C/FM SC FM	P <b>1</b>	L10	# I-14	C/ FM	SC FM	P <b>4</b>	L <b>9</b>	# I-23
Ran, Adee	Cisco Syste	ms, Inc.		Grow, Rol	bert	RMG Consul	ting	
Comment Type <b>GR</b>	Comment Status X			Comment	Type ER	Comment Status X		
802.3-2022. As a re expected to be the	nt amendment order, 802.3de is esult, 802.3cs is expected to be third.			check find m	ed the 2021 W ultiple difference	datory text in this draft is not c ord front matter template and es on page 4 in the legal lang that precedes the Participant li	and P802.3/D3.2	2 finding they agree.) I
SuggestedRemedy				Suggested	dRemedy		0	
Change "Amendme	ent 4" to "Amendment 3" on pag	e 1 and page 17.		00		n current IEEE SA template		
Delete the heading page 11.	and subsequent paragraph for	"IEEE Std 802.3d	le™-202x" starting on	(https:		e.org/develop/drafting-standar Response Status <b>0</b>	d/resources/).	
Decrement the ame	endment numbers of 802.3cs ar	nd 802.3db on pa	ge 12.	·		• -		
Proposed Response	Response Status O			C/ FM	SC FM	P <b>11</b>	L <b>39</b>	# [-24
				Grow, Rol	bert	RMG Consul	ting	
C/FM SC FM	P <b>1</b>	L10	# -21	Comment	Туре Е	Comment Status X		
Grow, Robert	RMG Consu	Itina		The d	escription of Se	ction Nine has been changed	during balloting	of P802.3.
Comment Type E	Comment Status X	C C		Suggested	dRemedy			
According to my re	cords, Mr. Law assigned P802.3	3db to be Amend	ment 3 on 25 January.	Repla	ce with the curr	ent description in P802.3/D3.2	2	
(Amendment 1 beir	ng P802.3dd, and Amendment 2	2 being P802.3cs		Proposed	Response	Response Status <b>O</b>		
SuggestedRemedy				·				
lf amendment num 802.3de-202x" at lir	bers remain unchanged renumb ne 35.	per as Amendme	nt 3. Delete "IEEE Std	C/ FM	SC FM	P11	L <b>50</b>	# 1-25
Proposed Response	Response Status 0			Grow, Rol	bert	RMG Consul	ting	
				Comment	Type E	Comment Status X	-	
C/FM SC FM	P3	L <b>3</b>	# 1-22	P802.	3de has been a	ssigned amendment number (	6.	
Grow, Robert	RMG Consu	ltina		Suggested	dRemedy			
Comment Type TR	Comment Status X			Delete	e and renumber	subsequent amendment num	bers in the follow	ving descriptions.
The reach numbers	s are confusing. What makes the numbers do not agree with Ta		veen 50 m and 100 m	Proposed	Response	Response Status O		
SuggestedRemedy								
Delete "up to 50 m	and".							
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 U/unsatisfied Z/withdrawn SORT ORDER: Clause, Subclause, page, line

C/ FM SC FM Page 1 of 9 4/4/2022 8:53:46 PM

C/FM SC FM		P <b>12</b>	L <b>6</b>	# I-26	CI 80 SC	80.1.5	P <b>26</b>	L10	# I-2
Grow, Robert		RMG Consult	ing		Ran, Adee		Cisco Syster	ns, Inc.	
Comment Type E	Comme	ent Status X			Comment Type	ER	Comment Status X		
This description of	loes not agree w	vith the latest self c	lescription in P8	02.3cs/D3.2.	(This comm	ent is abou	ut nomenclature tables and s	oans two clauses	s, 80 and 116)
SuggestedRemedy					Clause 80:				
Replace with curr	ent description i	n P802.3cs/D3.2.			In Table 80-		lar ones, the cells in the "Nor		
Proposed Response	Respon	se Status <b>O</b>			example, in three colum	this table, ns for the t	ven when there are more that clause 81 has both RS and ( hree PHYs it defines. Also, t	CGMII columns, a he columns are u	and clause 140 has usually sorted by claus
C/ 30 SC 30.	5.1.1.2	P19	L15	# I-30	exception.	n annexes	near clauses of the same nu	mber); Table The	5-5 is the single
Grow, Robert		RMG Consult	ing		In this draft	Clause 16	7 appears twice and isn't gro	uned and is bro	aking the sort order
Comment Type E	Comme	ent Status X			in this utall,		appears twice and isn't git	upeu, anu is Die	aking the solt older.
(see P802.3/D3.0		List was clarified to	be: 1. increasin	g rate, 2. Alphanumeric	order, the e	xisting table	er may yield a nice "diagonal' es, e.g., Table 80-2, do not h ber and rows are ordered by	ave this diagonal	l structure; columns a
SuggestedRemedy					number of la	anes). See	comment I-54 in		
Six editing instruct 100GBASE-SR1 100GBASE-VR1	inserted after 10	0GBASE-R			https://www 6 for details		rg/3/dc/comments/P8023_D3	p0_comments_f	inal_by_cls.pdf#page
200GBASE-SR2					Clause 116				
200GBASE-VR2 400GBASE-SR4 400GBASE-VR4	inserted after 40	0GBASE-R			In Table 11	6-4, Clause	e 167 is breaking the sort ord	er.	
Proposed Response	Respon	se Status <b>O</b>			existing tab	e is incons r 120E) or	e 167 appears twice, ungroup sistent with all other tables, so to the right (after 122). It see ch order.	o a "167" group c	ould appear either to
C/ 45 SC 45.2	2	P <b>20</b>	L <b>3</b>	# 1-27	SuggestedRem	edv			
Grow, Robert		RMG Consult	ing		Clause 80:	,			
Comment Type E Base text error.	Comm	ent Status X					nomenclature" row, group 10 (167), and make that column		
SuggestedRemedy P802.3/D3.2 has	this as "MDI Inte	erface registers"				6-4, move t	the column-group of Clause		
Proposed Response	Respon	se Status <b>O</b>					'nomenclature" row, group 40 (167), and make that column		
									0

