Cisco/UDel Meeting Minutes
March 11, 2016

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

Slides #3 – Results for multiple users with same ED for all LAA eNBs
- Jim: At -75 dBm, both LAA and WiFi outperform a pure WiFi system, why?
- Li: There are two possible reasons: 1) In the standard files, under the same MCS, LTE has a higher absolute physical rate than that of WiFi; 2) LTE also has a lower SNR threshold than that of WiFi under the same MCS. These give LTE some advantages.
- Jim: Maybe we can also consider some other MCS with lower SNR threshold instead of using the highest MCS. In reality, LTE and 802.11 ac both adopt adaptive MCS.
- Jim/Len/Li: The size of each file is 0.5 Mbytes, with the highest transmission rate (75.6 Mbps), it will take about 50 ms, which is too long for a bust. Thus, the file is divided to many small packets to be transmitted. Each packet lasts 800 slots, and each slot is 9 us. So, one package last about 7 ms. We can update MCS for each packet.
- Jim: It is also beneficial to see each WiFi's individual performance in a pure WiFi system.

Slides #4-5 – Results for multiple users with different ED for different LAA eNBs
- Jim: Instead of choosing some specific LAAED, it would be more interesting to try some adaptive algorithms.

Slides #6 – Discussion on adaptive approaches
- Jim: If the measured SINR is larger than a threshold, this eNB will increase its own LAAED?
- Li: Yes, a high SINR means that the interference is not strong, so I try to increase its own LAAED to have more opportunities to transmit.
- Jim: So, instead of some kind of fair algorithm, you are doing some best rate algorithm.
- Jim: If the SNR threshold is only 10 dB, it means that a lot of UE's SINR is less than 17 dB. I'd like to rerun then simulation with other MCS.
- Li: Can we also use different transmit power for each eNB? For example, some UEs are at good locations, we can transmit data to them at a low power. Then, the interference to other neighbor transmitters will also be small.
- Jim/Len/Chien-chung: Power control is adopted in LTE, but not in WiFi. Let's focus on adaptive energy detection first to make it not too complicated.

Slides #7-8 – Alternative geometry: 1) LAA eNBs are randomly located; 2) Both APs and eNBs are randomly located.

- Jim: In indoor case, to ensure the coverage, APs will not be randomly located. It would be interesting to see what the performance will be if APs and eNBs are uniformly distributed (equally spaced in a line).

Actions Items:
- **Continue to think about adaptive algorithms.**
- **Simulate the performance with adaptive MCS.**

Next meeting: Thursday March 24 2:30 - 3:30 pm (EST)