the two FEC types. Now an FEC type is a sector and the relationship of the two FEC types. Now an FEC type is a sector and the relationship of the two FEC types. Now an FEC type is a sector and the relationship of the two FEC types. Now an FEC type is a sector and the relationship of the two FEC types. Now an FEC type is a sector and the relationship of the two FEC types. Now an FEC type is a sector and the relationship of the two FEC types. Now an FEC type is a sector and the relationship of the two FEC types. Now an FEC type is a sector and the relationship of the two FEC types. Now an FEC type is a sector and the relationship of the two FEC types. Now an FEC type is a sector and the relationship of the two FEC types. Now an FEC type is a secontrelationship of the two FEC types. Now an F	C/ 162C SC 162C.1	P 243	L 5	# 68	C/ 163	SC 163.1	P162	L15	# 134
Comment Type E Comment Type T Comme	Dudek, Mike	Marvell			Brown, Matt		Huawei Te	echnologies Canada	a
Increate references Sugasted/Remedy Change 14.63 and 146.10 to 16.2.9 and 162.10 Proposed Response Response Status Cl 162C SC 162C.1 P243 L12 # Dudek, Mike Marvell Comment Status X O Comment Status X O Suggested/Remedy Comment Status X Comment Status X O C 163 SC 162.2.5 P249 L41 # [29] Dudek, Mike Marvell Comment Status X O C 163 SC 163.1 P162 L15 # [38] Dudek, Mike Marvell Comment Status X O C 163 SC 163.1 P162 L15 # [38] Dudek, Mike Marvell Comment Status X O C 163 SC 163.1 P163 L32 # [4] D Dudek, Mike Marvell Comment Status X O Comment Status X O C 163 SC 163.1 P163 L32 # [4] D D D D D D D D D D D D <td< td=""><td>Comment Type E</td><td>Comment Status X</td><td></td><td></td><td>Comment Ty</td><td>pe T</td><td>Comment Status X</td><td></td><td></td></td<>	Comment Type E	Comment Status X			Comment Ty	pe T	Comment Status X		
SuggestedRemedy Change 146.9 and 146.10 to 152.9 and 162.10 Proposed Response Cl 162C SC 162C.1 P243 L12 2 Cl 102C SC 162C.1 P243 L12 2 Undek. Mike Comment Type Cl 162C SC 162C.2 in the cessary (compare table 138C-2) SuggestedRemedy Delete the (TBD) in the tille of table 162C-2 int necessary (compare table 138C-2) SuggestedRemedy Delete the (TBD) in the tille of table 162C-2 Note the indication of the selection is made. 0 Cl 162C SC 162C.1. P249 L41 2 100 12 100 12 100 13 12 13 13 100 14 100 14 15 16	Incorrect references				Tables 1	63-1 list two I	EC types (RS-FEC and R	S-FEC-Int) that mig	ht be used by a
Change 146.9 and 146.10 to f22.9 and f62.10 Proposed Response Response Status 0 C1 f62C SC 162C.1 P243 L12 # 28 Didek, Mike Marveli Comment Status X Proposed Response Response Status 0 Suggested/Remedy Comment Status X To TBD In the title of table 162C-2: For the CSC 162C C.2.5 P249 L41 # 29 Cl f62C SC 162C.2.5 P249 L41 # 29 Cudek, Mike Marveli Comment Status X In Table 163-31, the Clause 161 RS-FEC Int is specified as TBD rather than Required or Optional in the second column. Cudek, Mike Marveli Comment Status X In Table 163-31, the Clause 161 RS-FEC Int is specified as TBD rather than Required or Optional in the second column. Suggested/Remedy Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status S Proposed Response Response Status X To many comments already just from reviewing 162. Suggested/Remedy Canneent Type T Comment Status X Comment Status X The imment RS-FEC is also required to change between RS-FEC (528,514) and RS-FEC (524,514)'. Ran, Adee Intel Comment Status X To comment Status X The immentes RS-FEC is also require	SuggestedRemedy				100GBA	SE-KR1 PHY	, but never explains the crit nor the implications (e.g.	teria for selecting o conversion from R	ne or the other, how S-FEC to RS-FEC-Int)