C/ 80 SC 80.1.5

C/ 167	SC 167.3.1	1	P <b>46</b>	L <b>20</b>	# 1-3	C/ 167	SC 167.5	1	P <b>48</b>	L <b>31</b>	# 1-5
Ran, Adee	)	Cis	sco System	s, Inc.		Ran, Adee	)		Cisco Sy	stems, Inc.	
Comment	Туре Е	Comment Stat	us X			Comment	Type <b>GR</b>	Co	omment Status X		
pause	_quanta, can b		nstraints and	d the definitions	for bit times and	implen		sting com	e informative refere ponents (these tes		nay be useful to /pically be accessible ir
	ed for a comma	а.				Por S/	) auidelines i	torenore	ed normative and i	oformative text is	not allowed. As a result
Suggested	-										Ic with "optional". See
Delete	the comma.						ent i-3 in			<b>DO O</b>	<i>с.</i>
Proposed	Response	Response Statu	us <b>O</b>			https://	/www.ieee802	.org/3/do	comments/P8023	_D3p0_comment	s_final_by_cls.pdf#pag
											ly be available", but as nowadays typically
C/ 167	SC 167.3.2	: <i>I</i>	P <b>46</b>	L <b>33</b>	# I-4						ot a statement of fact ar
Ran, Adee	)	Cis	sco System	s, Inc.					te, that comment (F		
Comment	Type <b>TR</b>	Comment Stat	tus X						, but the claim is va		s_received_LATE_by_i
"If the	PMD service in	nterface is physically	/ instantiate	d so that the SI	kew at SP2 can be	,	•	omoniou			
						Sunnesten	IRemeav				
	red, then the S	Skew at SP2 is limite				Suggested	-	and TP4.	<0:3> are informati	ve reference noin	ts that may be useful to
						Chang	e "TP1<0:3>				its that may be useful to pically be accessible in
limited The se	red, then the S to 400 ps." econd part of th	Skew at SP2 is limite	ed to 43 ns a	and the Skew V r 200G and 400	/ariation at SP2 is )G PMDs; for 100G	Chang implen implen	e "TP1<0:3>	sting com			ts that may be useful to vpically be accessible in
limited The se PMDs	red, then the S to 400 ps." econd part of th there is no ske	Skew at SP2 is limite his statement is releve w variation at TP2 s	ed to 43 ns a vant only for since there i	and the Skew V r 200G and 400 is a single seria	/ariation at SP2 is 0G PMDs; for 100G al bit stream. Compare	Chang implen implen to	e "TP1<0:3> nenters for te nented syster	sting com n)."	ponents (these tes	t points will not ty	pically be accessible ir
limited The se PMDs	red, then the S to 400 ps." econd part of th there is no ske	Skew at SP2 is limite	ed to 43 ns a vant only for since there i	and the Skew V r 200G and 400 is a single seria	/ariation at SP2 is 0G PMDs; for 100G al bit stream. Compare	Chang implen implen to "TP1<	e "TP1<0:3> nenters for te nented syster 0:3> and TP4	sting com n)." <0:3> are	ponents (these tes e optional reference	t points will not ty points that may	
limited The se PMDs to the "If the	ired, then the S to 400 ps." econd part of th there is no ske similar stateme PMD service ir	Skew at SP2 is limite his statement is releve w variation at TP2 s ents in 138.3.2.1, 13 hterface is physically	ed to 43 ns a vant only for since there i 9.3.2, and 1 y instantiate	and the Skew V r 200G and 400 is a single seria 140.3.2, which r d so that the Sk	/ariation at SP2 is )G PMDs; for 100G al bit stream. Compare read: kew at SP2 can be	Chang implen implen to "TP1<	e "TP1<0:3> nenters for te nented syster 0:3> and TP4 ting compone	sting com n)." <0:3> are	ponents (these tes e optional reference	t points will not ty points that may	pically be accessible ir be useful to implement
limited The se PMDs to the "If the measu	ared, then the S to 400 ps." econd part of the there is no ske similar stateme PMD service in ured, then the S	Skew at SP2 is limite his statement is releve w variation at TP2 s ents in 138.3.2.1, 13 hterface is physically Skew at SP2 is limite	ed to 43 ns a vant only for since there i 9.3.2, and 1 y instantiate ed to 43 ns a	and the Skew V r 200G and 400 is a single seria 140.3.2, which r d so that the Sk as defined by 1	/ariation at SP2 is OG PMDs; for 100G al bit stream. Compare read: kew at SP2 can be 35.5.3.5. Since the	Chang implen implen to "TP1< for tes	e "TP1<0:3> menters for te mented system 0:3> and TP4 ting component)."	sting com n)." <0:3> are nts (these	ponents (these tes e optional reference	t points will not ty points that may	pically be accessible ir be useful to implement
limited The se PMDs to the "If the measu signal	ared, then the S to 400 ps." econd part of the there is no ske similar statement PMD service in at the PMD se	Skew at SP2 is limite his statement is releve w variation at TP2 s ents in 138.3.2.1, 13 hterface is physically Skew at SP2 is limite rvice interface repres	ed to 43 ns a vant only for since there i 9.3.2, and 1 y instantiate ed to 43 ns a	and the Skew V r 200G and 400 is a single seria 140.3.2, which r d so that the Sk as defined by 1	/ariation at SP2 is OG PMDs; for 100G al bit stream. Compare read: kew at SP2 can be 35.5.3.5. Since the	Chang implen implen to "TP1< for test system	e "TP1<0:3> menters for te mented system 0:3> and TP4 ting component)."	sting com n)." <0:3> are nts (these	ponents (these tes e optional reference e test points may n	t points will not ty points that may	pically be accessible ir be useful to implement
