CI 45	SC 45.2.1.174i	i P 41	L 34	# 388	R/W^a: RO
CORDA	RO, Jay	BROADCOM			Bottom table row: ^aRO = Read only, R/W = Read/Write
Commei Add	<i>nt Type</i> TR PMA register for Ca	Comment Status D ble Diagnostics Control (1.23	04)	Cable Diagnostics Discuss	
Suggest	edRemedy				
Bit(s 2	 Name Descriptio Cable Diagnostics (n R/Wa Control Mode 1= Through		RW	
1	Cable Diagnostics (Control 1= Cable Diagno 0= Cable diagno	stics on ostics off	RW	
0	Cable Diagnostics S	Supported 1= Cable Diagnos 0= Cable Diagno	stics Support ostics not Su	ted RO pported	
Propose PR(d Response POSED ACCEPT IN	Response Status W			
Tasl	k Force to discuss al	ong with presentation. Consid	der after com	nment #389 is resolved.	
If ac	cepted, change as p	proposed is to:			
Inse	rt Table 45-142i - Ca	able diagnostics control regist	er bit definiti	ons on line 36	
Bit(s Nan Des Valu R/W	s): 1.2304.15:3 ne: Reserved cription: ne always 0 /^a: RO				
Bit(s Nan Des 1 = 0 = R/W	s): 1.2304.2 ne: Cable diagnostics cription: Through Reflection /^a: RW	s control mode			
Bit(s Nam Des 1 = 0 = R/W	i): 1.2304.1 ne: Cable diagnostics cription: Cable diagnostics on Cable diagnostics off /^a: RW	s control f			
Bit(s Nan Des 1 = 0 =	 b): 1.2304.0 cable diagnostics cription: Cable diagnostics su Cable diagnostics no 	s supported upported t supported			

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E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn SORT ORDER: Clause, Subclause, page, line

C/ 45 SC 45.2.1.174i Page 1 of 9 5/22/2018 5:25:00 PM

CI CO	45 RDARO	SC , Jay	45.2.1.17	4j	P 41 BROADCOM	L 38	# 390
Coi	<i>mment 1</i> Add Re	<i>ype</i> giste	TR rs for Refle	Comment ection Cable	Status D Diagnostics sta	tus (1.2305)	Cable Diagnostics Discuss
Sug	ggested/ Reflect Bit(s) 15:8 3:0	Reme ion Ca Nam dista Refl	dy able Diagn ne Descri ance to firs ection Cal	ostics status ption R/Wa st reflection ir ble Diagnosti	tenths of meters cs Status 111 110 101 =one wire 100 = reserver 011 = high imp 010 = cable wi 001 = cable op 000 = normal	er RO = cable status = one wire sh open d bedance ires shorted ben/high impe cable	s indeterminate RO iorted to ground or voltage dance
Pro	posed F PROPC	Respo DSED	nse ACCEPT	Response	<i>Status</i> W LE.		
	Task F	orce t	o discuss	along with pr	esentation. Cor	nsider after co	mment #389 is resolved.
	If accept	oted, o	change as	proposed is	to:		
	Insert T clause	able 45.2.2	45-142j - F 1.174i.1 Ca	Reflection cal	ble diagnostics tics control (1.2	status registe 304.2:0)	r bit definitions after new
	Bit(s): 1 Name: Descrip R/W^a:	I.2308 Dista otion: RO	5.15:8 nce to first	reflection in	tenths of meter		
	Bit(s): 1 Name: Descrip Value a R/W^a:	I.2308 Rese otion: always RO	5.7:3 rved s 0				
	Bit(s): 1 Name: Descrip 111 = c 110 = c 101 = c 100 = r 011 = h 010 = c	I.230 Cable otion: able sone win ne win eserv nigh in able	5.2:0 e diagnosti status inde re shorted re open ed npedance wires shor	cs control eterminate to ground or ted	voltage		
TY	PE: TR/t	echni	cal require	d ER/editori	al required GR	/general requi	ired T/technical F/editorial

001 = cable open/high impedance 000 = normal cable R/W^a: RO

Bottom table row: ^aRO = Read only

Insert new clauses after new Table 45-142j,

45.2.1.174.j.1 Distance to first reflection in tenths of meter (1.2305.15:18) Bits 15:8 indicate the distance to first reflection in tenths of meter (TBD).

