C/ 140 SC 140.6 P41 L39	# 9	C/ 140	SC 140.6.1	P <b>41</b>	L16	# 8
Lewis, David Lumentum		Nicholl, Gar	y	Cisco Syster	ns	
Comment Type T Comment Status D	optical specs	Comment T	/ре Т	Comment Status D		optical spece
With the introduction of the Tx peak-to-peak power (max) spec, the 1000 overload requirement has now increased by 0.8 dB as the receiver has to peak power. The peak-to-peak power spec does not state that overshod are evenly distributed so it is possible that all of the peak power is overload problems with the increased power the Outer Optical Modulatio (OMAouter) max should be reduced and the Transmitter peak-to-peak power reduced for the LR1 spec. SuggestedRemedy Change Outer Optical Modulation Amplitude (max) to 4.7 dBm. Change Toposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Pending Task Force presentation and discussion.	o handle this peak- ot and undershoot hoot. To avoid on Amplitude ower should be	http://w and disc straw po http://w For refe 1. Chan 3.5dB to 2. Chan FR1, 10 with tho 3. Chan tables. 4. Chan tables.	sussed during bills #1-#6 as c vw.ieee802.or rence the cha ge TDECQ(ma o 3.4dB ge to a single 0GBASE-LR1 se defined for ge the way T2 ge the way R	g/3/cu/public/cu_adhoc/cu_ar the May 5th ad-hoc conference aptured in g/3/cu/public/cu_adhoc/cu_ar nges can be summarized as f ax), TECQ(max) and SECQ(n extinction ratio range for the , 400GBASE-FR4 and 400GE	ce call, and in kee chive/minutes_3o ollows: nax) values for 40 specification of T BASE-LR4-6, with sented in the "tra ed in the "receive	eping with directional cu_adhoc_050520.pdf. D0GBASE-LR4-6 from CxOMA for 100GBASE- h values consistent Insmit characteristics" e characteristics"
		SuggestedF	emedy			
			ne of the num	ions after the May 5th ad-hoc pers in cole_3cu_adhoc_0505		
			/ill be presente	d to implement the changes a ed  during the P8023cu_D21 o		
		Proposed R	esponse	Response Status W		
		PROPC	SED ACCEP	IN PRINCIPLE.		
		Pendino	Task Force p	resentation and discussion.		
			•			

C/ 140 SC 140.6.1

C/ 140	SC 140.6.1	P <b>41</b>	L <b>37</b>	# 24
Dudek, Mike		Marvell		
Comment Ty	rpe <b>T</b>	Comment Status D		interop

There is a problem with the signal detect for 100GBASE-FR1. The threshold in 140.5.4 refers to the minimum received power in Table 140-7 which is -6.9dBM, however there is a note that it is informative. The -6.9dBm is calculated as the max channel loss (4dB) below the minimum transmitter average power in table 14-6 (or -2.9dBm) but that number is informative and at infinite extinction ratio the average power would be -3.2dBm, resulting in a minimum average input power of -7.2dBm. (Note the problem is even worse in 100GBASE-DR but fixing that would be out of scope.)

### SuggestedRemedy

Make the Average launch power (min) for 100GBASE-FR1 to be normative. (note this is needed to ensure inter-operability on the signal detect with 100GBASE-DR, otherwise the Average Receiver power (min) could have been adjusted instead.

Proposed Response	Response Status	w
1 1000000 1 1000001100		**

PROPOSED REJECT.

Average launch power (min) is informative for all PAM4 optical PMDs in 802.3.

Subclause 140.10a (Requirements for interoperation between 100GBASE-DR, 100GBASE-FR1 and 100GBASE-LR1) is also informative and was added to provide guidance to end users on how to interconnect the different PMD types. It should not be the primary reason for changing PMD optical specifications, e.g. changing average launch power (min) from informative to normative.

C/ 140	SC 140.6.1	P <b>41</b>	L37	# 22
Dudek, Mike		Marvell		
Comment Ty	pe T	Comment Status D		interop

To improve inter-operability between 100GBASE-LR1 and 100GBASE-DR the average launch power min for LR1 needs to be increased a little and needs to be made normative. With the existing OMA numbers and not knowing what the loss of a 100GBASE-DR channel is it is possible to use an attenuator on the output of the 100GBASE-LR1 transmitter with an attenuation between 0.8dB and 1.1dB except that with the 1.1dB attenuator and a max loss 100GBASE-DR channel the 100GBASE-DR receiver signal detect might not detect the input. It is very convenient to use a single value attenuator with using to know the loss of the channel and this allows the use of a 0.95dB attenuator with +/-0.15dB tolerance.