limited The se PMDs to the "If the measu signal Variati	ared, then the S to 400 ps." econd part of the there is no ske similar stateme PMD service in rred, then the S at the PMD se on at this point	Skew at SP2 is limite his statement is releve w variation at TP2 s ents in 138.3.2.1, 13 hterface is physically Skew at SP2 is limite rvice interface repre- t.".	ed to 43 ns a vant only for since there i 9.3.2, and 1 y instantiate ed to 43 ns a	and the Skew V r 200G and 400 is a single seria 140.3.2, which r d so that the Sk as defined by 1	/ariation at SP2 is OG PMDs; for 100G al bit stream. Compare read: kew at SP2 can be 35.5.3.5. Since the	Chang implen to "TP1< for tes system Proposed	e "TP1<0:3> menters for te mented system 0:3> and TP4 ting component)."	sting com n)." <0:3> are nts (thes <i>Re</i> :	ponents (these tes e optional reference e test points may n	t points will not ty points that may	pically be accessible ir be useful to implement in an implemented
limited The se PMDs to the "If the measu signal Variati	ared, then the S to 400 ps." econd part of the there is no ske similar statement PMD service in at the PMD se	Skew at SP2 is limite his statement is releve w variation at TP2 s ents in 138.3.2.1, 13 hterface is physically Skew at SP2 is limite rvice interface repre- t.".	ed to 43 ns a vant only for since there i 9.3.2, and 1 y instantiate ed to 43 ns a	and the Skew V r 200G and 400 is a single seria 140.3.2, which r d so that the Sk as defined by 1	/ariation at SP2 is OG PMDs; for 100G al bit stream. Compare read: kew at SP2 can be 35.5.3.5. Since the	Chang implen to "TP1< for tes system Proposed I C/ 167	e "TP1<0:3> nenters for te nented system 0:3> and TP4 ting component n)." <i>Response</i> SC <b>167.5</b>	sting com n)." <0:3> are nts (thes <i>Re</i> :	e optional reference e test points may n sponse Status <b>O</b> P48	t points will not ty points that may ot be accessible	pically be accessible ir be useful to implement
limited The se PMDs to the "If the measu signal Variati Simila Even i	ared, then the S to 400 ps." econd part of the there is no sket similar statement PMD service in ured, then the S at the PMD se on at this point rly for SP5 (line f 100G PMDs of	Skew at SP2 is limite his statement is relevent wave variation at TP2 s ents in 138.3.2.1, 13 hterface is physically Skew at SP2 is limite rvice interface represent.". e 42-43). do not have a separa	ed to 43 ns a vant only for since there i 9.3.2, and 1 y instantiate ed to 43 ns a sents a seri aste subclaus	and the Skew V r 200G and 400 s a single seria 140.3.2, which r d so that the Sk as defined by 1 ial bit stream, th se (as was done	/ariation at SP2 is OG PMDs; for 100G al bit stream. Compare read: kew at SP2 can be 35.5.3.5. Since the here is no Skew e in clause 138), the	Chang implen to "TP1< for test system Proposed I C/ 167 Healey, Ac	e "TP1<0:3> nenters for te nented system 0:3> and TP4 ting component n)." <i>Response</i> SC <b>167.5</b> dam	sting com n)." <0:3> are nts (thes <i>Re</i> : 1	e optional reference e test points may n sponse Status <b>0</b> P48 Broadcor	t points will not ty points that may ot be accessible	pically be accessible ir be useful to implement in an implemented
limited The se PMDs to the "If the measu signal Variati Simila Even i distinc	ared, then the S to 400 ps." econd part of the there is no ske similar stateme PMD service in rred, then the S at the PMD se on at this point rly for SP5 (line f 100G PMDs of tion between s	Skew at SP2 is limite his statement is relevent wave variation at TP2 s ents in 138.3.2.1, 13 hterface is physically Skew at SP2 is limite rvice interface represent.". e 42-43). do not have a separa	ed to 43 ns a vant only for since there i 9.3.2, and 1 y instantiate ed to 43 ns a sents a seri aste subclaus	and the Skew V r 200G and 400 s a single seria 140.3.2, which r d so that the Sk as defined by 1 ial bit stream, th se (as was done	/ariation at SP2 is OG PMDs; for 100G al bit stream. Compare read: kew at SP2 can be 35.5.3.5. Since the here is no Skew	Chang implen implen to "TP1  of test   for test   system   Proposed I   Cl   Healey, Ac   Comment	e "TP1<0:3> nenters for te nented syster 0:3> and TP4 ting component n)." <i>Response</i> SC 167.5 dam <i>Type</i> <b>T</b>	sting com n)." <0:3> are nts (thes <i>Re</i> : 1	e optional reference e test points may n sponse Status <b>O</b> P48 Broadcor omment Status <b>X</b>	t points will not ty e points that may ot be accessible <i>L</i> 32 n Inc.	pically be accessible ir be useful to implement in an implemented # <u>I-31</u>
limited The se PMDs to the "If the measu signal Variati Simila Even i distinc Suggested	ared, then the S to 400 ps." econd part of the there is no ske similar statement PMD service in a the PMD second on at this point ray for SP5 (line f 100G PMDs of tion between s <i>IRemedy</i>	Skew at SP2 is limite his statement is releve w variation at TP2 s ents in 138.3.2.1, 13 hterface is physically Skew at SP2 is limite rvice interface repre- t.". e 42-43). do not have a separa- ingle-lane and multi-	ed to 43 ns a vant only for since there i 9.3.2, and 1 y instantiate ed to 43 ns a sents a seri ate subclaus -lane PMDs	and the Skew V r 200G and 400 is a single seria 140.3.2, which r d so that the Sk as defined by 1: fal bit stream, th se (as was done should still be	/ariation at SP2 is OG PMDs; for 100G al bit stream. Compare read: kew at SP2 can be 35.5.3.5. Since the here is no Skew e in clause 138), the made for consistency.	Chang implen implen to "TP1< for test system Proposed I C/ 167 Healey, Ac Comment The IE	e "TP1<0:3> nenters for te nented syster 0:3> and TP4 ting component 1)." <i>Response</i> <i>SC</i> 167.5 dam <i>Type</i> <b>T</b> EEE SA Stance	sting com n)." <0:3> are nts (thes <i>Re</i> : 1 1 <i>Co</i> ards Styl	e optional reference e test points may n sponse Status <b>O</b> P48 Broadcor omment Status X e Manual (12.1) sta	t points will not ty e points that may ot be accessible <i>L</i> 32 n Inc.	pically be accessible ir be useful to implement in an implemented
