IEEE P802.11  
Wireless LANs

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| Minutes for TGbe MAC Ad-Hoc teleconferences in Sept 2020 | | | | |
| Date: 2020-09-16 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Liwen Chu | NXP |  |  |  |
| Jeongki Kim | LG Electronics |  |  |  |
|  |  |  |  |  |

Abstract

This document contains the meeting minutes for the TGbe MAC ad hoc teleconferences held in Sept 2020.

Revisions:

* Rev0:
  + Adding the minutes from the telephone conference held on Sept 16, 2020.
  + Adding the minutes from the telephone conference held on Sept 21, 2020.
* Rev1:
  + Adding the minutes from the telephone conference held on Sept 14, 2020
  + Adding the minutes from the telephone conference held on Sept 23, 2020
* Rev2:
  + Adding the minutes from the telephone conference held on Sept 24, 2020
* Rev3:
  + Adding the minutes from the telephone conference held on Sept 28, 2020
* Rev4:
  + Adding the minutes from the telephone conference held on Oct 08, 2020
* Rev5:
  + Adding the minutes from the telephone conference held on Oct 12, 2020
* Rev6:
  + Adding the minutes from the telephone conferences held on Oct 14, 2020
  + Adding the minutes from the telephone conferences held on Oct 19, 2020
  + Adding the minutes from the telephone conferences held on Oct 21, 2020
  + Adding the minutes from the telephone conferences held on Oct 22, 2020
  + Adding the minutes from the telephone conferences held on Oct 26, 2020
  + Adding the minutes from the telephone conferences held on Oct 28, 2020

**Monday, 14 September 2020, 19:00 –21:00 EDT (TGbe MAC ad hoc conference call)**

Chairman: Liwen Chu (NXP)

Secretary: Matthew Fischer (Broadcom)

This meeting took place using a webex session.

**Introduction**

1. The Chair (Liwen, NXP) calls the meeting to order at 19:05am EDT. The Chair introduces himself and the Secretary, Matthew Fischer (Broadcom)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents.
   1. Nobody responds.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imat](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com)) and Jeongki Kim ([jeongki.kim@lge.com](mailto:jeongki.kim@lge.com))

