IEEE P802.11  
Wireless LANs

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| IEEE 802.11 TGax  September 2016 Warsaw Meeting Minutes | | | | |
| Date: 2016-10-05 | | | | |
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Abstract

TGax meeting minutes from the IEEE 802.11 September 2016 Warsaw meeting, September 11th – 16th, 2016.

Minutes/motions from the ad hoc groups are contained in the following documents:

* PHY Ad Hoc
  + Agenda: 11-16-1246, TGax PHY Ad Hoc Sep 2016 Meeting Agenda
  + Minutes: 11-16-1276, IEEE 802.11 TGax September 2016 Warsaw PHY Ad Hoc Meeting Minutes
* MAC Ad Hoc
  + Agenda: 11-16-1247, TGax MAC Ad Hoc September 2016 Meeting Agenda
  + Minutes: 11-16-1252, September 2016 Warsaw TGax MAC Ad hoc Meeting Minutes
* MU Ad Hoc
  + Agenda: 11-16-1244, TGax MU Ad-hoc Agenda September 2016
  + Minutes: 11-16-1275, IEEE 802.11 TGax, MU Ad hoc September 2016 TGax Meeting Minutes
* SR Ad Hoc
  + Agenda: 11-16-1245, TGax Spatial Reuse Ad-hoc Agenda September 2016 Meeting
  + Minutes: 11-16-1300, TGax Spatial Reuse ad hoc group meeting minutes - Warsaw, September 2016

**IEEE 802.11 Task Group AX (TGax)**

**September 2016 Warsaw Meeting**

**Warsaw Marriott Hotel, Warsaw, Poland**

**September 11th – 16th, 2016**

**TGax Chair Osama Aboul-Magd (Huawei Technologies)**

**Vice Chair Simone Merlin (Qualcomm)**

**Vice Chair Ron Porat (Broadcom)**

**TGax Secretary Yasuhiko Inoue (NTT)**

**TGax Technical Editor Robert Stacy (Intel)**

**Monday, September 12th, 2016, AM2 TGax Ad Hoc Session (10:30-12:30)**

1. The meeting called to order by Osama Aboul-Magd (Huawei Technologies), the chair of the TGax, @10:30
   1. Introduction of TGax chair, secretary, vice chair.
   2. There are about 110 attendees in the meeting room.
2. **Announcement**
   1. Agenda Doc.11-16/1077r0 on the server. Rev. 1 is the working document.
   2. Meeting Protocol: Chair asked to state name and affiliation when speaking for the first time.
   3. Attendance reminder.
      1. The attendance server: https://imat.ieee.org/
3. **Agenda for Monday, September 12th, AM2 (10:30 – 12:30 AM).**
   1. Proposed Agenda for Monday AM2:
      1. Call meeting to order
      2. Patent policy, etc.
      3. Call for submissions.
      4. Set Ad hoc Group schedule and approve agenda.
      5. Summary from July 2016 meeting.
      6. TG motions
         1. Approve TG meeting and Telecon minutes since November meeting.
         2. Approve resolutions of comments, if needed
      7. Comment Resolution Status – Robert Stacy (TGax editor).
      8. Timeline
      9. Presentations and Comment Resolution
      10. Recess.
   2. Chair asked if there are any other items – No items proposed. Meeting will be conducted based on this order.
4. **The chair reviewed the mandatory 5 slides of P&P.**
   1. Instructions for the WG Chair.
   2. Participants, Patents, and Duty to Inform.
   3. Patent Related Links.
   4. Call for potentially essential patents.
      1. **Chair asked if anyone is aware of potentially essential patents.**
      2. **No potentially essential patents reported.**
   5. Other Guidelines for IEEE WG Meetings.
5. **Agenda items for the week**
   1. Approve TG and Telecons minutes since July meeting.
   2. Resolution of comments received on draft D0.1
   3. Ad Hoc group meetings
   4. Technical Presentations and related straw polls and/or motions
   5. Schedule Telecon times.
6. **General Flow of the meeting**
   1. Slides 13 and 14 of the 16/1077r1 contain general flow of the meeting.
   2. There are eight meeting slots planed for TGax.

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|  | Monday | | Tuesday | | Wednesday | | Thursday | Friday |
| AM1 |  | |  | | TGax  (full) | |  |  |
| AM2 | TGax  (full) | | TGax  (Ad Hoc) | TGax  (Ad Hoc) |  | | TGax  (full) |  |
| PM1 |  | |  |  | TGax  (Ad Hoc) | TGax  (Ad Hoc) | TGax  (full) |  |
| PM2 | TGax  (ad hoc) | TGax  (ad hoc) | TGax  (Ad Hoc) | TGax  (Ad Hoc) | TGax  (ad hoc) | TGax  (ad hoc) | TGax  (full) |  |
| PM3 | TGax  (ad hoc) | TGax  (ad hoc) |  |  |  | |  |  |

