Proposal For Signal Detect

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Why have a Signal_Detect function?

-Provides system level mechanism to determine that a cable is properly attached.

Why not use BitSync or ByteSync?

-These indicators require a higher level of functionality than simply indicating that a cable is attached. PLLs, equalizers, other complex circuits involved in that level of determination.

Can we leverage an existing Signal_Detect spec?

-Yes. 802.3u uses a receive equalizer and has therefore defined a Signal_Detect function that operates with a closed eye.

========== DAN'S RECOMMENDED TEXT – VALUES TBD ==========

54.6.4 Global PMD signal detect function

The Global_PMD_signal_detect function shall report the state of SIGNAL_DETECT via the PMD service interface. The SIGNAL_DETECT parameter is signaled continuously, while the PMD_SIGNAL.indicate message is generated when a change in the value of SIGNAL_DETECT occurs.

SIGNAL_DETECT shall be a global indicator of the presence of electrical signals on all four lanes. The PMD receiver is not required to verify whether a compliant 10GBASE-CX4 signal is being received, however, it shall be required to assert SIGNAL_DETECT = OK when the differential peak-to-peak voltage on each of the four lanes at the MDI has exceeded VSDA for at least 320ps. The transition from SIGNAL_DETECT = FAIL to SIGNAL_DETECT = OK shall occur within the time specified by SDAT maximum after the condition for SIGNAL_DETECT = OK has been achieved.

The PMD receiver may assert SIGNAL_DETECT = FAIL when the differential peak-to-peak voltage on any of the four lanes at the MDI has dropped below VSDD and remained below that value for longer than SDDT minimum. The PMD receiver shall assert SIGNAL_DETECT = FAIL when the differential peak-to-peak voltage on any of the four lanes at the MDI has dropped below VSDD and remained below that value for longer than SDDT maximum.

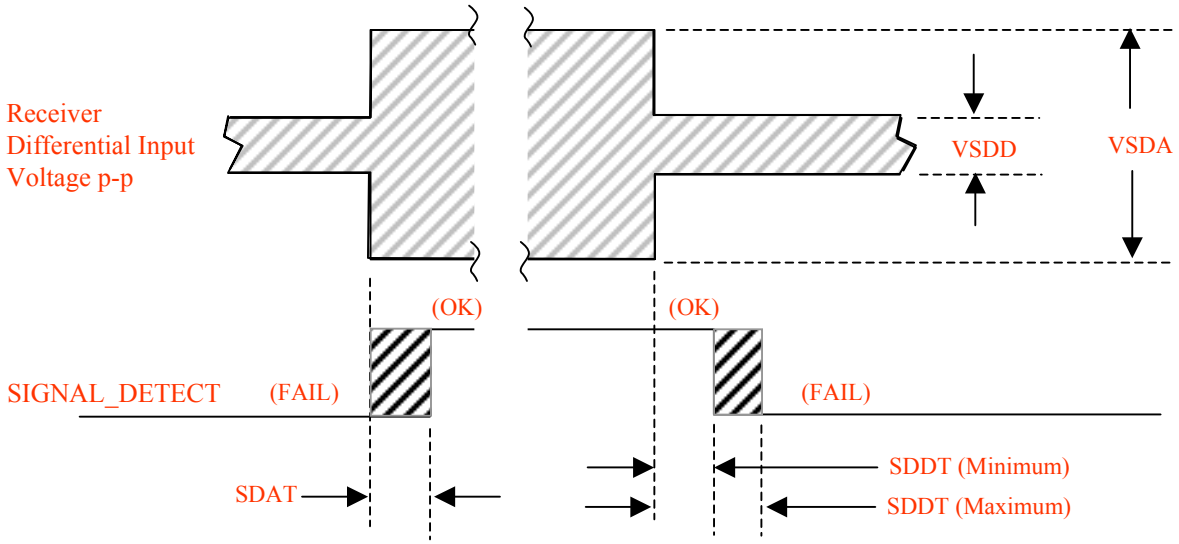
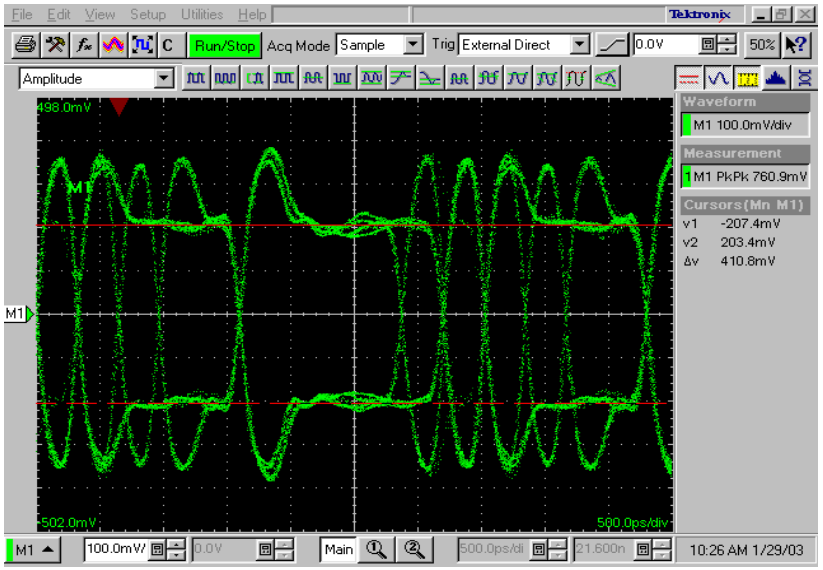