**Recorded attendance through Imat and e-mail:**

|  |  |  |
| --- | --- | --- |
| Timestamp | Name | Affiliation |
| 9/14 | AbidRabbu, Shaima' | Istanbul Medipol University; Vestel |
| 9/14 | Aboulmagd, Osama | Huawei Technologies Co.,  Ltd |
| 9/14 | Abushattal, Abdelrahman | Istanbul Medipol university ;Vestel |
| 9/14 | Akhmetov, Dmitry | Intel Corporation |
| 9/14 | Andersdotter, Amelia | None - Self-funded |
| 9/14 | Asterjadhi, Alfred | Qualcomm Incorporated |
| 9/14 | Au, Oscar | Origin Wireless |
| 9/14 | Baek, SunHee | LG ELECTRONICS |
| 9/14 | Banerjea, Raja | Qualcomm Incorporated |
| 9/14 | Bankov, Dmitry | IITP RAS |
| 9/14 | baron, stephane | Canon Research Centre France |
| 9/14 | Berkema, Alan | HP Inc. |
| 9/14 | Bims, Harry | Bims Laboratories, Inc. |
| 9/14 | Boldy, David | Broadcom Corporation |
| 9/14 | Cariou, Laurent | Intel Corporation |
| 9/14 | Carney, William | Sony Corporation |
| 9/14 | Chen, Canfeng | Xiaomi Inc. |
| 9/14 | Chen, Na | MaxLinear Corp |
| 9/14 | Cheng, Paul | MediaTek Inc. |
| 9/14 | CHERIAN, GEORGE | Qualcomm Incorporated |
| 9/14 | Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. |
| 9/14 | Coffey, John | Realtek Semiconductor Corp. |
| 9/14 | Das, Dibakar | Intel Corporation |
| 9/14 | Das, Subir | Perspecta Labs Inc. |
| 9/14 | Davies, Robert | Signify |
| 9/14 | Derham, Thomas | Broadcom Corporation |
| 9/14 | de Vegt, Rolf | Qualcomm Incorporated |
| 9/14 | Dong, Xiandong | Xiaomi Inc. |
| 9/14 | Erceg, Vinko | Broadcom Corporation |
| 9/14 | Fang, Yonggang | ZTE TX Inc |
| 9/14 | Fischer, Matthew | Broadcom Corporation |
| 9/14 | Gan, Ming | Huawei Technologies Co., Ltd |
| 9/14 | Ghosh, Chittabrata | Intel Corporation |
| 9/14 | Guo, Yuchen | Huawei Technologies Co., Ltd |
| 9/14 | Haider, Muhammad Kumail | Facebook |
| 9/14 | Hamilton, Mark | Ruckus/CommScope |
| 9/14 | Han, Zhiqiang | ZTE Corporation |
| 9/14 | Hervieu, Lili | Cable Television Laboratories Inc. (CableLabs) |
| 9/14 | Ho, Duncan | Qualcomm Incorporated |
| 9/14 | Hong, Hanseul | WILUS Inc. |
| 9/14 | Hsu, Chien-Fang | MediaTek Inc. |
| 9/14 | Hu, Chunyu | Facebook |
| 9/14 | Huang, Po-Kai | Intel Corporation |
| 9/14 | Hwang, Sung Hyun | Electronics and Telecommunications Research Institute (ETRI) |
| 9/14 | Inoue, Yasuhiko | Nippon Telegraph and Telephone Corporation (NTT) |
| 9/14 | Jang, Insun | LG ELECTRONICS |
| 9/14 | Jiang, Jinjing | Apple, Inc. |
| 9/14 | JUNG, MYUNG CHEUL | Pantech Inc. |
| 9/14 | Kain, Carl | USDoT |
| 9/14 | Kakani, Naveen | Qualcomm Incorporated |
| 9/14 | Kedem, Oren | Huawei Technologies Co. Ltd |
| 9/14 | Khan, Naseem | Leidos Engineering. LLC |
| 9/14 | kim, namyeong | LG ELECTRONICS |
| 9/14 | Kim, Sang Gook | LG ELECTRONICS |
| 9/14 | Kim, Sanghyun | WILUS Inc |
| 9/14 | Kim, Yongho | Korea National University of Transportation |
| 9/14 | Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) |
| 9/14 | Klein, Arik | Huawei Technologies Co. Ltd |
| 9/14 | Kneckt, Jarkko | Apple, Inc. |
| 9/14 | Ko, Geonjung | WILUS Inc. |
| 9/14 | Kondo, Yoshihisa | Advanced Telecommunications Research Institute International (ATR) |
| 9/14 | Kwon, Young Hoon | NXP Semiconductors |
| 9/14 | Lalam, Massinissa | SAGEMCOM BROADBAND SAS |
| 9/14 | Lee, Il-Gu | Sungshin University |
| 9/14 | Li, Nan | ZTE Corporation |
| 9/14 | Li, Yiqing | Huawei Technologies Co. Ltd |
| 9/14 | Li, Yunbo | Huawei Technologies Co., Ltd |
| 9/14 | Lin, Wei | Huawei Technologies Co. Ltd |
| 9/14 | Liu, Jeff | Broadcom Corporation |
| 9/14 | Liu, Yong | Apple, Inc. |
| 9/14 | Lu, Liuming | ZTE Corporation |
| 9/14 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| 9/14 | Lv, kaiying | MediaTek Inc. |
| 9/14 | Mehrnoush, Morteza | Facebook |
| 9/14 | Merlin, Simone | Qualcomm Incorporated |
| 9/14 | Monajemi, Pooya | Cisco Systems, Inc. |
| 9/14 | Moon, Juseong | Korea National University of Transportation |
| 9/14 | NANDAGOPALAN, SAI SHANKAR | Cypress Semiconductor Corporation |
| 9/14 | Naribole, Sharan | SAMSUNG |
| 9/14 | Nguyen, An | DHS/CISA |
| 9/14 | Okada, Hiraku | Nagoya University |
| 9/14 | Ouchi, Masatomo | Canon |
| 9/14 | Ozbakis, Basak | VESTEL |
| 9/14 | Palm, Stephen | Broadcom Corporation |
| 9/14 | Park, Minyoung | Intel Corporation |
| 9/14 | Patil, Abhishek | Qualcomm Incorporated |
| 9/14 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| 9/14 | Petrick, Albert | InterDigital, Inc. |
| 9/14 | Petry, Brian | Broadcom Corporation |
| 9/14 | QIU, WEI | Huawei Technologies Co., Ltd |
| 9/14 | Raissinia, Alireza | Qualcomm Incorporated |
| 9/14 | Rantala, Enrico-Henrik | Nokia |
| 9/14 | Sakoda, Kazuyuki | Sony Corporation |
| 9/14 | Segev, Jonathan | Intel Corporation |
| 9/14 | Seok, Yongho | MediaTek Inc. |
| 9/14 | Sevin, Julien | Canon Research Centre France |
| 9/14 | Sherlock, Ian | Texas Instruments Incorporated |
| 9/14 | Startsev, Ivan | IITP RAS |
| 9/14 | Stott, Noel | Keysight Technologies |
| 9/14 | Sun, Li-Hsiang | InterDigital, Inc. |
| 9/14 | Sun, Yanjun | Qualcomm Incorporated |
| 9/14 | SURACI, FRANK | U.S. Department of Homeland Security |
| 9/14 | Takai, Mineo | Space-Time Engineering |
| 9/14 | Torab Jahromi, Payam | Facebook |
| 9/14 | Verma, Sindhu | Broadcom Corporation |
| 9/14 | VIGER, Pascal | Canon Research Centre France |
| 9/14 | Wang, Chao Chun | MediaTek Inc. |
| 9/14 | Wang, Lei | Huawei R&D USA |
| 9/14 | Wang, Qi | Apple, Inc. |
| 9/14 | Wang, Xiaofei | InterDigital, Inc. |
| 9/14 | Wullert, John | Perspecta Labs |
| 9/14 | Xin, Liangxiao | Sony Corporation |
| 9/14 | Xue, Qi | Qualcomm Incorporated |
| 9/14 | Yang, Bo | Huawei Technologies Co. Ltd |
| 9/14 | Yang, Jay | Nokia |
| 9/14 | Yang, Mao | Northwestern Polytechnical University |
| 9/14 | Yang, Yunsong | Futurewei Technologies |
| 9/14 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| 9/14 | Yee, James | MediaTek Inc. |
| 9/14 | yi, yongjiang | Futurewei Technologies |

