C/ 00 SC 0	Р	L	# 40	CI 00	SC O	Р	L	# 15
Mark, Gustlin	Cisco			Anslow, P	eter	Nortel Net	works	
Comment Type TI	R Comment Status D			Comment	Туре Т	Comment Status A		
The recommende 446, row 51), sho printed circuit boa page 4 of mazzin	ed maximum loss for the PCB onl buld be aligned with formula 85A-2 ard trace loss) that gives maximu i_01_0909).	y (without conn 2 (Transmitter a m PCB loss @5	ector) (Draft 2.2, page and receiver differential 5.156GHz = 3.5dB (see	The di For ex param See co For a	aft is not consi ample "Return eter. omment #327 a detailed discus	stent in its use of paramete loss" and "Reflection respo against D 2.1 sion of this issue see damb	r names and figur nse, SDD22" are rosia 01 0909 pc	es illustrating limit lines. used for the same If
SuggestedRemedy				Suggester	Remedy			•
Harmonize the lo	ISS.			Apply	changes as de	scribed in dambrosia 01 0	909 ndf	
Proposed Response	Response Status W			Дру	shanges as de		505.pdi	
PROPOSED ACC	CEPT IN PRINCIPLE.			Response		Response Status C		
Harmonize the P	CB only (without connector) loss	between Annex	85A and Annex 86A.	ACCE		LE.		
Introduce addition	nal text in to 85A saying that alter	native loss allo	cations are allowed	Apply for con	changes as de sistency for gr	scribed in dambrosia_01_09 aphs" slides with the except	909.pdf "Detailed tion of the "Indica	changes" and "Proposal te compliant region"
C/ 00 SC 0	Р	L	# 39	bullet.				
Mark, Gustlin	Cisco			A vote	of the task for	ce on the above response w	vas:	
Comment Type T	R Comment Status A			Yes 30)			
The CR4/10 Host defined with conn (see page 4 of ma	t IL (85-14) and the nPPI recomm nector and test fixtures) should be azzini_01_0909).	ended electrica IDENTICAL al	I channel (86A-19) both so for low frequencies	See a	so comment 8!	5		
SuggestedRemedy								
Harmonize the cu	urves as above.							
Response	Response Status W							
ACCEPT IN PRIM	, NCIPLE.							
Change equation From: 0.114+0.8914 x \ - 35.91 + 6.3291 14.72	v(f+0.846 × f 0.05 = f < 7 × f 7 = f < 8 8 = f = 10							
10: 0.682 0.114+0.8914 × \ - 35.91 + 6.3291 14.72	0.05 = f < 0.2 Vf+0.846 × f 0.2 = f < 7 × f 7 = f < 8 8 = f = 10							

C/ 00	SC 0	Р	L	# 13	C/ 00	SC O	_	Р	L	# 150
Anslow, P	eter	Nortel Netwo	orks		D'Ambrosi	a, John	Fo	prce10 Netw	orks	
Comment	Туре Е	Comment Status A			Comment	Type ER	Comment Sta	tus A		
In the Accor multip Some	equations within ding to the style p lication of two nu equations do no	the draft, the use of "x" to s manual, A multiplication sign mbers (e.g., "1 x 10" or "3 c ot use "x" e.g. "10log" or "2f"	ignify multiplicat n "x" should only m x 4 cm"). and others use	ion is inconsistent. be used to indicate "10 x log" or "2 x f"	Sever illustra norma	al illustrations o tion. Readers tive details reg	of MDI Connectors I of the draft are pro- parding the connector	have provide vided with th pr.	ed greater detailer detaile	ail than is necessary for ocument numbers for
Suggested	dRemedy				Drawi	ngs include Fig	85-16, 85-17, 85-2	0, 85-21, 86	-6	
Remo	ve all of the "x"s	from equations:			Suggestee	lRemedy				
85-1, 8 85-40	85-14, 85-15, 85	-17, 85-25, 85-26, 85-27, 85	-28, 85-34, 85-3	6, 85-37, 85-38, 85-39,	Simpli	fied illustrative	drawings to be prov	vided.		
05-40	, 05-41, 05-42, 0	JA-1, 0JA-2, 0JD-4, 0JA-3,	00A-4		Response		Response Stat	tus C		
Note t	there is another c	comment against equation 8	5A-4		ACCE	PT IN PRINCII	PLE.			
Remo Chang Chang Remo Remo	ove all but the firs ge equation 85-2: ge equation 85-2: we the first two " we the "x" betwee	t "x" from equation 85-16 3 from "= -0.7 - 0.2x10-9(fx1 4 from "= -0.7 + 0.2x10-9(fx «s from equations 85-31 an en "20" and "log" in equatior	06)" to "= -0.7 - 106)" to "= -0.7 - d 85-32 is 85-35, 85A-1	0.2x10-3f" - 0.2x10-3f" and 85A-2	Refere subcla diagra Figure	ence document uses. Substitu ms that show o 86-6 is alread	t numbers to norma te Figures 85-16, 8 connector pin position y very simple. Howe	tive details h 5-17, 85-20, ons. ever, Figure	nave been pro 85-21 with sir 86-8 contains	vided in the associated mpler schematic
Response)	Response Status C			neces	sary (reference	e documents for nor	mative spec	s have been p	provided in 86.10.3.3), so
ACCE	PT.						Mith a simpler diagra			
A 1		4			CI 00	SC O		Р	L	# 41
AISO S	see comment #54	regarding style			Mark, Gus	tlin	Ci	SCO		
Some	of the suggested	d equations may be modified	d by other comm	ients.	Comment	Type TR	Comment Sta	tus A	_ /	
C/ 00 Anslow, P	SC 0 eter	P Nortel Netwo	L orks	# 14	The cable assembly test fixture (85-35) and the MCB (86A-5) loss formulas must be IDENTICAL. In D2.2 losses just cross at same value @ 5.165GHz (see page 5 of mazzini_01_0909).					
Comment	Туре Т	Comment Status A			Suggestee	lRemedy				
The d	raft is inconsister	nt on how it defines the frequencies	uency break poir	nts in equations. For	Harmo	nize the loss.				
some be cle	multi-segment lir ar which limit ap	mit lines, there is a small dis plies to the exact break freq	continuity at the uency.	break point, so it should	Response		Response Stat	tus C		
Suggester	dRemedv				ACCE	PT IN PRINCI	PLE.			
In equ In equ 86A-1 chang 2.5" to	uations 85-39, 85 Jation 86A-1, 86A 4, 86A-19, 86A-2 ge the second ine 5 "0.01 <= f < 2.5	-40, 85-41, 85-42 change "< \2, 86A-3, 86A-7, 86A-8, 86 20 for all the frequency segn quality from <= to <. e.g. fo " and change "2.5 <= f <= 5	10" to "<=10" 6A-9, 86A-10, 86 nents except the r equation 86A-8 " to "2.5 <= f < 5	A-11, 86A-12, 86A-13, highest segment, 3 change "0.01 <= f <= "	See re	esponse to com	nment #43			
Response	9	Response Status C								
ACCE	EPT IN PRINCIPL	.E.								
Chang sugge	ge where approp ested response	riate to make the equations	consistent acros	s the draft as per						

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

CI 00 SC 0

Draft 2.2 Comment	S	IEEE P	302.3ba D2.2 40Gb/s	and 100Gb/s Ethern	net commen	ts	WG 2n	d recirculation ballot
C/ 00 SC 0 Mark, Gustlin	P Cisco	L	# 42	<i>Cl</i> 04 <i>SC</i> 4. Dudek, Mike	.4.2	P 31 QLogic	L 31	# 157
Comment Type TR The test fixture (85-16) In D2.2 losses just cros	Comment Status A and the HCB (86A-4) loss f ss at same value @ 5.165G	ormulas must be Hz. (see page 5 c	IDENTICAL. f mazzini_01_0909).	Comment Type The English is s	T Cor strange. "c	nment Status R an have a minimum v	alue due to .	requirements".
SuggestedRemedy Harmonize the loss.				Option 1 Repla	ace "can" with	"may"		
Response ACCEPT IN PRINCIPL	Response Status C E.			Option 2 Repla alignment allow	ace "clock toler ved variations"	ance and lane alignme	ent requirements	" with "clock and lane
Cas response to some	a a a t # 42			Do the same in	Annex 4A pag	e 369 line 24		
C/ 00 SC 0	P1	L1	# 54	Response REJECT.	Resp	oonse Status C		
Healey, Adam	LSI Corpora	tion		The existing se	ntence provide	s better clarity than th	e suaaested ren	nedv.
Comment Type E	Comment Status A							
In relation to the prese	ntation of equations in the d	raft, consult the I	EEE style guide 17.3 for	The use of "car	n have" is cons	stent with rest of the i	notes in 4.4.2 of	base document
SuggestedRemedy	a consistant with the format	proscribed by the	style quide	C/ 45 SC 45 Marris, Arthur	5.2.1	P 40 Cadence	L 5	# 7
Response	Response Status C	presended by the	style guide.	<i>Comment Type</i> Change 'that pa	E Cor ackaged' to 'tha	nment Status A t is packaged'		
Editors will review this See related comment	issue for their clauses in co #13	ordination with ea	ch other.	SuggestedRemedy as above				
C/ 00 SC 0 Mark, Gustlin	P 13 Cisco	LO	# 38	Response ACCEPT.	Resp	oonse Status C		
Comment Type E	Comment Status A			CL 45 SC 44	5 2 1 88	P60	/ 41	# 8
The header is not cons Starting on this page th	sistent with repect to having here is not space, but there s	a space between should be a space	the number and unit.	Marris, Arthur		Cadence	241	<i>T</i> 0
SuggestedRemedy				Comment Type	E Cor	nment Status A		
Change:		-		hange 'Register	r_1.174' to 'Reo	gister 1.174		
To: IEEE 802.3ba 40Gb/s IEEE 802.3ba 40 Gb/s	and 100Gb/s Ethernet Task and 100 Gb/s Ethernet Tas	Force k Force		SuggestedRemedy As above				
Response	Response Status C			Response	Res	oonse Status C		
ACCEPT IN PRINCIPL Change:"IEEE 802.3ba To: "IEEE 802.3ba 400 where not consistent.	E. a 40 Gb/s and 100 Gb/s Eth Gb/s and 100Gb/s Ethernet	ernet Task Force' Task Force"		ACCEPT.				

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/ **45** SC **45.2.1.88** Page 3 of 64 9/24/2009 12:43:31 AM

C/ 45	SC 45.2.1.98	P66	L 6	# 216
Nicholl, Gary		Cisco		
Comment Ty	pe T	Comment Status A		

Table 45-65d.

The PRBS error counter is only sized at 12 bits. This means the counter will saturate at a count of 2^12 or 4096 errors. Assuming the host is polling the counters at a rate of once per second, then the counter will saturate at an error rate of~1.6e-7 for a 25G lane rate. To facilitate optical waterfall curve testing it would be preferable for the counter not to saturate up to an error rate of 1e-4.

SuggestedRemedy

As an absolute minimum I see no reason why all 16 bits of the register cannot be assigned to the PRBS error count (why leave the upper 4 bits as reserved and not use them ?). This would move the saturation point up to 2.6e-6 for a 25G lane rate. Ideally I would like to see the PRBS error counters sized to 24 bits or greater, so they would not saturate even up to 1e-4.

Response	Response Status	С

ACCEPT IN PRINCIPLE.

Change all PRBS error counters to 16 bits.

CI 45	SC 45.2.3.16a	P 74	L 49	# 217
Nicholl, G	ary	Cisco		

Comment Type T Comment Status A

This section defines a 20 bit BER counter. It was my understanding that we agreed to increase the size of the BER counter to at least 24 bits as defined in http://www.ieee802.org/3/ba/public/may08/nicholl 02 0508.pdf.

Reading through the proposed implementation in this section I can understand the reluctance to increase the counter to the full 24 bits, as this would require assigning another full 16 bit register. However given this an aggregate BER counter (i.e. one single count for the interface) then adding one extra register would not appear to be a huge overhead.

SuggestedRemedy

Consider increasing the size of the BER counter to be 24 bits as recommedned in http://www.ieee802.org/3/ba/public/may08/nicholl_02_0508.pdf, or as a minimum use all 16 bits in the higher order register for the BER count, resulting in a 22 bit aggregate counter (lower 6 bits in reg 3.33 and the upper 16 bits in reg 3.44).

Response Status C

Response

ACCEPT IN PRINCIPLE.

Increase the total counter size to 22 bits.

CI 45	SC 45.2.3.16a	P 74	L 51	# 209	
Nicholl, Gary	/	Cisco			

Comment Type TR Comment Status D

I think the following sentence on line 51 is incorrect:

"The 20 bit counter shall be reset to all zeros when register 3.33 is read or upon PCS reset."

This means the upper 14 bits in register 3.44 would immediately be cleared when software reads the lower 6 bits in register 3.33. This means that software would likely always read all zeros from register 3.44.

SuggestedRemedy

I think the sentenace should say:

"The lower 6 bits of the 20 bit counter shall be reset to all zeros when register 3.33 is read or upon PCS reset and the upper 14 bits of the 20 counter shall be reset to all zeros when register 3.44 is read or upon PCS reset".

Also is the assumption that while the upper 14 bits of register 3.44 are in a latched state (due to a software read of the lower 6 bits in register 3.33) that errors continue to be accumulated in the background and are not simply ignored ? I guess what I am getting at here is if there is any time requirement or constraint between software reading 3.33 and subsequently reading 3.44 to ensure that no errors are missed ? For example if after reading 3.33 software has to read 3.44 before 3.33 overflows at a count of 2^6=64 errors, then this would place a constraint that software would have to read 3.44 no later than-211us after reading 3.33 ... this seems fairly tight. Perhaps we need a note to clairfy the behavior or expectations a little more clearly ?

Proposed Response	Response Status	Ζ
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REJECT.

This comment was WITHDRAWN by the commenter.

[Editor's note: The commenter did not indicate Comment Type. So assigned Comment Type: TR]

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/ **45** SC **45.2.3.16**a Page 4 of 64 9/24/2009 12:43:31 AM

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

Cl 45 Nicholl, Gar	SC 45 y	5.2.3.37	P 84 Cisco	L 19	# 215	<i>Cl</i> 45 Nicholl, Gar	SC 45.2.3.3 y	7	P 84 Cisco	L 8	# 210
Comment T	vpe	E	Comment Status R			Comment T	vpe TR	Comment S	tatus A		
Text do bit to blo	es not n ock erro	nake it cle rs.	ear that as agreed to at t	he last meeting we	changed from counting	Table 4	5-114a defines	s an 8 bit BIT cou	unter for eac	h PCS lane.	
SuggestedF	Remedy					Slide 6	in http://www.ie	eee802.org/3/ba/	/public/jan09	/nicholl_01_010	9.pdf, recommened that:
Update in sectio time aga	text to r on 82.2. ainst D2	eflect the 14 and as 2.2.	fact that these counters sociated comment aga	are now couting bl inst the same sect	ock errors as described ion that I submitted this	"A suita memory counter	bly sized coun y space for eac will not satura	iter shall be alloc ch PCS lane, to e ite (overflow) eve	ated in the N ensure that the en if polled at	/IDIO he ∶a	
Response			Response Status C			rate of o	once per secor	nd."			
REJEC ⁻ 82.2.14 are cou	T. was cha nted, nc	anged by ot bit error	comment #270 against s. Nothing in 45.2.3.37 d	draft 2.1. It is now o contradicts this.	clear that block errors	This pro #374 in D11_Fi	oposal was acc http://www.iee nal_Resolution	cepted by the gro e802.org/3/ba/po n_byClause.pdf.	oup as docur ublic/jan09/P	nented in the rea 8023ba-	sponse to comment
						An 8 bit	t counter is not	a 'suitably size'	counter.		
						A suitat	oly sized count	er would be 14 b	its.		
						SuggestedF	Remedy				
						Update assign a	all PCS lane E a full 16 bit reg	BIP counters to b ister to each PC	e at least 14 S lane BIP c	bits. The simple ounter.	est approach would be to
						Response ACCEP	T IN PRINCIP	Response St	atus C		
						[Editor Type: T	's note: The co 'R]	ommenter did not	indicate Co	mment Type. So	o assigned Comment
						Change	e all PCS BIP c	counters to 16 bit			
						C/ 73 Marris, Arth	SC 73.10.1 ur	(P 106 Cadence	L 8	# 10
						Comment T Implem	<i>ype</i> T ent 802.3 mair	Comment Santenance request	<i>tatus</i> A t 1209:		
						http://g	grouper.ieee.oi	rg/groups/802/3/r	maint/reques	sts/maint_1209.p	odf
						SuggestedF Change	Remedy e DME_receive	_idle to an_recei	ive_idle		
						also do	the same for r	mr_parallel_deted	ction_fault va	ariable	
						Response ACCEP	ΥТ.	Response St	atus C		

C/ 73 SC 73.10.1

CI 74	SC 74.5	P 113	L 4	# 143		CI 74	SC 74.8.4.1	P 124	L 40	# 9	
D'Ambrosia	a, John	Force10 Netwo	orks			Marris, Arth	ur	Cadence			
Comment 7	Type ER	Comment Status R				Comment 7	<i>уре</i> Т	Comment Status A			
IEEE F specific	802.3az is maki to 10GBASE-F	ing changes Clause 74 IEEE S R PHYs. IEEE P802.3ba has	Std 802.3-2008 changed Claus	. These changes are e 74 to address	e	74.8.4. Sugaestedl	1 and 74.8.4.2 ne Re <i>medv</i>	ed to be updated for m	ulti-lane operation		
project	s is needed to m	nanage the changes in that pro	e, coordination oject to only the	e 10GBASE-R PHY		Change	e to:				
Suggested	Remedy					FEC_co	orrected_blocks_ ed FEC block pro	counter and FEC_corre	cted_blocks_counte	r_i count once for each	
Coordi	nate modification	ns of Clause 74 with IEEE P80	02.3az editoria	team.		FEC:IS	_SIGNAL.indicat	ion is OK. This is a 32-b	bit counter. These va	ariables may be	
Response	· T	Response Status C				mappe	d to the registers	defined in 45.2.1.87 (1.	172, 1.173) and 45.	2.1.89 (1.176 to 1.215).	
REJEC	<i>i</i> .						non-montod block	a counter and FFC up	corrected blocks	ountar i count anos for	
This is comme	a reject becaus ent.	se no changes will be made to	the 802.3ba d	raft as a result of this	•	each ur FEC:IS mappe	corrected_block SIGNAL.indicat	lock processed when F ion is OK. This is a 32-b defined in 45.2.1.88 (1.	EC_SIGNAL.indicat bit counter. These va 174. 1.175) and 45.	ion or ariables may be 2.1.90 (1.216 to 1.255).	
The P8	02.3ba editorial	team recognizes that the P80	2.3az project i	s also proposing		Response		Response Status C	, , ,		
802.3a	z editors regardi	ing this issue.	.3Da editors wi	li co-ordinate with		ACCEF					
The current expectation is that 802.3ba will be published before 802.3az so it will be 802.3az that will need to take into account the changes made by 802.3ba rather than the						Change	9:				
other w	ay round.	-	·			FEC_corrected_blocks_counter counts once for each corrected FEC blocks processed when FEC_SIGNAL.indication or FEC:IS_SIGNAL.indication is OK.					
						to:					
						FEC_co (for mu FEC_S These register	brrected_blocks_ lti-lane PHYs) co IGNAL.indication variables are acc 's defined in 45.2	counter (for single lane unt once for each corre or FEC:IS_SIGNAL.inc essed through a manag .1.87 (1.172, 1.173) and	PHYs) or FEC_corr cted FEC block proc dication is OK. Thes ement interface tha d 45.2.1.89 (1.176 to	ected_blocks_counter_i eessed when e are 32-bit counters. t may be mapped to the o 1.215).	
						Change FEC_u process	e: ncorrected_block sed when FEC_S	s_counter counts once IGNAL.indication or FE	for each uncorrecte C:IS_SIGNAL.indica	d FEC blocks ation is OK.	
						to:					
						FEC_ui FEC_bio FEC bio These a that ma (1.216 f	ncorrected_block ncorrected_block ock processed w are 32-bit counte by be mapped to to 1.255).	s_counter (for single lar s_counter_i (for multi-la hen FEC_SIGNAL.indic rs. These variables are the registers defined in	ne PHYs) or ine PHYs) count ond ation or FEC:IS_SIC accessed through a 45.2.1.88 (1.174, 1.1	ce for each uncorrected GNAL.indication is OK. management interface 175) and 45.2.1.90	

Draft	2.2 Comments	i	IEEE Pa	802.3ba D2.2 40Gb/s an	d 100Gb/s	Ethernet co	omments	WG 2	nd recirculation ballot
<i>Cl</i> 80 Trowbridg	SC 80.1.4 ge, Stephen	P 127 Alcatel-Lucent	L 29	# 205	<i>Cl</i> 80 Ghiasi, Ali	SC 80.5	P 138 Broadcom	L 5	# 94
Comment The c interfa	t Type E optical interfaces lis aces do not. edRemedy	Comment Status A sted in the table give their resp	ective reache	s while the electrical	Comment Colum Suggested Please	<i>Type</i> T n heading state <i>Remedy</i> replace~with i	Comment Status A e maximum skew but the values max value of skew	have approxi	mate symbol~
For 4 For 4 Response ACCI In Ta For 4 For 4	0GBASE-RR4, au 0GBASE-CR4 and e EPT IN PRINCIPLI ble 80-1 and claus 0GBASE-KR4, add 0GBASE-CR4 and	 a with reach up to at least finitial 100GBASE-KR4, add "with re <i>Response Status</i> C a 1.4 b "with reach up to at least 1m" b 100GBASE-CR10, add "with page 100 million 100 mi	each up to at l , reach up to at	east 7m" least 7m"	Response ACCEI approx Also se Replac In footr	PT IN PRINCIF imate symbol i ee related com e all tilde char- notes change " ng rate of 10.3	Response Status C PLE. [Editor's note: Please do no in comments since this is used a ment #95 acters with [approx =] in tables 8 Note that for 40GBASE-R, 1 UI 125 GBd." to "[approx =] indicate	ot use special as delimiter by 30-4 and 80-5 is equal to 96 es approximat	character "tilde" or the comment tool] .969697 ps at PCS lane e equivalent of
Cl 80 Trowbridg Comment Runo	SC 80.2.3 ge, Stephen <i>t Type</i> E in sentence (too m	P128 Alcatel-Lucent <i>Comment Status</i> A any "ands")	L17	# 206	maxim signalii and ch signalii maxim lane si	um skew in UI ng rate of 10.3 ange "Note tha ng rate of 5.15 um skew in UI gnaling rate of	for 40GBASE-R, based on 1 UI 125 GBd." at for 100GBASE-R, 1 UI is equa 625 GBd." to "[approx =] indicate for 100GBASE-R, based on 1 L 5.15625 GBd."	equals 96.96 al to 193.9393 es approximat JI equals 193.	9697 ps at a PCS lane 94 ps at PCS lane e equivalent of 939394 ps at a PCS
Suggeste Repla "The PMA PCS with "The PMA PCS	edRemedy ace FEC sublayer can sublayers and is ir lane basis." FEC sublayer can sublayers, is insta lane basis."	be placed in between the PCS astantiated for each PCS lane, be placed in between the PCS ntiated for each PCS lane, and	and PMA sui and operates and PMA sui operates aut	blayers or between two autonomously on a per blayers or between two onomously on a per					

Response

ACCEPT.

Response Status C

C/ 80 SC 80.5 Page 7 of 64 9/24/2009 12:43:31 AM

C/ 80 SC 80.5 Anslow, Peter	P138 Nortel Networks	L 5	# 16	<i>CI</i> 80 Ghiasi, Ali	SC 80.5	P 140 Broadcom	L 31	# 105	
Comment Type T C The definition of Skew Varia	Comment Status A ation is not correct.	20, 20 1 11		Comment 7 No test	<i>ype</i> TR method is defi	Comment Status A ned for measuring dynamic sk	ew		
Consider a link with relative	delays on 4 lanes of 0, 20,	, 20, 20 01.		Suggested	Remedy				
The definition of Skew is: Skew is defined as the diffe PCS lane for the one to zero So the skew of the above e: Now change the delay in the 0, 0, 20, 20 UI. The Skew is	rence between the times of o transition of the alignmen kample is 20 UI. e second lane so that the re s still 20 UI	f the earliest I It marker synd elative delays	PCS lane and latest c bits.	Transm as long lanes tr Transm PLL as output variatio lanes to	itter lane unde as the maximu ansmit PRBS3 itter lane unde defined by the goes to the to t n on the first la o determine ma	r test transmits suitably long P um skew variation and based o 1. r test output is split in to two. C specific PMDS to provide trigg he oscilloscope inputs which c ne is recorded, the measurem uximum skew variation.	RBS pattern wi on the scope ca Dne set of outpo gering to oscillo an lock to the F nent is then rep	ith length at least twice pability while other ut goes to the golden scope. The second PRBS pattern. Skew eated for the remaining	
Skew Variation is defined as Skew Variation is defined as highest value of Skew over	e of Skew and the າກ.	Response Response Status W ACCEPT IN PRINCIPLE. At the end of 85.5 add							
So the Skew Variation after has changed by 20 UI so yo	the change is 0 UI. Howev ou need 20 bits in the geart	ver, the delay box buffer.	on the second lane	The measurements of Skew and Skew Variation					
SuggestedRemedy				are def and Sk	ew Variation	>> litle 85.5.1 Measurements	of Skew		
Change: "Skew Variation is defined a highest value of Skew over to: "Skew Variation is defined a PCS lane over the entire tim Response ACCEPT.	is the difference between the the entire time that the link is the change in skew betwine that the link is in operation esponse Status C	he lowest valu is in operatio veen any PCS on."	ue of Skew and the ın." 3 Iane and any other	Skew a require over th of Skew on eacl high fre in 86.8 of the a compa	nd Skew Varia d to remain with e time that the v and Skew van h lane using a c quency corner 3.2. The arriva lignment mark red. This arrang	tion are defined in 80.5 and are hin the limits given in 85.5 link is in operation. The measu riation is made by acquiring the clock and data recovery unit wi bandwidth and slope as speci I times of the one to zero trans er sync bits on each lane are th gement ensures that any high f	e irement e data th a fied ition hen irequency		

measurement.

