C/ 163	SC 163.9.2.8	P 207	L 18	# R1-1	In the	"Where" list: / peak is define	ed in 162 9 4 1 2"			
Ran, Adee	9	Cisco System	s, Inc.		delete	the definition of	f p_max			
Comment	Type TR	Comment Status A		TX V_CMPP/SCMR (CC)	In 162	0.2.7 and taxt	stating that the commo	n modo volt	ago is moos	urad with the TX
Follow	ving ad hoc prese	entation ran_3ck_01_032322,	it is suggested	to provide more	equaliz	zation set to "no	o equalization".	I-IIIOGE VOID	age is measu	
reasor	nable test times,	both for design (simulations)	and qualification	on (with instruments).	[Editor	's note: CC: 16	2, 163, 120F]			
SCMF SCMF indepe	R is currently defi R ratio is strongly endent. So meas	ned without reference to equa dependent on equalization se urements with different equal	alization setting etting, while the ization will yield	. The numerator of the denominator is mostly different results.	Straw I supp A: No	polls #12 (chica ort SCMR spec equalization	ago) and #13 (pick one) ified with transmit equa	lizer setting	as follows:	
The p	roposal is to defi	ne SCMR with respect to the	unequalized pu	lse peak.	B: All t	5 defined prese valid settings	ts			
					D: Nee	ed more informa	ation			
If we h SCMF	have a formal del R can just refer to	inition of v_peak in 162.9.4.1 that subclause.	.2 (subject of a	nother comment),	#12 #13	A: 16 B: 5 C: 2 A: 13 B: 3 C: 2	D: 6 D: 5			
Suggested	dRemedy				Nata	Strow poll #12	and #12 are the same	nucetion on	d anawara ay	reant #12 is abias as
Delete mode	e the sentence "T linear fit pulse re	he procedure in 162.9.4.1.1 in sponse p(k)." from the first particular	s used to deter aragraph.	mine the differential-	rules (	pick any) and #	13 is choose one.	question and	J answers ex	kcept #12 is chicago
Chanc	The definition (	of SCMR to be	0		C/ 162	SC 162.8.11	1 <i>P</i> 16	4	L 35	# R1-2
SCMF	R=20*log10(v_pe	ak/V_{CMPP-HF})			Ran, Adee		Cisco	Systems, In	c.	
L. d					Comment	Type ER	Comment Status	Α		training (bucke
In the v_pea	"Where" list: Ik is the is the ma	aximum value of the differentia	al-mode linear	fit pulse response p(k),	"The o	of use_quiet_in_	training (see 136.8.11.	7.1) is TRUI	Ε"	
detern	nined using the p	procedure in 162.9.4.1.1 with o	equalization off		The w	ord "value" is m	nissing.			
v_pea	k is defined in 16	62.9.4.1.2.			Suggested	lRemedy				
Response		Response Status C			Chang	je to "The value	e of use_quiet_in_trainir	ng (see 136.	.8.11.7.1) is <sup>-</sup>	TRUE".
ACCE	PT IN PRINCIPL	Е.			Response		Response Status	w		
The fo https:/	bllowing related p //www.ieee802.or	resentation was reviewed at a ·g/3/ck/public/adhoc/mar23_2	a previous task 2/ran_3ck_adh	force meeting: oc_01_032322.pdf	ACCE	PT.				
Per st equali	raw polls 12 and zation".	13 there is consensus to mea	asure SCMR wi	ith tx equalizer set to "no						
Note t	hat adopted com	ment R1-3 adds an explicit d	efinition of v_pe	eak in 162.9.4.1.2.						
Impler	ment the followin	g with editorial license.								
Delete mode	e the sentence "T linear fit pulse re	The procedure in 162.9.4.1.1 is esponse p(k)." from the first part	s used to deter aragraph.	mine the differential-						
Chanç SCMF	ge the definition on R=20*log10(v_pe	of SCMR to be ak/V_{CMPP-HF})								

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn SORT ORDER: Comment ID

Comment ID R1-2

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training (bucket1)

C/ 162	SC 162.9.4.1.2	P 1	69	L 37	# R1-3
Ran, Adee		Cisco	Systems,	Inc.	
Comment Ty	be TR	Comment Status	Α		TX V_peak (CC)

"The linear fit pulse peak ratio Rpeak is defined as the ratio between the maximum value of p(k) and the steady-state voltage vf."

vf is defined in the previous paragraph as "measured with transmit equalizer set to preset 1 (no equalization)" but it may be interpreted as if this holds only for vf and not for p(k). Under this interpretation, Rpeak will be dependent on equalization setting (and will be degraded in other settings).

The intent is to follow the previously defined specifications such that R\_peak uses the non-equalized signal (e.g. in 93.8.1.5.2, "The peak value of p(k) shall be greater than 0.71 x vf after the transmit equalizer coefficients have been set to the "preset" values").

Also, it would be useful to have an explicit definition of vpeak for other places that use it, such as the SCMR, RES\_ISI, and possibly SNDR specifications. There are definitions in 163A.3.2.1 (reference and measured) but not here.

#### SuggestedRemedy

With editorial license:

Change the three paragraphs of 162.9.4.1.2 to the following:

"The linear fit pulse peak, v\_peak, and steady-state voltage, v\_f, are defined using the linear fit pulse response, p(1) through  $p(M \times Nv)$ , measured with transmit equalizer set to preset 1 (no equalization). Nv is set equal to 200. The linear fit procedure for obtaining p and the values of M and Np are defined in 162.9.4.1.1.

v\_peak is defined as maximum value of p(k). v\_f is defined as the sum of the linear fit pulse p(1) through  $p(M \times Nv)$  divided by M.

The linear fit pulse peak ratio R\_peak is defined as the ratio between v\_peak and v\_f.

The steady-state voltage and the linear fit pulse peak ratio shall meet the requirements specified in Table 162–10.

Apply the new team v\_peak in other places that refer to the pulse peak (or will refer to it following resolution of other comments) such as 162.9.4.3, 163.9.2.8, and 163.9.2.6.

Response Response Status C

ACCEPT IN PRINCIPLE.

Implement the following with editorial license:

Change the three paragraphs of 162.9.4.1.2 to the following: "The linear fit pulse peak, v\_peak, and steady-state voltage, v\_f, are defined using the

linear fit pulse response, p(1) through  $p(M \times Nv)$ , measured with transmit equalizer set to preset 1 (no equalization). Nv is set equal to 200. The linear fit procedure for obtaining p

and the values of M and Np are defined in 162.9.4.1.1.

v\_peak is defined as maximum value of p(k).

v\_f is defined as the sum of the linear fit pulse p(1) through p(M×Nv) divided by M.

The linear fit pulse peak ratio R\_peak is defined by equation 162-xx.

 $R_peak = v_peak / v_f (162-xx)$ 

The steady-state voltage and the linear fit pulse peak ratio shall meet the requirements specified in Table 162–10.

Apply the new term V\_peak in other places that refer to the pulse peak measured with "no equalization" such as 162.9.4.3, 163.9.2.8, and 163.9.2.6.

[Editor's note: CC: 162, 163]

Cl 163	SC 163.9.2.8	P 207	L 15	# R1-4
Ran, Adee		Cisco System	ns, Inc.	
Comment Tv	vpe TR	Comment Status D		TX V peak (CC)

The definition of SCMR uses  $p_max$  defined as the maximum of p(k), and the text says "The procedure in 162.9.4.1.1 is used to determine the differential-mode linear fit pulse response p(k)."

That procedure is applicable for any equalizer setting and will yield different p(k) vectors (it is actually used to characterize the equalization coefficients), so with this definition, SCMR depends on equalization setting. This is not helpful, and not practical to verify.

SCMR (and the limit applied to it) should be defined strictly with respect to the pulse peak in the "no equalization" setting.

Alternatively, we can get remove the SCMR specification and instead specify VCMPP-LF and VCMPP-HF, as on clause 162 and annex 120G. These are defined independently of equalization setting.

#### SuggestedRemedy

Change the equation to use v\_peak instead of p\_max, and refer to 162.9.4.1.2 for the definition of v\_peak (subject of another comment).

Delete the sentence "The procedure in 162.9.4.1.1 is used to determine the differentialmode linear fit pulse response p(k)" (it will become redundant).

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn SORT ORDER: Comment ID

Comment ID R1-4

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CI 0	SC	0	P <b>0</b>	LO	# R1-5		C/ 162	SC	162.9.2	P 165	L <b>44</b>	# R1-7
Brown, Ma	atthew		Huawei Tech	nologies Canada	a		Brown, Ma	tthew		Huawei Teo	hnologies Canad	la
Comment	Туре	Е	Comment Status A	Ū			Comment	Туре	Е	Comment Status A	0	signal paths
Keep 802.3	this dra ck.	ft in line w	ith the new revision (802.3c	lc) and any amer	ndments that preced	e	The in from:	pleme	ntation of	Draft 3.0 comment i-89 res	ulted in the subc	lause being changed
Suggeste	dRemec	dy					"162.9 The M	.2 Sign	ial paths smit and i	receive naths are noint-to-r	oint connections	Each nath corresponds
Align amen	the next dments	t draft with	the latest versions of the n	ew revision (802.	.3df) and any preced	ling	to one differe	MDI la ntial pa	ine and co air."	omprises two complementa	ry signals, which	form a balanced
Response	<del>)</del>		Response Status C				to:		aannaatio			
ACCE	EPT IN F	PRINCIPL	E.				The M	DI tran	smit and i	receive paths are point-to-p	oint connections.	. Each MDI data path is
Align amen	the next dments	t draft with	the latest versions of the n	ew revision (802.	.3dc) and any preced	ding	compo signal The fir	osed of s, formi st part	one or mo ing a bala of the pro	ore MDI lanes. Each MDI la nced differential pair." posal was to replace the u	ane is composed se of "comprises"	of two complementary with "is composed of"
C/ 120G	SC	120G.1	P <b>256</b>	L 12	# R1-6		to be of The of	consiste her nar	ent throug	hout the standard. There is roposal was to change the	s nothing wrong w text used to desci	ith this change.
Brown, Ma	atthew		Huawei Tech	nologies Canada	a		Unfort	unately	, the new	text uses terminology that	is not consistent	with the rest of the
Comment	Туре	Е	Comment Status A		data p	oaths	Clause	e. Spec	ifically, th	ere is no concept of an "M	OI path" "MDI trar	ismit path", or "MDI
The ir from:	npleme "The C2	ntation of 2M interfac	Draft 3.0 comment i-92 resu ce comprises independent o	ulted in the sente data paths in eac	nce being changed h direction."		Suggested	Remed	dy			
to: "TI The fi to be The o Unfor	from: "The C2M interface comprises independent data paths in each direction." to: "The C2M interface is composed of independent transmit and receive data paths." The first part of the proposal was to replace the use of "comprises" with "is composed of" to be consistent throughout the standard. There is nothing wrong with this change. The other part of the proposal was to change the text used to describe the data paths.					f"	Change the subclause to: "162.9.2 Signal paths The MDI transmit and receive signal paths are point-to-point connections. Each signal path corresponds to one MDI lane and comprises two complementary signals, which form a balanced differential pair."					
Anne	x. Speci	fically, the	re is no concept of a "trans	mit path" or "rece	eive path". The origin	nal	Response			Response Status C		
Suggosto	dDomoc						ACCE	PT IN F	PRINCIPL	.E.		
Chang To: "T	ge: "The he C2N	e C2M inte interface	rface is composed of indep	endent transmit a nt data paths in e	and receive data pat	hs."	The te consis	xt as cl tent as	hanged in written w	D3.1 introduces new incor ith similar subclauses in th	rect terminology. e base standard (	The original text was (specifically the new
Response	)		Response Status C				revisio	n, 802.	3dc D3.2)	), e.g., Clause 136.		
ACCE	EPT IN F	PRINCIPL	E.				Chang	e the h	eading to	: "Signal paths"		
The te (spec	ext as w ifically th	ritten in D he new rev	3.0 was consistent with sim vision, 802.3dc D3.2).	ilar specifications	s in the base standa	rd	Chang "The N	e the p IDI trar	baragraph Insmit and	to: receive paths are point-to-	point connections	s. Each path
See s https:	lide 2 of //www.ie	f the follov eee802.org	ving presentation: g/3/ck/public/22_04/brown_	3ck_01a_0422.p	df		balanc	ed diffe	erential pa	air."	somplementary si	gnais, which form a
Chan To: "T	ge: "The The C2M	e C2M inte 1 interface	rface is composed of indep comprises independent da	endent transmit a ta paths in each	and receive data pat direction."	hs."						

