

Clause 54 SIGNAL_DETECT

1. Current Text

Table 54-5--SIGNAL_DETECT value definition

Receive conditions	Receive Signal OK value
For any lane; Input electrical power \leq TBD dBm	FAIL
For all lanes; [(Input_electrical power \geq Receiver sensitivity (max) in Table 54-8) AND (compliant 10GBASE-CX4 signal input)]	OK
All other conditions	Unspecified

2. Proposed Text

Table 54-5--SIGNAL_DETECT value definition

Receive conditions	Signal_Detect Value
For any lane; $V_{input, Receiver} < (\text{receiver sensitivity} + \text{worst-case local system noise})^{a,b}$	FAIL
For all lanes; [(Differential receiver sensitivity + worst-case local system noise $\leq V_{input, Receiver}$) AND (compliant 10GBASE-CX4 signal input)]	OK
All other conditions	Unspecified

^aWorst-case local system noise includes all receiver coupled noise sources (NEXT, power supply noise, and any reflected signals). Receiver sensitivity is the actual sensitivity of the specific port implementation (as opposed to the minimum differential sensitivity).

^bIt is recommended that the transition from OK to FAIL must be validated if the FAIL condition exists for a minimum of 32 ns (100 UI).

3. Reference

Clause 39, Table 39-1.

Note 1: I did not include $V_{input, Receiver} \leq$ Maximum differential input.

Note 2: Using "Differential receiver sensitivity" instead of "Maximum differential sensitivity" will allow for different implementations with specific port sensitivities.

Note 3: The minimum of 32 ns for transition from (Signal_detect Value) = OK to (Signal_detect Value) = FAIL condition to be validated will make the system more robust.