# IEEE P802.3az D0.9 Energy Efficient Ethernet comments

Cl 24 SC 1.1 Bennett, Michael	<i>Р</i> <b>37</b> LBNL	L <b>8</b>	# 73	Cl 24 SC 2.2 Bennett, Michael	<i>Р</i> <b>38</b> LBNL	L <b>52</b>	# 76
Comment Type E clause is mispelled "clause	Comment Status A asue"			Comment Type TR Transmit process ne	Comment Status <b>A</b> eds to periodically be activated to	)	
SuggestedRemedy replace with clause				if this is required the	n use shall		
Response ACCEPT.	Response Status C			replace the Transmit process	needs to periodically be activate	ed	
Cl 24 SC 1.1 Bennett, Michael	P 8 LBNL	L <b>9</b>	# 74	with the Transmit process	shall be activated periodically		
Comment Type ER what is "the proper det	Comment Status A section of low link utilization"?	This sentence of	confuses me.	Response ACCEPT IN PRINCI	Response Status <b>C</b> PLE.		
SuggestedRemedy Replace with				Change to: the Transmit process	is periodically activated		
When this capability is mode during periods o functional blocks.	implemented and enabled, th flow link utilization. Energy i	ne PHY will enter s conserved by c	r the low power idle deactivating some or all	C/ 24 SC 2.2 Bennett, Michael	P 38 LBNL	L 54	# 77
Response ACCEPT.	Response Status C			Comment Type E sites is not the right	Comment Status A		
C/ 24 SC 1.4.2 Bennett, Michael	Р <b>38</b> LBNL	L 14	# 75	SuggestedRemedy replace between two	sites of the link segment with		
Comment Type ER receiving and processi	Comment Status R ing should be receive and pro	cess		between link partner Response	s Response Status <b>C</b>		
SuggestedRemedy replace receiving and p	processing with receive and p	process		ACCEPT.	P 41	L <b>53</b>	# 78
Response REJECT.	Response Status C			Bennett, Michael	LBNL		
The tense is consisten	t with preceeding bullets.			Authenticate is not th code-group.	e right word and implies more th	an that accomp	blished by the SLEEP
				SuggestedRemedy replace authenicate	with verify		
				Response	Response 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G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn SORT ORDER: Clause, Subclause, page, line

C/ 24 SC 2.2.1.6

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C/ 24 SC 2.2.5	P <b>42</b>	L <b>46</b>	# 79	C/ 24	SC 2	2.3.4	P 44	4	L 14	# 81
Bennett, Michael	LBNL			Bennett, M	chael		LBNL			
Comment Type E	Comment Status A			Comment	Гуре	ER	Comment Status	Α		
transmission is mispell	led: trasnmission			In the f	ollowing	g sentend	ce, "of" should be "or"	and "rec	eive" should be	"receiver"
SuggestedRemedy replace trasnmission w	vith transmission			If the P signal	HY fails when th	s to receiv is timer is	ve a valid Refresh sig s expired, the receive	nal of W will assu	ake ıme a link failure	э.
Response	Response Status C			Also, s	houldn't	t the sign	al be received before	the time	r expires?	
AUGEPT.				Suggested	Remedy	/				
CI 24 SC 2.2.5	P <b>42</b>	L <b>47</b>	# 80	replace	of with	or and r	eceive with receiver			
Bennett, Michael	LBNL			If the a	nswer to	o my que	estion is yes, then rep	lace sent	ence with	
The following sentence internal parameters of not make PCS exit the	e confuses me: The REFRES the receiver and is sharing the Low Power Receive state.	H signal is used e same SLEEP o	to maintain some code-groups which will	If the P signal I expired	HY fails before ti l.	s to receiv his timer	ve a valid Refresh sig expires, the receiver	nal or W shall ass	ake ume a link failu	re when the timer has
SuggestedRemedy				Response			Response Status	С		
replace with				ACCEF	PT IN P	RINCIPL	E.			
The REFRESH signal is used to maintain some internal parameters of the receiver, such			Follow	the repl	lacement	recommendation in	the sugge	ested remedy		
as those necessary for cause the PCS to exit	timing recovery. It shares the Low Power Receive state	e SLEEP code-g	groups and will not	C/ 24	SC 3	3.1.9.3	P 4	7	L <b>50</b>	# 82
Response	Response Status C			Bennett, Mi	chael		LBNL			
, ACCEPT IN PRINCIPL	LE.			Comment	Гуре	TR	Comment Status	Α		
Follow suggested reme	edy replacing "will not" with "c	loes not"		If the g we sho	eneratio uld spe	on of Far- ficy that	-End fault during low	power idl	e is an undesire	eable condition then
				Sugaested	Remed	/				
				Replac	e					
				Care m End fai QUIET	ust be t ult durin state	taken not	t to generate Far- w Power Idle mode w	hen sign	al_status can be	OFF during the
				with Far-En	d fault s	shall not b	be generated during t	he Low F	Power Idle mode	2
				Response			- Response Status	с		
				ACCE	PT IN P	RINCIPL	E.			
				Replac	e with:					
				Far-En	d fault i	s not gen	nerated during the Low	w Power	Idle mode	
TYPE: TR/technical require COMMENT STATUS: D/dis SORT ORDER: Clause, 5	ed ER/editorial required GR/ spatched A/accepted R/reje Subclause, page, line	general required cted RESPON	T/technical E/editorial G SE STATUS: O/open W/v	/general written C/closed	U/uns	satisfied	Z/withdrawn	C/ 24 SC 3.1	.9.3	Page 2 of 20 9/17/2008 12:13:18

IEEE P802.3a	az D0.9	IEEE	P802.3az D0.9 Energy	ergy Efficient Ethernet comments				Sept 2008	
Cl 24 SC 4. Bennett, Michael	.1 P 50 LBNL	L <b>49</b>	# 83	C/ <b>25</b> Bennett,	SC <b>4</b> Michael	<i>Р</i> 56 LBNL	L <b>26</b>	# 84	
Comment Type Something is m 100BASE-X do SMT interface of SuggestedRemedy	E Comment Status R hissing in the following statement: les not include a Station Manageme defined in ISO/IEC 9314-3:1990 an	ent (SMT) function d ANSI X3.263-19	; therefore the PMD-to- 95.	Commen editir inclu Suggeste repla	<i>t Type</i> <b>ER</b> ng instructions ded. ed <i>Remedy</i> nce adopt with	Comment Status A s use the term "adopt" the option	al capabilities	The option should be	
Not sure what the	he author intended so I can't be sp	ecific but it needs	to be fixed	Respons	e	Response Status C			
Response	Response Status C			ACC	EPI.				
REJECT.	o is from the bace decument and u	use not modified by	this project	C/ 25 Bennett,	SC <b>4</b> Michael	<i>Р</i> <b>56</b> LBNL	L <b>26</b>	# 85	
Cl 25 SC 3 Bennett, Michael Comment Type	P 55 LBNL E Comment Status A	L 13	# 86	Commen edito Suggeste repla	t Type E r's instruction edRemedy ice adopt with	Comment Status A uses "adopt" the optional capab	ility It should b	e include, not adopt	
I am not sure w Two new servic PMD_TXQUIET operation result	/hat this means: ce primitives PMD_RXQUIET.reque T.request (tx_quiet) (subclause 24. t of such capability from PCS.	est (rx_quiet) (subc 4.1.5) are used to	lause 24.4.14) and communicate the	Respons ACC Cl <b>25</b>	e EPT. SC <b>4.11</b>	Response Status C	L 38	# 87	
SuggestedRemedy				Bennett,	Michael	LBNL			
I don't know end to be clarified a	ough about what the author intende and perhaps reworded	ed to say to offer a	solution, but it needs	Commen missi	<i>t Type</i> <b>E</b> ing the word "	Comment Status A			
Response ACCEPT IN PR	Response Status C			Suggeste inser	edRemedy t the word an	as shown: TP-PMD does not ha	ave an option to s	upport	
Two new servic PMD_TXQUIET saving requests	ce primitives PMD_RXQUIET.reque T.request (tx_quiet) (subclause 24. s to and from the PCS.	est (rx_quiet) (subc 4.1.5) are generate	lause 24.4.14) and ed to pass the energy	Respons ACC	e EPT.	Response Status C			
				C/ 25 Bennett,	SC <b>4.11</b> . Michael	.3 P 60 LBNL	L 14	# 88	
				Commen adop	<i>t Type</i> <b>ER</b> ted is the wro	Comment Status A			
				Suggeste repla	edRemedy ice adopted w	/ith used			
				Respons ACC	e EPT.	Response 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 Cl 25 SC 4.11.3

