IEEE P802.11  
Wireless LANs

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| IEEE 802.11 Task Group AY  March 2017 Vancouver Plenary Meeting Minutes | | | | |
| Date: 2017-3-12 | | | | |
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Abstract

Task Group AY meeting minutes from the IEEE 802.11 Vancouver Plenary session, March 12-17, 2017.

**IEEE 802.11 Task Group AY**

**March 2017 Vancouver Plenary**

**March 12-17, 2017**

**Monday, March 13, 2017, PM1 Session (13:30-15:30)**

1. The IEEE 802.11ay task group meeting was called to order at 13:30 by the Chair, Edward Au (Huawei).
2. Agenda Doc. IEEE 802.11-17/0187r2.
3. Chair introduced the TG leadership: Vice Chair: Sang Kim (LG Electronics), Secretary: Jeorge Hurtarte (Teradyne) and Editor: Carlos Cordeiro (Intel)
4. Chair reviewed the IEEE-SA patent policy, participation in IEEE 802 meetings, logistics, and reminders on Task Group rules, including meeting guidelines and attendance recording procedures (slides 4-11)
   1. Chair asked if anyone has any questions about the IEEE-SA patent policy, participation in IEEE 802 meetings, logistics or reminders. No questions.
   2. Chair asked if anybody has any disclosures related to the patent policy. None.
   3. Chair asked if there were any questions on any of the above items. None.
   4. Chair reminded all to record their attendance.
   5. Chair reminded all to upload their presentations.
5. Chair introduced the leadership of the Task Group (slide 12).
6. Chair reviewed the meeting time slots, locations and agenda items for the week (see slides 13-14 of the agenda document).
7. Chair proceeded to discuss the agenda items for the Monday, March 13, 2017, Monday PM1 session (slide 16) and asked if anyone wants to add any additional agenda items (none).
8. Chair reviewed the progress of the Task Group AY and related documents (slides 17-23).
9. Motion #175: Motion to approve the January 2017 Atlanta meeting minutes
   1. Move: Krestin Johnsson
   2. Second: Claudio da Silva
   3. No objections noted. Unanimous consent.
   4. The January 2017 meeting minutes were approved.
10. Motion #176: Motion to approve the February 15, February 22 and March 1, March 2, 2017 Conference Calls meeting minutes
    1. Move: Yan Xin
    2. Second: Assaf Kasher
    3. No objections noted. Unanimous consent.
    4. The February 15, February 22 and March 1, March 2, 2017 meeting minutes were approved.
11. Chair reviewed the timeline the task group approved in November 2016, slide 23.
    1. Chair asked if there were any comments or questions. None.
12. Chair reviewed Task Group Documents and amendment text submissions (slides 24-25).
13. Chair reviewed the list of presentations submitted (slides 26-32) and schedule for presenting those during the week.
    1. Chair asked if there were any additional presentations submissions or changes to the agenda items. None.
14. Chair reviewed the agenda setting for the week (slide 33).
15. Discussion on teleconference calls time slot (slide 34).
16. Presentations
    1. Presentation by Carlos Cordeiro (Intel), Specification Framework for TGay, P802.11ay/Draft 0.2, Amendment 7: Enhanced throughput for operation in license-exempt bands above 45 GHz
       1. Overview of editorial changes in P802.11ay/Draft 0.2
       2. Opened the floor for discussion.
    2. Presentation by Carlos Cordeiro (Intel), Multiple AWs per BI, Doc. IEEE 11-17/0422r0.
       1. Opened floor for discussion.
    3. Presentation by Carlos Cordeiro (Intel), Power save improvements, Doc. IEEE 11-17/0420r0.
       1. Opened floor for discussion.
    4. Presentation by Claudio da Silva (Intel), BRP Transmit Sector Sweep, Doc. IEEE 11-17/0322r0. Key points discussed:
       1. This presentation proposes an efficient sector sweep BF protocol flow with the following key features:
          * It allows very efficient BF flow in terms of time consumption, which is critical for STAs equipped with multiple antennas/sub arrays
          * Allows for transmit sector sweep over the bonded channel when the initiator and responder operate on a 4.32 GHz, 6.48 GHz, or 8.64 GHz channel
          * The proposed protocol is based on the BRP concept, i.e. “in-packet” training, rather than “packetized” BF
       2. Opened the floor for discussion.
17. Meeting recessed at 13:30 and will resume on Tuesday AM1.