1. **Call for submissions – we have 90 submissions**
   1. MAC – 43 submissions
      1. 11-16-0864, “Comment Resolutions on Clause 6 & 8 comments,” Yasuhiko Inoue (NTT)
      2. 11-16-0869, “Misc. TWT comment resolution,” Zhou Lan (Broadcom)
      3. 11-16-0881, “Comment resolution on ROMI,” Jayh Park (LG Electronics)
      4. 11-16-0882, “Comment resolution on TOMI,” Alfred Asterjadhi (Qualcomm)
      5. 11-16-0883, “Comment resolution for CID152,” JayhPark (LG Electronics)
      6. 11-16-0884, “Spec. Text for HE Operation element and AID Assign Rule,” Jianhan Liu (MediaTek)
      7. 11-16-0913, “SU Multi-TID Rules,” Jarkko Kneckt (Apple)
      8. 11-16-0917, “Text for TID value of ALL ACK signaling,” Woojin Ahn (WILUS)
      9. 11-16-0918, “Discussions on Partial BSS Color,” Geonjung Ko (WILUS)
      10. 11-16-0924, “NAV resetting with RTS/MU-RTS,” Weiming Xing (ZTE)
      11. 11-16-0925, “Spex text on NAV resetting with RTS/MU-RTS,” Weiming Xing (ZTE)
      12. 11-16-0941, “CR HE Fragmentation - part 2,” Ming Gan (Huawei)
      13. 11-16-0942, “CR Service Field,” Ming Gan (Huawei)
      14. 11-16-0960, “AP access procedure for UL MU operation,” Jinsoo Ahn (Yonsei Univ.)
      15. 11-16-0961, “Consideration on Multi-STA BlockAck Optimization,” Hanseul Hong (Yonsei Univ.)
      16. 11-16-0962, “EDCA rules-follow up 1,” Jing Ma (NICT)
      17. 11-16-0963, “EDCA rules-follow up 2,” Jing Ma (NICT)
      18. 11-16-0998, “Rules for 2 EDCA parameters,” Laurent Cariou (Intel)
      19. 11-16-1110, “Comment Resolution on subclause 10.22.2 and 10.22.4,” Yongho Seok (Newracom)
      20. 11-16-1131, “Comment Resolution on MU Ack Policy,” Yongho Seok (Newracom)
      21. 11-16-1154, “MAC CR for CID 966,” Weiming Xing (ZTE)
      22. 11-16-1157, “Comment resolution on SU\_MU ACK procedures,” Jeongki Kim (LG Electronics)
      23. 11-16-1173, “Comment Resolution on Two NAVs - Part II,” Po-Kai Huang (Intel)
      24. 11-16-1180, “Proposed text changes for MU EDCA parameters,” Laurent Cariou (Intel)
      25. 11-16-1181, “CW value after UL MU procedure,” Woojin Ahn (WILUS)
      26. 11-16-1182, “HE Sounding Feedback Segmentation,” Liwen Chu (Marvell)
      27. 11-16-1183, “MU RTS CTS data rate comment,” Liwen Chu (Marvell)
      28. 11-16-1184, “A-MPDU 25.10 25.10.2 comment resolution, ” Liwen Chu (Marvell)
      29. 11-16-1185, “A-MPDU 25.10.3 comment resolution,” Liwen Chu (Marvell)
      30. 11-16-1186, “A-MPDU Content Comment Resolution,” Liwen Chu (Marvell)
      31. 11-16-1188, “MAC Capabilities in HE Capabilities IE,” Alfred Asterjadhi (Qualcomm)
      32. 11-16-1189, “CC0-TWT operation,” Alfred Asterjadhi (Qualcomm)
      33. 11-16-1195, “MAC Clarifications,” Alfred Asterjadhi (Qualcomm)
      34. 11-16-1204, “Intra-PPDU Power Save for a Multiple BSSID Set Case,” Geonjung Ko (Wilus)
      35. 11-16-1205, “Text for Intra-PPDU Power Save for a Multiple BSSID Set Case,” Geonjung Ko (Wilus)
      36. 11-16-1210, “Comment Resolution on MU acknowledgement procedure,” Junichi Iwatani (NTT)
      37. 11-16-1211, “CR\_CID\_122\_576\_972\_2598,” Huizao Wang (Quantenna)
      38. 11-16-1213, “CR TWT and HE element related,” Matt Fischer (Broadcom)
      39. 11-16-1220, “MU mode EDCA control,” Jinsoo Ahn (Yonsei Univ.)
      40. 11-16-1234, “Spec Text for TWT Protection field,” Hanseul Hong (Yonsei Univ.)
      41. 11-16-1236, “Text for Partial BSS Color and AID Assignment Rule,” Geonjung Ko (Wilus)
      42. 11-16-1237, “Setting Quiet Time Period,” Chao-Chun Wang (MediaTek)
      43. 11-16-1238, “Setting Quiet Time Period - text,” Chao-Chun Wang (MediaTek)
   2. PHY – 28 submissions
      1. 11-16-1133, “11ax sounding modes reduction,” Yan Zhang (Marvell)
      2. 11-16-1134, “11ax spec text on sounding modes reduction,” Yan Zhang (Marvell)
      3. 11-16-1135, “11ax comment resolutions for clause 26.3.5,” Yan Zhang (Marvell)
      4. 11-16-1136, “11ax comment resolutions for clause 26.3.8,” Yan Zhang (Marvell)
      5. 11-16-1137, “11ax comment resolutions for clause 26.3.9,” Yan Zhang (Marvell)
      6. 11-16-1138, “11ax comment resolutions for clause 26.3.10,” Yan Zhang (Marvell)
      7. 11-16-1148, “CR HE-SIG-A part III,” Ross Jian Yu (Huawei)
      8. 11-16-1149, “CR HE-SIG-A part II,” Ross Jian Yu (Huawei)
      9. 11-16-1150, “CR Packet Extension part I,” Ross Jian Yu (Huawei)
      10. 11-16-1160, “Comment Resolution for CID 355,” Eunsung Park (LG Electronics)
      11. 11-16-1167, “UL MU Clarifications,” Ron Porat (Broadcom)
      12. 11-16-1168, “DCM TBDs,” Sriram Venkateswaran (Broadcom)
      13. 11-16-1169, “CR Duplicate MU MIMO,” Sriram Venkateswaran (Broadcom)
      14. 11-16-1170, “HE PHY Capabilities,” Lochan Verma (Qualcomm)
      15. 11-16-1171, “PHY Miscellaneous Part-1,” Lochan Verma (Qualcomm)
      16. 11-16-1176, “PHY CR Miscellaneous Part-2,” Lochan Verma (Qualcomm)
      17. 11-16-1179, “PHY section editorial comments on D0.4,” Sungeun Lee (Cypress)
      18. 11-16-1190, “Tx Quality Requirements,” Daewon Lee (Newracom)
      19. 11-16-1191, “Comment Resolution for CIDs on PHY Transmit Spec,” Daewon Lee (Newracom)
      20. 11-16-1192, “Comment Resolution for CID 1450,” Daewon Lee (Newracom)
      21. 11-16-1193, “HE variant HT Control - HE Link Adaptation,” Daewon Lee (Newracom)
      22. 11-16-1194, “Removal of Unnecessary PHY TBDs,” Daewon Lee (Newracom)
      23. 11-16-1202, “CR HE-LTF,” Ming Gan (Huawei)
      24. 11-16-1227, “cr-on-26-3-7,” Shahrnaz Azizi (Intel)
      25. 11-16-1232, “Text change proposal of TXTIME in 26.3.19 and 26.4.3,” Daewon Lee (Newracom)
      26. 11-16-1233, “CR for DCM related CID 503, 504 and 2750,” Daewon Lee (Newracom)
      27. 11-16-1240, “Packet Extension Factor calculation fix,” Yan Zhang (Marvell)
      28. 11-16-1242, “spec text for packet extension factor calculation fix,” Yan Zhang (Marvell)
   3. MU – 12 submissions
      1. 11-16-0773, “Comment Resolution Section 25.6 HE Sounding,” Raja Banerjea (Qualcomm)
      2. 11-16-0929, “CR - UL MU Operation,” Simone Merlin (Qualcomm)
      3. 11-16-1152, “DL OFDMA Ack rule for uplink trigger based PPDU,” Ming Gan (Huawei)
      4. 11-16-1158, “Comment resolution on OFDMA random access procedure,” Jeongki Kim (LG Electronics)
      5. 11-16-1162, “Comment Resolution on Retransmission of OFDMA Random Access,” Yunbo Li (Huawei)
      6. 11-16-1163, “Concluding OFDMA M-BA transmission,” Zhou Lan (Broadcom)
      7. 11-16-1177, “comment-resolution-TXOP-truncation,” Young Hoon Kwon (Newracom)
      8. 11-16-1239, “Trigger Frame MU BAR part 1,” Raja Banerjea (Qualcomm)
      9. 11-16-1241, “Trigger Frame MU BAR part 2,” Raja Banerjea (Qualcomm)
      10. 11-16-1199, “Proposed text changes for DL OFDMA Acknowledge rule for trigger based PPDU,” Ming Gan (Huawei)
      11. 11-16-1222, “Comment Resolution on UL OFDMA Random Access,” Chittabrata Ghosh (Intel)
      12. 11-16-1224, “Random Access Parameter Set (RAPS) element,” Chittabrata Ghosh (Intel)
   4. SR – 9 submissions
      1. 11-16-0945, “Clarification for OBSS\_PD-based SR parameters,” Matt Fischer (Broadcom)
      2. 11-16-0947, “Proposed text changes for OBSS\_PD-based SR parameters,” Laurent Cariou (Intel)
      3. 11-16-1064, “Unified SR approach DSC, ATPC and Inter-BSS,” Graham Smith (SR Technologies)
      4. 11-16-1155, “SR Comment Resolution for CID994,” Kaiying Lv (ZTE)
      5. 11-16-1161, “Simulation-based evaluation of OBSS\_PD-based SR default parameters,” Tanguy Ropitault (NIST)
      6. 11-16-1178, “comment-resolution-SR-RSSI,” Young Hoon Kwon (Newracom)
      7. 11-16-1216, “SR Field SRP Table for HE-Trigger-Based PPDU,” James Wang (MediaTek)
      8. 11-16-1223, “CR for Section 25.9.2 OBSS\_PD Spatial reuse,” Laurent Cariou (Intel)
      9. 11-16-1225, “Heads We Win, Tails We Don't Lose: Proposals for Dynamic CCA,” Sean Coffey (RealTek)
   5. TG – 6 submissions
      1. 11-15-1095, “OFDMA performance in 11ax,” Suhwook Kim (LG Electronics)
      2. 11-16-1143, “11ax PAR Verification,” Paul Cheng (MediaTek)
      3. 11-16-1159, “Summary of Mandatory or Optional Features of 802.11ax,” Joonsuk Kim (Apple)
      4. 11-16-1166, “Meeting PAR requirements with UL OFDMA,” Sriram Venkateswaran (Broadcom)
      5. 11-16-1198, “Preliminary 11ax PAR Verification,” Jiyong Pang (Huawei)
      6. 11-16-1219, “Considerations on CR for 2665 and 2715,” Jing Ma (NICT)
2. **Ad Hoc meeting scheduling**
   1. Ad Hoc slot assignment
      1. MAC … as many as possible, PHY … 4, SR … 1, MU … 2.

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|  | Monday | | Tuesday | | Wednesday | | Thursday |
| AM1 |  | |  | | TGax  (full) | |  |
| AM2 | TGax  (full) | | TGax  (MU) | TGax  (MAC) |  | | TGax  (full) |
| PM1 |  | |  |  | TGax  (PHY) | TGax  (MAC) | TGax  (full) |
| PM2 | TGax  (PHY) | TGax  (MAC) | TGax  (PHY) | TGax  (MAC) | TGax  (MU) | TGax  (MAC) | TGax  (full) |
| PM3 | TGax  (PHY) | TGax  (SR) |  |  |  | |  |

* 1. Chair asked if there are any objections to approve the TGax schedule as follow.
     1. There are no objections. The TGax schedule is approved.