Proposed Response Response Status 0 C1 162C SC 162C.1 P243 L12 # 28 Dudek, Mike Marvell Comment Type T Comment Status X 0 Suggested/Remody Delete the (TBD) in the title of table 162C-2 isn't necessary (compare table 136C-2) Suggested/Remody 0 C1 162C SC 162C.2.5 P243 L41 # 29 C1 162C SC 162C.2.5 P244 L41 # 29 Dudek, Mike Marvell Comment Status X In Table 163-11.1 P163 L32 # 41 Dudek, Mike Marvell Comment Status X Specify RS-FEC-Int as either "Optional" or "Required". Proposed Response Response Status 0 C1 163 SC 163.1 P163 L32 # 41 Comment Type T Comment Status X Norgested/Remody Specify RS-FEC-Int as either "Optional" or "Required". Suggested/Remody Change Table 138C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status 0 C1 163 SC 163.1 P163 L32 # 41 Comment Type T Comment Status X The inverse RS-FEC	Change 146.9 and 14	6.10 to 162.9 and 162.10			Suggested		, nor the implications (e.g.,		
C1 162C SC 162C.1 P243 L12 # [28] Dudek, Mike Marvell Comment Type T Comment Status X 0 C1 162 SC 163.1 P162 L15 # [138] Delete the (TBD) in the title of table 162C-2 isn't necessary (compare table 138C-2) SuggestedRemedy Comment Type T Comment Status X 0 C1 162 SC 163.1 P162 L15 # [138] C1 163 SC 163.1 P162 L15 # [138] Comment Type E Comment Status X Notional in the second column. SuggestedRemedy Chads, Mike Marvell Comment Status X O SuggestedRemedy SuggestedRemedy Comment Status X O C1 163 SC 163 P162 L13 # [265] Marvell Comment Status X The merse RS-FEC is a sitter "Optional" or "Required". Proposed Response Response Status 0 Ci 163 SC 163.1 <td< td=""><td>Proposed Response</td><td>Response Status 0</td><td></td><td></td><td>Add a su</td><td>bclause to ex</td><td>plain the relationship of the</td><td>e two FEC types, ho</td><td>ow an FEC type is</td></td<>	Proposed Response	Response Status 0			Add a su	bclause to ex	plain the relationship of the	e two FEC types, ho	ow an FEC type is
Cl 182C SC 162C.1 P243 L12 # [28] Dudek, Mike Marvell Comment Type T Comment Status X The TBD in the title of table 162C-2 isn't necessary (compare table 136C-2) SuggestedRemedy Delete the (TBD) in the title of table 162C-2 Proposed Response Cl 162C SC 162C.2.5 P249 L41 # [29] Dudek, Mike Marvell Comment Type E Comment Status X In Table 163-1; the Clause 161 RS-FEC-Int is specified as TBD rather than Required or Optional in the second column. SuggestedRemedy Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status X Proposed Response Response Status X The inverse RS-FEC is also required to change between RS-FEC (528,514) and RS-FEC (544,514)* Comment Type T Comment Status X The inverse RS-FEC is also required to change between RS-FEC (544,514)* Comment Type T Comment Status X The inverse RS-FEC (528,514) and RS-FEC (544,514)* Comment Type T Comment Status X The inverse RS-FEC (528,514) and RS-FEC (544,514)* Rom, Ade Intel Comment Status X					selected	and the impl	ications of the selection. R	eference to a simila	ar subclause in Clause
Dudek, Mike Marvell Comment Type T Comment Status X The TBD in the title of table 162C-2 int necessary (compare table 136C-2) Suggested/Remady Delete the (TBD) in the title of table 162C-2 Proposed Response C1 162 SC 162.1 P162 L15 # 138 Dudek, Mike Marvell C1 162 SC 162.2.5 P249 L41 # 29 Dudek, Mike Marvell Comment Type E Comment Status X Wrong reference Suggested/Remady Change Table 136C-3. Also on page 250 line 43 Proposed Response Response Status O C1 163 SC 163.1 P162 L13 # 265 Ran, Adee Intel Comment Type T Comment Status X Comment Type T Comment Status X Suggested/Remady Comment Status X Table 162-1.1 # 265 The inverse R3-FEC is also required to change between R3-FEC (528,514) and R3-FEC (544,514)* Proposed Response Inel Comment Type T Comment Status X The inverse R3-FEC is also required to change between R3-FEC (544,514)* Proposed Response Response Status O O The inverse R3-FE	C/ 162C SC 162C.1	P 243	L12	# 28	Proposed Re	sponse	Response Status O		