**Tuesday, March 14, 2017, AM1 Session (08:00-10:00)**

1. The meeting was called to order at 08:02 by the Chair, Edward Au (Huawei).
2. Agenda Doc. IEEE 802.11-17/0187r3.
3. Chair reminded all about the IEEE-SA patent policy, participation in IEEE 802 meetings, logistics, and reminders on Task Group rules.
   1. Chair asked if anybody has any disclosures related to the patent policy. None.
   2. Chair reminded all to record their attendance.
4. Presentations
   1. Presentation by Carlos Cordeiro (Intel), Power save improvements, Doc. IEEE 11-17/0420r2.
      1. Opened floor for discussion
      2. Straw Poll #1. Do you agree to adopt the mechanism described in slides 4 and 5, as specified in 11-17/0420r0 and 11-17/0422r2?

• Yes: 22

• No: 0

• Abstain: 0

• Straw poll passed.

* 1. Presentation by Claudio da Silva (Intel), Draft text for BRP Transmit Sector Sweep, Doc. IEEE 11-17/0323r1.
     1. Opened floor for discussion
     2. Straw Poll #1. Do you agree that the text in contribution 17/0323r1 (Draft text for BRP Transmit Sector Sweep) shall be incorporated into the next draft 11ay specification?
        + - Yes: 22
          - No: 0
          - Abstain: 0
          - Straw poll passed.
  2. Presentation by Lei Huang (Panasonic), SISO phase of SU-MIMO and MU-MIMO beamforming, Doc. IEEE 11-17/0286r1.
     1. Opened floor for discussion
  3. Presentation by Lei Huang (Panasonic), CR on SU-MIMO and MU-MIMO beamforming, Doc. IEEE 11-17/0287r0.
     1. Opened floor for discussion
     2. Straw Poll #1. Do you agree to incorporate the proposed changes on SU-MIMO beamforming and MU-MIMO beamforming as shown in IEEE 802.11-17/0287r0 into the next draft 11ay specification?
        + - Yes: 34
          - No: 0
          - Abstain: 4
          - Straw poll passed.
  4. Presentation by Kome Oteri (InterDigital), Fixed Inter Frame Spacing for BRP in 802.11ay, Doc. IEEE 11-17/0418r1.
     1. Opened floor for discussion
     2. Straw Poll #1. Do you agree to add a mechanism to the 802.11ay specification to perform the following? In the 11ay BRP protocol a STA shall have an option for the BRP frame to function as an action ACK frame. The procedure to recover feedback if the response is not ready is TBD
        + - Yes: 23
          - No: 0
          - Abstain: 12
          - Straw poll passed.
  5. Presentation by Kome Oteri (InterDigital), Further Discussion on Beam Tracking for 802.11ay, Doc. IEEE 11-17/0426r0. Key points discussed:
     1. The beam tracking for hybrid beamforming in 802.11ay may be :
        + Analog Beam tracking
        + Digital Baseband Channel tracking
     2. Simulation results show that with digital baseband channel tracking, performance lost due to channel blocking may be mostly recovered.
     3. A protocol for beam tracking in 802.11ay is also introduced.
     4. Opened floor for discussion

