C/ 00 SC	Р	L	# 448	C/ 00	SC 0	Р	L	# 451
D'Ambrosia, John	Force10 Netwo	orks		D'Ambrosi	a, John	Force	e10 Networks	
Comment Type TR All equations throu	Comment Status R ughout D2.0 need to be re-evaluate	d for consister	псу.	Comment Namin	<i>Type</i> ER g Parameters o	Comment Status of mixed mode 4 port \$	R S-parameters is incons	sistent within IEEE
SuggestedRemedy Update all equatio	ons to be self-consistent with other	equations.		P802.3 List of	Bba. A standar	d naming nomenclatu g updated	re is needed.	
Response REJECT. [Editor's note: Cha See Response to	Response Status U anged clause number from 99 to 00 comment 447]		Clause Table Fig 85 Page 2 Figure Text ir	9 85: 85-6 (Line 23): 5 caption 249, Line 3 - "fit 86-8-Mode cor subclause 86.	Differential to commo tted cable assembly ir nversion of mated HCl 9 Recommended elec	n mode conversion SC nsertion loss" B-MCB strical channel (informa	CD11 ttive)
C/ 00 SC	Р	L	# 447	Figure	86-12-Recom	mend response of PPI	channel with HCB	ode Output S-parameters
D'Ambrosia, John	Force10 Netwo	orks		In Tab	le 83A02, Diffe	rential Input S-parame	eters and Differential C	common Mode Input
loss (min & max), (which have been the Tx and Rx outp SuggestedRemedy Update all figures In all graphs (inser should be positive Response REJECT. [Editor's note: Cha There was consen clauses but this is	ICR, ILD, Return loss (including DI labeled "reflection coefficients in C put return loss parameters all need to be self consistent with other figu rtion loss, return loss, and crosstall magnitude. See dambrosia_02_0 <i>Response Status</i> U anged clause number from 99 to 00 nsus in the task force that a consist dependent on decisions on the pa	D,CC, DC, and lause 85 in D2 to be re-evalu res. () the magnitud 509 on naming () ent format be a rameter namin	CD) and return loss's .0)) and associated with ated for consistency de of all the y-axis nomenclature of charts.	Text ir Figure TC6 a RC2 a In Tab In Tab HC3 a	sub-clause 83 83A-11-Chann 83A-12-Chann nd TC7 in 83A. nd RC3 in 83A. le 83B-2, Modu le 83B-4, Host nd HC4 in 83B.	A.4 Interconnect char nel insertion loss nel Return Loss 7.4 XLAUI/CAUI Trans 7.5 XLAUI/CAUI Reca le input reflection SDD output reflection SDD .4.4 Host requirements	acteristics smitter Requirements eiver Requirements D11 and Module outpu 22 and Host input refle s	t reflection (SDD22) cction SDD11
				85.10. Fig 85 85.9.1 clause 85.9.2 85.9.3 Table 85.10.	4 Cable assem 7 caption Transmitter ar Channel insert Channel returr 85-7 (Line 40) I 2 Cable assem	bly return loss & test i nd receiver differential tion loss & text in subc n loss & text in subclau Maximum Insertion Lo bly insertion loss and	n subclause printed circuit board tr clause use uss text in subclause	race loss & text in sub-
TYPE: TR/technical re COMMENT STATUS: SORT ORDER: Clau	equired ER/editorial required GR/g D/dispatched A/accepted R/rejec use, Subclause, page, line	eneral required ted RESPO	d T/technical E/editorial G/ge NSE STATUS: O/open W/wr	eneral itten C/close	d U/unsatisfie	ed Z/withdrawn	C/ 00 SC 0	Page 1 of 13 5/29/2009 4:58:56 PM

IEEE P802.3ba D2.0 40Gb/s and 100Gb/s Ethernet comments

86. 86. In refl In refl In Fig 86.	.6.1.1 SDD11 at TP1 and SDD22 at TP1a and text in subclause .6.1.2 Common mode output reflection coefficient SCC22 at TP1a and TP4 Table 86-6, Differential output reflection coefficient, SDD22 and Common mode output lection coefficient, SCC22 Table 86-7 Differential input reflection coefficient, SDD11 and Reflected differential to mmon mode conversion, SCD11 Table 86-11 Differential output reflection coefficient, SDD22 and Common mode output lection coefficient, SCC22 Table 86-12, gure 86-3-Differential and common-mode reflection specifications .6.5.1 SDD22 at TP4 and SDD11 at TP4a & text in subclause
Fig Te: Fig	ure 86-5-Through response of HCB and MCB excluding connector xt in Sub-clause 86.7.1.1 Compliance board parameters gure 86-6-Through response of mated HCB-MCB
Sugges	stedRemedy

Rename all parameters using standard naming nomenclature see presentation (dambrosia 02 0509)

Response Response Status U REJECT.

There was consensus in the task force that a consistent naming convention be adopted across all of the clauses.

CI 00	SC 0	P126	L18	# 577
Booth, Brad		AMCC		

Comment Type **TR** Comment Status R

In the architectural figures for 802.3ba, there is a reference in the stack to 40GBASE-R PCS and 100GBASE-R PCS. This is incorrectly described relative to the description in Clause 82 which defines it as a 64B/66B PCS. Being verify specific is not required. For example, the 802.3 specification references 8B/10B PCS, 64B/66B PCS or just PCS in many instances through the standard. Calling out the specific port type is note required.

SuggestedRemedy

Change all diagrams to show 40GBASE-PCS and 100GBASE-R PCS as 64B/66B PCS.

Response

Response Status U

REJECT.

There is a single lane 64B/66B PCS for 10GBASE-R. Hence to differentiate that the 40G and 100G R PCS is not the same as a 10G R PCS this specific reference was added. Also, the 40GBASE-R PCS is different from the 100GBASE-R PCS in terms of the number of lanes etc.