#### SuggestedRemedy

Increase the average launch power (min) for 100GBASE-LR1 from -2dBm to -1.8dBm. Change note" a" to say "For 100GBASE-LR1 to ensure inter-operability with 100GBASE-FR1 and 100GBASE-DR the average launch power min is normative, for 100GBASE-FR1 and 100BASE-DR the average launch power min is informative."

Proposed Response Response Status W PROPOSED REJECT

Subclause 140.10a (Requirements for interoperation between 100GBASE-DR, 100GBASE-FR1 and 100GBASE-LR1) is informative and was added to provide guidance to end users on how to interconnect the different PMD types. It should not be the primary reason for changing PMD optical specifications.

The commenter has not provided data on the impact of the proposed change on the 100GBASE-LR1 transmitter.

C/ 140 SC 140.6.1

V 140 SC 140.6.1	P <b>41</b>	L <b>51</b>	# 30	C/ 140	SC 1	140.6.3	P <b>44</b>	L <b>43</b>	# 10	
Dawe, Piers	Mellanox			Lewis, Da	vid		Lumentum			
Comment Type TR	Comment Status D		10logCeq	Comment	Туре	т	Comment Status D		RS figur	
Although the relative and limit would catch, they dor of a K limit, so it's not unn	n't catch all of them. P802	.3ct and P802.3	cw have the equivalent	TECQ	respect	tively.	ld a graph showing how OM	Aouter and RS v	ary with TDECQ and	
the TDECQ method.	cococary. The motivation	ior removing it v		Suggested						
SuggestedRemedy				showi	ng the va	ariation of	Table 140-8 for 100GBASE-I f Tx OMAouter and RS again	nst TDECQ and <sup>·</sup>	TECQ respectively. A	
Reinstate the K limit for 10 400GBASE-LR4-6. For th	ese PMDs, apply it at TP2			preser Proposed			of this comment will show th Response Status <b>W</b>	e form of the two	o graphs.	
Improve the accuracy of the				PROP	OSED A	ACCEPT	IN PRINCIPLE.			
Proposed Response PROPOSED REJECT.	Response Status W			Pendi	ng Task	Force pre	esentation and discussion.			
This is a similar comment	to #59, #62, #68, #69, an	d #87 against D2	2.0. These five	C/ 140	SC 1	140.7.5a	P <b>46</b>	L <b>3</b>	# 12	
comments were rejected t		earlier decision	to remove 10logCeq	Sorbara, N	/lassimo	)	GlobalFound	ries		
and replace it with oversh	oot limits.			Comment	Туре	т	Comment Status D		definition	
The response to #87 is in Based on the results of St		the be	ginning	of the cla	ng, provide a definition of TE use. Then the remainder of t nce cross-reference.	CQ in a sentence he paragraph re	e at the beginning of mains as is in			
Force consensus was to r to remove "TDECQ-10Loc				SuggestedRemedy						
(including among other ch specifications).				Add th closur	e follow e for PA	ing sente M4 (TEC	nce at the beginning of sub- Q) is a measure of the optica output of the optical transmit	al transmitter's v		
Straw Poll #1:				Proposed	Respon	se	Response Status W			
With regards to the inclusion a) Full removal from both	Tx and Rx tables: 27	parameter, I sup	oport:	PROP	OSED A	ACCEPT	IN PRINCIPLE.			
b) Reinstate for both Tx a (17 Abstain)	nd RX tables: 9			Adding	g the foll	lowing se	ntence at the beginning of su	ub-clause 140.7.	5a:	
						er eye clo osure at T	osure for PAM4 (TECQ) is a l 'P2."	measure of the o	optical transmitter's	