1. Meeting recessed at 10:02 and will resume on Wednesday PM2.

**Wednesday, March 15, 2017, PM2 Session (16:00-18:00)**

1. The meeting was called to order at 16:00 by the Chair, Edward Au (Huawei).
2. Agenda Doc. IEEE 802.11-17/0187r6.
3. Chair reminded all about the IEEE-SA patent policy, participation in IEEE 802 meetings, logistics, and reminders on Task Group rules.
   1. Chair asked if anybody has any disclosures related to the patent policy. None.
   2. Chair reminded all to record their attendance.
4. Motions
   1. Motion #177: Draft Amendment. Move to adopt D0.2 (available in members area) as the baseline document for the IEEE 802.11ay draft amendment
      1. Move: Carlos Cordeiro
      2. Second: Assaf Kasher
      3. Result: The motion is passed (38 Yes; 0 No; 1 Abstain).
   2. Motion #178: Do you agree to perform input bits parsing over the spatial streams on the round robin manner with bits grouping and padding as shown on slides #8, 9 of 11-17-0211-01-00ay? Specification text is proposed in 11-17-0214-01-00ay 29 5 7 27 Encoding.
      1. Note 1: Contribution number: 17/0211r1, 17/0214r1
      2. Note 2: Straw poll results: 30 Yes, 0 No, 0 Abstain
      3. Move: Claudio da Silva
      4. Second: Lei Huang
      5. Result: The motion is passed (29 Yes; 0 No; 7 Abstain).
   3. Motion #179: Do you agree to add the following to the draft: “The EDMG-TRN subfield for MIMO with NSS > 2 shall be defined as shown on slide #8 of 11-17-0212-01-00ay”? Specification text is proposed in 11-17-0213-00-00ay 29 9 3 26 9 TRN Subfield Definition.
      1. Note 1: Contribution number: 17/0212r1, 17/0213r0
      2. Note 2: Straw poll results: 30 Yes, 0 No, 0 Abstain
      3. Move: Claudio da Silva (on behalf of Artyom Lomayev)
      4. Second: Assaf Kasher
      5. Result: The motion is passed (29 Yes; 0 No; 6 Abstain).
   4. Motion #180: Do you agree to instruct the editor to incorporate the draft text in the contribution 17/0189r0 into IEEE 802.11ay draft 0.2?
      1. Note 1: Contribution number: 17/0189r0
      2. Note 2: Straw poll results: 28 Yes, 0 No, 0 Abstain
      3. Move: Claudio da Silva
      4. Second: Thomas Handte
      5. Result: The motion is passed (30 Yes; 0 No; 6 Abstain).
   5. Motion #181: Do you agree to incorporate the proposed changes on Measurement Request & Report elements as shown in IEEE 802.11-17/0215r2 into the next draft 11ay specification?
      1. Note 1: Contribution number: 17/0215r2
      2. Note 2: Straw poll results: 26 Yes, 0 No, 0 Abstain
      3. Move: Lei Huang
      4. Second: Claudio da Silva
      5. Result: The motion is passed (31 Yes; 0 No; 5 Abstain).
   6. Motion #182: Do you agree to incorporate the proposed changes on Spatial Sharing and Interference Mitigation as shown in IEEE 802.11-17/0217r3 into the next draft 11ay specification?
      1. Note 1: Contribution number: 17/0217r3
      2. Note 2: Straw poll results: 26 Yes, 0 No, 0 Abstain
      3. Move: Lei Huang
      4. Second: Sang Kim
      5. Result: The motion is passed (28 Yes; 0 No; 6 Abstain).
   7. Motion #183: Do you agree that the text in contribution 17/0277r0 shall be incorporated into the next draft 11ay specification?
      1. Note 1: Contribution number: 17/0277r0
      2. Note 2: Straw poll results: 33 Yes, 0 No, 0 Abstain
      3. Move: Claudio da Silva
      4. Second: Lei Huang
      5. Result: The motion is passed (29 Yes; 0 No; 6 Abstain).
   8. Motion #184: Do you agree that the text in contribution 17/0278r0 shall be incorporated into the next draft 11ay specification?
      1. Note 1: Contribution number: 17/0278r0
      2. Note 2: Straw poll results: 33 Yes, 0 No, 0 Abstain
      3. Move: Claudio da Silva
      4. Second: Lei Huang
      5. Result: The motion is passed (27 Yes; 0 No; 3 Abstain).
   9. Motion #185: Do you agree to incorporate the proposed changes on Channel Measurement Feedback element, DMG Beam Refinement element and EDMG Channel Measurement Feedback element as shown in IEEE 802.11-17/0219r2 into the next draft 11ay specification?
      1. Note 1: Contribution number: 17/0219r2, 17/0220r1
      2. Note 2: Straw poll results: 33 Yes, 0 No, 0 Abstain
      3. Move: Lei Huang
      4. Second: Claudio da Silva
      5. Result: The motion is passed/failed (24 Yes; 0 No; 5 Abstain).
   10. Motion #186: Do you agree to adopt the mechanism described in slides 4 and 5 of 11-17/0422r0, as specified in 11-17/0420r2?