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

C/ 80 SC 80.5 Ghiasi, Ali	P 140 Broadcom	L 32	# 95	C/ 81 SC 81. D'Ambrosia, John	1	P144 Force10 Netv	L 3 works	# 149
Comment Type T Column heading state SuggestedRemedy	Comment Status A e maximum skew variation but t	he values have	approximate symbol~	Comment Type E The use of the te one that supports	Commer rm "scalable" coul s 40Gb/s and anot	nt Status A Id be misconstur her that supports	red. There are tv s 100 Gb/s	wo distinct interfaces -
Please replace~with r	max value of skew variations			Suggesteakemeay				
Response ACCEPT IN PRINCIF approximate symbol i	Response Status C PLE. [Editor's note: Please do n n comments since this is used	ot use special o as delimiter by	character "tilde" or the comment tool]	a) It is scalable a b) Data and delin c) It provides inde d) It provides for	nd capable of sup niters are synchrou ependent 64-bit-wi full duplex operation	porting speeds on nous to a clock r de transmit and on only.	of 40 Gb/s and 1 reference. receive data pat	00 Gb/s. ths.
See response to com	ment #94			4-				
C/ 80 SC 80.5 Ghiasi, Ali	P 140 Broadcom	L 5	# 104	to a) The XLGMII in	terface supports s	peeds of 40 Gb/	/s.	
Comment Type TR No test method is def	Comment Status A ined for measuring skew			 b) The CGMII into c) Data and delin d) It provides indo e) It provides for 	erface supports sp niters are synchror ependent 64-bit-wi full duplex operation	beeds of 100 Gb/ nous to a clock r ide transmit and	/s. reference. receive data pat	ths.
SuggestedRemedy Transmitter lane unde as long as the maxim transmit PRBS31.	er test transmits suitably long P um skew and based on the sco	RBS pattern wi	ith length at least twice hile other lanes	Response ACCEPT IN PRI a) The XLGMII in b) The CGMII int	Response NCIPLE. terface supports a	e Status C a speed of 40 Gb speed of 100 Gb	o/s.	

Transmitter lane under test output is split in to two. One set of output goes to the golden PLL as defined by the specific PMDS to provide triggering to oscilloscope. The second output goes to the to the oscilloscope inputs which can lock to the PRBS pattern. A visible edge is identified for the first lane, the measurement is then repeated for the remaining lanes to determine maximum skew.

Response Response Status W

ACCEPT IN PRINCIPLE.

See response to comment #40

b) The CGMII interface supports a speed of 100 Gb/s.c) Data and delimiters are synchronous to a clock reference.d) It provides independent 64-bit-wide transmit and receive data paths.

e) It provides for full duplex operation only.

C/ 81 SC 81.1

C/ 81	SC 81.5	P 158	L 50	# 207	CI 82	SC 82	.2	P170	L 42	# 213
Trowbridg	e, Stephen	Alcatel-Lucent			Nicholl, G	ary		Cisco		
Comment The s It app >=0x0 proba	<i>Type</i> T pecification of wh ears that lane one 03 for it to be a result bly also in the group a 3 inequality	Comment Status A ich sequence ordered set value e or lane two can be anything served value. But a value like pup that are considered to be	ues is reserved (>=0x00) but th 0x01 0x00, 0x0 reserved even	is not specified clearly. hat lane 3 must be 00 in lanes 1-2-3 are though it doesn't meet	Comment Figure show Suggestee Updat	<i>Type</i> 1 82-2 doe the BER r <i>Remedy</i> e Figure 8	E s not sl nonitor 32-2 to s	Comment Status R now any indication of the PCS based on sync header errors)	lane BIP erroi	r check (although it does
Sugaeste	dRemedv				Response	-		Response Status C		
Consi lane 1 lane 1 lane 1	der showing three >=0x01, lane 2 > >=0x00, lane 2 > >=0x00, lane 2 >	e rows for reserved: ==0x00, lane 3>=0x00 =0x01, lane 3>=0x00 0x00, lane 3>=0x03 (the exisi	ting one)		REJE BIP in logic s	CT. sertion an sub-TF is i	id remo not to c	val are part of the alignment a lutter the diagram.	nd removal blo	ocks. Consensus of the
Response ACCE Delete "All ot	PT IN PRINCIPL this row and add ther values in lane	Response Status C E. d a note: as 1-3 not shown in this table	are reserved."	in reserved	C/ 82 Dawe, Pie Comment Clarify	SC 82 rs <i>Type</i>	2.2.1 T comme	P171 Independent <i>Comment Status</i> R nt 32:	L 22	# 69
C/ 82 Mark, Gus Comment	SC 82.1.1 stlin	P165 Cisco Comment Status A	L11	# 37	There blocks identio count	are two e and BIP al results 1 per burs	rror cou errors. . But if st while	Inting mechanisms that can be For isolated errors at error rate burst errors are involved, the e the BIP error counters will typi	e used on 64B s of interest, f rrored block c cally count the	/66B signals: errored they will give near- ounter will typically e number of errors in the
Avoid listing of PMDs in the PCS clause that will create a maitanence issue in future. So rephrase sentence as suggested. SuggestedRemedy The 40GBASE-R PMA(s) can support any of the 40 Gb/s PMD as specified in Table 80-1. Change: "The 40GBASE-R PCS is a sublayer of the following Physical Layers: 40GBASE-SR4, 40GBASE-LR4, 40GBASE-CR4 and 40GBASE-KR4. The 100GBASE-R PCS is a sublayer of the following Physical Layers: 100GBASE-SR10, 100GBASE-LR4, 100GBASE-ER4 and 100CBASE-CR4 and					burst. We should be unambiguous which is meant by BER for the purposes of compliance. As the errored block counter is not very good in service at good BERs, we expect in-service monitoring to use BIP (that's why it was introduced). It is HIGHLY desirable that the same definition of BER apply in compliance testing with the scrambled idle signal as in service.					
					Also, as MTTFPA is so important and burst errors are a threat to it, BIP counting is preferable for another reason. The response to D2.1 comment 32 points out that BIP counting saturates too low for the current hi_ber threshold. So continue with block counting (as is) for the BER monitor state diagram, but					urates too low for the r the BER monitor state
To: "The 4 100GI	40GBASE-R PCS BASE-R PCS is a	i is a sublayer of the 40 Gb/s sublayer of the 100 Gb/s PH	PHYs listed in IYs listed in Tal	Table 80-1. The ble 80-1."	Suggestee Say th error o	<i>Remedy</i> at BER fo counting (i	or 64B/6 ather th	6B signals (including the scrain nan by the BER monitor state of	nbled idle sig liagram). Alth	nal) is defined by BIP lough the count from the
Response	9	Response Status C			BER monitor state diagram may be useful for diagnostics at very bad BER.					
ACCE	EPT.				Response			Response Status C		

REJECT.

The proposal is not a complete solution and is proposing a significant change to the PCS test pattern operation.

C/ 82 SC 82.2.1

C/ 82 SC 82.2.14 Nicholl. Garv	P 183 Cisco	L13	# 214	C/ 83 Szczepan	SC 5.10 ek. Andre	P 211 HSZ Consultir	L 27 na Ltd	# 45
Comment Type E I know what is meant, but last sentence is not as clea	Comment Status A I still find that the phrase ar as it could be.	"for each 8-bit B	IP value in error" in the	Comment There 49.2.	<i>Type</i> TR is no limit to the 12.	Comment Status A potential increment rate of the	∋ PRBS31 chec	ker referenced in
SuggestedRemedy Suggest replacing the last "If a Clause 45 MDIO is im incremented by one each	sentence with: plemented, then the app time the calculated BIP	propriate BIP erro	r counter register is	The c presc multip There	hecker implemer ence of burst erro plication factor de will be less scop	ntation is difficult to match at h ors (the source synchronous d spends on burst pattern). be for a complex implementation	igh increment r escrambler imp on in a PMA de	ates or in the vlementation error vice versus a PCS.
value received in the BIP3	field (registers 3.90 thro	ugh 3.99)."	abily match the Bil	neces	sary. It would be	sufficient to match the result	of a 49.2.12 imple	plementation only for
Response F	Response Status C			isolate	ed single bit error	rs and at errors rates less thar	1 in a thousan	d.
ACCEPT IN PRINCIPLE. Change: "If a Clause 45 MDIO is im incremented for each 8-bit	plemented, then the app BIP value in error (regis	propriate BIP erro ters 3.90 through	r counter register is 3.99)."	Suggeste Repla (see	dRemedy ice: 49.2.12)			
To: "If a Clause 45 MDIO is im	nlemented then the ann	ropriate BIP erro	r counter register	With:				
(registers 3.90 through 3.9 does not equal the value re	9) is incremented by one eceived in the BIP3 field.	e each time the c	alculated BIP value	The F	RBS31 checker ed single bit error	shall match the results of the rs and at errors rates less thar	checker implem າ 1 in a thousar	entation in 49.1.12 for
				There	will be a contrib	ution at the September interim	to support this	comment
				Response	9	Response Status C		
				ACCE Assig	PT IN PRINCIPI	LE. [Editor's Note: Commenter /pe TR]	did not indicat	e comment type.
				Repla (see	ice: 49.2.12)			
				With:				
				The c error shoul sliding	hecker shall incru in the PRBS31 p d be capable of c g 1000 bit windov	ement the test pattern error co attern (see 49.2.8) for isolated counting at least one error whe v.	unter by one fo single bit error never one or m	r each incoming bit s. Implementations lore errors occur in a

C/ 83 SC 5.10

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

WG 2nd recirculation ballot

C/ 83 SC 83.1.4 Dawe, Piers	P 205 Independent	L 49	# 61	C/ 83 Nicholl, Gar	SC 83.5.10	<i>P</i> Cisco	L 23	# 208		
Comment Type E Gbaud	Comment Status A			Comment T	ype TR orted, when sen	Comment Status D d TX PRBS31 test pattern	is enabled by the	PRBS31_enable and		
SuggestedRemedy GBd (twice)				PRBS_TX_gen_enable control variables, the PMA shall generate a PRBS31 pattern (as defined in 49.2.8) on each of the lanes toward the service interface below the PMA via the inst:IS_UNITDATA_i.request primitive."						
Response ACCEPT.	Response Status C									
C/ 83 SC 83.3	P 208	L 29	# 212	Sugges signal is	t adding a refere being generate	enece to Figure 83-5 to ma ed.	ke it clear in which	h direction the PRBS		
Nicholl, Gary	Cisco			SuggestedF	Remedy					
Comment Type E	Comment Status D			Change	sentence to rea	ad:				
See the following note "inst PMD, PMA, or FE SIL Signal." The paramter 'inst' app can be either a PMD F	under Figure 83-5: EC, depending on which sublation pears to be there to address the	yer is below th he fact that the	is PMA sublayer below the PMA	"If supp PRBS_ defined on each inst:IS_ primitive	orted, when sen TX_gen_enable in 49.2.8) of the lanes tov UNITDATA_i.rec e (see Figure 83	d TX PRBS31 test pattern control variables, the PMA vard the service interface b quest -5)"	is enabled by the shall generate a below the PMA via	PRBS31_enable and PRBS31 pattern (as a the		
	MA OFFEC.			Proposed R	esponse	Posponso Status 7				
No such convention ap PMA. In this case the	opears to be adopted on the sa service interface primitives are	ame figure for 'hard coded'	the interface above the with the name PMA,	REJEC	Г.	Response Status Z				
even though the subla	yer above the PIVIA can be eith	her a PIVIA, FE	:C of PCS.	This cor	nment was WIT	HDRAWN by the commen	ter.			
SuggestedRemedy										
Suggest adopting a sir interface aobve the PN PMA can be either a P	milar naming convention for th /IA (i.e. at the top of the figure) PMA, FEC or PCS.	e service inte , to reflect tha	rface primitives for the the sublayer above the							
Proposed Response	Response Status Z									
REJECT.	,									
This comment was WI	THDRAWN by the commente	r.								
The service interface in problem with the sublat service interface, but y providing it. To describ always the PMA, so you PMA:IS_UNITDATA_i. another PMA invoking	s named according to the sub ayer below is that you know tha rou don't know which sublayer be the PMA service interface, t bu can name the primitives, e.g. request(tx_bit) without having that primitive	ayer that prov at the sublayer it is (PMD, PN he sublayer p J., to know whetl	ides the service. The provides the generic MA, or FEC) that is roviding the service is her it is the PCS, FEC, or							

C/ 83 SC 83.5.10

C/ 83	SC 83.5.10	P 215	L 22	# 79
Dawe, Piers		Independent		

Comment Type TR Comment Status R

Following up on D2.1 comment 33. anslow_05_0709 showed that for two scenarios with an almost-minimum 32 UI delay between lanes, the peak baseline wander was about 50% more than for a single PRBS31. I believe that if the delay is substantially increased, that 50% will substantially reduce. Maybe I'll get the simulation done by the meeting. The larger delay could be generated by choosing appropriate seeds for each lane's PRBS generator and starting the generators together, but that's implementation.

SuggestedRemedy

The first part of the remedy is similar to last time:

Change "on each of the lanes" to "on each of the PCS lanes" here and at line 30. Change "one lane and any other lane" to "one PCS lane and any other PCS lane" In the paragraphs beginning line 38 and line 50, change "lane" or "lanes" to "PCS lane" or PCS lanes".

Delete "Note that bit multiplexing of per-lane PRBS31 may produce a signal which is not meaningful for downstream sublayers."

Provide 20 PRBS31 error counters in each direction, one per PCS lane.

Another solution which would take a few more words would be to generate by 10G lanes and check by 20G PCS lanes, for 100G. Do we have a name for a 10G lane? For 40G, because we have a binary series of lane speeds, generating per lane (whatever that is) and checking per (10G) PCS lane is ideal, but generating by 10G lanes with offset would still work.

Increase the 31 bits (UI) minimum delay between generator lanes to a number TBD, around 2000 UI.

Response Response Status W

REJECT.

D2.1 comment 33 was rejected based on the analysis in anslow_05_0709. The decision should not be reconsidered unless:

1) simulation results can be provided to show that larger offsets do not significantly increase the baseline wander over PRBS31;

2) it can be shown that it is not unduly onerous to be required to generate 20 PRBS31 sequences that are offset by 2000 UI; and

3) a specific offset value can be provided which meets the necessary requirements. Note that there is no other aspect of the PMA which is aware of PCS lanes and other mechanisms (e.g., scrambled idle test pattern, BIP) are available for multi-sublayer testing.

C/ 83	SC 83.5.10	P 215	L 24	#	75
Dawe, Piers		Independent			

Comment Type T Comment Status A

Draft says "There shall be at least 31 bits delay between the PRBS31 patterns generated on one lane and any other lane.". This was to stop the lanes being highly correlated and hence the lane-to-lane crosstalk being unrealistic. However, Skew Variation, not necessarily in the generating PMA, could reduce these relative delays.

SuggestedRemedy

Increase 31 by the appropriate Skew Variation or say "a delay of 31 UI plus the allowance for Skew Variation for the downstream sublayers as given in Table 80-5." But see another comment.

Response Response Status C

ACCEPT IN PRINCIPLE.

Replace:

"There shall be at least 31 bits delay between the PRBS31 patterns generated on one lane and any other lane."

with:

"To avoid correlated crosstalk, it is highly recommended that the PRBS31 patterns generated on each lane be generated from independent, random seeds or at a minimum offset of 1000 UI between the PRBS31 sequence on any lane and any other lane."

CI 83	SC 83.5.10	P 215	L 24	#	71
Dawe, Piers		Independent			

Comment Type T Comment Status A

Draft says "There shall be at least 31 bits delay between the PRBS31 patterns generated on one lane and any other lane.". Elsewhere, Skew and delay specs are in BT (and PQ and ns). This "31 bits" is misleading.

SuggestedRemedy

Change "bits" to "UI".

Response Response Status C

ACCEPT IN PRINCIPLE. Overtaken by events. See comment #75.

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

CI 83 SC 83.5.10 Page 13 of 64 9/24/2009 12:43:32 AM

C/ 83	SC 83.5.10	P 215	L 40	# 70
Dawe, Piers		Independent		

Comment Type T Comment Status A

Piling on to D2.1 comment 253. What is in the draft seems so impractical and unnecessarily power-hungry that it won't be obeyed fully. Draft refers to 49.2.12 which says "The test-pattern error counter shall increment once for each bit time that the PRBS31 pattern error signal is high." which could approach the lane line rate. Unlike the assertion in the response to comment 34, choosing an implementation dependent limitation would seem not to be allowed. For comparison, even a lab BERT saturates or drops sync at some point e.g. 10^-3 or 10^-2.

SuggestedRemedy

If you want to stay with the checker of 49.2.12 then write down that a .3ba version need not count error ratios above 1e-3 accurately. This will ease both the high-speed analog silicon and also the management counters.

Also, it might be desirable to define a maximum reported error rate so that the management sofware doesn't have to be designed to cope with ridiculous BERs. (Per response to D2.1 comment 32, the high BER state machine kicks in at a 10-4 BER, so anything much above that is hopelessly bad and we don't need an exact measurement of it.)

Also, it may ease the implementation to write down that a .3ba version need not count burst errors precisely as 49.2.12 (which isn't accurate for all bursts, anyway).

Response

Response Status C

ACCEPT IN PRINCIPLE. See response to comment 45.

CI 83	SC 83.5.2	P210	L 20	# 142
D'Ambros	ia, John	Force10 Networ	ks	

Comment Type ER Comment Status A

There is some concern regarding the use of the term mapping and how it relates to what is illustrated in Fig 83-6. The use of the word "mapping" seems to address how input lanes are directed to output lanes, but in the commenter's opinion does not do an adequate job addressing the sequencing of bits on the output lanes, which may lead to interpretation issues.

SuggestedRemedy

Further clarifying text is needed. See presentation by dambrosia.

Note - Please discuss in Logic Sub Task Force during Sept Interim.

Response Response Status C

ACCEPT IN PRINCIPLE.

In clause 83.1.4, replace "remaps" with "maps".

Replace text in 83.5.2 and Figure 83-6 with trowbridge_01_0909.pdf.

Update PICS LANE_MAPPING to read "Maintain sequence of PCSLs on all output lanes"

<i>CI</i> 83 Nicholl, Gar	SC 83.5.2 y	P 211 Cisco	L 51	# 211	
Comment T Note on	<i>ype</i> E I Fig 83-6 is incor	Comment Status A rect. Note reads:			
"NOTE:	i.k indicates bit i	on PCSL k. Skew may exis	t between PCSI	_S"	
The i ar	nd k are reversed	from what is shown in the f	igure.		
SuggestedF	Remedy				
Change	note to read:				
NOTE:	i.k indicates bit k	on PCSL i. Skew may exist	between PCSL	S	
Response		Response Status C			
ACCEP	T.				

Draft 2.2 Comments IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments WG 2nd recirculation ballot C/ 83 SC 83.5.4 P213 L13 # 17 C/ 83A SC Р L Anslow. Peter Nortel Networks D'Ambrosia, John Force10 Networks Comment Type Ε Comment Status A Comment Type E Comment Status A Double full stop ".." All of the figures in this clause follow equations, but there are no statements regarding an equation being illustrated in a figure SuggestedRemedy SuggestedRemedy Change ".." to "." add statement following equation that the equation is illustrated in Fig 83A-x. Response Response Status C Response Response Status C ACCEPT. ACCEPT. Р SC # 151 C/ 83A L D'Ambrosia, John Force10 Networks Comment Type **TR** Comment Status A Section 83A.2.1 ... than the insertion loss defined in Equation (83A-1) and illustrated in Figure 83A-3.

A number of equations related to insertion loss / SDD21 have been arranged where the absolute magnitude of the s-parameter (a positive number) must be less than the stated equation (which is actually a negative number). All graphs of equations have been done in positive numbers.

Previous comments have discussed nomenclature. Regardless of TF decision on nomenclature these equations are in correct.

Equations include: 83A-1 and 83A-2.

SuggestedRemedy

Change 83A-1 to |SDD21| <= -0.00086 + (0.2286 x f^(1/2)) + (0.08386 X f)

Change 83A-2 to |SDD21| <= -0.00086 + (0.2286 x f^(1/2)) + (0.08386 X f)

Response Response Status W

ACCEPT IN PRINCIPLE.

See resolution to comment #15

see also dambrosia 01 0909 for parameter naming convention

... than the insertion loss defined in Equation (83A-2) and illustrated in Figure 83A-4.

83A.3.3.3

83A.2.2

Differential output return loss requirement is illustrated in Figure 83A-6

83A.3.3.4 Common mode output return loss is illustrated in figure 83A-7

83A.3.4.3 Differential input return loss is illustrated in figure 83A-10

83A.3.4.4 Differential- to-common mode input return loss is illustrated in figure 83A-11

83A.4

The value for insertion loss is summarized in Equation (83A-9) and illustrated in figure 83A-13. The value for minimum return loss is summarized in Equation (83A-10) and illustrated in figure 83A-14

see also dambrosia 01 0909 for parameter naming convention

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IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

DAmbrosia, John Force10 Networks Dawe, Piers Independent Comment Type TR Comment Status A Comment Status A Comment Status R A number of equations related to return loss / Sxymm have been arranged where the absolute magnitude of the s-parameter (a positive number) must be less than the stated equation. All graphs of equations have been done in positive numbers. For Return Loss constraints the requirement should be "greater than or equal to" the equation nomenclature. Regardless of TF decision on nomenclature these equations are in correct. Comment Type TR Comment Type TR Comment Status R SuggestedRemedy For noted equations change sign from "less than or equal to" to "greater than or equal to" sign. See suggested Remedy. Change "Transmitter" to "output or driver" or "driver" or "driver	C/ 83A	SC	Р	L	# 152	C/ 83A	SC 83A.2		P 383	L 6	# 82
Comment Type TR Comment Status A A number of equations related to return loss / Sxymn have been arranged where the absolute magnitude of the s-parameter (a positive number). For Return Loss constraints the requirement should be "greater than or equal to" the equation on momenclature. Regardless of TF decision on nomenclature these equations are in correct. Comment Type TR Comment Type Comment Type TR Comment Tstatus R Suggested/Remedy For locked equations change sign from "less than or equal to" to "greater than or equal to" to sequence than or equal to" to "greater than or equal to" to sequence the sequence to "Transmitter" to "output, modile loupt, host input, which is compatible will but Figure 83A-2; shows two "Transmitter" to "output, so of driver" or "driver" or "	D'Ambrosi	a, John	Force10 Netv	vorks		Dawe, Piers	5		Independent		
A number of equations related to return loss / Symn have been arranged where the absolute magnitude of the s-parameter (a positive number) must be less than the set standed equation. All graphs of equations have been done in positive numbers. For Return Loss constraints the requirement should be "greater than or equal to" the equation on momenclature these equations are in correct. Equations include: 83A-5, 83A-7, 83A-8, and 8A-10. Suggested/Remedy For noted equations change sign from "less than or equal to" to "greater than or equal to" sign. see also dambrosia_01_0909 for parameter naming convention & equation format Ensure consistency & suggested remedy Ensure consiste	Comment	Type TR	Comment Status A			Comment 7	ype TR	Comment	Status R		
Equations include: 83A-5, 83A-7, 83A-8, and 8A-10. SuggestedRemedy For noted equations change sign from "less than or equal to" to "greater than or equal to" Response Response Status ACCEPT IN PRINCIPLE. See suggested Remedy. Change Equations 83A-5, 83A-7, 83A-8, and 83A-10 to "greater than or equal to" sign. see also dambrosia_01_0909 for parameter naming convention & equation format Ensure consistency & suggested remedy Cl 83A SC 83A.2.1 P383 L23 Dudek, Mike QLogic Comment Type T Comment Status A I seem to remember that there is a style guide rule that all figures must be referred some text. Even if it is not in the style guide rules it is good practice. There are a no of figures in this annex that do not have references. Figure 83A-3 is the first one. This also applies to figure 83A-4, 83A-6, 83A-7, 83A-10, 83A-11, 83A-13, 83A-14 SuggestedRemedy	A num absolu equati constr Previo nomer	ber of equations ute magnitude of t on. All graphs of aints the requiren uus comments hav notature these equ	related to return loss / Sxym he s-parameter (a positive r equations have been done hent should be "greater than we discussed nomenclature. Justions are in correct.	in have been arrang number) must be les in positive numbers or equal to" the eq Regardless of TF o	ged where the ss than the stated . For Return Loss uation decision on	Followi Accord output. Therefo input, a terms h But Fig This isr	ng up D2.1 cc ing to 83.3, a nAUI is inter ore nAUI mus not a (module nost output, m ure 83A-2 sh n't compatible	omment 159, PMA has TX and inded to connect at connect a (hose) RX (receiver) nodule input, mo ows two "Transite terminology.	nd RX directions PMAs, e.g. one st) TX (transmitte output to a (host odule output, host mitter"s and two	, each of which in the host and er) output to a () receiver input st input, which i "Receiver"s, o	 has an input and an d one in a module. (module) transmitter t. 83B and 86A use the is compatible with 83. ne for each direction.
SuggestedRemedy For noted equations change sign from 'less than or equal to' to ''greater than or equal to'' Response Response Status ACCEPT IN PRINCIPLE. See suggested Remedy. Equations 83A-5, 83A-7, 83A-8, and 83A-10 to ''greater than or equal to'' sign. see also dambrosia_01_0909 for parameter naming convention & equation format Ensure consistency & suggested remedy Cl 83A SC 83A.2.1 P 383 L 23 # 182 Dudek, Mike QLogic Comment Type T Comment Status A I seem to remember that there is a style guide rules this good practice. There are a not figures in this annex that do not have references. Figure 83A-3 is the first one. This also applies to figure 83A-4, 83A-6, 83A-7, 83A-10, 83A-11, 83A-13, 83A-14	Equal		-5, 65A-7, 65A-6, and 6A-10			Suggestedl	Remedy				
Response Response Status W ACCEPT IN PRINCIPLE. See suggested Remedy. Change Response Status W Equations 83A-5, 83A-7, 83A-8, and 83A-10 to "greater than or equal to" sign. see also dambrosia_01_0909 for parameter naming convention & equation format Response Response Status W Ensure consistency & suggested remedy Comment 200 for consistency between 83A & 83B L23 # [182] Dudek, Mike QLogic Comment Type T Comment Status A I seem to remember that there is a style guide rule that all figures must be referred some text. Even if it is not in the style guide rules it is good practice. There are a no of figures in this annex that do not have references. Figure 83A-3 is the first one. This also applies to figure 83A-4, 83A-6, 83A-7, 83A-10, 83A-11, 83A-13, 83A-14 SuggestedRemedy If I am correct then add "and illustrated in figure 83A-3" to the end of line 23, and a remedy for the other figures. If I am correct then add "and illustrated in figure 83A-3" to the end of line 23, and a remedy for the other figures.	For noted equations change sign from "less than or equal to" to "greater than or equal to"					Change "Transmitter" to "output" or "driver" or "driver output" as appropriate, "Transmit Compliance Point" to "output compliance point", "Receiver" to "input", and "Receiver					
ACCEPT IN PRINCIPLE. See suggested Remedy. Change Equations 83A-5, 83A-7, 83A-8, and 83A-10 to "greater than or equal to" sign. see also dambrosia_01_0909 for parameter naming convention & equation format Ensure consistency & suggested remedy Ensure consistency & suggested remedy CI 83A SC 83A.2.1 P383 L23 # 182 Dudek, Mike QLogic Comment Type T Comment Status A I seem to remember that there is a style guide rule that all figures must be referred some text. Even if it is not in the style guide rule that all figures must be referred some text. Even if it is not in the style guide rules it is good practice. There are a no of figures in this annex that do not have references. Figure 83A-3 is the first one. This also applies to figure 83A-4, 83A-6, 83A-7, 83A-10, 83A-11, 83A-13, 83A-14 SuggestedRemedy If I am correct then add "and illustrated in figure 83A-3" to the end of line 23, and a remedy for the other figures.	Response		Response Status W			Compli through	ance Points"	and "Receive C	ompliance Point	" to "output cor	mpliance point",
See suggested Remedy. Change REJECT. See also dambrosia_01_0909 for parameter naming convention & equation format See comment 200 for consistency between 83A & 83B C/ 83A SC 83A.2.1 P383 L23 # 182 Dudek, Mike QLogic Comment Type T Comment Status A I seem to remember that there is a style guide rule that all figures must be referred some text. Even if it is not in the style guide rules it is good practice. There are a nof figures in this annex that do not have references. Figure 83A-3 is the first one. This also applies to figure 83A-4, 83A-6, 83A-7, 83A-10, 83A-11, 83A-13, 83A-14 SuggestedRemedy If I am correct then add "and illustrated in figure 83A-3" to the end of line 23, and a remedy for the other figures.	ACCE	PT IN PRINCIPL	E.			Response		Response	Status W		
see also dambrosia_01_0909 for parameter naming convention & equation format Ensure consistency & suggested remedy Cl 83A SC 83A.2.1 P383 L23 # 182 Dudek, Mike QLogic Comment Type T Comment Status A I seem to remember that there is a style guide rule that all figures must be referred some text. Even if it is not in the style guide rules it is good practice. There are a n of figures in this annex that do not have references. Figure 83A-3 is the first one. This also applies to figure 83A-4, 83A-6, 83A-7, 83A-10, 83A-11, 83A-13, 83A-14 SuggestedRemedy If I am correct then add "and illustrated in figure 83A-3" to the end of line 23, and a remedy for the other figures.	See suggested Remedy. Change Equations 83A-5, 83A-7, 83A-8, and 83A-10 to "greater than or equal to" sign.			o" sign.	REJECT. See comment 200 for consistency between 83A & 83B						
Ensure consistency & suggested remedy Dudek, Mike QLogic Comment Type T Comment Status A I seem to remember that there is a style guide rule that all figures must be referred some text. Even if it is not in the style guide rules it is good practice. There are a no of figures in this annex that do not have references. Figure 83A-3 is the first one. This also applies to figure 83A-4, 83A-6, 83A-7, 83A-10, 83A-11, 83A-13, 83A-14 SuggestedRemedy If I am correct then add "and illustrated in figure 83A-3" to the end of line 23, and a remedy for the other figures.	see al	so dambrosia_01	_0909 for parameter naming	g convention & equa	ation format	C/ 83A	SC 83A.2.	1	P383	L 23	# 182
Comment Type T Comment Status A I seem to remember that there is a style guide rule that all figures must be referred some text. Even if it is not in the style guide rules it is good practice. There are a n of figures in this annex that do not have references. Figure 83A-3 is the first one. This also applies to figure 83A-4, 83A-6, 83A-7, 83A-10, 83A-11, 83A-13, 83A-14 SuggestedRemedy If I am correct then add "and illustrated in figure 83A-3" to the end of line 23, and a remedy for the other figures.	Ensur	e consistency & s	uggested remedy			Dudek, Mik	е		QLogic		•
						Comment 1 I seem some to of figure This als Suggested If I am remedy	Type T to remember ext. Even if if es in this ann so applies to Remedy correct then a for the other	Comment that there is a st is not in the sty ex that do not h figure 83A-4, 83 add "and illustra figures.	Status A style guide rule t vle guide rules it ave references. A-6, 83A-7, 83A ted in figure 83A	hat all figures n is good practic Figure 83A-3 i 10, 83A-11, 8 3" to the end (nust be referred to by e. There are a number is the first one. 3A-13, 83A-14 of line 23, and a similar