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#### 800

# IEEE P802.3az D0.9 Energy Efficient Ethernet comments

C/ 25 SC 4.11.3 Bennett, Michael	Р <b>60</b> LBNL	L <b>23</b>	# 89	CI         40         SC         40.3.1.3.4         P 80         L 8         # 69           CHOU, JOSEPH         REALTEK SEMICON
Comment Type ER adopted is the wrong SuggestedRemedy replace adopted with	Comment Status A word used			Comment Type         TR         Comment Status         A           tx_error is encoded in the channel B output Sdn[1].         The GMII opcode used for Carrier_extention (0x0F) is already excluded from the encoding By the same token, the opcode used for the LPI mode (0x01, TX_LP_IDLE) needs to be excluded from the encoding of Sdn(1) to avoid the non-zero output during SEND_Z.
Response ACCEPT.	Response Status C			SuggestedRemedy Modiy the equation to exlude TXD[7:0]=0x01 condition in cext_err as follows:
C/ 40 SC 40.3.1.: CHOU, JOSEPH	3.4 <i>P</i> 80 Realtek Si	<i>L</i> <b>24</b> EMICON	# 68	Sdn[1] = Scn[1]^TXD[1], if (tx_enable=1) = Scn[1]^cext_err_else
Comment Type TR The Sdn[3] encodes transmitted symbol is condition loc_lpi_rege	Comment Status A the loc_lpi_reg=TRUE informa EZERO (SEND_Z), the output TRUE will invert the output ar	tion during non-o is supposed to b nd give a non-ze	<i>sdn[3]</i> lata transmission. If the e ZERO. However, the ro output.	cext_err = tx_error if (tx_enable=0 * TXDn[7:0]!=0x0F * TXDn[7:0]!=0x01) = 0 else
SuggestedRemedy Modiy the equation b	y excluding the condition (tx_n	node /= SEND_Z	) as follows:	Response Response Status C ACCEPT.
Sdn[3] = Scn[3]^TXD[3], if ( = Scn[3]^1, else if (lo = Scn[3], else	tx_enable=1) bc_lpi_req=TRUE * tx_mode !=	SEND_Z)		CI 40       SC 40.3.1.3.4       P 84       L 23       # 50         Healey, Adam       LSI Corporation       Sdn[3]         Comment Type       T       Comment Status       A
Response	Response Status C			Refine definition of sdn[3] to ensure desired behavior when tx_mode = SEND_Z.
ACCEPT. Refer to #50.				SuggestedRemedy sdn[3] = scn[3]^1 else if (loc_lpi_req = TRUE * tx_mode != SEND_Z)
				Response Response Status C ACCEPT.

C/ 40 SC 40.3.1.3.4

IEEE P802.3az D0.9	IEEE P802.3az D0.9 Energy Efficient Ethernet comments							
<i>Cl</i> <b>40</b> <i>SC</i> <b>40.3.1.3.4</b> Michael, Grimwood	P <b>84</b> Broadcom Cc	L 23 prporation	# 36	<i>Cl</i> <b>40</b> Michael, (	SC <b>40.4.2.4</b> Grimwood	P <b>88</b> Broadcom Ce	L <b>12</b> orporation	# 35
Comment Type TR ( The specification would be while in tx_mode=SEND_Z SuggestedRemedy Change: Sdn[3] = Scn[3]^1 else if (lo To: Sdn[3] = Scn[3]^1 if ((loc_lg	Comment Status A cleaner and less confusi bc_lpi_req = TRUE) bi_req = TRUE)*((tx_mod	ng if it does not o le = SEND_N) +	<i>sdn[3]</i> encode loc_lpi_req (tx_mode = SEND_I)))	Comment If the decor WAIT would objec Suggeste After "Durin functi Add t	t Type <b>TR</b> receiver is allowed de rem_lpi_req, the "_QUIET would be d lead to an unacce trives. This comment adRemedy this sentence: ing the WAIT_QUI ions in order to com- the following sente	Comment Status <b>A</b> ed to be deactivated during W een there may exist a conditie to retrain following the expi ceptably long delay and woul ent proposes a clarification in ET and QUIET states, the Pl inserve energy."	VAIT_QUIET and on in which the o ration of timer lpi d not meet the E ntended to ensur	I therefore not able to nly way to wake from _wait_timer_done. This EE task force e proper operation. te transmit and receive
Response R ACCEPT IN PRINCIPLE. Refer to #50.	esponse Status C			"How rem_ Response ACCI In fav Oppo Absta Comm C/ 40 Michael, 0 Comment	ever, in the WAIT lpi_req." e EPT. vor of accepting pr sed: 1 ains: 2 ment is accepted SC 40.4.2.4 Grimwood t Type E	QUIET state, the PHY shal <i>Response Status</i> <b>C</b> roposed response: 11 <i>P</i> 88 Broadcom Co <i>Comment Status</i> <b>A</b>	L be capable of control of the capable of control of the capable o	prrectly decoding

Туро

SuggestedRemedy

Change: "...sufficient quality and during..."

To: "...sufficient quality and duration..."

Response Response Status C

ACCEPT.