       1. Note 1: Contribution number: 17/0420r2, 17/0422r0
       2. Note 2: Straw poll results: 22 Yes, 0 No, 0 Abstain
       3. Move: Carlos Cordeiro
       4. Second: Assaf Kasher
       5. Result: The motion is passed (25 Yes; 0 No; 3 Abstain).
   11. Motion #187: Do you agree that the text in contribution 17/0323r2 (Draft text for BRP Transmit Sector Sweep) shall be incorporated into the next draft 11ay specification?
       1. Note 1: Contribution number: 17/0322r1, 17/0323r2
       2. Note 2: Straw poll results: 34 Yes, 0 No, 4 Abstain
       3. Move: Claudio da Silva
       4. Second: Lei Huang
       5. Result: The motion is passed (24 Yes; 0 No; 5 Abstain).
   12. Motion #188: Do you agree to incorporate the proposed changes on SU-MIMO beamforming and MU-MIMO beamforming as shown in IEEE 802.11-17/0287r0 into the next draft 11ay specification?
       1. Note 1: Contribution number: 17/0286r1, 17/0287r0
       2. Note 2: Straw poll results: 34 Yes, 0 No, 4 Abstain
       3. Move: Lei Huang
       4. Second: Claudio da Silva
       5. Result: The motion is passed (24 Yes; 0 No; 4 Abstain).
5. Presentations
   1. Presentation by Camillo Gentile (NIST), Quasi-deterministic Model for Doppler Spread, Doc. IEEE 11-17/0268r0. Key points discussed:
      1. This document presents a parameterized model for Doppler spread in mmWave systems. The model is based on measurements with a 83 GHz channel sounder. The model is linked to the Quasi-deterministic (QD) propagation channel model adopted by this work group
      2. Opened floor for discussion
   2. Presentation by Robert Muller (Technische Universität Ilmenau), Summery of Channel Measurement for the 802.11ay Channel Model Document, Doc. IEEE 11-17/0441r0. Key points discussed:
      1. Summary of the contribution for channel measurement for the 802.11ay channel model document, including results of large-scale and intra-cluster in large indoor and rooftop to street outdoor scenarios.
      2. Opened floor for discussion
   3. Presentation by Solomon Trainin (Qualcomm), Compressed BlockAckReq for EDMG, Doc. IEEE 11-17/0412r0.
      1. Opened floor for discussion
      2. Straw Poll #1. Implement text changes to remove EDMG Compressed BlockAckReq as defined in Doc: 11-17-0412-02-00ay Compressed BlockAckReq for EDMG?
         * Yes: 34
         * No: 0
         * Abstain: 0
         * Straw Poll Passed
   4. Presentation by Solomon Trainin (Qualcomm), Occupied bandwidth clarification, Doc. IEEE 11-17/0413r0.
      1. Opened floor for discussion
      2. Straw Poll #1. Do you agree to include the text changes to occupied bandwidth as defined in Doc: 11-17-0413-00-00ay Occupied bandwidth clarification?
         * Yes: 27
         * No: 0
         * Abstain: 2
         * Straw Poll Passed
   5. Presentation by Assaf Kasher (Qualcomm), Short and Long TRN sequences, Doc. IEEE 11-17/0430r0. Key points discussed:
      1. This document suggest text to add short and long TRN subfields
      2. Opened floor for discussion
      3. Straw Poll #1. Do you agree that the text in contribution 17/0430r0 shall be incorporated into the next draft 11ay specification?
         * Yes: 28
         * No: 0
         * Abstain: 5
         * Straw Poll Passed
6. Motions.
   1. Motion #189: Do you agree that the text in contribution 17/0430r0 shall be incorporated into the next draft 11ay specification?
      1. Note 1: Contribution number: 17/0430r0
      2. Note 2: Straw poll results: 28 Yes, 0 No, 5 Abstain
      3. Move: Assaf Kasher
      4. Second: Solomon Trainin
      5. Result: The motion is passed (27 Yes; 0 No; 3 Abstain).
   2. Motion #190: Do you agree to include the text changes to occupied bandwidth as defined in Doc: 11-17-0413-00-00ay Occupied bandwidth clarification?
      1. Note 1: Contribution number: 17/0413r0
      2. Note 2: Straw poll results: 27 Yes, 0 No, 2 Abstain
      3. Move: Solomon Trainin
      4. Second: Assaf Kasher
      5. Result: The motion is passed (31 Yes; 0 No; 0 Abstain).
   3. Motion #191: Do you agree to implement text changes to remove EDMG Compressed BlockAckReq as defined in Doc: 11-17-0412-02-00ay Compressed BlockAckReq for EDMG?
      1. Note 1: Contribution number: 17/0412r2
      2. Note 2: Straw poll results: 34 Yes, 0 No, 0 Abstain
      3. Move: Solomon Trainin
      4. Second: Carlos Cordeiro
      5. Result: The motion is passed (29 Yes; 0 No; 1 Abstain).
7. Meeting recessed at 15:52 and will resume on Thursday AM2.