ACCEPT IN PRINCIPLE.

See comment 153

C/ 83ASC 83A.2.1P 383L 2Dawe, PiersIndependent	25 # 83	Cl 83A SC 83A.3.3.1 Dawe, Piers	P 386 Independent	L8 # 84			
Comment Type TR Comment Status A		Comment Type TR (Comment Status R				
SDD21 does not represent loss, it represents forward gain ("response"; 47.4.1 calls it "transmission magnitude respons stay with S-parameters, as is common industry practice in S and so on, but the names need cleaning up.	("through response" or just se"). For modules, we should SFP+, CXP, XAUI (Clause 47)	De-emphasis means a rela reduction is a form of dyna dynamic deemphasis used want.	ntive attenuation of the higher f mic preemphasis employed du during playback". So de-emp	frequencies, as in "Dolby noise uring recording, plus a form of phasis is the opposite of what you			
SuggestedRemedy		SuggestedRemedy					
Change "differential insertion loss" to "differential response" than or equal to". Reverse the signs and the inequality in e	". Change "less than" to "more equation 83A-1 and Figure 83A-3.	We don't need to argue about and "Vtx-demph" (or "Vth-d	out de- versus pre-: just chang lemph") to "VMA", throughout.	је "De-emphasis" to "Emphasis",			
Response Response Status W		Response R	Response Status W				
ACCEPT IN PRINCIPLE.		REJECT.					
See comment 151.		De-emphasis is an industry	/ standard term.				
C/ 83A SC 83A.3.3 P 385 L Anslow, Peter Nortel Networks	19 # 18	C/ 83A SC 83A.3.3.1 Dudek, Mike	Р 386 QLogic	L8 # 183			
Comment Type E Comment Status A In Table 83A-1, the "Maximum De-emphasis" is given as 7.1 In Table 83B-3, the "Maximum De-emphasis" is given as 6.1 In accordance with the response to comment #501 against and 6 dB respectively. Also on page 398 line 33 7.0 dB should be 7 dB SuggestedRemedy In Table 83A-1, change "7.0" to "7" In Table 83B-3, change "6.0" to "6"	.0 dB .0 dB Draft 1.1, these should be 7 dB	Comment Type T C In equations 83A-3 and 83A Figure 83A-5 the same var SuggestedRemedy Change Vth-demph to Vtx- Response R ACCEPT IN PRINCIPLE. Change Vth-demph to Vtx-	Comment Status A A-4 there is a variable Vth-dem iable is called Vtx-demph. demph in equations 83A-4 and Response Status C demph in equations 83A-3 and	nph. However in table 83A-1 and d 83A-4. d 83A-4.			
Response Response Status C ACCEPT.		C/ 83A SC 83A.3.3.2 Latchman, Ryan	P 386 Gennum Corp	L 42 # 223			
		Comment Type T Comment Status A "Rise/fall time is measured with de-emphasis off" should include a reference to 83A.5.1					
		SuggestedRemedy "Rise/fall time is measured	with de-emphasis off as defin	ned in 83A.5.1"			
		Response R ACCEPT.	Response Status C				
		See suggested remedy					

C/ 83A SC 83A.3.3.2

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

C/ 83A	SC 83A.3.3.3	P 387	L12	# 19	CI 83A	SC 83A.3.	3.5	P382	L 32	# 20
Anslow, Pe	ter	Nortel Netwo	rks		Anslow, Pe	eter		Nortel Networ	KS	
Comment T The dif	Type E ferential output re at 50 MHz	Comment Status A eturn loss is required to be	met from 10 MH	z, but Figure 83A-6	Comment Severa	<i>Type</i> E al references ir	Comment Clauses 83A a	t Status A and 83B that sho	ould be cross-re	eferences are not.
Also ap	oplies to Figures	83A-7, 83A-10, 83A-11			Suggested	lRemedy				
Suaaested	Remedv				Make	the following re	eferences to oth	er places in the	draft cross-ref	erences.
Extend	Figures 83A-6, 8	33A-7, 83A-10, 83A-11 to 1) MHz		Page	380. line 32. "C	Clause 83"			
Response ACCEF	PT.	Response Status C			Page 3 Page 3 Page 3 Page 3	386, line 43, "8 388, lines 33 to 395, line 11, "A 401 line 19 "7	3.5.10" 38 contain 5 ir annex 48B.3" sh cable 83B-1"	nstances (also "a nould be blue	83A-1" should l	be "Table 83A-1")
C/ 83A Dawe, Piers	SC 83A.3.3.4 s	P 387 Independent	L 49	# 80	Response	PT.	Response	Status C		
As I po as a ra S-para	inted out in D2.1 tio must be <1, [\$ meters and nega	comment 35, S-parameters SCC22 in dB must be nega tive numbers.	s define power g tive. I'm sure ou	ain, not loss. SCC22 Ir readers can cope with	See su <i>Cl</i> 83A Petrilla, Jo	SC 83A.3.	dy 3.5	P 388 Avago Techno	L 32 blogies	# 201
Change as in D	e the signs on the 2.1.	e right hand side, change th	e direction of the	e inequality back to <=	<i>Comment</i> Requir	<i>Type</i> ER rements for TJ	Comment and DJ are fou	t Status A nd in a subclaus	se titled, "Trans	mitter eye mask
Response RE IEC	۲	Response Status W			definiti subcla	on". This can use can easily	make these de be added for ji	finitions difficult tter definition.	to find and see	ems unnecessary as a
See co	mment 151				Suggested Create measu as def 83A.3. senter are co eye m the ref	Remedy a subclause, irred jitter at the ined in Table 8 3.5 and paste ice "Jitter and nducted with d ask'. Then in a erences in tab	'83A.3.3.6 Tran e transmit comp 3A-1 and a ma it into 83A.3.3.6 eye mask meas e-emphasis off 33A.3.3.5, in the les 83B-3 and 8	asmitter jitter def bliance point sha ximum Determir 5 as the first ser surement require ." and paste it in e last sentence of 33B-5 to refer to	inition'. Cut the Il be less than histic Jitter as d tence. From 8 ements are des to 83A.3.3.6 de delete the word 83A.3.3.6 for 1	e sentence, "The the maximum Total Jitter lefined in 83A-1." from 3A.3.3.5 copy the scribed in 83A.5.1, and eleting the words, 'and ls, 'Jitter and'. Update IJ and DJ.
					Response		Response	Status W		

Response

ACCEPT IN PRINCIPLE.

Modify title to "Transmitter eye mask and transmitter jitter definition"

CI 83A Si	C 83A.3.4	P 389	L 35	# 184	C/ 83A	SC 83A.3.4.6	6 P393	L 4	# 202
Dudek, Mike		QLOGIC			Petrilla, Jon	n	Avago Tecr	inologies	
Comment Type	T Com	nment Status A			Comment T	уре Т	Comment Status A		
Table 83A- specificatio receiver do tolerance.	2 is actually a mixtu ons of the most degr oes not have a maxir	re of receiver charac aded signal the recei num total jitter. It's c	teristics (eg retur ver has to tolera haracteristic is a	rn losses) and te (eg total jitter.). The minimum total jitter	In figure similar not spe seems	e 83A-12 the ten templates in cla cified. These lo no reason for a	mplate for SJ tolerance incl uses 87 and 86A do not. (w freq jitter tolerance tests difference in 83A.	ludes the region Clause 87 explic all have the sar	below 40 kHz while itly defines this region as me objective and there
SuggestedRem	nedy				Suggested	Remedy			
Split table 8 with eveyth	83A-2 into two table ing in the existing ta	s. Table A labelled " able except the return	Receiver input to losses. Table B	lerance requirements" labelled "Receiver	Redraw 86A-11	the template ir	1 83A-12 to stop below 40 k	Hz. For referer	nce, see figure 87-5 or
characteris	tics" with just the re-	turn loss lines.			Response		Response Status C		
The senten	ice on page 389 line	26 then becomes. "	The receiver sha	all tolerate signals with	ACCEF	ΥТ.			
the charact in Table B"	teristics given in Tat	ble A. The receiver s	hall also have th	e characteristics given	See su	ggested remedy	/		
An alternati signal into i	ive remedy keeping minimum input toler	one table is changin ances as done in tab	g the maximum v le 86A-4	values of the input	C/ 83A Misek, Briar	SC 83A.5.1	P 395 Avago Tech	L 16 Inologies	# 233
Response	Resp	onse Status C			Comment T	<i>уре</i> т	Comment Status R		
ACCEPT IN Rename th Maximum T "Minimum T Maximum I "Minimum I Add row ab "Stressed F Modify sect	N PRINCIPLE. e following: Total Jitter to Total Input Jitter Tol Deterministic Jitter to Deterministic Input J pove Minimum total i Receiver Tolerance" tion 83A.3.4.6 accor	erance" o: Jitter Tolerance" input jitter tolerance a rdingly (maximum ber	and have the follo	owing text:	In the p too aml set to c the text <i>SuggestedH</i> Change "Transr evaluat ""Trans setting evaluat	rocess of imple biguous. The of ompensate for conveys that c Remedy e line 15: from nit de-emphasis ion." mit de-emphasit to compensate ion."	menting my previous comr f state was agreed to be the the comlience point not be learly. s off state is the optimal set s off state allows for the ap for the channel present in t	nent about this ' e state where th ng at the pins of ting for transmit oplication of an c he transmitter ji	'off" state I think this is e Tx equilization could be i the package. I don't think ter jitter and eye mask optimal Tx de-emphasis tter and eye mask
					Response REJEC	т.	Response Status C		
					Current	definition is ad	equate		
					[Editor's	s note: Late cor	nment for consideration by	the Task Force]	I

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

C/ 83A SC 88.5.2 Ghiasi, Ali	P 395 Broadcom	L 37	# 123	C/ 83B D'Ambrosia	SC John		P Force10 N	<i>L</i> etworks	# 155
Comment Type TR FR4 trace stress not cl	Comment Status A lear what it is			Comment T A numb	ype TR er of equation	Comment	Status A urn loss / Sx	ymn have been ar	ranged where the
SuggestedRemedy Suggest either use Fre	equency Dependnet Attenuator	· or PCB Trace		absolute equation	e magnitude n. All graphs	of the s-paramet s of equations ha	er (a positiv ve been dor	e number) must b ne in positive numl	e less than the stated bers.
Response ACCEPT IN PRINCIPL	Response Status C .E.			The equ For Ret equation	lations all re urn Loss cor า	sult in negative n straints the requ	umbers irement sho	uld be "greater tha	an or equal to" the
Change: FR4 trace stress is the until 0.42 UI peak-to-pe	n added eak deterministic jitter is achie	ved		Previou	s comments lature these	have discussed equations are in	nomenclatu correct.	re. Regardless of	TF decision on
				Equatio	ns include: 8	3B-5, 83B-6, 83I	3-8, and 83E	3-9.	
to: Stress is then added u	sing PCB trace or Frequency	Dependent Atte	enuation which	SuggestedF	Remedy				
emulates PCB loss. F jitter is achieved.	PCB trace stress is added until	0.42 UI peak-	to-peak deterministic	Change SDD11 ع	Eqs 83B-5, >= 12 - (2 * 5.56 - (8.76 *	83B-9 to f) log10 (f/5.5)))	0.01 <= f 2.19 <=	⁻ <= 2.19 F <= 11.1	
Modify diagram (chang	je FR4 to PCB)			Chara		000 0 44			
Make same changes ir	n 83B.2.3			SDD22	Eqs 838-6, >= 12 - (2 * 5.56 - (8.76 *	f) log10 (f/5.5)))	0.01 <= f 2.19 <=	F <= 2.19 F <= 11.1	
				For note	ed equations	change sign fror	n "less than	or equal to" to "gr	reater than or equal to"
				Response		Response \$	Status W		
				ACCEP	T IN PRINC	PLE.			
				See sug	gested Rem	edy for correctio	n of the sigr	IS.	
				See res	olution to co	mment #15			

see also dambrosia_01_0909 for parameter naming convention

C/ 83B SC D'Ambrosia, John	P Force10 Netwo	L	# 156	C/ 83B D'Ambrosia	SC a, John		P Force10 Ne	Letworks	# 154			
Comment Type E All of the figures in equation being illus SuggestedRemedy add statement follo	Comment Status A this clause follow equations, but to trated in a figure	here are no s	tatements regarding an	Comment Type TR Comment Status A A number of equations related to insertion loss / SDD21 have been arranged where the absolute magnitude of the s-parameter (a positive number) must be less than the stated equation (which is actually a negative number). All graphs of equations have been done positive numbers.								
Response ACCEPT.	Response Status C			Previou	us comments clature these	have discussed n equations are in c	omenclatur correct.	re. Regardless o	f TF decision on			
Add the following to Equation 83B-1 is it 83B-2. Modify the following The differential inse insertion loss define Modify the following The differential inse insertion loss define 83B.2.1 Modify the following where f is the freque 83B-8	9 83B.1: Ilustrated in Figure 83B-1 and Equ g sentence in 83B.2: ertion loss, expressed in decibels, ed by Equation (83B-3) and illustra g sentence in 83B-2: ertion loss, expressed in decibels, ed by Equation (83B-4) and illustra g: ency in GHz. Maximum module in	for the HCB ated in Figure for the MCB ated in Figure	is illustrated in Figure shall be less than the e 83B-3 shall be less than the e 83B-6 n is illustrated in figure	Equation Suggested SDD2 SDD2 SDD2 Change SDD2 SDD2 Change SDD2 Response ACCEF See su See res	ons include: 8 <i>Remedy</i> = 83B-1 and 8 1 <= 0.111 + 1 <= -11.95 + = 83B-3 to 1 <= 0.04 + (i 1 <= -3.72 + = 83B-4 to 1 <= -0.00086 PT IN PRINCI ggested Rem solution to col	3B-1, 83B-2, 83B 33B-2 to (1.046 x f^(1/2)) + (3.15 * f) 0.33 x f^(1/2)) + (0 f 6 + (0.2286 x f^(1/ <i>Response S</i> PLE. ledy for correction mment #15	-3, and 83B - (1.05 X f) 7 <= 0.32 X f) 7 <= f < 2)) + (0.083 tatus W of the sign	0.25 <= f <= 7 = f <= 11.1 0.25 <= f <= 7 = 11.1 386 X f) is.				
Modify the folloiwng where f is the freque 83B-8	j: ency in GHz. Maximum module c	output reflecti	on is illustrated in figure	see als	o dambrosia_	_01_0909 for para	meter nami	ing convention				

Make similar changes to 83B.2.2

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

WG 2nd recirculation ballot

C/ 83B	SC 83B.1	P 402	L 3	# 224	C/ 83B	SC 83B.2	P 403	L19	# 186
Latchman, Ry	ran	Gennum Corp			Dudek, Mik	e	QLogic		
Comment Typ Equation	be T for module los	Comment Status A s not correctly scaled			Comment The los This wi	<i>Type</i> TR is of the host Il significantly	Comment Status A compliance board is allowed to change the results of measure	o vary from zero ements.	to 2.1dB at Nyquist.
correctly s	scale				Suggested Either	Remedy			
SDD22 = Response ACCEPT SDD21 <=	3.2 - 0.84f IN PRINCIPLE = 3.2 - 0.84f	7 <f<11 Response Status C E. 7<=f<=11</f<11 			1 Cha decibe defined actual Chang	nge the sente s, for the refe l by Equation HCB shall be e the inequalit	nce on line 19 to "The different rence HCB shall be CPIL, as (83B-3). Differences between accounted for in the measuren y in equation 83B-3 into =.	tial insertion loss this reference lonents.	s, CPIL, expressed in oss and the loss of an
C/ 83B	SC 83B.1	P 402	L 34	# 200	Chang	e figure 83B-5	to HCB PCB 2.1dB		
Petrilla, John		Avago Technolog	gies		or				
Comment Typ	be ER	Comment Status A of D2.1 Figure $83A_{-1}$ is simil	ar to Figure 83	B-3 but the names on	2 add a rate Chang	a minimum los	s for the HCB with this minimu	Im loss scaled t	o 1.1dB at the Nyquist
what may Driver vs showing ti diagram e is inconsis SuggestedRe. If the XLA Likewise f Response ACCEPT	be identical it Transmitter, Ir he same level elements are a stent and can l medy UI/CAUI Com for Driver & Tra IN PRINCIPLE	ems are different, e.g. XLAUI/C aput vs Receiver. It's not good of detail use different names for ctually the same, please use th be confusing. See also Figs 83 ponent & XLAUI/CAUI IC are th ansmitter use Transmitter and th <i>Response Status</i> C E.	AUI Compone practice where or the same iten is same termin B-5 & 7. ne same use th for Input & Rec	nt vs XLAUI/CAUI IC, e block diagrams m. If these block hology, otherwise this he same name. seiver use Receiver.	Response ACCEI Delete be less defined Replac The rei in Equa differen the ins referen measu	PT IN PRINCI text: "The diff than CPILma by Equation e with:" erence HCB tation (83B-3-[i nces between ertion loss of ce insertion los rements.	Response Status C PLE. erential insertion loss, CPIL, ex ax, as (83B-3)" test fixture PCB insertion loss is note change <= to =]). The effe an actual test fixture and the bass should be accounted for in	xpressed in deci s given acts of the	ibels, for the HCB shall
For Driver figure 83E	r use Transmit 3-3, 83B-5, 83I	ter and for Input use Receiver a 3-7	and use Comp	onent instead of IC in					

C/ 83B SC 83B.2

Draft 2.2 Comments		IEEE P	302.3ba D2.2 40Gb/s ai	nd 100Gb/s	Ethern	et com	iments	WG 2nd recirculation ballot		
C/ 83B SC 83B.2	P 403	L 24	# 4	C/ 83B	SC 83	B.2.1	P405	L 40	# 21	
	Aicalei-Luceni			AIISIOW, FE	elei	_	Noner Networks	,		
Comment Type T The equation (83B-3) has	Comment Status A an inequality sign for the S	SDD21 Host C	ompliance Board	Comment In Tab	<i>Туре</i> В le 83B-2 t	E two refe	Comment Status A rences to equations should sa	y "Equation 83	3B-x"	
insertion loss.				Suggested	Remedy					
Parameters for HCB and (86A-4) and (86A-5) for th	MCB Equations should use ne SDD21 HCB and MCB in	an equal sign, CL86A Subcla	for example, equations use 86A.5.1.1.1 use	Chang Chang	e "See 83 e "See 83	3B-5" to 3B-6" to	"See Equation (83B-5)" "See Equation (83B-6)"			
equal sign = correctly.				Response			Response Status C			
SuggestedRemedy	n with an aqual sign ""			ACCE	PT.					
Replace the inequality sig	$\frac{1}{Response Status} \mathbf{C}$			See su	iggested i	remedy				
ACCEPT IN PRINCIPLE.				C/ 83B	SC 83	B.2.1	P 405	L 40	# 203	
0				Petrilla, Jol	hn		Avago Technolo	ogies		
See comment#186				Comment	Type E	ER	Comment Status D			
Cl 83BSC 83B.2Rabinovich, RickComment TypeT	P 404 Alcatel-Lucent Comment Status A	L 24	# <u>5</u>	In table referer (Claus definin	e 83B-2, c nce. If the e 85 also g these p	compliar ese are f defines oints.	nce point terms TP1, TP1a and the same points as in clause 8 a TP1 and TP4 but no TP1a)	d TP4 are used 6 or 86A, ther If not, there s	d without definition or 186 should be cited. hould be a figure	
The equation (83B-4) has insertion loss.	an inequality sign for the S	SDD21 Module	Compliance Board	Suggested If TP1,	Remedy TP1a and	d TP4 a	re the same as in clause 86, a	add a note to tr	able 83B-2 citing clause	
Parameters for HCB and	MCB Equations should use	an equal sign,	for example, equations	86, figu	ure 86-3, 1	for the c	lefinition of these points.		-	
(86A-4) and (86A-5) for th equal sign "=" correctly.	ne SDD21 HCB and MCB in	CL86A Subcla	use 86A.5.1.1.1 use	Proposed I REJEC	Response CT.	9	Response Status Z			
SuggestedRemedy										
Replace the inequality sig	n with an equal sign "=".			This co	omment w	vas WII	HDRAWN by the commenter.			
Response	Response Status C									
ACCEPT IN PRINCIPLE. Delete"The differential in less than CPILmax, as	sertion loss, CPIL, expresse	ed in decibels, f	or the MCB shall be	Follow	ing staten	nent is c	currently present in 83B.2.1:			
defined by Equation (83B Replace with:" The reference MCB test f in Equation (83B-4-[note the insertion loss of an a reference insertion loss of	-4)" ixture PCB insertion loss is change <= to =]). The effect ctual test fixture and the bould be accounted for in th	given ts of difference:	s between	"Table 3) <i>.</i> "	83B-2 als	so lists t	he equivalent test points for th	e XLPPI/CPPI	I (see Figure 86-	
measurements.										

