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To: T10 Technical Committee
From: Bill Galloway
Subj: SAS Error Primitive

The ERROR primitive shall be K28.5, D02.0, D01.4, D29.7.

7.1.4.x ERROR
ERROR is transmitted by an expander in the place of illegal dwords that the expander has received.

X.X.X.X
Expanders that are forwarding data to a SATA device shall replace the ERROR primitive with four consecutive K28.3 characters.

Update the following paragraphs in the dword synchronization section.

6.7.5.2 Transition DWS3:DWS4 (Sync acquired:Lose Sync 1 invalid)
The DWS3:DWS4 transition shall occur when an invalid dword is detected.

Expanders shall replace the invalid received dword with the ERROR primitive.

6.7.6.3 Transition DWS4:DWS5 (Lose Sync 1 invalid:Lose Sync 2 invalid)
The DWS4:DWS5 transition shall occur when a invalid dword is detected.

Expanders shall replace the invalid received dword with the ERROR primitive.

6.7.8.3 Transition DWS5:DWS6 (Lose Sync 2 invalid:Lose Sync 2 invalid)
The DWS5:DWS6 transition shall occur when a invalid dword is detected.

Expanders shall replace the invalid received dword with the ERROR primitive.

6.7.10.3 Transition DWS6:DWS0 (Lose Sync 3 invalid:ACQ Sync Start)
The DWS6:DWS0 transition shall occur when a invalid dword or loss of signal is detected. If an invalid dword is detected, at least 4 invalid dwords have been received without sufficient intervening valid dwords to nullify there affect. Dword synchronization is lost and must be reacquired.

Expanders shall replace the invalid received dword with the ERROR primitive.

6.7.11.3 Transition DWS6a:DWS0 (Lose Sync 3 - 1 val:ACQ Sync Start)
The DWS6a:DWS0 transition shall occur when an invalid dword or loss of signal is detected. If an invalid dword is detected, at least 4 invalid dwords have been received without sufficient intervening valid dwords to nullify there affect. Dword synchronization is lost and must be reacquired.

Expanders shall replace the invalid received dword with the ERROR primitive.