IEEE P802.11  
Wireless LANs

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| TGaz telecon minutes March-May 2020 | | | | |
| Date: 2020-01-29 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Assaf Kasher | Qualcomm |  |  | akasher@qti.qualcomm.com |
|  |  |  |  |  |

Abstract

This document contains teleon minutes from TGaz Telecons between the canceled March 2020 Plenary and the (cancelled) May 2020 interim

1. **TGaz – 25th March, 2020** 
   1. Called to order by TGaz Chair, Jonathan Segev (Intel Corporation) and Vice Chair and secretery (active), Assaf Kasher (Qualcomm), at **10:02am PDT,**
   2. Agenda Doc. **IEEE 802.11-20/0537r1 (in progress - slide 21)**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, and, and logistics – no clarifications requested.
      2. Chair called for any potentially essential patents, no one stepped forward.
      3. Chair reviewed IEEE copyright policy, and anti-trust requirements – no clarification requested.
      4. Chair reviewed IEEE 802 WG participation as an individual professional, in a fair and equitable manner – no clarification requested
      5. Recorded Participation requirement
         1. Headcount: ~15 present
   4. Review Agenda
      1. Agenda review and setting: reviewed submission list for the meeting
         1. 11-20-385 Some Passive Ranging Considerations
         2. 11-20-368 Comment Resolution LB249 11.22.6.4.3. part 2
   5. Christian Berger Presented 11-20-368
      1. Title: Comment Resolution LB249 11.22.6.4.3
         1. CID 3715 – Revised (type corrected)
         2. CID 3781 – Removed – needs more discussion and more work
         3. CID 3247 – Dicsussio –
            1. C – this is a recommendation not necessarily tied to secure mode.
            2. R – This refers specifically to secure mode
            3. C – this should be a note and not informative
            4. C – this should be moved to the secure section
            5. Starwpoll:

Option 1: Adopt the resolution as presented in 11-20-268r1

Option 2: Remove ‘In the secured mode’, Leave text in current section and change to a note

Results: O1/O2/Neither/Abstain: (2/9/0/3)

* + - * 1. 3247 impelemented accoding to option 2 (revise)
      1. CID 3907 – revise as in 3247
      2. CID 3685 – Accept
      3. CID 3686 – will brought again
      4. CID 3719 – Accepted
    1. Strawpoll:  
       We agree to CID resolutions 3115, 3242, 3719, 3701, 3702, 3906, 3703, 3705, 3706, 3707, 3711, 3712, 3685, 3686, 3713, 3657, 3714, 3715, 3247 and 3907 depicted in document 11-20-0368r2?  
       Results: (Y/N/A): (11/0/1)
  1. Attendance:  
     Christian Berger  
     Qi Wang  
     Ali Raissinia  
     Dibakar Das  
     Erik Lindskog  
     Nehru Bandaru  
     Niranjan Grandhe  
     Jonathan Segev  
     Assaf Kasher  
     Feng Jiang  
     Hui-Ling Lou  
     Peter Yee  
     Jerome Henry  
     Jon Rosdahl  
     Jonathan Goldberg  
     Tianyu Wu

1. **TGaz – 1st April, 2020** 
   1. Called to order by TGaz Chair, Jonathan Segev (Intel Corporation) and Vice Chair and secretery (active), Assaf Kasher (Qualcomm), at **10:02am PDT,**
   2. Agenda Doc. **IEEE 802.11-20/0537r2 (in progress - slide 29)**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, and, and logistics – no clarifications requested.
      2. Chair called for any potentially essential patents, no one stepped forward.
      3. Chair reviewed IEEE copyright policy, and anti-trust requirements – no clarification requested.
      4. Chair reviewed IEEE 802 WG participation as an individual professional, in a fair and equitable manner – no clarification requested
      5. Recorded Participation requirement
      6. Headcount: ~15 present
   4. Erik Lindskog Presented document 11-02-0385
      1. Title: some Passive Ranging Consideration
      2. C: Is just the parameter that the PSTA needs or is it more?
      3. R: The PSTA needs the time stamps but not the channel
      4. C: Sounding Dialog Token included in .. and a different one is used in passive ranging, they are different and the format should not be merged. Also theTB raning NDP
      5. R. It would be better to make the format the same.
      6. C. For the dialog token - there is a reason why the dialog token was added to passive ranging for a reason
      7. **Strawpoll** Do you dsupport making Passive TB ranging more similar to TB Ranging and a little more flexible, along the lines described in 11-20-385, in order to make it easier to enable passive TB Ranging when TB ranging is supported without significantly degrading the perforance of Passive TB Raning ?
      8. **Results: (Y/N/A) (1/2/7)**
   5. AOB
   6. Chair Adjourned at 11:24 PDT
   7. Attendance:

|  |  |
| --- | --- |
| Name | Affiliation |
| Bhandaru, Nehru | Broadcom Corporation |
| Carney, William | Sony Corporation |
| Das, Dibakar | Intel Corporation |
| Grandhe, Niranjan | Marvell Semiconductor, Inc. |
| jiang, feng | Intel Corporation |
| Kasher, Assaf | Qualcomm Incorporated |
| Lindskog, Erik | SAMSUNG |
| Raissinia, Alireza | Qualcomm Incorporated |
| Rosdahl, Jon | Qualcomm Technologies, Inc. |
| Segev, Jonathan | Intel Corporation |
| Stanley, Dorothy | Hewlett Packard Enterprise |
| Venkatesan, Ganesh | Intel Corporation |
| Wang, Qi | Apple, Inc. |
| Want, Roy | Google |
| Yee, Peter | NSA-CSD |

1. **TGaz – 15th April, 2020** 
   1. Called to order by TGaz Chair, Jonathan Segev (Intel Corporation) and Vice Chair and secretery (active), Assaf Kasher (Qualcomm), at **10:02am PDT,**
   2. Agenda Doc. **IEEE 802.11-20/0537r6 (in progress - slide 29)**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, and, and logistics – no clarifications requested.
      2. Chair called for any potentially essential patents, no one stepped forward.
      3. Chair reviewed IEEE copyright policy, and anti-trust requirements – no clarification requested.
      4. Chair reviewed IEEE 802 WG participation as an individual professional, in a fair and equitable manner – no clarification requested
      5. Recorded Participation requirement
      6. Headcount: ~15 present
   4. Agenda Setting:
      1. 11-20-017r4 Proposed resolutios for editorial comments
      2. 11-20-607 CR for Section 11.22.6.4.3.2. 11.22.6.5 (Dibakar Das)
      3. Agenda approved by unanimous consent
   5. Roy Want presented 11-20-174
      1. Document is the comment spread sheet with the responses to the editorial comments in the resolution comments
      2. Discussion on the meaning of the resolutions.
      3. Some complex editorial comments not resolved yet, may turn in technical comments after discussion
   6. Dibakar Das presented 11-20-607
      1. Title cr-11.22.6.4.3.2.
      2. CID 3116 – proposed reject – to continue discussion offline
      3. CID 3676 -Accept
      4. CID 3677-Accept
      5. CID 3678 – Rejcct
      6. CID 3679 – to be discussed offline.
      7. CID 3680 – reject
      8. CID 3683 – Revise
      9. CID 3811 – Revised (editorial)
      10. CID 3813 – to be discussed further
      11. CID 3127 – Revised
      12. Starwpoll  
          We agree to the CID resolutions 3676, 3677, 3678, 3680, 3811 and 3126 depicted in document 11-20-607r1
      13. Results (Y/N/A) – 13/0/4