45.2.1.174.j.2 Cable diagnostics control (1.2305.2:0) Bits 2:0 indicate the electrical status of the cable (TBD).

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 Z/withdrawn SORT ORDER: Clause, Subclause, page, line

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	Bit(s): 1.2306.8:3
C/45 SC 45.2.1.1/4k P 41 L 40 # 391	Name: Cable diagnostics through peak
CORDARO, Jay BROADCOM	Description:
Comment Type TR Comment Status D Cable Diagnostics Discuss	64 = highest
Add Pagistors for Transmission Cable Diagnostics status (1, 2205)	
Add Registers for Transmission Cable Diagnostics status (1.2.303)	R/W/a: RO
SuggestedRemedy	Bit(c): 1 2306 2:0
Through Cable Diagnostics status	Name: Estimated signal quality index (SQI)
Bit(s) Name Description R/Wa	Description:
15:10 Reserved	111 = SOI = 7 (best)
9 Cable Diagnostic Through Polarity 1 = Polarity flipped from transmit node to receive	110 = SQI = 6
node	101 = SQI = 5
0 = Polarity not flipped from transmit node to	100 = SQI = 4
receive node	011 = SQI = 3
8:3 Cable Diagnostic through Peak 64 = highest RO	010 = SQI = 2
	001 = SQI = 1
U = IOWEST 2:0 Entimoted Signal Quality Index (SQI) 111 - SQI - 7 (Pant) IPQ	000 = SQI = 0 (worst)
	R/W^a: RO
110 = 101 =	Detters table row AcDO - Deed only
100 =	Bottom table row: "aRO = Read only
011 =	C/ 45 SC 45 2 1 174k P 41 / 42 # 392
010 =	
001 =	CONDAINO, Say
000 = SQi = 0 (worst)	Comment Type T Comment Status D Cable Diagnostics Discuss
Proposed Response Response Status W	Add description for Transmission Cable Diagnostics status polarity (1.2305.9)
PROPOSED ACCEPT IN PRINCIPLE.	SuggestedRemedy
Task Force to discuss along with presentation. Consider after comment #389 is resolved.	Bit 9 indicates if the polarity of the wiring between the transmit and received node is flipped during a through cable diagnostic measurement
If accepted, change as proposed is to:	Proposed Response Response Status W
	PROPOSED ACCEPT IN PRINCIPLE.
Insert Table 45-142k - Through cable diagnostics status register bit definitions after new	
clause 45.2.1.174.J.2 Gable diagnostics control (1.2305.2:0)	Task Force to discuss along with presentation. Consider after comment #389 is resolved.
Bit(s): 1.2306.15:10	If accepted, change as proposed is to:
Name: Reserved	
Description:	If comment #391 is accepted, insert new clause after new Table 45-142k,
Value always 0	
R/W/a: RO	45.2.1.174.k.1 Cable diagnostic through polarity (1.2306.9)
Bit/s): 1 2306 9	Bit 9 indicates if the polarity of the wiring between the transmit and received node is flipped
Name: Cable diagnostic through polarity	during a through cable diagnostic measurement.
Description:	
1 = Polarity flipped from transmit node to receive node	
0 = Polarity not flipped from transmit node to receive node	
R/W^a: RO	

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 Z/withdrawn SORT ORDER: Clause, Subclause, page, line