limited The se PMDs to the "If the measu signal Variati Simila Even i distinc Suggested Appen	ared, then the S to 400 ps." econd part of the there is no ske similar statement PMD service in rred, then the S at the PMD se on at this point rly for SP5 (line f 100G PMDs of tion between s <i>IRemedy</i> d the following	Skew at SP2 is limite his statement is relevent wave variation at TP2 s ents in 138.3.2.1, 13 hterface is physically Skew at SP2 is limite rvice interface represent.". e 42-43). do not have a separa	ed to 43 ns a vant only for since there i 9.3.2, and 1 y instantiate ed to 43 ns a sents a seri ate subclaus -lane PMDs	and the Skew V r 200G and 400 is a single seria 140.3.2, which r d so that the Sk as defined by 1: fal bit stream, th se (as was done should still be	/ariation at SP2 is OG PMDs; for 100G al bit stream. Compare read: kew at SP2 can be 35.5.3.5. Since the here is no Skew e in clause 138), the made for consistency.	Chang implen implen to "TP1< for test system Proposed I C/ 167 Healey, Ac Comment The IE informat	e "TP1<0:3> nenters for te nented syster 0:3> and TP4 ting component 1)." <i>Response</i> <i>SC</i> 167.5 dam <i>Type</i> <b>T</b> EEE SA Stance	sting com n)." <0:3> are nts (thes <i>Re</i> : 1 1 <i>Co</i> ards Styl	e optional reference e test points may n sponse Status <b>O</b> P48 Broadcor omment Status X e Manual (12.1) sta	t points will not ty e points that may ot be accessible <i>L</i> 32 n Inc.	rpically be accessible in be useful to implement in an implemented # <u>I-31</u> ersed normative and
limited The se PMDs to the "If the measu signal Variati Simila Even i distinc Suggested Appen	ared, then the S to 400 ps." econd part of the there is no ske similar statement PMD service in a the PMD second on at this point ray for SP5 (line f 100G PMDs of tion between s <i>IRemedy</i>	Skew at SP2 is limite his statement is releve w variation at TP2 s ents in 138.3.2.1, 13 hterface is physically Skew at SP2 is limite rvice interface repre- t.". e 42-43). do not have a separa- ingle-lane and multi-	ed to 43 ns a vant only for since there i 9.3.2, and 1 y instantiate ed to 43 ns a sents a seri ate subclaus -lane PMDs	and the Skew V r 200G and 400 is a single seria 140.3.2, which r d so that the Sk as defined by 1: fal bit stream, th se (as was done should still be	/ariation at SP2 is OG PMDs; for 100G al bit stream. Compare read: kew at SP2 can be 35.5.3.5. Since the here is no Skew e in clause 138), the made for consistency.	Chang implen implen to "TP1< for test system Proposed I C/ 167 Healey, Ac Comment The IE informat	e "TP1<0:3> nenters for te nented system 0:3> and TP4 ting component 1)." <i>Response</i> <i>SC</i> 167.5. dam <i>Type</i> <b>T</b> IEE SA Standative text is n I be avoided.	sting com n)." <0:3> are nts (thes <i>Re</i> : 1 1 <i>Co</i> ards Styl	e optional reference e test points may n sponse Status <b>O</b> P48 Broadcor omment Status X e Manual (12.1) sta	t points will not ty e points that may ot be accessible <i>L</i> 32 n Inc.	rpically be accessible in be useful to implement in an implemented # <u>I-31</u> ersed normative and
limited The se PMDs to the "If the measu signal Variati Simila Even i distinc Suggested Appen about "For 10	ared, then the S to 400 ps." econd part of the there is no ske similar statemed PMD service in rred, then the S at the PMD se on at this point rly for SP5 (line f 100G PMDs of tion between s <i>IRemedy</i> d the following Skew at SP5: D0GBASE-VR1	Skew at SP2 is limite his statement is relev- ew variation at TP2 s ents in 138.3.2.1, 13 interface is physically Skew at SP2 is limite rvice interface repre- t.". e 42-43). do not have a separa ingle-lane and multi- to the statement ab	ed to 43 ns a vant only for since there i 93.2, and 1 y instantiate ed to 43 ns a sents a seri ate subclaus -lane PMDs yout Skew a R1, since th	and the Skew V r 200G and 400 is a single seria 140.3.2, which r d so that the Sk as defined by 1 al bit stream, th se (as was done should still be t SP2 (quoted) e signal at the l	/ariation at SP2 is OG PMDs; for 100G al bit stream. Compare read: kew at SP2 can be 35.5.3.5. Since the here is no Skew e in clause 138), the made for consistency. and the statement PMD service interface	Chang implen implen to "TP1  or   or   or   for test   system   Proposed in   CI   CI   Healey, Ac   Comment   The IE   information   should   Suggested   Chang	e "TP1<0:3> nenters for te nented system 0:3> and TP4 ting component 1)." <i>Response</i> <i>SC</i> 167.5. dam <i>Type</i> <b>T</b> EE SA Standative text is n I be avoided. <i>IRemedy</i> re "TP1<0:3>	sting com n)." <0:3> are nts (thes <i>Re:</i> 1 1 Co ards Styl ot allowed and TP4-	e optional reference e test points may n sponse Status O P48 Broadcor omment Status X e Manual (12.1) sta d." Labeling aspect	t points will not ty e points that may ot be accessible <i>L</i> 32 n Inc. ates that "Interspe s of a normative of	rpically be accessible in be useful to implement in an implemented # <u>I-31</u> ersed normative and