C/ 40 SC 40.4.2.4 Page 5 of 20 9/17/2008 12:13:18 AM

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C/         40         SC         40.4.5.1         P 85         L 12         # 70           CHOU, JOSEPH         REALTEK SEMICON         REALTEK SEMICON         REALTER	C/         40         SC         40.4.5.2         P 89         L 40         # 34           Michael, Grimwood         Broadcom Corporation         # 34
Comment Type       TR       Comment Status       A         Need to define the timing constraint to be referred by various LPI timers         SuggestedRemedy         Propose a maximum value of 1 us or smaller if feasible         Response       Response Status       C         ACCEPT IN PRINCIPLE.         Per chou_01_0908 slide 4, the editor assumes that this comment refers to assertion of signal_detect.         The editor agrees that the signal_detect function requires further definition but humbly submits that it is a more complex issue than the definition of a timing constraint.         The suggestion is to resubmit this comment in the next round of review supported by a comprehensive description of signal_detect behavior.	Comment Type       TR       Comment Status       A       Figure 40-15k         lpi_wait_timer is used as both a maximum time to dwell in the WAIT_QUIET state and the minimum time to dwell in the low-power state. These objectives are somewhat conflicting. For example, an increase in the timer value would reduce the chances of a retrain out of the WAIT_QUIET state, but would have a negative impact on the overall wake time. With two separate timers, these two conflicting objectives can be individually optimized.         SuggestedRemedy         Separate these timer functions, creating individual timers for each the WAIT_QUIET and WAKE_TRAINING states.         1. Change lpi_wait_timer to lpi_waketr_timer. Change description to "the minimum time the PHY must remain in the wake training state." Keep the remaining text the same.         2. Make new timer lpi_waitq_timer. Describe it as, "The maximum time that the PHY can remain in the WAIT_QUIET state." Add the following, "Values: The condition lpi_waitq_timer_done becomes true upon timer expiration. Duration: This timer shall have a participation.
Editor will add an editors note in the draft highlighting that the signal_detect needs more rigorous definition         CI 40       SC 40.4.5.2       P 85       L 40       # [71]         CHOU, JOSEPH       REALTEK SEMICON         Comment Type       TR       Comment Status       A       Figure 40-15b         Some intermediate LPI states need minimum time to transit and maximum time to break	Change the state diagram in Figure 40-15b on page 92 as follows: In WAIT_QUIET state, change lpi_wait_timer to lpi_waitq_timer. In WAIT_QUIET state transition to B, change lpi_wait_timer_done to lpi_waitq_timer_done. In WAKE_TRAINING state, add "start lpi_waketr_timer". In WAKE_TRAINING state, transition to UPDATE, change lpi_wait_timer_done to
out. It is better to have separate timer for each state. SuggestedRemedy change lpi_wait_timer to lpi_waitqt_timer for WAIT_QUIET state and lpi_waittr_timer for WAIT_TRAINING state. Suggested value of lpi_waitqt_timer is 10us to 12us Suggested value of lpi_waittr_timer is 1.8us to 2us Response Response Status C ACCEPT IN PRINCIPLE. Refer to #34.	lpi_waketr_timer_done. Response Response Status C ACCEPT IN PRINCIPLE. Implement changes per healey_02_0908.pdf as the basis. Change the lpi_waitwq_timer applying a range from 10 to 12 microsec

C/ 40 SC 40.4.5.2

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C/ 40 SC 40.4.5.2 Healey, Adam	P 90 LSI Corporatio	L 1	# 51	C/ <b>40</b> CHOU, J0	SC <b>40.4.6.1</b> DSEPH	P 88 REALTEK S	L 1 EMICON	# 72					
Healey, Adam         Comment Type       T         lpi_waketx_timer and lpi_w         SuggestedRemedy         Define compliant ranges for         Response       F         ACCEPT IN PRINCIPLE.         Set compliant range for lpi         Lpi_wakemz_timer is defi         1. for wake time = 15 or 16         2. for wake time = 14 us, lj         3. for wake time = 13 us, lj         4. for wake time <= 12 us,	P 90 LSI Corporatio Comment Status A vakemz_timer periods are or these parameters. Response Status C _waketx_timer to 1.2 to 1. ed to be a function of the b us, lpi_wakemz_timer = 4 us i wakemz_timer = 4 us	L 1 on TBD. 4 us. negotiated wa 5 us	# <u>151</u> ke time as follows	CHOU, JOSEPH       REALTEK SEMICON         Comment Type       TR       Comment Status       A       Figure 40-15         Please refer to Figure 40-15b.       The spirit of EEE GPHY state transitions is to mimic the cold start of GPHY link so that the local and remote sites, either Master or Slave, can keep synchronization of training states to set up the appropriate CDR loop.       However, either party of an EEE link segment can exit any intermediate state and accelerate the transition of rest of states resulting in a temporary out of sync of state coherency between two sides due to the round trip delay of signal exchanged.         During the acceleration of state transition, the unwanted SEND_Z (WAIT_QUIET, QUIET, WAKE_SILENT) output may cause the timing loop failure and mess up the descrambler and decoder.         The state machine Figure 40-15b needs to be modified.									
2. for wake time = 14 us, if 3. for wake time = 13 us, if 4. for wake time <= 12 us,	o_wakemz_timer = 4 us oi_wakemz_timer = 3 us lpi_wakemz_timer = 2 us			Ine s Suggeste 1. En cext_ = tx_ *TX *TX =1, =0, e 2. Fo reque 3. Ad SENI 4. Ad 5. Ad SENI 6. Fo asser The a (chou	tate machine Figur dRemedy code lpi_mode sigr errn errorn if(tx_enable Dn[7:0])/=0x0F Dn[7:0])/=0x0T if(loc_lpi_mo *tx_mode/=SE st (rem_lpi_reg = F d a new state WAIT D_Z output by impro- d a new timer lpi_q D_Z time during ac- rbid exiting from int ted. mbiguity and prope- 01_0908.pdf)	re 40-15b needs to be mod nal in channel B output as f n=0 de=TRUE END_Z) exit to ACTIVE state if the FALSE) in ACTIVE state. T_ACTIVE between UPDA oved handshaking protocol timer lpi_waitact_timer (10 juietmin_timer (signal_dete celeration of state transitio termediate state WAIT_QU posed solutions will be prese	remote party is TE and ACTIVE L us to 12us) ct time=1us) to n due to loc_lpi IET when local ented in the Sep	deactivating LPI to avoid unwanted guarantee a minimum _reg=FALSE LPI request is de- 0 2008 Interim meeting.					
				Response ACCE Refer 1. "Co mach The s transi occup 2. "Co	EPT IN PRINCIPLE to the response to omment #5, case 1 ine clock qualifies tate machine is as tion conditions dict bied for zero time a omment #5, case 2	Response Status C Comment #34. 908.pdf " does not reflect the opera transitions between states ynchronous and may instan ate. Therefore, the interme nd zero is not sent by LP1. " is addressed by the chan	ation Figure 40- but this is not th ntaneously "fall diate states "W	15b. It presumes a state le intended operation. through" states as the Q, Q, W, and Z" are y comment #52					

C/ <b>40</b>	Page 7 of 20
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3. "Comment #5, case 3" illustrates a case of undesirable fall-through. In this case LP2 arrives at the WAKE\_TRAINING state before it realizes LP1 was transitioning to QUIET. While the suggested remedy may address the issue, the editor suggests a corrective action that does not include the exchange of additional state information between the local device and link partner.

Recommended changes are described in healey\_02\_0908.pdf.

C/ 40	SC 40.4.6.1	P <b>92</b>	L <b>1</b>	# 52
Healey, Adar	n	LSI Corporation		

Comment Type T Comment Status A

Figure 40-15b

It has been pointed out (by Joseph Chou) that, per the current PHY Control state diagram, part b (Figure 40-15b), there is a possibility that the local device could receive zero during SEND\_IDLE\_OR\_DATA when the local device deasserts loc\_lpi\_req during UPDATE but the link partner transitions to WAIT\_QUIET prior to receiving the notification. Under certain timing conditions, the duration of zero could be on the order of the round-trip delay, leading to a loss of timing and a link restart.

