Date: November 4, 2002
To: T10 Technical Committee
From: Alvin Cox (alvin.cox@seagate.com)
Subject: SAS OOB transmission levels

The following text is proposed to replace the second paragraph of section 5.7.5, Transmitted signal characteristics. The reason for this change is to not restrict SAS implementations to only SATA 1.0 signal levels for OOB sequences and to allow SAS targets, which are physically keyed to be excluded from SATA 1.0 applications, to transmit OOB signals at SAS levels only rather than being required to transmit OOB at SATA 1.0 levels. This change also requires that when a SATA 1.0 device is detected, the transmission level will be restricted to SATA 1.0 levels.

The OOB sequence shall be performed at signal voltage levels corresponding to the lowest supported transfer rate. SATA 1.0 signal levels shall be used by initiator devices and expander devices during the first OOB sequence after a power on or hard reset if the 1,5 Gbps transfer rate is supported. As soon as COMSAS has been exchanged, the transmit levels shall increase to the SAS voltage levels specified in table 27. If a COMINIT is not received within a hot plug timeout at SATA 1.0 signal levels, the initiator device or expander device shall increase to SAS voltage levels and perform the OOB sequence again. If the OOB sequence is completed at the SAS voltage level and the target device is determined to be a SATA device, the initiator device or expander device shall switch to SATA 1.0 voltage levels and repeat the OOB sequence. If no COMINIT is received within a hot plug timeout of the second OOB sequence the initiator device or expander device shall initiate another OOB sequence using SATA 1.0 signal levels. The initiator device or expander device shall continue alternating between sending COMINIT at SATA 1.0 signal levels and SAS signal levels until a COMINIT is received (see 6.6)

A SAS target device shall transmit OOB signals at the lowest supported transfer rate using SAS signal levels.