Addressing comment #8 on Signal Detect Condition

Guangcan Mi, Eric Bernier
Huawei

IEEE P802.3ds TF Meeting
July 13, 2026

Comment 8 and 9 on signal detect function

Cl **193**	*SC* **193.5.4**	*P***56**	*L***28**	# 8

Mi, Guangcan — Huawei

Comment Type **ER** *Comment Status* **X**

802.3dj adopted modifications to Table 180-5 during D3.0 comment resolution. Table 193-5 needs to be updated accordingly

SuggestedRemedy

delete "for any lane" and "for all lanes"

Proposed Response *Response Status* **O**

Cl **193**	*SC* **193.5.5**	*P***56**	*L***49**	# 9

Mi, Guangcan — Huawei

Comment Type **ER** *Comment Status* **X**

"signal detect" should not be capitalized in this sentence.

SuggestedRemedy

change to "signal detect"

Proposed Response *Response Status* **O**

$$Global\_PMD\_signal\_detect = \bigwedge_{0}^{n-1} PMD\_signal\_detect\_i$$

- Global_PMD_signal_detect and PMD_signal_detect_i variables are not directly related to RTS and ILT function for IMDD optical PMDs.
- PMD_IS_SIGNAL.indication(signal_ok) is.

> The SIGNAL_OK parameter of the PMD:IS_SIGNAL.indication primitive corresponds to the variable rts_status of the ready-to-send (RTS) function (see 180.5.12), as defined in 178B.8.2.1. When SIGNAL_OK is either IN_PROGRESS or FAIL, the rx_symbol parameters of PMD:IS_UNITDATA_i.indication primitive on all lanes are unspecified.

Proposal to update Table 193-5

180.5.4 PMD global signal detect function

The variable Global_PMD_signal_detect is a global indicator of the presence of optical signals on all *n* lanes. For the 200GBASE-DR1 PMD, the variable Global_PMD_signal_detect is set to PMD_signal_detect_0 (see 180.5.5). For the 400GBASE-DR2, 800GBASE-DR4, and 1.6TBASE-DR8 PMDs, the variable Global_PMD_signal_detect is set to the logical-and of PMD_signal_detect_*i* from all of the PMD lanes.

180.5.5 PMD lane-by-lane signal detect function

The PMD lane-by-lane signal detect function is used by the PMD to indicate sufficient optical power is detected at the receiver input on each lane. For each lane *i*, where *i* is in the range 0 to *n*–1, a receiver shall set the variable PMD_signal_detect_*i* to either 0 or 1 according to the criteria in Table 180–5.

Table 180–5—Signal detection criteria for each lane

Receive conditions	PMD_signal_detect_*i*
Average optical power at TP3 ≤ –15 dBm	0
[The input signal is a compliant 200GBASE-R, 400GBASE-R, 800GBASE-R or 1.6TBASE-R signal][a] AND [Optical power at TP3 ≥ average receive power, each lane (min) in Table 180–8]	1
All other conditions	Unspecified, may be 0 or 1

[a] This is a condition for testing of the receiver, not a requirement for the receiver to detect that the signal is valid.

193.5.4 PMD global signal detect function

The variable Global_PMD_signal_detect is a global indicator of the presence of optical signals on all *n* lanes. For the 200GBASE-SR1-30 and 200GBASE-SR1-50 PMDs, the variable Global_PMD_signal_detect is set to PMD_signal_detect_0 (see 300.5.5). For the 400GBASE-SR2-30, 800GBASE-SR4-30, and 1.6TBASE-SR8-30, 400GBASE-SR2-50, 800GBASE-SR4-50, and 1.6TBASE-SR8-50 PMDs, the variable Global_PMD_signal_detect is set to the logical-and of PMD_signal_detect_*i* from all of the PMD lanes.

Table 193–5—SIGNAL_DETECT value definition

Receive conditions	SIGNAL_DETECT value
For any lane; Average optical power at TP3 ≤ –15 dBm	FAIL
For all lanes; [(Optical power at TP3 ≥ average receive power, each lane (min) in Table 193–8) AND (compliant 200GBASE-SR1-30, 400GBASE-SR2-30, 800GBASE-SR4-30, 1.6TBASE-SR8-30, 200GBASE-SR1-50, 400GBASE-SR2-50, 800GBASE-SR4-50, or 1.6TBASE-SR8-50 signal input)]	OK
All other conditions	Unspecified

193.5.5 PMD lane-by-lane signal detect function

The PMD lane-by-lane signal detect function is used by the PMD to indicate sufficient optical power is detected at the receiver input on each lane. For each lane *i*, where *i* is in the range 0 to *n*–1, a receiver shall set the variable PMD_signal_detect_*i* to either 0 or 1 according to the criteria in Table 193–5.

Various implementations of the Signal Detect function are permitted by this standard. This standard imposes no response time requirements on the generation of the PMD_signal_detect_*i* variable.

Implementations need to provide adequate margin between the input optical power level at which the PMD_signal_detect_*i* variable is set to 1 and the inherent noise level of the PMD, including the effects of crosstalk and power supply noise.