**Thursday, March 16, 2017, AM2 Session (10:30-12:30)**

1. The meeting was called to order at 10:33 by the Chair, Edward Au (Huawei).
2. Agenda Doc. IEEE 802.11-17/0187r9.
3. Chair reminded all about the IEEE-SA patent policy, participation in IEEE 802 meetings, logistics, and reminders on Task Group rules.
   1. Chair asked if anybody has any disclosures related to the patent policy. None.
   2. Chair reminded all to record their attendance.
4. Presentations
   1. Presentation by Shunsuke Fujio (Fujitsu), MIMO phase in MU-MIMO Beamforming, Doc. IEEE 11-17/0423r1. Key points discussed:
      1. This contribution proposes changes on MIMO phase in MU-MIMO Beamforming to reduce beamforming training overhead
      2. Opened floor for discussion
   2. Presentation by Shunsuke Fujio (Fujitsu), CR on MIMO phase in MU-MIMO Beamforming, Doc. IEEE 11-17/0424r0.
      1. Opened floor for discussion
      2. Straw Poll #1. Do you agree to incorporate the changes proposed in (11-17-0424-00-00ay-cr-on-mimo-phase-in-mu-mimo-bf.docx) into the draft spec?
         * Yes: 21
         * No: 0
         * Abstain: 15
         * Straw poll passed
   3. Presentation by Yutaka Murakami (Panasonic), EDMG Capabilities for LDPC Codes, Doc. IEEE 11-17/0415r0. Key points discussed:
      1. This contribution discusses the necessity of EDMG capabilities related to LDPC codes.
      2. Opened floor for discussion
      3. Straw Poll #1. Do you agree to add the following capability information in the EDMG capabilities element regarding LDPC codes into Draft IEEE 802.11ay? Long LDPC codes capability information (1 bit) If the long LDPC codes capability field is set to 1, the STA supports LDPC long codeword for the supported MCSs. Otherwise, the STA does not support LDPC long codeword.
         * Yes: 32
         * No: 0
         * Abstain: 9
         * Straw poll passed
   4. Presentation by Dzevdan Kapetanovic (Ericsson), Training Protocols for DL MU-MIMO in 802.11ay, Doc. IEEE 11-17/0419r1.
      1. Opened floor for discussion
   5. Presentation by Kome Oteri (InterDigital), Further Discussion on Beam Tracking for 802.11ay, Doc. IEEE 11-17/0426r1. Key points discussed:
      1. The beam tracking for hybrid beamforming in 802.11ay may be:
         * Analog Beam tracking
         * Digital Baseband Channel tracking
      2. Simulation results show that with digital baseband channel tracking, performance lost due to channel blocking may be mostly recovered.
      3. A protocol for beam tracking in 802.11ay is also introduced.
      4. Opened floor for discussion
      5. Straw Poll #1. Do you agree to include mechanisms that support tracking of the digital baseband channel tracking for SU-MIMO and MU-MIMO for 802.11ay hybrid beamforming?
         * Yes: 15
         * No: 3
         * Abstain: 19
         * Straw poll passed
   6. Presentation by Kome Oteri (InterDigital), Protocols for Hybrid Beamforming in 802.11ay, Doc. IEEE 11-17/0429r2.
      1. Opened floor for discussion
5. Meeting recessed at 12:30 and will resume on Thursday PM1.