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

Cl 167 SC 167.5.1

C/ 167 SC 167.6 P51 L1 # [-6	C/ 167 SC 167.7.1 P52 L27 # 1-15
Ran, Adee Cisco Systems, Inc.	Brown, Matthew Huawei Technologies Canada
Comment Type TR Comment Status X	Comment Type E Comment Status X
"as the PCS and the RS-FEC sublayer are capable of receiving the lanes in any arrangement"	The row for "Transmitter and dispersion eye closure for PAM4 (TDECQ), each lane (ma has 4.4 dB in both columns. For consistency with other rows with same values, the two columns should be merged.
This subclause discusses only 200G and 400G PHYs, in which there is no RS-FEC sublayer. The PCS layer (which includes a FEC function) is indeed capable of receiving	SuggestedRemedy
lanes in any arrangement.	For "Transmitter and dispersion eye closure for PAM4 (TDECQ), each lane (max)" mere the two value columns with a single instance of "4.4".
This has been noted in comment 124 against D2.0 but unfortunately my suggested remedy was inaccurate and left the "RS-FEC" in the text.	Proposed Response Response Status O
SuggestedRemedy	
Change the quoted text to "as the PCS sublayer is capable of receiving the lanes in any	C/ 167 SC 167.7.1 P52 L29 # 1-36
arrangement".	Dawe, Piers J G NVIDIA
Proposed Response Response Status O	Comment Type TR Comment Status X
	transmitter can be in the top left corner of the TDECQ map while still meeting the TDEC and overshoot specs. With the extra taps and threshold adjust range in this clause's TDECQ it would be well equalized, so there won't be so much padding, conservation a
Ran, Adee Cisco Systems, Inc.	
Ran, Adee Cisco Systems, Inc. Comment Type E Comment Status X Table 167-7 has both en-dash (line 19 "–4.6") and hyphen (line 25 "-4.4") for negative numbers.	<ul> <li>and overshoot specs. With the extra taps and threshold adjust range in this clause's TDECQ it would be well equalised, so there won't be so much padding, conservatism a need for measurement margin vs. TDECQ and TECQ as in earlier clauses, so signals r the nominal spec limits are a concern.</li> <li>This bad signal has high K' and high but legal overshoot, a bad combination for receive Yet the point of a separate VR spec was to allow slower transmitters than are needed for SR, so VR transmitters should not be in this corner.</li> <li>This is worse at TP2 than after a minimum-bandwidth optical channel at TP3. The K' limit is similar to VEC in C2M and EVM in coherent: a screen for signals that are</li> </ul>
Ran, Adee       Cisco Systems, Inc.         Comment Type       E       Comment Status X         Table 167-7 has both en-dash (line 19 "-4.6") and hyphen (line 25 "-4.4") for negative numbers.         For the Minus sign it is conventional to use en-dash.         Also in Table 167-8 and maybe elsewhere (it is difficult to find all instances in the PDF but it should be easier in the Frame Maker source).         uggestedRemedy         Change all hyphens that denote minus sign to en-dash, in this table, in table 167-8 (7	<ul> <li>and overshoot specs. With the extra taps and threshold adjust range in this clause's TDECQ it would be well equalised, so there won't be so much padding, conservatism a need for measurement margin vs. TDECQ and TECQ as in earlier clauses, so signals r the nominal spec limits are a concern.</li> <li>This bad signal has high K' and high but legal overshoot, a bad combination for receive Yet the point of a separate VR spec was to allow slower transmitters than are needed for SR, so VR transmitters should not be in this corner.</li> <li>This is worse at TP2 than after a minimum-bandwidth optical channel at TP3.</li> </ul>
Ran, Adee       Cisco Systems, Inc.         Comment Type       E       Comment Status X         Table 167-7 has both en-dash (line 19 "-4.6") and hyphen (line 25 "-4.4") for negative numbers.         For the Minus sign it is conventional to use en-dash.         Also in Table 167-8 and maybe elsewhere (it is difficult to find all instances in the PDF but it should be easier in the Frame Maker source).         SuggestedRemedy         Change all hyphens that denote minus sign to en-dash, in this table, in table 167-8 (7 instances) and elsewhere as required.	<ul> <li>and overshoot specs. With the extra taps and threshold adjust range in this clause's TDECQ it would be well equalised, so there won't be so much padding, conservatism a need for measurement margin vs. TDECQ and TECQ as in earlier clauses, so signals r the nominal spec limits are a concern.</li> <li>This bad signal has high K' and high but legal overshoot, a bad combination for receive Yet the point of a separate VR spec was to allow slower transmitters than are needed for SR, so VR transmitters should not be in this corner.</li> <li>This is worse at TP2 than after a minimum-bandwidth optical channel at TP3. The K' limit is similar to VEC in C2M and EVM in coherent: a screen for signals that are bad after equalisation. As it is a free by-product of the TECQ measurement, we can ad to exclude these untypical signals that don't benefit transmitter makers but are bad for</li> </ul>
Ran, Adee       Cisco Systems, Inc.         Comment Type       E       Comment Status X         Table 167-7 has both en-dash (line 19 "-4.6") and hyphen (line 25 "-4.4") for negative numbers.         For the Minus sign it is conventional to use en-dash.         Also in Table 167-8 and maybe elsewhere (it is difficult to find all instances in the PDF but it should be easier in the Frame Maker source).         SuggestedRemedy         Change all hyphens that denote minus sign to en-dash, in this table, in table 167-8 (7	<ul> <li>and overshoot specs. With the extra taps and threshold adjust range in this clause's TDECQ it would be well equalised, so there won't be so much padding, conservatism a need for measurement margin vs. TDECQ and TECQ as in earlier clauses, so signals r the nominal spec limits are a concern.</li> <li>This bad signal has high K' and high but legal overshoot, a bad combination for receive Yet the point of a separate VR spec was to allow slower transmitters than are needed for SR, so VR transmitters should not be in this corner.</li> <li>This is worse at TP2 than after a minimum-bandwidth optical channel at TP3. The K' limit is similar to VEC in C2M and EVM in coherent: a screen for signals that are bad after equalisation. As it is a free by-product of the TECQ measurement, we can ad to exclude these untypical signals that don't benefit transmitter makers but are bad for receivers.</li> </ul>

C/ 167 SC 167.7.1

C/ 167	SC 167.7.1	P52	L38	# 1-34	C/ 167	SC 167.7.2	P <b>53</b>	L <b>36</b>	# 1-32
Tang, Yi	30 I <b>V</b> IIII	Cisco Syster		" i O T	Healey, A	-	Broadcom In		" I OZ
Comment	Type <b>TR</b>	Comment Status X	-, -		Comment		Comment Status X		
genera transm	ation specs. No hitter can indee	erance is specified as 12dB in data/information has been pr d tolerate 12dB ORL at 53GBd	esented to demo d. By adopting th	nstrate that the esame level of RX	inform		ds Style Manual (12.1) states allowed." Labeling aspects of		
		eturn loss tolerance as 50G, th even though it is likely more co			Suggested	Remedy			
buiuei							e b, change "Average receive		
Propos 15dB	se lower max re	eceiver reflectance to -15dB a	nd set optical ret	urn loss tolerance to		ot the principal ir al indicator".	ndicator" to "Average receiv	e power, each la	ane (min) is not the
A supp	porting presenta	ation will be provided.			Proposed	Response	Response Status O		
Suggested	lRemedy								
	52, Line 38, 167 je "RIN12OMA"	7.7.1: ' to "RIN15OMA"							
	52, Line 39, 167 Je "Optical retur	7.7.1: m loss tolerance (max)" from ?	12dB to 15dB						
	53, Line 22, 167 je "Receiver ref	7.7.2: flectance (max)" from -12dB to	) -15dB						
	56, Line 15, 167 je "RIN12OMA"	7.8.1: ' to "RIN15OMA"							
Line 1	56, 167.8.12: - Change "RIN - Change "12 c	120MA" to "RIN150MA" JB" to "15 dB"							
0	56, 167.8.14: 3 - Change botl	h "RIN12OMA" to "RIN15OMA	."						
0	71, Line 23, 167 je "RIN12OMA"	7.11.4.4: ' to "RIN15OMA"							
Proposed	Response	Response Status 0							
		• -							