C/ 162	SC	162.1	Р	153	L <b>46</b>	# R1-8	C/ 162	SC	162.8.11	P 165	L 24	# R1-10
Brown, M	atthew		Hua	wei Technol	ogies Canada		Lusted, Ke	ent		Intel Corpor	ration	
Comment	t Type	Е	Comment Statu	s A		style (bucket1)	Comment	Туре	Е	Comment Status A		training (bucket1)
Footr depre	note a ir ecated a	n Table 162 according th	2-1, Table 162-2, an ne SA Standards S	nd Table 16 ityle Manual	2-3 includes the	word must, which is	In Tat 1 x =	le 162- Reserve	9, the coef ed" underli	ficient select field has the ned. The underlining is no	entry values of "1 ot necessary.	1 0 0= Reserved and "0
Suggeste	dReme	dy					Suggeste	Reme	dy			
In Ta	ble 162	-1, Table 1	62-2, and Table 16	62-3			Remo	ve the	underlining	for the entry values of "1	0 0" Reserved ar	nd "0 1 x = Reserved".
Chan To: "a	ge: "a c a confor	conforming rming imple	implementation mi mentation behave	ust behave f s functionall	unctionally" y"		Response			Response Status C		
Response	e		Response Status	G C			ACCE	PT.				
and E the so Howe confo	comme 03.1 or f cope of ever, elin rmance ment th	nt does not the unsatisi the recircu minating the with the S he suggeste	apply to the subst fied negative comm lation ballot. e use of "must" is n A Standards Style ed remedy.	antive chang nents from p necessary ir Manual.	ges between IE previous drafts.	EE P802.3ck D3.0 Hence it is not within the draft into						
C/ 163	SC	163.1	Р	197	L <b>48</b>	# R1-9						
Brown, M	atthew		Hua	wei Technol	ogies Canada							
Comment Footr depre	t <i>Type</i> note a ir ecated a	E Table 163 according th	<i>Comment Status</i> -1, Table 163-2, an ne SA Standards S	s <b>A</b> nd Table 16 ityle Manual	3-3 includes the	style (bucket1) word must, which is						
Suggeste In Tal Chan To: "a	<i>dReme</i> ble 163 ge: "a c a confor	dy -1, Table 10 conforming rming imple	63-2, and Table 16 implementation mu mentation behave:	i3-3 ust behave f s functionall	unctionally" y"							
Response	e		Response Status	5 <b>C</b>								
ACCI This of and I the so Howe confo Imple	EPT IN commen 03.1 or t cope of ever, elin prmance ement th	PRINCIPLE nt does not the unsatise the recircu minating the with the S ne suggeste	E. apply to the subst fied negative comm lation ballot. e use of "must" is n A Standards Style ed remedy.	antive chang nents from p necessary ir Manual.	ges between IE previous drafts. a order to bring	EE P802.3ck D3.0 Hence it is not within the draft into						

	00.000.00	D / D /									
C/ 162	SC 162.8.11	P 164	L 21	# <u>R1-11</u>		Imple	ment with editor	rial license.			
Lusted, K	ent t Type <b>T</b> Cr	Intel Corpora	tion		training Cl	162	SC 162.9.4	.4	P 171	L 12	# R1-12
There	is a contradiction in th	e specification as to wh	nich control field	structure to use w	<sub>/ith</sub> Lu	usted, Ke	ent		Intel Corpora	tion	
the P	MD control function. T	he first list item (a) in th	ne exceptions list	t says that "The co	ontrol Co	omment	Туре Т	Com	nent Status A		TX Jitter
selec Table as ot	t bits in the control field 162-9 includes the add her changes from Table	d are per Table 136-9 wille the d are per Table 136-9 w ditional combination (cr e 136-9.	ith an additional n3) in the coeffic	combination. Not	te that well	The fi chara param J3u_0	rst sentence of cterized by thre neters are provio 3. The jitter pa	the first pa e paramete ded in the t rameter J3	ragraph in the sub-o ers: J_rms, even-oc ext and in Table 16 au_03 should be inc	clause states tha dd jitter, J3u. Ho 2-10: J_rms, eve luded in the first	t output jitter is wever, a total of four en-odd jitter, J3u and paragraph.
Addir not th	ng to the confusion is th ne revised status field s	nat this sub-clause only tructure.	has the revised	control field struct	ture, Sι	uggester Chan	dRemedy ge the first sent	ence of the	first paragraph to "	Output iitter is ch	naracterized by four
Suggeste	dRemedy					param	neters, J3u, J3u	L_03 JRMS	, and even-odd jitte	r."	
Two s	solutions are proposed	here for consideration l	by the comment	resolution group:		Simila	urly, consider ac	ding J3u_(	03 to the first senter	nce of the second	d paragraph, too.
Optio	n A:				Re	esponse	•	Respo	nse Status <b>C</b>		
* rem * rem	ove list item (a) and rei ove Table 162-9	number the list.				ACCE	PT IN PRINCIP	PLE.			
Optio * add New additi * cha field s * rem	option B: add in new Table 162-9a (after Table 162-9) that shows the revised status field structure. lew Table 162-9a "Status Field Structure" would be based on Table 136-10 with the ddition of entry "1 0 1 = $c(-3)$ " in the coefficient select echo field change item (a) to "The control field structure is specified in Table 162–9 and the status eld structure is specified in Table 162-9a" remove list item (e) and renumber the list.				cture. tatus	I he e define Chang param Implei	xtra parameter d in 120D.3.1.8 ge the first sent neters: J3u, J3u ment with editor	should be a 3.1, but is ra ence of the I_03, JRMS rial license	added to the first pa ather defined in the first paragraph to " S, and even-odd jitte including consisten	ragraph. Howeve subsequent sent Output jitter is ch er." t order of jitter te	er, J3u_03 is not ence. haracterized by four rms.
Imple	ment with editorial lice	nse									
Response	e Re	sponse Status C									
ACCI	EPT IN PRINCIPLE.										
This of and I the so	comment does not app 03.1 or the unsatisfied r cope of the recirculation	ly to the substantive ch negative comments fror n ballot.	anges between I m previous drafts	EEE P802.3ck D3 s. Hence it is not v	3.0 vithin						
Howe	ever, the proposed char	nge is an improvement	to the draft.								
* add Table 0 1 = * cha field s * rem * mov	in new table (after Tab e 162-x "Status Field St c(-3)" in the coefficient nge item (a) to "The co structure is specified in ove list item (e) ve list item (b) to immed umber the list	ele 162-9) that shows th ructure" is based on Ta select echo field ontrol field structure is s Table 162-x" diately precede the curr	e revised status ble 136-10 with specified in Table rent list item (g)	field structure. N the addition of ent e 162–9 and the s	ew try "1 tatus						
			, , ,						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 U/unsatisfied Z/withdrawn SORT ORDER: Comment ID

Comment ID R1-12

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C/ 162	SC 162.9.4.4	P 171	L 17	# R1-13	C/ FM	SC FM	P 11	L 17	# R1-15
Lusted, K	ent	Intel Corporat	ion		Grow, Rob	pert	RMG Consul	ting	
Comment	t Туре <b>Т</b>	Comment Status A		TX Jitter	Comment	Туре Е	Comment Status A		(k
The fi	irst sentence of th	e second paragraph reference	ces J3u to the m	neasurement method	This p	aragraph is in	consistent with the current front	t matter as found	d in P802.3/D3.2.
specil be co	fied in 120D.3.1.8	.1. However, 120D.3.1.8.1 is der without providing addition	s a method for J nal context	4u, not J3u, which may	Suggested	Remedy			
Suggester	dRemedy		nar context.		Update	e for consister	ncy with P802.3/D3.2.		
Add tl	he following new s	sentence to the second para	araph after the	first sentence ".13u is	Response		Response Status C		
calcul	lated the same war al that includes al	ay as J4u in 120D.3.1.8.1 exc I but 10–3 of f_j(t), from the (	cept that J3u is 0.05th to the 99.	defined as the time 95th percentile of f_j(t)."	ACCE Align t	PT IN PRINC	PLE. with latest 802.3 FrameMaker	template.	
Response	9	Response Status C			C/ FM	SC FM	P 12	L <b>39</b>	# R1-16
ACCE	EPT IN PRINCIPL	E.			Grow, Rob	ert	RMG Consul	ting	
Repla	ace the first senter	nce with the following: "JRMS	S is calculated u	sing the measurement	Comment	Туре Е	Comment Status A	-	(k
metho	od specified in 12	0D.3.1.8.1. J3u is calculated	using the meas	urement method for J4u	The de	escription of S	ection Nine has changed during	g balloting of P8	02.3.
f_j(t),	from the 0.05th to	the 99.95th percentile of f_j	(t)."	includes all but 10–5 of	Suggested	Remedy			
1	and the state of the state	L Parana			Update	e to be consis	tent with P802.3/D3.2.		
Imple	ment with editoria	li license.			Response		Response Status <b>C</b>		
C/ FM	SC FM	P <b>1</b>	L 28	# R1-14	ACCE	PT IN PRINC	PLE.		
Grow, Rol	bert	RMG Consult	ing		Align t	his paragraph	with latest 802.3 FrameMaker	template.	
Comment	tType E	Comment Status A		(bucket1)					
This li Amen	ist is not correct. Idment 5.	It also lists five previous ame	endments yet Pa	802.3cx is identified as					
Suggeste	dRemedy								
lf new assur numb P802.	v amendment num med to be hitting F pers remain uncha .3de from this list,	nbers are assigned for the ga RevCom in September, obvio Inged from the last amendme and sort in amendment nur	aggle of amendr ously use that or ent number assi nber order.	nents currently der. If amendment gnment, delete					
Response	9	Response Status C							
ACCE	EPT IN PRINCIPL	E.							

Align this list with the current amendment order as determined by the Working Group Chair.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn SORT ORDER: Comment ID

Comment ID R1-16

# R1-15

(bucket1)

(bucket1)