1. **Summary from July 2016 Meeting – slide 27**

* Approved the resolutions of about 230 comments discussed during telecons before July meeting.
* Approved resolutions of almost 350 CIDs during the July meeting
* Approved a number of submissions proposing new text to be added to the draft.
* Editor generated draft D0.3 and draft D0.4.
* Conducted weekly telecons since July F2F meeting.
  + **Covered 17 submissions**
  + **Discussed resolutions of almost 250 CIDs**
  + **Please refer to telecon minutes**
    - [**https://mentor.ieee.org/802.11/dcn/16/11-16-1105-03-00ax-tgax-teleconference-minutes-from-august-to-september-2016.docx**](https://mentor.ieee.org/802.11/dcn/16/11-16-1105-03-00ax-tgax-teleconference-minutes-from-august-to-september-2016.docx)

1. **TG Motions**
   1. **Approve TGax minutes of meetings and teleconferences from July 2016 plenary meeting to today:** 
      * [**https://mentor.ieee.org/802.11/dcn/16/11-16-0967-00-00ax-tgax-july-2016-san-diego-meeting-minutes.docx**](https://mentor.ieee.org/802.11/dcn/16/11-16-0967-00-00ax-tgax-july-2016-san-diego-meeting-minutes.docx)
      * [**https://mentor.ieee.org/802.11/dcn/16/11-16-1105-03-00ax-tgax-teleconference-minutes-from-august-to-september-2016.docx**](https://mentor.ieee.org/802.11/dcn/16/11-16-1105-02-00ax-tgax-teleconference-minutes-from-august-to-september-2016.docx)
      * [**https://mentor.ieee.org/802.11/dcn/16/11-16-1040-00-00ax-tgax-july-2016-san-diego-phy-ad-hoc-meeting-minutes.docx**](https://mentor.ieee.org/802.11/dcn/16/11-16-1040-00-00ax-tgax-july-2016-san-diego-phy-ad-hoc-meeting-minutes.docx)
      * [**https://mentor.ieee.org/802.11/dcn/16/11-16-1000-02-00ax-july-2016-san-diego-tgax-mac-ad-hoc-meeting-minutes.docx**](https://mentor.ieee.org/802.11/dcn/16/11-16-1000-02-00ax-july-2016-san-diego-tgax-mac-ad-hoc-meeting-minutes.docx)
      * [**https://mentor.ieee.org/802.11/dcn/16/11-16-1027-00-00ax-mu-ad-hoc-meeting-minutes-july-2016.docx**](https://mentor.ieee.org/802.11/dcn/16/11-16-1027-00-00ax-mu-ad-hoc-meeting-minutes-july-2016.docx)
      * [**https://mentor.ieee.org/802.11/dcn/16/11-16-1022-00-00ax-tgax-spatial-reuse-ad-hoc-group-meeting-minutes.docx**](https://mentor.ieee.org/802.11/dcn/16/11-16-1022-00-00ax-tgax-spatial-reuse-ad-hoc-group-meeting-minutes.docx)
   2. **Moved by Peter Loc, Seconded by Yasuhiko Inoue**
   3. **Result: Motion was accepted with no objection.**
2. **Editor’s Report**
   1. **Robert Stacy (Intel), TGax Editor, presented “,” based on the submission 11-16-0995-01.**
   2. CR Status Summary

|  |  |  |  |  |  |  |
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| Owning Ad-hoc | Unassigned | Assigned | Resolution drafted | Approved | Duplicates | Grand Total |
| Editor | 34 | 153 | 658 | 704 | 158 | 1707 |
| MAC | 8 | 589 |  | 1 |  | 598 |
| MU |  | 333 | 1 |  |  | 334 |
| SR |  | 60 |  |  |  | 60 |
| PHY |  | 217 |  |  | 3 | 220 |
| Grand Total | 42 | 1352 | 659 | 705 | 161 | 2919 |

* 1. Discussion – No discussion.

1. **Timeline**

* **Curent Timeline**
  + **May 2014: start of the TG**
  + **Nov. 2014: First draft of the TG SFD was approved**
  + **Jan. 2016: proposed TG draft**
  + **March 2016: Draft D0.1 was approved and CC started**
  + **September 2016: Draft 1.0 and WG letter ballot**
  + **March 2017: Draft 2.0 and recirculation**
  + **July 2017: MDR (Mandatory Document Review)**
  + **November 2017: Formation of SB pool**
  + **March 2018: Sponsor Ballot**
  + **December 2018: RevCom**

To be discussed on Thursday.

1. **Presentations**
   1. **Suhwook Kim (LG Electronics) presented “OFDMA Performance in 11ax,” based on the submission 11-15-1095-10.**
      1. Summary
         1. The OFDMA performance in 11ax have been evaluated based on PHY/MAC-integrated simulation in various conditions.
         2. The RU size and the simulation scenario have been changed as in slide 4.
      2. Discussion
         1. Q: A member asked whether power control is assumed for the uplink. The answer was no.
         2. Q: Another member asked if the presenter has a plan to do simulation considering both OFDMA and EDCA. 🡪 It will be the next step.
         3. C: There is no obvious description in the draft that 802.11ax can achieve 4 times throughput.
   2. **Sriram Venkateswaran (Broadcom) presented “Meeting PAR requirement with UL OFDMA,” based on the submission 11-16-1166-00.**
      1. Summary
         1. Evaluation of UL OFDMA performance from the view point of PHY.
         2. Throughput gain depends on the channel model as in slide 9.
         3. When the UMi-NLoS channel is assumed, throughput of 802.11ax can go more than 4 times of the 802.11ac throughput.
      2. Discussion
         1. A member asked which one of the parameters affects the performance most. The answer was the transmission power but, they are related each other.
         2. Another member asked about the details of GI and its impact on the performance. The authors of the document assumed 1.6 us GI.
         3. There was a comment that this level of SNR gain is not appropriate for the downlink. 🡪 The presenter agreed.
   3. **Hongjia Su (Huawei Technologies) presented “Preliminary 11ax PAR Verification,” based on the submission 11-16-1198-03.**
      1. Summary
         1. Simulation results of performance comparison between 11ac (OFDM) and 11ax (OFDMA) in scenarios 1, 2, and 3 are provided.
         2. Performance gain in SS1 is about 21%. In scenario 2, 188% improvement is achieved for the downlink traffic case while the gain achieved 278% for SS3 uplink scenario which is close to x4 improvement.
      2. Discussion
         1. A member asked a question about the simulation result on slide 5: Why performance of the uplink and downlink is reversed? 🡪 Scheduler will have the impact on the performance.
         2. Another member asked if the frequency selectivity is considered by the scheduler.
         3. There was a discussion to clarify the ACK procedure.
2. **AoB**
   1. Chair asked if we have any business that can be conducted
3. **Adjournment**
   1. **TGax ad hoc session adjourned @ 12:30 PM.**

**Monday, September 12th, 2016, PM2 TGax ad hoc sessions (16:00-18:00)**

Ad Hoc room assignment:

* PHY ad hoc: Ballroom C/D (2F)
* MAC ad hoc: Baltic I (3F)

**Monday, September 12th, 2016, PM3 TGax ad hoc sessions (19:30-21:30)**

Ad Hoc room assignment:

* PHY ad hoc: Ballroom C/D (2F)
* SR ad hoc: Baltic I (3F)

**Tuesday, September 13th, 2016, AM2 TGax ad hoc sessions (10:30-12:30)**

Ad Hoc room assignment:

* MU ad hoc: Ballroom C/D (2F)
* MAC ad hoc: Baltic I (3F)

**Tuesday, September 13th, 2016, PM2 TGax ad hoc sessions (16:00-18:00)**

Ad Hoc room assignment:

* PHY ad hoc: Ballroom C/D (2F)
* MAC ad hoc: Baltic I (3F)

**Wednesday, September 14th 2016, AM1 TGax Full Sessions (8:00-10:00)**

1. The meeting called to order by Osama Aboul-Magd (Huawei Technologies), the chair of the TGax, @8:03.
   1. About 120 people are in the room.
2. Announcements/Reminder
   1. Chair asked participants to state name and affiliation when speaking for the first time during the session.
   2. Chair reminded that the meeting is conducted under IEEE 802 and 802.11 P&P.
   3. Chair reminded attendance.
3. Agenda Setting
   1. Proposed agenda for this session
      1. Call Meeting to order
      2. IEEE 802 and 802.11 IPR Policy and procedure.
      3. Progress from Ad Hocs
      4. Presentations
         1. 11-16/1143, “11ax PAR Verification,” Paul Cheng (MediaTek)
         2. 11-16/1159, “Summary of Mandatory or Optional Features in 11ax,” Joonsuk Kim (Apple)
         3. 11-16/1223, “CR for Section 25.9.2 OBSS\_PD Spatial reuse” – SP, Laurent Cariou (Intel)
         4. 11-16/1219, “Consideration on CR for 2665 and 2715,” Jing Ma (NICT)
         5. 11-16/1225, “Heads We Win, Tails We Don't Lose: Proposals for Dynamic CCA” – move to Thursday AM2
      5. Recess
   2. Chair asked if there is any objection to proceed with this agenda. 🡪 No objection.
   3. The agenda for Wednesday AM1 was approved.
4. Progress from Ad Hoc groups
   1. PHY: 13 presentations remaining.
   2. MAC: 20 presentations to go.
   3. MU: 6 submissions left – all of them are comment resolutions.
   4. SR: 1 straw poll pending and two presentations remaining.
5. Presentations
   1. **Paul Cheng (MediaTek) presented “11ax PAR Verification,” based on the submission 11-16-1143r01.**
      1. Summary
         1. Presented performance comparison between OFDMA and legacy (11ac) devices in dense OBSS environment.
         2. Based on the residential scenario, performance of 802.11ac, 802.11ax (OFDMA) and 802.11ax (OFDMA) with OBSS\_PD are evaluated.
         3. The 11ax OFDMA performance gain over 11ac is about 1.6 (DL) and 1.3 (UL).
      2. Discussion
         1. A member commented that the author should check if MCS 5 is appropriate for UL MU. Also, commented that AP has higher Tx power and will see more interference source.
         2. Another member asked if the authors assumed any frequency diversity scheme. 🡪 Sounding is assumed for channel validation.
   2. **Joonsuk Kim (Apple) presented “Summary of Mandatory/Optional Features of 802.11ax,” based on the submission 11-16-1159r01.**
      1. Summary
         1. Proposed support level (mandatory/optional) for each of the PHY/MAC feature is explained.
      2. Discussion
         1. C: This is very good to craft PICS.
         2. C: Multiple BSSID element should be mandatory.
         3. C: A member requested that CM to be tied to the conditions.
         4. C: Do not understand the intention of this straw poll. Just to provide information, or requesting feedbacks?
         5. C: If it is really aligned to the draft, what will be the point of voting on this straw poll?
         6. This should be the basis for the PICS.
         7. There is another intention to make it resolution for CID #1849 in the future. There will be another document with editing instruction.
      3. **Straw Polls:** 
         1. **Straw Poll #1: Do you agree Mandatory/Optional features in 11ax, as described in "PHY MAC Feature" tab in 16/1159r1?**
            1. **Discussion**