Also, per previous discussions, it has been pointed out that the roles of the SLEEP and UPDATE states are similar, and measures were taken at the July 2008 plenary to match the timers corresponding to these states. This step has made the two states redundant and one should be removed.

To address these issues, remove the SLEEP state and move the transition from SEND\_IDLE\_OR\_DATA to UPDATE. The transition back to SEND\_IDLE\_OR\_DATA should originate from the WAKE\_TRAINING state. Several refinements to the transition conditions are required and will be shown in a separate presentation.

#### SuggestedRemedy

Proposed changes to the state diagram will be submitted as a presentation for the September 2008 interim (to be named, assume healey\_01\_0908.pdf).

Response

Response Status C

ACCEPT IN PRINCIPLE. See response to comment #34

C/ <b>45</b>	SC Table 45-145	P 100	L <b>5</b>	# 1
Tidstrom, R	ick	Broadcom		

#### Comment Type TR Comment Status A

The EEE advertisement register (Register 7.60) is shown as next page format. 10G-BASE-T auto-negotiation needs to exchange extended next pages.

#### SuggestedRemedy

Remove Next Page bit from EEE advertisement register, and define bits [15:7] as Reserved.

The EEE advertisment register (Register 7.60) and the EEE mode control register (Register 7.62) should be mapped into an formatted extended next page format as shown in subclause 55.6.1.2 of the IEEE Draft P802.3/D1.2 dated August 22, 2007.

Response Response Status W

ACCEPT IN PRINCIPLE.

The advertisement must use unformatted next pages for 10/100/1000 PHYs and backplane PHYs, but it would also be necessary to allow the use of unformatted extended next pages for 10GBASE-T PHYs.

Direct the editor to make the changes to support both next pages and extended next pages. Including the following:

Edit Annex 28C to define message code 11 as follows:

"EEE Technology Message Code (alternate format). EEE capability to follow using extended next page"

#### Add

28C-11 Message code 11 - EEE Technology Message Code (alternate format)

PHYs that negotiate extended next page support (reference) use next page message code 11 to indicate that EEE technology messages will follow the transmission of this page [the initial, Message (formatted) next page] with at least two extended next pages that contain information defined in 45.2.7.13a.

Edit 45.2.7.13a to show mapping of register bits in 7.60 & 7.62 to extended next pages.

C/ 45 SC Table 45-145

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C/ 45	SC Table 45	-146 <i>P</i> 101	L 16	# 2	C/ 55	SC	55.3.2.2	P 1	25	L <b>50</b>	# 6
Tidstrom,	Rick	Broadcon	n		Tidstrom	Rick		Broad	lcom		
Comment	<i>Type</i> <b>TR</b>	Comment Status A	s shown as next nar	e format 10G-BASE-T	Commen	<i>t Type</i>	TR	Comment Status	A signaled usi	ing repeated N	
auto-r	negotiation needs	to exchange extended n	ext pages.		code	words e	ncoded us	ing the 65B-LDPC co	oding techni	que".	
Suggeste	dRemedy	from EEE advorticomon	register and define	hite [15:7] oc	This	stateme	ent is incorr	ect. The SLEEP sigr	al is signale	ed using repeated	LP_IDLE XGMII
Reser	ved.		register, and denne	bits [15.7] as	code	words.	.1.				
The F	EE advertisment	register (Register 7.60)	and the EEE mode c	ontrol register	Suggeste	arreme No No II	ay JEtolP				
(Registion in sub	ster 7.62) should	be mapped into an forma of the IEEE Draft P802.3/	atted extended next p D1.2 dated August 2	age format as shown 2, 2007.	Respons	e		Response Status	w		
Response	)	Response Status W	5		ACC	EPT.					
ACCE	PT IN PRINCIPL	.E.			C/ 55	SC	55.3.2.3	P1	29	L 11	# 4
See r	esponse to previo	ous comment (Comment	#1).		Tidstrom	Rick		Broad	lcom		
			/ 25	# 6	Commen	t Type	TR	Comment Status	Α		
C/ 55 Tidstrom,	SC 55.1.3.3 Rick	P 121 Broadcon	L <b>25</b>	# 3	The state	subclaus s is dete	se states " ermined by	The time spent in eac vendor specific valu	ch of the sle es, which ar	ep, quiet, refresh, re advertised durir	alert and awake ng auto-
Comment	Type TR	Comment Status A			nego	tiation."					
The s adver	ubclause states " tised during auto-	Quiet, refresh, and awak negotiation."	e time periods are ve	endor specific, and are	The auto-	above st negotia	tatememt c tion choice	contradicts Clause 45 s of reduced energy	, Table-146 or normal ei	, page 101, line 1 nergy.	5, which only lists
The a	bove statememt	contradicts Clause 45, Ta	able-146, page 101,	ine 15, which only lists	Suggeste	edReme	dy				
auto-r	negotiation choice	es of reduced energy or r	ormal energy.		The	auto-neg	gotiation de	finitions for EEE slee	ep, quiet, ret	fresh, alert and av	vake need to be
Suggeste	dRemedy				decio	led betw odoloav	veen discre ⁄.	ete values for each si	gnal type, o	r a reduced/norma	al energy
The a decide	uto-negotiation de ed between discre	efinitions for EEE sleep, ete values for each signa	quiet, refresh, alert a l type, or a reduced/	nd awake need to be normal energy	Respons	e e		Response Status	w		
Boononoo	odology.	Deserves Status M			ACC	EPTIN	PRINCIPL	E.			
ACCE	, EPT IN PRINCIPL	E.			See	respons	e to comm	ent #3			
1) Edi on the	tor will use sedar e quiet refresh cyc	at_02_0908.pdf to updat cle	e the draft to reflect t	ask force agreement							
2) Val	ues for the timers	s will be as per parnaby_	03_0908.pdf								
3) The spec o The tr	e transmit clock fr on the frequency ansmitter clock s	equency specification in variation vs. time by addi hort term frequency varia	55.5.3.5 will be augr ng the following sen tion shall be less tha	nented by putting a tence: in 0.1ppm/sec.							
4) Ch Claus	anges will be maa e 55.	de to Clause 45 to make	it consistent with the	above changes to							
TYPE: TR COMMEN SORT OR	/technical require IT STATUS: D/dis DER: Clause, \$	d ER/editorial required spatched A/accepted R/ Subclause, page, line	GR/general required rejected RESPON	T/technical E/editorial SE STATUS: O/open W	G/general //written C/close	ed U/u	nsatisfied	Z/withdrawn	CI 55 SC 55.3.2	2.3	Page 9 of 20 9/17/2008 12:13:1