C/ 120G SC 120G.3.4	. <b>3.2</b> P	271	L 33	# R1-17	C/ 162	SC	162.9.4		P 167	L 16	# R1-18
Calvin, John	Keys	sight Technolo	gies		Wu, Mau-	Lin			MediaTek Ind	<b>)</b> .	
Comment Type T	Comment Status	s A		HO/MI EH	Comment	Туре	TR	Comment S	Status A		TX ISI_RES (CC)
Consistent with the gro the presentation: https://www.ieee802.or	Consistent with the groups consensus during polling at the 3/23/2022 Ad-Hoc Session an the presentation: https://www.ieee802.org/3/ck/public/adhoc/mar23_22/calvin_3ck_adhoc_01_032322.pdf Reducing the EH target by 20% from 10mV to 8mV in sponsor ballot with no supporting							R are quite dif pec limit of IS k_adhoc_01_0	ferent from th I_RES of CR )30922 & wu_	at for KR. Base shall be modifie 3ck_adhoc_03	ed on that, the calculation ed. The detailed analysis 3022.
material was a mistake	t by 20% from 10m	V to 8mV in sp dance of TP1A	onsor ballo A focused e	ot with no supporting	Suggeste	dReme	dy				
in the 802.3 project fol VEC at 12-12.5dB eva	ders that underscore luated at 10mV. The	es how little manual here are multip	argin there	was in achieving a valid ed existence proofs for a	Chang 162-1	ge "Res 0.	sidual inters	symbol interfe	rence, ISI_RE	S (max)" from	-30 dB to -29 dB in Table
TP1A solution at 10m\ 8m\//12dB VEC is atta	//12dBVEC. There	are no publicl	y published	existence proofs that	Response	;		Response S	tatus C		
SuggestedRemedy					ACCE	PT IN	PRINCIPL	E.			
Revert the Table "1200 value of 8mV to 10mV	G–10—Module stres where it's been sett	ssed input para tled to date.	ameters" E	H value from the current	The for meeti	ollowing ng:	related pr	esentations w	ere reviewed	by the task forc	e in a previous ad hoc
Response	Response Status	G C			https:/	//www.i	eee802.org	g/3/ck/public/a g/3/ck/public/a	dhoc/mar09_2 dhoc/mar30_2	22/li_3ck_adhoo	c_01_030922.pdf
ACCEPT IN PRINCIPL	.Е.				nups.	// ** ** ** . !*	eeeoo2.oi	y/3/0K/public/a		22/WU_JUK_aun	00_01_000022.pdf
As noted in the comm	nt a related strow	nall was takan	at the 202	2/2/22 ad bas mosting	Resol	ve usin	g the respo	onse to comm	ent R1-28.		
(straw poll #1) as reco	As noted in the comment, a related straw poll was taken at the 2022/3/23 ad hoc meeting (straw poll #1) as recorded in the minutes here:				C/ 163	SC	163.9.2.6		P 206	L 22	# R1-19
https://www.ieee802.or	ps://www.ieee802.org/3/ck/public/adhoc/mar23_22/minutes_032322_3ck_adhoc.pdf					Lin			MediaTek Ind	C.	
The straw poll noted al	oove indicated that t	there was cons	sensus that	some remedy was	Comment	Туре	TR	Comment S	Status A		TX ISI_RES (CC)
required, but a specific	remedy was not de	etermined.		-	The IS	SI_RES	spec of C	R are quite dif	ferent from th	at for KR. Base	d on that, the calculation
Per straw poll #17 (bel 10 mV.	ow), there is conser	nsus to revert t	he EH spe	cification from 8 mV to	metho had b	od as w e cover	ell as the s ed in li_3cl	spec limit of IS k_adhoc_01_(	I_RES of CR )30922 & wu_	shall be modifie 3ck_adhoc_03	ed. The detailed analysis 3022.
					Suggeste	dReme	dy				
Change the specification	on for host output E	H and module	stressed ir	nput EH to 10 mV.	Add tl "ISI_F	ne follov RES is o	wing parag calculated	raph after the from measure	1st sentence ments with a	of 163.9.2.6, single transmit	equalizer setting to
Straw poll #17 (chicage For module stressed in	<li>and #18 (pick one pout and bost output</li>	e) t I support an	EH value o	f	comp is cho	ensate	for the loss	s of the transm	itter package	and host chan	nel. The equalizer setting
A: 8 mV (no change)		t, i support an			Response			Bosponso S			
B: 9 mV	2)				ACCE			response 3			
C: 10 mV (revert to D3 #17 A: 6 B: 10 C: 21	.0)				ACCE		FRINCIFL	∟.			
#18 A: 5 B: 3 C: 18					The for https:/	ollowing //www.ie	) presentat eee802.org	ion was review g/3/ck/public/a	ved by the tas dhoc/mar30_2	k force at a pre 22/wu_3ck_adh	vious ad hoc meeting: oc_01a_033022.pdf
Note: Straw poll #17 a rules (pick any) and #1	nd #18 are the sam 8 is choose one.	e question and	d answers	except #17 is chicago	Resol	ve usin	g the respo	onse to comm	ent R1-28.		
					[Edito	r's note	e: CC: 162,	163]			

Cl 162       SC 162.9.4       P167       L16       # [1:20]         Rysin, Alexander       NVIDIA         Gurment Type TR       Comment Status A       TX ISL.RES (CC)         Currently proposed ISL RES limit is to to tipt - commercial test equipment with a recomment Type TR       Comment Type TR       NuDIA         SuggestedRemedy       In table 162:10, change the minimum ISL RES value to -27. Alternatively, revise the measurement methodology. See separate comments proposing different method.       Response TLE to mitigate the effect. Measuring ISI effects with CTLE was adopted in 1200.3.1.7. Presentation is planned.         SuggestedRemedy       In table 162:10, change the minimum ISL RES value to -27. Alternatively, revise the measurement methodology. See separate comments proposing different method.       Response Status C       Nument Type Section Was measurement in the Section and the exception only to CL162.         Response Status C       ACCEPT IN PRINCIPLE.       NUDIA       In 139.2.5 change to: The linear fit pudse response for any to 400 metror e(k) are determined using the linear fit producture in 162.9.4.1.1, after these have been recalculated with the comption only to CL162.         Resolve using the response to comment R1-28.       Corresponse Contract R12.8.       Resolve using the response to comment R1-28.         Cl 163. SC 163.9.2.6       P206       L27       # [1:2]         Rysin, Alexander       NVIDIA       ACCEPT IN PRINCIPLE.         Rysin, Alexander       NVIDIA       R	-													
Rysin, Alexander     NVIDIA       Comment Type     TR     Comment Type     TR <th>C/ 162</th> <th>SC</th> <th>162.9.4</th> <th>P 167</th> <th>L 16</th> <th># R1-20</th> <th>C/ 163</th> <th>SC</th> <th>163.9.2.6</th> <th>P 206</th> <th>L 27</th> <th># R1-22</th>	C/ 162	SC	162.9.4	P 167	L 16	# R1-20	C/ 163	SC	163.9.2.6	P 206	L 27	# R1-22		
Comment Type       TR       Comment Status A       TX ISL_RES (CC)         Currently proposed ISL_RES limit is too tight – commercial est equipment with a recommended TPO-TP2 channel loss fail the specification. Using TX FIR to optimize is laffected by the pulse dispersion when measured at TP2. COM reference receiver uses CTLE to ruligate the effect. Measuring ISI effects with CTLE was adopted in 1200.3.1.7. Presentation is planned.         SuggestedRemedy       In table 162-10, change the minimum ISL_RES value to -27. Alternatively, revise the measurement methodology. See separate comments proposing different method.       Response for the linear fit production is planned.         Response       Response Status C       ACCEPT IN PRINCIPLE.         The following related presentation was reviewed by the task force at a previous ad hoc meeting:       https://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf         Resolve using the response to comment Status A       TX ISL_RES (CC)         ISL_RES is calculated with Np=11. COM reference receiver uses a 12-tap DFE, which corresponds to Np=17. Presentation is planned.       CCEPT IN PRINCIPLE.         Comment Type       TR       Comment Status A       TX ISL_RES (CC)         ISL_RES is calculated with Np=11*       TX ISL_RES (CC)       ISL_RES is calculated with Np=11*         Comment Type       TR       Comment Status A       TX ISL_RES (CC)         ISL_RES is calculated with Np=11*       TX ISL_RES (CC)       ISL_RES is calculated with Np=11*         Corres	Rysin, Ale	exander		NVIDIA			Rysin, Alex	ander		NVIDIA				
Currently proposed ISL_RES limit is too tight – commercial test equipment with a recommended TPO-TP2 commercial test equipment with a recommended TPO-TP2 commercial test equipment with a specification. Using TX FIR to optimize ISL_RES does not help enough. Presentation is planned.         SuggestedRemedy       In table 162-10, change the minimum ISL_RES value to -27. Alternatively, revise the measurement methodology. See separate comments proposing different method.         Response       Response Status C         ACCEPT IN PRINCIPLE.       Comment Type TR Comment R1-28.         C1 163 SC 163.9.2.6       P 206       L 27       # [R1:21]         Resolve using the response to comment R1-28.       TX ISL_RES (c)       ISL_RES (c)         ISL_RES is a clausted with NP=11. COM reference receiver uses a 12-tap DFE, which corresponds to Np=17. Presentation is planned.       SuggestedRemedy         N1DIA       TX ISL_RES (c)       The following related presentation was reviewed by the task force at a previous ad hoc meeting:       The following related presentation is planned.         SuggestedRemedy       NUDIA       TX ISL_RES (c)       The following related presentation is planned.         SuggestedRemedy       Numer Size C, 04/rysin_3ck_01_0422.pdf       Resolve using the response to comment R1-28.         Comment Type TR       Comment Status A       TX ISL_RES (c)       The following related presentation is planned.         SuggestedRemedy       Numer Size C c) charge with the exception that Np = 11." to: "with the ex	Comment	Туре	TR	Comment Status A		TX ISI_RES (CC)	Comment	Гуре	TR	Comment Status A		TX ISI_RES (CC)		
Suggested/Remedy         In table 162-10, change the minimum ISLRES value to -27. Alternatively, revise the         Response       Response Status C         ACCEPT IN PRINCIPLE.         The following related presentation was reviewed by the task force at a previous ad hoc meeting:         https://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf         Resolve using the response to comment R1-28.         C/ 163 SC 163.92.6       P 206       L 27 # R1-21         Rysin, Alexander       NVIDIA         Comment Type TR       Comment Status A       TX ISLRES (cc)         ISLRES is calculated with Np=11. COM reference receiver uses a 12-tap DFE, which corresponds to Np=17. Presentation is planned.       Suggested/Remedy         In 163.9.2.6 change with the exception that Np=11.* to: "with the exception that Np=12+Dp+1". Same change in Clause 162.         Response       Response Status U         ACCEPT IN PRINCIPLE.         The following related presentation was reviewed by the task force at a previous ad hoc meeting:         https://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf         Response       Response Status U         ACCEP	Curre recon ISI_R	ntly pro nmende ES doe	posed ISI d TP0-TP s not help	_RES limit is too tight – com 2 channel loss fail the specif enough. Presentation is plan	mercial test equi ication. Using Tλ າned.	pment with a K FIR to optimize	ISI_RE receive 120D.3	S is al r uses .1.7.	ffected by t CTLE to n Presentatic	he pulse dispersion when m nitigate the effect. Measurin on is planned.	easured at TP2 g ISI effects wit	2. COM reference h CTLE was adopted in		
In table 162-10, change the minimum ISL RES value to -27. Alternatively, revise the measurement methodology. See separate comments proposing different method.  Response Response Status C ACCEPT IN PRINCIPLE.  The following related presentation was reviewed by the task force at a previous ad hoc meeting:  thtps://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf Resolve using the response to comment R1-28.  (1 163 SC 163.92.6 change 'with the exception that Np = 11.* to: 'with the exception at a previous ad hoc meeting:     https://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf Resolve using the response to comment R1-28.	Suggeste	dReme	dy				Suggested	Remed	dy					
Response       Response Status       C         ACCEPT IN PRINCIPLE.       The following related presentation was reviewed by the task force at a previous ad hoc meeting: https://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf       Atternatively, add the exception only to CL162. Response Status       C         Resolve using the response to comment R1-28.       P 206       L 27       # [1:21]         Rysin, Alexander       NVIDIA       TX ISL_RES (CC)         IS_RES is calculated with Np=11. COM reference receiver uses a 12-tap DFE, which corresponds to Np=17. Presentation is planned.       TX ISL_RES (CC)         SuggestedRemedy       In 163.9.2.6 change with the exception that Np = 11.* to: "with the exception that Np=12+Dp+1". Same change in Clause 162.       Edutor's note: CC: 163, 162]         Response Response Status       U         ACCEPT IN PRINCIPLE.         The following related presentation was reviewed by the task force at a previous ad hoc meeting:         Inters//www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf         Response Status       U         ACCEPT IN PRINCIPLE.         The following related presentation was reviewed by the task force at a previous ad hoc meeting:         Inters//www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf         Response to comment R1-28.         Response to comment R1-28.         Response to comment R1-28.         Response Response Status<	In tab meas	le 162-' uremen	10, change t methodo	e the minimum ISI_RES valu blogy. See separate commen	e to -27. Alterna ts proposing diff	tively, revise the erent method.	In 163.9.2.6 change to: The linear fit pulse response p(k) and error e(k) are determined using the linear fit procedure in 162.9.4.1.1, after these have been recalculated with the							
The following related presentation was reviewed by the task force at a previous ad hoc meeting:       Alternatively, add the exception only to CL162.         Resolve using the response to comment R1-28.       Resolve using the response to comment R1-28.       C         C/ 163 SC 163.9.2.6       P 206       L 27 # R1-21         Rysin, Alexander       NVIDIA       TX ISL_RES (CC)         ISL_RES is calculated with Np=11. COM reference receiver uses a 12-tap DFE, which corresponds to Np=17. Presentation is planned.       TX ISL_RES (CC)         SuggestedRemedy       In 163.9.2.6 change "with the exception that Np = 11." to: "with the exception that Np=11." to: "with the exception ad hoc meeting.         Response       Response Status U         ACCEPT IN PRINCIPLE.         The following related presentation was reviewed by the task force at a previous ad hoc meeting.         https://www.ieee802.org/3/ck/p	Response ACCI	Response Response Status C ACCEPT IN PRINCIPLE.						continuous time filter described in 93A.1.4.3 using the parameters in Table 163-11 applied and optimized for maximum ISI_RES, with the exception that…".						
The following related presentation was reviewed by the task force at a previous ad hoc meeting:       Resolve using the response to comment R1-28.       Resolve using the response to comment R1-28.       C/       Resolve using the response to comment R1-28.       This is comment Type       TR       Comment Type       TR       Comment Type       TR       Comment Status       A       TX ISI_RES (CC)       The following resentation is planned.         SuggestedRemedy       In 163.9.2.6 change "with the exception that Np = 11." to: "with the exception that Np = 12." The following related presentation was reviewed by the task force at a previous ad hoc meeting: https://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf       Resolve using the response to comment R1-28.         Resolve using the response to comment R1-28.       Resolve using the response to comme		The following related presentation was reviewed by the task force at a previous ad boc						tively,	add the ex	ception only to CL162.				
Intustry       Intustry       ACCEPT IN PRINCIPLE.         Resolve using the response to comment R1-28.       ACCEPT IN PRINCIPLE.         Cl 163 SC 163.9.2.6       P 206       L 27       # R1-21         Rysin, Alexander       NVIDIA       Tx ISI_RES (CC)       ISI_RES is calculated with Np=11. COM reference receiver uses a 12-tap DFE, which corresponds to Np=17. Presentation is planned.       Tx ISI_RES (CC)       ISI_RES is calculated with Np=11. To: "with the exception that Np=11." to: "with the exception that Np=12."       Image: Resolve using the response to comment R1-28.         Resolve using the response to comment R1-28.       Resolve using the response to comment R1-28.       Image: Resolve using the response to comment R1-28.         Resolve using the response to comment R1-28.       Resolve using the response to comment R1-28.       Image: Resolve using the response	The f	The following related presentation was reviewed by the task force at a previous ad hoc meeting:					Response			Response Status C				
Resolve using the response to comment R1-28.       The following presentation was reviewed by the task force:         Cl 163       SC 163.9.2.6       P 206       L 27       # R1-21         Rysin, Alexander       NVIDIA       NVIDIA       Resolve using the response to comment R1-28.       Resolve using the response to comment R1-28.         Comment Type       TR       Comment Status A       TX ISI_RES (CC)       ISI_RES is calculated with Np=11. COM reference receiver uses a 12-tap DFE, which corresponds to Np=17. Presentation is planned.       TX ISI_RES (CC)       Isi_s 2.6 change "with the exception that Np = 11." to: "with the exception that Np=11." to: "with the exception that Np	https:	https://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf					ACCE	PT IN I	PRINCIPLE	Ξ.				
C/ 163       SC 163.9.2.6       P 206       L 27       # R1-21         Rysin, Alexander       NVIDIA       Resolve using the response to comment R1-28.         Comment Type       TR       Comment Status       A       TX ISI_RES (CC)       [Editor's note: CC: 163, 162]         ISI_RES is calculated with Np=11. COM reference receiver uses a 12-tap DFE, which corresponds to Np=17. Presentation is planned.       [Editor's note: CC: 163, 162]       [Editor's note: CC: 163, 162]         SuggestedRemedy       In 163.9.2.6 change "with the exception that Np = 11." to: "with the exception that Np=12+Dp+1". Same change in Clause 162.       Image: Comment R1-28.       [Editor's note: CC: 163, 162]         Response       Response Status       U       ACCEPT IN PRINCIPLE.       The following related presentation was reviewed by the task force at a previous ad hoc meeting: https://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf       Resolve using the response to comment R1-28.	Reso	Resolve using the response to comment R1-28.				The fol https://	lowing www.ie	presentati	on was reviewed by the task	<force: k 01 0422.pdf</force: 				
Rysin, Alexander     NVIDIA     Resolve using the response to comment R1-28.       Comment Type     TR     Comment Status     A     TX ISI_RES (CC)     [Editor's note: CC: 163, 162]       ISI_RES is calculated with Np=11. COM reference receiver uses a 12-tap DFE, which corresponds to Np=17. Presentation is planned.     [Editor's note: CC: 163, 162]     [Editor's note: CC: 163, 162]       SuggestedRemedy     In 163.9.2.6 change "with the exception that Np = 11." to: "with the exception that Np=12+Dp+1". Same change in Clause 162.     U       Response     Response Status     U       ACCEPT IN PRINCIPLE.     The following related presentation was reviewed by the task force at a previous ad hoc meeting: https://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf       Resolve using the response to comment R1-28.	C/ 163	SC	163.9.2.6	P 206	L <b>27</b>	# R1-21	····‡·····							
Comment Type       TR       Comment Status       A       TX IS_RES (C)       [Editor's note: CC: 163, 162]         ISI_RES is calculated with Np=11. COM reference receiver uses a 12-tap DFE, which corresponds to Np=17. Presentation is planned.       [Editor's note: CC: 163, 162]         SuggestedRemedy       In 163.9.2.6 change "with the exception that Np = 11." to: "with the exception that Np=12+Dp+1". Same change in Clause 162.       [Editor's note: CC: 163, 162]         Response       Response Status       U         ACCEPT IN PRINCIPLE.       [The following related presentation was reviewed by the task force at a previous ad hoc meeting: https://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf         Resolve using the response to comment R1-28.       [Editor's note: CC: 163, 162]	Rysin, Ale	exander		NVIDIA			Resolv	e using	g the respo	onse to comment R1-28.				
ISI_RES is calculated with Np=11. COM reference receiver uses a 12-tap DFE, which corresponds to Np=17. Presentation is planned. SuggestedRemedy In 163.9.2.6 change "with the exception that Np = 11." to: "with the exception that Np=12+Dp+1". Same change in Clause 162. Response Response Status U ACCEPT IN PRINCIPLE. The following related presentation was reviewed by the task force at a previous ad hoc meeting: https://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf Resolve using the response to comment R1-28.	Comment	Туре	TR	Comment Status A		TX ISI_RES (CC)	[Editor	s note	: CC: 163,	162]				
SuggestedRemedy         In 163.9.2.6 change "with the exception that Np = 11." to: "with the exception that Np=12+Dp+1". Same change in Clause 162.         Response       Response Status         ACCEPT IN PRINCIPLE.         The following related presentation was reviewed by the task force at a previous ad hoc meeting: https://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf         Resolve using the response to comment R1-28.	ISI_R corre	ES is ca sponds	alculated to Np=17.	with Np=11. COM reference Presentation is planned.	receiver uses a ?	12-tap DFE, which								
In 163.9.2.6 change "with the exception that Np = 11." to: "with the exception that Np=12+Dp+1". Same change in Clause 162.	Suggeste	dReme	dy											
Response       Response Status       U         ACCEPT IN PRINCIPLE.       ACCEPT IN PRINCIPLE.         The following related presentation was reviewed by the task force at a previous ad hoc meeting: https://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf         Resolve using the response to comment R1-28.	In 16 Np=1	3.9.2.6 ( 2+Dp+1	change "w ". Same c	ith the exception that Np = 1 change in Clause 162.	1." to: "with the e	exception that								
The following related presentation was reviewed by the task force at a previous ad hoc meeting: https://www.ieee802.org/3/ck/public/22_04/rysin_3ck_01_0422.pdf Resolve using the response to comment R1-28.	Response ACCE	e EPT IN I	PRINCIPL	Response Status U E.										
Resolve using the response to comment R1-28.	The f meet https:	ollowing ng: //www.ie	related p	resentation was reviewed by g/3/ck/public/22 04/rysin 3c	the task force at k 01 0422.pdf	t a previous ad hoc								
	Reso	lve usin	g the resp	onse to comment R1-28.	_ ,									