C/ 167 SC 167.7.2

C/ 167	SC 167.8.6	P <b>57</b>	L <b>40</b>	# <u>1</u> -37
Le Chemi	nant, Greg	Keysight Tecl	hnologies	

Comment Type T Comment Status X

The current method for optimizing the tap weighs of equalizer in the TDECQ reference receiver is described in clause 121.8.5 (emphasis added):

The equalizer tap coefficients are iteratively adjusted and SERL and SERR calculated until the largest of SERL and SERR is minimized. Then, if the larger of SERL and SERR is greater than the target SER of  $4.8 \times 10-4$ , the value of sigmaG is decreased and the process of equalizer optimization is repeated; If the larger of SERL and SERR is lower than the target SER of  $4.8 \times 10-4$ , then the value of sigmaG is increased and the process of equalizer optimization is repeated. When the larger of SERL and SERR is equal to the target SER of  $4.8 \times 10-4$ , and the value of sigmaG cannot be increased by further optimization of the equalizer tap coefficients, then TDECQ is calculated Although not explicitly stated, one way to view this is that any combination of tap weights is valid and that all combinations should be tried to ensure the optimum tap weight combination is used when calculating TDECQ.

A subset of this approach would be to minimize the TDECQ penalty by adjusting the equalizer tap weights to minimize the eye closure and then perform the TDECQ calculation. One method to achieve this is through a minimum mean squared error optimization of eye closure. The specific optimization method is not critical, as any method will be a subset of the full search allowed in clause 121. While not guaranteeing the lowest possible TDECQ, reference receivers using an MMSE optimization indicate agreement of TDECQ penalties within 0.1 to 0.2 db. (Any alternative method to the full search must be equal to or greater than the value observed with a full search). There is no risk of false positives with alternative optimization methods.

As reference equalizers use longer equalizers the time required for a full search to optimize tap weights will increase. The clause 167 reference receiver uses a 9-tap equalizer compared to the 5-tap version of clause 121. For the 9-tap equalizer, an MMSE optimization can be performed in approximately 1 second compared to the 10 to 40 seconds required for a full search. Allowing a very small tradeoff of TDECQ penalty for a large reduction in test time should be an available alternative to implementors of the 802.3 db standard. It is worth noting that the vast majority of TDECQ measurements are currently being made using this tradeoff.

### SuggestedRemedy

Modify the text of clause 167 by adding the following to the list of exceptions to the TDECQ method described in clause 121.8.5 found on page 57 line 40:

-The tap weight optimization method described in 121.8.5 can be used. Test times can be significantly reduced using other methods that rely on optimization of the eye closure rather than minimizing TDECQ penalties directly. The TDECQ penalty will be greater than or equal to the value reported using the 121.8.5 optimization method.

Proposed Response Response Status **O** 

C/ 167	SC 167.8.6	P <b>58</b>	L <b>27</b>	# I-28
Ghiasi. Ali		Ghiasi Quantu	um LLC.Marvell	Semiconductor. Inc.

Comment Type **TR** Comment Status **X** 

802.3db draft for TDECQ measurement references 121.8.5, the actual TDECQ measurement details are in 121.8.5.3 and this clause iteratively adjust tap coefficients: see text below:

"The equalizer tap coefficients are iteratively adjusted and SERL and SERR calculated until the largest of SERL and SERR is minimized. Then, if the larger of SERL and SERR is greater than the target SER of  $4.8 \times 10-4$ , the value of sigmaG is decreased and the process of equalizer optimization is repeated; If the larger of SERL and SERR is lower than the target SER of  $4.8 \times 10-4$ , then the value of sigmaG is increased and the process of equalizer optimization is repeated.

When the larger of SERL and SERR is equal to the target SER of  $4.8 \times 10-4$ , and the value of sigmaG cannot be increased by further optimization of the equalizer tap coefficients, then TDECQ is calculated."

The process of iterative full grid search for 9 tap equalizer is  $\sim$ 35 seconds compare to  $\sim$ 1 seconds for MMSE. There is merits to include optional MMSE test method in addition to full grid search.

#### SuggestedRemedy

Given that MMSE vs iterative has  $R^2=0.999$  but reduces test time by >30x task force should add optional MMSE method to speed up the test time. The issue of test time will only get worse with 802.3df PMDs some using >20 taps. The classic MMSE test method can be written:

For given input signal x[n]=x(nT), n is equalizer tap and T is the unit interval The output signal given by y[n]=y(nT)

The output of linear equalizer with 5 or 9 taps (N) given by = SUM(k=0 to N)wk x[n-k], where wk is the weight at 4th tap.

One can use matrix notation to recast the convolution as :

y[n]=x^T[n}w[n]

MMSE algorithm can start with w[1]=0 then compute for n=1, 2, ...

y[n]=x^T[n]w[n]

e[n]=a[n] - y[n] the error signal, a[n] desired response at n sample time w[n+1]=w[n] + mu e[n]x[n], mu step size and e[n] is the error signal.

Ghiasi and Le Cheminant will bring the full optional MMSE proposal to the task force.