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/ 83B SC 83B.2.1 Page 23 of 64 9/24/2009 12:43:32 AM

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<i>Cl</i> 83B Petrilla, John	SC 83B.2.1	P 407 Avago Technolo	L 20 ogies	# 204	<i>CI</i> 85 Misek, Bria	SC an		<i>P</i> Avago Technol	<i>L</i> logies	# 228
Comment Ty Table 83 deleted. SuggestedRe	ype E BB-3 footnote a This also occu <i>emedy</i> B3B-3 and 83B-	Comment Status A is redundant with the entry in t irs in Table 83B-5	he subclause co	lumn and can be	Comment The re this se freque Suggested	<i>Type</i> st of th ction d ncies. <i>Reme</i> c	T e docume oes not. It ly	Comment Status A nt uses linear frequency for pl has the tendency to give too	ots of Inserti mich visual v	on loss, Return Loss ect. wieght to the low
Response		Response Status C			All plot	s of thi	s nature c	hanged to linear frequency.		
ACCEPT	Г. SC 83B.2.1	P 407	L 27	# 185	Response ACCE see re	PT IN F solutior	PRINCIPL	Response Status C E. [Editor's note: Late comme t#88	nt for consid	eration by the Task Force]
Dudek, Mike Comment Ty, Vth-dem SuggestedRe Change Response ACCEPT See sugg	rpe T ph is used in ea <i>emedy</i> Vth-demph to \ F. gested remedy	QLogic Comment Status A quation 83B-7 however Vtx-de /tx-demph in equation 83B-7. Response Status C	mph is used in ta	uble 83B-3	C/ 85 Dudek, Mił Comment The pa loss or Reson proble Suggested Chang 5.1562	SC Type aramete inserti ances ms at c Remed e the p 25 GHz	TR TR ers in Table on loss de can occur ther frequ <i>by</i> arameter ". For ins	P 260 QLogic Comment Status A le 85-8 do not adequately spe eviation specifications at frequ that meet the specification at rencies. Also the return loss s for the first row of table 85-8 t sertion loss deviation delete "a	L10 cify the cable encies other this one freq pecification i o "Maximum tt 5.15625GH	# 164 e as there are no insertion than 5.15625GHz. uency but cause is too relaxed. fitted insertion loss at Hz and change the value
C/ 83B Ghiasi, Ali Comment Ty, FR4 trac SuggestedRe Suggest Response ACCEPT See com	SC 83B.2.3 ype TR e stress not cle emedy either use Fred T IN PRINCIPLI ment 123	P 409 Broadcom Comment Status A ear what it is quency Dependnet Attenuator Response Status C E.	L 42 or PCB Trace	# <u>130</u>	to "see specifi <i>Response</i> ACCE Add te cable o met. >>Ta 5.1562	PT IN F PT IN F xt after charact ble 85- 5 GHz	3". Delet o "see eq PRINCIPL : These ca eristics, b 8 provides and refere	e at 5.15625 GHz from the re uation 85-1". or "see 85.10.4" <i>Response Status</i> C E. able assembly specifications a ut other cable types are accept a summary of the cable asse ences to the subclauses addre	are based up ptable if the s embly differe essing each	cification and change the on twinaxial specifications of 85.10 are intial characteristics at parameter.

CI 85 SC 85.10

C/ 85 SC 85.10 P 260 L 14 # 86 Moore Charles Avago Technologies Avago Technologies Avago Technologies	C/ 85 SC 85.10.10.1 P268 L40 # 140
Comment Type T Comment Status A In table 85-8 Minima for MDNEXT loss, MDFEXT loss and power sum crosstalk loss are listed but the references do not specify either values or equations for minima. This is because these specs have been replaced by Minimum integrated crosstalk noise. These minima are no longer needed. SuggestedRemedy Delete unused specs from table 85-8 Response Response Status C ACCEPT IN PRINCIPLE. [Editor's Note: Commenter did not indicate comment type, assigned Comment Type: T, since the commenter is not part of the P802.3ba ballot group] Response: 85.10.8 Cable assembly integrated crosstalk noise (ICN) uses MDNEXT and MDFEXT.	Comment Type T Comment Status A Rather than using minimum insertion loss [equation 85-36] and a maximum insertion loss [equation 85-37] to specify the mated test fixtures insertion loss in 85.10.10.1, I suggest we use a fit to the mated test fixtures and an ILD to address the IL deviations from the fit. This is consistend with 85.8.4.3.1 Test channel insertion loss and 85.10.2 Cable assembly insertion loss 85.10.10.1. SuggestedRemedy Replace minimum insertion loss [equation 85-36] and a maximum insertion loss [equation 85-37] with a specification for a fitted cable assembly insertion loss and insertion loss deviation for the mated test fixtures insertion loss in 85.10.10.1. Presentation material will be provided in support of suggested remedy.
Delete minimum Table 85-8 from "minimum MDNEXT" and "minimum FEXT". C/ 85 SC 85.10.10.1 P 266 L 48 # 43 Mark, Gustlin Cisco	ACCEPT IN PRINCIPLE. See suggested responses to comment#167, comment#177 and comment#170.
Comment Type TR Comment Status A The connector loss (calculated as 85-37 values minus 85-35 and 85-16) of the test fixture improves when frequency increase (see slide 5). Above formulas should be corrected to avoid this. SuggestedRemedy As above. Response Response Status W ACCEPT IN PRINCIPLE. Replace: Test fixture insertion loss equation (85-16). With: equation (86A-4) using frequency range of 0.05 GHz to 10 GHz. Also Replace: Cable assembly test fixture equation (85-35). With: equation (86A-5) using frequency range of 0.05 GHz to 10 GHz.	C/ 85 SC 85.10.10.1 P 268 L 46 # 107 Ghiasi, Ali Broadcom Comment Type TR Comment Status A The mated test fixture loss are included but the target loss for host and module test board are not included in CL85. Mated fixture loss can be met by shifting the loss from host to module or from module to host PCB by different users, in effect meeting Figure 85-12 but not interoperable SuggestedRemedy Please copy section 86A.5.1.1 in to CL85 Response Response Status C ACCEPT IN PRINCIPLE. The 85.10.10 Mated test fixtures insertion loss as well as the test fixtures (85.8.3.7-[TP-TF]) and (85.10.9-[CA-TF]) insertion losses are specified. See response to comment #43.

C/ 85 SC 85.10.10.1

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C/ 85 SC Ghiasi, Ali	85.10.10.1	P 269 Broadcom	L15	# 106	<i>Cl</i> 85 Ghiasi, Ali	SC 85.10.10.	3	P 270 Broadcom	L 32	# 113
Comment Type graph with log	TR Comm g scale is not reada	nent Status A able			Comment T Mated t specilal	ype TR est fixture cross ly PSEXT will in	Comment S stalk loss in cu	Status A rrent draft are pl surements accu	lace holder and	d some of the limit
SuggestedRemed	dy				Suggested	Remedy	ipuot ine med		laby	
Please use lir	near freq scale sim	llar to fig 86A-3			For the	new limits pleas	se see ghiasi_	01_0909		
Response ACCEPT IN F scale of Figur	<i>Respo</i> PRINCIPLE. For Fi re 86A-3.	nse Status C gure 85-12 use linear s	scale for consister	ncy with linear freq	Response ACCEP	T IN PRINCIPL	Response S E.	Status C		
Cl 85 SC Ghiasi, Ali	85.10.10.2	P 269 Broadcom	L 27	# 112	Delete o Under r	content in 85.10 iew 85.10.10.3:	.10.3 -			
Comment Type Nominal mate	TR Commented test fixture loss	nent Status D not defiend			Provide for cros	reference to IC stalk distrurbers	N RMS noise and specify F	calaculation RMS noise value	es in a table for	r
SuggestedRemed Add nominal t shall account	dy test fixture loss at l for test fixtrue loss	Nyquist is 2.4 dB. Test difference from nomir	fixtures with loss nal in the equation	lower than nominal 85-19.	NEXT = FEXT = MDNE> MDFEX	0.7 mV 2.5 mV (T= 1 mV (T= 3.5 mV				
Proposed Respon REJECT	nse Respo	nse Status Z			Update	PICs:				
This commen	nt was WITHDRAW	N by the commenter.			C/ 85 Dawe, Piers	SC 85.10.10.	3	P 270 Independent	L 32	# 64
					Comment T	ype ER	Comment S	Status A		
This commen	nt was WITHDRAW	N by the commenter.			Appare is beca	ntly, variable nature to a mathem	mes in equation natician "NEX	ons are not allov T loss" means "I	ved to contain s	spaces. I suppose this ed by "loss".
					SuggestedF My pref	<i>emedy</i> erred solution is	s change "NEX	T loss" to "NEX	T" and flip the	sign.
					Response		Response S	Status W		C C
					ACCEP Follows	T IN PRINCIPL style guide; if sp	E. bace is to be re	emoved then>		
					Change To: NEX	: NEXT loss <t subscrip<="" td="" with=""><td>oted loss</td><td></td><td></td><td></td></t>	oted loss			

C/ 85 SC 85.10.10.3

Comment Type TR Comment Status R "Next Tiess" sounds wrong. We never expected all the power incident on the pair of test futures to appear as crossite, so how is if theor? It seems to be 'tost' several times over to NEXT, to regular transmission loss, and to reflection. This doesn't make seems to be 'tost' several times over to be tost' several times over to be tost' several times over to be tost' several times over to be sense. A batter term than to sec setting that's 'tost'. Or course, it would be much better to specify NEXT (ve dB) rather than NEXT tost's or 'NEXT attenuation' (you need to the right-way-up NEXT to calutate MDNEXT anyway). Comment Type TR Comment Type Comment	Cl 85 SC Dawe, Piers	85.10.10.3	P 270 Independent	L 32	# 85	<i>Cl</i> 85 Palkert, To	SC 85.10.2 m	P 259 Xilinx/Luxtera	L 47	# 227
Proposed Response Status Z Proposed Response Status Z Response Comment Status MUREXT (ve db) rather than "NEXT loss" or "NEXT attenuation" (volume of to the right-way-up NEXT to calulate MDNEXT anyway). Proposed Response Status Z Response Comment. Whatever you do. don't mess up 86A. It will take a lot of comments in probably more than one meeting cycle to repair the collateral damage. Response Status V Response Comment. Whatever you do. don't mess up 86A. It will take a lot of comments in probably more than one meeting cycle to repair the collateral damage. Note that the set of 1000 MHz. Response Comment Status R Response Status V Net I Comment Status R See response to comment 15 L48 # [65 Ci 85 SC 85.10.10.3 P270 L48 # [65 Dawe, Plers Independent Comment Type ER Comment Status R Draft says "MDNEXT loss is specified as the power sum of the individual NEXT losses". This is not correct. MDNEXT is the power sum of the individual NEXT losses. Suggested/Remedy My prefered solution is change "NEXT loss" to "NEXT" and "MDNEXT losses". Multiple disturber power sum of the individual NEXT losses. C 185 Suggested/Remedy Comment Status R Response Response Status V Response Response Status V Response Response Status V	Comment Type "NEXT loss" fixtures to ap to NEXT, to I sense. A be focuses on the	TR Comm sounds wrong. We opear as crosstalk, so FEXT, to regular trar etter term than loss, v he signal that's there	ent Status R never expected all th o how is it "lost"? It s ismission loss, and t which is used frequer rather than the sign	e power incide seems to be "lo p reflection. Th tly in 802.3, is at that's "lost"	nt on the pair of test st" several times over, his doesn't make attenuation, because it of course, it would be	Comment Cable Suggested Chang	<i>Type</i> TR assembly inser <i>Remedy</i> e 17.04 to 11	Comment Status D tion loss is not consistent with	n 24.4dB total lo	ss budget
SuggestedRemedy This is a defensive comment. Whatever you do, don't mess up 86A. It will take a lot of comments in probably more than one meeting cycle to repair the collateral damage. Response Response Status W RELECT. NEXT loss consistent with the use of "loss" for naming other signal impairments e.g., return loss, channel lossetcused in clause 85 and other IEEE 802.3 clauses. This comment is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum insertion loss of the mater test (17.04 dB)>> The maximum insertion loss from TPO to TP2 or TP3 to TP5 using Equation (85-14). ILLong (dB)>> The maximum insertion loss of the mated test fixture using Equation (85-13). ILCh(f) (12.6 dB)>> The maximum insertion loss of the mated test fixture using Equation (85-13). ILCh(f) (12.6 dB)>> The maximum insertion loss of the mated test fixture using Equation (85-13). ILCh(f) (12.6 dB)>> The maximum insertion loss of the mated test fixture using Equation (85-	much better need to the r	to specify NEXT (-ve right-way-up NEXT to	dB) rather than "NE calulate MDNEXT a	XT loss" or "NI nyway).	EXT attenuation" (you	Proposed I REJEC	Response CT.	Response Status Z		
Response Response Status W REJECT. NEXT loss consistent with the use of "loss" for naming other signal impairments e.g., return loss, isection loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum channel insertion loss is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, insertion loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (85A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (45A-3). The maximum loss, is 24.44 dB at 5.15625 GHz (dB) (45A-3). The maximum loss of the maximum loss using Equation (85-12). ILCAMBAY(D) (12 at dB) >> The maximum insertion loss is 24.44 dB = 5.450 (dB) (dB) >> The maximum insertion loss is 24.44 dB = 5.450 (dB) (dB) (dB) => The maximum insertion loss of the mated test fixture using Equation (85-12). ILCAMBAY(D) (2 at B) => The maximum insertion loss of the mated test fixture using Equation (85-12). ILCAMBAY(D) (2 at B) => The maximum insertion loss	SuggestedReme This is a defe comments in	edy ensive comment. W a probably more than	hatever you do, don' one meeting cycle to	t mess up 86A o repair the col	It will take a lot of lateral damage.	This co	omment was W	ITHDRAWN by the comment	er.	
Cl85SC 85.10.10.3P270L48# 65Dawe, PiersIndependentComment TypeERComment Status RDraft says "MDNEXT loss is specified as the power sum of the individual NEXTs, but "MDNEXT loss" is the inverse of the power sum of the individual NEXTs, but "MDNEXT loss" is the inverse of the power sum of the individual NEXT losses".SuggestedRemedy My preferred solution is change "NEXT loss" to "NEXT" and "MDNEXT loss" to "MDNEXT", and flip the signs.Response Response (85-26) is used in base document e.g., 802.3an10GBASE-TMultiple disturber power sum near-end crosstalk calculation and associated description in (85-26) is used in base document e.g., 802.3an10GBASE-THultiple disturber power sum of e.g., 802.3an10GBASE-T	Response REJECT. NEXT loss of loss,insertior See respons	Respon onsistent with the us n loss, channel loss. se to comment 15	se Status W e of "loss" for naming etcused in clause 8	g other signal i 5 and other IE	mpairments e.g., return EE 802.3 clauses.	The ma channe for 50 I ILCh(f) where f is the ILCam	aximum channe el insertion loss MHz = f = 6000 = ILChmax(f) = frequency in N ax(f) (17.04 dB	el insertion loss is determined is 24.44 dB at 5.15625 GHz MHz. = ILCamax(f) +(2 × ILHost(f))- IHz.)>> The maximum cable asse	using Equation (dB) (85A-3) (2 × ILMatedTF embly insertion le	(85A-3). The maximum (f)) (85-A3) oss using Equation (85-
Draft says "MDNEXT loss is specified as the power sum of the individual NEXT losses." This is not correct. MDNEXT is the power sum of the individual NEXTs, but "MDNEXT loss". SuggestedRemedy My preferred solution is change "NEXT loss" to "NEXT" and "MDNEXT loss" to "MDNEXT", and flip the signs. Response Response Status ReJECT. Multiple disturber power sum near-end crosstalk calculation and associated description in (85-26) is used in base document e.g., 802.3an10GBASE-T	Cl 85 SC Dawe, Piers Comment Type	ER Comm	P 270 Independent ent Status R	L 48	# 65	19) and ILHost Equatio ILMate Equatio	d Table 85-9 cc (f) (6.5 dB)>> T on (85-14). dTF(f) (2.8 dB) on (85-37).	pefficients. The maximum insertion loss fr >> The maximum insertion lo	om TP0 to TP2 ss of the mated	or TP3 to TP5 using test fixture using
SuggestedRemedy Dudek, Mike QLogic My preferred solution is change "NEXT loss" to "NEXT" and "MDNEXT loss" to "MDNEXT", and flip the signs. Comment Type T Comment Status A Response Response Status W The units are wrong SuggestedRemedy Change to "Where f is the frequency in GHz." Multiple disturber power sum near-end crosstalk calculation and associated description in (85-26) is used in base document e.g., 802.3an10GBASE-T Response Response Status C ACCEPT. See suggested remedy.	Draft says "N This is not co loss" is the ir	MDNEXT loss is spec orrect. MDNEXT is t nverse of the power s	ified as the power su he power sum of the sum of the individual	um of the indivi individual NEX inverses of "N	dual NEXT losses." (Ts, but "MDNEXT EXT losses".	ILCh(f) = ILChmax(f) SC 85.10.2	= 17.04 +(2 × 6.5)-(2 × 2.8) = P 261	24.44 dB	# 174
My preferred solution is change "NEXT loss" to "NEXT" and "MDNEXT loss" to "MDNEXT", and flip the signs. Comment Type T Comment Status A The units are wrong Response Response Status W REJECT. SuggestedRemedy Change to "Where f is the frequency in GHz." Multiple disturber power sum near-end crosstalk calculation and associated description in (85-26) is used in base document e.g., 802.3an10GBASE-T Response Response Status C AccEPT. See suggested remedy.	SuggestedReme	edy.				Dudek, Mik	æ	QLogic		
Response Response Status W REJECT. SuggestedRemedy Multiple disturber power sum near-end crosstalk calculation and associated description in (85-26) is used in base document e.g., 802.3an10GBASE-T SuggestedRemedy Change to "Where f is the frequency in GHz." Response Status C ACCEPT. See suggested remedy. See suggested remedy.	My preferred and flip the s	solution is change "	NEXT loss" to "NEX ⁻	[" and "MDNE	KT loss" to "MDNEXT",	Comment The un	<i>Type</i> T hits are wrong	Comment Status A		
Multiple disturber power sum near-end crosstalk calculation and associated description in (85-26) is used in base document e.g., 802.3an10GBASE-T Response Response Status C ACCEPT. See suggested remedy.	Response REJECT.	Respon	se Status W			Suggested Chang	<i>Remedy</i> e to "Where f is	s the frequency in GHz."		
	Multiple distu (85-26) is us	urber power sum nea ed in base documen	r-end crosstalk calcu t e.g., 802.3an10GI	Ilation and ass 3ASE-T	ociated description in	Response ACCEI See su	PT. Iggested remed	Response Status C ły.		

C/ **85** SC **85.10.2**

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C/ 85	SC 85.10.2	P 261	L 5	# 165	C/ 85	SC 85.10.3	P 263	L 4	# 22
Dudek, Mik	ke	QLogic			Anslow, Pe	eter	Nortel Networks		
Comment 7 Due to 5.1256 insertic page 2	<i>Type</i> T the restrictions o 525GHz the curve on loss at any spe 262 line 5	Comment Status A in a1, a2 and a4, caused by in Figure 85-6 is only one e ecific frequency. Also the re	the maximum in xample and doe eference to Figu	nsertion loss at esn't show the maximum ire 85-6 is duplicated on	Comment The C GHz. Also a Also F	<i>Type</i> E able assembly in However, in Figu pplies to Figure 8 igure 85A-1 is pl	Comment Status A sertion loss deviation is required tre 85-7 the limits are illustrated 35-14 where the lines cannot be otted to 6 GHz but only applies	d to be met from 50 M seen from to 5.15625	from 50 MHz to 7.5 Hz to 6 GHz only. 8 to 10 GHz GHz
Suggested Chang insertic illustrat insertic and a4 Chang Delete	Remedy e the sentence fro on loss at 5.15625 ted in Figure 85-6 on loss at 5.15625 I is illustrated in F e the title of figure the duplicate ser	om "The fitted insertion loss 5 GHz and the maximum all 5." to "The fitted insertion los 5 GHz and one example of t igure 85-6." e 85-6 to "Example maximu ntence on page 262 line 5.	corresponding owed values of is corresponding he maximum al m cable assemb	to the maximum a1, a2, and a4 is g to the maximum lowed values of a1, a2, bly insertion loss".	Suggested Extend Make Stop ti Response ACCE See su	<i>Remedy</i> d the lines in Figu the lines visible i ne line in Figure PT. uggested remedy	ure 85-7 to 7.5 GHz n Figure 85-14 up to 10 GHz 85A-1 at 5.15625 GHz <i>Response Status</i> C		
Response ACCEI See su	PT. Iggested remedy.	Response Status C			C/ 85 Anslow, Pe Comment	SC 85.10.4 eter <i>Type</i> E	P 263 Nortel Networks Comment Status A	L 28	# 23
C/ 85 Moore, Cha Comment	SC 85.10.2 arles <i>Type</i> E	P 262 Avago Techn Comment Status A	L 10 ologies	# 88	Double Suggested Chang	e full stop "" IRemedy le "" to "."			
Figure clearly Suggested	85-6, 85-7 and of if plotted versus Remedy	thers, plot vs log frequency linear frequency	quantitys which	can be seen more	Response ACCE See si	PT. uggested remedy	Response Status C		
conver Response	T all frequency plo	ots to linear frequency. Response Status C			C/ 85 Healey, Ac	SC 85.10.5 Iam	P 262 LSI Corporation	L 38	# 59
Use lin	hear scale for: 85-	 4,85-7,85-12,85-6,85-13,85	-14,85-8		Comment MDNE calcula from 5	<i>Type</i> TR XTloss is define ation that uses th 0 to 10000 MHz.	Comment Status A d to be computed over that rang is quantity, integrated crosstalk	je of 50 to 6 noise (85.′	6000 MHz, but the 10.8), requires values
					Suggested	IRemedy			
					Correction 85.1	t the frequency i 0.6 (MDFEXTIos	ange to be consistent with 85.1 ss).	0.8. Also co	prrect the frequency range
					Response ACCE See si	PT. uggested remedy	Response Status W		

CI 85 SC 85.10.5

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CI 85 SC 85 D'Ambrosia, John	.10.6	P264 Force10 Network	L 48 s	# 146	<i>Cl</i> 85 Anslow, P	SC : eter	85.10.8	P 26 Nortel	6 Networks	L 41	# 24
Comment Type Unnecessary le SuggestedRemedy delete parenthe	Comment of 85.10.6	Status A of sub-clause head	ding		Comment This s "where IL) IL Suagested	<i>Type</i> ays: e denote	E es the valu dv	Comment Status	A		
Response ACCEPT. Suggested reme	Response S edy	Status C			chang Response	ie "IL)	L denotes	the value" to " IL Response Status	is the valu C	"e"	
Cl 85 SC 85 Healey, Adam	.10.7	P263 LSI Corporation	L14	# 60	See s	uggeste	d remedy				
Comment Type There are no re assembly speci SuggestedRemedy Remove 85.10. Response ACCEPT.	Comment S quirements on PSXT(ications. 7. Response S	Status A f) and it is not use Status C	d as a parameter	in any of the cable	Cr 85 D'Ambrosi Comment Other Suggested add te Response REJE	Type figures Remea ext "Pass	E in the draf dy s Region"	Force Force Comment Status It have shown where to region below the o Response Status	R R the pass r curve.	دs region is in re	# [<u>147</u>
Cl 85 SC 85 Healey, Adam	.10.8	P 265 LSI Corporation	L 40	# 55	Claus	e 85 doe	es not ider	ntify pass regions in	other graph	hs and the gu	uidance is clear
Comment Type Equations (85-2 "(sinc(f/fn))^2" in SuggestedRemedy	FR Comment 5 9) and (85-30) are in both cases.	Status A error. The express	sion "sinc^2 x (f/fn)" should be	"The t Equat illustra	otal inte ion (85- ated in F	egrated cro 34) Figure 85-9	osstalk RMS noise vo)."	oltage shall	I be less thar	ι the value specified by
Remove the sup Response ACCEPT. See suggested	Response Sremedy.	gualions. Status W									

CI 85 SC 85.10.8

C/ 85 SC 85.10.9 Ghiasi, Ali	P 267 Broadcom	L 34	# 108
Comment Type TR The cable assembly test which is also not consista should have at least 10 C SuggestedRemedy Please use Eq 86A-5 Response ACCEPT IN PRINCIPLE See response comment	Comment Status A fixture is not consistant with ant with Eq 85-36/37 with m GHz freq range. Response Status C #43.	n Eq 86A-5. Max ax range of 10 (t freq range is 6 GHz GHz. Test fixture

The reference test fixture PCB insertion loss is given in Equation (85-35). The effects of differences between the insertion loss of an actual test fixture and the reference insertion loss should be accounted for in the measurements.

Make Equation 85-35 match the loss of the MCB in 86A-5.

C/ 85 SC 85.10.9

CI 85	SC 85.11	P 274	L1	# 2	
Oganessyan	Gourgen	Quellan (part of In	tersil		

Comment Type TR Comment Status A

Hardware contact definitions in Table 85-12 violate the QSFP connector specification of SFF-8436: the table requires that contact 27 be open in the case of a copper module, while the QSFP spec defines this contact as module presence pin and requires it to be grounded in the module. As a result of this discrepancy, passive QSFP copper cables created for all other standards using SFF-8436 will not be interoperable with 40GE. Conversely, if the connector is pinned out per table 85.11, the cable will not as a general rule be able to be used in Infiniband and other equipment already deployed in the field. While not strictly a problem from IEEE point of view, I believe this incompatibility will have negative impact on the broad market potential and future adoption of this standard. In addition, electronic keying is also required for CR10 and is currently missing, and defining it along the lines of table 85-12 causes even more severe discrepancy with the CXP specification (see my next comment).

SuggestedRemedy

The entire section 85.11.1.1 as currently written needs to be deleted. There does not appear to be a way to define electronic keying without violating the QSFP spec. The reasonable solution is to use the SFF-8436 management interface, which has provisions for identifying the module as a copper or an optical module. Also, it is obvious that everyone will end up using the management interface anyway, because it is de facto industry standard and it does the job. If management interface definition is beyond the scope of the project, then we could either make an informative statement referencing the SFF-8436 management interface; or we could make a statement along the lines of "Electronic keying shall be used in order to enable detection of Style-1 plug connector versus fiber module or no module present. The details of implementation of such keying are beyond the scope of this standard". This would prompt people to use the management interface without calling it out, or it would enable proprietary/custom designs along the lines of table 85-12.

Response

Response Status C

ACCEPT IN PRINCIPLE.

The basis for Table 85-12 requires a distinction between a module and a direct attach plug. If this distinction is clear in

SFF-8436, as I had assumed when creating the table, Table 85-12 is not in conflict with SFF-8436. Given the number of similar comments the distinction is not clear or not made.

Delete: sub-clause 85.11.1.1.1 Add: 85.11.4 Electronic keying

Electronic keying can be used to enable the detection of Style-1 40GBASE-CR4 MDI connectors or 100GBASE-CR10 MDI cable assembly plugs versus fiber modules or no modules present. Specifications of electronic keying are beyond the scope of this standard.

C/ 85	SC 85.11	P 275	L 44	#	3
Oganessyar	, Gourgen	Quellan (part of Ir	ntersil		

Comment Type TR Comment Status A

Electronic keying needs to be defined for CR10 as well, in order to enable distinction of copper from fiber modules by the host. However, there does not appear to be a way to do this via hardware keys without violating the CXP spec, particularly as it is defined in the InfiniBand Architecture Specification. The only way to do this along the lines of Table 85-12 would be to have contact C20 open, and contact C21 pulled low. But C20 is the module presence pin that is required to be grounded in all cases by the CXP spec, and C21 is a shared interrupt/reset pin, so pulling it low will disrup the operation of InfiniBand equipment. As a result, passive cables designed for Infiniband will not interoperate with CR10.