Death Dr	SC 1	.4	P23	L 46	# 541
Booth, Brac	1		AMCC		
Comment 7	<i>ype</i> s for lo	TR ng wavel	Comment Status R		
Suggested	Romodi	/			
Change 40GBA encodir	to read SE-LR4 ng over	d: 1: IEEE { four WD	302.3 Physical Layer spec M lanes on single-mode fi	fication for 40 Gb/s ber using long wav	s using 40GBASE-R elengths.
100GB/ encodir	ASE-LF ng over	R4: IEEE four WD	802.3 Physical Layer spe M lanes on single-mode fi	cification for 100 G ber using long wav	b/s using 100GBASE-R elengths.
Response			Response Status U		
cannot In the 4 stands This no Ganga_	be disti 0GBAS for long mencla _02_05	nguishea SE and 1 I reach. ture was 08 and N	d by means of a letter india 00GBASE nomenclature t adopted by the task force lotion #2 in May 2008 min	cating wavelength. he L does not stan e in May 2008 (See utes).	d for long wavelength, it slide 8 of
C/ 01	SC 1	.4	P 23	L 49	# <u>5</u> 42
Booth, Brad	I		AMCC		
Comment T	уре	TR	Comment Status R		
S stand	ls for sł	nort wave	elength.		
Suggested	Remedy	/			
Change 40GBA	e to read SE-SRA	d: 4: IEEE 8 four lane	302.3 Physical Layer spec	ification for 40 Gb/ short wavelengthe	s using 40GBASE-R s.
encodir					
encodir 100GB/ R enco	ASE-SF ding ov	R10: IEE er ten la	E 802.3 Physical Layer sp nes of multimode fiber usir	ecification for 100 ng short wavelengt	Gb/s using 100GBASE- hs.
100GB/ R enco Response	ASE-SF ding ov	R10: IEE er ten la	E 802.3 Physical Layer sp nes of multimode fiber usin Response Status U	ecification for 100 ng short wavelengt	Gb/s using 100GBASE- hs.

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/ 01 SC 1.4 Page 2 of 13 5/29/2009 4:58:57 PM

IEEE P802.3ba D2.0 40Gb/s and 100Gb/s Ethernet comments

C/ 01 SC 1.4 Booth, Brad	Р 24 АМСС	L 10	# 545	<i>C</i> / 30 Booth, Bra	SC 3 ad	30.5.1.1.2	Р 30 АМСС	L 9	# 549
Comment Type TR E stands for extra le	Comment Status R ong wavelength.			Comment L refe	<i>Type</i> rs to long	TR g waveleng	Comment Status R th.		
SuggestedRemedy Change to read: IEEE 802.3 Physica over four WDM land Response REJECT. Since the 100GBAS cannot be distinguis In the 40GBASE ar wavelength, it stand This nomenclature	al Layer specification for 100 Gb/ es on single-mode fiber using ext <i>Response Status</i> U SE-LR4 and 100GBASE-ER4 PM shed by means of a letter indication and 100GBASE nomenclature the ds for extended reach. was adopted by the task force in	's using 100GB/ tra long wavelen IDs use identica ing wavelength. E does not stan May 2008 (See	ASE-R encoding gths. I wavelengths, they d for extra long slide 8 of	Suggester Chan with lo To rea using For 40 Response REJE See #	dRemedy ge: ong reach ad: long way OGBASE CT. 541	velength -LR4 and 1	00GBASE-LR4. Response Status U		
Ganga_02_0508 ar	nd Motion #2 in May 2008 minute	(6666) (5).		<i>Cl</i> 69 Booth, Bra	SC 6 ad	69.1.3	Р 94 АМСС	L14	# 560
C/ 30 SC 30.5.1 Booth, Brad Comment Type TR E is for extra long w	AMCC Comment Status R vavelength.	L18	# 550	Comment Figure doesr 1000E	<i>Type</i> 69-1 sh 't follow BASE-KX	TR hows the 40 with the PC (, and it is a	Comment Status A G PCS as 40GBASE-R PC S descriptions for the other also used for 10GBASE-KX	S. This is an ir r PHYs. An 8B 4 even though t	ncorrect reference that /10B PCS is used for they are different.
SuggestedRemedy Change "with exten	ded reach" to "extra long wavele	ngth" for 100GB	ASE-ER4.	Suggester Chang	dRemedy ge 40GB	y ASE-R PC	S to be 64B/66B PCS.	-	
Response REJECT. See #545	Response Status U			Response Response Status U ACCEPT IN PRINCIPLE. The 8B/10B encoding used in 1000BASE-KX is not the same as that used in 10GBASE-KX4 so the current diagram is misleading.					
				In Fig "8B/1 "8B/1 "64B/	ure 69-1)B PCS")B PCS" 66B PCS	change in the 100 in the 10G S" in the 106	DBASE-KX stack to "1000B BASE-KX4 stack to "10GB GBASE-KR stack to "10GB	ASE-X PCS" ASE-X PCS" ASE-R PCS"	

C/ 69 SC 69.1.3

IEEE P802.3ba D2.0 40Gb/s and 100Gb/s Ethernet comments

	30 09	.3	P 96	L 3	# 632	C/ 73	SC 73.10.1	P102	L 8	# 565			
Ganga, Ilan Comment T	go Type E	R Com	Intel			Comment	a Type TR	Comment Status R					
"Add" is	s not a va	lid editing instr	ruction as per 2009 I	EEE standards s	style manual. Change	Additio	n of 10GBASE	-CX4 is outside the scope	e of the project.				
Suggested	Remedy	In Clause 69 a	and elsewhere in the	dran		Suggested Delete	Remedy text related to	10GBASE-CX4.					
Replace	e editing	instructions fro	m "Add" to "Insert"			Response Response Status U							
Use the make c	e following hanges a	g editing instrue is necessary w	ctions only throughout then there is a deviated	ut the draft 802.3 ion from the 200	8ba. Check 802.3ba and 9 style manual.	REJECT.							
Editing	instructio	ns: Change, Ir	nsert, Delete and Re	olace		Clause PHYs.	e 73 autonegoti	ation has been extended	to include 40GBASE	E-CR4 and other 802.3ba			
Response ACCEF	PT.	Resp	onse Status U			10GKX 10GBA	(4 in the base a SE-KX4 by the	802.3-2008 standard is us e Clause 48 PCS.	ed to indicate the pa	arallel detection of			
						The Cl	ause 48 PCS i	s also used by 10GBASE	·CX4.				
					There i 10GBA connec PCS if	is the possibilit SE-CX4 end-p ctor.) If this we present.	y of an end point using 40 point. (40GBASE-CR4 and re to happen the 10GKX4	GBASE-CR4 conne I 10GBASE-CX4 shi indication would be	ecting to a legacy are a common set by the Clause 48				
				For this paralle	s reason the de I detection.	been modified to inc	clude either KX4 or CX4						
					Vote in yes to no to c	BRC comment resp omment respo	onse 8 nse 2						
						see als	so comment 56	3					
						<i>Cl</i> 73 Ghiasi, Ali	SC 9.1	P 101 Broadcor	L 28	# 416			
						Comment T	<i>Type</i> TR 40/100GbE api	Comment Status R	the PCS and the P	HY are not located in			
						the sar	ne chip and th	ere may be PCB signal fo	r speed detection.				
						Suggested	Remedy						
						Add te: as out	xt: Auto-Negoti of band PCB s	iation primitive may pass l ignal traces .	between the PCS ar	nd XLAUI/CAUI retimer			
						Response REJEC As with	CT.	Response Status U	antiation of this prim	nitive is not defined			

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/generalC/73Page 4 of 13COMMENT STATUS: D/dispatched A/accepted R/rejectedRESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawnSC 9.15/29/2009 4:58:57 PM