# IEEE P802.3az D0.9 Energy Efficient Ethernet comments

Cl 55 SC 55.6.1	P 142 Broadcom	L 8	# 5	C/ 69 Booth Brad	SC 69.1.1	P136	L <b>21</b>	# 8
Comment Type TR The subclause states "If E used to determine the val	Comment Status A EEE mode is supported, the ues of Ts, Tq, Tr, Ta, and T	en Auto-Negoti w supported b	ation signaling is also y the local PHY".	Comment <sup>-</sup> Use of	Type T "will". Remedy	Comment Status A		
The above statememt cor auto-negotiation choices	ntradicts Clause 45, Table- of reduced energy or norma	146, page 101, al energy.	line 15, which only lists	Suggested Search otherw	n for all cases of ise, eliminate th	f "will" in the document. If it rene use of "will".	equires compliar	nce, change to shall;
SuggestedRemedy				Response		Response Status C		
The auto-negotiation defined decided between discreted methodology.	nitions for EEE sleep, quiet values for each signal type	, refresh, alert e, or a reduced	and awake need to be /normal energy	ACCEI The su is not a	PT. b-editor shall se a testable requir	earch the document for "will" a rement.	and reword the s	sentences if the subject
	Response Status W			In this	specific case, re	eplace the "will" with "are"		
See response to commen	nt #3.			C/ <b>69</b> Booth, Brae	SC <b>69.2.3</b>	Р <b>137</b> АМСС	L 11	# 9
Changes to clause 55 will	l possibly have to be reflect	ed into change	es in 28A	Comment	Туре Е	Comment Status A		
C/ 69 SC 69.1.1 Booth, Brad	<i>P</i> <b>136</b> AMCC	L <b>20</b>	# 7	Table I Suggested	oorders are mes Remedy	ssed up.		
Comment Type E The terms Low-Power Idle energy efficient mode, etc throughout the draft.	Comment Status A e, Energy Efficient Ethernet c. appear to be used interch	, Low Power N angeably. Oc	lode Operational Mode, curs in multiple places	Fix. Response ACCEI Done	PT.	Response Status C		
SuggestedRemedy Create a defined use and	eliminate unnecessary terr	ns that are sim	ilar to prevent	C/ 69 Booth, Brae	SC <b>69.2.6</b>	<i>P</i> <b>138</b> AMCC	L 1	# 10
Response ACCEPT IN PRINCIPLE. I agree in principle. Thos accept whatever terms the	Response Status C se terms appear thoughout e group agrees to use and	most of the oth replace them.	ner clauses as well. I'll I suggest that we	Comment Blank p Suggested Remov	Type <b>E</b> bage. There are Remedy re.	Comment Status A e other occurences throughou	ut the draft.	
define them as: Energy Efficient Ethernet Low-Power Idle = the sigr Low-Power mode = perior	<ul> <li>a capability of the PHY naling mechanism</li> <li>d between end of sleep and</li> </ul>	l beginning of	wake.	Response ACCEI	PT.	Response Status C		
This will be discussed fur	ther between the editors for	a final resolut	ion					

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/ 69 SC 69.2.6

IEEE P802.3az D	0.9	IEEE	P802.3az D0.9 Er	nergy Efficient Ethernet c	Sept 2008		
C/ 70 SC 70.1 Booth, Brad	P <b>140</b> AMCC	L 18	# 15	C/ 70 SC 70.3 Booth, Brad	Ba P 140 AMCC	L <b>50</b>	# [13
Comment Type E Ethernet misspelled.	Comment Status A Efficient misspelled. Multiple	instances throug	hout the draft.	Comment Type T Use of the word	Comment Status <b>A</b> must". Multiple instances.		
SuggestedRemedy Run spell checker or	n the draft.			SuggestedRemedy Replace "must" w	ith "shall" throughout the draft.		
Response ACCEPT. Ran spell checker ar	Response Status C			<i>Response</i> ACCEPT IN PRIN Remove "must" fr	Response Status <b>C</b> NCIPLE. om 70.3a and 70.3b		
C/ 70 SC 70.1 Booth, Brad	<i>P</i> <b>140</b> AMCC	L <b>28</b>	# 11	C/ 70 SC 70.6 Booth, Brad	5.10.1 P 143 AMCC	L <b>9</b>	# 16
Comment Type T Description of LPI is	Comment Status A symmetric.			Comment Type E Auto-negotiation	Comment Status <b>A</b> misspelled. Multiple instances thr	oughout the draft.	
Also applies to 71.1	and 72.1.			SuggestedRemedy Correct spelling.			
Change to be asymm	netric.			Response	Response Status C		
Response	Response Status C			ACCEPT. Corrected misspe	ellings.		
Symmetric reference	es will be removed from those s	ections.		C/ 70 SC 70.6	5.4 P 142	L <b>25</b>	# 14
C/ 70 SC 70.3a	P 140	L <b>45</b>	# 12	Booth, Brad	AMCC		
Booth, Brad	AMCC			Comment Type T	Comment Status A	broughout the dro	.44
Comment Type E	Comment Status R				ted meaning. Multiple instances t		art.
Use of invalid subhe	ader format. Multiple instances	s throughout the o	draft.	Replace "required	d" with "mandatory".		
SuggestedRemedy	ubbaadar ar add additional lava	r of outbooding		Response	Response Status C		
Response		r or subneading.		, ACCEPT IN PRIN	NCIPLE.		
REJECT. Subheader format is between other of sar	consistent with standard editin ne level. Section will be re-nun	g practice for inso nbered when inso	ertion of new section erted in later drafts.	Change 'required	' to 'mandatory' in section 70.5. Tl	here is no section	70.6 in this document.

C/ 70 SC 70.6.4

IEEE P802.3az D0	).9	IEEE	P802.3az D0.9 Ene	ergy Efficient Ethernet comr	nents	Sept 2008
C/ 71 SC 71.3a Booth, Brad	Р <b>153</b> АМСС	L 15	# 17	<i>Cl</i> <b>72</b> SC <b>72.3a</b> Healey, Adam	P 176 L 52 LSI Corporation	# 53
Comment Type T Hexadecimal must be SuggestedRemedy Fix. Response ACCEPT. Put 0x prefix on hex v	Comment Status A e proceeded with 0x. Multiple in Response Status C value in Clause 71.	nstances through	out the draft.	Comment Type T 10GBASE-KR should 8B10B). It should defin SuggestedRemedy The correct reference Response ACCEPT.	Comment Status <b>A</b> not be using the low-power idle encoding ne a 64B/66B block encoding of low-powe appears to be 49.2.4.7. <i>Response Status</i> <b>C</b>	for 10GBASE-X (e.g. er idle
Cl 71 SC 71.5.6 Booth, Brad Comment Type E Hanging sentence "Fo SuggestedRemedy Fix. Response ACCEPT IN PRINCIF Added "its definition is	P 154 AMCC Comment Status A or normal operation." Response Status C PLE. s beyond the scope of this spec	L 51	# [ <u>18</u>	Cl 72 SC 72.6.11. Healey, Adam Comment Type E Editor's note implies so SuggestedRemedy Remove note or clarify Response ACCEPT.	P 181 L 37     LSI Corporation     Comment Status A     omething is to be deleted, but what?     what is to be deleted prior to publication.     Response Status C	# <u>54</u>
Cl 72 SC 72.3a Booth, Brad Comment Type E "XGMII interface" is a SuggestedRemedy Change to be "XGMII Response ACCEPT. Fixed	P 171 AMCC Comment Status A In incorrect term. " as the last I is for interface. Response Status C	L 12	# <u>19</u>	Deleted. Cl 72 SC 72.6.11.2 Healey, Adam Comment Type E What does "TBS" repr SuggestedRemedy Explain with an editor's throughout the clause) Response ACCEPT. Deleted.	2 P 181 L 40 LSI Corporation Comment Status A esent? "To Be Specified?" s note or add missing text (note there are Response Status C	# 55

C/ 72 SC 72.6.11.2 Page 12 of 20 9/17/2008 12:13:18 AM

Response

CI 72	SC 72.6.11.2	P 182	L <b>4</b>	# 42
Healey, A	Adam	LSI Corporation		

Comment Type **T** Comment Status **A** 

Not clear that the timing parameters in this table (table caption missing) or that table under 72.6.11.3 (page 182, line 28) are practical to implement or enforce as specifications.