C/ 162	SC 162.9.4	P 167	L 16	# R1-23	C/ 163A	SC 163A	.3.1.1	P 319	L 11	# R1-25
Rysin, Ale	exander	NVIDIA			Healey, Ad	am		Broadcom Inc	C.	
Comment	t Type TR	Comment Status A		TX ISI_RES (CC)	Comment 7	Гуре <b>т</b>	Comment	Status R	SSI	//PP reference (bucket1)
ISI_R receiv	ES is affected by ver uses CTLE to r	the pulse dispersion when m nitigate the effect. Measuring	easured at TP2 g ISI effects wit	2. COM reference h CTLE was adopted in	Equation needed	on (52-2) is t to map f_r	an expression in t to "y".	erms of an inter	rmediate variable	e y. Equation (52-3) is
Suggasta	dDomody				Suggested	Remedy				
Suggeste	aremeay	the following:			Change	e "Equation	(52-2)" to "Equati	on (52-2) and E	quation (52-3)".	
Auu a	a comment stating	the following.			Response		Response	Status C		
For th deterr with th applie	ne ISI_RES measure mined using the line he continuous time and optimized for	rement the linear fit pulse re near fit procedure in 162.9.4. e filter described in 93A.1.4.3 or maximum ISI RES, with	esponse p(k) an 1.1, after these 3 using the para the exception th	d error e(k) are have been recalculated imeters in Table 163-11 hat Np=12+Dp+1"	REJEC Equatio obvious	CT. on 52-3 follo s that Equat	ws a "where" stat ion 52-2 depends	ement immedia on Equation 52	ttely following Eq 2-3 without explic	uation 52-2; so it is it reference elsewhere.
Response		Posnonso Status		at 10 - 12 10 p 11 .	C/ 163A	SC 163A	.3.1.2	P 319	L 37	# R1-26
					Healey, Ad	am		Broadcom Inc	<b>.</b>	
AUUL		<b>_</b> .			Comment T	Гуре Е	Comment	Status A		ERL reference
The for meeti	ollowing related pr ing:	esentation was reviewed by	the task force a	t a previous ad hoc	The su are equ	bscript "ii" o ual (e.g., s_	f s_{ii}^{(y)} would {11}) where in the	d be better write case they are s	n as "ij" since "ii' sometimes not eo	implies the suscripts qual.
nttps:	//www.ieee802.org	g/3/ck/public/22_04/rysin_3c	K_01_0422.pdf		Suggested	Remedy				
Resol	lve using the respo	onse to comment R1-28.			Change	e subscript l	from "ii" to "ij".			
C/ 162	SC 162.8.11	P 164	L 35	# R1-24	Response		Response	Status C		
Lusted, K	ent	Intel Corporat	ion		ACCER	J.				
Comment	t Туре <b>Т</b>	Comment Status A		training (bucket1)	C/ FM	SC FM		P <b>24</b>	L <b>44</b>	# R1-27
Imple	mentation issue a	ssociated with comment i-48	against D3.0 (	see	Healey, Ad	am		Broadcom Inc	C.	
tedBv	//www.ieee602.0ig /Number.pdf). The guiet in training (s	e text as written for item h of see 136.8.11.7.1) is TRUE."	162.8.11 (page	164) is "The of	Comment 7 In the t	<i>Type</i> <b>E</b> able of cont	<i>Comment</i> ents, annex head	Status <b>A</b> ings break acro	ss multiple lines.	(bucket1)
use_c	0(							0	•	
use_c	dRemedy				hateanu?	Romody				
use_c Suggester Chang the Ac	dRemedy ge to "The value o ccepted response	f use_quiet_in_training (see to comment i-48 on Draft 3.0	136.8.11.7.1) is D.	s TRUE." to align with	Suggested Modify templa	<i>Remedy</i> the structur te.	e of annex headir	ngs per the mos	t recent IEEE 80	2.3 FrameMaker draft
use_c Suggester Chan the Ad Response	dRemedy ge to "The value o ccepted response	f use_quiet_in_training (see to comment i-48 on Draft 3.0 <i>Response Status</i> <b>C</b>	136.8.11.7.1) is D.	s TRUE." to align with	Suggestedi Modify templa Response	Remedy the structur te.	e of annex headir Response	ngs per the mos Status <b>C</b>	t recent IEEE 80	2.3 FrameMaker draft

Comment ID R1-27

C/ 162	SC 162.9.4	P 167	L 16	# R1-28
Healey, Ada	am	Broadcom Inc.		
Comment 7	vpe TR	Comment Status A		TX ISI RES (CC)

ISI\_RES includes the linear fit error computed as part of the SNDR metric and this linear fit error is primarily attributed to distortion. The simulations that served as the basis for the Clause 163 and Annex 120F ISI\_RES limits

(https://www.ieee802.org/3/ck/public/21\_07/dudek\_3ck\_01\_0721.pdf) used linear models with noise-dominated SNDR. Transmitters whose SNDR includes some linear fit error may have difficulty meeting the ISI\_RES limit even with otherwise acceptable residual ISI. The limit for Clause 162 was set 1 dB higher but without demonstration that this is sufficient margin for the additional ISI introduced by a host channel. In addition, measurement of the transmitted waveform at the output of a dispersive channel will include an ISI "tail" that will be compensated by the reference receiver. Reflections are the primary focus of the ISI\_RES specification and the inclusion of a reference equalizer to compensate the ISI tail would improve that focus. Finally, ISI\_RES combines all errors independent of phase while ERL accounts for how the reflections could be more accurately predicted if such alignment was considered. These concerns can be addressed by the SNR\_ISI metric defined in 120D.3.1.7.