**Do not understand the intention of this straw poll. What will be the anticipated action if the straw poll passes? 🡪 It will be the basis for the PICS.**

**C: It should be clearly stated that it will be the basis for the PICS.**

* + - * 1. **Result: Y/N/A = 51/9/12, straw poll passes.**

**This SP will not be converted to a motion. Joonsuk agreed.**

* + - 1. **Straw Poll #2: Do you agree to use 16/1159r1 as a reference to update PICS in the spec document in 11ax?**
         1. **Result: There is no objection to use this document as the basis for the PICS.**
  1. **Laurent Cariou (Intel) presented “CR for OBSS\_PD-based spatial reuse – 25.9.2,” based on the submission 11-16-1223r05.**
     1. Summary
        1. Laurent explained the CR document.
     2. Discussion
        1. A member commented that he/she would like to see this function is NOT allowed under some conditions. Not fully agree with this CR, but currently it is okay.
        2. There was a suggestion on the use of a technical term: “received PPDU” shall be used instead of “received frame.”
        3. Another member commented to bring back the removed sentences.
     3. **Straw Poll: Do you agree with the comment resolutions in document 1223r6 for CIDs 2386, 1232, 63, 463, 2663, 67, 641, 2913, 65, 462, 2742, 2743, 777, 255, 2665, 449, 68, 706, 1018, 2723, 1017, 1582, and 2667?**
        1. **Discussion: No discussion.**
        2. **Result: The straw poll accepted with no objection.**
  2. **Jing Ma (NICT) presented “Consideration on CR 2719 ,” based on the submission 11-16-1219r02.**
     1. Summary
        1. Suggested that CID #2719 should be carefully considered combining MAC and PHY for supporting color code based CCA.
        2. Proposed that baseline backoff procedure is maintained for SR operation.
        3. Receiver state machine should be modified to consider spatial reuse.
     2. Discussion
        1. A member mentioned that it is not good to put everything into the state machine.
        2. Another member mentioned that the state machine is informative. For normative behavior, text is needed. The CCA section needs to be modified for this proposal.

1. AOB
   1. Only 5 minutes left.
   2. No other business to conduct.
2. Recess
   1. TGax full session is in recess @9:55 AM, until Thursday AM2.

**Wednesday, September 14th 2016, PM1 TGax Ad Hoc Sessions (13:30-15:30)**

* PHY ad hoc 🡪 Ballroom C/D (2F).
* MAC ad hoc 🡪 Baltic I (3F).

**Wednesday, September 14th 2016, PM2 TGax ad hoc Sessions (16:00-18:00)**

* MU ad hoc 🡪 Ballroom C & D (2F).
* MAC ad hoc 🡪 Baltic I (3F).

**Thursday, September 15th 2016, AM1 TGax ad hoc Sessions (8:00-10:00)**

* PHY ad hoc 🡪 Ballroom C & D (2F).
* MAC ad hoc 🡪 Baltic I (3F).

**Thursday, September 15th, 2016, AM2 TGax full Session (10:30-12:30)**

1. **The meeting called to order by Osama Aboul-Magd (Huawei Technologies), the chairperson of the TGax, @10:32 AM**
   1. Agenda 16/1077r3 is on the server. Rev. 4 is the working document.
   2. Introduction of people at the front table.
2. **Announcement/Reminder**
   1. Chair reminded IEEE 802 and 802.11 IPR P&P.
   2. Chair asked people to state name and affiliation when addressing for the first time in the session.
   3. Chair reminded people to do attendance.
3. **Agenda for this session**
   1. Thursday AM2, PM1 and PM2
      1. Call Meeting to order
      2. Announcement/Reminder
         1. IEEE 802 and 802.11 IPR Policy and procedure.
         2. Attendance
      3. Agenda Setting
      4. Presentations
         1. 11-16/1225, “Heads We Win, Tails We Don't Lose: Proposals for Dynamic CCA,” Sean Coffey (RealTek)
         2. 11-16-1241, “CIDs for: Section 25.4 Trigger Frame Format-MU BAR Variant – Part 2,” George Cherian (Qualcomm)
      5. TG Motions
      6. Timeline update
      7. Goals for November 2016
      8. Teleconference schedule
      9. AOB
      10. Adjourn
   2. Chair asked if there are any modifications to the agenda.
   3. Agenda approved without objections.
4. **PHY Comment Assignment – Bo Sun (ZTE)**
   1. Assignment of PHY comments recently transferred from the editor.
   2. All comments are assigned.
5. **Presentations**
   1. **Sean Coffey (RealTek) presented “Heads We Win, Tails We Don't Lose: Proposals for Dynamic CCA,” based on the submission 11-16-1225-00.**
      1. Summary
         1. Dynamic CCA brings significant performance gain in limited circumstances and brings significant performance loss in many cases.
         2. Need control of interfering APs.
      2. Discussion
         1. C: We are struggling to achieve 4 times improvement. It is important to make use of spatial reuse technique.
   2. **George Cherian (Qualcomm) presented “CIDs for: Section 25.4 Trigger Frame Format-MU BAR Variant – Part 2,” based on the submission 11-16-1241-01.**
      1. Summary
         1. This is a leftover presentation from the MAC ad hoc.
         2. Resolutions for the four CIDs on the MU BAR variant of Trigger Frame format are proposed.
      2. Discussion
         1. These comments are initially assigned to the MU ad hoc but were transferred to the MAC ad hoc.
         2. Chair asked if there is any objection to the resolutions – nothing reported.
6. **TG Motions**
   1. **PHY Motion**
      1. **PHY Motion #166: Move to make the following changes to the spec.:.**

**Replace the following text in Subclause 26.3.5 P82 L65**

**The HE extended range SU PPDU is 20 MHz and can only be transmitted with the <HE-MCS, NSS> tuples <MCS 0, 1>, <MCS 1, 1> and <MCS 2, 1>**

**by**

**The HE extended range SU PPDU only supports single 242-tone and 106-tone RU. The 242-tone RU can only be transmitted with the <HE-MCS, NSS> tuples <MCS 0, 1>, <MCS 1, 1> and <MCS 2, 1>. The 106-tone RU can only be transmitted with the <HE-MCS, NSS> tuples <MCS 0, 1>. The 106-tone RU location within the 20MHz tone plan is fixed as the right one.**