Comment Type T Comment Status X The TBD in the tile of table 162-2: lant necessary (compare table 136C-2). SuggestedRemedy Defete the (TBD) in the tille of table 162C-2: Proposed Response Response Status O C/ 162_SC 162C.2.5 P249 L41 # 29 Dudek, Mike Marvell Comment Type E Comment Status X In Table 163-1, the Clause 161 RS-FEC-Int is specified as TBD rather than Required or Optional' or "Required". SuggestedRemedy SuggestedRemedy Sec 163.1 P162 L15 # 138 Comment Type E Comment Status X In Table 163-1, the Clause 161 RS-FEC-Int is specified as TBD rather than Required or Optional' or "Required". SuggestedRemedy SuggestedRemedy Sec 163.1 P162 L13 # 138 Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status O Ci 163 SC 163.1 P163 L32 # 141 Dudek, Mike Marvell Comment Status X To comment Status X The inverse RS-FEC (stals on page 250 line 43 Sec 163.1 P163 L32 # 141 Dudek, Mike Marvell Comment Status X To comment Status X The inverse RS-FEC (stals for	Dudek, Mike	Marvell							
The TBD in the title of table 162C-2 isn't necessary (compare table 136C-2) SuggestedRemedy Delete the (TBD) in the title of table 162C-2 Proposed Response Response Status O C/ 162C SC 162C.2.5 P 249 L 41 # 23 Dudek, Mike Marvell Comment Type E Comment Status X Wrong reference SuggestedRemedy Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status O C/ 163 SC 163.1 P 163 L 32 # 41 Comment Type T Comment Status X Too many comments already just from reviewing 162. SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. Proposed Response Response Status O TYPE: TB/tacholical required GP/meneral required Ttacholical Erectionial G/meneral Comment Type T Comment Status X Type T Comment Status A Type T Status T Co	Comment Type T	Comment Status X							
SuggestedRemedy Delete the (TBD) in the title of table162C-2 Proposed Response Response Status 0 CI 162C SC 162C.2.5 P249 L41 29 Dudek, Mike Marvell Comment Type T Comment Status X Wrong reference SuggestedRemedy Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status 0 C1 163 SC 163.1 P162 L13 # 265 C1 163 SC 163.1 P163 L32 # 41 Comment Type T Comment Status N SuggestedRemedy Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status 0 C1 163 SC 163.1 P162 L13 # 265 Comment Type T Comment Status X The inverse RS-FEC is also required to change between RS-FEC (528,514) and RS-FEC (528,514) and RS-FEC (544,514)* SuggestedRemedy And to footnote b. "and between RS-FEC (528,514) and RS-FEC (544,514)* Proposed Response Response Status 0 SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa.	The TBD in the title of	table 162C-2 isn't necessary	(compare table	136C-2)	C/ 163	SC 163.1	P162	L15	# 138
Delete the (TBD) in the title of table162C-2 Proposed Response Response Status O Comment Type Cl 162C SC 162C.2.5 P249 L41 # [29] Dudek, Mike Marvell Comment Type E Comment Status X Wrong reference SuggestedRemedy Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status O Comment Type C1 163 SC 163.1 P163 L32 # [41] Dudek, Mike Marvell Comment Status X Proposed Response Response Status O Cl 163 SC 163.1 P163 L32 # [41] Dudek, Mike Marvell Comment Type T Comment Status X Too many comments already just from reviewing 162. SuggestedRemedy Add to footnote b. "and between RS-FEC (528,514) and RS-FEC (544,514)" SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. Proposed Response Response Status O Proposed Response Response Status O Cornment Strue Statu	SuggestedRemedy				Brown, Matt		Huawei Te	echnologies Canada	a
Proposed Response Response Status O Cl 162C SC 162C.2.5 P 249 L 41 # 29 Dudek, Mike Marvell Comment Type E Comment Status X Wrong reference SuggestedRemedy Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status O Cl 163 SC 163 P 162 L 13 # 265 Add to footnote the "andy just from reviewing 162. SuggestedRemedy SuggestedRemedy Comment Type T Comment Status X The inverse RS-FEC (528,514) and RS-FEC (544,514)* Proposed Response Response Status O Cl 163 SC 163 P 162 L 13 # 265 Ran, Adee Intel Comment Status X The inverse RS-FEC (528,514) and RS-FEC (544,514)* SuggestedRemedy Add to footnote b. "and between RS-FEC (528,514) and RS-FEC (544,514)* Proposed Response Response Status O SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. Proposed Response Response Status O Proposed Response Response Status O Proposed Respons	Delete the (TBD) in the	e title of table162C-2			Comment Ty	pe T	Comment Status X		