- Table 193-5 was referenced only in 193.5.5 PMD lane-by-lane signal detect function, therefore it make sense to specify the table for each lane property
- Change Table title to “Signal detection criteria for each lane”
- Delete “for any lane” in receive condition for value of FAIL.
- Delete “For all lanes” in receive condition for value of “OK”.
- Change “SIGNAL_DETECT value” to “PMD_signal_detect_*i*”

193.5.4 PMD global signal detect function

The variable Global_PMD_signal_detect is a global indicator of the presence of optical signals on all *n* lanes. For the 200GBASE-SR1-30 and 200GBASE-SR1-50 PMDs, the variable Global_PMD_signal_detect is set to PMD_signal_detect_0 (see 300.5.5). For the 400GBASE-SR2-30, 800GBASE-SR4-30, and 1.6TBASE-SR8-30, 400GBASE-SR2-50, 800GBASE-SR4-50, and 1.6TBASE-SR8-50 PMDs, the variable Global_PMD_signal_detect is set to the logical-and of PMD_signal_detect_*i* from all of the PMD lanes.

Table 193–5—SIGNAL_DETECT value definition

Receive conditions	SIGNAL_DETECT value
For any lane; Average optical power at TP3 ≤ −15 dBm	FAIL
For all lanes; [(Optical power at TP3 ≥ average receive power, each lane (min) in Table 193–8) AND (compliant 200GBASE-SR1-30, 400GBASE-SR2-30, 800GBASE-SR4-30, 1.6TBASE-SR8-30, 200GBASE-SR1-50, 400GBASE-SR2-50, 800GBASE-SR4-50, or 1.6TBASE-SR8-50 signal input)]	OK
All other conditions	Unspecified

193.5.5 PMD lane-by-lane signal detect function

The PMD lane-by-lane signal detect function is used by the PMD to indicate sufficient optical power is detected at the receiver input on each lane. For each lane *i*, where *i* is in the range 0 to *n*–1, a receiver shall set the variable PMD_signal_detect_*i* to either 0 or 1 according to the criteria in Table 193–5.

Various implementations of the Signal Detect function are permitted by this standard. This standard imposes no response time requirements on the generation of the PMD_signal_detect_*i* variable.

Implementations need to provide adequate margin between the input optical power level at which the PMD_signal_detect_*i* variable is set to 1 and the inherent noise level of the PMD, including the effects of crosstalk and power supply noise.

Use all small letters

Proposal to update 193.12.4.1

F9	Global Signal Detect function	180.5.4	Report to the PMD service interface the message PMD:IS_SIGNAL.indication (SIGNAL_DETECT)	M	Yes [ ]
F10	Global Signal Detect behavior	180.5.4	SIGNAL_DETECT is a global indicator of the presence of optical signals on all four lanes	M	Yes [ ]
F11	Lane-by-lane Signal Detect function	180.5.5	Sets PMD_signal_detect_i values on a lane-by-lane basis per requirements of Table 180–5	MD:O	Yes [ ] No [ ] N/A [ ]

Cl **180** *SC* **180.12.4.1** *P* **499** *L* **7** # R1-251

Law, David — Hewlett Packard Enterprise

Comment Type **T** *Comment Status* **D** *PICS (B) (O)*

PICS item F9 'Global Signal Detect function', referencing subclause 180.5.4, says 'Report to the PMD service interface the message PMD:IS_SIGNAL.indication (SIGNAL_DETECT)' and item F10 'Global Signal Detect behavior', also referencing subclause 180.5.4, says SIGNAL_DETECT is a global indicator of the presence of optical signals on all four lanes'.

I don't think this is correct, as the Global_PMD_signal_detect variable defined in subclause 180.5.4 'PMD global signal detect function' is only used by the MDIO registers, with the PMD:IS_SIGNAL.indication primitive generated by the RTS function.

In addition, doesn't a 200GBASE-DR1 PMD have only one lane, a 400GBASE-DR2 PMD have only two lanes, but a 1.6TBASE-DR8 PMD have eight?

SuggestedRemedy

Delete PICS item F9 and change the Value/Comment text of PICS item F10 from 'SIGNAL_DETECT is a global indicator of the presence of optical signals on all four lanes' to 'Global_PMD_signal_detect is an indicator of the presence of an optical signal on all lanes, or lane 0 for a 200GBASE-DR1 PMD.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The comment addresses an error in the draft. However, it is sufficient to use "all lanes" for any of the PMD types since all lanes of a single-lane PHY would be the one lane, designated lane 0.
Delete PICS item F9
Change the Value/Comment text of PICS item F10 from 'SIGNAL_DETECT is a global indicator of the presence of optical signals on all four lanes' to 'Global_PMD_signal_detect is an indicator of the presence of an optical signal on all lanes".

Make similar changes to **193.12.4.1 PMD functional specifications**

F9	Global Signal Detect function	193.5.4	Report to the PMD service interface the message PMD:IS_SIGNAL.indication(SIGNAL_DETECT)	M	Yes [ ]

Item	Feature	Subclause	Value/Comment	Status	Support
F10	Global Signal Detect behavior	193.5.4	SIGNAL_DETECT is a global indicator of the presence of optical signals on all n lanes	M	Yes [ ]

- Delete row F9
- Change Value/Comment of row F10 to: “Global_PMD_signal_detect is an indicator of the presence of an optical signal on all lanes”

THANK YOU