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C/ 45 SC 45.2.1.174k P 41 L 44 # 393 CORDARO, Jay BROADCOM	C/ 45 SC 45.2.1.174k P 41 L 46 # 394 CORDARO, Jay BROADCOM
Comment Type T Comment Status D Cable Diagnostics Discuss Add description for Transmission Cable Diagnostics estimated correlation peak (1.2305.8:3) D Cable Diagnostics Discuss	Comment TypeTComment StatusDCable Diagnostics DiscussAdd description for Transmission Cable Diagnostics Estimated Signal Quality Index (1.2305.2:0)(1.2305.2:0)(1.2305.2:0)
SuggestedRemedy Bits 8:3 list the correlation peak measured during a through measurement. This indicates the attenuation Proposed Response Response Status W	SuggestedRemedy Bits 2:0 list the estimated signal quality index for the through cable diagnostic from the transmitted node to the received node based upon the cable diagnostic signal. The
PROPOSED ACCEPT IN PRINCIPLE.	estimated signal quality index can be derived by taking the L2 norm of the received cable diagnostics signal. The estimated signal quality may be measured periodically over the lifetime of the harness to determine harness aging and degradation.
Task Force to discuss along with presentation. Consider after comment #389 is resolved.	Proposed Response Response Status W
If comment #391 is accepted, insert new clause after new 45.2.1.174.k.1 Cable diagnostic through polarity (1.2306.9).	Task Force to discuss along with presentation. Consider after comment #389 is resolved.
	If accepted, change as proposed is to:
45.2.1.174.K.2 Cable diagnostics through peak (1.2306.8:3) Bits 8:3 list the correlation peak measured during a through measurement. This indicates the attenuation.	If comment #391 is accepted, insert new clause after new 45.2.1.174.k.2 Cable diagnostics through peak (1.2306.8:3),
	45.2.1.174.k.3 Estimated signal quality index (SQI) (1.2306.2:0) Bits 2:0 list the estimated signal quality index for the through cable diagnostic from the transmitted node to the received node based upon the cable diagnostic signal. The estimated signal quality index can be derived by taking the L2 norm of the received cable diagnostics signal. The estimated signal quality may be measured periodically over the lifetime of the harness to determine harness aging and degradation.

C/ 45 SC 45.2.1.174k

CI 45 SC 45.2.3.58g CORDARO, Jay BI	P 45 L 39 ROADCOM	# 382	Cl 45 SC 45.2.3.5 CORDARO, Jay	8g P 50 BROADCOM	L 27	# 383
Comment Type TR Comment Sta Delete OAM registers 3.2296,3.2297,3.3	itus D 3.2298	OAM Discuss	Comment Type TR Delete OAM registers	Comment Status D 3.2296,3.2297,3.3.2298		OAM Discuss
SuggestedRemedy Delete OAM registers 3.2296,3.2297,3.3 Proposed Response Response State PROPOSED ACCEPT IN PRINCIPLE. Task Force to discuss retaining OAM bu OAM channel in clause 147. Editor proposes to delete entire register. Note: Change as proposed is to: If comment #383 is accepted, delete the 3.2296.15:8 3.2296.7:0 3.2297.15:8 3.2298.7:0	 3.2298 from Table Table 45 <i>tus</i> W ut cutting it to one register. • • rows for the following bits 	5-220g Currently, there is no from Table 45-220g:	SuggestedRemedy 45.2.3.58g 10BASE-T The 10BASE-T1S OA message data to be t The 8 octet message standard. See Table 45-220g. Proposed Response PROPOSED ACCEP Task Force to discuss OAM channel in claus Editor proposes to de Note: Change as prop In clause title, change (Registers 3.2295 to 3 to, (Register 3.2295) On line 29, change fm 8 octet 10BASE-T1S to, 2 octet 10BASE-T1S	 '1S OAM message register (Reg M message register contains th ansmitted. data is user defined and its defined	gister 3.2295) le 2 octet 10BAS nition is outside one register. C	SE-T1S OAM the scope of this urrently, there is no

C/ 45 SC 45.2.3.58g

C/ 45 SC 45.2.3.58h P 51 CORDARO, Jay BROADCOM	L 24	# 385	CI 45 SC 45.2.3. CORDARO, Jay	58i P 5 BRO/	1 L 1 ADCOM	# 386
Comment Type TR Comment Status D Change description for 45.2.3.58h.1		OAM Discuss	Comment Type TR Change Table 45-22	Comment Status 0h- to Table 45-220i (s	D wap positions of thes	OAM Discuss se tables in the document)
SuggestedRemedy Bit 3.2299.15 shall be set to one when the 10BASE-T partner is stored into registers 3.2300 and the message number in 3.2299.1 cleared when register 3.2303 is read. Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Task Force to discuss retaining OAM but cutting it to a OAM channel in clause 147. Editor proposes to delete entire register. Note: Change as proposed is to: In clause 45.2.3.58h.1 Link partner 10BASE-T1S OAN is stored into registers 3.2300, 3.2301, 3.2302, and 3. with, is stored into registers 3.2300	1S OAM mess 11:8. This regi one register. 0 M message va 2303	sage from the link ster shall be Currently, there is no lid (3.2299.15) replace,	SuggestedRemedy Bit(s) Name Descr 3.2300.15:8 Link pa first. RO 3.2300.7:0 Link pa first. RO Proposed Response PROPOSED ACCEF Task Force to discus OAM channel in clau Editor proposes to di Note: Change as pro- If comment #385 is a 3.2301.15:8 3.2301.7:0 3.2302.15:8 3.2302.7:0 3.2303.15:8 3.2303.7:0	iption R/Wa rtner 10BASE-T1S OAI rtner 10BASE-T1S OAI <i>Response Status</i> PT IN PRINCIPLE. as retaining OAM but cu use 147. elete entire register. oposed is to: accepted, delete the row	W ws for the following b	age octet 1. LSB received age octet 0. LSB received er. Currently, there is no bits from Table 45-220h:

 $Swap \ positions \ of \ Table \ 45-220h, \ 45.2.3.58h, \ 45.2.3.58h.1, \ 45.2.3.58h.2, \ 45.2.3.58h.3, \ and \ 45.2.3.58h.4 \ with \ Table \ 45-220i \ and \ 45.2.3.58i \ and \ re-number.$

C/ **45** SC **45.2.3.58i**

C/ 45	SC 45.2.3.58i lav	P 51 BROADCOM	L 44	# 387	C/ 45 CORDARO	SC Table 4	5-220i-	P 52 BROADCOM	L 1	# 384
Comment Typ Change t	be TR ext to read as f	Comment Status D		OAM Discuss	Comment T (editoria	/pe TR I) Table 45-22 (technical) C	Commer 20i- Change t	nt Status D able to 45-220h (s	swap this table	OAM Discuss 's position with table 45-
SuggestedRe 45.2.3.58 The link p OAM me data from assignme bits in the Proposed Re PROPOS	emedy Bi Link partner 1 Dartner 10BASE ssage In the link partne ent of E Link partner 1 Sponse BED ACCEPT II	0BASE-T1S OAM messag E-T1S OAM message regis rr. Bit 3.2299.15 shall be cl 0BASE-T1S OAM messag <i>Response Status</i> W N PRINCIPLE.	ge register (Regis ster contains the eared when regis ge register bit is s	ster 3.2300) 2 octet 10BASE-T1S ster 3.2303 is read. The shown in.Table 45-220i	SuggestedF 3.2299. This bit 3.2299. This bit read. 1 = Mes 0 = Mes RO, SC	Permedy 15 Link partne is used to ind 11:8, 3.2300, shall self clea sage data in i sage data in i	er 10BASE-T ² icate messag are stored an r when regist registers are registers are	IS OAM message le data in register d ready to be rea er 3.2317 is valid not valid	e valid s d.	
Task For OAM cha	ce to discuss re innel in clause	etaining OAM but cutting it 147.	to one register.	Currently, there is no	Proposed R PROPC	esponse SED ACCEP	Response T IN PRINCIE	e Status W PLE.		
Editor pro	pposes to delete ange as propos	e entire register. ed is to:			Task Fo OAM ch	rce to discuss annel in claus	s retaining OA se 147.	AM but cutting it to	o one register.	Currently, there is no
If comme (Register	ent #385 is acce s 3.2300 to 3.2	epted, in clause title, chang 303)	ge from,		Note: C	hange as prop	bosed is to:	JISIEI.		
to, (Register	3.2300)				If comm follows:	ent #385 is a	ccepted, repla	ace the row for 3.2	2299.15 in orig	inal Table 45-220i as
On line 4 8 octet 10 to, 2 octet 10 Add a pe	6, change from DBASE-T1S OA DBASE-T1S OA riod at the end	, MM message of the sentence on line 48.			Bit(s): 3 Name: I Descrip 3.2299. 3.2317 i 1 = Mes 0 = Mes R/W^a:	.2299.15 Link partner 10 tion: This bit is 11:8, 3.2300, s read. sage data in i sage data in i RO, SC	DBASE-T1S (s used to indi are stored an registers are registers are	DAM message va cate message da d ready to be rea valid not valid	ılid ta in registers d. This bit shal	I self clear when register