CI 162C SC 162C.2.5 P249 L41 # 29 Dudek, Mike Marvell Comment Type E Comment Status X Wrong reference SuggestedRemedy Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status O CI 163 SC 163 P162 L13 # 265 Ran, Adee Intel Comment Status X The inverse RS-FEC is also required to change between RS-FEC (528,514) and RS-FEC (544,514)* Ran, Adee Intel SuggestedRemedy Add to tootnote b. "and between RS-FEC (528,514) and RS-FEC (544,514)* Proposed Response Response Status O SuggestedRemedy Add to tootnote b. "and between RS-FEC (528,514) and RS-FEC (544,514)* Proposed Response Response Status O SuggestedRemedy Add to tootnote b. "and between RS-FEC (528,514) and RS-FEC (544,514)* Proposed Response Response Status O TVPE: TB/bechaical sequired. El/actional required GB/apperat required T/bechaical El/actional El/ac	Proposed Response	Response Status O			In Table Optional	163-1, the Cl in the second	ause 161 RS-FEC-Int is sp I column.	ecified as TBD rath	er than Required or
CI 162C SC 162C.2.5 P 249 L 41 # 29 Dudek, Mike Marvell Comment Type E Comment Status X Virong reference SuggestedRemedy Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status 0 Image Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status 0 Image Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status X Image Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Comment Type T Comment Status X Image Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Status 0 Image T Comment Status X Image Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Status X The inverse RS-FEC is also required to change between RS-FEC (528,514) and RS-FEC (544,514) SuggestedRemedy And to footnote b. "and between RS-FEC (528,514) and RS-FEC (544,514)" SuggestedRemedy Analyce Intel SuggestedRemedy Add to footnote b. "and between RS-FEC (528,514) and RS-FEC (544,514)" SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. O Proposed Respon					SuggestedRe	emedy			
Dudek, Mike Marvell Comment Type E Comment Status X Wrong reference SuggestedRemedy Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status O Cl 163 SC 163.1 P163 L 32 # [41] Dudek, Mike Marvell Comment Type T Comment Status X The inverse RS-FEC is also required to change between RS-FEC (528,514) and RS-FEC (544,514) SuggestedRemedy Intel Comment Type T Comment Status X Too many comments already just from reviewing 162. SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. Proposed Response Response Status O PUPE: TR/technical required. EB/editorial required. CB/general required. T/technical E/editorial G/general C/u 162 Proce 42 of 47	C/ 162C SC 162C.2.5	5 P 249	L 41	# 29	Specify F	RS-FEC-Int a	s either "Optional" or "Requ	uired".	
Comment Type E Comment Status X Wrong reference SuggestedRemedy Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status O Cl 163 SC 163 P162 L13 # 265 Ran, Adee Intel Comment Type T Comment Status X Too many comments already just from reviewing 162. SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. Proposed Response Response Status O	Dudek, Mike	Marvell			Proposed Re	sponse	Response Status 0		
Wrong reference SuggestedRemedy Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status O Cl 163 SC 163. Proposed Response Response Status O Cl 163 SC 163. Proposed Response Response Status O To remote Type To omany comments already just from reviewing 162. SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. Proposed Response Response Status O Vertex Telfachpical required. ER/actionical required CR/general required Therboical E/editorial Science I	Comment Type E	Comment Status X							