IEEE P802.3ba D2.0 40Gb/s and 100Gb/s Ethernet comments

CI 80	SC 80.1.3	P126	L17	# 575	C/ 81	SC 81.1.4	P138 Broadcom	L 52	# 529			
DOOLII, DIA	au	AMCC			Flazier, F	loward	Broadcom					
<i>Comment</i> In Fig This d	<i>Type</i> ER ure 80-1, the PCS loes not follow the	Comment Status R are described as a 40GBAS convention previously estab	E-R PCS and a lished.	100GBASE-R PCS.	Commen In tak need	<i>t Type</i> TR ble 81-1, the delay lessly tight. At 10	Comment Status A y constraint for the 40G MAC, IG, the delay constraint was 16	RS and MAC C pause quanta,	ontrol is or 8192			
Suggested	dRemedy				BT. F	or 40G, draft D2	allows only 10 pause quanta,	or 5120 BT. It i	s hard			
Chang	ge 40GBASE-R P	CS and 10GBASE-R PCS to	be 64B/66B P0	CS.	numb	e now a 40G imp	nta than a 10G implementation	a diven that data	a path widths			
Response RE.IF	e CT	Response Status U			and state machine clock frequencies are not likely to scale exactly linearly, and certainly won't scale super-linearly.							
See re	esponse to comm	ent #577			It wo	uld make better s	ense to allow a longer reaction	n time at 40G, re	elative to 10G.			
CI 80	SC 80.3	P131	L 5	# 528	Incre	ase the delay cor	ostraint on the 40G MAC RS a	and MAC Contro	l to 32 pause quanta			
Frazier, H	oward	Broadcom	-		or 16	384 BT, to allow	for a broader range of implement	entations.	n to 52 pause quanta,			
Comment In tabl needle BT. Fo to see numb and st and c	<i>Type</i> TR le 80-2, the delay essly tight. At 10G or 40G, draft D2 a b how a 40G imple er of pause quant tate machine cloc ertainly won't scal	Comment Status A constraint for the 40G MAC, 6, the delay constraint was 16 illows only 10 pause quanta, mentation is going to be able a than a 10G implementation k frequencies are not likely to e super-linearly.	RS and MAC C pause quanta, or 5120 BT. It to react in a sl , given that dat scale exactly l	control is or 8192 s hard horter a path widths inearly,	Response ACCI Chan Gb/s See I	e EPT IN PRINCIP Ige the 40 Gb/s M MAC, RS, and M Response to com	Response Status U LE. MAC, RS, and MAC Control de IAC Control delay to 48 pause Iment 275.	lay to 20 pause_ _quanta.	_quanta and the 100			
It wou	Id make better se	nse to allow a longer reactior	time at 40G, r	elative to 10G.								
Suggested	dRemedy											
Increa or 163	ase the delay cons 384 BT, to allow fo	straint on the 40G MAC, RS a or a broader range of impleme	and MAC Contro entations.	bl to 32 pause quanta,								
Response)	Response Status U										

ACCEPT IN PRINCIPLE.

Change the 40 Gb/s MAC, RS, and MAC Control delay to 20 pause_quanta and the 100 Gb/s MAC, RS, and MAC Control delay to 48 pause_quanta.

See response to comment #275

C/ 81 SC 81.1.4

C/ 83	SC 83.5.10	P 208	L 4	# 57	C/ 83A	SC 83A.2.1	P 372	L 46	# 481			
Dawe, Pie	ers	Avago Techno	ologies		D'Ambrosia, John Force10 Networks							
Comment The P signal ICs. at the If wish of che	Type TR MA receive side that had been th This is more of a PCS lane level on ed, can have an ecking is implement	Comment Status R PRBS31 checker would be m rough a gearbox, e.g. when t concern for 100G than for 40 optional, for the sake of existi extra ability bit in Clause 45 t ented.	uch more usef esting whole m G. The remedy ng IC designs. o tell managen	ul if it could check a odules or whole gearbox / below makes checking nent that the better way	Comment Type TR Comment Status A Any interconnect which has a loss less than SDD21(dB) = ?]0.0006?]0.16?ã(f)?]0.0587(f) where f is from 0.25 GHz to 11.1 GHz, between the XLAUI/CAUI transmit pin and Transmi Compliance Point may be used as long as transmitter parameters of Table 83A-1 are met. Given that the compliance point will form the basis of normative measurements, it should also be normative.							
Suggeste	dRemedy				Suggested	dRemedy						
Change the paragraph to: When check Rx PRBS31 test pattern mode is enabled by bits 1.19.7 and 1.19.0 (see 45.2.1.12b), the PMA expects to find one or (optionally) two interleaved PRBS31 pattern(s) on each of the lanes received from the PMA server via the PMAserver_UNITDATA.indicationx primitive. Where there are 10 PMA lanes and no errors, there are always two bit-interleaved PRBS31 patterns, one per PCS lane. In many situations, each PMA lane can also be seen as carrying a single PRBS31. The Rx test pattern error counters in registers 1.30 through 1.39 (see 45.2.1.12d) count, per PMA lane, errors in detecting the PRBS31 patterns on the lanes from the PMA server. If the 20 bit- interleaved PRBS31 patterns are checked, the errors are summed for each PMA lane. While in check [last two sentences unchanged] Response Response Status U REJECT.						 Rewrite sentence Rewrite sentence The differential insertion loss, CPIL, expressed in decibels, between the transmit pin and the transmit compliance point shall be less than CPILmax, as defined by Equation 83C-x: CPIL(f) <= CPILmax(f) = 0.0006 +(0.16*(f)^(1/2)) + (0.0587*(f)) (83A-x) where F is in Ghz for 10 MHz <= f < 11.1 GHz The differential insertion loss limit is illustrated in Fig 83A-x. Add figure showing illustration of differential insertion loss limit and appropriate pics statement. <i>Response Response Status</i> U 						
C/ 83A Ghiasi, Ali Comment Limite	SC 5.2 <i>Type</i> TR er function gain m	P 384 Broadcom Comment Status R ust be defined	L 12	# <mark>413</mark>	The di the tra which SDD2	fferential insertion l Insmit compliance j is illustrated in Fig 1=0.00086 - 0.228(loss, CPIL, expressed in de point shall be less than CPI 83A-x. 6*sqrt(f) - 0.08386*f, where	ecibels, betwe ILmax, as defi e f is in GHz fr	en the transmit pin and ned by Equation 83A-x, om 0.25 to 11.1 GHz			
Suggester Props	dRemedy oe min gain of 20) dB			Add fi staten	gure showing illustr nent.	ation of differential insertion	n loss limit an	d add appropriate pics			
Response REJE Add th ."follo	e CT. he following to 83 wed by a limiting	Response Status U A.5.2: function with minimum gain o	f 20dB									