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| TGaz | 4/15 | An, Song-Haur | INDEPENDENT |
| TGaz | 4/15 | Andersdotter, Amelia | None - Self-funded |
| TGaz | 4/15 | Bhandaru, Nehru | Broadcom Corporation |
| TGaz | 4/15 | Das, Dibakar | Intel Corporation |
| TGaz | 4/15 | Grandhe, Niranjan | NXP Semiconductors |
| TGaz | 4/15 | Henry, Jerome | Cisco Systems, Inc. |
| TGaz | 4/15 | Kasher, Assaf | Qualcomm Incorporated |
| TGaz | 4/15 | Lindskog, Erik | SAMSUNG |
| TGaz | 4/15 | Raissinia, Alireza | Qualcomm Incorporated |
| TGaz | 4/15 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGaz | 4/15 | Stanley, Dorothy | Hewlett Packard Enterprise |
| TGaz | 4/15 | Venkatesan, Ganesh | Intel Corporation |
| TGaz | 4/15 | Wang, Qi | Apple, Inc. |
| TGaz | 4/15 | Want, Roy | Google |
| TGaz | 4/15 | Yee, Peter | NSA-CSD |

1. **TGaz – 22nd April, 2020** 
   1. Called to order by TGaz Chair, Jonathan Segev (Intel Corporation) and Vice Chair and secretery (active), Assaf Kasher (Qualcomm), at **10:02am PDT,**
   2. Agenda Doc. **IEEE 802.11-20/0537r6 (in progress - slide 29)**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, and, and logistics – no clarifications requested.
      2. Chair called for any potentially essential patents, no one stepped forward.
      3. Chair reviewed IEEE copyright policy, and anti-trust requirements – no clarification requested.
      4. Chair reviewed IEEE 802 WG participation as an individual professional, in a fair and equitable manner – no clarification requested
      5. Recorded Participation requirement
      6. Headcount: ~15 present
   4. Question to Work Group chair
      1. Q1: How can we vote electronically:
      2. R1: Work Group votes can be held electronically. There is no way to coduct a Task Group vote electronically.
      3. Q2: How can we proceed to the next draft ballot without a task group.
      4. R2: A possible way is when a spread sheet with resolution to all comments is presented to the WG Chair, the WG chair may start a WG ballot to approve the resolutions.
   5. Agenda Setting:
      1. 11-20-0642r0 Proposed resolutios for editorial comments
      2. 11-20-641r0 Remaining CR for Section 11.22.6.4.3.2. 11.22.6.5 (Dibakar Das)
      3. Agenda approved by unanimous consent
   6. Roy Want Reviewed 11-20-0642r0
      1. Issues in previous version were fixed
      2. Strawpoll: we agree to the CID resolutions depicted by document 11-20-0642r0
      3. Results: (Y/N/A) 12/0/1
   7. Dibakar Das Presented 11-20-641
      1. Title: Remiaing CR for Section 11.22.6.$.3.2 11.22.6.5.
      2. CID 3116: Revised: - needs more discussion
      3. CID 3679:
         1. Strawpoll: We agree to the resolution of CID 3679 depicted in document 11-20-641r0
         2. Results: (Y/N/A) (7/1/7)
      4. CID 3683: Revised
      5. CID 3813: Revised
      6. CID 3815: Revised
      7. CID 3127: will be revisited
      8. CID 3299: Reject
      9. Strawpoll: We agree to the resolution of CID 3679 depicted in document 11-20-641r0.
      10. Results: (Y/N/A): (13/0/2)
   8. Attendance:

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| TGaz | 4/22 | Berger, Christian | NXP Semiconductors |
| TGaz | 4/22 | Bhandaru, Nehru | Broadcom Corporation |
| TGaz | 4/22 | Borgner, Jordan | private |
| TGaz | 4/22 | Das, Dibakar | Intel Corporation |
| TGaz | 4/22 | Grandhe, Niranjan | NXP Semiconductors |
| TGaz | 4/22 | jiang, feng | Intel Corporation |
| TGaz | 4/22 | Kasher, Assaf | Qualcomm Incorporated |
| TGaz | 4/22 | Lindskog, Erik | SAMSUNG |
| TGaz | 4/22 | Raissinia, Alireza | Qualcomm Incorporated |
| TGaz | 4/22 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGaz | 4/22 | Segev, Jonathan | Intel Corporation |
| TGaz | 4/22 | Stanley, Dorothy | Hewlett Packard Enterprise |
| TGaz | 4/22 | Venkatesan, Ganesh | Intel Corporation |
| TGaz | 4/22 | Wang, Qi | Apple, Inc. |
| TGaz | 4/22 | Want, Roy | Google |
| TGaz | 4/22 | Yee, Peter | NSA-CSD |