SuggestedRemedy Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status Cl 163 SC 163 P162 L13 # 265 Cl 163 SC 163 P162 L13 # 265 Cl 164 Comment Type T Comment Status X Too many comments already just from reviewing 162. SuggestedRemedy Add to footnote b. "and between RS-FEC (528,514) and RS-FEC (544,514)" SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. Proposed Response Response Status O TVPE: TB/technical required EP/en/en/en/en/en/en/en/en/en/en/en/en/en/	Wrong reference				C/ 163	SC 163 1	P163	/ 32	# 41
Change Table 136C-3 to Table 162C-3. Also on page 250 line 43 Proposed Response Response Status O C/ 163 SC 163 P162 L 13 # 265 C/ 163 SC 163 P162 L 13 # 265 C/ 164 ST Comment Status X Too many comments already just from reviewing 162. SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. Proposed Response Response Status O TYPE: TB/technical required EB/editorial required CB/reperal required T/technical E/editorial C/reperal	SuggestedRemedy				Dudek Mike		Marvell	-02	
Proposed Response Response Status 0 Cl 163 SC 163 P 162 L 13 # 265 Ran, Adee Intel Sc many comments already just from reviewing 162. SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where neccessary, and vice versa. Not set to clause 162 to clause 163 where necessary, and vice versa. O	Change Table 136C-3	to Table 162C-3. Also on pa	age 250 line 43		Comment Ty	ne T	Comment Status X		
Cl 163 SC 163 P 162 L 13 # 265 Ran, Adee Intel Add to footnote b. "and between RS-FEC (528,514) and RS-FEC (544,514)" Comment Type T Comment Status X Too many comments already just from reviewing 162. SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. O Proposed Response Response Status O	Proposed Response	Response Status O			The inve (544,514	rse RS-FEC i)	s also required to change b	between RS-FEC (5	528,514) and RS-FEC
C/ 163 SC 163 P162 L13 # [265] Add to footnote b. "and between RS-FEC (528,514) and RS-FEC (544,514)" Ran, Adee Intel Proposed Response Response Status O Comment Type T Comment Status X Proposed Response Response Status O SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. Proposed Response Response Status O TVPE: TP/technical required EP/editorial required GP/enprol C/ 162 Page 43 of 47					SuggestedRe	emedy			
Ran, Adee Intel Proposed Response Response Status O Comment Type T Comment Status X Too many comments already just from reviewing 162. SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. Proposed Response Response Status O TVPE: TR/technical required ER/editorial required G/ general required T/technical E/editorial G/ appendix Page 43 of 47	C/ 163 SC 163	P 162	L13	# 265	Add to fo	otnote b. "ar	nd between RS-FEC (528,5	(14) and RS-FEC	544,514)"
Comment Type T Comment Status X Too many comments already just from reviewing 162. SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. Proposed Response Response Status O TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general	Ran, Adee	Intel			Proposed Re	sponse	Response Status 0		
SuggestedRemedy Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. Proposed Response Response Status O	Comment Type T Too many comments	Comment Status X already just from reviewing 16	62.						
Apply changes from accepted comments against clause 162 to clause 163 where necessary, and vice versa. Proposed Response Response Status O TYRE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general	SuggestedRemedy								
Proposed Response Response Status O	Apply changes from a necessary, and vice ve	ccepted comments against cla ersa.	ause 162 to clau	se 163 where					
TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general	Proposed Response	Response Status O							
TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general									
$\mathbf{U} = \mathbf{U} = $	TYPE: TR/technical requir	ed FR/editorial required GR/	deneral required	T/technical F/editorial G/c	reneral		CI	163	Page 43 of 47