C/ 140 SC 140.7.5a

C/ 140	SC 1	40.7.5b	P <b>46</b>	L <b>8</b>	# 28	C/ 140	SC	140.7.5b	P <b>46</b>	L10	# 13
Dawe, Pi	ers		Mellanox			Sorbara, N	/lassimo	С	GlobalFou	Indries	
Commen	t Type	TR	Comment Status D		overshoot	Comment	Туре	т	Comment Status D		bucke
and i says: "Gua	n slide 6 d : rding aga shoot, und	of zivny_0 inst the ov dershoot a	aka relative overshoot	nse." Slide 6 of z	odes_3cu_01_032420 zivny_01_032420	over/u measu believe	nder-sh ired usi e that th	noot percer ng a test p	Transmitter over/under- ntage of each lane shall to pattern specified for trans he specified test pattern i tional.	be within the limits g mitter over/under-sl	given in Table 140–6 if hoot in Table 140–10." I
		sure at TP sure also a	3 with both positive and neg	ative dispersion		Suggested	Remed	ly			
Suggeste		n compen	sation for Oscilloscope noise	allowed		over/u percer	nder-sh ntage of	loot, we pr f each lane	hat use of the test pattern opose to change 'if' to 'w e shall be within the limits cified for transmitter over	hile': "The transmitte given in Table 140	er over/under-shoot –6 ifwhile measured
			lative over/under-shoot".			Proposed	Respon	ise	Response Status W		
			ies with zero chromatic dispe P3), e.g. refer to 121.8.5.2 C			PROP	OSED I	REJECT.			
Make reflec Defin	e it clear the it	hat relativ ure 121-4 ard amou	<ul> <li>orgeneration in the rest of the second second</li></ul>	measured with or block diagram. ther 0.075*OMA	without the variable in the usual fb/2	that no	one of th	hese parar	all other PMD clauses. T meters are required to be l is to be used.		
	ve amour ersive fibre		from a real scope in a 400G	BASE-LR4-6 me	easurement after the	C/ 140	SC	140.7.5b	P <b>46</b>	L13	# 20
State	that the i	measurem	nent should take the actual s			Dudek, Mi	ke		Marvell		
spell		o do that	(because it depends too muo	ch on the details	of how a particular	Comment	Туре	т	Comment Status D		overshoo
	,	t ratio" for	the measurement. This sho	ould be better the	in 5e-5 but not so	"Equa	lizer turi	ned off" is	not defined.		
scope		t an avor	under-shoot measurement v			Suggested	Remed	ly			
scope Spec dema	anding the		igh the calculation afterward	te le frivial in con	narisoni						
scope Spec dema meas Adjus	anding tha surement st the spe	(even tho c limit if th	ugh the calculation afterward lese changes give different r l Clause 151.			coeffic	ents se	et to zero".	ntence "i.e. with the tap 2 Also to the end of line 4	3. As an alternative	e this definition of
scope Spec dema meas Adjus Make	anding tha surement st the spe	(even tho c limit if th hanges in	nese changes give different r			coeffic "equal	ents se izer turr	et to zero". ned off" co		<ol> <li>As an alternative 140.7.5 and these t</li> </ol>	e this definition of two sentences could be

Pending Task Force presentation(s) and discussion.

Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE.

Change the sentence in 140.7.5b

from:

"Transmitter over/under-shoot is measured using the TDECQ reference receiver (see140.7.5) with the equalizer turned off." to:

"Transmitter over/under-shoot is measured using the TDECQ reference receiver (see140.7.5) with the equalizer turned off, i.e. with one of the tap coefficients set to 1.0 and all other tap coefficients set to 0."

C/ 140 SC 140.7.5b Page 4 of 11 5/15/2020 5:48:35 PM

Dawe, Pier				# 31	C/ 140	SC 140.7.5	b P <b>46</b>	L27	# 32
buwe, riei	S	Mellanox			Greg , LeO	Cheminant	Keysight T	echnologies	
Comment T	Туре Т	Comment Status D		overshoot	Comment	Туре Т	Comment Status D		overshool
measu		Pmax - P3)/OMAouter * 100 is y accurate. Also, if the signal ng.			the co	mpliance SSPR		·	Ĵ.
Suggested	Remedy						t (OS) and undershoot (US) //US measurements were m		
Chang in 151.		average)/OMAouter -0.5) * 10	0. Similarly for I	Undershoot. Similarly	transm	nitters were ther	n each placed in a system to ncluding error floors and ove	o correlate transmi	tter performance to
Proposed F PROP	Response DSED ACCEPT	Response Status W IN PRINCIPLE.			level p	erformance. Tl	nat levels of transmitter perfo ne OS/US values were base m results used SSPRQ. The	d on a measurem	ent using a square
Pendin	g Task Force pr	resentation(s) and discussion.			the diff were n a hit ra or belo indepe of 22% same same with sy	ferences betwe etested using th atio method, wh bw the US limit. endent of the wa 6, the hit ratio m 22% limit. That OS/US values a ystem level perf	elds optimistic OS/US value en test patterns, the transmine SSPRQ pattern. The OS ere a small percentage of sa This has the added benefit aveform sample population. tethod is adapted to yield eq is, OS/US values observed as the square wave method formance is maintained. By ion was determined to be 1e	tters from the orig /US test method w amples are allowed of providing consi Rather than chan uivalent system le using SSPRQ and used in the original experimentation, t	inal experiment set vas also modified using d to exist above the OS stent results ge the current spec limit vel differentiation at the d hit ratio yield the al results. Correlation
					Suggestea	Remedy			
					change	e line 27 to			
					the nu	mber of sample er of observed s	a 1e-2 hit ratio, where Pmax is above that level not excee amples, with all samples ad	eding the product o	of hit ratio and total
					Chang	ge line 29 to			
					the nu	mber of sample er of observed s	1e-2 hit ratio, where Pmin i is below that level not excee amples, with all samples ad	ding the product c	of hit ratio and total
					Proposed	Response	Response Status W		
					PROP	OSED ACCEP	T IN PRINCIPLE.		
					Pendir	ng Task Force p	presentation(s) and discussion	on.	