Proposed Response Response Status **O** 

C/ 167 SC 167.8.6

2802.3db D3.0 100 Gb/s, 200 Gb/s, and 400 Gb/s Short Reach Fiber Task Force Initial Sponsor ballot corr	s, and 400 Gb/s Short	2802.3db D3.0 100 Gb/s, 20	100 Gb/s Short Reach Fiber Task Force Initial Spons	or ballot com
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C/ 167 SC 167.8.6.1	P <b>58</b>	L <b>41</b>	# <u>I</u> -16	C/ 167	SC 167.8.13	P <b>60</b>	L11	# 1-29
Brown, Matthew	Huawei Techi	nologies Canada		Rannow, R K		silverdraft	t supercomputing	
Comment Type E	Comment Status X			Comment Ty	pe T	Comment Status X		
"Arial font is preferred."	s Style Manual provides the		o for fonts in graphics:	, ,	otical return los y 12 dB is an	ss is 12 dB. exception appears a bit a	mbiguous.	
SuggestedRemedy				This shou	uld perhaps be	e set as a min or max leve	el. RL = 12dB	
	i, use a consistent font size, (	preferably 9 pt.		SuggestedRe	emedy			
Proposed Response	Response Status <b>O</b>			Range or	limit?			
				Proposed Re	sponse	Response Status O		
C/ 167 SC 167.8.8	P <b>59</b>	L16	# 1-8	C/ 167	00 407 0 44		/ 42	# 140
Ran, Adee	Cisco System	s, Inc.			SC 167.8.14	P60	L <b>43</b>	# <u>I-10</u>
Comment Type ER	Comment Status X			Ran, Adee	_	-	stems, Inc.	
	n is not part of standard style			<i>Comment Ty</i> ا see 167"		Comment Status X 3.2" - these are not active	cross references.	
Also in 167.8.9.				SuggestedRe	medy			
SuggestedRemedy				Make the	m active.			
Change to 3 × 10^–3 (N superscript), in both pla	Note: multiplication sign, en d aces.	ash, nonbreaking	spaces, and	Proposed Re	sponse	Response Status <b>O</b>		
Proposed Response	Response Status 0							
				C/ 167	SC 167.8.14.	1 <i>P</i> 61	L <b>6</b>	# <mark>I-11</mark>
C/ 167 SC 167.8.9	P <b>59</b>	L <b>27</b>	# 1-9	Ran, Adee		Cisco Sys	stems, Inc.	
Ran, Adee	Cisco System	s, Inc.		Comment Ty		Comment Status X		
Comment Type E	Comment Status X					as a number of UI, and f be a frequency.	has dimension of fre	quency, so the
P in italic).	P_min appear in the referenc		ted as variables (with	See com	ment I-28 in	g/3/dc/comments/P8023_	_D3p0_comments_fir	nal_by_cls.pdf#page=1
It would make sense fo	r P_average to be formatted	similarly.		SuggestedRe	medv			
SuggestedRemedy				00		"2 × 10^5 Hz/f".		
Format P_Max, P_min,	and P_average with P in ital	ic.		Proposed Re		Response Status 0		
Proposed Response	Response Status <b>O</b>							

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn SORT ORDER: Clause, Subclause, page, line C/ 167 SC 167.8.14.1

C/ 167 SC 16	167.9.1	P <b>61</b>	L17	<b>#</b> I-20	C/ 167 SC 167.10	).3.3	P <b>65</b>	L <b>1</b>	# I-1
Ghiasi, Ali		Ghiasi Quan	tum LLC,Marvell	Semiconductor, Inc.	Pimpinella, Rick		Panduit Corp		
Comment Type	ER Com	nent Status X			Comment Type TR	Comment S	Status X		
No reference p	provided for J.2								r are they compatible
SuggestedRemedy	ly				with Structured Cab				ita shows no e of -20 dB (or more).
Please provide	e reference J.2.				SuggestedRemedy				
Proposed Respons	ise Respo	nse Status <b>O</b>						The Standard s	should only specify one
C/ 167 SC 10	167.9.1	P <b>61</b>	L17	# I-19	Proposed Response	Response Si	tatus O		
_ingle, Robert		Georgia Insti	itute of Technolog	ду					
Comment Type	TR Com	nent Status X			C/ 167 SC 167.10	).3.3	P <b>66</b>	L <b>6</b>	# 1-33
		o J.2 in IEEE Std 8			Tang, Yi		Cisco System	ns, Inc.	
				ce #16 Task Force.	Comment Type TR	Comment S	Status X		
IEEE P802.3db	b should align its			ce #16 Task Force. e final draft of IEEE	Comment Type TR			1 nolished MPO	Given that the broad
	b should align its				The current MDI det	ined in D3.0 indica	ates an angled		
IEEE P802.3db 802.3 (IEEE P8	b should align its 802.3dc).				The current MDI det	ined in D3.0 indication of the matrix of the	ates an angled -12 is domina	ted by PC, adop	
IEEE P802.3db 802.3 (IEEE P8 SuggestedRemedy Align the refere	db should align its 2802.3dc). <i>ly</i> rence to J.2 in IEE	reference to J.2 wit E 802.3db D3.0 Su	h the format in th bclause 167.9.1 t	e final draft of IEEE to conform to the latest	The current MDI de deployment/ecosyst cause broad user cl	ined in D3.0 indica em for MMF MPO- nallenges during de	ates an angled -12 is domina eployment res	ted by PC, adop sulting in out of s	tion of an APC MDI w pec channels.
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C/ 167 SC 167.10.3.3

