

## Unconfirmed Minutes - Multiple MCS IEEE 802.3bn EPoC Ad Hoc – 020713

### Attendance

Attendee	Present
Alan Brown – Aurora	
Andrea Garavaglia – Qualcomm	
Avi Kliger – Broadcom	
Bill Keasler – Ikanos	x
Bill Powell – ALU	x
Charaf Hanna – ST Micro	
Christian Pietsch – Qualcomm	x
Curtis Knittle – CableLabs	x
Dave Barr – Entropic	
Dave Urban – Comcast	
David Law – HP	
Duane Remein – Huawei	x
Dylan Ko – Qualcomm	
Ed Boyd – Broadcom	x
Ed Mallette - Brighthouse	
Eugene Dai – Cox	
George Hart – Rogers	
Guansheng Lu - Huawei	
Hesham ElBakoury – Huawei	x
Jim Farmer – Aurora	
Joe Solomon – Comcast	x
John Dickinson – Brighthouse	x
John Ulm – Motorola	x
Jorge Salinger – Comcast	x
Juergen Seidenberg – BK Tel	
Juan Montojo – Qualcomm	x
Leo Montreuil – Broadcom	
Liuming Lu – B-Star	
Lup Ng – Cortina	
Marek Hajduczenia – ZTE	x
Mark Laubach – Broadcom	x
Matt Schmitt – CableLabs	
Michel Allard – Cogeco	
Mike Darling – Shaw	
Mike Emmendorfer – Arris	
Nicola Varanese – Qualcomm	
Ony Anglade – Cox	
Patrick Stupar – Qualcomm	
Peter Wolff – Titan Photonics	

Raanan Ivry – Wide Pass	x
Ramdane Krikeb – Videotron	
Saif Rahman – Comcast	
Sanjay Kasturia – Qualcomm	
Satish Mudugere – Intel	
Steve Shellhammer – Qualcomm	x
Thushara Hewavithana – Intel	
Tim Brophy – Cisco	
Tom Staniec – Cohere	
Tom Williams –Cablelabs	
Venkat Arunarthi – Cortina	x
Victor Hou – Broadcom	
Volker Lisse - CEL	
Yitshak Ohana - Broadcom	

## Patents Policy

- Everyone familiar with the policy; no response to call for patents

## Reviewed Goals and Logistics

No comments

## Review of MMP Tool for Capacity and Gain Analysis Updates – John Ulm

Worked with Dave Urban and Ed Boyd to make updates

- These are tracked in red in the presentation

Updated with MTA data – MTA is a device at the side of the house; this removes impairments from home wiring

89% of the MTAs fit in the 4k bin

- Cases 1 & 2 have 3 dB margin built in; the others do not
- Need Dave Urban to clarify how margin is built in; previously, it may have been stated that there were no margins built in
- If you change the margin on MMP, then the ratio might change

MMP capacity is calculated by removing the PHY overhead – gets us close

- At the MAC-PHY interface
- Raw capacity – (minus) PHY overhead

Dropping the bottom 1% - What are the operational impacts of not supporting these users?

- Really can't do that; that's a huge population
- Not really drop, but this 1% may have to be addressed individually to fix their situation

- Can't always do this; if the length of the drop is the issue, then it can't be changed, for example
- Won't MMP help to accommodate the bad cases and provide better service to all customers?
  - Yes, but the bad actors that can be fixed will need to be addressed

#### Gate messages impact – Slide 9

- 5 gates per 40 us roughly equates to 5 gates per symbol
- Not sure that you drop to 2 gates per 40 us when you drop the rate down
  - It won't drop unless the number of users drops; polling rates stay the same (unless allowed to decrease the polling interval)
  - Good point; will assess.
  - Gates also double if you have multiple bursts
    - Gates are not to the same CNU; to multiple CNUs during the same period

#### Impact of shortened codewords - Slide 10-11

- Impact much higher on the narrower channels (for example, case 6)
- How many profiles are assumed?
  - Baseline case has 4 profiles; cases 2 & 3 had 3 profiles; case 4 had 2 profiles

Will send the presentation to the reflector once the meeting notes are sent

Is the work being done by Dave Urban done in a DOCSIS or EPoC context?

- Not being looked at with any particular slant
- Data is being presented without an intended reinterpretation; this was just to limit to MTA population, rather than the entire modem population

### **MMP and Burst Mode of EPoC – Juan Montojo**

Presentation focuses on Upstream – based on work by Juan, Ed Boyd, and Andrea Garavaglia

#### Slide 5 – Description of the US procedure

- Since the CNU has already gathered its data, it doesn't have to "switch"; it just uses the selected profile
- The main thing to define is the "marker" that communicates the profile so the OLT knows how to decode the data
  - Not a lot different than the marker that lets it know if it is a 1G or 10G burst in EPON

#### Slide 8 – Proposal for moving forward

- Is the proposal to have MMP in TDD, but not FDD?
  - TDD is the easiest case, but it is not meant to eliminate it from FDD.
  - Needs to be discussed, but not the purpose of this presentation

- May make it easier to solve
- Burst interfaces are reasonable to do; whether it makes as much sense for continuous downstreams is another issue.

No objections to these proposals – please forward any feedback on interest in pursuing one of the next steps to the reflector.