C/ 140 SC 140.7.5b

C/ 140	SC 140.7.5c	P <b>46</b>	L <b>38</b>	# 14	C/ 140	SC	140.7.9	P <b>47</b>	L17	# 21
Sorbara, I	Massimo	GlobalFoundr	ies		Dudek, M	ke		Marvell		
Comment	Туре Т	Comment Status D		bucket	Comment	Туре	Е	Comment Status D		bucket
transn	nitter peak-to-peak	Transmitter peak-to-peak p power of each lane shall be					paragrapl entence.	h above (for DR) and improve	e clarity it would	be better to change the
if mea		ified for transmitter peak-to-	neak nower in T	Table 140_10 " I believe	Suggested	Remed	ły			
that th		ied test pattern is mandator			for 10	GBAS	E-FR1 and	sensitivity (OMAouter) shall b d 100GBASE-LR1, if measure –10." with "The receiver sens	ed using a test p	battern for receiver
Suggestee	dRemedy							all be within the limits given i		
over/u of eac	inder-shoot, we pro h lane shall be with	at use of the test pattern sp ppose to change 'if' to 'while nin the limits given in Table	': "The transmitt 140–6 ifwhile m	er peak-to-peak power neasured using a test	patter	n for rea BASE-D	ceiver sen	sitivity in Table 140–10. Also mative" to "The receiver sens	change "Recei	ver sensitivity for
patter	n specified for trans	smitter peak-to-peak power	in Table 140–10	0."	Proposed	Respor	ise	Response Status W		
Proposed	Response	Response Status W			PROF	OSED	ACCEPT.			
PROF	POSED REJECT.							D./-		
The w	ord "if" is used in a	II other PMD clauses. The r	eason for using	"if" is to emphasize	C/ 140		140.7.9	P <b>47</b>	L <b>41</b>	# 5
that ne	one of these param	neters are required to be me	0		Anslow, P			Self		
test pa	attern and method	is to be used.			Comment		E	Comment Status D		RS figure
C/ 140	SC 140.7.5c	P <b>46</b>	L <b>38</b>	# 29	Shoul	dn't Fig	ure 140-5	include something to indicate	the region that	is compliant?
Dawe, Pie	ers	Mellanox			Suggestee	Remed	ły			
Comment		Comment Status D		peak-to-peak power	Add "I	leets c	onstraints	"		
The p	ositive and negative	e peaks of an optical signal	can be very diff		Proposed	Respor	ise	Response Status W		
		dulated laser, but other tran			PROF	OSED	ACCEPT	IN PRINCIPLE.		
		not necessarily symmetrica re, the positive and negative		1 2	For Th	<sup>-</sup> discus	sion.			
Suggested	dRemedy				lt chou	uld also	bo noted	that comment #10 proposes	to romovo Eigur	o 140 5 and roplace it
Chano	ne "Transmitter nea	ak-to-peak power" which is I	Pmax - Pmin to	"Transmitter power				ana 140 6 However the a		

Change "Transmitter peak-to-peak power" which is Pmax - Pmin to "Transmitter power excursion", defined as max(Pmax-Paverage, Paverage-Pmin). Take 3 dB off the limits in Table 140-6.

Make similar changes in Clause 151.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Pending Task Force presentation(s) and discussion.

ace it with a new figure in sub-cause 140.6. However the same comment may also be applicable to the new figure (if comment #10 is accepted).