Table 54-5 SIGNAL_DETECT value definition

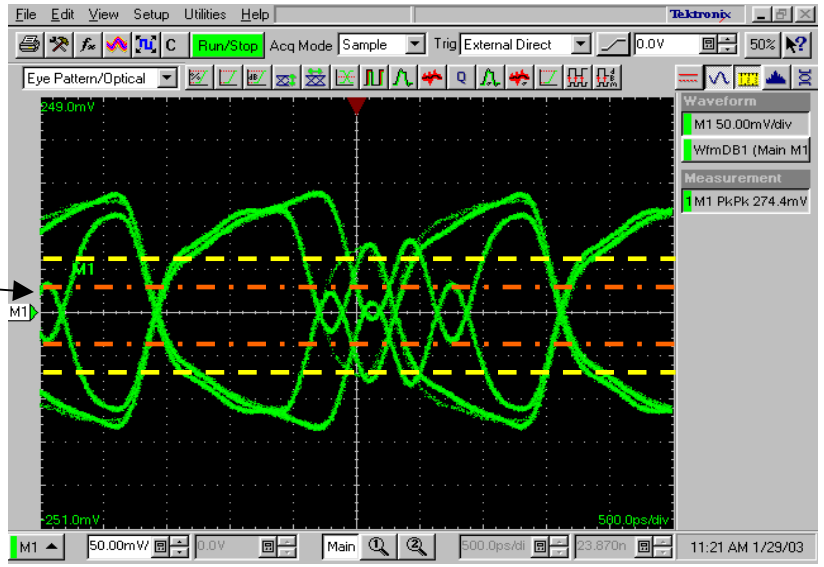
Value	Minimum	Maximum
Voltage required to assert SIGNAL_DETECT (VSDA)		125mV p-p
Voltage required to de-assert SIGNAL_DETECT (VSDD)	50mV p-p	
Assertion Time (SDAT)		100uS
De-assertion Time (SDDT)	250uS	500uS

From Howard Baumer's Measurements



6" 2-connectors

VSDA
VSDD



15m, 24awg, 2connectors

Motion: Accept Dan's proposal and direct editor to incorporate into the working paper.

M: Steve D
S: Petre P

Y: 13 N: 0 A:1