Cisco/UDel Meeting Minutes
March 24, 2016

Attendees: Jim Seymour, Len Cimini, Chien-Chung Shen, Li Li
Minutes Taken By: Li Li

A. Review slides and discussion

Slides #7-8 – Adaptive threshold based on SINR
- Jim: In the algorithm, the threshold is always moving up and down by the same amount. Can you converge on something?
- Li: Yes, I checked the simulations, it will converge to a certain value. I used two thresholds in my simulation: if the measured SINR is larger than a threshold (Th1), LAAED = LAAED + 1; if the measured SINR is smaller than the other threshold (Th2, Th2 = Th1 + 5), LAA ED = LAAED -1.
- Jim: Since adaptive MCS is more realistic and also provides better performance, you can use adaptive MCS instead of a fixed MCS in your simulations.

Slides #10 – Adaptive threshold: SINR & collision avoidance: with different LAAED for different LAA eNBs, collisions may happen among them due to the asymmetric setting.
- Jim/Chien-Chung: How does LAA avoid collisions?
- Li: Assume there are two nodes: eNB #2 and eNB #4, and eNB #4 has a higher LAAED. If eNB #2 transmits first, eNB #4 may think it is also okay to transmit due to its high LAAED. Then, a collision may happen. In my simulation, if this happens, I will have eNB #4 wait until eNB #2 finishes its transmission.
- Jim: It shows some benefit to solve hidden node problems, but this kind of scheme requires a change in the sender. We may want to finish investigating the adaptive threshold algorithm first.
- Jim: If we do not have this RTS/CTS stuff, when we recognize this happens in our simulations, we may need to decrease the LAAED of the latter one (problem base stations, for example, decrease by 5 dB) so that it will not collide with the first one. We can also try this kind of adaptive algorithm to avoid collisions.
- Jim: The above algorithm requires communications among LAA eNBs. If this provides good performance gain, we can also try other things, for example, if one eNB suffers from collisions, we can lower LAAED of its neighbor LAA eNBs. I think collisions have an impact on the performance.
- Jim: We can even try the adaptive algorithm without increasing LAAED and see what happens.

Slides #13-16 – Alternative geometries: the geometry used in 3GPP is kind of the worst one.

B. New proposal: potential area

1) Multi-channel and multi-user stuffs
2) Standalone LAA, the challenge is on the control channel
3) Next generation of WiFi: 802.11ax, which is still in the early stage

Actions Items:
- **Try adaptive algorithm based on collisions.**
- **Update results with adaptive MCS.**

Next meeting: Friday April 8 1:30 - 2:30 pm (EST)