1. There are multiple circular definitions of timers. These definitions force the local device to know the timing parameters of its link partner in order to establish upper and lower bounds on its own timers. Since these parameters are not advertised, this is not practical. Parameters should be defined as absolute values or as functions of parameters well known to the device under test. This applies to T\_SL, T\_OL, T\_SR, and T\_OR.

2. What is the value of a "typical" column in these tables? This isn't a data sheet. The document only needs to define the compliant range of the parameters.

3. Are these parameters normative or informative? How are they to be measured and verified against the specification? For example, T\_DL is defined to be the "Time from XGMII receiving /LPI/ to entering the TX\_SLEEP state." Entry into the TX\_SLEEP state is not observable, but may be inferred by the presence of 64B/66B encoding of low-power idle observed at the MDI. Parameters, especially normative parameters, must be defined as a function of some observable input and some observable output.

4. Do T\_DL and T\_DR consider propagation delay through the FEC sublayer, when enabled? It doesn't appear likely that it does with 100 ns allocation, so where is this latency budgeted?

5. Assuming that frame lock process follows the procedure defined in IEEE 802.3 ap 72.6.1.4.1, there could be an issue with refresh and wake. A minimum of 2 frame markers are required to declare frame lock, e.g. the first identifies the frame boundary and second is a consistency check. If one assumes the first few training frames are consumed via signal detect latency, circuit re-activation latency, and timing recovery latency, the minimum value (4) of T\_TRAIN looks tight. However, in the worst-case, the framing algorithm could need to test each and every candidate frame marker position before identifying the frame boundary (4,384 possibilities) and number of frames required to complete this search would be an order of magnitude larger than the minimum value of T\_TRAIN. While faster frame locking is possible, it may require modifications to the current frame lock state diagram or perhaps an alternative fast-lock diagram for EEE purposes.

If one assumes that the framing algorithm must examine all possible candidate frame marker positions before finding the first match (worst-case),

#### SuggestedRemedy

1. Eliminate circular definition timers and establish easily comprehended ranges.

2. Remove "typical" column.

3. Boil down the table to set of essential parameters with measurable reference points.

4. Resolve refresh and wake time allocations against the worst case time to lock to training frame via the currently specified or some new algorithm.

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 72 SC 72.6.11.2 Page 13 of 20 9/17/2008 12:13:18 AM

# Response Status C

ACCEPT IN PRINCIPLE.

These should have been submitted as multiple comments so that the editor and group could evaluate them individually.

For item 1 Change TsI max to 600ns Change Tsr min to 600ns Delete Tref min Delete TwI min Delete Ttrain min Delete Twr min

For item 2, delete "Typical" column

For item 3, Reject - commenter to provide more detailed remedies

For item 4, Add an editor's note that the numbers in these table were not a part of the adopted baseline and need careful scrutiny

# IEEE P802.3az D0.9 Energy Efficient Ethernet comments

C/         72         SC 72.6.11.4.1         P 183         L 12         # [43]           Healey, Adam         LSI Corporation         LSI Corporation <th>C/         72         SC         72.6.11.4.4         P 185         L 38         # 44           Healey, Adam         LSI Corporation</th>	C/         72         SC         72.6.11.4.4         P 185         L 38         # 44           Healey, Adam         LSI Corporation
Comment Type       T       Comment Status       A         Variable definition issues       1. frame_lock is already defined in IEEE 802.3ap-2007. Eliminate this redundant definition or, if a new variable is needed, give it a new name.	Comment Type <b>T</b> Comment Status <b>A</b> TRANSMIT() function is already defined in Clause 72. This definition is inconsistent with the original function. SuggestedRemedy Rename the function.
<ol> <li>sending_data is essentially !training. Is a another variable really required?</li> <li>xxx_timer_done are typically not defined as variables, and are inferred fromm the timer definitions.</li> </ol>	Response Response Status C ACCEPT IN PRINCIPLE. Change the Rcvd to TF_STATUS_RX Change Transmit() to TF_STATUS_TX
4. tx_coded, pcs_rxcd, pcs_encode, and pcs_decode are not defined in Clause 72. Furthermore, nature of these variables consitutes a layer violation. Low-power idle encoding should originate in the PCS and pass through the PMA and PMD. Low-power idl encoded signals should pass through the PMD and PMA to the PCS where they should be decoded. A service interface primitive may be defined which can carry a status flag to/fron the PCS to acheive some desired behavior.	C/ 93     SC 92.2.3     P 198     L 29     # 41       e     Michael, Grimwood     Broadcom Corporation       Comment Type     ER     Comment Status       Add timing parameter for alert.
SuggestedRemedy Update variable definitions per comment. Examine layering model and service interfaces t ensure layering is preserved and proper communication paths are present between the sublayers.	SuggestedRemedy o Add: "Ta: Duration PHY transmits alert signal in 10GBASE-Te"
Response       Response Status       C         ACCEPT IN PRINCIPLE.       These should have been submitted as multiple comments so that the editor and group could evaluate them individually.	Response Response Status W ACCEPT IN PRINCIPLE. See response to Comment #40
<ol> <li>ACCEPT.</li> <li>Same definition, so duplicate will be deleted.</li> <li>REJECT.</li> <li>The !training could also be QUIET state. Keeping sending_data.</li> <li>ACCEPT.</li> <li>Xxx_timer_done definition will be deleted.</li> <li>ACCEPT IN PRINCIPLE.</li> <li>Direct the editor to work with the commenter implement the changes in the suggested remedy for #4.</li> </ol>	Cl 93       SC 93       P1       L 54       # 20         Booth, Brad       AMCC         Comment Type       E       Comment Status       A         Page numbering is wrong.       SuggestedRemedy         Fix page numbering.       Response       Response Status       C
	ACCEPT.