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/ 83A SC 83A.2.1

C/ 83A SC 83A.2.2 P 373 L 3 #	482	C/ 83A Ganga Ilan	SC 83A.	3.3.3	Int	P 375	L 37	# 639
		Ganya, nan	90					
Comment Type TR Comment Status A		Comment T	ype ER	1	Comment Stat	us A		
Any interconnect which has a loss less than SDD21(dB) = ?]0.0006?]0.16?ã(f where f is from 0.25 GHz to 11.1 GHz, between the XLAUI/CAUI receive pin a Compliance Point may be used as long as receiver parameters of Table 83A-2	f)?]0.0587(f) and Receive 2 are met.	The equ rest of t	uations in A he docume	Annex 8 ent. (E.g	3A are not cons g Equations 83A	sistent with A-4, 83A-5,	the format for ea 83A-7, 83A-8 et	quations used in the c.,).
Other that the compliance point will form the basis of compating measurement	المالية المعامل	In gene	ral equation	ns used	in the draft are	e not consis	stent across the o	clauses.
Given that the compliance point will form the basis of normative measurement also be normative. Text is also confusing.	its, it should	This co	mment also	o applie	s to Clauses 84	1 through C	lause 88 and co	rresponding annexes.
SuggestedRemedy		SuggestedF	Remedy					
1. Rewrite sentence		Reform	at the equa	ations to	be consistent	across all o	clauses and anne	exes.
The differential insertion loss, CPIL, expressed in decibels, between the receiv receive compliance point shall be less than CPILmax, as defined by Equation is illustrated in Fig 834-x	ve pin and the 83C-x, which	Response ACCEP	чт.		Response Stati	us U		
		C/ 83A	SC 83A.	3.4.7		P379	L 49	# 59
Refer to previously Added figure (for tx compliance point) showing illustration of insertion loss limit and add appropriate pics statement.	of differential	Dawe, Piers	5		Av	ago Techn	ologies	
Response Response Status II		Comment T	ype TR		Comment Stat	us R		
ACCEPT IN PRINCIPLE.		It's not XFP sty	clear that th (le, that will	hese jitt I be wai	er specs allow nted when conn	the two con ecting e.g.	a 40GBASE-LR	s and an optical link, 4 module. This is a
The differential insertion loss, CPIL, expressed in decibels, between the receive compliance point shall be less than CPII max, as defined by Equation	ve pin and the	jitter accumulation issue, and has almost nothing to do with the optical specifications (it would apply to a CR4 link using a big module and clocks derived from the signal also).						
is illustrated in Fig 83A-x.		SuggestedRemedy						
SDD21=0.00086 - 0.2286*sqrt(f) - 0.08386*f, where f is the frequency in GHz 11.1 GHz	from 0.25 to	Modify the jitter specifications to be sure they do allow two concatenated CDRs and optical link, XFP style. This may mean that the specs on the transmit side and recei differ - I think there has to be a single-tone sinusoidal jitter mask for the transmit side						ated CDRs and an it side and receive sid the transmit side nAU
Add figure showing illustration of differential insertion loss limit and add appropstatement.	priate pics	Ink, like Fig. 83A-10 but with reduced SJ and corner frequency as appropriate for a transmitter. Fig. 83A-10 can remain for the receive side nAUI link. If we don't know the answers in the meeting, put in an editors note and develop the so in time for the July meeting.					ppropriate for a	
		Response			Response Stati	us U		
		REJEC	Т.		,			
		The sco	ope of the ji	itter spe	ecification is not	to address	s the 2 concatena	ated CDRs and an

optical link XFP style. Additional information required to support the need for specification changes.

Optical link requirements are defined in other sections.

CI 83A SC 83A.3.4.7

C/ 83A SC 83A.5.2 Petrilla John	P 383 Avago Techn	L 52 ologies	# 611	<i>Cl</i> 85 Dawe, Pie	SC 85.1		P 231 Avago Tech	L 33	# 76
Petrilla, John Comment Type TR The phrase "at least" Ulpp deterministic jittu allows significant over SuggestedRemedy Change, the first sent and 0.2 Ulpp random random jitter" Response REJECT. This is a minimum va	Avago Techn <i>Comment Status</i> R in the instruction in the first se er, and 0.2 Ulpp random jitter" rstress, e.g. DJ of 1.0 Ulpp wo tence from , " comprised of a jitter" to " comprised of 0.42 <i>Response Status</i> U lue specified	ologies entence, " com can lead to prol ould meet the red at least 0.42 Ulp 2 Ulpp determinis	prised of at least 0.42 plematic results. This quirement. o deterministic jitter, stic jitter, and 0.2 UIpp	Dawe, Pie Comment Becau at clos we mu more Suggestee Find c isn't a Response REJE One o param	rs <i>Type</i> TF ise CRn reliance sed systems ist assure an about the end <i>IRemedy</i> ut what the dequate, fix CT. f the obecting teters as an	c C es on equ s where th n accepta ror propa error prop the issue Re ves for CR upperbou	Avago Tech Comment Status R alisation even more th e owner of all parts can ble MTTFPA in all circ gation statistics of CRr pagation statistics of CR (there may be several esponse Status U R4 and CR10 is to use and. Please see gustlin	nologies an KR, and becan n decide what MT umstances. To c h. Rn are, then work ways to fix it). the KR electricals n_04_0509 CR4/0	use it is not only aimed TFPA he can tolerate, to that we need to know to out the MTTFPA. If it is and the KR channel CR10 MTTFPA relative
Cl 83B SC 83B.2.2 D'Ambrosia, John Comment Type TR	P 391 Force10 Netv Comment Status R	L 41 vorks	# 449	C/ 85 Dawe, Pie	SC 85.1	universe (s 0	slide 7). P 247 Avago Tech	L 30 Inologies	# 75
Clause 83B has no cr has minimal guidance Note: 2.5 dB receive of nenalties	every margin is allocated to accord	compliance. Fu constraints ount for crosstal	rthermore, Clause 83A < and reflection	Comment I don't becau than k	<i>Type</i> TF believe tha se there is CR because	t these sp to control the chann	Comment Status R ecifications provide ad over the cable's phase nel is much longer).	equate protectior e response (this is	n for the receiver, s much worse in CRn
SuggestedRemedy				Suggestee Add a	<i>Remedy</i> phase resp	onse or in	npulse response spec.		
Apply the following crosstalk limits to Host Compliance. Propose to limit total NEXT to power sum of 2 aggressors per Eq 86-12. Add appropriate equation. Propose to limit total FEXT to power sum of 2 aggressors per Eq 86-13. Add appropriate equation.					Response Response Status U REJECT. The commenter has not provided a sufficiently complete proposal that would enable the implementation of suggested remedies. It's anticipated that the outcome of the interferance tolerance test parameterization will yield a sufficiently characterized channel response.				
Add these crosstalk li	mits to XLAUI / CAUI in Anne	ex 83A							
Response REJECT.	Response Status U								
Crosstalk is included	in nAUI transmit jitter and rece	eiver tolerance m	easurements by having						

