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Subj: SAS-2: Add minimum number of dwords after Identify frame
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Seagate has performed simulations that indicate following an Identify frame with another frame (either an Open frame or another Identify frame) can result in not recognizing the Identify frame even if there were no transmission errors. This condition doesn't occur in systems today but might in the near future with higher performance designs or a requirement to transmit 3 Identify frames.

The problem can be resolved by requiring non-deletable primitives to be sent after each Identify frame. Today's systems meet this requirement but SAS-2 doesn't specify that any dwords are required between frames. This proposal adds a requirement that 3 dwords that are not deletable shall be sent after each Identify frame. I believe this requirement is met by specifying "idle dwords".

Proposed changes for SAS-2, rev. 10: (additions in [blue](#))

7.9.4.2 SL_IR transmitter and receiver

The SL_IR transmitter receives the following messages from the SL_IR state machines indicating primitive sequences, frames, and dwords to transmit:

- a) Transmit IDENTIFY Address Frame;
- b) Transmit HARD_RESET; and
- c) Transmit Idle Dword.

Upon receiving a Transmit IDENTIFY Address Frame message, the SL_IR transmitter shall transmit:

- 1) [SOAF](#);
- 2) [Data Dwords](#);
- 3) [EOAF](#); and
- 4) [at least 3 idle dwords](#).

NOTE - Phys compliant with previous versions of this standard were not required to transmit idle dwords after EOAF and before transmitting SOAF.

The SL_IR transmitter sends the following messages to the SL_IR state machines:

- a) HARD_RESET Transmitted; and
- b) IDENTIFY Address Frame Transmitted.

The SL_IR receiver sends the following messages to the SL_IR state machines indicating primitive sequences and dwords received from the SP_DWS receiver (see 6.9.2):

- a) SOAF Received;
- b) Data Dword Received;
- c) EOAF Received;
- d) ERROR Received;
- e) Invalid Dword Received; and
- f) HARD_RESET Received.

The SL_IR receiver shall not require reception of any idle dwords after an IDENTIFY Address Frame.

The SL_IR receiver shall ignore all other dwords.