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

SC 163.1

2020-01-06 4:46:22 PM

C/ 163 SC 163.1	P 165	L11	# 42	C/ 163	SC 163.9.1	P 169	L 26	# 19
Dudek, Mike	Marvell			Mellitz, Rid	chard	Samtec		
Comment Type T	Comment Status X			Comment	Type TR	Comment Status X		
This paragraph is for 4	400G as well.			Figure	93-3 and Figur	e 93-4 are not appropriate for	the Nyquist sam	pling frequency and
SuggestedRemedy	to "200GALII-p or 400GALII-p"	' (this is how thi	s is done in clause 162)	baud r freque	ate. Moving fro ncy. 100 Gbps	om 25 Gbps NRZ to 50 Gbps o doubles it. In addition, specify	nly incremental ring device fixtur	y changed the Nyquist es to around 60 GHz tandard
Proposed Response	Booponoo Statuo	(113 13 1100 111		Suggostor	ave new challer	iges which heed to be comple		lanuaru
Fioposeu Response	Response Status U			Suggested	re-write 93-8 1	1 in terms of probational to Eb	or replace 163	9.1 with new equations
				and fig	jures. See pres	entation	or replace 105.	3.1 WITTHEW EQUATIONS
C/ 163 SC 163.2	P 165	L 33	# 43	Proposed	Response	Response Status O		
Dudek, Mike	Marvell					, -		
Comment Type T	Comment Status X			01.400	00 400 0 4	D (00	1.00	" [1=0
FEC is also used in "F	EC symbol error rate" etc. wh	ere it also refers	to the FEC within the	C/ 163	SC 163.9.1	P 169	L 30	# 1/3
200 and 400G PCS.				Ghiasi, Ali		Ghiasi Quant	um/Inphi	
SuggestedRemedy				Comment	Type TR	Comment Status X		
Add to the sentence "f 200GBASE-KR2 and	for 100GBASE-KR1 or the RS 400GBASE-KR4".	-FEC within the	Clause 119 PCS for	TP5 u	pper frequncy fo	or equation 93-1 and 93-2 is TE	3D	
Proposed Response	Response Status O			Suggested	Remeay			
				Replac RLd(f)	$\geq \{(20-f \ dB)$	$0.05 \le f \le 5 GHz$		
	B +			15 <i>dB</i>	5.	<f≤25 ghz<="" td=""><td></td><td></td></f≤25>		
C/ 163 SC 163.9.1	P 169	L 25	# 172	22. 5- Ilrof(f)	0.3f dB, 25 <j 0 0015+0 1√f</j 	f≤50 GHz 5±0 035£ 0 05<£<50 CHz		
Ghiasi, Ali	Ghiasi Quant	um/Inphi		See gl	niasi_3ck_01_0	120.pdf		
Comment Type TR	Comment Status X			Proposed	Response	Response Status O		
TP0 upper frequncy for	or equation 93-1 and 93-2 is T	BD		.,		••••		
SuggestedRemedy								
Replace TBD with 50 $RLd(f) ≥ {(20-f dB)}$	GHz and following equatiions $0.05 \le f \le 5 \ GHz$							
15 <i>dB</i> 5<	<f≤25 ghz<="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></f≤25>							
22. 5-0.3 $f dB$, 25< f	f≤50 GHz							
See ghiasi 3ck 01 0	+0.035/ 0.05≤/≤50 GHZ 120.pdf							