C/ 85 SC 85.10

Dial Lio C	ommonito								•	ronning Group Su
C/ 85 SC	85.10.2	P 248	L13	# 72	CI 85	SC 8	5.7.4	P 239	L16	# 71
Dawe, Piers		Avago Techn	ologies		Dawe, Pie	ers		Avago Techno	ologies	
Comment Type TR Comment Status A Specification range for cable insertion loss is not adequate especially at low frequencies. SFP+ Annex E cable S-parameter specs go down to 10 MHz. This is not about 1G operation; a cable that is allowed any amount of loss below 100 MHz WILL be expected to fail at 10G/lane, 64B/66B. 10GBASE-KR specs (72 and 69B) go down to 50 MHz. If "it's just a wire" then meeting a spec below 50 MHz will be easy. Remember this is not a measurement standard; no-one has to measure something if they can convince the customer that "it's just a wire" so there isn't a cost or test-time problem. However, For Style-1 40GBASE-CR4 and 100GBASE-CR10 plug connectors the receive lanes are AC-coupled; the coupling capacitors are contained within the plug connectors.				y at low frequencies. s not about 1G z WILL be expected to	Comment Excha these 4 x 3. 'Paral In the	<i>Type</i> ange of D copper li 125 lanes lel Detect future, a	TR ME frame inks, and s, 4x10G tion' not E nd in clos	Comment Status R es is an unnecessary burder should not appear on front-p lanes, and 4x10G lanes with DME frames. sed systems such as a supe	o on the host. It banel ports. The FEC, and this o rcomputer, supp	is not necessary for e choice of link types is can be managed with port for legacy CX4 wil
				be unnecessary. SuggestedRemedy Add text in Clause 85 saying that 40GBASE-CR4 and 100GBASE-CR10 can use Paralle Detection. Add text in Clause 85 saying that 40GBASE-CR4 and 100GBASE-CR10 may optionally						
Extend the frequency range of Cable assembly insertion loss, Cable assembly return loss, Near-End Crosstalk, MDNEXT, FEXT and MDELFEXT down to 10 MHz at the low end.				assembly return loss, 1Hz at the low end.	Response	, ,	, but not i	Response Status U		
Response Response Status U ACCEPT IN PRINCIPLE. see comment#453 for remedy to min frequency NOTE-It is recommended that the value of the coupling capacitors be 100 limit the			pe 100 nF. This will	REJE Sugg incluc The c frame	CT. ested rem le backwa ommente s with a p	nedy incol ard compa er has not parallel de	nsistent with baseline objeti atability with CX4 see dimini provided a sufficiently comp atection mechanism.	ve to utilize 802 co_02_0708.pdf blete proposal fc	2.3ap electricals and to or replacement of DME	
in rush currents and baseline		ts and baseline wander.			<i>Cl</i> 85 Dawe, Pie	SC 8 ers	5.8.3	P 241 Avago Techno	L 35 blogies	# 80
					Comment	Туре	TR	Comment Status R		

Need normative reflection specs at TP2 and TP3.

SuggestedRemedy

Would the PPI limits be suitable?

Response Response Status U

REJECT. The commenter has not provided a sufficiently complete proposal that would enable the implementation of suggested remedies; analysis required to determine suitablity of PPI.

