IEEE P802.11  
Wireless LANs

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| IEEE 802.11 NG60 SG  January 2015 Atlanta Meeting Minutes | | | | |
| Date: 2015-1-16 | | | | |
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Abstract

NG60 SG meeting minutes from the IEEE 802.11 Atlanta session, January 11-16, 2015.

**IEEE 802.11 Next Generation 60 GHz (NG60) Study Group**

**January 2015 Atlanta Meeting**

**January 11-16, 2015**

**Monday, January 12 , 2015, PM2 Session (16:00-18:00)**

1. The meeting called to order by Edward Au (Marvell Semiconductor), the chairperson of the NG60 SG, at 16:00. Introduced himself and secretary Jeorge Hurtarte (Teradyne)
2. Agenda Doc.11-14/01552r2
   1. Chair reminded all to record their attendance.
3. The chair reviewed the IEEE-SA Patency Policy, Logistics, and Reminders on Study Group Rules
   * 1. Chair asked if anyone has any questions about the IEEE-SA patent policy. No questions.
4. The chair reviewed the SG meeting slots and agenda items for the week. (see slides 8-13 of the agenda)
   1. Chair asked if there are any objections for the week’s agenda. No objections.
5. Review of Submissions
   1. Five presentations identified for review
   2. Chair asked if there are more submissions. No more submissions.
   3. Motion to approve the November 2014 San Antonio Meeting Minutes
      1. Move: Ganesh Venkatesan (Intel)
      2. Second: George Vlantis (ST Microelectronics)
      3. Motion to approve:
         1. Yes: 38
         2. No: 0
         3. Abstain: 0
         4. Motion passes. Approved.
6. Chairman reviewed the Study Group Timeline (slide 16 of the agenda).
7. Presentations
   1. Presentation by Carlos Cordeiro, Intel, NG60 Proposed PAR Doc. IEEE 802.11-14/1151r4
      1. Provides an overview of the PAR and any changes since last meeting
      2. Opens floor for questions
         1. Discussion on the “vagueness” of the “in and around 60GHz” statement in the latest PAR revision.
            1. 64-71 GHz may be a possibility as well
            2. Open for contributions on channels bands as NG60 should not lock down to a specific frequency band at this stage.
         2. Discussion on scope of the project. One goal of the project is to achieve “at least 20Gbps,” which is only 2X of the market minimum expectations of 10Gbps. Can this goal be increased?
            1. Most likely the project will end up with a higher data rate but need a reasonable target to start with.
         3. Can the frequency bands be defined/specified later while work on the MAC proceeds? Can users use the NG60 standard on any other frequency bands?
            1. Project is focused on unlicensed bands.
            2. Need backwards compatibility to 802.11ad.
      3. No further changes noted to the PAR document.
   2. Presentation by Carlos Cordeiro, Intel, NG60 Proposed CSD Doc. IEEE 802.11-14/1152r5
      1. Provides an overview of the CSD and any changes since last meeting
      2. Opens floor for questions
         1. Discussion on “broad market potential” and if we should use more “futuristic” figures well beyond 2015, which is the year mentioned in the CSD.
            1. Only required to show “broad market potential”
      3. No further changes noted to the CSD document.
   3. Presentation by Amichai Sanderovich, Qualcomm, MIMO Option for NG60, Doc. IEEE 802.11-14/0069r0
      1. Provides an overview of “Polarization-based MIMO”
      2. Floor opened for questions
         1. A few questions on slide 6, simulations.
8. Chair asked if there are any other submissions or questions.
   1. No further submissions or questions
9. Meeting recessed at 17:15 and will resume on Tuesday AM1