* + - 1. **Moved by Bin Tian, Seconded by VK Jones**
      2. **Discussion – No discussion.**
      3. **Result: The motion was accepted with no objection.**
    1. **PHY Motion #167: Move to accept the spec text changes as shown in doc 11/16-1134r1 and add to the next revision of the TG draft.**
       1. **Moved by Yan Zhang, Seconded by Daewon Lee.**
       2. **Discussion – No discussion.**
       3. **Result: The motion was accepted with no objection**
    2. **PHY Motion #168: Move to accept the proposed spec text in doc 11-16/1170r1 and include it in the next revision of the TG draft.**
       1. **Moved by Sameer Vermani, Seconded by Bin Tian.**
       2. **Discussion – No discussion.**
       3. **Result: The motion was accepted with no objection.**
    3. **PHY Motion #169: Move to accept the proposed spec text in doc 11-16/1171r0 and include it in the next revision of the TG draft.**
       1. **Moved by Sameer Vermani, Seconded by Bin Tian.**
       2. **Discussion – No discussion.**
       3. **Result: The motion was accepted with no objection.**
    4. **PHY Motion #170: Move to add to 11ax spec draft D0.4 page 227 line 7 the following statement:**
* **A STA that applies beamforming (BF) in the UL should take the BF gain into account when calculating the transmit power needed to meet the target RSSI.** 
  + - 1. **Moved by Sriram Venkateswaran, Seconded by Zhou Lan.**
      2. **Discussion – No discussion.**
      3. **Result: The motion was accepted with no objection.**
    1. **PHY Motion #171: Move to add the proposed spec text changes in 11-16/1168r2 and include it in the next revision of the TG draft.**
       1. **Moved by Sriram Venkateswaran, Seconded by Bin Tian.**
       2. **Result: The motion was accepted with no objection.**
    2. **PHY Motion #172: Move to add the proposed spec text changes in 11-16/1179r4 and include in the next revision of the TG draft.**
       1. **Moved by Daewon Lee, Seconded by Sai Shankar Nandagopalan.**
       2. **Discussion - No discussion.**
       3. **Result: The motion was accepted with no objection.**
    3. **PHY Motion #173: Move to add the proposed spec text changes in 11-16/1194r1 and include it in the next revision of the TG draft.**
       1. **Moved by Daewon Lee, Seconded by Young Hoon Kwon.**
       2. **Discussion – No discussion.**
       3. **Result: The motion was accepted with no objection.**
    4. **PHY Motion #174: Move to add the proposed spec text changes in 11-16/1242r1 and include it in the next revision of the TG draft.**
       1. **Moved by Yan Zhang, Seconded by Daewon Lee.**
       2. **Discussion – No discussion.**
       3. **Result: The motion was accepted with no objection.**
  1. **MU Motions**
     1. **MU Motion #58: Move to add the following text after the end of the first paragraph of section 10.3.2.11.3 of the draft spec:**

**Specifically, when an AP transmits an immediate acknowledgement in HE MU PPDU in response to (A-)MPDU sent in HE trigger-based PPDU, the AP should send it within the 20 MHz channel(s) where the pre-HE modulated fields of the HE trigger-based PPDU sent by the STA are located. The immediate acknowledgement is either Block Ack frame (or Ack frame) or Multi-STA Block Ack frame.**

* + - 1. **Moved by Ming Gan, Seconded by David Xun Yang.**
      2. **Discussion – No discussion.**
      3. **Result: The motion was accepted with no objection.**
    1. **MU Motion #59: Move to add the following paragraph after the first paragraph of section 25.4.1**

**A HE AP should only transmit group addressed M-BA in the DL MU PPDU to HE non AP STA *n* on the (broadcast RU) RU (26/52/106/242/484/996) that includes the RU used for receiving the immediate preceding HE Trigger Based PPDU from STA *n*. There shall be no more than one M-BA that is addressed to multiple recipients carried in a broadcast RU of the DL MU PPDU.**

* + - 1. **Moved by Zhou Lan, Seconded by Sriram Venkateswaran.**
      2. **Discussion – No discussion.**
      3. **Result: The motion was accepted with no objection.**
    1. **MU Motion #60: Move to add the following text to the next revision of the TG draft**
* ***TGax editor: Add the Paragraph on page 40 line 62 as the following:***
  + - **An MU-RTS frame shall not be carried in an HE MU PPDU.**
      1. **Moved by Ko-Kai Huang, Seconded by Robert Stacy.**
      2. **Discussion – No discussion.**
      3. **Result: The motion was accepted with no objection.**
  1. **MAC Motions**
     1. **MAC Motion #88: Move to accept the proposed text in document 16/0884r5 and include it in the next revision of the TG draft.**
        1. **Moved by Tianyu Wu, Seconded by David Xun Yan.**
        2. **Discussion - No discussion.**
        3. **Result: The motion was accepted with no objection.**
     2. **MAC Motion #89: Move to accept the proposed text in document 16/0925r1 and include it in the next revision of the TG draft.**
        1. **Moved by Weimin Xing, Seconded by Kaiying Lv.**
        2. **Discussion – No discussion.**
        3. **Result: The motion was accepted with no objection.**
     3. **MAC Motion #90: Move to add the following sentence to the section 25.5.2.2.3 AP access procedures for UL MU operation on page 92 line 31, draft D0.4.**
        + **An AP may send the Trigger frame using any access category and follows the rules defined in 10.22.2 (HCF contention based channel access (EDCA)) for obtaining and sharing the TXOP**
        1. **Moved by Jing Ma, Seconded by Young Hoon Kwon.**
        2. **Discussion – No discussion.**
        3. **Result: The motion was accepted with no objection.**
     4. **MAC Motion #91: Move to accept the spec changes proposed in document 16/1180r1 and include them in the next revision of the TG draft.**
        1. **Moved by Po-Kai Huang, Seconded by Young Hoon Kwon.**
        2. **Discussion – No discussion.**
        3. **Result: The motion was accepted with no objection.**
     5. **MAC Motion #92: Move to instruct the TGax Editor to make the following changes:** 
        + ***TGax Editor: Change the paragraph below of 9.3.1.23.1 of D0.4 as follows:***
        + **The TID Aggregation Limit subfield indicates the maximum number of TIDs minus 1 that can be aggregated by a STA in a multi-TID A-MPDU carried in the responding HE trigger-based PPDU.**
        + **NOTE– A value of 7 in the TID Aggregation Limit subfield indicates to the STA that it can aggregate QoS Data frames from any number of different TID values in the multi-TID A-MPDU.**
        + ***TGax Editor: Change the paragraph below of 25.5.2.2.2 of D0.4 as follows:***
        + **The AP shall set the value in the TID Aggregation Limit subfield in the Type dependent Per User Information field to 0 or 1 for an HE STA with STA that has indicated a zero value in the Multi-TID Aggregation Support field of the HE Capabilities element it transmits and is identified by the AID12 subfield of the User Info field of a Basic Trigger variant Trigger frame (see 9.3.1.23 (Trigger frame format)).(#2669) A value of zero indicates to the STA that it shall not solicit any immediate response for the MPDUs that the STA aggregates in the Trigger-based PPDU.**
        1. **Moved by Alfred Asterjadhi, Seconded by George Cherian.**
        2. **Discussion – No discussion.**
        3. **Result: The motion was accepted with no objection.**
     6. **MAC Motion #93: Move to accept the proposed spec text change in document 16/1205r0 and include it in the next revision of the TG draft.**
        1. **Moved by Geonjung Ko, Seconded by John Son.**
        2. **Discussion – No discussion.**
        3. **Result: The motion was accepted with no objection.**