C/ 98 SC 98.2.1.1.3 P 57 L 30 # 490 Graber, Steffen Pepperl+Fuchs GmbH	C/ 147 SC 147.9.2.1 P 152 L 9 # 425 Zimmerman, George CME Consulting et al CME Consulting et al CME Consulting et al CME Consulting et al
Comment Type T Comment Status D Late A new start delimiter is needed. See presentation "Auto-Negotiation Start Delimiter.pdf".	Comment Type T Comment Status D MDI MDI return loss specifies the termination. Requiring the termination of the MDI would specify an implementation. MDI
SuggestedRemedy Insert clause 98.2.1.1.3 with change marks from, "The page is preceded by a unique Start Delimiter consisting of a 26 x T1 sequence that includes multiple DME transition violations. For a Start Delimiter starting with a 0 to +1 transition, the bit sequence is: +1 -1 +1 +1 -1 -1 +1 -1 -1 -1 +1 -1 +1 -1 -1 -1 +1 +1 -1 -1 -1 +1 +1 -1 -1 +1."	SuggestedRemedyChange "In multidrop configuration the MDI shall be terminated by two 100 ? (nominal) impedances satisfying Equation (147-6) when measured with 100 ? \pm 1% impedance at the edges." to "The MDI return loss (RL) shall meet or exceed Equation (147-6) for all frequencies specified (with 100 ? \pm 0.1 % reference impedance) at all times when the PHY is transmitting data."
to, "The page is preceded by a unique Start Delimiter consisting of a 26 x T1 sequence that includes multiple DME transition violations. For a Start Delimiter starting with a 0 to +1 transition, the bit sequence for high speed Auto- Negotiation mode is: +1 - 1 + 1 + 1 - 1 - 1 + 1 - 1 - 1 - 1 + 1 - 1 -	Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. DEFERRED Change this: === In multidrop configuration the MDI shall be terminated by two 100 CAP_OMEGA (nominal) impedances satisfying Equation (147-6) when measured with 100 CAP_OMEGA ±1% impedance at the edges. ==== to ==== The MDI return less (PL) chall meet or exceed Equation (147-6) for all frequencies
Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Deferred.	specified (with 100 CAP_OMEGA \pm 0.1 % reference impedance) at all times when the PHY is transmitting data. ==== Notes:
C/ 147 SC 147.5.1 P 146 L 19 # 359 iyer, venkat microchip microchip Test Mode Comment Type T Comment Status D Test Mode DME doesn't define +1, -1 Test Mode Test Mode	- CAP_OMEGA is capital offega - Spaces before CAP_OMEGA, ± and % are non-breaking - "Equation (147-6)" is a reference
SuggestedRemedy remove test mode 2 since there is no droop with DME Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. DEFERRED There is droop in DME (there can be droop in 80ns). TODO: add a new Editor's Note that says "Droop Specification is needed"	

C/ 147 SC 147.9.2.1

Cl 200	SC 200A.1.1.2	2 P 20	0 <i>L</i> 30	# 308
Maguire, V	Valerie	The Si	emon Company	
<i>Comment</i> This i	<i>Type</i> T s just an example,	Comment Status but it would be nice t	D to reference PoDL	Link Segment power.
Suggester Repla power voltaç	dRemedy ace "dc power" with r" becomes "XX V ge).	n "Type E PoDL" in fo Type 3 PoDL" - Com	ur locations in Fig menter's note: rep	ure 200A-2 (e.g., "48V dc lace XX with correct
Proposed PROF	Response POSED REJECT.	Response Status	W	
DCR Group See e 200A	characteristics and b. editors notes under 1.1.2.2 Powered to	d class power require 200A.1.1.2.1 Power runk cable class pow	ments have not be ed trunk cable DC er requirements.	en agreed to by the Task
Cl 200	SC 200A.1.1.2	2 P 20	0 L 30	# 309
Maguire, V	Valerie	The Si	emon Company	
Comment Clarify	<i>Type</i> T y what gage condu	Comment Status and length are	D used for this sect	Link Segment
Suggester Repla pair c	<i>dRemedy</i> ace, "(e.g., 24V dc able, up to 1000m	power) with "(e.g., X) length). Commenter	〈 Type E PoDL, 1₄ s note: Replace ">	I - 18 AWG single balanced (X" with correct voltage.
Proposed PROF	Response POSED REJECT.	Response Status	w	
200A. DCR Group See e 200A.	1.1.2 Powered tru characteristics and b. editors notes under 1.1.2.2 Powered tr	nk cable topologies d class power require 200A.1.1.2.1 Power runk cable class pow	ments have not be ed trunk cable DC er requirements.	een agreed to by the Task R characteristics and

C/ 200 SC 200A.1.1.2