Proposed Changes for Timing of LPS

Background:

Since the original 1394-1995 standard did not address the need to toggle the LPS signal across an isolation barrier, Link and PHY vendors independently chose the frequency at which to toggle LPS. Therefore, there is existing silicon out on the market with various LPS implementations. The P1394a draft is now attempting to standardize the timing of LPS. In doing so, timing values should be chosen which maximize inter-operability with existing silicon.

There is at least one PHY on the market which will detect the absence of LPS after 1.3us. Thus, it would not be able to inter-operate with Links which implement the currently proposed LPS timing values.

Proposed Changes to Current (v1.1) Draft:

1. When operating in an isolation environment, specify the LPS signal should be pulsed at a frequency no less than 500KHz, currently specified in the draft as 300KHz nominal.

2. Change the minimum detection time for the PHY to recognize the absence of LPS in table 5-2 of the current draft:
   T_{LPS_RESET} (min) goes from 2.25us down to 1.2us.
   The max value can be kept at 2.75us, to avoid impacting PHYs being designed to the current draft.

3. Also in table 5-2, change the max value of T_{LPSL}
   T_{LPSL} (max) goes from 2.0us down to 1.0us.
   This could have an effect on Link designs in progress, if they're implementing anything below a 500KHz pulse.