C/ 140 SC 140.7.9

C/ 140	SC 140.10a.3	P <b>43</b>	L13	# 23	C/ <b>140</b>	SC	140.11.4.6		P <b>56</b>	L <b>9</b>	# 7
Dudek, Mike		Marvell			Anslow, Pe	ete			Self		
Comment Typ	be T	Comment Status D		interop	Comment	Туре	Е	Commer	nt Status D		buck
	iver the signal	operability between 100GB/ detect level threshold must			"Table	140–1	2" should b		"Meets requirer strikethrough for		n Table 140–12" so
SuggestedRe	medy				Suggested		<i>iy</i> 40–12" in st	trikethroual	h font		
different of 100GBAS	comment is acc SE-FR1 receive	eive power (min) for 100GE cepted) and add to footnote er occurs when a 100GBASI Or alternatively bring 140.	<ul> <li>b. The minimun</li> <li>E-LR1 transmitte</li> </ul>	n receive power for r has maximum loss	Proposed	Respor		0	e Status W		
OK condi	tion for 100GB	ASE-FR1 to Optical power a	at TP3 >= -7.6d	3m (or -7.4dBm if a	C/ 140	SC	140.11.4.6		P <b>56</b>	L12	# 1
		cepted) AND Compliant 10	0GBASE-R signa	al input.	Shariff, Ma	asood			CommScope	)	
Proposed Res	sponse	Response Status W			Comment	Туре	TR	Commer	nt Status D		reference
PROPOS	ED REJECT.				IEC 61	753-1-	1 has been	withdrawn	and superseed	ed by IEC 61753	-1 Edition 2.0 August
Subclaus	e 140.10a (Re	quirements for interoperation	n between 100Gl	BASE-DR, 100GBASE-	1, 201	8					
FR1 and	100GBASE-LF	(1) is informative and was a	dded to provide g	juidance to end users	Suggested	Remed	dy				
	interconnect t PMD optical s	he different PMD types. It s	hould not be the	primary reason for	Chang	e to IE	C 61753-1	Edition 2.0			
changing	FIND Optical S				Proposed I	Respor	nse	Response	e Status W		
		provided data on the impac	t of the proposed	l change on the	PROP	OSED	ACCEPT IN	N PRINCIP	LE.		
100GBAS	E-FR1 receive	er.			Chang	e the r	eference fo	r "IEC 617!	53-1·2007" to "IF	-C 61753-1·2018	" in sub-clause 1.3.
C/ 140	SC 140.11.4.4	P55	L <b>22</b>	# 6	-						
Anslow, Pete		Self			Chang 802.3c			' to "IEC 6	1753-1" in 140.	10.3 (need to imp	port from IEEE Std
Comment Typ	e E	Comment Status D		bucket	002.30	u-2010	))				
OM5a, O	M5b, OM5c, ar	nd OM8a are all missing "N/	A [ ]" in the Supp	ort column	Chang	e "IEC	61753-1-1'	' to "IEC 6	1753-1" in the ta	able in 140.11.4.6	;
SuggestedRe	,			•	Chang	e "IEC	61753-1-1'	' to "IEC 6	1753-1" in 151.	11.3	
		oort column to OM5a, OM5b	, OM5c, and OM	8a	Chang		61753-1-1	' to "IEC 6	1753_1" in the ta	able in 151.13.4.7	,
Proposed Res PROPOS	sponse ED ACCEPT.	Response Status W			Chang		01755-1-1			1016 111 101.10.4.7	

C/ 140 SC 140.11.4.6

C/ 151	SC 151.7.3	P <b>67</b>	L <b>27</b>	# 11	C/ 151	SC 151.8.8	P <b>71</b>	L <b>51</b>	# 16
Lewis, Da	vid	Lumentum			Sorbara, M	lassimo	GlobalFound	ries	
Comment	Туре Т	Comment Status D		RS figure	Comment	Туре <b>т</b>	Comment Status D		buc
	ld be helpful to ad respectively.	d a graph showing how OMA	outer and RS \	ary with TDECQ and	transiti	on time of each	ne Transmitter transition time lane shall be within the limits	given in Table 1	151-7 for 400GBASE-
Suggested	dRemedy				FR4 ar transiti		.R4-6, if measured using a tes	st pattern specif	ied for transmitter
showii	ng the variation of	Table 151-9 for 400GBASE-FI         Tx OMAouter and RS agains         of this comment will show the	t TDECQ and	TECQ respectively. A	time in	Table 151-11."	I believe that the use of the s dershoot, not optional.	specified test pa	ttern is mandatory for
•			Ionn of the tw	o graphs.	Suggested	Remedy			
	Response	Response Status W			Chang	e 'if' to 'while'			
PROP	POSED ACCEPT I	N PRINCIPLE.			Proposed I	Response	Response Status W		
See c	omment #10				PROP	OSED REJECT.			
C/ 151	SC 151.8.6	P71	L33	# 15	The wo	ord "if" is used in	all other PMD clauses. The	reason for usinc	ı "if" is to emphasize
Sorbara, N	Massimo	GlobalFoundrie	es		that no	ne of these para	ameters are required to be me		
Comment	Type <b>T</b>	Comment Status D		definitions	test pa	ttern and metho	d is to be used.		
To hel	Ip ease the readin	g, provide a definition of TEC	Q in a sentenc	e at the beginning of	C/ 151	SC 151.8.9	P <b>72</b>	L16	# 17
		use. Then the remainder of the	e paragraph re	mains as is in	Sorbara, N	lassimo	GlobalFound	ries	
		nce cross-reference.			Comment	Туре Т	Comment Status D		buc
Suggested			454.0.0				ne Transmitter over/under-sho		
closur	e for PAM4 (TEC	nce at the beginning of sub-cla Q) is a measure of the optical output of the optical transmitte	transmitter's v		measu	red using a test	entage of each lane shall be v pattern specified for transmit the specified test pattern is m	ter over/under-s	shoot in Table 151-11."
Proposed	Response	Response Status W				ndershoot, not o			Ū
PROP	OSED ACCEPT	N PRINCIPLE.			Suggested	Remedy			
Adding	g the following se	ntence at the beginning of sub	-clause 151.8	6:	over/ur	nder-shoot, we p	that use of the test pattern sp propose to change 'if' to 'while a chall be within the limits give	e': "The transmitt	ter over/under-shoot
	ransmitter eye clo al eye closure at T	sure for PAM4 (TECQ) is a m 'P2."	easure of the o	optical transmitter's	using a	a test pattern spe	ne shall be within the limits giv ecified for transmitter over/un		
					Proposed F PROP	Response OSED REJECT.	Response Status W		