SuggestedRemedy

Add an Electronic Keying section, stating: "Electronic keying shall be used in order to enable detection of CR10 plug connector versus fiber module or no module present. The details of implementation of such keying are beyond the scope of this standard"

Response	Response Status	С		
ACCEPT IN PRINCIPLE See response comment	#2.			
C/ 85 SC 85.11.1.1	P 2	72 L	#	1
McGrath, Jim	Cinch	Connectors		

Comment Type T Comment Status A

Clause 85.11.1.1. Style 1 Hardware Contact Definitions Table 85-12 This table requires that the current low speed electrical specification for the QSFP+ cable as defined by SFF8436 be violated. It should be a goal of IEEE802.3ba to facilitate the use industry standard cables that are defined in other documents. SFF8436 includes an EEPROM cable management interface with a detailed memory map. The functional requirements of Table 85-12 have been addressed in the SFF8436 memory map.

SuggestedRemedy

Table 85-12 should be deleted.

Response Response Status C

ACCEPT IN PRINCIPLE. See response comment#2.

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/ 85 SC 85.11.1.1 Page 31 of 64 9/24/2009 12:43:32 AM

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

WG 2nd recirculation ballot

C/ 85 SC 89 Ghiasi, Ali	5.11.1.1	P 272 Broadcom	L 34	# 115	<i>Cl</i> 85 Ghiasi, Ali	SC 85.11.1	.1.1	P 274 Broadcom	L 9	# 119
Comment Type Connector IEC	TR Commen	nt Status A			Comment Due to	<i>Type</i> TR overvolatage	Commen concern see co	t Status A omment 208 D2.1	1, there is no ha	ardware defnition for
SuggestedRemedy Please add cor Response	nnector IEC number Respons	, if not avilable the e <i>Status</i> W	en use the SFF	number	CR10 Suggested Please Response	similar to table dRemedy e create hardwa	85-12 are pin defnitio <i>Response</i>	n to indentify CR Status W	10	
SFF-8436					ACCE See re	PT IN PRINCI	PLE. ent#2.			
<i>Cl</i> 85 SC 8 Ghiasi, Ali	5.11.1.1	P 274 Broadcom	L10	# 116	<i>Cl</i> 85 Ghiasi, Ali	SC 85.11.1	.1.1	P 274 Broadcom	L 9	# 120
Comment Type Contact 27 is n	TR Comment ot listed in table 85-	nt Status R 11			Comment Due to	<i>Type</i> TR	<i>Commen</i> concern see co	t Status A	1. the deafult pe	eak to peak must not
SuggestedRemedy Please add all 3	38 contacts to table	85-11			excee Suggested	d 700 mV dRemedy			.,	
Response REJECT. See i	Respons response commenta	e Status W #2.			Add no voltag	ote to 1200 mV e damage to X	' that default ou LPPI or CPPI F	utput must not be PMD	e greater than 7	00 mV to prevent over
Table 85-12-Se specified. See I only the transm	tyle-1 hardware con NOTE-Although the nitter and receiver co	tact definitions ha 40GBASE-CR4 S ontact assignment	s been deleted; Style-1 MDI sup s are specified.	contact 27 not ports 38 connections	Response ACCE	PT IN PRINCI	Response PLE.	Status W		
C/ 85 SC 8	5.11.1.1.1	P 274	L 3	# 36	Table-	-85-4 footnote 1	1200 mV row.			
Moeller, Merrick Comment Type Referencing Ta Style-1 contact defined in SFF-	T Comment table 85-12. 27 is designated to 8436 as ModPrsL.	Cinch Connect Int Status A state 1 for coppe and fixed to state	tors Inc. r module preser 0 for passive co	nce. This contact is	Becau suppo the tra until a identif	ise Style-1 and rt 40GBASE-C insmitter should 40GBASE-CR ied.	100GBASE-C R4/100GBASE d not exceed th 4 or 100GBAS	R10 connectors -CR10 and nPPI le nPPI voltage n E-CR10 cable as	interfaces naximum ssembly has be	en
Contact 28 is d be used in othe	efined as IntL, whic er instances.	h is a don't care s	tate for passive	interconnects, but may	C/ 85	SC 85.11.1	.2	P 274	L36	# <u>133</u>
SuggestedRemedy					Comment		Commen	t Status A		
Remove Table	and text. Use mana	igement protocal b	based on SFF-8	436.	Spellir	ng compatibility	Comment			
Response Response Status C ACCEPT IN PRINCIPLE. [Editor's Note: Commenter submitted a TR comment. Change to comment type: T since the commenter is not in P802.3ba ballot group]See response				R comment. Changed roup]See response	SuggestedRemedy Change compatability to compatibility.					
comment#2.					Response ACCE See si	PT. uggested reme	<i>Response</i> dy	Status C		

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 SC 85.11.1.2

C/ 85

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

WG 2nd recirculation ballot

C/ 85 SC 85.11.2 DiMinico, Christopher	P 275 MC Communio	L 41 cations	# 134	C/ 85 SC Marris, Arthur	85.2	P 240 Cadence	L 40	# 6
Comment Type E Spelling assignments	Comment Status A			Comment Type unnecessar	E / hyphen	Comment Status A		
SuggestedRemedy Change asignnments t	to assignments			SuggestedReme Change 'The	edy e-' to 'The '			
Response ACCEPT. See suggested remedy	Response Status C			Response ACCEPT. See sugges	ted remedy	Response Status C		
C/ 85 SC 85.11.3 Ghiasi, Ali	P 277 Broadcom	L10	# 117	CI 85 SC Anslow, Peter	85.2	P240 Nortel Networks	L 44	# 26
Comment Type TR Some of the contcts sh	Comment Status R	not listed in tabl	e 85-11	Comment Type Several refe	E rences in C	Comment Status A Clause 85 that should be cross-	references are	not.
SuggestedRemedy Please include all cont	acts			SuggestedReme Make the fol	edy lowing refe	erences to other places in the d	raft cross-refere	ences.
Response REJECT. The 100GB/ receiver contact assignments a specification. C/ 85 SC 85.12 Anslow, Peter Comment Type	Response Status W ASE-CR10 MDI supports 84 c are specified.The other pins are P277 Nortel Network	onnections onl e not used in th L 46	y the transmitter and the scope of this # 28	Page 240, li Page 244, li Page 246, li Page 247, li Page 247, li Page 252, li Page 252, li Page 252, li Page 253, li	ne 44, "80. ne 20, "85. ne 39, "85. ne 45, "45. ne 53, "45. ne 27, "85. ne 3, "83.5 ne 34, "83. ne 42, "83.	3" 10" 7.4" 2.1.7.4" (not blue) 2.1.7.5" (not blue) 7.12" .10" (not blue) 5.10" 7.3.2.3"		
References to clauses	not in the draft should be blue	9		Page 207, II Response	ne 26, 65.	Response Status C		
SuggestedRemedy Page 277, line 46, "14.	.7" should be blue			ACCEPT. See sugges	ted remedy			
Page 278, line 44, "Cla	ause 21" should be blue			C/ 85 SC	85.2	P 241	L 9	# 132
Response ACCEPT. See suggested remedy	Response Status C			DiMinico, Christo <i>Comment Type</i> Spelling inte	pher E repet	MC Communica	ations	
				SuggestedReme Change inte	edy repet to int	erpret		
				Response ACCEPT. See sugges	ted remedy	Response Status C		
TYPE: TR/technical require COMMENT STATUS: D/dis SORT ORDER: Clause,	ed ER/editorial required GR/g spatched A/accepted R/rejec Subclause, page, line	general require ted RESPO	d T/technical E/editorial G/ NSE STATUS: O/open W/v	general vritten C/closed U/	unsatisfied	I Z/withdrawn C/ 85 SC 85.2	2	Page 33 of 64 9/24/2009 12:43:32 AN

C/ 85	SC 85.3	P 241	L18	# 81
Dawe, Pie	ers	Independent		

Comment Type TR Comment Status R

The response to D2.1 comment 37 (Exchange of DME frames is unnecessary) shows a misunderstanding by the BRC. Response says "include backward compatability with CX4". CX4 doesn't use and can't understand DME frames, so compatability with CX4 is achieved by Parallel Detection. Response says "Suggested remedy inconsistent with ... 802.3ap electricals": this isn't about electricals but about a protocol. DME frames are used in Backplane Ethernet where there is a choice of DME-aware PMD types. On a front-side port, there isn't. There is 10GBASE-CX4 and 40GBASE-CR4. You don't need DME frames to tell them apart. You have Parallel Detection to detect CX4. So you can use it to detect CR4 also.

The unnecessary burden, apart from the obvious extra complexity of an unnecessary protocol, is that DME frames run at 312.5 MBd, 1/33 of the normal 10G rate, so a normal 10G CDR won't lock to this.

SuggestedRemedy

Add text in Clause 85 saying that 40GBASE-CR4 and 100GBASE-CR10 can use Parallel Detection. This is in line with the backward compatibility with CX4 and baseline "Parallel detection function to detect legacy 10GBASE-CX4 PHYs".

If you wish, advertise FEC ability in the Training frame.

Response Response Status W

REJECT.

AN uses DME signaling to exchange link partner abilities and to negotiate FEC capability.

The commenter has not provided a sufficiently complete proposal for replacement of DME with parallel detection.

C/ 85	SC 85.7.1	P 244	L 7	# 15	58
Dudek, Mike		QLogic			

Comment Type TR Comment Status A

This paragraph (85.7.1) says that TP2 is at the output end of the mated connector and defines this as TP2. Table 85-4 says that the specifications are at TP2, but 85.8.3.5 says that the measurements are at the output of the test fixture.

SuggestedRemedy

Change "The electrical transmit signal is defined at the output end of the mated connector TP2. Unless specified otherwise, all transmitter measurements and tests defined in Table 85-4 are made at TP2." to "The electrical transmit signal is defined at TP2 the output of the test fixture described in 85.8.3.5 mated to the connector in place of the cable. Unless specified otherwise, all transmitter measurements and tests defined in Table 85-4 are made at TP2."

In Figure 85-5 Show the connector and PCB traces to the left of TP2 or TP3. To clarify things make the Test fixture impedance 85.8.3.6 and Test fixture insertion loss 85.8.3.7 sub-sections of 85.8.3.5.

Response Response Status C

ACCEPT IN PRINCIPLE.

(1)In Figure 85-5 illustrate Figure 85-11 TP2 or TP3 test fixture attached to TP2 or TP3 test points.

(2)Change:The electrical transmit signal is defined at the output end of the mated connector TP2. Unless specified otherwise, all transmitter measurements and tests defined in Table 85-4 are made at TP2. To:The electrical transmit signal is defined at TP2. Unless specified otherwise, all transmitter measurements and tests defined in Table 85-4 are made at TP2 utilizing the test fixture specified in 85.8.3.5.

C/ 85 Moore, C	SC 85.8.3 Charles	P 249 Avago Techno	L 22 blogies	# 87	<i>Cl</i> 85 Ghiasi, Ali	SC 85.8.3	P 249 Broadcom	L 31	# 98
Commen "Amp	<i>nt Type</i> E plitude peak-to-peal	Comment Status A	k-to-peak (max)	"	Comment No tes	<i>Type</i> TR at method is defin	Comment Status A ed how to measure "Total Jit	ter Excluding Da	ta Dependent Jitter"
Suggeste make Respons ACC See	edRemedy e indicated change e EPT IN PRINCIPLE response comment	Response Status C E. #222.			Suggested A sugg Total j measu DDJ=r Section section	Remedy gested metthod is itter is measured ured with PRBS9 max(dt1, dt2,,d n 85.8.3 would ne n.	s given below: with PRBS31 (pattern 3) at E based on method given in 85 t256) - min(dt1, dt2,,dt256 eed to be updated or the othe	BER of 10-12. D 5.8.3 with followi 5). er option is to cre	ata Dependent jitter is ng definition eate a standlone
CI 85	SC 85.8.3	P 249	L 23	# 234	Total .	Jitter Excluding D	DJ = TJ - DDJ		
Misek, B	rian	Avago Techno	ologies		Response		Response Status W		
Comment Colle are s Suggeste Table Unde	nt Type T ect up the transmit p sprinkled in the text. edRemedy e 85-4 er Transmitted wave amplitude(linear fit),	Comment Status A berameters derived from the e form add lines "p" 5.8.3.3 0.24	wave form anal	ysis into the table. They	ACCE subcla Respo Measu Total Editor	PT IN PRINCIPL ause field. Change onse: Measure To ure DDJ with PN9 Jitter excluding Da given license to i	E. [Editor's note removed mised to 85.8.3] tal jitter at BER 1E-12 per 83 =DDJ ata Dependent Jitter = TJ - D mplement response incorpor	styped special c 3A.5.1.=TJ DJ ating	haracter from
norm abs (nalized error(linear f coefficient step size	it), "e" 5.8.3.3 0.037	3 max 0.05		comm	ent#218 in respo	nse.		
minir	mum precursor fulls mum post cursor ful	cale range 85.8.3.3.2 1.9 Iscale range 85.8.3.3.2 4	54		<i>Cl</i> 85 Li, Mike	SC 85.8.3	P 251 Altera	L 2531	# 222
Respons ACC Edito other	e EPT IN PRINCIPLE or given license to ir r comments.	Response Status C E. [Editor's note: Late comment suggested remedy	ent for considera with changes t	ation by the Task Force] o values as approved in	Comment Amplit and ar	<i>Type</i> TR ude pk-to-pk (line e not specified	Comment Status A e 19) and Far-end transmit ou	utput noise (line	22-23) are max values
					Suggested	aRemedy			

Add (max) after those parameters.

Response Status C Response

ACCEPT.

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See suggested remedy and remedy to comment#87

C/ 85 SC 85.8.3 Page 35 of 64 9/24/2009 12:43:32 AM

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<i>CI</i> 85 Li, Mike	SC 85.8.3	P 251 Altera	L 2531	# 218	<i>Cl</i> 85 Li, Mike	SC 85.8	3.3	P 251 Altera	L 2531	# 221		
Comment data de	<i>Type</i> TR ependent jitter (DI	Comment Status A DJ) is not given			Comment "Total "total"	<i>Type</i> T I jitter exclud anymore if	R Cor ding DDJ" is a DDJ is remo	nment Status D a confusing and self-i	inconsistent name	e. Total jitter is not		
Suggested Give th referer where	Remedy ne data dependen nced to the ideal b uncorrelated sign	ing time deviation prential waveform	SuggestedRemedy Change "Total jitter excluding DDJ" to uncorrelted total jitter (uTJ). Proposed Response Response Status 7									
Response ACCE Expan	PT IN PRINCIPLE d footnote c in Tal	Response Status C ble 85-4 to add definition for	DDJ:		REJECT. This comment was WITHDRAWN by the commenter.							
DDJ is remove Resolv	a jitter componer ed. re with comment#	nt where jitter that is not cor 98.	related to the dat	a pattern has been	Total j <i>Cl</i> 85 Li. Mike	itter exclud SC 85.8	ing DDJ suffi 3.3	ciently characterizes P 251 Altera	the parameter. L 2531	# 219		
C/ 85 Li, Mike Comment [®] Tx jitte Suggested	SC 85.8.3 Type TR r testing method a Remedy	P 251 Altera <i>Comment Status</i> A and procedure is not defined	<i>L</i> 2531	# 220	Comment DDJ s in D2. Suggested Needs	<i>Type</i> TI hould be sp 2, DDJ is n <i>IRemedy</i> to give a [R Cor becified. With ow not bound	nment Status A the TJ being uncorre- led and this needs to	elated TJ (namely be fixed.	TJ with DDJ removed)		
Needs to give the Tx jitter testing method, including Tx equalization setting and receiver CDR condition.				Response Response Status C ACCEPT IN PRINCIPLE.								
Response ACCE See re	PT. sponse to comme	Response Status C ent#98			DDJ li	mit not nee	ded with resp	oonse to comment#90	0.			

C/ 85 SC 85.8.3

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

WG 2nd recirculation ballot

Cl 85 SC 85.8.3.1 Ghiasi, Ali	P 249 Broadcom	L 40	# 99	<i>Cl</i> 85 D'Ambrosia,	SC 85.8.3.2 , John	P250 Force10 Netw	L 26 works	# 145
Comment Type TR Transmitter common	Comment Status D mode output return loss is miss	ing		Comment T suggest output r	ype E rewording that attention	Comment Status A ention is drawn to the far-	-edn tx	
SuggestedRemedy The reference impeda Return loss >= -7 + 1.	ance for common mode return I .6 * f from05 to 2.5 GHz	oss measurem	ent shall be 25 ohms	SuggestedF change The me	Remedy asured RMS devia	tion for the low loss		
-3 from 2.5 Proposed Response PROPOSED REJECT	to 10 GHz Response Status Z T.			cable a to For the RMS de	ssembly shall mee far-end transmitter eviation for the low	output noise the measur loss cable assembly sha	red all meet:	
This comment was W	ITHDRAWN by the commenter			change For the deviatio	far-end transmitter on for the high loss	output noise the measur cable assembly	red RMS	
Common-mode return see Table 85-4- Com	n loss specified; mon-mode output return loss (r	nin.).		Response	F	Response Status C		
Cl 85 SC 85.8.3.1 Ghiasi, Ali	P 249 Broadcom	L 42	# 92	Change	The measured RN	//S deviation for the low lo		
Comment Type ER	Comment Status A			(85-2).	sembly shall meet	t the values determined u	Ising Equation	
SuggestedRemedy Please remove the sp	pecial character at end of line			To:For t deviatio transmit	he low loss cable a n from the cable as tter output noise sh	assembly, the measured ssembly ICN due to the fa all meet the values deter	RMS ar-end rmined	
Response ACCEPT.	Response Status W			Change cable a (85-3).	:The measured RN issembly shall mee	AS deviation for the high at the values determined	loss using Equation	
				To:For t deviatio transmit	he high loss cable n from the cable as tter output noise sh	assembly, the measured ssembly ICN due to the fa nall meet the values deter	l RMS ar-end rmined using Equa	tion (85-3).

C/ 85 SC 85.8.3.2 Page 37 of 64 9/24/2009 12:43:32 AM

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9/24/2009 12:43:32 AM

C/ 85 SC 85.8.3.2 P 250 L 29 # 159 Dudek, Mike QLogic	C/ 85 SC 85.8.3.2 P 250 L 4 # 144 D'Ambrosia, John Force10 Networks Force10 Networks <t< th=""></t<>
Comment Type TR Comment Status A The transmitter noise will add to the ICN in an RMS fashion, not a linear fashion.	Comment Type E Comment Status A There is a reference to the cable assmebly ICN prior to its introduction.
SuggestedRemedy Change Equation 85-2 and 85-3 to use RMS addition (sqrt(a^2 + b^2) not linear (a	SuggestedRemedy+ b)add reference to 85.10.8 in first sentence of 85.8.3.2.
Response Response Status C ACCEPT IN PRINCIPLE. See response comment#50.	Response Response Status C ACCEPT. See suggested remedy
C/ 85 SC 85.8.3.2 P250 L29 # 50	C/ 85 SC 85.8.3.3 P 251 L 36 # 51
lealey, Adam LSI Corporation	Healey, Adam LSI Corporation
Comment Type T Comment Status A It is more appropriate to define RMSIdev as the square-root of the sum of the squa values sigma 1/2 and 2/2. Similarly for the RMShdev.	Comment Type TR Comment Status A The transmitter output waveform requirements do not address the case where the transmitter is requested to INITIALIZE per 72.6.10.4.2.
Sugaested Remedy	SuagestedRemedy
Update Equations (85-2) and (85-3) accordingly. The far-end transmit output noise requirements may need to be updated accordingly.	Insert a new subclause under 85.8.3.3 with the heading "85.8.3.3.X Coefficient initialization" and containing the following text:
ACCEPT IN PRINCIPLE. Define RMSIdev as the square-root of the sum of the sq values sigma_l^2 and 2^2 in equation (85-2). Define RMSIdev as the square-root o sum of the square values sigma_h^2 and 1^2 in equation (85-3).	 "When the PMD enters the INITIALIZE state of the Training state diagram (Figure 72-5) or receives a valid request to "initialize" from the link partner, the coefficients of the transmit equalizer shall be configure such that the ratio (c(0)+c(1)-c(-1))/(c(0)+c(1)+c(-1)) is 1.29 +/-10% and the ratio (c(0)+c(1)-c(-1))/(c(0)+c(1)+c(-1)) is 2.57 +/-10%. These requirements apply upon the assertion a coefficient status report of "updated" for all coefficients."
Griasi. Ali Broadcom	Response Response Status W
Comment Type ER Comment Status A	ACCEPT.
The sentence does not read well "The far-end transmitter output noise is noise in .	
SuggestedRemedy	C/ 85 SC 85.8.3.3 P251 L47 # 52
Suggested "The far-end transmitter output noise is the summ of this noise in"	Healey, Adam LSI Corporation
Response Response Status W	Comment Type TR Comment Status A
ACCEPT IN PRINCIPLE.	Correct the mapping from qi to the normalized coefficients c(n) by replace all instances of "Dw" with "Dp".
Replace."The far-end transmitter output noise is noise	SuggestedRemedy
in addition to the cable assembly integrated crosstalk noise (ICN)."	"c(-1) is the value of qi at time t0+(Dp-1) UI." "c(0) is the value of qi at time t0+Dp UI." "c(1) is the value of qi at time t0+(Dp+1) UI."
With:The far-end transmitter output noise is an additional	Response Response Status W
assembly's integrated crosstalk noise (ICN).	ACCEPT. See suggested remedy.
TYPE: TR/technical required ER/editorial required GR/general required T/technical E COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: SORT ORDER: Clause, Subclause, page, line	editorial G/general /open W/written C/closed U/unsatisfied Z/withdrawn SC 85.8.3.3 9/24/2009 12:

C/ 85	SC 85.8.3.3	P 252	L 14	# 90	C/ 85	SC 85.8.3.3.	5 P 254	L 46	# 53	
Moore, Cha	arles	Avago Tech	nologies		Healey, Ac	dam	LSI Corporation			
Comment T pulse a amplitu	<i>Type</i> T amplitude out Tx and ade Tx, which is h	Comment Status A at TP2 is defined but DC ga ard to equalize, to pass.	ain is not. This co	ould allow slow, high	Comment Type TR Comment Status A Definitions of P2 and P3 are not correct. SuggestedRemedy					
Suggested Specify step 3" peak o	<i>Remedy</i> / Tx DC amplitud specify that DC f the linear fit pul	e of Tx as "sum of linear fit amplitude is greater than (se from step 3 shall be gre	pulse from step 3 0.375 and less that ater than 0.60*DC	3 divided by M from an 0.6 and that the amplitude	Transp Nw co Response	oose P2 in Equat lumns of P2.	ion (85-11) and, in the following Response Status W	⊧paragraph,	define P3 to be the first	
Response ACCE	PT IN PRINCIPI I	Response Status C			ACCEPT. See suggested remedy.					
Specif	Specify Tx DC amplitude of Tx as "sum of linear fit pulse from step 3 divided by M from step 3"					SC 85.8.3.4	P 255 Broadcom	L 35	# 100	
specify [0.34 v	that DC amplitude and less than 0	de is greater than 6 v and that the peak			Comment Type TR Comment Status A It would more readable if Fig 85-4 is plotted with linear scale and similar to Fig 86A-12					
than [0	.63]*DC amplitud	e.			Suggested Please	<i>Remedy</i> e follow or copy F	ig 86A-12			
Editor	Editor given license to implement in procedure. Cl 85 SC 85.8.3.3.4 P 253 L 42 # 160					PT IN PRINCIPL	Response Status C E.			
Dudek, Mik	e	QLogic			Chang	ge figure 85-4 to I	inear scale			
Comment T Wrong	Type T reference (85.7.3	Comment Status A 3.2.3 doesn't exist.)			<i>Cl</i> 85 Ghiasi, Ali	SC 85.8.3.4	P 255 Broadcom	L 35	# 101	
Suggested Chang	Remedy e 85.7.3.2.3 to 85	5.8.3.3.3			<i>Comment</i> Figure	<i>Type</i> TR is missing min le	Comment Status R			
Response ACCEI	РТ.	Response Status C			Suggested Please	<i>lRemedy</i> e add min loss ar	nd follow or copy Fig 86A-12			
See su	ggested remedy.				Response REJE	CT.	Response Status W			
					The 86 specifi Y:7 N:0 A:2 Room	6A specification f ication of 0.15 dE attendence:9	or a minimum provides no real l extracted connector insertion l	benefit as it oss.	produces a minimum	

C/ 85 SC 85.8.3.4

Draft 2.2 Comments		IEEE P	802.3ba D2.2 40Gb/s a	and 100Gb/	s Ethernet co	WG 2	WG 2nd recirculation ballot		
C/ 85 SC 85.8.3.4 Moore, Charles	P 255 Avago Technol	L 9 ogies	# 89	<i>Cl</i> 85 Palkert, T	SC 85.8.3.5 om	P 254 Xilinx/Lu	L 10	# 226	
Comment Type T Con Normative insertion loss spec	<i>mment Status</i> D between TP0 and TP2	and TP3 and ⁻	TP5 is no longer needed	Comment Type TR Comment Status A PPI and CR will share a common interface when using the Type 1 connector. Therefore th					
SuggestedRemedy Delete 85.8.3.4 including Equ Rely on 85A.4.	ation 85-14 and Figure	85-		Suggeste The te refere	xtures snould na <i>dRemedy</i> est fixture param enced.	ve the same parameters	s. 1 should either be du	uplicated here or	
In 85A.5, repalce "Equation(8	5-14)" on line 18 and lir	ne 33 to "Equa	tion (85A-1)"	Response	9	Response Status C	;		
In equation 85A-3 and equation	on 85A-4, delete term "-	(2 x ILMatedTI	=(f))	ACCE See r	EPT IN PRINCIP	LE. ment #43			
or				C/ 85	SC 85.8.3.5	P 256	6 L1	# 138	
Move 85.8.3.4 including Equa	tion 85-14 and Figure 8	5-		DiMinico,	Christopher	MC Con	nmunications		
into annex 65A, most likely	00A.4			Comment	Type E	Comment Status	A		
If Figure 85-4, use a linear	frequency scale.			85.10.10 Mated test fixtures Figure 85-11.					
Proposed Response Res	ponse Status Z			Suggeste	dRemedy				
REJECT.				See o	comment				
This comment was WITHDRA	WN by the commenter			Response	9	Response Status C	;		
The 85.8.3.4 Insertion loss ba	sis is tied to supported	trace lengths i	dentified in D2.1	ACCEPT IN PRINCIPLE. See suggested remedy comment#158					
	gustiin_04_0709.		"	C/ 85	SC 85.8.3.5	P 256	<i>L</i> 18	# 111	
C/ 85 SC 85.8.3.5	P 254 Xilinx/Luxtera	L1	# 225	Gniasi, Al		Broadco	om		
Comment Type T Con There is not a clear diagram of	mment Status A	and the test b	ooards.	Comment Type TR Comment Status A Figure 85-5 is not helpfull and conflicts with definition in 85.8.3.7 and implies the loss include 100 nF and scope front end					
SuggestedRemedy Add diagrams similar to Fig 8	6-3 showing HCB, MCB	and test point	s.	Suggeste Chan	<i>dRemedy</i> ge Figure 85-5 ti	tle to "Example TP2 or T	FP3 Measurement Se	etup"	
Response Res	ponse Status C			Repla	ace TP2 or TP3 v	with MDI			
ACCEPT IN PRINCIPLE. See response comment#168.				Add a box between MDI and bias connection with RF ports, name this box Transmit/Receive Test Fixtrue					
Remove TP3 form figure 85-5		05 44 fee Du		Adde	d lable to the RF	ports "TP2/TP3"			
2. Refer to mated test fixture	ilustration for TP-TF in 8	5-11 TOT RX.		Response ACCE See r	esponse comme	Response Status C LE. ent#158	:		