**Thursday, March 16, 2017, PM1 Session (13:30-15:30)**

1. The meeting was called to order at 13:30 by the Chair, Edward Au (Huawei).
2. Agenda Doc. IEEE 802.11-17/0187r9.
3. Chair reminded all about the IEEE-SA patent policy, participation in IEEE 802 meetings, logistics, and reminders on Task Group rules.
   1. Chair asked if anybody has any disclosures related to the patent policy. None.
   2. Chair reminded all to record their attendance.
4. Presentations
   1. Presentation by Rui Yang (InterDigital), Throughput and Coverage Improvements with DFT-s-OFDM for 802.11ay, Doc. IEEE 11-17/0428r1. Key points discussed:
      1. In this contribution:
         * The authors quantify the benefit of DFT-spread OFDM by using a majority of 11ay MCSs for two different simulation scenarios
         * The authors show how DFT-spread OFDM can be adopted without major modifications to the existing agreements in 802.11ay
      2. Opened floor for discussion
      3. Straw Poll #1. Should TGay include DFT-spread OFDM as an additional waveform in 802.11ay spec draft to improve the throughput and coverage?
         * Yes: 4
         * No: 6
         * Need more information: 25
         * No opinion/don’t care:1
         * Straw poll failed
   2. Presentation by Li-Hsiang Sun (InterDigital), Throughput EDMG CEF Enhancements, Doc. IEEE 11-17/0401r0.
      1. Opened floor for discussion
      2. Straw Poll #1. Do you agree to add the proposed mechanisms in slide 3 option 2, and slide 6 in 11ay D0.2?
         * Yes: 3
         * No: 7
         * Abstain: 30
         * Straw poll failed
   3. Presentation by Rob Sun (Huawei), EDMG Capability and Operation Element Channel Indication, Doc. IEEE 11-17/0449r0. Key points discussed:
      1. The author(s) propose to use channel number to indicate supported channels for EDMG devices and to indicate operating channels and operating channel width for EDMG BS
      2. The author(s) also propose rules for EDMG BSS to switch to new operating channels
      3. Opened floor for discussion
   4. Presentation by Rob Sun (Huawei), Proposed Text for EDMG Capability and Operation Element Channel Indication, Doc. IEEE 11-17/0450r0.
      1. Opened floor for discussion
   5. Presentation by Dejian Li (Huawei), Channel Allocation for SP, Doc. IEEE 11-17/0433r1. Key points discussed:
      1. Channel allocation according to channel number indication (BW and channel aggregation fields) or channel width is proposed for the following two kinds of SP requests/allocations: DMG ADDTS Request/Response and Poll/SPR/Grant.
      2. Opened floor for discussion
   6. Presentation by Dejian Li (Huawei), Draft Text for Channel Allocation for SP, Doc. IEEE 11-17/0434r1. Key points discussed:
      1. Opened floor for discussion
      2. Straw Poll #1. Do you agree that the text in contribution 17/0434r1 (Draft Text for Channel Allocation for SP) shall be incorporated in the 11ay draft?
         * Yes: 26
         * No: 0
         * Abstain: 8
         * Straw poll passed
   7. Presentation by Shigenobu Sasaki (Niigata University), Modified Channel Model For Outdoor Open Area Hotspot Access Scenario, Doc. IEEE 11-17/0451r0. Key points discussed:
      1. This contribution proposes a modified channel model for Open Area Outdoor Hotspot Access scenario considering dominant reflected paths from sur-rounding walls
      2. Opened floor for discussion
5. Meeting recessed at 15:32 and will resume on Thursday PM2.