**Recess @12:24 until PM1.**

**Thursday, September 15th, 2016, PM1 TGax full Session (13:30-15:30)**

1. **The meeting called to order by Osama Aboul-Magd (Huawei Technologies)**
   1. The agenda file: 11-16-1077-04.
2. **Announcement**
   1. Chair reminded IEEE 802 and 802.11 IPR P&P.
   2. Chair asked people to state name and affiliation when addressing for the first time in the session.
   3. Chair reminded people to do attendance.
3. **Agenda for today’s sessions**
   1. Thursday AM2, PM1 and PM2
      1. Call Meeting to order
      2. Announcement/Reminder
         1. IEEE 802 and 802.11 IPR Policy and procedure.
         2. Attendance
      3. Agenda Setting
      4. Presentations
         1. 11-16/1225, “Heads We Win, Tails We Don't Lose: Proposals for Dynamic CCA,” Sean Coffey (RealTek)
         2. 11-16-1241, “CIDs for: Section 25.4 Trigger Frame Format-MU BAR Variant – Part 2,” George Cherian (Qualcomm)
      5. TG Motions
      6. Timeline update
      7. Goals for November 2016
      8. Teleconference schedule
      9. AOB
      10. Adjourn
   2. Chair asked if there are any modifications to the agenda.
   3. Agenda approved without objections.
4. **TG Motions (continued from AM2)**
   1. **CR Motions**
      1. **CR Motion #65: Move to accept resolutions to CIDs; 1467, 635, 2648, 2708, 1544, 1545, 2649, 437, 1542, 990, 2256, 1543, 599 in doc 11-16/0885r3.**
         1. **Moved by Po-Kai Huang, Seconded by Alfred Asterjadhi.**
         2. **Discussion – No discussion.**
         3. **Result: The motion was accepted with no objection.**
      2. **CR Motion #66: Move to accept resolutions to CIDs; 177, 2188, 1220, 206, 700 in doc 11-16/0886r3.**
         1. **Moved by Moved by Po-Kai Huang, Seconded by Alfred Asterjadhi.**
         2. **Discussion – No discussion.**
         3. **Result: The motion was accepted with no objection.**
      3. **CR Motion #67: Move to accept resolutions to CIDs; 2579, 1203, 795, 610, 2408, 2375, 2184, 1263, 1264, 2409, 2410, 2411 in doc 11-16/0890r2.**
         1. **Moved by Po-Kai Huang, Seconded by Kiseon Ryu.**
         2. **Discussion – No discussion.**
         3. **Result: The motion was accepted with no objection.**
      4. **CR Motion #68: Move to accept resolutions to CIDs; 1218, 31, 168, 752, 1495, 1498, 1499, 1500, 1664, 1795, 1900, 2319, 813 doc 11-16/1028r3.**
         1. **Moved by Bin Tian, Seconded by Alfred Asterjadhi.**
         2. **Discussion – No discussion.**
         3. **Result: The motion was accepted with no objection.**
      5. **CR Motion #69: Move to accept resolutions to CID; 32, 33, 169, 221, 250, 427, 429, 753, 754, 755, 756, 1502, 1503, 1504, 1505, 1506, 1508, 1801, 1901, 1902, 1903, 2632, 2633, 2634, 2635 in doc 11-16/930r3.**
         1. **Moved by Alfred Asterjadhi, Seconded by VK Jones.**
         2. **Discussion – No discussion.**
         3. **Result: The motion was accepted with no objection.**
      6. **CR Motion #70: Move to accept resolutions to CIDs; 34, 35, 36, 39, 40, 42, 43, 44, 170, 172, 173, 174, 175, 176, 432, 436, 460, 591, 593, 594, 676, 677, 678, 698, 699, 800, 815, 816, 859, 860, 862, 968, 977, 997, 1078, 1079, 1080, 1081, 1082, 1184, 1438, 1519, 1522, 1530, 1531, 1534, 1538, 1541, 1646, 1648, 1665, 1753, 1772, 1802, 1828, 1904, 1905, 1906, 1909, 1910, 1911, 1912, 2173, 2175, 2176, 2194, 2255, 2271, 2321, 2381, 2382, 2452, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2644, 2645, 2646, 2682, 2706, 2707 in doc 11-16/0929r3.**
         1. **Moved by Alfred Asterjadhi, Seconded by Bin Tian.**
         2. **Discussion – No discussion.**
         3. **Result: The motion was accepted with no objection.**
      7. **CR Motion #71: Move to accept resolutions to CIDs; 112, 380, 381, 456, 539, 689, 690, 1154, 1316, 1862 in doc 11-16/1097r1.**
         1. **Moved by Sameer Vermani, Seconded by Bin Tian.**
         2. **Discussion – No discussion.**
         3. **Result: The motion was accepted with no objection.**
      8. **CR Motion #72: Move to accept resolutions to CIDs; 1743, 1775, 1638, 785, 1742, 164, 1636, 28, 163, 2317, 1463, 2625, 2702, 2703, 2704, 2705, 422, 748, 1216, 1744, 1759, 866, 788, 2739, 220, 1014, 1011, 746, 1466, 709, 27, 1469, 2473, 747, 2491, 1215, 29 in doc 11-16/1106r2.**
         1. **Moved by Po-Kai Huang, Seconded by Kiseon Ryu.**
         2. **Discussion – No discussion.**
         3. **Result: The motion was accepted with no objection.**
      9. **CR Motion #73: Move to accept resolutions to CIDs; 2207, 857, 2611, 2612, 1429, 1434, 1435, 1817 in doc 11-16/1127r0.**
         1. **Moved by Alfred Asterjadhi, Seconded Bin Tian.**
         2. **Discussion – No discussion.**
         3. **Result: The motion was accepted with no objection.**
      10. **CR Motion #74: Move to accept resolutions to CIDs; 995, 2597, 2584 in doc 11-16/1122r0.**
          1. **Moved by Po-Kai Huang, Seconded by Kiseon Ryu.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      11. **CR Motion #75: Move to accept resolutions to CIDs; 83, 1227, 1228, 1229, 1238, 1239, 1240, 2292, 2293, 2294, 2304, 2305, 2306, 1125, 1230, 1241, 1596, 1869, 2420, 1123 in doc 11-16/0864r6.**
          1. **Moved by Yasuhiko Inoue, Seconded by Alfred Asterjadhi.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      12. **CR Motion #76: Move to accept resolutions to CIDs; 2386, 1232, 63, 463, 2663, 67, 641, 2913, 65, 462, 2742, 2743, 777, 255, 2665, 449, 68, 706, 1018, 2723, 1017, 1582, and 2667 in doc 1223r6.**
          1. **Moved by Po-Kai Huang, Seconded by Chittabrata Ghosh.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      13. **CR Motion #77: Move to approve resolutions of CIDs; 2664 and 2744 in doc 11-16/1178r0.**
          1. **Moved by Young Hoon Kwon, Seconded by Daewon Lee.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      14. **CR Motion #78: Move to accept resolution to CID 979 in doc 11-16/0876r2.**
          1. **Moved by Kiseon Ryu, Seconded by Alfred Asterjadhi.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      15. **CR Motion #79: Move to approve resolutions to CIDs; 1927, 2521, 2522, 2523, 2107, 2108 in doc 11-16/1135r2.**
          1. **Moved by Yan Zhang, Seconded by Bo Sun.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      16. **CR Motion #80: Move to approve resolutions to CIDs; 286, 290, 2137, 287, 288, 289, 528, 1676, 1980, 1982, 1983, 2417, 2418, 2419, 298, 299, 300, 1979, 2370, 901, 1847, 1967, 1968, 1970, 1971, 1973, 1974, 1976, 1977, 1978 in doc 11-16/1136r5.**
          1. **Moved by Yan Zhang, Seconded by Bo Sun.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      17. **CR Motion #81: Move to approve resolutions of CIDs; 294, 873, 1099, 1698, 1997, 1998, 1999, 2000, 2019, 2531, 2540, 2541 and 2542 in doc 11-16/1137r4.**
          1. **Moved by Yan Zhang, Seconded by Daewon Lee.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      18. **CR Motion #82: Move to approve the resolutions of CIDs; 2097, 2099, 2563, 2564, 2726, 2881, 484 in doc 11-16/1138r4.**
          1. **Moved by Yan Zhang, Seconded by Bo Sun.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      19. **CR Motion #83: Move to approve the resolutions of CIDs; 1022, 2864, 2678, 2016, 2011, 2010, 2001, and 226 in doc 11-16/1148r6.**
          1. **Moved by Ross Jian Yu, Seconded by Bo Sun.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      20. **CR Motion #84: Move to approve the resolutions of CIDs; 304, 2035, 2033, 527, 478, 2550, 2157, 2131 in doc 11-16/1149r1.**
          1. **Moved by Ross Jian Yu, Seconded by Bo Sun.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      21. **CR Motion #85: Move to accept resolutions to CIDs; 1459, 2100, 2101, 2102, 2104, 2135, 2568, 2569, 2570, 2571, 2573, 1414, 1626, 2015, and 336 in doc 11-16/1150r3.**
          1. **Moved by Ross Jian Yu, Seconded by Bo Sun.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      22. **CR Motion #86: Move to approve resolution of CID 355 in doc 11-16/1160r0.**
          1. **Moved by Eunsung Park, Seconded by Jinsoo Choi.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      23. **CR Motion #87: Move to approve resolutions to CIDs; 834, 1030, 1604, 1861, 2242, and 2919 in doc 11-16/1176r1.**
          1. **Moved by Sameer Vermani, Seconded by Bo Sun.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      24. **CR Motion #88: Move to accept resolutions to CIDs; 506, 851, 1024, 1628, 1693, 1694, 1696, 2159, 2162, 2163, 2165, 2166 in doc 11-16/1169r1.**