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

CI 85 SC 85.8.3.5

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C/ 85	SC 85.8.3.6	P 256	L 38	# 175	C/ 85	SC 85.8.	3.7	P 256	L3448	# 110
Dudek, Mike		QLogic			Ghiasi, Ali			Broadcom		
Comment Typ	be ER	Comment Status D			Comment	Type TR	Co	mment Status A		
There are Most use This spec	e multiple equa GHz, some us cific instance ol	tions and graphs in the cla e MHz, Hz also occurs. In pviously applies to line 42 a	use that are funct t would be good to as well. Other in:	ions of frequency. o standardize them all. stances are this page	The ca which should	able assembl is also not co I have at leas	y test fixtu onsistant w st 10 GHz	re is not consistant with vith Eq 85-36/37 with ma freq range.	Eq 86A-4. Max ax range of 10 C	c freq range is 6 GHz GHz. Test fixture
lines 48 a and relate Page 262	and 49 with paged changes in 8 2 lines 44 to 52	je 257 lines 1 to 6 and rela 85A page 422 line 40 and p	ted change on pa bage 423 line 1	ge 267 lines 33 and 38,	Suggested Please	<i>IRemedy</i> e use Eq 86A	-4			
Figure 85	5-7				Response		Res	ponse Status C		
SuggestedRe	emedy				ACCE	PT IN PRIN	IPLE.	,		
Change a comment	all the equation	s and graphs covering the hange.)	GHz range to use	GHz as listed in the	85.8.3 See co	.7 is Test fixt omment #43.	ure inserti	on loss.		
fig 85A-1)	ne same in Anr)	nex 85A (page 423 lines 30	and 53), (page 4	24 lines 43 and 46 and	C/ 85	SC 85.8.	3.7	P 256	L 46	# 78
Proposed Res	sponse	Response Status Z			Dawe, Pie	rs		Independent		
REJECT.		,			Comment	Type TR	Со	mment Status A		
This comr	ment was WIT	HDRAWN by the commen	ter.		The te 86A.5	st fixture inse 1.1.	ertion loss	es aren't maxima, they a	re reference lo	sses. See text at
CI 85 Anslow, Peter	SC 85.8.3.6 r	P 256 Nortel Netwo	L 48 orks	# 25	Suggested Chang	<i>IRemedy</i> Je "maximum	" to "refere	ence" here and in 85.10.	9.	
Comment Typ	pe E	Comment Status A			Response		Res	ponse Status W		
Some of t elsewhere For exam ILtf(f) <= I The ILtfm complicat Where the 85-23 and they shou Also appli	the equations i e. ple Equation 8 ILtfmax(f) = (0. hax(f) variable i te the equation ere are limit lin d 85-24) and th uld be retained. lies to Equatior	n Clause 85 introduce an e 5-16 starts: 054) s not referred to anywhere es for both max and min fo e extra variables e.g. ILDn is 85-35, 85A-3 and 85A-4	extra variable nam in the draft and o or the same paran nin(f) and ILDmax	e that is not used nly serves to neter (e.g., Equations (f) are used elsewhere,	ACCE See re	PT IN PRING	CIPLE. mment#1	67, comment#177.		
SuggestedRe	emedy									
In 85-16 c In 85-35 c In 85A-3 c In 85A-4 c	change "ILtf(f) change "ILCAT change "ILCh(i change "(ILCh	<= ILtfmax(f) = (0.054)" t F(f) <= ILcatfmax(f) = (0.0 f) <= ILChmax(f) = IL" to (f) <= ILChmax(f) = (0.05	o "ILtf(f) <= (0.05- 29)" to "ILCATF "ILCh(f) <= IL" " to "ILCh(f) <= (0	4)" (f) <= (0.029)" .05"						
Response ACCEPT.		Response Status C								

See suggested remedy

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/ 85 SC 85.8.3.7

C/ 85	SC 85.8.3.7	P 256	L 46	# 177
Dudek, N	<i>/</i> like	QLogic		

Comment Type TR Comment Status A

Results will vary depending on the fixture insertion loss and 85.8.3.7 gives a maximum test fixture insertion loss (and no minimum). We should not allow this amount of ambiguity in the specifications. (otherwise we will need to guard band all the specifications by this specification ambiguity). We should also make the loss of the test fixture the same as in clause 86A for commonality. Note that the PCB loss of the test fixture of clause 86a is what was used to derive the budget in Healey_03a_0709 (which doesn't match what is here). We should also specify exactly what is included in the insertion loss.

SuggestedRemedy

Change the Test Fixture insertion loss to a reference insertion loss (not just max) and use the same equations as 86A. Also add a sentence at the end of the Test Fixture insertion loss "The effects of differences between the insertion loss of an actual test fixture and the reference insertion loss should be accounted for in the measurements."

State in 85.8.3.6.7 that the connector loss is not included in the test fixture insertion loss.

Response Status C

Response

ACCEPT IN PRINCIPLE.

Delete:The maximum test fixture insertion loss shall meet the values determined using Equation (85-16).

Add: The reference test fixture PCB insertion loss is given in Equation (85-16). The effects of differences between the insertion loss of an actual test fixture and the reference insertion loss should be accounted for in the measurements.

Make Equation 85-16 match the loss of the HCB in 86A-4 from 0.05 GHz to 10 GHz.

C/ 85 Ghiasi, Ali	SC 85.8.3.	7 P25 Broade	6 L 48 com	# 102
Comment 7 It is ver	<i>Type</i> TR by difficult to re	Comment Status ead the graph with log so	D cale	
Suggestedi Please	Remedy use linear fre	q scale		
Proposed F REJEC	Response T.	Response Status	z	
No gra	oh on page 25	56 line 48.		// [===================================
C/ 85 Dawe, Pier	SC 85.8.3.3	7 P25 Indepe	6 L 48	# <u>67</u>
Comment 7 85.8.3. the min insertio	Type T 4's "Insertion I nimum SDD21 n loss limits o d HCB-MCB	Comment Status loss TP0 to TP2 or TP3 of host PCB, connecto f 85.10.10.1 are consist in 86A 5 1 1 2 Vet the	A to TP5" is (above 200 r and HCB in 86A.6. ent with the through re- test fixture insertion b) MHz) consistent with The mated test fixtures esponse (SDD21) limits

FR4), the equations in 86A.5.1.1.1 are preferable.

SuggestedRemedy

Change equations 85-16 and 85-35 so they are consistent with 86A-4 and 86A-5 respectively.

Because compliance boards are not backplanes (e.g. may use PTFE dielectric rather than

Response Response Status C

ACCEPT IN PRINCIPLE. See response to comment #43.

C/ 85 SC 85.8.3.7 Page 42 of 64 9/24/2009 12:43:32 AM

C/ 85	SC 85.8.4.2	P258	L1	# 91	C/ 85	SC 85.8.4.3.1	P 258	L 38	# 178
woore, Ch	lanes	Avago Techno	biogles		Dudek, IVII	ке	QLOGIC		
Comment Receiv	<i>Type</i> T ver interference t	Comment Status A olerance test is incomplete.			<i>Comment</i> We sh	<i>Type</i> TR nould state specifi	Comment Status A cally where the test channe	el insertion loss is	s measured.
Suggested Propo	dRemedy sed wording will I	pe presented a meeting			Suggested Chang test ch	dRemedy ge "The fitted test pannel 1 or test ch	channel 1 or test channel 2	2 insertion loss IL	.TC(f)" to "The fitted
Response		Response Status C			of the	test fixture descri	bed in 85.10.9 ILTC(f)"		gonorator and the output
ACCE Replac revisio	PT IN PRINCIPL ce"85.8.4.2 Rece on to moore_01_(E. iver interference tolerance te 0909.pdf.	st at TP3" with	moore_01a_0909.pdf	Response ACCE See re	PT IN PRINCIPL	Response Status C <u>=</u> . #91		
Cl 85 DiMinico, (SC 85.8.4.2 Christopher	P258 MC Commun	L 21 cations	# <u>1</u> 39	C/ 85 Dudek, Mi	SC 85.8.4.3.1 ke	P 258 QLogic	L 43	# 173
Comment Comm be a4 (2) Lin	<i>Type</i> T nent #138 agains = 0.03. See resp nits given by poly	Comment Status A t Draft 2.1 was incorrectly im onse to comment#138 Draft nomial coefficients (low loss 0.04 2 0.00)	olemented; a4 2.1 - a1=2.15,a2=.7	for test 1 values should 8,a4=.03)	Comment The u	<i>Type</i> T nits are wrong	Comment Status A		
(nign i	oss a1=6.04,a2=	0.94,a4=0.08).			It shou	uld state "Where f	is the frequency in GHz."		
Suggested	dRemedy				Response		Response Status C		
Chang	je polynomial coe		•		ACCE	PT. See suggeste	ed remedy.		
ACCE See si	PT. uggested remedy	Response Status C			<i>Cl</i> 85 Dudek, Mi	SC 85.8.4.3.1 ke	P 258 QLogic	L 50	# 161
CI 85	SC 85.8.4.2	P 258	L 26	# 163	Comment	Type TR	Comment Status A		
Dudek, Mi	ke Tupe TP	QLogic			The test cables attenuation for the interference tolerance test should have a specified value (not just a max value).				
For the	e Inteference tole	erance test the results will de	oend on the ris	e/fall times of the pattern	Suggested	Remedy			
genera	ator. This section	refers to clause 69A which	calls out the ma	ax rise/fall times	Delete	the words "maxi	num allowable".		
specifi	ied for the port ur	nder test, however we haven	t specified the	max Tx rise/fall time in	Response		Response Status C		
Clause					ACCE	PT IN PRINCIPL	,		
Suggested Insert for bot	an extra row in T th test 1 and test	able 85-7. "Pattern Genera 2.	or Rise/Fall tim	ne". Value to be 47ps	See re	esponse commen	#91.		
Response		Response Status							
ACCE See re	PT IN PRINCIPL	E. tt#91.							

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/ 85 SC 85.8.4.3.1

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

WG 2nd recirculation ballot

C/ 85	SC 85.8.4.6	P 259	L18	# 162	C/ 85	SC 85.9)	P 259	L 33	# 27
Dudek, Mik	e	QLogic			Anslow, P	eter		Nortel Networ	rks	
Comment 7 We sho	<i>Type</i> T buld be more explice	Comment Status A cit and normative about th	e location of the	AC coupling capacitors	Comment spuric	<i>Type</i> E bus "."	Сс	omment Status A		
Suggestedl Replace	Remedy e "AC-coupling is a	considered to be part of th	ne receive functio	n for Style-2 40GBASE-	Suggester Chan	dRemedy ae "throuah.	.85A.7" to "1	hrough 85A.7"		
CR4 cc 40GBA	onnectors." with "A SE-CR4 connecto	C-coupling shall be includ rs."	ed in the receive	function for Style-2	Response	PT.	Re	sponse Status C		
Add an couplin	extra sub-clause i g."	n 85.10 (suggest at 85.10	0.9) Heading "Ca	ble Assembly AC	See s	uggested re	emedy			
"Cable	assemblies for 40	GBASE-CR4 using style 1	connectors and	100GBASE-CR10 shall	<i>Cl</i> 85A DiMinico,	SC 85A Christopher	2	P 421 MC Commun	L 11 ications	# 135
40GBA	AC coupling capa SE-CR4 using sty	citors see 85.11.1.1.2 and le 2 connectors do not rec	a 85.11.3. Cable quire AC coupling	assemblies for ."	Comment Spelli	<i>Type</i> E	Co	omment Status A		
Response		Response Status C			Curronata	dDomodu				
ACCEF	PT IN PRINCIPLE.				Suggester	urkenieuy	voltago			
Replac	e:"The 40GBASE-	CR4 and 100GBASE-CR	10 receiver shall	be AC-coupled to the	Chan	ye volaye it				
cable a	ssembly to allow f	or maximum interoperabil	ity. AC-coupling i	s considered to be part	Response) 	Re	sponse Status C		
of the r and 10	eceive function for 0GBASE-CR10 plu	Style-2 40GBASE-CR4 c ug connectors the receive	ionnectors. For S lanes are AC-co	tyle-1 40GBASE-CR4 upled; the coupling	ACCE See s	PT. uggested re	emedy			
сараси		within the plug connectors			C/ 85A	SC 85A	.2	P 421	L18	# 166
With:"T	he 40GBASE-CR	4 and 100GBASE-CR10 r	eceivers are AC-	coupled. AC-coupling	Dudek, Mi	ike		QLogic		
shall be 40GBA	e part of the receiv SF-CR4 connecto	e function for Style-2 rs. For Style-1 40GBASE	-CR4 and 100GF	ASF-CR10 plug	Comment	Type T	Co	omment Status A		
40GBASE-CR4 connectors. For Style-1 40GBASE-CR4 and 100GBASE-CR10 plug connectors the receive lanes are AC-coupled; the coupling capacitors shall be within the plug connectors."				rs shall be within the	It is confusing that the sentence states that the specs are KR except for the transmitter characteristics in 85.8.3.8. 85.8.3.8 is the 10.3125G data rate specification which is the correct rate so doesn't need to be excluded.					
In 85.1			1 85 11 1 1 2 Styl	a-1 AC-coupling	Suggeste	dRemedy				
After: F are con	for plug connect tained within the p	tors the receive lanes are lug connectorsadd refer	AC-coupled; the ence to 85.8.4.6.	coupling capacitors delete paragraphs	Use tl chara	ne same sty cteristics ar	rle as is use e summariz	ed for the Rx. ie replacted in Table 85A-1".	e the sentence v	with. "The transmitter
below a	and notes.				Response ACCE	EPT IN PRIN	Re: NCIPLE.	sponse Status C		
Update	: PICS									
·					Chang and d the ex To:Th	ge: The spe etailed in 72 ception of t le transmitte	cifications a 2.7.1.1 throu he transmit er character	at TP0 are summarized ugh 72.7.1.11 with ter characteristics spec istics at TP0 are summ	in Fable 85A-1 sified in 85.8.3.8. harized in Table 8	B5A-1.

Change:TP5 receiver characteristics are summarized in Table 85A-2. To:The receiver characteristics at TP5 are summarized in Table 85A-2.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general

TYPE: TR/technical required ER/editorial required GR/gener	al required T/technical E/editorial G/general	01 054	Dama 44 af C4
COMMENT STATUS: D/dispatched A/accepted R/rejected	RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn	C/ 85A	Page 44 of 64
SORT ORDER: Clause, Subclause, page, line		SC 85A.2	9/24/2009 12:43:32 AM

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

C/ 85A SC 85A.4 DiMinico, Christopher	P422 L2 MC Communications	7 # <u>136</u>	C/ 85A SC 85A.4 Dudek, Mike	P 422 QLogic	L 31 # 180				
Comment Type E Spelling transmitter	Comment Status A		Comment Type TR The definition of TP1 has t cable test fixture so it does	Comment Status A been adjusted (per Healey_(s not include all the PCB, re	.03a_0709) to be at the input to the esulting in an ambiguity. The loss				
SuggestedRemedy Change transmiter to tra	ansmitter		specified on line 33 matche complete PCB) but does n Nyquist. Also Clause 86A	es the loss we have in the b ot match the loss in equatio allows a max 2x4.4dB for th	oudget for TP0 to TP1 (not for the on 85A-1 which is only 5.18dB at ne total PCB loss on the assumption a				
ACCEPT	Response Status C		host might use a lower loss connector.						
See suggested remedy			 Either 1 Delete "(ie the maximum insertion loss between TP0-TP1 and TP4-TP5)." and change the multiplier in equation 85A-1 from 0.3 to 0.508. 2 Change the paragraph to "The maximum insertion loss allocation for the transmitter plus receiver differential controlled impedance printed circuit boards for each differential lane between TP0-TP1 and TP4-TP5 is determined using Equation (85A-1) and the coefficients b1 through b4 are given in Equation (85-16). The maximum insertion loss allocation for the transmitter and receiver differential controlled impedance printed circuit boards between these test points is 7 dB at 5.15625 GHz. Note that there is an additional 1.4dB allowance in the PCB loss for the equation 85A-1 from 0.3 to 0.405 						
			Response F	Response Status C					
			ACCEPT IN PRINCIPLE. Change: The maximum ins controlled impedance printed circuit boards for ea TP0-TP1 and TP4- TP5) are determined using Equation (85- 16). The maximum insertic controlled impedance printed circuit boards is 7 c	sertion loss allocation for the ach differential lane (i.e., the g Equation (85A-1) and the c on loss allocation for the trar dB at 5.15625 GHz	e transmitter and receiver differential e maximum insertion loss between coefficients b1 through b4 are given in nsmitter and receiver differential				
			TO: Based on 85.8.3.4 insel los of 1.74 dB, the maximum insertion loss impedance printed circuit boards for ea insertion losses from TP0 t receptacle are determined given in Equation (85- 16). The maximum insertic controlled impedance printed circuit boards is 7 c	ertion loss TP0 to TP2 or TF s allocation for the transmitt ach differential lane (i.e., the to the MDI host receptacle a using Equation (85A-1) and on loss allocation for the tran dB at 5.15625 GHz	P3 to TP5 and a assumed connector ter and receiver differential controlled e maximum value of the sum of the and from TP5 to the MDI host d the coefficients b1 through b4 are nsmitter and receiver differential				

C/ **85A** SC **85A.4** Page 45 of 64 9/24/2009 12:43:32 AM

Response to D2.1 outputs to D2.1 outputs a second s	comment#96 is to 9 as reach objective guidance and	d subsequent i	nput for insertion loss	<i>Cl</i> 85A Dudek, Mil	SC 85A.4	P 422 QLogic	L 46	# 168	
allocation as well as "to reflect 3.5 dB (H	s clause 85 comment resolution b lost trace)".	elow. In gustlin	_04_0709.pdf slide 12	<i>Comment</i> maxim	<i>Type</i> T rum used where i	Comment Status A it should be minimum			
C/ 85A SC 85A.4 Ghiasi, Ali	P 422 Broadcom	L 36	# 109	Suggested chang	<i>IRemedy</i> e maximum to m	inimum			
Comment Type TR The channel loss be accordingly	Comment Status D udget has been changed during D	2.1 but this eq	uation was not adjusted	Response Response Status C ACCEPT IN PRINCIPLE. Change: (i.e., the maximum insertion loss between TP0-TP1 and TP4-					
SuggestedRemedy Mated response los leaves 4.75 dB loss The 4.75 dB host P higher loss connec	s 6.5 dB at 5.16 GHz, less 1.25 d per end. CB loss is based on assumption t or require reducing channel PCB	B for HCB, les he connector h loss.	s 0.5 dB for connector, as loss of 0.5 dB,	TP5) a To:(i.e and TF Resolv	 are determined the minimum v to MDI are determined. 	ralue of the sum of the insertic etermined #180	on losses from 7	FP0 to MDI receptacle	
Proposed Response	Response Status Z			C/ 85A	SC 85A.4	P 422	L 51	# 31	
REJECT.				Anslow, Pe	eter	Nortel Network	s		
This comment was	WITHDRAWN by the commenter			Comment	Туре Т	Comment Status A			
The maximum char resolution.	nnel insertion loss of 24.44 dB is	consistent with	D2.1 comment#96	Equati "ILPCI less th	on 85A-2 starts: 3(f) <= ILPCBmir an.	n(f) = (0.103)" but ILPCB(f) s	should be greate	er than ILPCBmin(f) not	
where ILCamax(f) (17.04 d	dB), ILHost(f) (6.5 dB) and ILMate	dTF(f) (2.8 dB)		SuggestedRemedy change "II PCB(f) <= II PCBmin(f) = (0,103), " to "II PCB(f) >= II PCBmin(f) = (0,103), "					
ILCh(f) = ILChmax($f) = 17.04 + (2 \times 6.5) - (2 \times 2.8) = 24$.44 dB		Response		Response Status C		() ())	
Cl 85A SC 85A.4 DiMinico, Christopher	P 422 MC Communic	L 43 ations	# 137	ACCE See si	PT. Jggested remedy				
Comment Type E Spelling insertion	Comment Status A								
SuggestedRemedy Change inserton to	insertion								
Response ACCEPT.	Response Status C								
See suggested rem	iedy								

C/ 85A SC 85A.4

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

C/ 85A SC 85A.4 Ghiasi, Ali	P 422 Broadcom	L 5 1	# 103	C/ 85A Healey, Ad	SC 85A.5 Jam	P 421 LSI Corporation	L 4	# 56	
<i>Comment Type</i> TR Min loss Eq 85A-2 is n	Comment Status A ot conssistent with mated char	inel loss		Comment The sp	<i>Type</i> T becified frequen	Comment Status A cy range for channel insertion los	ss is inconsi	stent with the frequency	
SuggestedRemedy The mated min channel less min HCB loss= 1. Min connector loss= 0 Result in 0.74 dB loss	el loss =2.08 04 dB 3 dB per end			This sl differe and the Suggested	nould also apply ntial printed circ e channel inser	y to the transmiter and receiver cuit board trace loss in 85A.4 tion loss deviation in 85A.7.			
Response	Response Response Status C ACCEPT IN PRINCIPLE.				nmend using a	consistent frequency range throu	ahout.		
ACCEPT IN PRINCIPI					0	Response Status C	0		
Change (0.103) to sca C/ 85A SC 85A.5 Healey, Adam	le equation (85A-2) to 2*(0.67) P 421 LSI Corporatior	db @ 5.5156. <i>L</i> 14	26 GHz. # <u>58</u>	ACCEPT IN PRINCIPLE. Specify the transmiter and receiver differential printed circuit board trace loss equations (85A-1) and (85A-2) from 50 MHz to 7500 MHz. Specify the maximum channel insertion loss equation (85A-3) from 50 MHz to 7500 MHz.					
Comment Type E "is the frequency in Mł	Comment Status A Iz" should not be italicized.			CI 85A Anslow, Pe	SC 85A.5 eter	P 423 Nortel Networks	L15	# 29	
SuggestedRemedy Correct two occurence	s in this subclause, as well as	an occurence	s in 85A.7.	<i>Comment</i> For eq	<i>Type</i> E uations 85A-3,	Comment Status A 85A-4 and 85A-5 the phrase "is t	the frequenc	y in MHz" is shown in	
Response	Response Status C			italic fo	ont. This should	d be normal font.			
ACCEPT. See suggested remed	y			Suggested For eq norma	<i>Remedy</i> _l uations 85A-3, I font.	85A-4 and 85A-5 change the phr	ase "is the f	requency in MHz" to	
				Response		Response Status C			
				ACCE See co	PT. omment#58				

CI 85A SC 85A.5

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

C/ 85A SC 85A.5 Dudek, Mike	P 423 QLogic	L 16	# 169	C/ 85A SC 85A Dudek, Mike	.5	P 423 QLogic	L 20	# 172	
Comment Type T It would help unders	Comment Status A standing if IL(Camax) were bette	r defined.		Comment Type T Comment Status A It would be very helpful to better define the test points and the losses and show where equation 85A-3 comes from SuggestedRemedy					
SuggestedRemedy									
Change IL(Camax) with the cable asser	definition to "The maximum cabl nbly test fixtures using Equation	e assembly ins (85-19)"	ertion loss as measured	Insert at line 20. "The losses are shown diagamatically in NEW FIG"					
Response ACCEPT IN PRINC Change IL(Camax) Equation (85-19) de	Response Status C IPLE. definition to "The maximum cabl fined between TP1 and TP4."	ertion loss using	Use slide 14 from Healey_03a_0709 as the basis of NEW FIG. Title the figure as "Illustration of loss budget" Labelling TP1 to TP4 as "IL(camax) (17.04dB)" TP0 to TP2 and TP3 to TP5 as "IL(host)(3.25dB)" and label the mated test fixture loss as "ILMatedTF (2.8dB)"						
C/ 85A SC 85A.5	P 423	L19	# 170	Response	Re	sponse Status C			
Dudek, Mike	QLogic			ACCEPT IN PRINCIPLE. Insert at line 20. "The channel insertion loss budget is illustrated in Figure-85A-xx"					
Comment Type T	Comment Status D								
Assuming my other fixtures. The IL(ma reference insertion I	comments are accepted to char ted) defintion should be change oss	nge to a referen d from maximu	ce loss for the test n insertion loss to	Use slide 2 from diminico_05_0909.pdf as the basis for a figure illustrating loss budget . Title the figure as "Illustration of channel insertion loss budget"					
SuggestedRemedy									
Change the definition using equation (85-3	n of IL(mated) to "The reference 37)	e insertion loss o	of the mated test fixture						
Proposed Response	Response Status Z								
REJECT.									
This comment was	WITHDRAWN by the commente	er.							

Despite having references for the independent test fixture insertion losses it's good to limit the insertion loss of the actual mated test fixture.