Maki, Jeffery       Juniper Networks, Inc.         Comment Type       TR       Comment Status X         The broad market potential for 400GBASE-SR4, and 200GBASE-SR4. Similarly the broad market potential for 200GBASE-SR4, and 200GBASE-SR2. SuggestedRemedy         Change the following text to the proposed text:         MPO adapter interface - Opposed keyway configuration, or interface 7-1-9: MPO active device receptacle, angled interface, as defined in IEC 61754-7-1. The plug terminating th optical fiber cabling shall meet the dimensional specifications of interface 7-1-1: MPO female plug connector, down-angled interface for 2 to 12 fibres, as defined in IEC 61754 1.         Proposed text:       MPO adapter interface - opposed keyway configuration, or interface 7-1-10: MPO active device         receptacle, flat interface - opposed keyway configuration, or interface 7-1-10: MPO active device         receptacle, flat interface, as defined in IEC 61754-7-1. The plug terminating the optical fil cabling shall         meet the dimensional specifications of interface 7-1-4: MPO female plug connector, flat interface for 2 to 12         fibers, as defined in IEC 61754-7-1.         Proposed Response       Response Status O         Cl 167       SC 167.11.4.2       P70       L12       #         III2       Ran, Adee       Cisco Systems, Inc.       Comment Type       ER       Comment Status X         PMD_lane_by_lane_transmit_disable - no underscores necessary (this is a function, and there is no variable with this name).       Als		SC	167.10.3.3	P <b>66</b>	L <b>9</b>	# <mark>1-</mark> 35
The broad market potential for 400GBASE-VR4 and 400GBASE-SR4 is met using the same MDI as for 40GBASE-SR4, 100GBASE-SR4, and 200GBASE-SR4. Similarly the broad market potential for 200GBASE-VS2 and 200GBASE-SR2 is met using the same MDI as for 100GBASE-SR2. SuggestedRemedy Change the following text to the proposed text: MPO adapter interface - Opposed keyway configuration, or interface 7-1-9: MPO active device receptacle, angled interface, as defined in IEC 61754-7-1. The plug terminating th optical fiber cabling shall meet the dimensional specifications of interface 7-1-1: MPO female plug connector, down-angled interface for 2 to 12 fibres, as defined in IEC 61754-7. 1. Proposed text: MPO adapter interface - opposed keyway configuration, or interface 7-1-10: MPO active device receptacle, flat interface, as defined in IEC 61754-7-1. The plug terminating the optical file cabling shall meet the dimensional specifications of interface 7-1-10: MPO active device receptacle, flat interface, as defined in IEC 61754-7-1. The plug terminating the optical file cabling shall meet the dimensional specifications of interface 7-1-4: MPO female plug connector, flat interface for 2 to 12 fibers, as defined in IEC 61754-7-1. Proposed Response Response Status O C/ 167 SC 167.11.4.2 P70 L12 # [-12 Ran, Adee Cisco Systems, Inc. Comment Type ER Comment Status X PMD_lane_by_lane_transmit_disable - no underscores necessary (this is a function, and there is no variable with this name). Also for PMD_fault in M5, PMD_transmit_fault in M6, and PMD_receive_fault in M7 - no underscores necessary when referring to the function.	Maki, Jeffe	ry		Juniper Netwo	orks, Inc.	
same MDI as for 40GBASE-SR4, 100GBASE-SR4, and 200GBASE-SR4. Similarly the broad market potential for 200GBASE-VS2 and 200GBASE-SR2 is met using the same MDI as for 100GBASE-SR2.  SuggestedRemedy Change the following text to the proposed text: MPO adapter interface - Opposed keyway configuration, or interface 7-1-9: MPO active device receptacle, angled interface, as defined in IEC 61754-7-1. The plug terminating th optical fiber cabling shall meet the dimensional specifications of interface 7-1-1: MPO female plug connector, down-angled interface for 2 to 12 fibres, as defined in IEC 61754-1.  Proposed text: MPO adapter interface - opposed keyway configuration, or interface 7-1-10: MPO active device receptacle, flat interface, as defined in IEC 61754-7-1. The plug terminating the optical fil cabling shall meet the dimensional specifications of interface 7-1-10: MPO active device fibers, as defined in IEC 61754-7-1. The plug terminating the optical fil cabling shall meet the dimensional specifications of interface 7-1-4: MPO female plug connector, flat interface for 2 to 12 fibers, as defined in IEC 61754-7-1.  Proposed Response Response Status O C/ 167 SC 167.11.4.2 P70 L12 # [-12 Ran, Adee Cisco Systems, Inc. Comment Type ER Comment Status X PMD_lane_by_lane_transmit_disable - no underscores necessary (this is a function, and there is no variable with this name). Also for PMD_fault in M5, PMD_transmit_fault in M6, and PMD_receive_fault in M7 - no underscores necessary when referring to the function.	Comment 7	Туре	TR	Comment Status X		
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Cl 167       SC 167.11.4.2       P70       L12       # [-12]         Ran, Adee       Cisco Systems, Inc.         Comment Type       ER       Comment Status X         PMD_lane_by_lane_transmit_disable - no underscores necessary (this is a function, and there is no variable with this name).         Also for PMD_fault in M5, PMD_transmit_fault in M6, and PMD_receive_fault in M7 - no underscores necessary when referring to the function.	MPO a device recepta	dapter acle, fla	r interface - o			
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Comment Type         ER         Comment Status         X           PMD_lane_by_lane_transmit_disable - no underscores necessary (this is a function, and there is no variable with this name).         Also for PMD_fault in M5, PMD_transmit_fault in M6, and PMD_receive_fault in M7 - no underscores necessary when referring to the function.	meet th interfac fibers,	he dim ce for 2 as def	2 to 12 ined in IEC 6	61754-7-1.	4: MPO female	plug connector, flat
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	meet th interfac fibers, ; Proposed F C/ 167 Ran, Adee Comment T PMD_l: there is Also fo	ne dim ce for 2 as def Respoi SC SC Type ane_b s no va r PMD	2 to 12 ined in IEC ( nse 167.11.4.2 ER y_lane_trans ariable with ti p_fault in M5	61754-7-1. <i>Response Status</i> <b>O</b> <i>P</i> <b>70</b> Cisco System <i>Comment Status</i> <b>X</b> smit_disable - no undersco his name). , PMD_transmit_fault in M6	L12 s, Inc. res necessary (f	# [ <u>-12</u>
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Proposed Response Response Status <b>O</b>	meet ff interfac fibers, : Proposed F Cl 167 Ran, Adee Comment T PMD_Is there is Also fo unders Suggested Change	ne dim ce for 2 as def Respor SC Type ane_b s no va r PMD cores Remed e to "P	2 to 12 ined in IEC ( nse 167.11.4.2 ER y_lane_trans ariable with ti p_fault in M5 necessary w dy MD lane-by-	61754-7-1. <i>Response Status</i> <b>O</b> <i>P</i> 70 Cisco System <i>Comment Status</i> <b>X</b> smit_disable - no undersco his name). , PMD_transmit_fault in Me when referring to the functio -lane transmit disable", "PM	L <b>12</b> s, Inc. res necessary (f s, and PMD_reco n.	# <u>I-12</u> this is a function, and eive_fault in M7 - no

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

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