          1. **Moved by Sriram Venkateswaran, Seconded by Bo Sun.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      25. **CR Motion #89: Move to approve resolutions to CIDs; 1778, 1784, 2063, 2064, 2065, 2069, 2071, 2073, 2074, 925, 2561, 2560, 2562, 2076, 2070, 332, 2075, 328, 329, 331, 2160, 2161, 2164, 2067 in doc 11-16/1259r2.**
          1. **Moved by Sriram Venkateswaran, Seconded by Bo Sun.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      26. **CR Motion #90: Move to approve resolutions to CIDs; 538, 496, 497, 498, 499, 344, 501, 1026, 1115, 2351, 500 in doc 11-16/1191r2.**
          1. **Moved by Daewon Lee, Seconded by Young Hoon Kwon.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      27. **CR Motion #91: Move to approve the resolution of CID 1450 in doc 11-16/1192r0.**
          1. **Moved by Daewon Lee, Seconded by Young Hoon Kwon.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      28. **CR Motion #92: Move to accept resolutions to CIDs 4 and 2740 in doc 11-16/1193r1.**
          1. **Moved by Daewon Lee, Seconded by Young Hoon Kwon.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      29. **CR Motion #93: Move to accept resolutions to CIDs; 503, 504 and 2750 in doc 11-16/1233r1.**
          1. **Moved by Daewon Lee, Seconded by Young Hoon Kwon.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      30. **CR Motion #94: Move to accept resolutions to CIDs; 327, 2442 in doc 11-16/0942r3.**
          1. **Moved by Min Gang, Seconded by Peter Loc.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      31. **CR Motion #95: Move to approve resolution of CIDs 55, 1000, 1221, 1915, 2234, 802, 1695, 1222, 182, 971, 2713, 702, 1916, 2233, 223 as proposed in doc 11-16/0773r4.**
          1. **Moved by Sameer Vermani, Seconded by Bin Tian.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      32. **CR Motion #96: Move to approve resolution of CIDs 787 and 2471 as proposed in doc 11-16/1158r3.**
          1. **Moved by Jeongki Kim, Seconded by Kiseon Ryu.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      33. **CR Motion #97: Move to approve resolution of CIDs 49, 601, 442, 2385, 51, 602, 1198, 2684, 181, 440 and 2291 as proposed in doc 11-16/1162r4.**
          1. **Moved by Yunbo Li, Seconded by Ross Jian Yu.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      34. **CR Motion #98: Move to approve resolutions of CIDs 18, 204, 626, 673, 737, 738, 810, 1440, 1660, 2193, 2283, 2447, 2613, 2614 and 992 as proposed in doc 11-16/1177r2.**
          1. **Moved by Young Hoon Kwon, Seconded by Peter Loc.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      35. **CR Motion #99: Move to approve resolution of CIDs 5, 108, 512, 566, 567, 615, 665, 973, 1308, 1815, 2220, 2252, 2423, 2585 and 2586 as proposed in doc 11-16/1239r1.**
          1. **Moved by George Cherian, Seconded by Kiseon Ryu.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      36. **CR Motion #100: Move to approve resolution of CIDs 863, 219, 411, 2380, 2609, 671, 2115, 986 and 734 as proposed in doc 11-16/1183r3.**
          1. **Moved by Liwen Chu, Seconded by Kiseon Ryu.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      37. **CR Motion #101: Move to approve resolution of CIDs 47, 48, 179, 180, 450, 600, 701, 801, 820, 988, 1084, 1199, 1201, 1913, 1914 and 2384 as proposed in doc 11-16/1222r1.**
          1. **Moved by Chittabrata Ghosh, Seconded by Po-Kai Huang.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      38. **CR Motion #102: Move to approve resolution of CIDs 2316, 631, 811, 2905, 2257, 632, 205 and 966 as proposed in doc 11-16/1173r2.**
          1. **Moved by Po-Kai Huang, Seconded by Chittabrata Ghosh.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      39. **CR Motion #103: Move to accept resolutions to CIDs: 1315, 2424, 2589, 2590, 2591 in doc 11-16/0869r2.**
          1. **Moved by Zhou Lan, Seconded by Alfred Asterjadhi.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      40. **CR Motion #104: Move to accept resolutions to CIDs: 2, 60, 61, 184, 185, 207, 445, 446, 655, 685, 775, 856, 1223, 1224, 1562, 1565, 1568, 1569, 1572, 1573, 1574, 2200, 2236, 2238, 2239, 2328, 2330, 2657 in doc 11-16/0881r2.**
          1. **Moved by Jayh Park, Seconded by Brian Hart.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      41. **CR Motion #105: Move to accept resolution for CIDs: 152 in doc 11-16/0883r1.**
          1. **Moved by Jayh Park, Seconded by Alfred Asterjadhi.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      42. **CR Motion #106: Move to accept resolutions to CIDs: 1477, 675, 423, 166, 1823, 2270, 2268, 2254, 2198, 1824, 1818, 1800, 1796, 1663, 1491, 1489, 1488, 2630 in doc 11-16/0941r0.**
          1. **Moved by Min Gang, Seconded by Peter Loc.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      43. **CR Motion #107: Move to accept resolutions to CIDs: 2468, 2470, 2448, 2450, 2451, 809 in doc 11-16/1110r0.**
          1. **Moved by Yongho Seok, Seconded by Young Hoon Kwon.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      44. **CR Motion #108: Move to accept resolutions to CIDs; 2445, 2457, 2494, 2395 in doc 11-16/1131r2.**
          1. **Moved by Yongho Seok, Seconded by Young Hoon Kwon.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      45. **CR Motion #109: Move to accept resolutions to CIDs: 129, 130, 131, 132, 405, 406, 407, 408, 672 in doc 11-16/1157r0.**
          1. **Moved by Jeongki Kim, Seconded by Young Hoon Kwon.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      46. **CR Motion #110: Move to accept resolutions to CIDs: 2258, 2446, 1588, 1645 in doc 11-16/1184r1.**
          1. **Moved by Liwen Chu, Seconded by Lei Wang.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      47. **CR Motion #111: Move to accept resolutions for CIDs: 984, 70, 229, 191, 2670, 1379, 1380 in doc 11-16/1185r2.**
          1. **Moved by Liwen Chu, Seconded by Lei Wang.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      48. **CR Motion #112: Move to accept resolutions for CIDs: 95, 365, 656, 794, 1134, 1135, 1260, 2298, 2407, 2463, 2469, 2658, 2659 in doc 11-16/0882r3.**
          1. **Moved by Jayh Park, Seconded by Alfred Asterjadhi.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      49. **CR Motion #113: Do you agree to add to the 11ax specification D0.1 the comment resolutions in document 16/1189r2 for CIDs: 1214, 1779, 1658, 2899, 959, 416, 1735, 740, 1445, 1639, 137, 139, 2398, 2399, 1640, 1738, 2616, 1651, 1652, 1736, 1737, 742, 25, 138, 2617, 1653, 744, 957, 26, 141, 420, 142, 2618, 1741, 1874, 2400, 2845, 1649, 1650, 1740, 1739, 695, 1641, 976, 144, 1077, 145, 146, 452, 1642, 2619, 2621, 1643, 1647, 958, 745, 586, 143, 2622, 2820, 1656, 1654, 1657, 1646, 1318, 544, 155, 153, 151 in doc 11-16/1189r2..**
          1. **Moved by Alfred Asterjadhi, Seconded by Reza Hedayat.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      50. **CR Motion #114: Move to accept resolutions for CIDs: 2313, 1410, 1454, 1728, 1897, 1411, 1729, 1898, 1899, 1730, 1731, 1403, 1427, 1409, 20, 1732, 1733, 17, 133 in doc 11-16/1210r1.**
          1. **Moved by Junichi Iwatani, Seconded by Yasuhiko Inoue.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      51. **CR Motion #115: Move to accept resolutions for CIDs:122, 576, 972, 2598 in doc 11-16/1211r2.**
          1. **Moved by Huizao Wang, Seconded by Zhou Lan.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      52. **CR Motion #116: Move to accept resolutions to CIDs; 1865 323 481 517 537 920 319 1059 2559 2551 2552 2553 2554 2555 2556 2557 2558 923 in doc 11-16/1202r5.**
          1. **Moved by Ming Gan, Seconded by Bo Sun.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      53. **CR Motion #117: Move to accept resolutions to CIDs; 841,1787,1945, 1946,1949,1950,1965,2365,2366,2524,2525,2526,2918 in doc 11-16/1227r2.**
          1. **Moved by Po-Kai Huang, Seconded by Chittabrata Ghosh.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      54. **CR Motion #118: Move to accept resolutions for CIDs: 805, 1354, 1356, 1357, 1358, 1360, 1359, 668, 1792, 2475, 2477, 2478, 2479, 2480, 1527, 2263, 120, 1366, 10, 1368, 1369, 1371, 1372, 1374, 1375, 394, 11,12, 669, 1378, 1376, 2455, 2592, 1381, 1384, 2456, 1377, 1635, 1804, 2309, 1367, 670, 2593, 2594, 2595, 1386 in doc 11-16/1186r1.**
          1. **Moved by Liwen Chi, Seconded by Lei Wang.**
          2. **Discussion – No discussion.**
          3. **Result: The motion was accepted with no objection.**
      55. **CR Motion #119: Moved to add to the 11ax draft comment resolutions in document 16/1266r3 for CIDs:**