CI 93 SC 93

# IEEE P802.3az D0.9 Energy Efficient Ethernet comments

C/ 93 SC 93.1. Taich, Dimitry	<i>P</i> Teranetics	L	# 60	C/ 93 SC 93.1.1 Booth, Brad	P1 AMCC	L 14	# 22
Comment Type E Synchroneouse Low p	Comment Status <b>A</b> where where the second status <b>A</b> where <b>A</b> where <b>A</b> where <b>A</b> where <b>A</b> where <b>A</b> where <b>A</b> w			Comment Type T Sentence about 1000	Comment Status <b>A</b> ) Mb/s has errors.		
SuggestedRemedy Add synchronous Low	Power Mode description			SuggestedRemedy 1000BASE-T shouldr	n't have a space. 1000BASE-I	≺X is missing.	
Response ACCEPT IN PRINCIP	Response Status <b>C</b> LE.			Response ACCEPT IN PRINCIF	Response Status <b>C</b> PLE.		
Editor to provide symr	netrical LP_IDLE mode descrip	tion		Replace			
C/ 93 SC 93.1.1 Booth, Brad	P1 AMCC	L 14	# 21	"For 1000 Mb/s, 1000 Physical Layer device supported."	) BASE-T e is included. For 10 Gb/s, thre	ee Physical Laye	r signaling systems are
Comment Type E Should reference to 10	Comment Status <b>A</b> 00BASE-T actually be 100BASI	E-TX?		with following			
SuggestedRemedy If so, fix.				"For 1000 Mb/s, two twisted pair cabling, backplane, 1000BAS	Physical Layer signaling scher 1000BASE-T is supported. For E-KX is supported."	nes are supporte serial communic	ed. For operation over cation over electrical
Response ACCEPT IN PRINCIP	Response Status <b>C</b> LE.			C/ 93 SC 93.1.1 Booth, Brad	P1 AMCC	L 17	# 23
Change line 14 to read	d:			Comment Type E Last sentence is cont	Comment Status A		
For 100 Mb/s operatio	n, 100BASE-TX Physical layer	device is included.		SuggestedRemedy Change to read "For	serial operation on electrical b	ackplane, the 10	GBASE-KR"
				Response ACCEPT.	Response Status C		

C/ 93 SC 93.1.1

# IEEE P802.3az D0.9 Energy Efficient Ethernet comments

C/ 93 SC 93.1.2	P1	L <b>28</b>	# 24	Cl <b>93</b>	SC 9	3.1.3	P 196	L 39	# 37
Booth, Brad	AMCC Comment Status A			Michael, G	rimwood <i>Tvpe</i>	ER	Broadcom Co Comment Status A	rporation	
Objectives for which p	project?			The st PHY e	atement	, "After t quiet mo	he LP_SLEEP signal transmis de.", is not necessarily true fo	ssion the transr r 1000GBASE	nit function of the loc T EEE since it is
Change to read Energy	gy Efficient Ethernet.			Symmo	etric and	i does no	ot enter quiet mode until both	sides have trar	ismitted sleep.
Response ACCEPT IN PRINCIP	Response Status <b>C</b> PLE.			Chang enters	je "After a quiet	/ the LP_ mode." t	SLEEP signal transmission th o be correct for 1000BASE-T	e transmit func also. Somethin	tion of the local PHY ig like the following:
Replace line 28 with f	ollowing:			In 100	BASE-T	X and 10	GBASE-T EEE modes, after	the LP_SLEEF	signal transmission
"The following are the	e objectives of Energy Efficient	Ethernet:"		local F	HY tran	smits LP	SLEEP and receives LP_SL	EEP from the	remote PHY, then the
C/ 93 SC 93.1.2 Booth, Brad	P1 AMCC	L <b>37</b>	# 25	Response	PT		Response Status C	J <del>C</del> .	
Comment Type <b>T</b> Should's and shall's n	Comment Status A need to be removed from the o	bjectives list.		C/ 93	SC 9	3.1.3	P 196	L <b>45</b>	# 57
SuggestedRemedy Fix.				Taich, Dim <i>Comment</i>	iitry <i>Type</i>	E	Teranetics Comment Status A		
Response ACCEPT IN PRINCIP	Response Status <b>C</b> PLE.			"PY" a Suggested	bbreviat IRemedy	ion shou /	lld be "PHY"		
Editor to modify claus	e 93.1.2 so it does not include	shall's and shou	ıld's	fix the Response	typo		Response Status C		
C/ 93 SC 93.1.3 Taich, Dimitry	P <b>196</b> Teranetics	L 18	# 56	ACCE	PT.				
Comment Type E Font on Fig 93-1 is br	Comment Status A								
SuggestedRemedy Fix the font									
Response ACCEPT.	Response Status C								

C/ 93 SC 93.1.3

IEEE P802.3az D0.	9
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# IEEE P802.3az D0.9 Energy Efficient Ethernet comments

C/ 93 SC 93.1.3	P 196	L <b>48</b>	# 58	CI 93 S	SC 93.1.3	P 197	L 10	# 38
aich, Dimitry	Teranetics			Michael, Grimv	vood	Broadcom Co	orporation	
Comment Type ER	Comment Status A			Comment Type	e ER	Comment Status A		
newly defined nomencl	ature misuse			Figure 93-	2 does not r	eflect the proposed 10GBAS	E-T alert/awake	signaling and although
SuggestedRemedy				it generaliz	zes the cond -T.	cept of LPI, it might generate	confusion with tr	ne specifics of the
"In the receive direction	Low Power operation is trigg	ered by the rec	eption of LP IDLE	SuggestedRer	nedy			
codewords from the PH Low Power mode. Follo	IY link partner. This signals th owing sending LP_IDLE codev	at the link partn word the link pa	er is about to enter rtner ceases	Either moo figure for t	dify the figure he different	e showing the different possit 10GBASE-T scheme.	ole signaling type	es or have a separate
transmission and enter	s LP_Quiet_st state"			Response		Response Status C		
by the following:				ACCEPT I	N PRINCIPI	LE.		
"In the receive direction	Low Power operation is trigg	ered by the rec	eption of LP_Sleep	Replace te	ext in lane 4	by following:		
Power mode. Following	sending LP_Sleep signal the	link partner is link partner ce	about to enter Low ases transmission and	"Figure 93	-2 illustrates	general principles of the EE	E-compliant tran	smitter operation."
enters LP_Quiet_st sta				CI 93 S	SC 93.1.3	P <b>197</b>	L <b>22</b>	# 39
esponse	Response Status C			Michael, Grim	vood	Broadcom Co	orporation	
ACCEPT.				Comment Type	e ER	Comment Status A		
/ 93 SC 93.1.3	P 197 Teranetics	<i>L</i> 1	# 59	According synchrono	to terminolo us/asynchro	by used in the respective LP	l proposals, the metric/asymmetr	use of ic.
	Commont Statua			SuggestedRer	nedy			
text is not clear	Comment Status A			Change "s	ynchronous	" to "symmetric".		
uggestedRemedy				Change "a	synchronou	s" to "asymmetric".		
add word "period" after	words "full 10G data-rate"			Response		Response Status C		
esponse	Response Status C			ACCEPT IN PRINCIPLE.				
ACCEPT.				Following changes to be made throughout whole clause 93:				
				Change te LP_IDLE s	rm "synchro state at the s	nous" to "symmetric" (when c same time)	describing both li	ink partners entering

