IEEE 802.3
CU4HDD Study Group – Task Force Meeting Minutes – 4-Feb-2016

Prepared by Dan Smith, acting chairman of Ad Hoc calls

Call Began at 11:05 AM, MT.

Agenda:

Presentation by Anthony Calbone, Seagate. Presentation was attached to the Ad Hoc Call message announcement on the reflector.

Preliminaries:

1. The chairman asked if anyone was opposed to the Webex recording of the meeting, to be used only to create the written minutes (for later review) and then the deletion of the recording. No one opposed so the recording continued.
2. Initial Patent Notice and Meeting Procedures was presented. There were no responses for either so we moved forward. (for a copy, see:
3. Chairman asked if there was any other discussion beyond the agenda topic. With no response, we proceeded with the scheduled presentation and ensuing discussion.

Presentation:

- Anthony Calbone of Seagate, presented "Calbone_cb_PMD-Channel_Update.pdf (attached to meeting notice for this call, and later posted to the CU4HDD document site.

Discussion:

- Rich brought up point that test points are identified differently from the typical, agnostic nomenclature. Anthony explained the asymmetric nature of the this new model.
  George suggested it be agnostic to conform to current terminology.
  Rich said it sets a precedent but it ought to be carefully done.
  We will move forward with Anthony's current nomenclature and consider possible, more universal labelling.
- George asked if anyone had issue with the asymmetric concept. Rich stated that this is different and the general IEEE group may have issue with this. George stated that this is still conceptual. George stated that the more common, installed base is more symmetric. Anthony ask if there is a list of names of players to involve in this discussion.
- George brought up that this system is different because a storage device could be talking to different channels – they can often change (the host side does not remain the same).
- What happens if we take worst case on both sides? Rich: it won't work.
- Rich is suggesting a COM model for the enclosure and only an electrical measurement for the drive.
- Anthony: it seems COM should work with measurements and s-parameters.

- Rich is worried about the sampling scope data not being statistically significant. We need to know ENOB [effective number of bits], accuracy, etc. The problem he has is how to do clock recovery on the data and trust it.
- Anthony: can we create a pules response from a scope? Rich: yes but clock recovery is involved – what equation did it use?
- Using a known pattern (like PRBS-9) allows triggering by the scope and removing need for a CDR that is hard to define in the scope. We need to talk to test equipment providers about this concept.
- Dan: if in an assembled system, the enclosure with the drive fails, how do we prove compliance of the host side of the system if we can't determine the loss of the non-drive side of the enclosure.
- Dan: can we use the "frame loss" feature of the switch to determine BER? The "Storage device" should be the minimum standard for BER in the total system because drive usage model in the drive industry for business-critical data is already established and the system does not need to be more extreme than that level. Currently, drive BER is tested to 1E-12.

Adjourned: 12:26 pm MT. Next call only if we more to present (becomes the agenda).

Attendees:

Name	Affiliation	Attended 1/20/2016	Attended 2/4/2016
Calbone, Anthony	Seagate	X	X
Carlson, Mark	Toshiba		X
Chalupsky, David	Intel		
Chandrian, Ajith	Cisco		
Chang, Jacky	HP		
Cox, Alvin	Seagate		X
Czekalski, Marty	HGST	X	X
D'Ambrosia, John	DELL		
Feyh, German	Broadcom		
Ghani, Abbas	Ericsson		
Healey, Adam	Avago	X	
Horner, Rita	Synopsys	X	
Jones, Peter	Cisco		
Kim, Yong	Broadcom	X	
Kipp, Scott	Brocade		
Law, David	HP		
Lo, William	Marvell	X	
McCarthy, Mick	Analog Devices	X	
McMillan, Larry	Western Digital	X	X
McSorley, Greg	Amphenol	X	X
Mellitz, Rich	Intel	X	X

Name	Affiliation	Attended 1/20/2016	Attended 2/4/2016
Poh, Ed	Molex		
Rahman, Hamza	Dell		
Schoenhals, Mark	Marvell		
Sedarat, Hossein	Aquantia		
Sinha, Santanu	Broadcom		
Skaar, Tom	Seagate	X	X
Smith, Dan	Seagate	X	X
Sommers, Scott	Molex		
Souvignier, Tom	Broadcom		
Suhler, Paul	HGST		
Sun, Phil	Marvell		
Svensen, Justin	LIT	X	
Telang, Vivek	Broadcom		
Tenea, Bogdan	Ixia		
Tracy, Nathan	TE Connectivity		
Tran, Paul	Marvell		
Walker, Dylan	Walker		
Wassenberg, Paul	Marvell		
Wu, Peter	Marvell	X	X
Zemach, Rami	Marvell		
Zhang, Jin	Marvell		X
Zimmerman, George	CME Consulting, Inc.		X
Zimmerman, Yaron	Marvell		
Attendee Count:		14	12