1. **TGaz – 6th May, 2020** 
   1. Called to order by TGaz Chair, Jonathan Segev (Intel Corporation) and Vice Chair and secretery (active), Assaf Kasher (Qualcomm), at **10:07am PDT,**
   2. Agenda Doc. **IEEE 802.11-20/0537r10 (in progress - slide 60)**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, and, and logistics – no clarifications requested.
      2. Chair called for any potentially essential patents, no one stepped forward.
      3. Chair reviewed IEEE copyright policy, and anti-trust requirements – no clarification requested.
      4. Chair reviewed IEEE 802 WG participation as an individual professional, in a fair and equitable manner – no clarification requested
      5. Recorded Participation requirement
      6. Headcount: ~15 present
   4. Agenda Setting:
      1. 11-20-710 Attackes to Fully Random QPSK Sounding Signal (Qinghua Li) – 45m
      2. 11-20-0707 Max Number of LTF (Christian Berger) – 30m
      3. 11-20-694 Detection of 1 Ssample Computation Attacker – will be reviewed in the future
   5. Qinghua Li Presented 11-20-0710
      1. Title: Attacks to Fully Random QPSK Sounding Signal
      2. Discussion:
      3. CB: the complexity will be the product of the 64k and the length of 128
      4. QL: Yes
      5. CB: if QAM modulation above QPSK will it be more secure? The number of states will be much higher
      6. QL: The correlation may be not hurt significantly because the changes of the LSBs of the QAM has no significant effect on the correlation
      7. BT: The sigal S in slide 9 is only the signal in the attak
      8. QL: Yes
      9. BT: I like this correlation as a metric to measure the quality of the attack. Bit error is not a good measure of attack success.
      10. QL: The attacker can still use the filtering effect of the window to recover bits.
      11. FJ: We should take into aocunt the effect of increased PAPR for higher order sequences
      12. CB: We should evaluate the complexity of the 64k Viterbi decoder to the other method
      13. BT: It will be much harder to recover the higher QAM using the Viterbi decoder because of SNR. It is much easier to break the Golay Codes than the aribitrary QPSK signal.
      14. BT: Entropy is fully determined by window. It’s the combination of the window and entropy of QAM signal.
      15. SS: Two things to consider when evaluating the attack: the correlation and the remaining time for attack. Hihger QAM, we think, will reduce the correlation.
      16. QL: We have presented in the past that in Golay sequence method we can use few sample to start recovering the signal
      17. FJ: In document 734 we show that the attak on the QPSK requires much higher complexity
      18. MCD: in Golay sequences the number of bits needed is lower than in the arbitrary QPSK
   6. Christian Berger Presetned 11-20-0707
      1. Title: Max Number of LSTF
      2. Disucssion:
      3. QW: Is all the red text a new text:
      4. CB: yes
      5. QW: only these two fields are added to Ranging Parameters
      6. CB: yes:
      7. DD: Secure sounding will also need to be changed.
   7. Chair presented submission pipeline and conference call times
   8. AOB?
   9. Chair adjourned at 11:30AM
   10. Attendance:

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| TGaz | 5/6 | Berger, Christian | NXP Semiconductors |
| TGaz | 5/6 | Bhandaru, Nehru | Broadcom Corporation |
| TGaz | 5/6 | Cepni, Gurkan | Apple, Inc. |
| TGaz | 5/6 | Dogan, Mithat | Apple, Inc. |
| TGaz | 5/6 | Grandhe, Niranjan | NXP Semiconductors |
| TGaz | 5/6 | Henry, Jerome | Cisco Systems, Inc. |
| TGaz | 5/6 | jiang, feng | Intel Corporation |
| TGaz | 5/6 | Kasher, Assaf | Qualcomm Incorporated |
| TGaz | 5/6 | Kumar, Manish | Marvell Semiconductor, Inc. |
| TGaz | 5/6 | Li, Qinghua | Intel Corporation |
| TGaz | 5/6 | Lindskog, Erik | SAMSUNG |
| TGaz | 5/6 | Raissinia, Alireza | Qualcomm Incorporated |
| TGaz | 5/6 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGaz | 5/6 | Shellhammer, Stephen | Qualcomm Incorporated |
| TGaz | 5/6 | Stanley, Dorothy | Hewlett Packard Enterprise |
| TGaz | 5/6 | Tian, Bin | Qualcomm Incorporated |
| TGaz | 5/6 | Wang, Qi | Apple, Inc. |
| TGaz | 5/6 | Want, Roy | Google |
| TGaz | 5/6 | Wu, Tianyu | Apple, Inc. |
| TGaz | 5/6 | Yong, Su Khiong | Apple, Inc. |