CI 85A SC 85A.5

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

C/ 85A So Dudek, Mike	C 85A.5	P 423 QLogic	L 21	# 171	C/ 85A Ghiasi. Ali	SC 85A.5	P 42 Broadd	3 L 9 om	# 97		
Comment Type ILChmax(f) 85A-3 and 4 not a very in SuggestedRem Delete the t	T Comm is a single named var 85A-4) which is bad p nteresting characterist redy text between lines 21	ent Status A iable but it has been ractice. In any case ic. and 35. As an alte	n given two diffe the maximum of mative that wou	rent curves. (equations hannel loss at 0.5m is ld perhaps have more	Comment Type TR Comment Status A ILmated could have as low as 2 dB loss and as high as 2.8 dB which could result cabling having higher loss SuggestedRemedy Add note the cable loss of 24.44 dB is when ILmated loss is 2.4 dB, if ILmated loss is less than 2.4 dB then ILch shall be reduced by the same amount						
Response ACCEPT IN Change:Th	Respon N PRINCIPLE.	se Status C			Response Response Status W ACCEPT IN PRINCIPLE. See response comment#170						
assembly o using Equa	assembly of 0.5 m between TP1 and TP4 is determined using Equation (85A-4). To: The minimum channel insertion loss between TP1 and TP4 is determined using Equation (85A-4). Change: (85A-4) [ILCh(f) = ILChmax(f) = (0.05 × ILCamax(f))×(2×ILHost(f))- (2×ILMatedTF(f)) To:ILCh(f) >= (0.2×ILCamax(f))+(2×(ILHost(f))- (2×ILMatedTF(f))					SC 85A.7 n	P 42 Avago	4 L 5 Technologies	# 229		
To: The mir TP1 and TF Change: (8 [ILCh(f) = IL (2×ILMated						Comment Type T Comment Status R The channel, TP0 to TP5 can not have the same ILD as the cable assymbly. If we are going to keep with the RL budgets from D2.2 then this number will need to be increased to allow for interations between the hosts and the cable. SuggestedRemedy change the high frequency target from ±/-1 7 to ±/- 2.3 to account for this effect					
To:ILCh(f) > (2×ILMated							Response Status	C			
Cl 85A So Anslow, Peter	C 85A.5	P 423 Nortel Network	L 24 s	# 30	REJEC Respor comme would e	nse: The comment that	lementation of suggeste	a sufficiently com	plete proposal in this		
Comment Type Equation 85	5A-4 starts with a sput	ent Status A rious "(" and the sec	ond "x" should b	e "+"	C/ 85A Healey Ad	SC 85A.8	P 42	2 L9	# 57		
SuggestedRemedy Change "(ILCh(f)" to "ILCh(f)" Change "(0.05 x ILCamax(f)) x (2 x ILHost(f))" to "0.05ILCamax(f) + 2ILHost(f)" Response Response Status C ACCEPT IN PRINCIPLE. See response to comment#171					Comment 1 For the with int should Suggested Refer to recomm Response ACCEF	<i>Type</i> T cable assemb egrated crosst follow suit. <i>Remedy</i> o healey_01_0 nendations.	Comment Status oly, specifications for ins alk noise requirements. 909.pdf for proposed te Response Status	A ertion loss to cros It seems that the xt for channel inte	stalk ratio were replaced channel requirements grated crosstalk noise		
					See he	aley_01_0909	.pdf for comment respo	nse.			

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general

TYPE: TR/technical required ER/editorial required GR/gener	al required T/technical E/editorial C	G/general		01 05 0	Dama 40 af 64
COMMENT STATUS: D/dispatched A/accepted R/rejected	RESPONSE STATUS: O/open W	V/written C/closed	U/unsatisfied Z/withdrawn	C/ 85A	Page 49 of 64
SORT ORDER: Clause, Subclause, page, line				SC 85A.8	9/24/2009 12:43:32 AM

<i>Cl</i> 85A SC 85A.8 Misek, Brian	P 424 Avago Technolo	L 9 ogies	# 230	<i>Cl</i> 86 Anslow, Pe	SC 86.5.4	P 290 Nortel Network	L 42 s	# 33	
Comment Type T	Comment Status A	-		Comment	Type T	Comment Status A			
This whole section s should be expressed being described and SuggestedRemedy Convert to ICN like v	teems to be not in sync with method in ICN vs channel loss to be con tested. was done for section 85.10.8	ods agreed to sistent with the	in the last meeting and a way the cable is	Table 86-5 requires SIGNAL_DETECT to be OK when: "Optical power at TP3 >= stressed receiver sensitivity (max) in OMA in Table 86.8" This is 5.4 dBm (OMA). However, in Table 86-7 "Characteristics of signal within, and at the receiving end of, a compliant optical channel" we see that the OMA, each lane can be -7.9 dBm. Consequently, a fully compliant link can have SIGNAL_DETECT = FAIL					
Response	Response Status C			SuggestedRemedy					
ACCEPT IN PRINCI	PLE. See response comment#57			In Tab	le 86-5 change:	- atraggad reasiver consitivity	(max) in ON	IA in Table 96 9"	
<i>Cl</i> 85A <i>SC</i> 85A-4 Anslow, Peter	P 422 Nortel Networks	L 46	# 32	to "Optica	al power at TP3 >	= Optical Modulation Amplitud	de (OMA), ea	ch lane in Table 86.7"	
Comment Type E	Comment Status A			Response		Response Status C			
"(i.e., the maximum i not conform with the SuggestedRemedy Change "(i.e., the m	"(i.e., the maximum insertion loss between TP0-TP1 and TP4-TP5)" is unclear and does not conform with the style manual. uggestedRemedy Change "(i.e., the maximum insertion loss between TP0-TP1 and TP4-TP5)" to				ACCEPT IN PRINCIPLE. In Table 86-5 change: "Optical power at TP3 >= stressed receiver sensitivity (max) in OMA in Table 86.8" to "Optical power at TP3 >= Minimum OMA, each lane, in Table 86.7"				
to	to				SC 86.7.3	P 294	/ 33	# 188	
"(I.e., the maximum)	Insertion loss between TPU and T	P1 and betwee	en TP4 and TP5)"	Petrilla, Jo	hn	Avago Technol	ogies		
ACCEPT IN PRINCI	PLE.			Comment	Type ER	Comment Status A	-		
See response comm Cl 86 SC 86.1	P285	L 34	# 118	In table 86-8, the attribute, "Receiver jitter tolerance signal level in OMA, each lane" is really a test condition and as such should be included with the other jitter tolerance test conditions.					
Ghiasi, Ali	Broadcom			Suggested	Remedy				
Comment Type TR The PMD electrical of	Comment Status D definition XLPPI and CPPI has no	MDI definition		In table so that	e 86-8, move the t it is included with	attribute, "Receiver jitter toler h the other jitter tolerance test	ance signal le conditions.	evel in OMA, each lane"	
SuggestedRemedy				Response		Response Status C			
Please MDI definitio	n from CL 85.11			ACCE		E.			
Proposed Response REJECT.	Response Status Z			Table	86-8 from "-" to "N	y for "Receiver jitter tolerance Max"	signal level i	n OMA, each lane" in	
This comment was \	WITHDRAWN by the commenter.		The "Receiver jitter tolerance signal level in OMA, each lane" is the test in the same way as "Stressed receiver sensitivity in OMA, each lane" is a test. If the optical power required to give 10^-12 BER in the presence of the specified jitter is above this limit, the device fails.						
The medium depend between the transmi XLPPI and CPPI are 100GBASE-SR10.	dent interface (MDI) for Clause 86 ission medium (fiber) and the PMI e physical instantiation of PMD ser	PMDs is the c 0 (see 1.4.220 vice interface	ptical interface for definition of MDI). for 40GBASE-SR4 and						

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 86.7.3

D 54 . (0.4

C/ 86	SC 86.7.3	P 294	L35	# 189
Petrilla, J	ohn	Avago Techno	ologies	

Comment Type TR Comment Status A

In table 86.8, unlike the case for Stressed receiver sensitivity which has an explicit entry for the attribute, there is no entry for a receiver tolerance attribute, only conditions for such. Further, there is no explicit link to the test definition in 86.8.4.8 which may compound the confusion of the missing test entry. Finally, since this is a test of the ability of a system to track low frequency jitter, it would be helpful to note (similar helpful information are included in footnotes a & c) that the test is not intended for subsystems where CDR and/or bit-error-detector functions is/are not included. See figure 86-14 which shows a System under test, SUT, comprising a PCS, PMA and PMD. Without the CDR and bit-error-detector of the PMA and/or PCS, equipment external to the SUT would be needed and the test would become, primarily, a test of this external equipment.

SuggestedRemedy

In Table 86-8, insert an entry, "Receiver jitter tolerance in BER, each lane" above the "Conditions of receiver tolerance test". Append a footnote indicator at the end of the entry. In the Type column enter "Max". In the value column enter "10-12" and leave a blank in the units column. For the footnote, insert, "Measured with conformance test signal at TP3. See 86.8.4.8. This is test of the system receiver's ability to track low frequency jitter and is inappropriate for any subsystem that does not include CDR and/or bit-error-detector function(s)."

Response

Response Status C

ACCEPT IN PRINCIPLE.

In table 86-8 add a note to "Receiver jitter tolerance signal level in OMA, each lane" to say: "This is test of the optical receiver's ability to track low frequency jitter and is inappropriate for any subsystem that does not include a CRU."

See also response to comment #188

C/ 86	SC 86.7.3	P 294	L 42	#	187	
Petrilla, John		Avago Tec	hnologies			-

Comment Type ER Comment Status A

Footnote b in Table 86-8 states, "Measured with conformance test signal at TP3 (see 86.8.4.7) for BER = 10-12.", yet the setup conditions are J2 and J9 and, at least where the nPPI interface is exposed, see item e of 86.8.4.8, the output criteria is an eye mask with a 5E-5 hit ratio. No where is BER = 1E-12 mentioned. This apparent conflict can be confusing. Since 86.8.4.7 references 52.9.9 which calls for operation, "with BER less than 10-12", there is no need to mention BER in note b and the apparent conflict is removed.

SuggestedRemedy

Change Footnote b from "Measured with conformance test signal at TP3 (see 86.8.4.7) for BER = 10-12." to "Measured with conformance test signal at TP3 (see 86.8.4.7)."

Response	Response Status	С	
ACCEPT.			

The stressed receiver test refers to 52.9.9 for the test method which explicitly calls for a BER of 10^-12.

C/ 86 SC 86.8.4.6.1 D'Ambrosia, John		P 300 Force10 Networl	# 148	
Comment looks	<i>Type</i> E like spacing error b	Comment Status A between text on lines 24 /25 ar	nd Fig 86-4	
Suggeste fix.	dRemedy			
Response ACCE	e PT.	Response Status C		
<i>Cl</i> 86 Anslow, P	SC 86.8.4.6.1 Peter	P300 Nortel Networks	L 49	# 34

Comment Type E Comment Status A

This says "an ideal 4th order Bessel Thompson response". However all other occurrences use "fourth" rather than "4th" and the style manual also states that "In general text, isolated numbers less than 10 should be spelled out."

SuggestedRemedy

Change "an ideal 4th order" to "an ideal fourth order"

Response Response Status C

ACCEPT IN PRINCIPLE.

Change "an ideal 4th order Bessel Thompson" to "an ideal fourth-order Bessel-Thomson"

~ ~

Also in 88.8.8 change "Thompson" to "Thomson"

COMMENT STATUS: D/dispatched A/accepted R/rejected	RESPONSE STATUS: O/open W/writ	ten C/closed	U/unsatisfied Z/withdrawn	C/ 80	Page 51 01 64
SORT ORDER: Clause, Subclause, page, line	·····			SC 86.8.4.6.1	9/24/2009 12:43:32 AM

C/ 86	SC 86.8.4.8	P 301	L33	# 190	C/ 86A	SC 86A.1	P 427	L 6	# 63
Petrilla, Jo	ohn	Avago Techn	ologies		Dawe, Pier	S	Independent		
Comment Type TR Comment Status A Clause 68.6.11 is referenced with exceptions. There is no exception declared for the requirement in 68.6.11, "The optical waveform is connected and mode-conditioning patch cord suitable for 62.5/125 um fiber". The "mode-conditioning patch cord suitable for 62.5/125 um fiber" does not seem necessary for SR and, if not, is an unnecessary burden. If such a mode-conditioning patch cord is required, then further definition of its characteristics and use are required. SuggestedRemedy In 68.6.11 add another exception, f), to the list that states, 'the mode-conditioning patch cord suitable for 62.5/125 um fiber is not used'.					Comment In D2.2 use nA The we lane th Suggested Chang Response	Type ER 2, "Parallel Phys UI in the docum ord "Parallel" im ings e.g. PMD t Remedy e "nPPI" to "PP	Comment Status R sical Interface" is abbreviated to nent, this would be the only such plies multiple lanes so "n" has r types put the multiple number at l" throughout. Response Status W	nPPI. As when the nSomething of the end not the end no	we have decided not and abbreviation in 80. any more. Other mules the beginning.
cord s	suitable for 62.5/125	um fiber is not used'.		e-conditioning patch	REJEC	ст.	,		
Response ACCE In 86 for 62	FT IN PRINCIPLE. 8.4.8 add another ex 5/125 um fiber is not	Response Status C acception to the list: 'f) The a used.'	mode-condition	ing patch cord suitable	This te "C" or numbe	rm was inserted 'XL" which deso r of lanes.	d in response to comment 537 a cribes the rate of operation supp	against draft ported by the	2.0. The n represent e interface and not the
C/ 86A	SC 86A.1	P 427	L15	# 192					
Petrilla, Jo	ohn	Avago Techno	ologies						
Comment In the transc recove overvi modu	<i>Type</i> E overview it's said above robust said above robust sinside." At the should make that le.	Comment Status R out PPI that, "It allows the GBASE-SR4 or 100GBA s PPI can similarly suppor visible. Further PPI doe	e construction of SE-SR10 with n ort 40GBASE-LR s not preclude u	compact optical o clock and data 4 modules, the se of CDRs within a					
Suggestee	dRemedy								
Chang modu inside modu recove	ge from, "It allows the les for 40GBASE-SR ." to "It allows the co les for 40GBASE-SR ery circuits required in	e construction of compact 4 or 100GBASE-SR10 w hstruction of compact opt 4, 40GBASE-LR4 or 100 hside."	optical transcei ith no clock and ical transceiver GBASE-SR10 w	ver data recovery circuits rith no clock and data					
Response	, F	Response Status C							
REJE Draft 2 The s eye cl	CT. 2.2 says "allows" so t uitability of PPI for 40 osure penalty for LR4	he "required" isn't neede IGBASE-LR4 has not be 4 is significantly worse the	d. en shown; the ex an for SR4.	spected link induced					

C/ 86A SC 86A.1

C/ 86A	SC 86A.4	P 431	L 27	# 231	
Misek, Brian		Avago Technologi	es		

Comment Type T Comment Status A

The inclusion of DDPWS for host Rx testing makes no sense at all to me. I have tried to find the reason behind this inclusion and can not find the rational. In fact I can find no comment or comment reponse that calls for this in the comments on 2.0 which led to this being inserted as a TBD. The only comment resolution I can find for the value has no technical backing for the number.

This type of jitter, is no more difficult to deal with for an electrical host Rx in a limiting application then jitter induced by ISI behind the limiter function. The inclusion in the spec only serves to make the test harder to create. The test system must have a second Sine generator and wideband noise source, to modulate the amplitude of a signal only to have it clipped with a limiter. I think that burdening the host vendors with this test for no proven benifit is not in the best interest of this group. If there is some proven benifit to this test parameter I would like to see it, which should of been in the record for why it was included. Simultanious meeting of J2 and J9 can be done in a more straigth forward manner with edge modulation by random interference for J9 control(if needed) and the existing ISI for J2 control.

SuggestedRemedy

Remove DDPWS from Table 86A-4 Remove line 48 components dealing with this "sinusoidal interference (SI), and random interference (RI), all"

Remove line 51 on page 442

"The test signal at TP4 has DDPWS as defined by Table 86A-4."

Remove Voltage stress block from Figure 86A-9

Remove paragraph at line 11 page 443

"A voltage stress is to be applied before the limiter function. This stress is composed of a single tone sinusoidal interferer (SI) in the frequency range 100 MHz to 2 GHz and a broadband noise source (RI) with a minimum power spectrum -3 dB point of 6 GHz and minimum crest factor of 7. It is the intent that this combination of voltage stress and limiting function introduce pulse-shrinkage jitter behavior. However no more than 20% of the J2 Jitter is created by the sinusoidal interferer."

Change line 5 page 444 from 80% to 100% and romove the following 2 lines. "The sinusoidal interferer amplitude is then turned on and adjusted until the required level of J2 Jitter is achieved. The frequency of any sinusoidal interferer is asynchronous to the characteristic frequencies of the signal."

remove lines 9 to 11 page 444 "A compliant test signal exhibits Data Dependent Pulse Width Shrinkage (defined in 86A.5.3.4) as specifie in Table 86A-4. This is measured with noise and clock-jitter sources turned off.

Remove remove line 15-21 page 444 "Then the RI (random interference) voltage stress is added until the specified value of J9

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

Jitter is achieved. If necessary the sine interferer is readjusted to obtain the required level of J2 Jitter and if the sinusoidal interferer is changed then the random interferer is readjusted to obtain the required level of J9 Jitter. Iterative adjustments of the sinusoidal interferer and random interferer are made until the required values of both J2 Jitter and J9 Jitter are achieved."

Response Response Status C

ACCEPT IN PRINCIPLE.

The DDPWS spec constrains the variety of test stressor eyes that would be allowed if just J2 and J9 specs were in place.

The test configuration shown in figure 86A-9 is an example of a test configuration that could be used to generate a test signal conforming to table 86A-4; In order to make this clearer, change title of figure 86A-9 to "Example jitter tolerance test configuration". Also make the "BT4 7.5 GHz" fit within the box.

[Editor's note: Late comment for consideration by the Task Force]

C/ 86A	SC 86A.4.1	P 428	L 21	# 72
Dawe, Piers	6	Independent		

Comment Type T Comment Status A

If Table 86A-3, nPPI module electrical output specifications at TP4, has a termination mismatch spec, why doesn't Table 86A-1, nPPI host electrical output specifications at TP1a? I don't believe that a 1 MHz measurement will be affected by the few inches of PCB trace in the host, as was alleged.

SuggestedRemedy

Add row, Termination mismatch at 1 MHz, max 5%.

Response Response Status C

ACCEPT.

C/ 86A SC 86A.4.1 Page 53 of 64 9/24/2009 12:43:32 AM

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

C/ 86A S Ghiasi, Ali	SC 86A.4.1	P 428 Broadcom	L 27	# 131	<i>Cl</i> 86A Petrilla, Jo	SC 86A.4.1	.1	P 429 Avago Techn	L 1 ologies	# 191
Comment Type With currer emphasis on D2.1 SuggestedRen The option ghiasi_03_	e TR nt set of speci 3-5 dB resultir <i>medy</i> Is here are eith _0909	Comment Status R fications the SerDes transmi in signifincat distortion at ner limit max DDJ to about 0	itter may have TP1a and also .125 UI or max	very large amount of de- see comment 216/218 3 dB de-emphasis, see	Comment Figure from t equati '20 log be say also b for figu	Type ER a 86A-1 does no he associated e ons are '20 log g () remains i ying that 20log1 e inferred from ures 86A-2, 3, 4	Comment t declare the quations, the $() = ', s_1$ n the equation 0(SDD11) = the equations 0, 5 & 6.	nt Status A units for the y-ax y-axis title lists S o there's not a on in it should be in t SDD11. Further s they are explicit	is. While the un SDD11 and simi e-to-one match the axis title. O r, while the units in the x-axis titl	hits may be inferred lar terms but the . For consistency, if the therwise we appear to to the x-axis could e. Similar cases occur
Response REJECT. J2 spec co Although g Tx eye ma required in	onstrains DDJ ghiasi_03_090 isk at TP2, the in the spec to a	Response Status U and eye mask constrains ex 9 shows an example module re is insufficient information void a potential eye-mask iss	 SuggestedRemedy If the 20 log() terms remain in the reflection and response equations, then they should be included in the associated y-axis titles for figures 86A-1, 2, 3, 4, 5 & 6. dB should be included as the y-axis units for figures 86A-1, 2, 3 & 4. Response Response Status C 					uations, then they should 5 & 6. & 4.		
C/ 86A S	SC 86A.4.1.1	P 428 Nortel Network	L 52	# 35	ACCE	PT IN PRINCIP	LE. ment 15 has	modified the v-ax	is titles of these	e figures Include "dB"
Comment Type	• F	Comment Status A	10		as the	units for these.				ngaroo. molado de
In the equa rest of the In the base	ations of claus draft (27 insta e document th	e 86A, the phrase "f is the fr nces) this is "f is the frequer e words "gigahertz", "megah	requency in gig ncy in GHz". nertz" or "kilohe	ahertz" is used. In the	C/ 86A Petrilla, Jo	SC 86A.4.1	.1 Commo	P 429 Avago Techn	L 28 ologies	# 199
SuggestedRen	nedy				Comment The tit	tle for figure 86/	A-1 is. "Reflec	ction specification	ns" but is more r	properly, 'Reflection
Change "g	Change "gigahertz" to "GHz" throughout clause 86A (14 instances)					specifications illustrations' as the specifications are in the associated table and equations.				
Response		Response Status C			Even t illustra	the text, see parated in Figure 8	ge 428, line 4 5A-1." Simila	4 states, "the lim ir issues exist with	it given in Equa h Figures 86A-2	tion 86A-2 and 2, 3, 4, 5 & 6.
AUGLET.					Suggester	dRemedy	ure 864-1 fr	om "Reflection s	pacifications" to	Peflection

Change the title for figure 86A-1 from, "Reflection specifications", to 'Reflection specifications illustrations'. Do likewise for figures 86A-2, 3, 4, 5 & 6.

Response Status C

Response

REJECT.

The title follows the precedent set in the rest of the document and in clause 52.

C/ 86A SC 86A.4.1.1

<i>Cl</i> 86A <i>SC</i> 86A.4. Ghiasi, Ali	2 P430 Broadcom	L14	# 96	<i>Cl</i> 86A Petrilla, Jol	SC 86A.4.2	P 431 Avago Tech	L16 nnologies	# 193	
Comment Type TR With current set of s emphasis 3-5 dB res on D2.1	Comment Status R pecifications the SerDes transmi ulting in signifincat distortion at [–]	tter may have TP1a and also	very large amount of de- see comment 216/218	Comment In Tabl toleran specific	Type ER le 86A-4, unlike ce requirement cally the templa	Comment Status D table 86-8, there is no expli- , although there is much dei te in 86A.5.3.8.6. It doesn't	icit indication of a tail in the associa t seem good prac	a low frequency SJ jitter ated 86A.5.3.8, ctice where a table of	
SuggestedRemedy The options here are ghiasi_03_0909 Response REJECT. see also response to	e either limit max DDJ to about 0. <i>Response Status</i> U 9 comment 131	125 or max 3	dB de-emphasis, see	SuggestedRemedy In table 86A-4, add a row, 'Applied sinsuoidal jitter', for low frequency SJ to signal tolerance test conditions. Enter 'TP4' in the Test Point column, 'See the Spec.values column, and leave the Units and Conditions columns blank Proposed Response Response Status Z					
C/ 86A SC 86A.4.2 P 431 L 16 # 194 REJECT. Petrilla, John Avago Technologies This comment was WITHDRAWN by the commenter.									
Comment Type ER In Table 86A-4, as ir attribute, only the co	Comment Status A table 86-8, there is no explicit e nditions are listed.	ntry for a signa	al or jitter tolerance	Respo	nse to commer	t 194, gives pointer to 86A.	5.3.8.	This tax of a data differen	
SuggestedRemedy In Table 86A-4, inse the "Conditions of ho	rt an entry, "Host receiver signal	tolerance in Bl	ER, each lane" above	However, there is no need to add all of the test details to the table. This type of added litter is not called out in the table in several other places in the draft and also in the base standard.					
indicator at the end of "10-12" and leave a conformance test sig test conditions for m receiver."	of the entry. In the Type column blank in the units column. For th Inal at TP4. See 86A.5.3.8. The easuring signal tolerance and are	enter "Max". Ir le footnote, ins eye mask, DD e not character	of the value column enter ert, "Measured with PWS, J2 and J9 are ristics of the host	C/ 86A Dawe, Pier <i>Comment</i> Transit	SC 86A.4.2 s <i>Type</i> T ion time is give	P 431 Independen Comment Status A n as 34 ps TBC.	L 21 It	# 73	
Response ACCEPT IN PRINCI Add a row for "Rece Add footnote for "Co specification values characteristics of the	Response Status C PLE. ver signal tolerance, each lane (inditions of host electrical receive are test conditions for measuring host receiver (see 86A.5.3.8)."	BER)", "-", "10 er signal tolerar g signal toleran	∿12", "-" nce test:": "The ce and are not	Suggested Confirr Response ACCEI Delete	Remedy n it or change i PT IN PRINCIP "TBC"	to a better number. Delete <i>Response Status</i> C LE.	: "TBC".		

C/ 86A SC 86A.4.2

C/ 86A	SC 86A.4.2	P431	L 21	# 195	C/ 86A	SC 86A.5.1	.1.2	P 434	L 33	# 66	
Petrilla, Jo	hn	Avago Techno	blogies		Dawe, Pie	rs		Independent			
Comment In Tab	<i>Type</i> TR le 86A-4, the val	Comment Status R ue for the Transition time value	ue is shown as,	"34 TBC". A pre-	<i>Comment</i> While	<i>Type</i> T adjusting the co	<i>Commen</i> osmetics of eq	<i>t Status</i> A juation 86A-7, a	sign error has c	rept in.	
determ of the be mo levels,	nined transition t eye mask coord re value having a eye mask corne	ime value may preclude gene inates, J2, J9 and DDWPS sin an input signal that simultane ers, J2, J9 and DDPWS, a trai	rating a stressed multaneously. S ously stresses n nsition time spe	d signal that reaches all Since there appears to hin and max signal c may be redundant.	SuggestedRemedy Change +0.861 back to -0.861. Response Response Status C						
Suggested	Remedy				ACCEPT IN PRINCIPLE. In equation 86A-7 change "+ 0.861" to "- 0.861" In equation 86A-8 change "- 28.85" to "+ 28.85" Note: comment 15 has changed the sign of these equations.						
Delete end of 'such t simulta	e the Transition ti the sentence, " that eye mask co aneously met.' Ir	me requirement from Table 8 The vertical eye opening and j pordinates X1, X2, Y1, Y2, an a 86A.5.3.8.5 page 444, line 1	6A-4 and in 86A peak level speci id jitter values D 2, change the p	5.3.8.5 append to the fications are verified." DPWS, J2, J9 are all hrase, " the							
ampliti as give	en in Table 86A-	sition time are as given in Tat 4."	DIE 86A-4. 10	. and the amplitude are							
Response	^ т	Response Status C			See a	so comments 4	4, 68 and 232	2			
REJECT. Commenter invited to submit material which justifies removing the Transition time spec.					<i>Cl</i> 86A Dawe, Pie	SC 86A.5.1 's	.1.2	P 434 Independent	L 44	# 74	
the ma	The task force believes that it is more important to stress the minimum signal levels than the maximum, so there is no need to remove the rise time requirement.					Туре Т	Commen	t Status A			
C/ 86A	SC 86A.5.1.1	.1 <i>P</i> 431	L 39	# 176	Do we	have measure	ments on QSF	P and CXP mat	ed HCB-MCB re	eflection response?	
Dudek, Mił	ke	QLogic			Suggested	IRemedy					
Comment	Tvpe T	Comment Status D			lf appi	opriate, update	equations 86	A-8 and Figure 8	6A-4 in line with	n measurements.	
The M	CB SDD21 is ex	pected to be approximately h	alf the loss of th	e HCB, but the	Response		Response	Status C			
freque	ncy independent	term ratio is far larger.			ACCE	PT IN PRINCIF	LE.				
Suggested Chang	<i>Remedy</i> je MCB frequenc	y independent term from -0.0	006 to -0.006		Replace crosstalk limits of equations 86A-11 through 86A-14 and associated text and Figure 86A-6 with a requirement that the ICN limits of 85.10.10.3 must be met						
Proposed REJEC	Response CT.	Response Status Z			See a	so comment 1'	4.				
This co	omment was WI	THDRAWN by the commente	er.								