**113 114 115 116 117 156 196 197 198 199 200 201 202 213 263 264 267 387 388 389 390 391 392 393 457 571 572 573 620 621 666 667 682 723 724 1027 1152 1156 1157 1158 1159 1160 1161 1162 1163 1164 1183 1205 1206 1207 1314 1319 1320 1321 1322 1323 1324 1325 1327 1332 1333 1335 1343 1344 1346 1347 1348 1352 1415 1452 1453 1655 1679 1680 1721 1723 1724 1725 1764 1797 1798 1799 1803 1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 1896 2253 2276 2277 2278 2307 2308 2377 2390 2391 2392 2393 2394 2425 2426 2427 2466 2830 2831 2832 2836 2837 2838 2839**

* + - 1. **Moved by Brian Hart, Seconded by Yasuhiko Inoue.**
      2. **Discussion – No discussion.**
      3. **Result: The motion was accepted with no objection.**
    1. **CR Motion #120: Move to accept resolutions to CIDs; 567,665, 2220,2586 in doc 11-16/1241r1.**
       1. **Moved by George Cherian, Seconded by Reza Hedayat.**
       2. **Discussion – No discussion.**
       3. **Result: The motion was accepted with no objection.**

1. **Recess@15:30 until PM2**

**Thursday, September 15th, 2016, PM2 TGax full Session (16:00-18:00)**

1. **The meeting called to order by Osama Aboul-Magd (Huawei Technologies)@16:01**
   1. The agenda file: 11-16-1077-04.
2. **Announcement**
   1. Chair reminded IEEE 802 and 802.11 IPR P&P.
   2. Chair asked people to state name and affiliation when addressing for the first time in the session.
   3. Chair reminded people to do attendance.
3. **Agenda for today’s sessions**
   1. Thursday AM2, PM1 and PM2
      1. Call Meeting to order
      2. Announcement/Reminder
         1. IEEE 802 and 802.11 IPR Policy and procedure.
         2. Attendance
      3. Agenda Setting
      4. Presentations
         1. 11-16/1225, “Heads We Win, Tails We Don't Lose: Proposals for Dynamic CCA,” Sean Coffey (RealTek)
         2. 11-16-1241, “CIDs for: Section 25.4 Trigger Frame Format-MU BAR Variant – Part 2,” George Cherian (Qualcomm)
      5. TG Motions
      6. Timeline update
      7. Goals for November 2016
      8. Teleconference schedule
      9. AOB
      10. Adjourn
   2. Chair asked if there are any modifications to the agenda.
   3. Agenda approved without objections.
4. **TG Motions**
   1. **CR Motion**
      1. **CR Motion #121: The comment resolution to the following CIDs is “Revised” since they have been resolved in D0.4 or by approved resolutions to other CIDs?**
         * **CID 2745, 1981, 1025, 502, 1666, 284, 1670, 1788, 1672, 1675, 2139, 1622, 1681, 295, 297, 2182, 309**

**Move to accept the resolution of the above CIDs as “Revised”.**

* + - 1. **Moved by Bo Sun, Seconded by Bin Tian.**
      2. **Discussion – No discussion.**
      3. **Result: The motion was accepted with no objection.**
    1. **CR Motion #122: The comment resolution to CID 261 is “Rejected” with the reason “HE modulated field consists HE-STF, HE-LTF and HE-DATA only as defined in 26.3.2”**

**Move to accept “Rejected” as the resolution to CID 261.**

* + - 1. **Moved by Bo Sun, Seconded by Bin Tian.**
      2. **Discussion – No discussion.**
      3. **Result: The motion was accepted with no objection.**
    1. **CR Motion #123: The comment resolution to CID 1458 is “Rejected” with the reason “The commenter failed to provide an applicable changes to the spec.”**

**Move to accept “Rejected” as the resolution to CID 1458.**

* + - 1. **Moved by Bo Sun, Seconded by Bin Tian.**
      2. **Discussion – No discussion.**
      3. **Result: The motion was accepted with no objection.**
  1. **SR Motion**
     1. **SR Motion #12: Move to accept the modifications as proposed in submission 11-16/0947r12 and include it in the next TG draft**
        1. **Moved by Matt Fischer, Seconded by Alfred Asterjadhi**
        2. **Discussion: A member expressed objection to this motion and proposed an amendment to the motion.**
     2. **Motion to amend SR Motion #12: Move to amend the motion (2016-09 SR #12) as follows:**
     + **Alter to:**
       - **Move to accept the modifications as proposed in submission 11-16/0947r12, with the normative text**

**“In the SR subfield of the HE-SIGA field:**

* + - * + **One entry disallows SRP-based SR;**
        + **One entry disallows both SRP-based SR and OBSS\_PD-based SR.”**

**added in Section 25.9.2,**

**and include it in the next TG draft**

* + - 1. **Moved by Sean Coffey, Seconded by George Cherian.**
      2. **Result: Y/N/A = 26/22/17, motion passes (requires simple majority)**
      3. **The SR Motion #12 was amended.**
    1. **SR Motion #12A: Move to accept the modifications as proposed in submission 11-16/0947r12, with the normative text “In the SR subfield of the HE-SIGA field:**
* **One entry disallows SRP-based SR;**
* **One entry disallows both SRP-based SR and OBSS\_PD-based SR.”**

**added in Section 25.9.2,**

**and include it in the next TG draft**

* + - 1. **Moved by Sean Coffey, Seconded by George Cherian.**
      2. **Discussion: A member commented that we should not revisit whole things. Another member asked for further amendment to the amended motion.**
    1. **Motion to amend SR Motion #12A: Amend to read as:**

**“Move to accept the modifications as proposed in submission 11-16/0947r12, with the normative text**

**“In the SR subfield of the HE-SIGA field:**

* + - **One entry disallows both SRP-based SR and OBSS\_PD-based SR.”**

**added in Section 25.9.2,**

**and include it in the next TG draft”**

* + - 1. **Moved by Matt Fischer, Seconded by Bin Tian.**
      2. **Discussion: TG editor mentioned it does not make sense since it was not clear what would be the instruction to the editor.**
      3. **Result: Y/N/A = 39/14/9, motion passes (requires simple majority).**
      4. **The SR Motion #12A was amended.**
    1. **SR Motion #12B:**

**“Move to accept the modifications as proposed in submission 11-16/0947r12, with the normative text**

**“In the SR subfield of the HE-SIGA field:**

* **One entry disallows both SRP-based SR and OBSS\_PD-based SR.”**

**added in Section 25.9.2,**

**and include it in the next TG draft”**

* + - 1. **Moved by Matt Fischer, Seconded by Bin Tian.**
      2. **Discussion: A member objected since it has nothing to do with HE-SIG-A.**
      3. **Result: Y/N/A = 44/21/4, motion fails (it requires >= 75% approval)**

There was a request from the proposer of the SR Motion #12 to run the original SR Motion #12. After long discussion and consultation with WG 1st vice chair, it was concluded that the request could be considered if motion to reconsider passed.

* + 1. **Motion to reconsider SR Motion #12: Move to reconsider SR Motion #12.**
       1. **Moved by Robert Stacy, Seconded by Po-Kai Huang.**
       2. **Discussion: No.**
       3. **Result: Y/N/A = 34/5/25, motion passes.**
       4. **Back to the original SR Motion #12.**
    2. **Original SR Motion #12: Move to accept the modifications as proposed in submission 11-16/0947r12 and include it in the next TG draft**
       1. **Moved by Matt Fischer, Seconded by Alfred Asterjadhi**
       2. **Discussion: No.**
       3. **Result: Y/N/A = 27/10/21, motion fails (requires >= 75% approval)**

1. **Timeline discussion**
   1. **Current timeline**
      1. May 2014: start of the TG
      2. Nov. 2014: First draft of the TG SFD was approved
      3. Jan. 2016: proposed TG draft
      4. March 2016: Draft D0.1 was approved and CC started
      5. **September 2016: Draft 1.0 and WG letter ballot**
      6. March 2017: Draft 2.0 and recirculation
      7. July 2017: MDR (Mandatory Document Review)
      8. November 2017: Formation of SB pool
      9. March 2018: Sponsor Ballot
      10. December 2018: RevCom
   2. **Modified timeline**
      1. May 2014: start of the TG
      2. Nov. 2014: First draft of the TG SFD was approved
      3. Jan. 2016: proposed TG draft
      4. March 2016: Draft D0.1 was approved and CC started
      5. **November 2016: Draft 1.0 and WG letter ballot**
      6. **May 2017: Draft 2.0 and recirculation**
      7. **November 2017: MDR (Mandatory Document Review)**
      8. **January 2018: Formation of SB pool**
      9. March 2018: Sponsor Ballot
      10. December 2018: RevCom
2. **Teleconferences**
   1. Weekly conference calls are planned after September session.

* Thursday Sept 29, Oct 20 10:00 - 12:00 ET
* Thursday Oct 13 20:00 - 22:00 ET
* Thursday Oct 27 10:00 - 12:00 ET
* Thursday Nov 17 10:00 - 12:00 ET

1. **Presentations**
   1. **Yan Zhang (Marvell) presented “**11ax Comment Resolutions for Clauses 26.3.2 and 26.3.9**,” based on the submission 11-16-1277-00.**
      1. Summary
         1. This submission proposes resolutions for comments submitted for TGax D0.1 with the following CIDs (4 CIDs)
            1. Clause 26.3.2: #1034, #1035, #1036,
            2. Clause 26.3.9: #2138.
         2. All these comments have been resolved in the resolution for other CIDs.
         3. No change will be needed.
      2. Discussion – No discussion.
      3. **Motion**
         1. **CR Motion #124: Move to accept resolutions to CIDs, 1034, 1035, 1036, and 2138 in doc 11-16/1277r1.**
            1. **Moved by Yan Zhang, Seconded by Bo Sun.**
            2. **Discussion – No discussion.**
            3. **Result: The motion was accepted with no objection.**
2. **AOB**
   1. **No other business to conduct.**
3. **Adjournment**
   1. TGax adjourned for the week @ 17:37.