IEEE P802.11  
Wireless LANs

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| IEEE 802.11 Technical Interest Group on Full Duplex  March, 2018 Rosemont Meeting Minutes | | | | |
| Date: 2018-03-06 | | | | |
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Abstract

This document contains the meeting minutes of the IEEE 802.11 Technical Interest Group on Full Duplex (FD TIG) sessions held on Tuesday, March 6, 2018 at 1:30 pm in Rosemont, Illinois, USA.

Note: Highlighted text are action items.

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# Tuesday, March 6, 2018, PM1 Session

1. The IEEE 802.11 TIG meeting was called to order at 1:31 pm by the Chair, James Gilb (GA-ASI, USD, Gilb Consulting).
   * Agenda slide deck:[11-18/0314r1](https://mentor.ieee.org/802.11/dcn/18/11-18-0314-01-00fd-fd-tig-march-2018-agenda.ppt), proposed agenda copied here for reference:

* **Meeting 1**
  + Call for Vice Chair, Secretary
  + Administrative: Reminders, Rules, Guidelines, Resources, Participation, Announcements
  + Background/Status
  + Discussion on Contributions
* **Meeting 2**
  + Discussion on Contributions
  + Future Sessions planning

1. **Call for Vice Chair, Secretary:**
   * The Chair put out a call for a secretary and Kome Oteri (InterDigital) volunteered. A vice chair was not selected at this time.
2. **Administrative:**
   * The Chair reviewed the Guidelines for IEEE-SA meetings, including meeting guidelines and attendance recording procedures on slides 5 and 6 of the agenda slides.
   * He also reminded attendees to record their attendance.
3. **Background/Status**
   * The Chair introduced the schedule for the week

* Discussion of the 3 submitted contributions and future sessions planning
* Discussion on a need for the second meeting of the week, contingent on the progress during the current meeting.

1. **Discussion of Contributions**
   * [11-18/0549r0](https://mentor.ieee.org/802.11/dcn/18/11-18-0549-00-00fd-full-duplex-for-802-11.pptx) **Full Duplex for 802.11 Sriram Vishwanath (GenXcomm, UT Austin): Presented by S. Vishwanath.**
     + Q: When there is a discussion about dB cancellation, how do you handle the local reflectors?
     + A: We have learnt how to deal with reflections. Biggest issue is the first reflection, there is a need to learn what the delay and phase are. This changes per environment with the wired environment being much easier than the wireless environment.
     + Q: How well can you cancel the first reflection and at what speed?
     + A: It is possible to estimate and track it. However, we may need an improved set of algorithms. This is an achievable goal
     + Q: What is the feasibility of MIMO with FD? There is a lot of correlation between RF chains. But may see a lot of coupling from other chains. What do you think about it?
     + A: MIMO is complicated to do i.e. coupled paths with correlation. Clever architectures to generalize the algorithms (with a lot of non-trivial methods).
     + Q: What are the primary benefits apart from increase in throughput?
     + A: Improve channel access i.e. interference cancellation to enable “Listen While Talk”
     + Q: In STR, noise will come back and raise your thermal noise floor. This implies that half duplex may be transmitted with a higher MCS than FD.
     + A: A good fraction of implementations have unacceptable Noise Figures. Cancellation scheme should support full cancellation without adding noise.
     + Q: Can you keep the noise figure the same?
     + A: No, the noise figure goes up, but should be such that the total noise still supports the same MCS

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* + [**11-18/448r1**](https://mentor.ieee.org/802.11/dcn/18/11-18-0448-01-00fd-full-duplex-benefits-and-challenges.pptx) **Full Duplex Benefits and Challenges Genadiy Tsodik (Huawei): Presented by G. Tsodik**
    - Q: Can you compare the work needed on PHY alone to that on all the elements of the system?
    - A: If we work independently on the PHY/MAC and do not have a good solution on the system level, we may have a sub-optimal solution
    - Q: What do you mean when you say that a FD radio talks to a half-duplex radio ?
    - A: It is natural to have a FD radio on the AP. We need to resolve relationships between Tx and Rx STAs on how to handle interference. We do not want to discuss this in detail at this time.
  + [**11-18/498r0**](https://mentor.ieee.org/802.11/dcn/18/11-18-0498-00-00fd-framework-fd-tig-report.docx) **framework-fd-tig-report Yan Xin (Huawei Technologies): Presented by Y. Xin**
    - * Chair asked author if they would be willing to maintain the document and presenter agreed
    - Suggestion from the floor that it would be best to start with the use cases e.g. FD on AP only or FD on adjacent channel.
    - Chair put out a call for volunteers to write use cases.
    - Q: Assuming the PHY will deliver, are we using the wrong MAC by using CSMA/CA and should we go back to 802.3 i.e. CSMA/CD?
    - A: Interesting idea but may have a backwards compatibility issue with existing 802.11 that uses CSMA/CA.

1. **Future Sessions Planning:**
   * Straw Poll Question: If there was a conference call, in mid-to late April, how many would attend the call?
     + 16 Yes.
     + Chair will organize the call.

* Chair will set up conference call and put it on the 802.11 calendar and send out email on the general reflector as the TIG does not have a separate reflector.
  + Warsaw Meeting:
    - More presentations
    - Add text to report
  + San Diego Meeting
    - Finalize Report
    - Make Recommendation

1. The meeting was adjourned at 3:30 pm with no plans for a Thursday meeting
   * Note: closing report can be found here: [FD TIG Meeting Minutes](https://mentor.ieee.org/802.11/dcn/18/11-18-0585-00-00fd-fd-tig-closing-report.pdf)