C/ 86A SC 86A.5.1.1.2

<i>Cl</i> 86A Ghiasi, Ali	SC 86A.5.1.1.2	2 P 436 Broadcom	L 32	# 114	<i>Cl</i> 86A Petrilla, Jo	SC 86A.5 .	3.8	P 441 Avago Techno	L 23 blogies	# 197		
Comment Mated specila	<i>Type</i> TR test fixture crosst ally PSFXT will imp	Comment Status A alk loss in current draft are p pact the measurements acc	place holder and uracy	d some of the limit	<i>Comment</i> The 's and re then to	<i>Type</i> E hall' in "Host e quirements o pimplementer	Comm electrical rece 86A.5.3.8.1 s.	ent Status A eiver signal tolerand to 86A.5.3.8.6." se	e shall be defin ems more an in	ed by the procedures struction to the editors		
For the	e new limits please	e see ghiasi 01 0909			Suggested	dRemedy						
Response ACCEI see res	PT IN PRINCIPLE sponse to comme	Response Status C nt 113	1 22	# 100	Chang require define statem satisfy	ge, "Host elect ements of 864 d by the proce nent is desired the requirem	rical receiver 0.5.3.8.1 to 8 edures and re 1 to "To be co ents defined	signal tolerance sh 6A.5.3.8.6." to "Hose equirements of 86A ompliant a host elect by the procedures	hall be defined b t electrical rece .5.3.8.1 to 86A. trical receiver s and requiremen	y the procedures and iver signal tolerance is 5.3.8.6." or if a shall ignal tolerance shall ts of 86A.5.3.8.1 to		
Petrilla, Jol	hn	Avago Techno	blogies	# 196	86A.5 Response	.3.8.6."	Pospo	aso Status C				
Comment Type T Comment Status A Is the position of bit 1 in PRBS9 defined in 802.3? If so please cite a reference? If not delete, "These are bits 10 to 18 and 1 to 14, respectively." or create a definition for bit 1.					ACCEPT IN PRINCIPLE. Change, "Host electrical receiver signal tolerance shall be defined by the procedures and requirements of 86A.5.3.8.1 to 86A.5.3.8.6." to:							
delete, "These are bits 10 to 18 and 1 to 14, respectively." or create a definition for bit 1. <i>SuggestedRemedy</i> Unless a definition that permits locating bit 1 exists, delete the sentence, "These are bits 10					"To be compliant a host electrical receiver signal tolerance shall satisfy the requirements of 86A.5.3.8.1 to 86A.5.3.8.6."							
Response		Response Status C			<i>CI</i> 86A Petrilla, Jo	SC 86A.5 hn	3.8.6	P 445 Avago Techno	L16 blogies	# 198		
ACCEPT IN PRINCIPLE. Change "These are bits 10 to 18 and 1 to 14, respectively." to "These are bits 10 to 18 and 1 to 14, respectively, where bits 1 to 9 are the run of nine zeros."						Comment Type T Comment Status A The term LB in figure 86A-11 is not defined. Assuming it's the same LB as in 87 and 88, the definition in 88.8.10, "LB = loop bandwidth; Upper frequency bound for added sine jitter should be at least 10 times the loop bandwidth of the receiver being tested " can be referenced or copied and pasted below figure 86A-11						
					Suggested	Remedy				-		
					Insert bound being	after figure 86 for added sin tested."	A-11, the de jitter should	finition for LB, "LB d be at least 10 time	= loop bandwidt es the loop band	h; Upper frequency dwidth of the receiver		
					_							

Response

Response Status C

ACCEPT IN PRINCIPLE.

Add table with appropriate expressions to describe figure 86A-11, following the style of table 87-13, with editorial licence to make it look smashing ! add footnote to table: "LB = loop bandwidth; upper frequency bound for added sine jitter should be at least 10 times the loop bandwidth of the receiver being tested."

See king_01_0909 for example table and text

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general

TYPE: TR/technical required ER/editorial required GR/gener	al required T/technical E/editorial G/general	01 004	
COMMENT STATUS: D/dispatched A/accepted R/rejected	RESPONSE STATUS: O/open W/written C/closed U/u	Insatisfied Z/withdrawn	Page 57 of 64
SORT ORDER: Clause, Subclause, page, line		SC 86A.5.3.8.6	9/24/2009 12:43:33 AM

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

C/ 86A	SC 86A.6	P 444	L 37	# 44	C/ 86A	SC 86A.6	P 446	L 44	# 181	
Mark, Gustl	lin	Cisco			Dudek, Mik	.e	QLogic			
Comment 7	Type TR	Comment Status A			Comment Type T Comment Status A					
Formul = -0.11	a 86A-19 seems 4-0.8914*?f-0.84	incorrect from in the range fro 6*f	m 0.2 to 7GHz	z, should be	The minimum loss at Nyquist from TP0 to TP2 is only 2.08dB based on equation 86A-20. The HCB PCB loss is 1.26dB without the connector (equation 86A-4) leaving only 0.82dB					
Suggestedl	Remedy				for the anythin	connector and ho	ost PCB. ie this minimum rec	commended los	ss is not really doing	
Change	e the + to a				, Suaaestedi					
Response		Response Status C			euggeeteu.	loniouj				
ACCEF Note: C see als	PT. Comment 15 has o comments 68,	changed the sign of this equa and 232	tion.		Response Response Status C ACCEPT IN PRINCIPLE.					
C/ 86A	SC 86A.6	P 446	L37	# 232	Duplica		comment 179.			
Misek, Bria	n	Avago Technolo	gies		C/ 86A	SC 86A.6	P446	L 45	# 179	
Comment 7	Гуре Т	Comment Status A			Dudek, Mik	е	QLogic			
Sign er "+ 0.84	ro in equation 86 6f" should be "- (6A-19 D.846f"			Comment Type TR Comment Status A Equation 86A-20 is wrong. (requires gain at high frequency and has a discontinuity) and					
Suggestedl	Remedy				doesn't	match Figure 86	-12			
change "+ 0.846f" should be "- 0.846f"					Also with the correction the minimum loss at Nyquist from TP0 to TP2 is only 2.08dB based on equation 86A-20. The HCB PCB loss is 1.26dB without the connector (equation 86A-4)					
Response		Response Status C			leaving is not r	only 0.82dB for t eally doing anythi	he connector and host PCB. ng.	ie this minimu	um recommended loss	
see cor	mments 44 and 6	 68			Suggested	Remedy				
[Editor's	s note: Late com	ment for consideration by the	Task Force]		Add a row to the equation 0.01 <f<1 0<="" td="" value=""></f<1>					
C/ 86A	SC 86A.6	P 446	L37	# 68	Change	e the existing first	row to +0.5 - 0.5*f			
Dawe, Piers	S 	Independent			Consid existing	er also increasing g first row to 0.6 -	g the minimum loss at Nyquis 0.6*f and changing the seco	st by approx 0.9 nd row to -3.7	5dB by changing this	
Comment I	ype T	Comment Status A	araian of DO 1	864.20	Response		Response Status C			
Sign er Suggestedl Change Response ACCEF see cor	ror in equation at Remedy e + 0.846f to - 0.8 PT IN PRINCIPLE mment 44 and 23	6A-19. It should be a scaled v 346f. <i>Response Status</i> C <u>E.</u> 32	ersion of D2.1	86A-2U.	ACCEF Change +0.5 - (Note: C Also, a 0.01 <f<< td=""><td>PT IN PRINCIPLE sign to make the 0.5*f Comment 15 has o dd a row to the ec <1 value 0</td><td>changed the overall sign of the quation</td><td>nis equation.</td><td></td></f<<>	PT IN PRINCIPLE sign to make the 0.5*f Comment 15 has o dd a row to the ec <1 value 0	changed the overall sign of the quation	nis equation.		
					The mi 85 has change	nimum loss issue been reduced to e.	has been overtaken by ever 0.67 dB, which does not requ	nts. The Host F uire the TP0 to	PCB min loss in Clause TP2 min loss to	

CI 86A SC 86A.6 Page 58 of 64 9/24/2009 12:43:33 AM

Draft 2.2 Comments	
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See also comment #121

IEEE P802.3ba D2.2 40Gb/s and 100Gb/s Ethernet comments

WG 2nd recirculation ballot

C/ 87 SC 87.1 Marris, Arthur	P 313 Cadence	L 35	# 11	C/ 87 SC 87.5.3 Ghiasi, Ali	P 317 Broadcom	L12	# 124
Comment Type T IEEE is not the same a	Comment Status A Is ISO/IEC			Comment Type TR The L0-L3 is not conn	Comment Status D ected to any instantiation logica	al or Physical	
SuggestedRemedy Delete '(IEEE)'				SuggestedRemedy Please update figure t	o show XLAUI retimer		
Response ACCEPT IN PRINCIPL	Response Status C E.	ico "to the ISO		Proposed Response REJECT.	Response Status Z		
others (e.g. 22, 54, 65) Delete "(IEEE)" here, ir See also comment #12	use just "to the ISO/IEC OSI" subclause 88.1 and also in su	bclause 81.1		This comment was W [Editor's note: Subclau	ITHDRAWN by the commenter use changed from 88.5.3 to 87.	5.3, Page char	nged from 316 to 317]
C/ 87 SC 87.5.3 Ghiasi, Ali	P 317 Broadcom	L12	# 125	XLAUI is an optional in See also comment #1	nterface and therefore may not 22	be present.	
Comment Type TR Fig 87-2 as drwan indic	Comment Status D cate and optical retimer!						
SuggestedRemedy Please move L0-L3 bet	fore and after optical mux.						
Proposed Response REJECT.	Response Status Z						
This comment was WI	THDRAWN by the commenter.						

[Editor's note: Subclause changed from 88.5.3 to 87.5.3] L0 through L3 are the four lanes. This designation is not specifically optical or electrical. The same arrangement is shown in Figure 53-2 and also in Figure 86-2.

C/ 87 SC 87.8.11 P 326 L 15 # 49 Szczepanek, Andre HSZ Consulting Ltd	C/ 87 SC 87.8.11.1 P 326 L 41 # 48 Szczepanek, Andre HSZ Consulting Ltd HSZ Consulting					
Comment Type TR Comment Status R	Comment Type TR Comment Status R					
" Stressed receiver sensitivity shall be within the limits given in Table 87-8 for 40GBASE- LR4 if measured using the method described in 87.8.11.1 and 87.8.11.5 with the conformance test signal at TP3 as described in 87.8.11.2 "	"The sinusoidal amplitude interferer may be set at any frequency between 100 MHz and 2 GHz" Providing such a wide range of frequency (in addition to amplitude) makes compliance testing difficult					
Stressed receiver sensitivity compliance is a normative requirement, but the test setup has a number of variable parameters : BT filter parameters, sinusoidal jitter frequency, sinusoidal amplitude interferer frequency and amplitude, etc.	SuggestedRemedy Select a single sinusidal amplitude interferer frequency of 1GHz.					
Given the wide range of alternative configurations that could meet the stressed eye VECP and SEJ values, is it the intention of the committee that all such test setups be tested against the Stressed receiver sensitivity requirement ? i.e. In order to be compliant is it sufficient to demonstrate compliance at just one such configuration, or does failure at any such configuration mean an implementation is non- compliant.	Response Response Status C REJECT. [Editor's note Subclause changed from 8.11.1 to 87.8.11.1] The added sinusoidal jitter frequency is constarined to be at least a factor of ten higher than the loop bandwidth of the receiver CDR used, making it a specific frequency is an unnecessary constraint on test equipment manufacturers. This variation is the same as was used in subclause 52.9.9.1.					
I see hazards in either position. A single pass might allow an implementation to select a set of parameters particularly favorable in order to pass. Conversely demonstrating that there is no single combination of parameters that does not cause a failure would cause testing to take an impracticable amount of time.						
SuggestedRemedy						
Add some text indicating the committees intention.						
There will be a contribution at the September interim to support this comment						
Response Response Status C REJECT. [Editor's note Subclause changed from 8.11.1 to 87.8.11] If all such test setups needed to be tested against the Stressed receiver sensitivity requirement, then the test defininiton would say so. With any of the tests defined in the draft there is the possibility that one arrangement for measurement may pass a device while another fails it. The stressed signal for SRS testing is tightly constrained: the calibration reference receiver filter parameters are exact, and the results of sinusoidal amplitude and jitter interferers is precisely defined.						
TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/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/ 87 SC 87.8.11.1

Draft 2.2 Comments IEEE P802.3ba D2.2 40Gr					s and 100Gb/s Ethernet comments WG 2nd recirculation ba						
C/ 87	SC 87.8.11.2	P 328	L 8	# 77	C/ 87	SC	87.8.11.2	P329	L1	# 46	
Dawe, P	iers	Independent			Szczepar	nek, Andı	re	HSZ Consulting	Ltd		
Commer	nt Type TR	Comment Status A			Commen	t Type	TR	Comment Status R			
87.8 In 52 10G In 58	11.2 has a definiti 2.9.9.2, VECP is d EPON. Also appli 3.7.11.2 VECP is (on of VECP that contradicts the efined as 10 log(OMA/AO). A es in 86.8.4.7. defined as 10 log10(AN/AO).	ne rest of 802.3 pplies to 10G, s where AN is to	. Detail follows: scrambled, including	" Wit the d for th	h the sinu B value o e fourth-	usoidal in of the VE order Bes	terference and sinusoidal jitter t CP should be created by the se ssel-Thomson filter."	urned off, g ection of the	reater than two thirds of e appropriate bandwidth	
squa	are wave pattern co	onsisting of four to eleven con	secutive ones f	ollowed by an equal run	Provi	ide a rang	ge rather	than a limit for the Bessel-Thon	nson Filter o	contribution	
of ze	eros. Applies to 10	00M and 1G, block coded.	error) where "/	N is the normal	SuggestedRemedy						
amp GBd 10G In D	litude without ISI, a l, block coded). BASE-LRM doesn 2.2 87.8.11.2, VEC	't use VECP. CP is defined as 10 log(AN/AO p Figure 87-4 " but unlike Figu), where "AN is	the normal amplitude	Char " Wit dB va the fo	nge to : h the sinu alue of th ourth-orde	usoidal in e VECP s er Bessel	nterference and sinusoidal jitter t should be created by the selecti I-Thomson filter."	urned off, b on of the ap	etween 0.6 and 0.7 of the propriate bandwidth for	
diffe	rence of means of	histograms at crossing time, v	which is not exa	actly OMA nor the	There	e will be a	a contribu	ution at the September interim to	support the	is comment	
"nor	mal amplitude with	out ISI". (52.9.9.2 says "OM/	A is the normal	amplitude without ISI,	Respons	е		Response Status C			
as shown in Figure 52-11" but 52.9.5 gives a precise definition.) D2.2 88.8.5.1 uses the 52.9.9.2 definition of VECP while 88.8.10 uses 87.8.11. SuggestedRemedy Definitions and stressed eye generators will be shared across 40GBASE-LR4, 10GBASE- LR, 10GBASE-ER and 10GEPON, so 87.8.11.2 should conform. Change the definition of VECP to 10 log10(OMA/AO).				es 87.8.11. BASE-LR4, 10GBASE-	[Editor's note: Subclause changed from 8.11.1 to 87.8.11.2. Commenter did not indicate comment type. Assigned comment Type TR] This text is drawn from clause 52 and includes a range of 0.667 to 1.0 of the VECP. The proposed changes restrict the range and is an unnecessary constraint on test equipment manufacturers.						
loa of Fi	ivoid confusion, mo	odify Figure 87-4 to remove "A oximate AN" of Fig 58-9, and i	N" (which is the it's not relevant	e "Approximate OMA") and remove the	CI 87	SC 8	87.8.11.2	P 329	L16	# 47	
histo	ograms at the cross	sing time.			Szczepar	nek, Andı	re	HSZ Consulting	Ltd		
lf wi (this	shed, add pointers	to illustrate where OMA would	d be, at the sett re 53-12 or 58-	led one and zero levels	Commen	t Type	ER	Comment Status A			
Respons	se	Response Status W		5).	" The sinusoidal jitter added should result in at least 0.05 UI peak to peak DCD."						
ACC In ec	CEPT IN PRINCIPL	LE. Je "10xlog(AN/A0)" to "10log(C	DMA/A0)" and "	AN is the normal	This anyw	is the onl /ay. This	ly indicati sentence	ion of a minimum DCD requirem	ent in the onoved.	draft and is not normative	
amp amp	litude without ISI, a	as snown in Figure 87-4." to "C 1 87.8.5".	JIVIA IS the opti	cal modulation	Suggeste	edRemed	ly				
In Fi	igure 87-4 remove	AN and related histograms etc	с.		Rem	ove the s	entence.				
In 88 than	8.8.5.1 change "as "	defined in 52.9.9.2 is less that	in" to "as define	ed in 87.8.11.2 is less	Respons	е		Response Status C			
	uran .				ACCEPT IN PRINCIPLE. [Editor's note Subclause changed from 8.11.1 to 87.8.11.2] Many requirements are contained at only one place in the draft. To be discussed by the Task Force.						
					Char "The	nge "The sinusoid	sinusoida al jitter ac	al jitter added should result in at dded should result in at least 0.0	least 0.05 L 15 UI of duty	JI peak to peak DCD." to / cycle distortion (DCD)."	

CI 87 SC 87.8.11.2 Page 61 of 64 9/24/2009 12:43:33 AM

Draft 2.2 Comments		IEEE P8	302.3ba D2.2 40Gb/s a	and 100Gb/s Ethernet comments			WG 2nd recirculation ballot	
C/ 87 SC 87.8.11.3 Dawe, Piers	3 P 329 Independent	L 3 1	# 76	<i>Cl</i> 88 Ghiasi, Ali	SC 88.5.1	P 346 Broadcom	L12	# 122
Comment TypeTRComment StatusAAll but two 10G Ethernet Bessel-Thomson responses for measurement (even the one in 87.8.9) have a bandwidth / reference frequency fr / 3 dB upper electrical cutoff frequency of 7.5 GHz. 86.8.4.4 has 6.2 GHz for a reason. Here we have 7.73 GHz. Implementers are going to use the same 10G instruments for 40GBASE-LR4 as for 10GBASE-L and 10GEPON, so this difference, between 7.5 and 7.73, is not practical.			Comment Type TR Comment Status D The L0-L3 is not connected to any instantiation logical or Physical SuggestedRemedy Please update figure to show gearbox and CAUI Proposed Response Response Status					
SuggestedRemedy Change 7.73 to 7.5.				REJECT	Г.			
Response ACCEPT.	Response Status W			This cor	mment was V	VITHDRAWN by the commenter.		
Cl 87 SC 87.8.11.3 Dawe, Piers	3 P329 Independent	L 3 1	# 62	CAUI is The gea interface See also	an optional in arbox functior e would not n o comment #	nterface and therefore may not be n is within the PMA function and a leed it. 124	e present. I possible futur	re 25G electrical
Elsewhere in 802.3 wh reference receiver) is s "bandwidth" or "referen	comment Status A here a Bessel-Thomson respons specified, it isn't called "3 dB up nce frequency fr" or simply "7.5	se for measure oper electrical c GHz Bessel-T	ment (scope or cutoff frequency" but homson".	Cl 88 Ghiasi, Ali Comment Ty	SC 88.5.1 ype TR	P 346 Broadcom Comment Status D	L12	# 121
Please change "3 dB u change "ideal fourth-oi frequency of * GHz." to fourth-order Bessel-Th But please don't try to	upper electrical cutoff frequency rder Bessel-Thomson response o "ideal * GHz fourth-order Bess homson response with a bandwi change "response" to "loss"	/" to "reference with a 3 dB up sel-Thomson re idth of * GHz."	frequency fr", or oper electrical cutoff esponse", or "ideal	Fig 88-2 SuggestedR Please r Proposed R	2 as drwan in Remedy move L0-L3 b esponse	dicate and optical retimer! before and after optical mux. <i>Response Status</i> Z		
Response ACCEPT IN PRINCIPI	Response Status C			REJECT	T. mment was V	VITHDRAWN by the commenter.		
Change "fourth-order E frequency of" to "fourth	Bessel-Thomson response with h-order Bessel-Thomson respor	a 3 dB upper ense with a refer	electrical cutoff rence frequency fr of"					
C/ 88 SC 88.1 Marris, Arthur	P 343 Cadence	L 34	# 12	L0 throu The san See also	igh L3 are the ne arrangeme o comment #	e four lanes. This designation is l ent is shown in Figure 53-2 and a 125	not specifically Iso in Figure 8	/ optical or electrical. i6-2.
Comment Type T IEEE is not the same a	Comment Status A as ISO/IEC							
SuggestedRemedy Delete '(IEEE)'								
Response ACCEPT IN PRINCIPI See Response to com	Response Status C LE. Iment #11							

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/ 88 SC 88.5.1 Page 62 of 64 9/24/2009 12:43:33 AM

CI 88	SC 88.8.10	P 357	L 21	# 129
Ghiasi. Ali		Broadcom		

Comment Type TR Comment Status R

Stress receiver sensitivy has corner frequncy of 10 MHz also see comment 224 and 225 D2.1 can limit the receiver to analog type instead of more efficient lower power digital implementation. The clock and power supply noise do not scale with higher baudrate so there is very little benifit of higher CRU BW. The CRU increased BW has very little benifit on the VCO noise. The 10 MHz burden will remin even in the case of future generations where ASIC/SerDes operate at 25 G!

SuggestedRemedy

Propose to consider corner frequency of 7 MHz instead of current 10 MHz and change 100 KHz to 70 KHz. Higher CRU BW has very little benifit on the VCO noise and power supply nosie but significant penalty on the receiver, see ghiasi_02_0909

Response Response Status C REJECT.

See Response to Comment # 127

CI 88	SC 88.8.5.3	P356	L12	# 128
Ghiasi, Ali		Broadcom		

Comment Type TR Comment Status R

Transmitter eye diagrm is measured CRU BW of 10 MHz also see comment 224 and 225 D2.1 can limit the receiver to analog type instead of more efficent lower power digital implementation. The clock and power supply noise do not scale with higher baudrate so there is very little benifit of higher CRU BW. The CRU increased BW has very little benifit on the VCO noise. The 10 MHz burden will remin even in the case of future generations where ASIC/SerDes operate at 25 G!

SuggestedRemedy

Propose to consider CRU BW 7 MHz instead of current 10 MHz. Higher CRU BW has very little benifit on the VCO noise and power supply nosie but significant penalty on the receiver, see ghiasi_02_0909

Response

Response Status C

REJECT. See Response to Comment # 127

CI 88	SC 88.8.5.3	P356	L12	# 126
Ghiasi, Ali		Broadcom		
Comment 7	Type TR	Comment Status R		
The CF	RU BW for the T	DP measurement is defiend t	o be 10 MHz al	so see comment 224
and 22	5 D2.1 can limit	the receiver to analog type in	stead of more e	efficent lower power
ا منهنه ا	molomontation	The 10 Mills burden will rem	in avon in the a	and of future

and 225 D2.1 can limit the receiver to analog type instead of more efficent lower power digital implementation. The 10 MHz burden will remin even in the case of future generations where ASIC/SerDes operate at 25 G!

SuggestedRemedy

Propose to consider CRU BW 7.5 MHz instead of current 10 MHz, see ghiasi_02_0909

Response		Response Status C		
REJE See R	CT. esponse to Commo	ent # 127		
C/ 88	SC 88.8.5.3	P 356	L12	# 127
Ghiasi, Ali		Broadcom		

Comment Type **TR** Comment Status **A**

The CRU BW for the TDP measurement is defiend to be 10 MHz also see comment 224 and 225 D2.1 can limit the receiver to analog type instead of more efficent lower power digital implementation. The clock and power supply noise do not scale with higher baudrate so there is very little benifit of higher CRU BW. The CRU increased BW has very little benifit on the VCO noise. The 10 MHz burden will remin even in the case of future generations where ASIC/SerDes operate at 25 G!

SuggestedRemedy

Propose to consider CRU BW 7 MHz instead of current 10 MHz. Higher CRU BW has very little benifit on the VCO noise and power supply nosie but significant penalty on the receiver, see ghiasi_02_0909

Response Response Status U

ACCEPT IN PRINCIPLE.

In Table 88-13 correct the formula: change "2 x 10^{5} / f" to "5 x 10^{5} / f"

The Task Force voted on whether to:

- A Leave the CRU corner frequency at 10 MHz and correct the formula in Table 88-13
- B Change the CRU corner frequency to 7 MHz in a consistent manner in clause 88

A 9 B 1

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CI 99	SC ToC	P1:	3	L 26	# 141
D'Ambros	ia, John	Force	10 Networks		
<i>Comment</i> There	<i>Type</i> E is a wrap around	Comment Status d error in the listing for	A r Clause 52.		
Suggestee fix wra	dRemedy ap-around error f	or Clause 52 entry.			
Response ACCE	e PT IN PRINCIP	Response Status LE.	С		

Fix ToC formatting as appropriate

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

CI 99 SC ToC