

## **RF Spectrum Ad Hoc – Minutes October 9, 2012 (Revised)**

Provided IEEE-SA Patent Policy. Everyone was familiar with it.

- <https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.pdf>

### **FDD Downstream**

Avi – What frequencies that the blocks are located?

Jim Farmer – Does 192 MHz mean total or just minimum to maximum?

Steve – measured f1 to f2, so with exclusion sub-bands the remaining may be less

Avi proposal is that it can be anywhere in the downstream

Center frequency is anyone of the DOCSIS center frequencies

Jim Farmer asked if the 192 MHz channel would respect the TV channels

Duane – suggested 2 MHz channel frequencies

Jim Farmer will check to see if every 24 MHz the 6 and 8 MHz channels align in US and Europe

Leo asked about if the 192 MHz channels are adjacent

Leo asked what is the minimum bandwidth of the channel and what is the minimum of continuous portion of the channel?

Avi begin with the center frequencies for 192 MHz channel

Bill said we could consider minimum and maximum frequencies of the FDD downstream band

Leo pointed out that there are 6, 7 and 8 MHz. In most cable systems use either 6 and 8 MHz. Looks like a 2 MHz grid would work.

Leo suggested a minimum 108 MHz. Do we stop at 1002 MHz or expand above that?

### **Additional Information provided by Leo after the call**

First, here is what I found for DOCSIS 3.0

#### **6 MHz Channelization**

Tuning band (edge to edge):

MUST 108-870 MHz

MAY 108-1002 MHz

#### **8 MHz Channelization**

Tuning band (edge to edge):

MUST 108-862 MHz

MAY 108-1006 MHz

I think for both case, the tuning resolution is 0.25 MHz.

For the EPoC tuning band, I will recommend starting at 108 MHz. Because our OFDM block BW is 192 MHz, the center frequency will start at 204 MHz.

Jim suggested, that if we go above 1 GHz we could allow optional support.

Duane was okay with having higher frequencies optional.

Leo pointed out that the cable plants are not qualified at those frequencies.

Ed Boyd voiced concerns about options.

Duane asked about why not make the upstream the same as down as downstream

Leo pointed out the differences between the downstream and upstream. Upstream will have a need to do more interference avoidance. Above 88 MHz we get into the FM broadcast band. The requirements on the downstream and upstream are very different.

Avi from the block perspective could the blocks be the same? Leo, we may have different granularity of exclusion sub-bands.

Duane asked if there would be a cost impact? Leo said there will be a design impact. Pilots may be different, there may be a pilot.

Bill said the low-band upstream could be 192 MHz. We may still need a high-band upstream just at the very top. The smallest guard band is around 10% which at 850 MHz would be 85 MHz.

Bill will provide some slides on high-band EPoC (upstream above downstream) next week.

After band edges and center frequencies for downstream and upstream we will address Number of 192 MHz channels in downstream.

#### **Next Weeks Presentation**

- FDD Downstream frequency band and center frequencies (Avi)
- A High Band EPoC Usage Scenario (Bill)
- Others if time permits

Action Items – List of open questions (Steve)

#### **Attendance**

<b>Person</b>	<b>Affiliation</b>
Michel Allard	Cogeco Cable
Edward Boyd	Broadcom
Hesham ElBakoury	Huawei
Jim Farmer	Aurora Networks
Avi Kliger	Broadcom
Mark Laubach	Broadcom
Leo Montreuil	Broadcom
Michael Peters	Sumitomo Electric
Bill Powell	Alcatel Lucent
Duane Remein	Huawei
Steve Shellhammer	Qualcomm

Tom Staniec	Cohere Communications
Karthik Sundaresan	CableLabs
David Urban	Comcast
Tom Williams	CableLabs
Ron Wolfe	Aurora Networks