C/ 85 SC 85.8.3

Dawe, PiersAvage TechnologiesForce10 NetworksComment TypeTRComment Status AAs All and others have observed, three is no meaningful receiver spec for assessing a piece of equipment against. There needs to be a solid spec and compliance test at TP4 (possibly TP3 I/you can work out how). What we have here: The receiver shall operate with a BER 10-12 or better when receiving a compliant transmit signal, as defined in 68.3.3. Nitrough a compliance table assembly as defined in 68.1035.10.2**The measured interplane cable assembly as defined worst- case test channel with defined loss AND CROSSTALK and REFLECTION characteristics. Optical links have had stressed sensitivity or tolerance test, with defined signal, defined test channel with defined loss. Optical bit is to tolerance test, with defined signal, defined test channel with defined loss. NO CROSSTALK and REFLECTION characteristics. You may need two test cases: low loss and high loss.Default is stated that the limit is geodification for SCD11 is in Table 86- The PICS do not call out an item for SCD11.Suggested/Remedy ResponseResponse Status U Response Status R Scale for Graphs in Clause 85 are not consistent with the format and scale used in other clauses across the data.Genes Leg (1) Response Status UResponse Response Status U RELECTIResponse Status U Response Status U Response Status U Response Status UResponse Status U Response Status U Response Status UResponse Response Status U RELECTINResponse Status U Response Status UResponse Status U Response Status UResponse Status U RELECTIN Response Status UResponse Status U Response Status UResponse Response Status U Re	SC 85.8.4.1	P 244	L 30	# 79	C/ 86	SC 86.6.1	P 275	L 24	# 467	
Comment TypeTRComment Status AAs All and others have observed, there is no meaningful receiver spec for assessing a piece of equipment against. There needs to be a solid spec and compliance test at TP4 (possibly TP4 if you can work out how). What we have here:The receiver spec for assessing a piece of equipment against. There needs to be a solid spec and compliance test at TP4 (possibly TP4 if you can work out how). What we have here:The receiver spec for assessing a piece of equipment against. There needs to be a solid spec and compliance test at TP4 (possibly TP4 if you can work out how). What we have here:The receiver spec for assessing a piece of equipment against. There needs to be a solid spec and compliance test at TP4 (possibly TP4 if you can work out how). What we have here:The receiver spec for assessing a piece of equipment against. There needs to BOS SDN CROSSTALK and REFLECTION characteristics. Not mason why this PMD should have lower standards:The receiver spec for assessing a piece of equipment against. The receiver spec for a spec spec spec spec spec spec spec spec	iers	Avago Technolog	gies		D'Ambrosi	a, John	Force10 Ne	tworks		
As All and others have observed, there is no meaningful receiver spec for assessing a piece of equipment against. There needs to be a solid spec and compliance test at TP4 (possibly TP3 if you can work out how). What we have here: The receiver shall operate with a BER 10-12 or better when receiving a compliant transmit signal, as defined in 55.0 a defined in 55.0 a defined in 55.0 a defined in 55.0 a defined worst-case signal, through a defined worst-case test channel with defined loss AND CROSSTALK and REFLECTION characteristics. Optical links have had traces de sensitivity posec for 10 years now. SFP+ has something. SuggestedRemedy Add formal stressed sensitivity proteirance test, with defined signal, defined test channel with defined loss, crosstalk and reflection characteristics. You may need two test cases: to kose high loss. Response Response Status U ACCEPT IN PRINCIPLE: See comment#700 for resolution Cf 85 SC 85.9 P247 L4 # [538] Ganga, lango Intel Comment Type ER Comment Status R SuggestedRemedy Replot the graphs Fig 85-4 to Fig 85-8 to be consistent with the format and scale used in other clauses across the drat. Response Response Status U Replot the graphs Fig 85-4 to Fig 85-8 to be consistent with the format and scale used in other clauses across the drat. Response Response Status U Replot the graphs Fig 85-4 to Fig 85-8 to be consistent with the format and scale used in other clauses across the drat. Response Response Status U RELECT. Editor implemented baseline objective for consistency with 10GBASE-CX4 cable assembly specifications of the SUB 2011 init is fully defined in Table 86-7, which has its PICS. T red for an equation. 66.6.1.1 states that the limit for SDD11 or SDD22 is illus Fig 86-3 (p276 line 53).	nt Type TR Comme	ent Status A			Comment	Type TR C	Comment Status R			
SuggestedRemedy Add formal stressed sensitivity or tolerance test, with defined signal, defined test channel with defined loss, crosstalk and reflection characteristics. You may need two test cases: low loss and high loss. Response Response Status U ACCEPT IN PRINCIPLE. See comment#700 for resolution Cl 85 SC 85.9 P 247 L4 4 Ganga, llango Intel Comment Type ER Comment Type ER Comment Type ER Comment Type ER Scale for Graphs in Clause 85 are not consistent with the graphs in other clauses. E.g. Fig 85-8 SuggestedRemedy Response Response Status U Response Response Status U Response Response Status U RESponse Response Status U REJECT. Editor implemented baseline objective for consistency with 10GBASE-CX4 cable assembly specifications i.e., other IEEE 802.3 specifications for twinaxial cable. See Figure 54-7-Maximum cable assembly insertion loss (informative)	It and others have observed, t e of equipment against. There sibly TP3 if you can work out h receiver shall operate with a l al, as defined in 85.8.3, throug biting the maximum insertion k 0.2." eak and vague. It needs to be test channel with defined loss cal links have had stressed se eason why this PMD should ha	there is no meaningfu e needs to be a solid how). What we have BER 10-12 or better gh a compliant cable a loss of e a defined worst-case s AND CROSSTALK ensitivity specs for 10 nave lower standards.	ec for assessing a npliance test at TP4 ng a compliant transmit defined in 85.10 ugh a defined worst- CTION characteristics. SFP+ has something.	 The first line states that "Each lane of the electrical transmit signal for a 40GBASE-SR4 of 100GBASE-SR10 transmitter, if measured at TP1a (see 86.7.1), shall meet the specifications of Table 86-6 per the definitions in 86.7." 86.6.1.1 addresses Differential Return Loss. It does not state that it is illustrated in Fig. 8 3 86.6.1.2 addresses Common Mode Return Loss, and it is stated that the limit is shown in Fig 86-3. Fig. 86-3 also shows Differential to Common Mode Return Loss. There is no corresponding section or equation. The specification for SCD11 is in Table 86-7. 						
Add formal stressed sensitivity or tolerance test, with defined signal, defined test channel with defined loss, crosstalk and reflection characteristics. You may need two test cases: low loss and high loss.Suppose Response Cases: Response Status U ACCEPT IN PRINCIPLE.Suppose Response Status U ACCEPT IN PRINCIPLE.Suppose Response Cases: P247L4 # $\boxed{538}$ Suppose Status R Scale for Graphs in Clause 85 are not consistent with the graphs in other clauses. E.g. Fig 85-4 to Fig 85-8P247 L4 L4 Easter for Graphs in Clause 85 are not consistent with the format and scale used in other clauses across the draft.Suppose Response Status U REJECT.Suppose Status U RESPONSE Status U REJECT.Response Status U RESPONSE Status U RESPONSE Status U RESPONSE Status U RESPONSE Response Status UResponse Status U RESPONSE Status U RESPONSE Status U RESPONSE Status U RESPONSE Response Status UResponse Status U RESPONSE Status U RESPONSE Status U RESPONSE Response Status U RESPONSE Response Status U RESPONSE Response Status U RESPONSE Response Status U RESPONSE Status U RESPONSE Response Status U RESPONSE Response	SuggestedRemedy					ICS do not call out ar	item for SCD11.			
Add the following text for a new subclause Number of high loss. Response Response Status U ACCEPT IN PRINCIPLE. See comment#700 for resolution Cl 85 SC 85.9 P247 L4 # 638 Ganga, Ilango Intel Comment Type ER Response Response Status U Response Response Status U Response Response Status U Response	formal stressed sensitivity or t	tolerance test, with de	defined signal,	defined test channel	Suggested	IRemedy				
ResponseResponse StatusUACCEPT IN PRINCIPLE.See comment#700 for resolutionCl 85SC 85.9P247L4L4 $E = Comment Type$ Comment TypeERComment TypeERComment StatusRScale for Graphs in Clause 85 are not consistent with the graphs in other clauses. E.g. Fig 85-4 to Fig 85-8SuggestedRemedyRe-plot the graphs Fig 85-4 to Fig 85-8 to be consistent with the format and scale used in other clauses across the draft.ResponseResponse StatusResponseResponse StatusResponseResponseResponseResponseResponseResponseResp	oss and high loss.		cs. Tou may		Add th	e following text for a	new subclause			
Cl 85SC 85.9P247L4# $\boxed{638}$ Ganga, IlangoIntelIntelComment TypeERComment StatusRScale for Graphs in Clause 85 are not consistent with the graphs in other clauses. E.g Fig 85-4 to Fig 85-8The return loss limit is illustrated in Fig 86-x.SuggestedRemedy Re-plot the graphs Fig 85-4 to Fig 85-8 to be consistent with the format and scale used in other clauses across the draft.ResponseResponseResponse StatusUREJECT. Editor implemented baseline objective for consistency with 10GBASE-CX4 cable assembly specifications i.e., other IEEE 802.3 specifications for twinaxial cable. See Figure 54-7- Maximum cable assembly insertion loss (informative)RELCD(f) >= RLCDmin(f) = 10(86-x)RLCD(f) >= RLCDmin(f) = 10(86-x)RLCD(f) >= RLCDmin(f) = 10(86-x)Ganga, IlangoIntelIntelSuggestedRemedy ResponseResponse StatusUREJECT. Editor implemented baseline objective for consistency with 10GBASE-CX4 cable assembly specifications i.e., other IEEE 802.3 specifications for twinaxial cable. See Figure 54-7- Maximum cable assembly insertion loss (informative)See Figure 54-7- Maximum cable assembly insertion loss (informative)	Se Respons CEPT IN PRINCIPLE.	;e Status U			86.6.1 The tra shall b	.3 Differential to Com ansmitter Differential e greater than or equ	imon Mode Return Los to Common-Mode Ret ial to RLCDmin, as def	s urn loss RLCD, m ined by Equation	easured in dB at TP1, (86.x):	
Ganga, Ilango Intel Comment Type ER Comment Status R Scale for Graphs in Clause 85 are not consistent with the graphs in other clauses. E.g Fig 85-4 to Fig 85-8 The return loss limit is illustrated in Fig 86-x. SuggestedRemedy Re-plot the graphs Fig 85-4 to Fig 85-8 to be consistent with the format and scale used in other clauses across the draft. Response Response Status U REJECT. Editor implemented baseline objective for consistency with 10GBASE-CX4 cable assembly specifications i.e., other IEEE 802.3 specifications for twinaxial cable. See Figure 54-7-Maximum cable assembly insertion loss (informative) See Figure 54-7-	SC 85 9	P 247	14	# 638	RLCD	(f) >= RLCDmin(f) = ²	10	(86-x)		
Comment Type ER Comment Status R Scale for Graphs in Clause 85 are not consistent with the graphs in other clauses. E.g Fig 85-4 to Fig 85-8 SuggestedRemedy Re-plot the graphs Fig 85-4 to Fig 85-8 to be consistent with the format and scale used in other clauses across the draft. Response Response Status U REJECT. Editor implemented baseline objective for consistency with 10GBASE-CX4 cable assembly specifications i.e., other IEEE 802.3 specifications for twinaxial cable. See Figure 54-7- Maximum cable assembly insertion loss (informative)	lango	Intel	24	# 030	for 10	MHz <= f < 11.1 GH	Z			
Scale for Graphs in Clause 85 are not consistent with the graphs in other clauses. E.g. Fig 85-4 to Fig 85-8 SuggestedRemedy Re-plot the graphs Fig 85-4 to Fig 85-8 to be consistent with the format and scale used in other clauses across the draft. Response Response Status U REJECT. Editor implemented baseline objective for consistency with 10GBASE-CX4 cable assembly specifications i.e., other IEEE 802.3 specifications for twinaxial cable. See Figure 54-7- Maximum cable assembly insertion loss (informative)	nt Type ER Comme	ent Status R			The	turn loop limit in illust	rotod in Fig 96 v			
85-4 to Fig 85-8 Add appropriate pics statement. SuggestedRemedy Re-plot the graphs Fig 85-4 to Fig 85-8 to be consistent with the format and scale used in other clauses across the draft. Response Response Status U Response Response Status U REJECT. Editor implemented baseline objective for consistency with 10GBASE-CX4 cable assembly specifications i.e., other IEEE 802.3 specifications for twinaxial cable. See Figure 54-7-Maximum cable assembly insertion loss (informative) See Figure 54-7-	e for Graphs in Clause 85 are	not consistent with th	the graphs in o	other clauses. E.g Fig	There		rated in Fig 66-x.			
SuggestedRemedy Re-plot the graphs Fig 85-4 to Fig 85-8 to be consistent with the format and scale used in other clauses across the draft. Response for an equation. Response Status U Response Response Status U REJECT. Editor implemented baseline objective for consistency with 10GBASE-CX4 cable assembly specifications i.e., other IEEE 802.3 specifications for twinaxial cable. See Figure 54-7-Maximum cable assembly insertion loss (informative) Response Status U Response Status U	to Fig 85-8				Add a	opropriate pics staten	nent.			
Re-plot the graphs Fig 85-4 to Fig 85-8 to be consistent with the format and scale used in other clauses across the draft. Response Response Status U REJECT. Editor implemented baseline objective for consistency with 10GBASE-CX4 cable assembly specifications i.e., other IEEE 802.3 specifications for twinaxial cable. See Figure 54-7- Maximum cable assembly insertion loss (informative) REJECT.	edRemedy				Response	R	esponse Status U			
Response Response Status U Fig. 86-3 (p276 line 53). REJECT. Editor implemented baseline objective for consistency with 10GBASE-CX4 cable assembly specifications i.e., other IEEE 802.3 specifications for twinaxial cable. See Figure 54-7-Maximum cable assembly insertion loss (informative) Fig. 86-3 (p276 line 53).	blot the graphs Fig 85-4 to Fig r clauses across the draft.	85-8 to be consistent	nt with the forn	nat and scale used in	REJE need f	CT. The SCD11 limit or an equation. 86.6	is fully defined in Tabl 1.1 states that the limi	e 86-7, which has t for SDD11 or SI	its PICS. There's no D22 is illustrated in	
	se Respons ECT. or implemented baseline object iffications i.e., other IEEE 802. imum cable assembly insertion	e Status U ctive for consistency of .3 specifications for to n loss (informative)	with 10GBAS twinaxial cable	E-CX4 cable assembly e. See Figure 54-7-	rıg. 8	-3 (p276 line 53).				