Proposed Response

Response Status 0

C/ 163 SC 163.9.1

C/ 163	SC 163.9.2	P 170	L 10	# 25	C/ 163	SC 163.9.2.1	P171	L 5	# 20
Mellitz, Rid	hard	Samtec			Mellitz, Ric	hard	Samtec		
Comment	Type TR	Comment Status X			Comment 7	Type TR	Comment Status X		
The de device perfori no to r refere	pendence of Vf c with a C2C and I ning tests. Since nake Nv more like nce.	on Nv is has proved to be co KR transmitter may have two we specify that ratio of Pma e a real steady state voltage	nfusing. The res specification w x to Vf there rea . See Mellitz_3o	ult is that a single hich is confusing for Ily is no good reason k_01b_0919 for	Nbx=N Nbx=24 Suggested Change	b has been shov 4 seems to be a Re <i>medy</i> e "Nbx is set to t	vn not correlate well to COM better choice he value of Nb in Table 163–	in mellitz_3ck_a 10" to "Nbx is s	adhoc_02_100219. et to 24 UI"
Suggestec	Remedy				Proposed F	Response	Response Status O		
Add a except Vf. Re to 1 R Dp= 4	subsection detaili ion and exceptior fer to clause "136 sfer to clause "12 See Mellitz_3ck_	ing "Transmitter output wave h list for this subclause settir 5.9.3.1 Transmitter output w 0D.3.1.3 Linear fit to the me 01b_0919 for reference.	eform" similar to ng Nv to 200 for aveform" : Chan asured waveforr	163.9.3.1. Add the determination of ge k = -2 to 1 to k = -3 n": Change Dp= 3 to	C/ 163 Wu, Mau-L	SC 163.9.2.1 in	P 171 MediaTek	L 5	# [69
Proposed	Response	Response Status O			Curren very se enhand	t ERL calculation ensitive across "It e ERL calculation	n doesn't consider DFE "floati N_bx" boundary as raised in v on methodology.	ing-tap". The co vu_3ck_02a_11	oncern is the ERL is 19. We need to
C/ 163	SC 163.9.2	P 170	L 18	# 44	Sugaested	Remedv			
Dudek, Mi	ke	Marvell			Modify	ERL as capable	of DFE floating tap as propo	sed in wu_3ck_	01_0120. The same
Comment See a chang Suggestec	<i>Type</i> T comment on the a to the value fror <i>Remedy</i>	Comment Status X abs step size for c(1) max in n 0.02 to 0.05	table 162-8 su	ggesting a possible	methoo followir 162.9.3 163.9.2 163.9.2	lology shall be a ng subclauses. 8.4 Transmitter e 2.1 Transmitter E 8 Receiver chara	pplied to CR TX, CR RX, KR ffective return loss (ERL) 162 ERL contaristics	TX, & KR RX E 2.9.4.5 Receive	RL calculations in the r
lf the c 174 in	hange is made ir the COM table.	a clause 162 then Change 0.	05 to 0.02 here	and on line 52 page	Proposed F	Response	Response Status O		
Proposed	Response	Response Status 0							
					C/ 163	SC 163.9.2.1	P 171	L10	# 21
C/ 163	SC 163.9.2	P170	L 30	# 45	Mellitz, Ric	hard	Samtec		
Dudek, Mi	ke	Marvell			Comment 7	Type TR	Comment Status X		
Comment	Type T	Comment Status X	naka sanaa as t	hara is no "hast" fat tha	Table 1 Recom	63-3 was develo mendation were	pped for a different data rate a proposed in mellitz_3ck_01_	and reference p _1119 slide 7.	ackage assumption.
backp	ane.	or the nost channel doesn't f	liane selise as l		Suggested	Remedy			
Suggestec	Remedy				In Tabl	e 163-3 set: beta	a_x=2.4 GHz , rho_x=.3		
Chang	e "Loss of host cl "	hannel" to "loss of Transmitt	er package and	TP0 to TP0a test	Proposed F	Response	Response Status O		

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

Cl	163	
SC	163.9.2.1	

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C/ 163	SC 163.9.3.1	P1	71	L 44	# 22
Mellitz, Ricl	hard	Samt	ec		
Comment T	ype TR	Comment Status	Х		
Nbx=Nt Nbx=24	o has been show I seems to be a l	n not correlate well better choice	to COM	in mellitz_3ck_a	dhoc_02_100219.
Suggested	Remedy				
Change	e "Nbx is set to th	ne value of Nb in Tal	ole 163–	10" to "Nbx is se	t to 24 UI"
Proposed F	Response	Response Status	0		
C/ 163	SC 163.10	P1	74	L14	# 201
Ghiasi, Ali		Ghias	si Quantu	ım/Inphi	
Comment T	ype TR	Comment Status	х		
COM ta some w	able and analysis veired channel	does not include pe	enalty du	e to burst error,	current COM code on
Suggested	Remedy				
http://w penalty analysis some w error? an anal	ww.ieee802.org/ with pre-coding s showed that no veired channel w Assuming there ytical burst error	3/ck/public/19_03/ar on for tap weights [0 on of the 115 channe ill not in the mix that is interest we can br estimator that can b	nslow_3c).85, 0.09 els would passes ing a pro be added	k_01_0319.pdf 5, 0.25, -0.05, 0 be as bad but h 3 dB COM but v posal in future t to COM.	page has 2 dB of SNR 15], the Anslow how can we gurantee yould fail due to burst ask force meeting for
Proposed F	Response	Response Status	0		
C/ 163	SC 163.10	P1	75	L 25	# 23
Mellitz, Ricl	hard	Samt	ec		
Comment T	ype TR	Comment Status	х		
SNR_T and inte	x of 33 dB has b erima for making	een used for much r decisions. No new	ecent da data hav	ata presented in e been presente	the ad-hocs, plenaries, d otherwise.
Suggested	Remedy				
Change	e the TBD for SN	IR_Tx to 33 dB.			
Proposed F	Response	Response Status	0		

