Date: September 26, 2002
To: T10 Technical Committee
From: Alvin Cox (alvin.cox@seagate.com)
Subject: SAS external connector text corrections and signal table modification

The description of the SAS external connector has the wrong genders specified for the cable and device. Work within the SFF Committee has resulted in the elimination of the SAS-unique configuration in favor of a common, non-keyed version to be available for multiple interface applications. During the September T10 SAS PHY working group, it was determined by a unanimous vote that special keying was not required for SAS applications based on the intended applications for SFF-8470 and the mandatory AC coupling of the SAS external signals that the SFF-8470 4x configuration should be adopted as SAS external connector. The following changes represent the correction to the text required to make this update and correct the gender errors. Table 12 is also revised to provide a signal assignment that is consistent with other interface standards.

5.3.5 SAS external cable receptacle connector

SAS external cables shall use the SAS external cable ~~**receptacle**~~ **plug** connector. The SAS external cable ~~**receptacle**~~ **plug** connector is defined in SFF-~~**8483**~~ **8470 as the 4x configuration**. ~~**It includes**~~ **No** special SAS keying **is provided**. It attaches to a SAS external ~~**plug**~~ **receptacle** connector, providing contact for **up to** four physical links.

Table 12 shows how the connector signal pairs are used for applications using one, two, three, or four of the physical links.

Table 12 — Physical link usage in wide connector

Physical link	Signal	Signal pin to use based on number of physical links supported by the cable			
		One	Two	Three	Four
1	T1+	S1	S1	S1	S1
	T1-	S2	S2	S2	S2
	R1+	S3	S3	S3	S3
	R1-	S4	S4	S4	S4
3	T3+	N/C	N/C	S5	S5
	T3-	N/C	N/C	S6	S6
	R3+	N/C	N/C	S7	S7
	R3-	N/C	N/C	S8	S8
4	T4+	N/C	N/C	N/C	S9
	T4-	N/C	N/C	N/C	S10
	R4+	N/C	N/C	N/C	S11
	R4-	N/C	N/C	N/C	S12
2	T2+	N/C	S13	S13	S13
	T2-	N/C	S14	S14	S14
	R2+	N/C	S15	S15	S15
	R2-	N/C	S16	S16	S16

Note:
N/C: Not connected

Table 12 — Physical link usage in wide connector

Signal	Signal pin to use based on number of physical links supported by the cable			
	One	Two	Three	Four
Rx 0+	S1	S1	S1	S1
Rx 0-	S2	S2	S2	S2
Rx 1+	N/C	S3	S3	S3
Rx 1-	N/C	S4	S4	S4
Rx 2+	N/C	N/C	S5	S5
Rx 2-	N/C	N/C	S6	S6
Rx 3+	N/C	N/C	N/C	S7
Rx 3-	N/C	N/C	N/C	S8
Tx 3-	N/C	N/C	N/C	S9
Tx 3+	N/C	N/C	N/C	S10
Tx 2-	N/C	N/C	S11	S11
Tx 2+	N/C	N/C	S12	S12
Tx 1-	N/C	S13	S13	S13
Tx 1+	N/C	S14	S14	S14
Tx 0-	S15	S15	S15	S15
Tx 0+	S16	S16	S16	S16
G1-G9: SIGNAL GROUND				
Housing: CHASSIS GROUND				

Notes:

a) N/C: Not connected

b) On cable assemblies, the Tx signal from one connector shall be connected to the corresponding Rx signal of the other connector (i.e., Tx0+ (S16) of connector 1 shall connect to Rx0+ (S1) of connector 2).

c) SIGNAL GROUND shall not be connected to CHASSIS GROUND in the cable or cable connector.

5.3.6 SAS external plug connector

SAS devices with external ports shall use the SAS external ~~**plug**~~ **receptacle** connector. The SAS external ~~**plug**~~ **receptacle** connector is defined in SFF-~~**8483**~~ **8470 as the 4x configuration**. ~~**It includes**~~ **No** special SAS keying **is provided**. It attaches to a SAS external cable ~~**receptacle**~~ **plug** connector, providing contact for ~~**the**~~ **up to** four physical links.

5.4.2 SAS external cables

The SAS external cable ~~**is**~~ **connectors are** defined in SFF-~~**8483**~~ **8470 as the 4x configuration**. The external cable does not carry power signals (including READY LED).

Although the connector always supports four physical links, the cable may support one, two, three, or four physical links.