C/ 86 SC 86.6.1

Draft 2.0 C	comments
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<i>Cl</i> 86 D'Ambrosia,	SC 86.6.1 John	P 276 Force10 Network	L 17 is	# 460	C/ 86 D'Ambrosi	SC a, John	86.6.1.1	P Forc	277 e10 Network:	L 1 s	# 459
Comment Type ER Comment Status R Table 86-6 and 86-7 include the parameter DDPWS, but there is no description of it at this point in the clause, and no pointer to the explanation in 86.7.4.4. SuggestedRemedy Add a pointer to 86.7.4.4 in the "Conditions" column Response Response Status U REJECT. Pointers in the table should not be added to some parameters and not others. There is a general pointer on the previous page "specifications of Table 86-6 per the definitions in 86.7".					Comment TypeERComment StatusAThe title for Fig 85-3 is Differential and common-mode reflection specifications. THe naming of the figure has to be corrected (noted in other comment), but the graph shows 3 types of return losses: Differential In, Differential Out, common-mode, and Differential to						
					Common-mode. SuggestedRemedy Change caption of figure to just "Return Loss Specifications"						
					Response Response Status U ACCEPT IN PRINCIPLE. Change caption of figure to "Reflection specifications"						
C/ 86	SC 86.6.1.1	P 275	L 5 1	# 468	C/ 86 D'Ambrosi	SC a, John	86.7.1.1	P Forc	283 :e10 Network	L 35 s	# 463
D'Ambrosia, John Force10 Networks Comment Type ER Comment Status R The limit defining SDDii is defined by two equations, but only a single equation # has been assigned. This also applies to the limits currently defined by:					Comment Type ER Comment Status A title of Fig 86-5 is confusing and uses wrong parameter SuggestedRemedy change caption to "PCB Differential Insertion Loss"						
Equation 86-2 Equation 86-3 Equation 86-7 Equation 86-8 Equation 86-9 Equation 86-10 Equation 86-11 Equation 86-12 Equation 86-13 Equation 86-20 Equation 86-21					ACCE boards Chang Figure Figure	PT IN F s are de ge title to 86-5-T ge title o 86-6-T	PRINCIPLE. fined. See F o: hrough respo f next figure hrough respo	Response Status The parameter FC-PI-4 and SFF onse (SDD21) of to: onse (SDD21) of	is correct; S-J F-8431. Infini FHCB and M ⁴	parameters a Band also us CB excluding -MCB	are how compliance ses S-parameters. a connector
SuggestedR	Remedy		en e sifie d linsit								
Assign a	an equation # to	each equation that makes up a	a specified limit.								
REJEC ⁻ The forr a single	T. nat of the equat left hand side a	ions in clause 86 follows that us s:	sed in clause 47	in that there is only							
20×log1 This me number	0(SDDii) = -12 = -6.3 eans that there is is required. Thi	+2xV(f) 3 +13xlog10(f/5.5) s only one equation present and is also makes references to the	l therefore only equations easi	one equation er.							