**Thursday, March 16, 2017, PM2 Session (16:00-18:00)**

1. The meeting was called to order at 16:00 by the Chair, Edward Au (Huawei).
2. Agenda Doc. IEEE 802.11-17/0187r10.
3. Chair reminded all about the IEEE-SA patent policy, participation in IEEE 802 meetings, logistics, and reminders on Task Group rules.
   1. Chair asked if anybody has any disclosures related to the patent policy. None.
   2. Chair reminded all to record their attendance.
4. Presentations
   1. Presentation by Dzevdan Kapetanovic (Ericsson), Training Protocols for DL MU-MIMO in 802.11ay, Doc. IEEE 11-17/0419r1.
      1. Opened floor for discussion
      2. Straw Poll #1. Do you agree on including the BRP UL training as an optional mechanism into the 11ay draft?
         * Yes: 19
         * No: 0
         * Abstain: 21
         * Straw poll passed
      3. Straw Poll #2. Do you agree on including the SLS UL training as an optional mechanism into the 11ay draft?
         * Yes: 9
         * No: 1
         * Abstain: 30
         * Straw poll passed
   2. Presentation by Kome Oteri (InterDigital), Protocols for Hybrid Beamforming in 802.11ay, Doc. IEEE 11-17/0429r3.
      1. Opened floor for discussion
      2. Straw Poll #1. Do you agree to update the 802.11ay specification to reflect that the detailed BRP feedback that occurs during SU-MIMO feedback may be used to support hybrid beamforming for SU-MIMO? In scenarios where the detailed feedback is not carried in the SU-MIMO feedback, the initiator may request for the detailed feedback at a later time (e.g., by digital baseband tracking if the device supports that capability).
         * Yes: 18
         * No: 0
         * Abstain: 17
         * Straw poll passed
      3. Straw Poll #2. Do you agree to update the 802.11ay specification to reflect that a detailed feedback option in the MU-MIMO feedback phase (fed back in addition to the associated quality specified in D0.2) may be used to support hybrid beamforming for MU-MIMO? In scenarios where the detailed feedback is not carried in the SU-MIMO feedback, the initiator may request for the detailed feedback at a later time (e.g., by digital baseband tracking if the device supports that capability). The channel feedback is TBD.
         * Yes: 11
         * No: 0
         * Abstain: 19
         * Straw poll passed
   3. Presentation by Rob Sun (Huawei), Proposed Text for EDMG Capability and Operation Element Channel Indication, Doc. IEEE 11-17/0450r1.
      1. Opened floor for discussion
      2. Straw Poll #1. Do you agree to adopt the text of “11-17-0450-01-00ay-EDMG Capability and Operation Element Channel Indication\_r0” into Draft of IEEE 802.11ay?”
         * Yes: 31
         * No: 0
         * Abstain: 5
         * Straw poll passed
   4. Presentation by Alexander Maltsev (Intel), Channel models for IEEE 802 11ay, Doc. IEEE 11-15/1150r9.
      1. Opened floor for discussion
5. Motions
   1. Motion #192: Do you agree to add a mechanism to the 802.11ay specification to perform the following?
      * + In the 11ay BRP protocol there shall be an option for the BRP frame to function as an action ACK frame.
        + The procedure to recover feedback if the response is not ready is TBD.
      1. Note 1: Contribution number: 17/0418r1
      2. Note 2: Straw poll results: 23 Yes, 0 No, 12 Abstain
      3. Move: Kome Oteri
      4. Second: Rui Yang
      5. Result: The motion is passed (22 Yes; 0 No; 8 Abstain).
   2. Motion #193: Draft. Do you agree to incorporate the changes proposed in (11-17-0424-00-00ay-cr-on-mimo-phase-in-mu-mimo-bf.docx) into the draft spec?
      1. Note 1: Contribution number: 17/0423r1, 17/0424r0
      2. Note 2: Straw poll results: 21 Yes, 0 No, 15 Abstain
      3. Move: Shunsuke Fujio
      4. Second: Claudio da Silva