#### SuggestedRemedy

Replace ISI\_RES with SNR\_ISI as defined in 120D.3.1.7 using the continuous time filter parameters in Table 163-11 and a time offset added to t\_p whose value is swept from -0.5 UI to 0.5 UI when calculating ISI\_cursors. Define SNR\_ISI to be the minimum value found across the time offset sweep. For Clause 162, set N\_b to 12 and SNR\_ISI (min.) to 26 dB. For Clause 163 and Annex 120F, set N\_b to 6 and SNR\_ISI (min.) to 28 dB.

Response Response Status C

ACCEPT IN PRINCIPLE.

The following related presentation was reviewed by the task force: https://www.ieee802.org/3/ck/public/22\_04/healey\_3ck\_01\_0422.pdf

The following presentation was also reviewed by the task force and captures the results of various straw polls relating to ISI\_RES: https://www.ieee802.org/3/ck/public/22\_04/ran\_3ck\_01b\_0422.pdf

Based on discussion related to ran\_3ck\_01b\_0422 and the related straw polls, there was consensus to adopt the changes that follow.

Implement the following with editorial license.

Delete 163.9.2.6.

Create a new subclause 162.9.4.x "Transmitter output residual ISI", which defines SNR\_ISI based on 120D.3.1.7 with the following additions:

--- The linear fit pulse response p(k) is determined using the linear fit procedure in 162.9.4.1.1.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn SORT ORDER: Comment ID

-- Use the continuous time filter parameters from Table 162–19 (COM parameters). --For the calculation of SNR\_ISI using Equation (120D-8) use a value of 6 for N\_b. -- Use a time offset added to t\_p whose value is swept from -0.5 UI to 0.5 UI when calculating ISI\_cursors. Define SNR\_ISI as the lowest value found across the time offset sweep.

State that SNR\_ISI is measured with transmit equalizer setting, within the required settings, that is chosen to give the highest SNR\_ISI value.

In Table 162–10, replace ISI\_RES (max) with SNR\_ISI (min) with reference to 162.9.4.X and a value of 26.7 dB.

In Table 163–5, replace ISI\_RES (max) with SNR\_ISI (min) with reference to 162.9.4.X and a value of 28 dB.

In Table 120F–1, replace ISI\_RES (max) with SNR\_ISI (min) with reference to 162.9.4.X and a value of 28 dB. Add exception that continuous time filter settings are in Table 120F-8.

[Editor's note: CC: 120F, 162, 163]

C/ 162	SC 162.9.3	P 1	66	L 30	# R1-29
Ran, Adee		Cisco	Systems, li	nc.	
Comment Ty	rpe TR	Comment Status	Α		TX V_CMPP/SCMR (CC)
10					

(Cross-clause - 162, 163, 120F, 120G)

VCMPP-LF max value of 60 has no justification. In the presentations mellitz\_3ck\_01\_0122 and mellitz\_3ck\_02\_0122 the suggested limits were 30 mVpp and 40 mVpp for low frequency respectively. mellitz\_3ck\_adhoc\_01\_011222 slide 3 shows power supply noise distributions that are mostly below 40 mVpp and the best cases are about 25 mVpp. 60 mVpp was chosen as a result of a straw poll with no data or recorded reason.

We previously had a limit of 25 mV RMS without filtering (including the more significant high-frequency noise). Assuming HF and LF components are independent, the RMS should be the RSS of the RMSs of these components. Assuming uniform distribution of LF noise, 60 mVpp means 17 mV RMS for this component, leaving just 18 mV RMS for the HF component – and we struggled to increase the CM RMS to 25-30 mV mainly because of the HF component! The LF component was supposed to be much lower than that.

Assuming LF CM noise results from power supply noises (the only source that was discussed), a 60 mVpp for all but 1e-4 (which excludes rare events like powering other circuits on or off) would be a very sloppy design which would likely result in other impairments such as excessive jitter.

The LF CM component is not filtered out by the channel so we can expect the same levels at the receiver. The effect of LF CM noise on receivers depends on design, but in general, low-frequency effects may cause periods of higher-than-average BER and result in unexpected FEC failures which will be difficult to debug. We should avoid that by limiting the transmitter's CM noise (much easier to verify).

Same reasoning applies to 163.9.2, 120F.3.1, and 120G.3.1. For AUIs the VCMPP is defined at 1e-5 and the allowed range should be somewhat higher. Scaling by the Q value, the limit should be 13% higher, but I assume LF CM is closer to uniform than to Gaussian so the proposal for AUIs is just 7% higher.

#### SuggestedRemedy

In 162.9.3 and 163.9.2, change the VCMPP maximum from 60 mV to 30 mV. In 120F.3.1 and 120G.3.1, change the VCMPP maximum from 60 mV to 32 mV.

Response Response Status C

ACCEPT IN PRINCIPLE.

Note: This comment pertains specifically to V\_CMPP-LF.

Per straw polls 8 and 9 there is consensus to change the specification to 30 mV for 162.9.3 and 163.9.2.

Per straw polls 10 and 11 there is consensus to change the specification to 32 mV for 120F.3.1 and 120G.3.1.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn SORT ORDER: Comment ID

In 162.9.3 and 163.9.2 change V\_CMPP-LF (max) to 30 mV.

In 120F.3.1 and 120G.3.1 change V\_CMPP-LF (max) to 32 mV.

Straw Poll #8 (chicago) and #9 (choose 1)

For 162.9.3 and 163.9.2, I support the following value for the V\_CMPP-LF (max) value: A: 30 B: 45 C: 60 #8 -- A: 17 B: 11 C: 5

#9 -- A: 15 B: 5 C: 2

Straw Poll #10 (chicago) and #11 (choose 1)

For 120F.3.1 and 120G.3.1, I support the following value for the V\_CMPP-LF (max) value: A: 32 B: 46 C: 60 #10 -- A: 17 B: 11 C: 4 #11 -- A: 16 B: 6 C: 1

Note: Straw poll #8 and #9 are the same question and answers except #8 is chicago rules (pick any) and #9 is choose one.

Note: Straw poll #10 and #11 are the same question and answers except #10 is chicago rules (pick any) and #11 is choose one.

[Editor's note: CC 120F, 120G, 163]

Comment ID R1-29

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C/ 162	SC 1	62.9.4.1.1		P 167	L 6	#	R1-30	C/ 162	SC	162.9.4.3		P 171	L <b>8</b>	# R1-31
Ran, Adee	e			Cisco Syster	ns, Inc.			Ran, Adee				Cisco Syster	ms, Inc.	
Comment	Туре	TR	Comme	ent Status A			TX RLM (CC)	Comment	Туре	TR	Comme	nt Status A		TX SNDR
(Cros	s-clause	- 162, 163	, 120F)					(Cross	-clause	ə - 162, 163	3, 120F)			
Follov specif reaso	ving ad h ic definit nable tes	ioc present ions or gui st times, bo	ation ran dance foi oth for de	_3ck_01_032322 r Tx parameters t sign (simulations	l, it is sugg hat depenc ) and qualif	gested to provide d on equalization, fication (with insti	more to enable uments).	Follow specifi reasor	ing ad ic defin nable te	hoc presen itions or gu est times, b	ntation ran_ idance for oth for des	_3ck_01_032322 Tx parameters t ign (simulations	2, it is suggeste hat depend on ) and qualificat	d to provide more equalization, to enable ion (with instruments).
For R althou that is	LM, the i igh RLM actually	reference is can vary b used, but	s 120D.3 etween e for test p	.1.2, which does a equalization settin purposes, the 5 pr	not specify gs. We wa esets shou	an equalization s ant high RLM at th uld provide sufficio	setting, ne setting ent coverage.	SNDR 120D. We wa	can de 3.1.6) a ant high	epend on ed and require SNDR at t	qualization ments are the setting	setting, but the generic and can that is actually u	current definition be applied to a used, but for tea	on (reference to any equalization setting. st purposes, the 5 presets palistic equalization
Suggeste	dRemed							setting	is in wh	hich the cur	rent requir	ement may be in	npossible to m	eet.
Add a conte "Trans	subciau nt: smitter li	se under 1 nearity is d	efined us	ith heading "I ran	n 120D.3.1	.2.	owing	The pr it woul	oposeo d apply	d change is / there too.	on 162.9.	4.3, and since 16	63 and 120F re	fer back to this subclause
The transr	ansmitte	r linearity s	shall mee s set to a	et the requirement inv of the initial co	specified	efined in Table 162–10	when the S2-11."	Suggested	Remed	dy				
		-						Add th	e follov	wing paragr	aph at the	end of 162.9.4.3	3.:	
Change the references of RLM in Table 163–5 and Table 120F–1 to point to the new subclause.						e new	The transm	ansmitt	er SNDR s	hall meet t	he requirement	specified in Tal	ble 162–10 when the	
Response	•		Respons	se Status C				Deenense	inter et	qualization	IS SEL to an		Julitons deline	
ACCE	PT IN P	RINCIPLE						Response			Respons :	e Status C		
This c and D the sc	comment 3.1 or th cope of th	does not a e unsatisfi ne recircula	apply to the ed negati ation ballo	he substantive ch ive comments fro pt.	anges betv m previous	ween IEEE P802 s drafts. Hence it	3ck D3.0 is not within	This c and D the sc	ommer 3.1 or t	nt does not he unsatisf	apply to th ied negativ ation ballo	e substantive ch e comments fro t.	nanges betweer Im previous dra	n IEEE P802.3ck D3.0 fts. Hence it is not within
Howe addre ad ho https:/	ver, the i ssed in t c meetin //www.ie	need to acc he followin g: ee802.org/	count for g presen 3/ck/publ	equalization effect tation, which was lic/adhoc/mar23_	cts in the tr reviewed l 22/ran_3ck	ransmitter specific by the task force k_adhoc_01_032	cations was at a previous 322.pdf	Howev review ad hoo	ver, the red in the meeting	need to ac ne following ng:	count for e presentat	equalization effection, which was r	cts in the transr eviewed by the	nitter specifications was task force in a previous
Imple	ment the	suggester	d remedv	with editorial lice	nse.			https:/	/www.ie	eee802.org	/3/ck/publi	c/adhoc/mar23_	22/ran_3ck_ad	hoc_01_032322.pdf.
				-				Impler	nent th	e suggeste	d remedy	with editorial lice	ense.	
[Edito	r's note:	CC 120F,	162, 163	]				[Editor	's note	: CC 120F,	163]			