The word "if" is used in all other PMD clauses. The reason for using "if" is to emphasize that none of these parameters are required to be measured, but if they are then the correct test pattern and method is to be used.

C/ 151 SC 151.8.9

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C/ 151 SC 151	3.9 P72	L <b>20</b>	# 25	C/ 151	SC	151.8.9	P <b>72</b>	L <b>33</b>	# 33
Dudek, Mike	Marvel	II		Greg , Le	Chemin	ant	Keysight T	echnologies	
Comment Type T	Comment Status	D	overshoot	Comment	Туре	т	Comment Status D		overshoot
"Equalizer turned	off" is not defined.			The te	est defir	hition in 15	1.8.9 needs to be updated	to provide corre	ect values when using the

The test definition in 151.8.9 needs to be updated to provide correct values when using the compliance SSPRQ pattern.

The current overshoot (OS) and undershoot (US) limits were determined experimentally by Rodes and Bhatt. OS/US measurements were made on a large set of transmitters. The transmitters were then each placed in a system to correlate transmitter performance to system level results including error floors and overload conditions. OS/US limits of 22% were set based on what levels of transmitter performance resulted in unacceptable system level performance. The OS/US values were based on a measurement using a square wave, while the system results used SSPRQ. The OS/US compliance pattern is SSPRQ. as the square wave yields optimistic OS/US values compared to the SSPRQ. To reconcile the differences between test patterns, the transmitters from the original experiment set were retested using the SSPRQ pattern. The OS/US test method was also modified using a hit ratio method, where a small percentage of samples are allowed to exist above the OS or below the US limit. This has the added benefit of providing consistent results independent of the waveform sample population. Rather than change the current spec limit of 22%, the hit ratio method is adapted to yield equivalent system level differentiation at the same 22% limit. That is. OS/US values observed using SSPRQ and hit ratio vield the same OS/US values as the square wave method used in the original results. Correlation with system level performance is maintained. By experimentation, the hit ratio that achieves this correlation was determined to be 1e-2.

#### SuggestedRemedy

Change line 33:

Pmax: is based on a 1e-2 hit ratio, where Pmax is the smallest power level that results in the number of samples above that level not exceeding the product of hit ratio and total number of observed samples, with all samples acquired in a single unit interval eye diagram

### Change line 35

Pmin: is based on a 1e-2 hit ratio, where Pmin is the largest power level that results in the number of samples below that level not exceeding the product of hit ratio and total number of observed samples, with all samples acquired in a single unit interval eye diagram

Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE.

Pending Task Force presentation(s) and discussion.

SuggestedRemedy

151.8.5)."

from:

to.

Proposed Response

PROPOSED ACCEPT IN PRINCIPLE.

151.8.5) with the equalizer turned off."

Change the sentence in 151.8.9:

other tap coefficients set to 0."

add to the end of the sentence "i.e. with the tap 2 coefficient set to 1 and all other tap

coefficents set to zero". Also to the end of line 49. As an alternative this definition of

"Transmitter over/under-shoot is measured using the TDECQ reference receiver (see

"Transmitter over/under-shoot is measured using the TDECQ reference receiver (see

151.8.5) with the equalizer turned off, i.e. with one of the tap coefficients set to 1.0 and all

Response Status W

"equalizer turned off" could be added to section 151.8.5.4 and these two sentences could

be changed to ".... using the TDECQ reference receiver with the equalizer turned off (see