**Tuesday, January 13 , 2015, AM1 Session (08:00-10:00)**

1. The meeting called to order by Edward Au (Marvell Semiconductor), the chairperson of the NG60 SG, at 08:00. Introduced himself and secretary Jeorge Hurtarte (Teradyne)
2. Agenda Updated, Doc.11-14/01552r3
   1. Chair reminded all of the IEEE-SA Patent Policy and reviewed the Guidelines for IEEE-SA Meetings (slide 5 of the Agenda).
      1. Chairman asked if there are any questions on Patent Policy or Guidelines. No questions.
3. Chairman reminded all to record their attendance and if anyone has additional submissions to do so in the NG60 document section repository.
4. Three technical presentations prepared for this Tuesday AM1 session
   1. Chairman asked if there are any more presentations to be included in this week’s agenda.
      1. No new presentations beyond what’s already in the agenda.
   2. Presentation by Amichai Sanderovich (Qualcomm), SC 64-QAM for NG60, Doc. IEEE 802.11-15/0094r0
      1. This presentation discusses the addition of 64-QAM to extend the bit rate of 802.11ad SC single channels. Expecting 50% throughput increase and increased spectral efficiency.
      2. Floor opened for questions.
         1. Discussion on the ADC used in the simulations
         2. Discussion on the working assumptions for the simulations
         3. Indicated that Phase Noise needs to be included as part of the analysis as a key parameter.
   3. Presentation by Daniel Schneider (Sony), Non-uniform constellations for higher order QAM, Doc. IEEE 802.11-15/0096r1
      1. Non-uniform constellations (NUCs) provide increased performance compared to uniform constellations (UCs) at 128-QAM and 256-QAM.
      2. Floor opened for questions
         1. Discussion on other impairments and channel models to be included in the simulations
         2. Discussion on the topology of the 128-QAM and 256-QAM
         3. Discussion on slide 7, except for 64-QAM, it was observed that the SNR gain decreases with the code rate.
         4. Discussion on slide 5, will discuss offline.
         5. Discussion on PAPR and its inclusion on the analysis.
   4. Presentation by Yi Wang (Huawei), Approach to NG60 Peak Rate, Doc. IEEE 802.11-15/0124r0
      1. The target data rate of NG60, 20Gbps, could be achieved by combining Channel bonding and MIMO: 2 streams with 3 channels or even more bandwidth, or 4 streams with 2 channels or even more bandwidth.
      2. Floor opened for discussions
         1. Discussion on the feasibility of using several data streams in either in-door or outdoor channel models.
5. Chairman pre-viewed agenda item for Wednesday AM1 meeting, which includes a several motions.
6. Meeting recessed at 08:50 and will resume on Wednesday AM1

**Wednesday, January 14 , 2015, AM1 Session (08:00-10:00)**

1. The meeting called to order by Edward Au (Marvell Semiconductor), the chairperson of the NG60 SG, at 08:00. Introduced himself and secretary Jeorge Hurtarte (Teradyne)
2. Agenda Updated, Doc.11-14/01552r4
   1. Chair reminded all of the IEEE-SA Patent Policy and reviewed the Guidelines for IEEE-SA Meetings (slide 5 of the Agenda).
      1. Chairman asked if there are any questions on Patent Policy or Guidelines. No questions.
      2. Chairman reminded everyone to record their attendance.
      3. Chairman asked if there are any more contributions or other topics to review during this session. None.
3. Presentations
   1. Presentation by Carlos Cordeiro, Intel, NG60 Proposed PAR Doc. IEEE 802.11-14/1151r5
      1. Reviews editorial changes since the Monday PM2 session
         1. Only change to the PAR was a typo on page 3 “augmented” under section “5.5 Need for Project”
      2. Floor opened for questions. None.
   2. Presentation by Carlos Cordeiro, Intel, NG60 Proposed CSD Doc. IEEE 802.11-14/1152r6
      1. Reviews editorial changes since the Monday PM2 session.
      2. A few typo changes and some rewording of first paragraph on page 4 on “ABI Research….”
      3. Floor opened for questions. None.
   3. Chairman asked again if there are any questions related to the PAR and CSD just presented. None.
4. Motions # 8 and #9
   1. Motion #8 to approve the NG60 Proposed PAR Doc. IEEE 802.11-14/1151r5
      1. Move: Yan Xin (Huawei)
      2. Second: SangHyun Chang (Samsung)
      3. Chairman asked if there are any concerns about the motion. None.
      4. Motion to approve:
         1. Yes: 29
         2. No: 0
         3. Abstain: 1
         4. Motion passes. Approved.
   2. Motion #9 to approve the NG60 Proposed CSD Doc. IEEE 802.11-14/1152r6
      1. Move: Lei Huang (Panasonic)
      2. Second: George Calcev (Huawei)
      3. Chairman asked if there are any concerns about the motion. None.
      4. Motion to approve:
         1. Yes: 30
         2. No: 0
         3. Abstain: 0
         4. Motion passes. Approved.
   3. Chairman discussed the next steps regarding these two motions.
      1. Dorothy Stanley (Aruba Networks) , WG Vice Chair, advised that the motions can be brought to the Wednesday Mid-Week Plenary if desired rather than waiting until Friday’s closing plenary.
      2. Adrian Stephens (Intel), WG Chair, agreed to include the motions in the Wednesday Mid-Week Plenary.
5. Chairman reviewed the goals for the March 2015 meetings, including resolving any comments from the IEEE 802 EC members and other IEEE Working Group Chairs, and presentations that are relevant to the Study Group topics.
   1. Chairman asked if there are any other items to include for discussion in the March 2015 meeting. None.
   2. Chairman reviewed the schedule for the next teleconference call, which is scheduled for March 3, 2015 10:00-11:00 am ET.
6. Meeting adjourned at 08:26

1. Atlanta NG60 SG meetings adjourned for the week.