					-						
C/ 163	SC 163.9.2.6	P 206	L <b>27</b>	# R1-32	C/ 163	SC	163.9.2.6	P <b>206</b>	L <b>20</b>	# R1-33	
Ran, Adee	e	Cisco System	ns, Inc.		Ran, Adee			Cisco Sy	stems, Inc.		
Comment	Type <b>TR</b>	Comment Status A		TX ISI_RES (CC)	Comment	Туре	Е	Comment Status A		TX ISI_RES (CC)	
*** Co (Cros (The a	omment submitted s-clause - 162, 16 attached file is a r	d with the file image.png atta 63, 120F) nistake, I can't remove it, sh	ched *** ould be ignored	)	The re subsec other c	sidual i quently lefinitio	intersymbo used in 16 ons are plac	I interference specificat 2 and 120F. Its placem ced in 162 and are refer	ion was initially ad lent in clause 163 rred to by the othe	lded to clause 163 but is unusual, since most r clauses.	
				, 	It woul	d be m	ore friendly	y for readers if all definit	tions were found ir	n one clause.	
Follov	ving ad hoc prese fic definitions or a	entation ran_3ck_01_032322	, it is suggested nat depend on e	to provide more	SuggestedRemedy						
reaso	nable test times,	both for design (simulations)	and qualification	on (with instruments).	Move s Table	subclau 163–5,	use 163.9.2 and Table	2.6 to clause 162, and c 120F–1 to point to the	hange the referend new subclause.	ces in Table 162–10,	
ISI_R existir from t	ES as currently d ng limit with equal the dispersive lose	efined is strongly dependent ization off may be impossibl s between TP0 and TP2. Tx	on equalizatior e for CR device equalization ca	a setting. Meeting the s due to ISI resulting n mitigate that, while	Response ACCE	PT IN F	PRINCIPLE	Response Status C			
emph	asizing reflections	fication.	Resolv	e using	g the respo	onse to comment R1-28					
Exces should minim	Excessive equalization will reduce the pulse peak and may degrade ISI_RES, so we should not specify it at any equalization setting, but rather allow equalization optimized to minimize ISI_RES.					's note:	: CC: 162,	163, 120F]			
Suggeste	dRemedy										
Add tl	he following parag	graph after equation 163-1 a	nd its variable li	st:							
ISI_R comp chose	ES is calculated f ensate for the los en to minimize ISI	rom measurements with a s s of the transmitter package _RES.	ingle transmit e and test fixture	qualizer setting to . The equalizer setting is							
Response	<b>;</b>	Response Status W									
ACCE	PT IN PRINCIPL	E.									
The for https://	ollowing presentat //www.ieee802.or	tion was reviewed by the tas g/3/ck/public/adhoc/mar23_2	k force at a pre 22/ran_3ck_adh	vious ad hoc meeting: oc_01_032322.pdf							
Resol	ve using the resp	onse to comment R1-28.									
[Edito	r's note: CC: 162,	, 163, 120F]									

C/ 163	SC	163.9.2.7		P 206	L <b>39</b>	# R1-3	4	C/ 162	SC	162.9.4		P 166	L 31	# R1-35
Ran, Ade	e		(	Cisco Systems, I	nc.			Ran, Adee			С	isco Systen	ns, Inc.	
Commen	t Type	Е	Comment St	atus A		TX V_CMPP/SC	CMR (CC)	Comment T	Гуре	TR	Comment Sta	atus R		TX V_CMPP/SCMR (CC)
The j is un claus	placeme usual, si ses.	ent of the Pe ince most c	eak-to-peak AC of the definitions	common-mode s are placed in 1	voltage sp 62 and are	pecification in clau referred to by the	se 163 e other	(cross- Clause peak, v	clause 162 h vhile cl	- 162 and as a speci ause 163 a	I 120G) ification for V_CM and annex 120F	MPP-HF dir have the S	ectly and not a CMR specifica	as a ratio of the pulse ation instead.
lt wo	uld be m	nore friendly	y for readers if	all definitions we	ere found in	one clause.		Since t and the	he TP( e differ	)-TP2 chai ential signa	innel can attenua al, the reasoning	ate the both g for using a	high-frequenc a ratio here is a	cy common mode noise as strong as it is in TP0v.
Since	e 163.9.2 se 163. E	2.8 defines But if SCMF	SCMR which is used also i	s currently not us n 162 (subject of	sed by clau f another co	use 162, it should omment) then 163	stay in 3.9.2.8	It would	d be ea	asier for re	eaders to have co	onsistent sp	ecification me	thods.
Suggeste	edReme	dy						1 dB di	ue to p	ossible mo	ode conversion in	n the longe	r TP0-TP2 cha	annel.
Move	e subcla	use 163.9.2	2.7 to clause 16	62, and change t	he referend	ces in Table 162–	10,	Applies	s simila	arly for clau	use 120G (at bot	th TP1a and	d TP4).	
Table	e 165–5,	, and Table		it to the new sut	bclause.			Suggested	Remed	ly				
If SC	MR is u	sed in 162	(subject of ano	ther comment), a	also move	163.9.2.8 to claus	se 162.	In 162,	replac	e the V_C	MPP_HF (max)	specificatio	on to SCMR (m	nin), pointing to the
Respons	е		Response Sta	atus C				definitio	on in 1	63.9.2.8, v	with a value of 14	4 dB.		
ACC	ACCEPT IN PRINCIPLE.						In 1200 referen	G, appl ce of \	y a similar /CMPP-LF	r change, but use F to 120F.3.1.1 (v	e 120F.3.1. which have	2 as a referent the same 1e-	ce, and change the 5 probability).	
Com 1200	ment R1 6. Howev	I-35 propos ver, the res	ses to replace \ olution was to r	/_CMPP-HF with retain V_CMPP-I	n SCMR in HF.	Clause 162 and A	Annex	Delete the new content about VCMPP in 120G.5.1.						
Move Table	e subcla e 163–5,	use 163.9.2 , and Table	2.7 to clause 16 120F–1 to poi	62, and change t nt to the new sub	he referend oclause.	ces in Table 162–	10,	Response REJEC	Э.		Response Sta	tus <b>U</b>		
Imple	ement w	ith editorial	license.					Per str	aw poll	s 14 and 1	15, there is no co	onsensus to	make the pro	pposed changes.
[Edite	or's note	e: CC: 162,	163, 120F]					Straw p For Cla Yes: 3 No: 20	ooll #14 ause 16	4 62, I suppo	ort replacing V_C	CMPP-HF w	vith SCMR:	
								Straw p For An Yes: 3 No: 19	ooll #1 nex 12	5 0G, I supp	port replacing V_	CMPP-HF	with SCMR:	

C/ 162	SC 162.9.2	P 165	L <b>45</b>	# R1-36	Cl 120G	SC 120G.4.1	P 273	L 18	# R1-38
Ran, Adee		Cisco Syste	ms, Inc.		Ran, Adee		Cisco Syste	ems, Inc.	
Comment	Type <b>TR</b>	Comment Status A		signal paths	Comment	Type E	Comment Status A		(bucket1)
Follow paths a the cor	ing the changes i are point-to-point atent of the MDI (	in thsi subclause, the sente connections" does not ma ("paths" are no longer men	ence "The MDI tra ke sense, since t tioned).	ansmit and receive the subcluase describes	120G.4 level is	has only a singl unnecessary.	le subclause 120G.4.1 and	d no other conten	t. The extra hierarchy
					Suggested	Remedy	mark and memory 4000	4.4.4.5.5.5.5.5.4.1.5.	
Alterna	atively, the conter	nt can be changed back to	refer to paths.		Delete	the 120G.4 para	graph and promote 120G.	4.1 to second-lev	el.
Suggested	Remedy				Response		Response Status <b>C</b>		
Delete	the quoted sente	ence.			ACCEI The IF	FI IN PRINCIPLI	E. s Style Manual subclause	13.1 states: "Clai	uses and subclauses
Response ACCEI	PT IN PRINCIPL	Response Status <b>C</b> E.			should examp	be divided into fu e, Clause 1 shou	urther subclauses only who uld not have a 1.1 unless t	en there is more here is also a 1.2	than one subclause. For " This further supports
Resolv	e using the respo	onse to comment #7.			Delete Chang	nment. subclause headi e subclause head	ing "120G.4 Channel chara ding "120G.4.1 Channel in	acteristics" sertion loss (reco	mmended)" to "120G.4
C/ 120	SC 120.5.11.2	2.a <i>P</i> 110	L <b>30</b>	# R1-37	Chann	el insertion loss (	(recommended)"	(	
Ran, Adee		Cisco Syste	ms, Inc.		Implen This is	ent with editorial	l license. e change to the draft		
Comment	Type ER	Comment Status A		(bucket1)			e onange to the draft.		
Some	separation betwe	en the text and the sequer	nce would be nice	Э.	C/ <b>120G</b>	SC 120G.4.1	P 273	L <b>20</b>	# R1-39
Suggested	Remedy				Ran, Adee		Cisco Syste	ems, Inc.	
Add ar	n empty paragrap	h before the sequence.			Comment	Type TR	Comment Status A		channel ILdd
Consid	ler moving the se	acuence and the text referr	ing to it after equ	ation 120-1	The wo	rd "channel" is o	overloaded in this annex. Ir	h this context, it re	efers to the path from the
Response		Response Status W			and mo	dule PCB. It ma	y not be obvious for the re	ader, and should	be written explicitly.
ACCEI This co	PT IN PRINCIPLI	E. E.	hanges between	IEEE P802.3ck D3.0	Luckily would l	we have a diagrate to have	am that shows this exact p e a cross-reference to that	oath, and has the diagram.	same ILL number; it
and D: the sco	3.1 or the unsatis	fied negative comments fro	om previous draf	ts. Hence it is not within	Suggested	Remedy			
Howev part of obviou	rer, adding a verti the paragraph, s s formatting mec	ical space prior to the sequ o it should not be moved to hanism to reference text in	uence would be h o be after the equ o this form.	elpful. The sequence is uation. There is no	Chang "the ins 120G–	e "the channel in sertion loss of the 2) is recommend	sertion loss is recommend e channel between the hos led to meet"	led to meet" to st and module cor	nponents (see Figure
Add a	vertical space be	tween the sequence and the draft	he rest of the par	agraph above.	Response		Response Status C		
1115 15	a not a substant	ive change to the drait.			ACCE	PT IN PRINCIPLI	E.		
					Implem	ent the suggeste	ed remedy.		
					Also, ir Chang To "Ch	i Figure 120G-2 e "Total ILdd up t annel ILdd up to	 to 16 dB" 16 dB"		

Implement with editorial license.

C/ 161	SC 161 6 3	P147	/ 8	# P1-40	C/ 162	SC 1	62 9 4	P 166	/ 30	# P1-42
Dawe Pie	rs.I.G	NVIDIA	20	" ((140	Dawe Pier	rs.IG	02.0.4	NVIDIA	200	
Comment	Type E	Comment Status R		Clause to Annex	Comment	Tvpe	т	Comment Status A		TX V CMPP/SCMR (CC)
RS-FE sublay	EC-Int can't exist /er.	t except as part of a RS-FEC/	RS-FEC-Int pai	r, so it isn't a separate	Now th much	ne host h more tha	nas two o an in the p	oportunities to create AC CM previous draft. This applies to	and ifg it take C2M also.	es both, it can create
Suggested	dRemedy				Suggestea	IRemedy	/			
Move	the clause to be	come Annex 91B.			Keep t	he new :	specs, bu	t reinstate the all-frequencies	RMS limit. A	Also in Table 120G-1.
Response		Response Status C			Response			Response Status C		
REJE	CT.				ACCE	PT IN PI	RINCIPLI	≣.		
This c and D the sc RS-FE	omment does n 3.1 or the unsat ope of the recirc EC-INT defined i	ot apply to the substantive ch isfied negative comments fro ulation ballot. n Clause 161 is an alternative	anges between m previous draft e to the RS-FEC	IEEE P802.3ck D3.0 s. Hence it is not within defined in Clause 91	The re for An Clause freque	solution nex 120F e 162. Th ncy com	to comm and Cla nis chang mon-mod	ent R1-29 changed the maxir use 163 and to 32 mV for An e sufficiently bounds the com de voltage.	num value of nex 120G and bination of lov	V_CMPP-LF to 30 mV d w-frequency and high-
and is	not interoperab	le with it. RS-FEC-Int is a diff	erent sublayer.		No add	ditional c	changes a	are required.		
There	is no consensu	s to make the proposed chan	ge.		C/ 162	SC 1	62.9.4	P 166	L <b>40</b>	# R1-43
C/ 162A	SC 162A.4	P 285	L1	# R1-41	Dawe, Pier	rs J G		NVIDIA		
Dawe Pie	rs.IG	NVIDIA			Comment	Туре	TR	Comment Status R		TX V_peak (CC)
Comment	Т <i>vp</i> е <b>т</b>	Comment Status R		channel equations	The re	vision to	the mate	ed test fixtures' reference loss	to be more li	ke real measurements
The ensire the should and the alloward difference of the should be allowed by the should by the should be allowed by the should by the should by t	Comment Type <b>T</b> Comment Status <b>R</b> channel equations The equation for the channel from TP0 to TP2 or from TP3 to TP5 including the test fixture should be checked for consistency with the equations for the PCB, the mated test fixtures, and the cable test fixture traces, although there won't be a perfect match because of the allowances for ball grid array (BGA) footprint and host connector footprints, as well as the difference between product connector and test fixture connector.						/ (min) by	1% from 0.397 to 0.393. Response Status U		
Suggestee	dRemedy				NEOEX	51.				
Response		Response Status <b>C</b>			The fo https://	llowing r /www.iee	elated pree802.org	esentation was reviewed by th //3/ck/public/22_04/dawe_3ck	ne task force: c_02b_0422.p	df
REJE	CT.				Per str	aw poll a	#20, there	e is no consensus to make th	e proposed cł	nanges.
The fo by the https:/ Per st	ollowing related p task force: //www.ieee802.c raw poll #19 the	presentation providing further rg/3/ck/public/22_04/dawe_3 re is no consensus to make tl	evidence and a ck_02b_0422.pd he proposed cha	proposal was reviewed ff anges.	Strawp I supp Yes: 9 No: 14	ooll #20 ( ort reduc	(direction cing the s	) pecified host output R_peak (	(min) value.	
Straw I supp and 7 Yes: 7 No: 10	poll #19 (decisio ort changing the of dawe_3ck_02 )	n) 9 TP0-to-TP2 and TP3-to-TP5 2b_0422.	i ILdd_hostMAX	as proposed in slides 6						
TYPE: TR COMMEN SORT OR	/technical requir T STATUS: D/d DER: Comment	ed ER/editorial required GR ispatched A/accepted R/reje ID	/general require ected RESPO	d T/technical E/editorial G/g NSE STATUS: O/open W/w	general ritten C/closec	l U/unsa	atisfied Z	Commer /withdrawn	nt ID <b>R1-43</b>	Page 16 of 23 2022-04-20 12:5