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C/ 151	SC 151.8.10	P <b>72</b>	L <b>44</b>	# 18	C/ 151	SC 151.8.13.	2 P74	L <b>38</b>	# 19	
Sorbara, N	Massimo	GlobalFound	ries		Dudek, Mi	ike	Marvell			
Comment	Туре Т	Comment Status D		bucket	Comment	Туре Т	Comment Status D			bucket
		ransmitter peak-to-peak p			It is no	ot the optical retu	n loss			
transn measi		ower of each lane shall b	e within the limit	s given in Table 151-7 if	Suggested	dRemedy				
using	a test pattern specifi	ed for transmitter peak-to			Chang	ge "optical return	oss" to "optical return loss	tolerance"		
	e use of the specifie tional.	d test pattern is mandato	ry for measuring	the over/undershoot,	Proposed	Response	Response Status W			
Suggested					PROP	OSED ACCEPT.				
	-	use of the test pattern sr	ecified in Table	140-6 for transmitter	C/ 151	SC 151.11.1	P <b>78</b>	L3	# 2	
over/u	Inder-shoot, we prop	ose to change 'if' to 'while	: "The transmitte	er peak-to-peak power	Shariff, Ma		CommScop	-	# 2	
		n the limits given in Table nitter peak-to-peak power			Comment		Comment Status D	е		bucket
				•			e title and Table 151-14			DUCKEI
,	POSED REJECT.	Response Status W								
FNOF	OSED REJECT.				Suggested		To: optical fiber cable			
		other PMD clauses. The				•	·			
	one of these parame attern and method is	ters are required to be me to be used.	easured, but if th	ey are then the correct	•	Response POSED ACCEPT.	Response Status W			
C/ 151	SC 151.8.12	P <b>73</b>	L	# 27	C/ 151	SC 151.11.3	P <b>79</b>	L <b>31</b>	# 3	
Stassar, F		Huawei			Shariff, Ma	asood	CommScop	e		
Comment	<i>71</i> <sup></sup>	Comment Status D		RS figure	Comment	Type TR	Comment Status D		ref	ferences
longer		ity has become normative efinition of optical parame			IEC 6 <sup>.</sup> 1, 201		n withdrawn and superseed	ded by IEC 61753	3-1 Edition 2.0 Au	ugust
Suggested	dRemedv				Suggested	dRemedy				
00		151.7, split in a figure per	PMD type and	add curve for Tx OMA	Chang	ge to IEC 61753-1	Edition 2.0			
		Details in pending present			Proposed	Response	Response Status W			
Proposed	Response I	Response Status 🛛 🛛 🛛 🛛 🛛 🖤			PROP	POSED ACCEPT	IN PRINCIPLE.			
PROF	POSED ACCEPT IN	PRINCIPLE.			See o	omment #1				
See c	omment #10.									