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

C/ 86 SC 86.7.1.1

.. . .

CI 86	SC 86.7.1.1	P 284	L 40	# 464	C/ 86	SC 86.7.5.4	P 291	L 36	# 276
D'Ambrosia,	John	Force10 Networks			Kolesar, Pau	ıl	CommScope		

Comment Type TR Comment Status A

The specified return losses by equations 86-8 and 86-9 and illustrated in Fig 86-7 are practically on top of each other in the 0 to 11.1 GHz range. The explanation of these two equations as they relate to HCB and MCB are totally unclear, as to which equation applies to which board.

SuggestedRemedy

Use the worst case equation of the two return loss curves. Assuming that the illustration is correct, then only use equation for curve labeled "SDDii looking into HCB"b

Response

Response Status U

ACCEPT IN PRINCIPLE.

In Figure 86-7 replace "SDDii looking into MCB" with "SDDmm looking into MCB" Also replace "SDDii looking into HCB" with "SDDhh looking into HCB"

The feasibility of using a single equation for both limits requires further experimental results.

CI 86	SC 86.7.5.4	P 291	L 36	# 276
Kolesar, Pa	aul	CommScope		

Comment Type **TR** Comment Status R

The TDP test fails to assess the true chromatic dispersion impairment of the 40G/100GBASE-SR4/10 PMDs. Instead it places a surrogate filter into the test fixture receiver that is set to insert a reduction in channel bandwidth based on assumptions about the optical spectral behavior of the transmitter that are not true. Specifically, the filterbased methodology wrongly assumes the spectrum is constant as a function of time and the spectral shape is smooth and continuous. In fact the spectrum of multi-transverse mode lasers is strongly affected by modulation, typically changing in wavelength throughout a bit period, and their spectrum consists of a few discrete wavelengths with irregular adjacent amplitudes. These features affect the actual dispersion and cannot be accurately represented by a static filter. The problems associated with a filter-based approach are avoided when testing TDP of singlemode PMDs because an actual singlemode test fiber is used in the fixture that inserts the worst-case dispersion of the maximum length channel. This approach captures the effects of modulation and the wavelength variation called "chirp" of SM lasers, providing a much more accurate assessment of the transmitter performance and transmitter/fiber interaction. The availability of multimode fibers with bandwidths exceeding 10.000 MHz*km now permits the benefits of using a test fiber instead of a filter to be applied to the TDP test for multimode PMDs. In addition to greater accuracy, this approach adds the dimension of dispersion, presently frozen at a single value, to the compliance space. This added dimension enables maximal trade-off of jitter. distortion and dispersion which can positively impact production yield. More details are provided in kolesar_01_0509.pdf.

SuggestedRemedy

See complete proposal in kolesar_02_0509.pdf. Synopsis: a) insert into the TDP test bench a 50 µm fiber with modal bandwidth >= 10.000 MHz*km of a length chosen to apply the worst-case chromatic dispersion; b) adjust the receiver filter to remove the component associated with the present static surrogate for dispersion.

Response Response Status U

REJECT.

The sub task force voted on whether to implement the changes in kolesar_02_0509.pdf

Yes 12 No 5

Another comment points out that the surrogate filter causes problems and can be dispensed with anyway. The proposed technique is interesting at a university level but unfamiliar, unproven and prone to unstable results with VCSELs.

~ ~ ~

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	C/ 86	Page 12 of 13
SORT ORDER: Clause, Subclause, page, line		SC 86.7.5.4	5/29/2009 4:58:57 PM

IEEE P802.3ba D2.0 40Gb/s and 100Gb/s Ethernet comments

This PMD is supposed to be cost-effective for the objective distance, where chromatic dispersion is not dominant. A new and unfamiliar test element would add cost and be misleading because the chromatic dispersion effects vary over time. It would be far too expensive and time-consuming to do this measurement with a useful level of confidence. Therefore any yield benefit would not flow to cost as hoped.

CI 86	SC 86.7.5.4	P 291	L 45	# 277
Kolesar, Pau	ıl	CommScope		

Comment Type TR Comment Status R

The use of a fiber-based channel in the TDP test fixture proposed in another comment permits the fixture to easily adapt to screen transmitters with performance that supports distances exceeding the minimum requirements of clause 86. Such transmitters address the need for a cost-effective solution for channels exceeding 100 m (see kolesar_01_0908). The adjustment to the TDP test fixture should be described within the standard to ensure interoperability, for example in an informative annex. See kolesar_01_0509.pdf for supporting information and details.

SuggestedRemedy

Create informative annex 86A entitled "Transmitter and dispersion penalty (TDP) test for extended-reach capability". If the TDP test fixture adjustment to clause 86.7.5.4 proposed in another comment is accepted, the proposed content for the annex is found in kolesar_03_0509.pdf. If the TDP test fixture adjustment is not accepted, the proposed content for the annex is found in kolesar_04_0509.pdf.

Response

Response Status U

REJECT. [Editor's note: the supporting material that was to be in kolesar_01_0509 is now in kolesar_05_0509]

A straw poll of the sub-task force was taken. Do you support the creation of an informative annex similar to that proposed in kolesar_04_0509.pdf?

Yes 10 No 9 Abstain 7

Based on this result, the a vote of the sub-task force was taken on the following Response: ACCEPT IN $\ensuremath{\mathsf{PRINCIPLE}}$

Create an informative annex similar to that proposed in kolesar_04_0509.pdf with editorial license

Yes 12 No 12 Abstain 6

C/ 86	SC 86.7.5.4	P 291	L 48	# 353
Dudek, Mike		Independent		

Comment Type TR Comment Status R

It would be good to include the chromatic dispersion effects of the transmitter in the TDP measurement as is done for the single mode systems in clauses 87 and 88.

SuggestedRemedy

Introduce a wide band fiber into the measurement as described in Kolesar_02_0509.

Response Response Status U

REJECT.

See response to comment 276