2022-04-20 12:59:32 P

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C/ 162	SC 162.9.4.1.2	P 169	L 37	# R1-44	C/ 162	SC 162	2.9.4.5	P <b>172</b>	L <b>25</b>	# R1-46
Dawe, Pie	ers J G	NVIDIA			Dawe, Pier	rs J G		NVIDIA		
Comment	Туре Т	Comment Status A		TX V_peak (CC)	Comment	Туре Е		Comment Status A		ERL (CC)
"ratio calcul	between" is ambig lated.	uous: the reader doesn't kn	ow which way ro	ound the fraction is	This sa contra	ays "Parar dicting the	neters t previou	hat do not appear in Table ? Is sentence.  Anyway, as Tf	162–13 take valution fx is an entry in	ues from Table 162-19", Table 93A-4
Suggeste	dRemedy				Suggested	lRemedy				
Chan "the n	ge "the ratio betwe naximum value of p	en the maximum value of p b(k) divided by the steady-st	(k) and the stead ate voltage vf"	dy-state voltage vf" to	It would help the reader to find Tfx if it were in its expected place in the table. The "value" would point to the sentence "The value of Tfx is twice the delay between the test fixture test					
Response			connector and the test fixture host-facing connection minus 0.2 ns", which could becc table footnote. Similarly for other ERL tables.							
ACCL					Response			Response Status C		
Resol	lve using the respo	nse to comment R1-3.			ACCE	PT IN PRI	NCIPLE			
C/ 162	SC 162.9.4.5	P 172	L 28	# R1-45	This c	omment de	oes not	apply to the substantive cha	anges between	IEEE P802.3ck D3.0
Dawe, Pie	ers J G	NVIDIA			and D:	3.1 or the u	unsatisf	ed negative comments from	n previous drafts	s. Hence it is not within
Comment	Type E	Comment Status R		ERL (CC)	the sc	ope of the	recircui			
This over the test of test	draft has 10 tables s. Most of the entr	of ERL parameter values al ies are the same, so this is	though only 3 fo inefficient and n	r COM parameter nakes it hard for the	Howev	ver, the co	mment	points out text in the draft th	nat could be imp	roved.
reade	er to see what is dif	ferent.			In 162	.9.4.5		nh ta tha fallowing.		
Suggeste	dRemedy				"ERL o	of the trans	smitter a	at TP2 is defined by the pro	cedure in 93A.5	using the values found
Comb that d	bine the tables to or liffer (e.g. in this cla mitter and receiver	ne per clause or annex. Us ause, "Length of the reflection Cable assembly)	e an extra colun on signal" needs	nn for the parameters two columns, for	in Tab betwee	le 162-13 a en the test	and Tab fixture	le 162-19, and with the valuest connector and test fixtu	ue of Tfx equal to are host-facing co	o twice the delay onnection minus 0.2ns."
Poenonec		, Oabie assertibly).			Apply	similar cha	anges to	162.11.3, 163.9.2.2, 120F.	.3.1.3, 120F.3.2	.2, 120G.3.1.2, and
	ст.	Response Status C			120G.:	3.2.3.				
KEJE					Impler	nent with c	ditorial	license		
This c	comment does not	apply to the substantive cha	anges between I	EEE P802.3ck D3.0	inplei		Juitonal			
and D the so	03.1 or the unsatisf cope of the recircul	ed negative comments from ation ballot.	n previous drafts	s. Hence it is not within	[Editor	's note: CO	C 120F,	120G, 163]		

The proposed changes do not improve the accuracy or clarity of the standard.

C/ 162	SC 162.9.4.5	P <b>172</b>	L <b>33</b>	# R1-47	C/ 162	SC 162.9	.4.6	P 172	L <b>47</b>	# R1-48		
Dawe, Piers	s J G	NVIDIA			Dawe, Pier	s J G		NVIDIA				
Comment T	ype E	Comment Status R		ERL (CC)	Comment	Type <b>TR</b>		Comment Status A		TX RLcc		
The ord	ler of parameters	s in ERL tables is not consis	tent across 802.	.3.	As alre	ady noted, the	nis cor	nmon mode return loss sp	ec RLcc becor	mes useless at the		
Suggested	Remedy				down s	somewhat slo	wer th	nan twice the MCB trace lo	1197.5 GHz. 1 oss, at 0.1 dB/C	ne spec snouia trena SHz.		
If these	tables are not in	the preferred order, re-orde	er them.		Suggestea	Remedy						
Response		Response Status C			Use a frequency-dependent mask: 2 dB 0.2 <= f <= 4, 1.6+0.1*f dB 4 < f <= 30, 8.5-0.13f							
REJEC	т.				30 < f	<= 40. f is in	GHz.	See another comment fo	r cable RLcc, 1	62.11.6.		
This co	mment does not	apply to the substantive cha	anges between I	EEE P802.3ck D3.0	Response			Response Status C				
and D3	.1 or the unsatist	fied negative comments from	n previous drafts	s. Hence it is not within	ACCE	PT IN PRINC	IPLE.					
the sco	pe of the recircu	lation dallot.			This co	omment is a	restate	ement of D3.0 comment I-	178 recorded ir	n the following comment		
All ERL	parameter table	s within 802.3ck have the s	ame parameter	order and the order is	report:		2 ora/2	R/ck/commente/draft3p0/8	023ck D3n0 fi	nal closedcomments sor		
consiste Clause	ent with tables in 137).	similar clauses in the base	standard (speci	fically, Clause 136 and	tedBy	Number.pdf	2.01y/、	S/CK/Comments/dranop0/o	023CK_D3p0_II	nal_closedcomments_sol		
[Editor's	s note: CC: 120F		Per D3.0 straw poll #21 as recorded in the response to comment I-178, there was no consensus to make the proposed change.									
					D3.0 s "I supp 178. Y	traw poll #21 ort changing es: 9 No: 10"	as reo the C	corded in Comment I-178 R TX RLcc as proposed ir	is reproduced I the suggested	nere: d remedy in comment i-		
					The fo https://	llowing relate www.ieee802	d pres 2.org/3	sentation was reviewed by 3/ck/public/22_04/dawe_3	the task force: ck_01_0422.pd	lf		
					New si indicat	raw poll #21 es consensu	(coinc s to m	identally the same numbe ake the changes in the su	er as for D3.0 congressed remed	omment resolution) ly.		
					Implen	nent the sugg	gested	remedy with editorial lice	nse.			
					Straw I suppo 48. Yes: 8	ooll #21 (dec ort changing No: 5	ision) the CF	R TX RLcc as proposed in	the suggested	remedy in comment R1-		

C/ 162	SC 162.11.6	P 185	L 27	# R1-49
Dawe, Piers	s J G	NVIDIA		
Comment T	vpe TR	Comment Status A		CA RLcc

As noted, we need a common mode return loss spec RLcc to stop large common-mode voltages building up through multiple low-loss reflections. As we know, this common mode return loss spec RLcc becomes useless at the frequency when the MCB loss is 1.8/2 dB, which is only 8.5 GHz. The impedance the cable presents is mostly related to the connector, (like the mated test fixtures' RLcc) plus the paddle card in the cable end, except at the very lowest frequencies where the cable loss is very small and both connectors can be seen by the measurement. This proposal allows for that.

#### SuggestedRemedy

Use a frequency-dependent mask:  $1.4 \text{ dB } 0.05 \le 1 \le 6$ ,  $0.68+0.12^{*} \text{f dB } 6 \le 1 \le 30$ ,  $10.28-0.2^{*} \text{f}$ , 30 to 40. f is in GHz. See another comment for Tx (162.9.4.6 Table 162-10).

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment is a restatement of D3.0 comment i-181 recorded in the following comment report:

https://www.ieee802.org/3/ck/comments/draft3p0/8023ck\_D3p0\_final\_closedcomments\_sor tedByNumber.pdf

Per D3.0 straw poll #22 as recorded in the response to comment i-181, there was not consensus to make the proposed change.

D3.0 Straw poll #22 as recorded in Comment i-181 is reproduced here: "Straw poll #22 (decision) I support changing the CA RLcc as proposed in the suggested remedy in comment i-181. Yes: 10 No: 10"

The following related presentation was reviewed by the task force: https://www.ieee802.org/3/ck/public/22\_04/dawe\_3ck\_01\_0422.pdf This presentation provides a new proposal for the RLcc curve compared to the proposal in D3.0 comment I-181.

Per straw poll #22 there is consensus to make the proposed changes.

Implement the suggested remedy with editorial license.

Straw poll #22 (decision) I support changing the CA RLcc as proposed in the suggested remedy in comment R1-49. Yes: 10 No: 9

C/ 120G SC ·	120G.3.1.1	P <b>258</b>	L <b>41</b>	# R1-50
Dawe, Piers J G		NVIDIA		
Comment Type	т	Comment Status A		HO/HI RL

Most product IL and RL specs (including ERL) start at 50 MHz, although test fixture specs start at 10 MHz and recommendations and reference equations are not bound by measurement practicalities. Including the RLdc limit in 162.9.4.7. I don't know why this product RLdc would be special.

#### SuggestedRemedy

Change 0.01 to 0.05. Also for Eq 120G-2 in 120G.3.3.3.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ck D3.0 and D3.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot.

However, the proposed change is an improvement to the draft.

See slides 3 and 4 of the following presentation: https://www.ieee802.org/3/ck/public/22\_04/brown\_3ck\_01a\_0422.pdf

Implement the suggested remedy with editorial license.