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

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C/ 151	SC 151.1	12	P <b>79</b>	L <b>49</b>	# <u>26</u>	
Dudek, Mi	ke		Marvell			
Comment	Туре Т	Com	ment Status D			interop
transm	nitter and an		enuator to be used , one would have to hat loss.			
Suggestea	Remedy					
FR4 re increa	eceiver by 0. se OMA max	4dB and reduce and Average	e Threshold, OMA ice the min loss in <sup>-</sup> e Power Max for the dB to be used for t	Table 141-16 to 0. e FR4 Tx by 0.4dE	3dB (could also 3). This would	0
Proposed	Response	Respo	onse Status 🛛 🛛 🛛 🛛 🛛 🖉			
PROP	OSED REJE	ECT.				
interco norma The co	onnect the di tive PMD op ommenter ha	fferent PMD t tical specifica as provided no	and was added to types. It should not ations. o data on the impac	be the primary re	ason for chang	
interco norma The co 400GE	onnect the di itive PMD op	fferent PMD t tical specifica as provided no eceiver.	types. It should not ations.	be the primary re	ason for chang	
interco norma The co 400GE	onnect the di tive PMD op ommenter ha BASE-FR4 re SC <b>151.</b>	fferent PMD t tical specifica as provided no eceiver.	types. It should not ations. o data on the impac	t be the primary re t of the proposed	ason for chang change to the	
interco norma The co 400GE C/ <b>151</b>	onnect the di tive PMD op ommenter ha BASE-FR4 re SC <b>151</b> .4 asood	fferent PMD t tical specifica as provided no eceiver. 13.4.7	types. It should not ations. o data on the impac P <b>84</b>	t be the primary re t of the proposed	ason for chang change to the # [4	
interco norma The co 400GE C/ 151 Shariff, Ma Comment	onnect the di itive PMD op ommenter ha BASE-FR4 re SC <b>151.</b> asood <i>Type</i> <b>TR</b> 1753-1-1 has	fferent PMD t tical specifica as provided no eceiver. 13.4.7 <i>Com</i>	types. It should not ations. o data on the impac P <b>84</b> CommScop	t be the primary re ct of the proposed <i>L</i> 27 e	ason for chang change to the # 4	ping
interco norma The cc 400GE C/ 151 Shariff, Ma Comment IEC 61	onnect the di tive PMD op ommenter ha BASE-FR4 re SC <b>151</b> . <sup>2</sup> asood <i>Type</i> <b>TR</b> 1753-1-1 has 8	fferent PMD t tical specifica as provided no eceiver. 13.4.7 <i>Com</i>	types. It should not ations. o data on the impac P84 CommScop ment Status D	t be the primary re ct of the proposed <i>L</i> 27 e	ason for chang change to the # 4	ping
interco norma The co 400GE C/ 151 Shariff, Ma Comment IEC 61 1, 201 Suggested	onnect the di titve PMD op ommenter ha BASE-FR4 re SC <b>151</b> .7 asood <i>Type</i> <b>TR</b> 1753-1-1 has 8 <i>IRemedy</i>	fferent PMD t tical specifica as provided no eceiver. 13.4.7 <i>Com</i>	types. It should not ations. o data on the impac P84 CommScop ment Status D awn and superseed	t be the primary re ct of the proposed <i>L</i> 27 e	ason for chang change to the # 4	ping
interco norma The cc 400GE C/ 151 Shariff, Ma Comment IEC 61 1, 201 Suggested Chang	onnect the di titve PMD op ommenter ha BASE-FR4 re SC <b>151</b> .7 asood <i>Type</i> <b>TR</b> 1753-1-1 has 8 <i>IRemedy</i>	fferent PMD t tical specifica as provided no eceiver. 13.4.7 Comr s been withdra 753-1 Edition	types. It should not ations. o data on the impac P84 CommScop ment Status D awn and superseed	t be the primary re ct of the proposed <i>L</i> 27 e	ason for chang change to the # 4	ping
interco norma The co 400GE Cl 151 Shariff, Ma Comment IEC 61 1, 201 Suggested Chang Proposed	onnect the di itive PMD op ommenter ha BASE-FR4 re SC <b>151</b> . asood <i>Type</i> <b>TR</b> 1753-1-1 has 8 <i>IRemedy</i> ge to IEC 617 <i>Response</i>	fferent PMD t tical specifica as provided no eceiver. 13.4.7 Comr s been withdra 753-1 Edition	types. It should not ations. o data on the impace P84 CommScop ment Status D awn and superseed 2.0 onse Status W	t be the primary re ct of the proposed <i>L</i> 27 e	ason for chang change to the # 4	ping
interco norma The cc 400GE C/ 151 Shariff, Ma Comment IEC 61 1, 201 Suggested Chang Proposed A PROP	onnect the di titive PMD op ommenter ha BASE-FR4 re SC <b>151.</b> assood <i>Type</i> <b>TR</b> 1753-1-1 has 8 <i>IRemedy</i> ge to IEC 617 <i>Response</i> OSED ACCI	fferent PMD t tical specifica as provided no eceiver. 13.4.7 13.4.7 Comr s been withdra 753-1 Edition <i>Respo</i>	types. It should not ations. o data on the impace P84 CommScop ment Status D awn and superseed 2.0 onse Status W	t be the primary re ct of the proposed <i>L</i> 27 e	ason for chang change to the # 4	ping
interco norma The cc 400GE C/ 151 Shariff, Ma Comment IEC 61 1, 201 Suggested Chang Proposed A PROP	onnect the di itive PMD op ommenter ha BASE-FR4 re SC <b>151</b> . asood <i>Type</i> <b>TR</b> 1753-1-1 has 8 <i>IRemedy</i> ge to IEC 617 <i>Response</i>	fferent PMD t tical specifica as provided no eceiver. 13.4.7 13.4.7 Comr s been withdra 753-1 Edition <i>Respo</i>	types. It should not ations. o data on the impace P84 CommScop ment Status D awn and superseed 2.0 onse Status W	t be the primary re ct of the proposed <i>L</i> 27 e	ason for chang change to the # 4	ping
interco norma The cc 400GE C/ 151 Shariff, Ma Comment IEC 61 1, 201 Suggested Chang Proposed A PROP	onnect the di titive PMD op ommenter ha BASE-FR4 re SC <b>151.</b> assood <i>Type</i> <b>TR</b> 1753-1-1 has 8 <i>IRemedy</i> ge to IEC 617 <i>Response</i> OSED ACCI	fferent PMD t tical specifica as provided no eceiver. 13.4.7 13.4.7 Comr s been withdra 753-1 Edition <i>Respo</i>	types. It should not ations. o data on the impace P84 CommScop ment Status D awn and superseed 2.0 onse Status W	t be the primary re ct of the proposed <i>L</i> 27 e	ason for chang change to the # 4	ing

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