Meeting Notes on LTE-U Project

Attendees: Rajesh, Len, Chien-Chung, Seyedmohammad, Steve, Bohan and Li

Date: Oct. 17, 2014

1. Rajesh will invite one more person to join our meeting. This person is involved in the standards group related to simulations.

2. Review of Steve's slides titled "LTE-U and WiFi Coexistence"

   1) Based on muting patterns proposed by Nokia, Steve proposed an improved algorithm: the key idea is to record transmission activities and then use this historical information to learn which nodes are actively sending.

   2) Slide 7:

      - Rajesh: How do LTE and WiFi come to a common agreement? Suppose both LTE and WiFi have lots of traffic, what will happen?

      - Prof. Shen and Steve: This scheme works in lightly loaded cases. Nokia's muting pattern method is preconfigured, and this proposed approach is traffic driven.

      - Rajesh: This seems like a reservation scheme, because if you use it, then you will keep it. In this case, the 802.11 MAC must be modified. i) From academic perspective, this is fine; ii) from practical perspective, 802.11 will unlikely change their MAC.

   3) Rajesh's suggestions:

      - What if WiFi MAC is not changed, and then what should LTE-U MAC be? How do we share the medium in a fair way?

      - Suppose that there is no WiFi AP but two LTE-U nodes, then LTE-U needs a carrier sensing capability.

3. Len: If LTE-U is used for both the downlink and the uplink, the channel allocation may be more complicated since channel pairing needs to be considered.

   - Rajesh: It is correct. So there are two possible modes for LTE-U: 1) LTE-U is only for downlink (this has been accepted as a basis for future work); and 2) LTE-U includes both the downlink and the uplink but uses TDD.

4. Len: In different slides from different companies, the viewpoints about LTE-U are totally different. Do we need to do some fair simulation from an academic perspective?

   - Rajesh: Yes, we need some fair results. It is beneficial to have a broad study, and develop a problem statement objectively. We also need to study how to define the co-existence of LTE-U and WiFi.

5. Chien-Chung: Let a LTE-U node pretend to be a WiFi node is probably a good idea. Maybe it can solve the co-existence problem.

- Len: Maybe, but it will cause a delay in data transfer. LTE nodes transmit data periodically, but LTE-U nodes can only transmit data when the channel is available (if LTE-U nodes pretend to be a WiFi node). Then it will cause a delay waiting for the data blocks transmitted by the LTE-U nodes.

6. Len: If LTE-U is only used on the downlink, how does the base station get the required information from the receiver (such as CSI)?

7. Chien-Chung: Does the UE report some information to the base station periodically, all the time, even if there is no data being exchanged?

8. Meeting schedule:

- The UD people will meet on Oct. 22 (Wednesday) at 1:00 pm (about 1 hour).
- The next meeting with Rajesh will be on Oct. 28 (Tuesday) at 11:00 am (about 30 minutes).