      5. Result: The motion is passed (21 Yes; 0 No; 4 Abstain).
   3. Motion #194: Do you agree to add the following capability information in the EDMG capabilities element regarding LDPC codes into Draft IEEE 802.11ay?
      * + Long LDPC codes capability information (1 bit)
        + If the long LDPC codes capability field is set to 1, the STA supports LDPC long codeword for the supported MCSs. Otherwise, the STA does not support LDPC long codeword.
      1. Note 1: Contribution number: 17/0415r0
      2. Note 2: Straw poll results: 32 Yes, 0 No, 9 Abstain
      3. Move: Yutuka Murakami
      4. Second: Sang Kim
      5. Result: The motion is passed (23 Yes; 0 No; 5 Abstain).
   4. Motion #195: Do you agree to include mechanisms that support tracking of the digital baseband channel for SU-MIMO and MU-MIMO hybrid beamforming in 802.11ay?
      1. Note 1: Contribution number: 17/0426r2
      2. Note 2: Straw poll results: 15 Yes, 3 No, 19 Abstain
      3. Move: Kome Oteri
      4. Second: Rui Yang
      5. Result: The motion is passed (9 Yes; 3 No; 11 Abstain).
   5. Motion #196: Do you agree that the text in contribution 17/0434r1 (Draft Text for Channel Allocation for SP) shall be incorporated in the 11ay draft?
      1. Note 1: Contribution number: 17/0433r1, 17/0434r1
      2. Note 2: Straw poll results: 26 Yes, 0 No, 8Abstain
      3. Move: Dejian Li
      4. Second: Jinnan Liu
      5. Result: The motion is passed (24 Yes; 0 No; 4 Abstain).
   6. Motion #197: Do you agree to update the 802.11ay specification to reflect that the detailed BRP feedback that occurs during SU-MIMO feedback may be used to support hybrid beamforming for SU-MIMO? In scenarios where the detailed feedback is not carried in the SU-MIMO feedback, the initiator may request for the detailed feedback at a later time (e.g., by digital baseband tracking if the device supports that capability).
      1. Note 1: Contribution number: 17/0429r3
      2. Note 2: Straw poll results: 18 Yes, 0 No, 17 Abstain
      3. Move: Kome Oteri
      4. Second: Rui Yang
      5. The motion is withdrawn
   7. Motion #198: Do you agree to update the 802.11ay specification to reflect that a detailed feedback option in the MU-MIMO feedback phase (fed back in addition to the associated quality specified in D0.2) may be used to support hybrid beamforming for MU-MIMO? In scenarios where the detailed feedback is not carried in the SU-MIMO feedback, the initiator may request for the detailed feedback at a later time (e.g., by digital baseband tracking if the device supports it). The channel feedback is TBD.
      1. Note 1: Contribution number: 17/0429r3
      2. Note 2: Straw poll results: 11 Yes, 0 No, 19 Abstain
      3. The motion is withdrawn
   8. Motion #199: Do you agree to adopt the text of “11-17-0450-01-00ay-EDMG Capability and Operation Element Channel Indication\_r0” into Draft of IEEE 802.11ay? “
      1. Note 1: Contribution number: 17/0450r1
      2. Note 2: Straw poll results: 31 Yes, 0 No, 5 Abstain
      3. Move: Yan Xin
      4. Second: Yutuka Murakami
      5. Result: The motion is passed (19 Yes; 0 No; 4 Abstain).
   9. Motion #200: Do you agree to instruct the editor to prepare P802.11ay D0.3 and approve a 30-day comment collection period from April 1, 2017 to April 30, 2017?
      1. Move: George Calcev
      2. Second: Claudio da Silva
      3. Result: The motion is passed (20 Yes; 0 No; 1 Abstain).
6. Chairman discussed the upcoming teleconference schedule per slide 76 of Doc. IEEE 802.11-17/0187r11. There is no objection.
7. Chairman reviewed the goals for the May 2017 interim meeting. Remember to discuss during the May 2017 interim if need to bring additional motions text for the contributions.
8. The Task Group AY Atlanta meeting was adjourned on March 16, 2017 at 17:17.