1. **TGaz – 15th May, 2020** 
   1. Called to order by TGaz Chair, Jonathan Segev (Intel Corporation) and Vice Chair and secretery (active), Assaf Kasher (Qualcomm), at **10:02am PDT,**
   2. Agenda Doc. **IEEE 802.11-20/0537r12 (in progress - slide 67)**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, and, and logistics – no clarifications requested.
      2. Chair called for any potentially essential patents, no one stepped forward.
      3. Chair reviewed IEEE copyright policy, and anti-trust requirements – no clarification requested.
      4. Chair reviewed IEEE 802 WG participation as an individual professional, in a fair and equitable manner – no clarification requested
      5. Recorded Participation requirement
      6. Headcount: ~15 present
   4. Agenda Setting:
      1. Process on Motion: (15min)
      2. 11-20-0707 Max Number of LTF (Christian Berger) (for completion – 20min)
      3. 11-19-1011 SIG-A Changes for Ranging NDP (Christian Berger) -30min
      4. 11-20-0759 CR for some PHY related CIDs on LB249 (Feng Jiang) – 20min
      5. Agenda approved by Unanimous Consent
   5. Chair presented “Motion Proccess During TG Telecon” – slides 68-69 of the 11-20-537-r12
      1. Q: can minor changes to draft text and motion text be made during the 10 days and the meeting
      2. R: Yes, motions can be amended in the meeting, revisions to documents are allowed (if not major)
      3. R (WG Chair): The logic behind having the process is for members to be aware of what documents are voted. WG chair approval is to make sure no overlap between votes in different TG
   6. Christian Berger Presented 11-20-070
      1. Reviewed changes make to the text from previous version afterreceiving feedback from members.
      2. Strawpoll: We agree to the changes depicted by document 11-20-0707r3
      3. Results (17/0/3)
   7. Christian Berger presented 11-19-1011
      1. Disucsiion not concluded
   8. Chair reiewed submission pipeline and scheduled teleconferences
   9. AOB?
   10. Chair adjoune at 11:32PDT
   11. Attendance:

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| Breakout | Timestamp | Name | Affiliation |
| TGaz | 5/13 | Berger, Christian | NXP Semiconductors |
| TGaz | 5/13 | Bhandaru, Nehru | Broadcom Corporation |
| TGaz | 5/13 | Chen, Xiaogang | Intel Corporation |
| TGaz | 5/13 | Grandhe, Niranjan | NXP Semiconductors |
| TGaz | 5/13 | Henry, Jerome | Cisco Systems, Inc. |
| TGaz | 5/13 | jiang, feng | Intel Corporation |
| TGaz | 5/13 | Kasher, Assaf | Qualcomm Incorporated |
| TGaz | 5/13 | Li, Qinghua | Intel Corporation |
| TGaz | 5/13 | Raissinia, Alireza | Qualcomm Incorporated |
| TGaz | 5/13 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGaz | 5/13 | Segev, Jonathan | Intel Corporation |
| TGaz | 5/13 | Seok, Yongho | MediaTek Inc. |
| TGaz | 5/13 | Stanley, Dorothy | Hewlett Packard Enterprise |
| TGaz | 5/13 | Wang, Qi | Apple, Inc. |
| TGaz | 5/13 | Wang, Yi-Hsiu | Innopeak |
| TGaz | 5/13 | Yee, Peter | NSA-CSD |

**References:**