C/ 93 SC 93.1.3

IEEE P802.3az D0	P802.3az D0.9 Energy	ergy Efficient Ethernet comments				Sept 2008		
C/ 93 SC 93.1.3	P 2	L <b>4</b>	# 26	C/ 93	SC 93.2.1	P 198	L <b>27</b>	# 61
Booth, Brad	AMCC			Taich, Dimitr	у	Teranetics		
Comment Type E	Comment Status A			Comment Ty	rpe <b>T</b>	Comment Status A		
Font sizes and shadi	ng make diagram hard to read	<ol> <li>Also applies to</li> </ol>	Figure 93-2.	Tw parar	meter definitio	on is not consistent through dra	ft but also claus	se 93 itself: defined as
SuggestedRemedy				duration codewor	of the T_wak d and PHY re	e transmission, used several tir adiness for full data-rate state	ne as latency b	etween LPI_IDLE
T IA.				SuggestedRe	emedy			
Response	Response Status C			Discuss	among all edi	itors and fix Tw definition		
ACCEPT IN PRINCI	PLE.			Response		Response Status C		
Change font size and	d picture attributes according to	o IEEE style guid	elines	ACCEPT	IN PRINCIP	LE.		
C/ 93 SC 93.1.3 Booth, Brad	P 3 AMCC	L <b>22</b>	# 27	Clause 9 clause 5	13 to make de 5	finition consistent with that in c	lause 40 and a	oply it the same way in
Comment Type E Synchronous or symm	Comment Status D metric? Did the terminology cl	hange?		C/ <b>93</b> Booth, Brad	SC 93.2.1	P3 AMCC	L <b>52</b>	# 30
SuggestedRemedy Select one and define	e.			Comment Ty Formatti	<i>pe</i> <b>E</b> ng makes list	Comment Status <b>A</b> hard to read. Also applies to 9	3.2.2.	
Proposed Response PROPOSED ACCEP	Response Status W PT IN PRINCIPLE.			SuggestedRe Fix.	emedy			
See response to com	nment #39			Response		Response Status <b>C</b>		
C/ 93 SC 93.1.4	P <b>3</b>	L <b>35</b>	# 28	ACCEPT				
Booth, Brad	AMCC			Change	the indent on	the wrap around line to match	the first line.	
Comment Type E Table border is wrong	Comment Status A			<i>CI</i> <b>93</b> Michael, Grir	SC 93.2.2 nwood	P <b>198</b> Broadcom Cor	L <b>21</b> poration	# 40
SuggestedRemedy Fix.				Comment Ty Add "LP_	pe <b>ER</b> _Alert" signal	Comment Status A for 10GBASE-T EEE mode.		
Response ACCEPT IN PRINCIF	Response Status <b>C</b> PLE.			SuggestedRe	emedy			
Formatting will be cha	anged according to IEEE style	guidelines		Response ACCEPT	IN PRINCIP	Response Status W		
				1) if the o	description of	the signal can be folded into th	e text, do that.	
				<ol> <li>If edito that thes appropria</li> </ol>	or feels that p e are descrip ate PHY claus	roviding a further description w tions and not normative definitions ses.	ill help with readons. Normative	dability, clearly indicate definitions lie is the

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

 SORT ORDER:
 Clause, Subclause, page, line
 S

C/ 93	Page 18 of 20
SC 93.2.2	9/17/2008 12:13:18 AM

# IEEE P802.3az D0.9 Energy Efficient Ethernet comments

/ 93 SC 93.3 P 198 L 31 # 45
Healey, Adam LSI Corporation
Comment Type       ER       Comment Status       A         This introductory paragraph only describes Auto-Negotiation as it pertains to twisted pair PHYs.         This project also addresses Backplane Ethernet PHYs hence auto-negotiation is also defined in Clause 73 and is also performed using differential Manchester encoding.         SuggestedRemedy         Rewrite to broaden the scope of the introduction by describing the features of both Clause 28 and Clause 37 Auto-Negotiation.         Response       Response Status       C         ACCEPT IN PRINCIPLE.
ACCEPT IN PRINCIPLE.
Cl 93       SC 93.3       P 198       L 51       #       46         Healey, Adam       LSI Corporation
Comment Type T Comment Status A
Per grimwood_01_0708.pdf, page 4, 1000BASE-T intends to only support one (Tq, Tr) pair and proposeds that Tw_PHY be a "negotiated" parameter.
SuggestedRemedy
<ol> <li>Distinguish between 1 w_PHY and 1 w_SYS in the text. 1 w_PHY is a parameter that is resolved by Auto-Negotiation and sets the minimum bound for Tw_SYS. Tw_SYS may be changed during link operation using LLDP per 93.4.</li> <li>Define an unformatted page for the negotiation of Tw_PHY. Suggest an n-bit (n &gt;= 5) unsigned integer representing the minimum Tw_PHY that the PHY supports in units of microseconds.</li> <li>Define the resolution of Tw_PHY to be the larger of the locally advertised value and</li> </ol>
3. Define the resolution of 1 w_PHY to be the larger of the locally advertised value and value received by the link partner. 4. In Table 93.4. remove the 1000RASE T. PHY energy bit. There is no menning of this bit.
4. In Table 93-4, remove the 1000BASE-TPHY energy bit. There is no mapping of this bit to functionality described in Clause 40. Note that it is possible that other PHYs listed in this table only support a single (Ta, T) as well.
Response Response Status C
AUGEPT.

Editor will clarify the usage of the bits

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 93 SC 93.3

IEEE P802.3az D0.9		IEEE	P802.3az D0.9 Er	nergy Efficient Ethernet com	ments		Sept 2008
C/ 93 SC 93.3 Healey, Adam	P <b>199</b> LSI Corporation	L <b>32</b> on	# 48	C/ 93 SC 93.3 Booth, Brad	Р <b>5</b> АМСС	L 1	# 31
Comment Type T 0 1000BASE-KX is missing f	Comment Status <b>A</b> rom the table.			Comment Type <b>T</b> Table 93-2, 93-3 and 9	Comment Status A 93-4 should be defined in 28A	and 73A.	
SuggestedRemedy Add a bit for 1000BASE-KX	κ.			SuggestedRemedy Move tables to 28A ar	nd 73A and remove from Clau	se 93.	
Response R ACCEPT.	Response Status C			Response ACCEPT IN PRINCIP	Response Status <b>C</b> LE.		
The table is moving out of	clause 93. The comment	applies to 28A a	nd 73A	Editor will delete table	s 93-2, 93-3 and 93-4 from cla	ause 93	
Cl 93 SC 93.3 Taich, Dimitry	P <b>199</b> Teranetics	L <b>46</b>	# 62	C/ 93 SC 93.4.1 Booth, Brad	P <b>7</b> AMCC	L 11	# 32
Comment Type <b>T</b> Commen	Comment Status <b>A</b> ASE-Te EEE support (0 =	no, 1 = yes)"		Comment Type E Overuse of the TM syr	Comment Status A		
SuggestedRemedy is it 10GBASE-T? - then re	move "e" suffix at the end	1 Nort		SuggestedRemedy Use only once and rer	nove all other instances.		
Response R ACCEPT IN PRINCIPLE.	Response Status <b>C</b>	φοιτ		Response ACCEPT IN PRINCIP	Response Status <b>C</b> LE.		
Table will be removed from	n Clause 93			Remove TM and year reference list in clause	on references to 802.1AB. Ac a 1 if it is not already there.	ld a reference to	802.1AB to the
C/ 93 SC 93.3 Booth, Brad	Р <b>4</b> АМСС	L <b>31</b>	# 29	C/ 99 SC Bennett, Michael	P 3 LBNL	L <b>2</b>	# 90
Comment Type <b>T</b> Clause 73 should also be in	Comment Status A isted.			Comment Type E Ethernet should be ca	Comment Status A		
SuggestedRemedy Add Clause 73.				SuggestedRemedy capitalize it			
Response R ACCEPT IN PRINCIPLE.	Response Status C			Response ACCEPT.	Response Status C		
See response to comment	#45						

CI **99** SC