C/ 120G	SC 120G.3.1.1	P <b>258</b>	L <b>42</b>	# R1-51		C/ 162	SC	162.11.7.1	P 186	L <b>7</b>	# R1-52
Dawe, Pier	s J G	NVIDIA				Dawe, Pier	rs J G		NVIDIA		
Comment	Гуре Т (	Comment Status A		HO/I	HI RL	Comment	Туре	т	Comment Status R		CA COM parameter
This R channe remove 50 GH	Ldc spec goes to 50 el in C2M can be sup e a lot of energy abo z, but we should rev	OGHz while the one in 16 per-low-loss, but the moc ove 40 GHz. I did not noti iew them if they exist.	2.9.4.7 goes to 4 Iulation format an ce any other *pro	40 GHz. I know the nd receiver filtering oduct* specs going	to	93A.1. freque freque other s	1 says ncy ste ncy of specs s	It is recom p no larger at least the such as RLd	mended that the scattering than Delta f from a start fre signaling rate fb". But the c are defined to 40 GHz.	parameters b quency no lar test fixtures ar	be measured with uniform ger than fmin to a stop re defined to 50 GHz, and
Suggested	Remedy					Suggestea	Reme	dy			
If appro	opriate, change 50 to	o 40, here and in Eq 120	G-2.			Define	the m	aximum freq	uency for COM and ERL,	40 or 50 GHz.	Clauses 162, 163, 120F,
Response	R	Response Status C				TZUG.					
ACCE	PT IN PRINCIPLE.					Response	<b>~</b> т		Response Status C		
This comment does not apply to the substantive changes between IEEE P802.3ck D3.0 and D3.1 or the unsatisfied negative comments from previous drafts. Hence it is not within the scope of the recirculation ballot. See slides 3 and 4 of the following presentation: https://www.ieee802.org/3/ck/public/22_04/brown_3ck_01a_0422.pdf There is no consensus to make any change to the upper frequency limit. However, the plot in Figures 120G-5 and 120G-8 stops at 53.125 GHz rather than 50 GHz as in Equations 120G-1 and 120G-2. Update Figure 120G-5 and Figure 120G-8 with the plot stopping at 50 GHz.				ihin iHz	This is followin https:// tedByN No new Subcla freque Furthe range. [Editor	a rest ng com /www.in Numbe w evide ause 93 ncy of er analy	atement of I nment report eee802.org/ r.pdf ance has be 3A.1.1 (for C at least fb. /sis is require e: CC 120F,	D3.0 comment i-186, speci t: 3/ck/comments/draft3p0/80 en provided. COM) and subclause 93A.5 ed to support changes to th 120G, 163]	iically against )23ck_D3p0_f .1 (for ERL) re ne COM or ER	Clause 120G, in the inal_closedcomments_sor ecommends a maximum RL s-parameter frequency	
						C/ 163	SC	163.9.2.7	P <b>207</b>	L <b>4</b>	# R1-53
						Dawe, Pier	rs J G		NVIDIA		
						Comment The 4t noise r	<i>Type</i> h orde meters	T r filter of 93A use.	Comment Status R A-20 would work, but it see	ms a bit fussy	TX V_CMPP/SCMR (CC) , and probably not what
						S <i>uggesteo</i> Use a	Reme first or	<i>dy</i> der filter or v	whatever commercial test e	quipment use	s.
						Response REJE0	CT.		Response Status C		
						Per dis is no n [Editor	scussic leed to 's note	on, the curre make chan e: CC: 163, 1	ntly defined filter is suppor ges to the filter definition. 62, 120F, 120G]	able in comm	on test equipment. There

C/ 120G SC	C 120G.3.3.5.	1 P <b>265</b>	L <b>49</b>	# R1-54
Dawe, Piers J G	3	NVIDIA		
Comment Type	т	Comment Status D		HI/MI PG

For module output, the optimum setting for the second precursor is 0.02 to 0.04, so the optimum for any third precursor would be less than 1/2 a COM step of 0.02. We can simplify the tuning challenge for real modules and stressed signal generators by removing clutter. 120G has 4 dB more headline loss than 120F and a module doesn't have the very large package loss that 120F may have, so it may be reasonable that 120F has a small c(-3) term when C2M host stressed input doesn't need it.

#### SuggestedRemedy

Change "The pattern generator output equalization functional behavior is equivalent to the model shown in Table 120F-3. The tap coefficients are not specified" to "The pattern generator output equalization functional behavior is equivalent to the model shown in Table 120F-3, with c(-3) always zero. Other tap coefficients are not specified".

Unless the extra loss in the module stressed input signal tips makes this tap significant, this can apply to 120G.3.4.3.1 also.

Proposed Response Response Status Z REJECT.

This comment was WITHDRAWN by the commenter.

C/ 120G S	C 120G.5.2	P <b>275</b>	L <b>50</b>	# R1-55
Dawe, Piers J	G	NVIDIA		
Comment Type	TR	Comment Status R		EH/VEC test method

As noted, this weighting function skews the spec to passing signals with relatively bad eye width, whether from jitter or other cause, which endanger the link BER, while failing signals with usable VEC and eye height and better eye width.

#### SuggestedRemedy

Pick one of the proposed solutions and fix the problem. Notice that the apparent VEC and EH numbers are likely to change in step.

Response Response Status U

REJECT.

This comment is a restatement of D3.0 comments i-211 and i-212 recorded in the following comment report:

https://www.ieee802.org/3/ck/comments/draft3p0/8023ck\_D3p0\_final\_closedcomments\_sor tedByNumber.pdf

No further evidence nor any alternate remedies are provided.

Straw poll #11 (recorded in the response to comment i-211) indicated consensus to make no changes to the measurement method.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn SORT ORDER: Comment ID

C/ 162A	SC 162A	P 283	L 15	# R1-56
Dawe, Piers	JG	NVIDIA		
Comment Typ	be E	Comment Status A		style (bucket1)

"TP0 and TP5 that might not be testable": see style guide and D3.0 comment 214 (accepted for here)

#### SuggestedRemedy

TP0 and TP5, which might not be testable. Also in 162.8.1

Response Response Status C

#### ACCEPT IN PRINCIPLE.

The IEEE Standards Style Manual subclause 10.2 states "The words that and which are commonly misused; they are not interchangeable. That is best reserved in essential (or restrictive) clauses, which is appropriate in nonessential (or nonrestrictive) parenthetical clauses. Simply stated, if a comma can be inserted before the word that or which, the word should be which. If a comma would not be used, the word to use is that." The sentence should therefore be changed as proposed in the suggested remedy. In 162A.1 (page 283 line 15) and 162.8.1 (page 161 line 37)... Change: "TP0 and TP5 that might not be testable" To: "TP0 and TP5, which might not be testable" [Editor's note: Changed page number from 284 to 283.] [Editor's note: CC: 162, 162A]

C/ 162B	SC	162B.4.1	P 29	92	L <b>5</b>	# R1-57	C/ 120G	SC	120G.1	P 2	56	L 36	# R1-58	
Dawe, Pie	rs J G		NVIDI	A			Ran, Adee			Cisco	System	ns, Inc.		
Comment	Туре	Е	Comment Status	R		MTF ILdd figure	Comment T	Туре	GR	Comment Status	Α		biblio	graphy
Did Fi 5?	gure 16	2B-4, Mate	ed test fixtures insert	tion loss, g	et updated w	ith the revised Eq 162B-	The ed part of	litor's i OIF-C	note state EI-05.0. E	s that CEI-112G-VSF But the OIF-CEI-05.0	-PAM4 docume	<> is expected ant has not been	l to be published a published yet. Unl	as less
Suggestee	dRemed	ły					it's pub in the b	hished	l before 80 raphy	02.3ck, it would be in	appropria	ate to have an u	npublished docum	ient
If not Also, a the y a illustra	(and if t as the fi axis wer ated.	here is a v irst dB are re -20 to 0	risible difference on t much more interesti , even if that means	his scale), ing than th that ILddM	please do so e last here, it ITFmax above	would help the reader if e 42 GHz is not	Since t to the 0 unnece	he tec DIF sp essary	chnical wo pecification , and it is	ork for Annex 120G ha n (unlike previous C2 proposed to delete it	is mainly M specif	y done in 802.3c ications), the rel	k before it was add erence to OIF may	ded y be
Response			Response Status	С			Altorna	tivolv	if a rafar	anaa ta OIE daaumaa	t ia daai	rad it can be my	ada ta tha CEL 113	
REJE	CT.						VSR-P	AM4 c	document	instead; rephrase the	e senten	ce accordingly a	nd delete the edito	or's
It is as Figure	ssumed 162B-4	that it was 4.	s intended that the co	omment re	fer to Figure	162B-2, rather than	note. ( <sup>-</sup> Interfac encom	The bi ce, Re pass f	bliography vision 20' uture vers	y entry should change " which is current; we sions).	to "CEI do not r	I-112G-VSR-PA efer to it and the	V4 Very Short Reare is no need to	ach
The re	esponse	e to Draft 3	3.0 comment I-218 ch	nanged Eq	uation (162B-	-5).	Alterna	tivelv.	if it is ant	ticipated that OIF-CF	-05.0 is	published befor	e July 2022, the er	ditor's
In Dra	ft 3.1, tl	he equatio	n and figure are upd	ated.			note sh publish	nould b red.	be made s	specific such that the	referenc	ce is kept only if	the document is	
Figure 162B–2 appropriately graphs equations 162B–3, 162B-4, 162B-5 over the entire					Suggested	Reme	dy							
specif	specified frequency range 0.01 GHz $\leq$ f $\leq$ 50 GHz without obscuring any of the curves.						Delete the sentence "The C2M interface is defined using a specification and test methodology that is similar to that used for CEI-112G-VSR-PAM4 defined in OIF-CEI-05.0							
Howe	ver, the	change to	the figure was not h	lighlighted	in the D3.1 c	ompare file.	[B55a]'	", the e	editor's no	ote, and the bibliograp	hy entry	/ in Annex A.		
							Response			Response Status	С			
							ACCER	PT IN	PRINCIPI	LE.				
							This co and D3 the sco	ommei 3.1 or 1 ope of	nt does no the unsati the recirc	ot apply to the substa sfied negative comm sulation ballot.	ntive cha ents fron	anges between I n previous drafts	EEE P802.3ck D3 . Hence it is not w	i.0 ⁄ithin
							Howev	er, a r	new versio	on of the the OIF CEI	docume	ent including the	CEI-112G-VSR-P/	AM4

specification is not expected to be available before the final 802.3ck draft is reviewed.

Implement the suggested remedy with editorial license.

C/ 120F	SC	120F.3.1.2	Р	241	L <b>4</b>	# R1-59	C/ 120G	SC	120G.5.1	P 274	L <b>12</b>	# R1-60
Ran, Adee Cisco Systems, Inc.						Ran, Adee Cisco Systems, Inc.						
Comment	Туре	Е	Comment Status	5 <b>A</b>		(bucket1)	Comment T	ype	TR	Comment Status A		HO/MO V_CMPP
"with t in 120	he exc F.3.1.1	eption the h	igh-frequency pea	k-to-peak	AC common-m	ode voltage is defined	"is de	fined	as the AC o	common-mode voltage rang	e measured at <sup>-</sup>	TP0v that includes"
							TP0v is	not d	lefined for C	22M; the output measureme	nt points are TF	1a and TP4.
Missin	ng "that						SuggestedF	Remed	dy			
Suggested Chang	d <i>Reme</i> ge to "v	<i>dy</i> vith the exce	eption that the high	n-frequenc	y peak-to-peak	AC common-mode	Change that inc	to "is udes"	defined as	the AC common-mode vol	age range mea	sured at TP1a or TP4
voltag	e is de	fined in 120	F.3.1.1".				Response			Response Status C		
Response			Response Status	С			ACCEP	T IN F	PRINCIPLE			
ACCE There Chang 163.9. define To: "S 163.9. voltag This is	ACCEPT IN PRINCIPLE. There is another grammar error in this sentence: "are" should be "is". Change: "Signal to AC common-mode noise ratio are defined by the method specified in 163.9.2.8 with the exception the high-frequency peak-to-peak AC common-mode voltage is defined in 120F.3.1.1." To: "Signal to AC common-mode noise ratio is defined by the method specified in 163.9.2.8 with the exception that the high-frequency peak-to-peak AC common-mode voltage is defined in 120F.3.1.1." This is not a substantive change to the draft.					Also the term "all except" is inconsistent with similar text throughout the base standard where "all but" is used. In 120G.5.1 Change: "is defined as the AC common-mode voltage range measured at TP0v that includes all except 10–5 of the measured distribution, from 0.000005 to 0.999995 of the cumulative distribution." To: "is defined as the AC common-mode voltage range measured at TP1a or TP4 that includes all but 10–5 of the measured distribution, from 0.000005 to 0.999995 of the cumulative distribution."						
							In 100 (					

In 163.9.2.7 (to be relocated to Clause 162 per comment R1-34) and 120F.3.1.1... Change "that includes all except" To "that includes all but"

Implement with editorial license.