C/ 163	SC	163.10	P175	L 31	# 153
Dawe, Pie	rs		Mellanox		
Comment	Туре	TR	Comment Status X		

Slide 6 of heck_3ck_01_0919 shows that the DFE taps are never strongly negative, yet the draft would allow such untypical/hypothetical channels.

SuggestedRemedy

Remember that a tap weight limit isn't a hard pass-fail limit; channels can go outside it but don't get a free pass for the excess ISI noise that they cause. Add a minimum tap weight limit of -0.03 for all taps, including the floating taps.

Proposed Response Response Status O

C/ 163	SC	163.10	P175	L 40	# 174
Ghiasi, Ali			Ghiasi Quantu	um/Inphi	
Comment	Туре	TR	Comment Status X		
The D	FE tap	s for RSS i	s on different line and not cle	ear	

SuggestedRemedy

Combine the requirement of DFE location and RSS limit in the single line. Here is a suggested wording "DFE floating tail taps [25-40] root-sum-of-squares limit

Proposed Response Response Status **O**

C/ 163	SC 163.10	P 175	L 40	# 152
Dawe, Piers	3	Mellanox		
Comment T	ype TR	Comment Status X		

This DFE floating tap tail root-sum-of-squares limit is 0.03. For the worst of 7 borderline channels in kasapi_3ck_01_1119 slide 12 (kareti1, OACh4, which is an outlier and probably should not be supported), the value is 0.022. Even for this channel with the most unlucky combination of package lengths including out-of-scope ones, it's <= 0.025 (slide 13). We should not encourage even worse channels than this, such as the failing channels on slides 16-17, and we should not indulge this one so much.

SuggestedRemedy

Remember that this parameter isn't a hard pass-fail limit; channels can exceed this but don't get a free pass for the excess ISI noise that they cause. Change 0.03 to 0.02.

Proposed Response Response Status **O**

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

Cl	163	
SC	163.10	

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C/ 163	SC 163.10	P175	L 46	# 147	C/ 163	SC 163.10.2	P177	L13	# 24
Dawe, Pier	rs	Mellanox	-		Mellitz, Ri	chard	Samtec		
Comment	Туре Т	Comment Status X			Comment	Type TR	Comment Status X		
One-sided noise spectral density of 8.2e-9 V2/GHz is extremely aggressive and optimistic, being half that for 50GBASE-KR, and was chosen to make particular backplane channels with issues pass COM. Backplane chanenls are very varied, so sweating this will benefit few channels at a cost to all. New backplane connectors will provide better channels. <i>SuggestedRemedy</i> Change to 1e-8, which is 61% of 50GBASE-CR.					Table 163-11 was developed for a different data rate and reference package assumption. Recommendation were proposed in mellitz_3ck_01_1119 slide 5. SuggestedRemedy In Table 163-11 set: beta x=2.4 GHz, rho x=.19				
					Proposed	Response	Response Status O		
Proposed I	Response	Response Status O							
C/ 163	SC 163.10.1	P175	L 52	# 46					
Dudek, Mil	ke	Marvell							
Comment Equation	<i>Type</i> E on should be a h	Comment Status X ot link. Also Equation 163-1	is for calculatior	n of Add					
Suggested Chang	<i>IRemedy</i> le the equation to	0 163-3 and make it a hot link							
Proposed I	Response	Response Status O							
C/ 163	SC 163.10.1	P176	L 46	# 175					
Ghiasi, Ali	i, Ali Ghiasi Quantum/Inphi								
Comment Beyon	<i>Type</i> T d 50 GHz with los	Comment Status X ss >75 doesn't matter							
Suggested Limit n	<i>IRemedy</i> nax frequency to	50 GHz instead of fb.							
Proposed I	Response	Response Status 0							

C/ 163 SC 163.10.2