* Technical Submissions: **Proposed Draft Text (PDTs) [Discussions and SPs]**
  1. [1300r8](https://mentor.ieee.org/802.11/dcn/20/11-20-1300-08-00be-pdt-mac-mlo-multi-link-setup-usage-and-rules-of-ml-ie.docx) PDT-MAC-MLO-multi-link-setup-usage-and-rules-of-ML-IE Insun Jang (LG)

Discussion:

C: none

**SP:**

**Do you support to incorporate the proposed draft text of 11-20-1300r8 into TGbe Draft 0.1?**

Agreed unanimously

* 1. [1299r6](https://mentor.ieee.org/802.11/dcn/20/11-20-1299-06-00be-pdt-mac-mlo-multi-link-channel-access-str.docx) PDT-MAC-MLO-multi-link-channel-access-str 1299 - Insun Jang, (LG)

Discussion:

C: will you include STA-STA?

A: yes

Document started as r5, but modified during presentation to become r6, subject of the SP:

**SP:**

**Do you support to incorporate the proposed draft text of 11-20-1299r6 into TGbe Draft 0.1?**

Agreed unanimously

* 1. [1359r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1359-02-00be-pdt-mac-eht-operation-element.docx) pdt-mac-eht-operation-element Guogang Huang (Huawei)

Discussion:

C: please look at motion 111, you have not included CCFS

A: do not know what the numbers should be

C: should still include the field, with TBD for numbers

C: 160+160 is not yet supported by motion

A: But the cited motion does include 160+160

C: but is there a motion to remove 160+160? It is not included in some other motions and was mentioned as should be removed

A: PHY motions also mention 160+160

C: You do not have CCFS field in the text

A: Because there is only one value

C: but the motion has it

C: first motion says need CCFS, but the last motion EHT op ie does not need to combine CCFS0 and CCFS1 at 6 GHz – this means separate indication for CCFS operation vs HE, however, not yet defined how to do this – could have one or two CCFS fields, etc, so too many questions, so unable to add anything

A: still not happy

C: How about a field called CCFS with encoding TBD and definition TBD

A: ok

C: can we just defer?

A: ok

**NO SP**

* 1. [1353r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1353-02-00be-pdt-mac-eht-bss-operation.docx) PDT MAC EHT BSS operation Liwen Chu (NXP)

C: first subbullet why is it widest width

A: If punctured, then you want to mention that

C: for AP it can just choose a reduced operating BW

A: Want to be fair to HE and VHT

C: 80 MHz for HE BSS and disallowed ch in secondary 160

A: this allows that

C: is not allowed

A: if disallowed ch is on the secondary 160, then AP says 160

C: why not allow < 80?

A: because VHT already set the precedent that

C: should use the motion as the guide

C: the motion text does not include this restriction

A: we can discuss removing it, first bullet

C: should describe using EHT OP ie, how to set EHT BW, should add something to first bullet regarding primary 20 MHz, need to have that condition

A: yes

C: can remove last bullet, HE limit 160, as this is the hard limit for HE anyway

A: ok

C: do we need to add some MIB for controling this?

A: maybe

C: this is normative behavior, MIB goes into the signaling doc

C: removed first bullet, I like the first bullet, I think that the restriction is reasonable to keep

A: subject of offline discussion

**NO SP**

* 1. [1309r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1309-04-00be-proposed-draft-specification-for-ml-general-mld-authentication-mld-association-and-ml-setup.docx) Proposed Draft Specification for ML General, MLD Authentication, MLD Association, and ML Setup Po-kai Huang (Intel)

C: what about resetup or setup for page 6, do you need to mention all links?

A: I followed Insun, saying that only the resetup links need to be mentioned and in the response only those that are accepted, the motion does not provide guidance beyond this

C: teardown, afterward, non-AP MLD and AP MLD will not be associated, what about authentication – is that still valid?

A: see part 2 in the state machine

**SP:**

**Do you support to incorporate Part 1 of the proposed draft text of 11-20-1309r4 into TGbe Draft 0.1?**

Agreed unanimously

* 1. [1281r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1281-02-00be-pdt-mac-txop-bandwidth-signaling.docx) PDT-MAC-TXOP-Bandwidth\_Signaling Kaiying Lu (Mediatek)

**DEFERRED**

* 1. [1336r3](https://mentor.ieee.org/802.11/dcn/20/11-20-1336-03-00be-11be-spec-text-for-mlo-ba-share-and-extension-of-sn-space.docx) 11be Spec text for MLO BA: share and extension of SN space Liwen Chu (NXP)

Author mentions that some of the text is beyond the scope of the motion, but is based on discussions that took place offline.

C: What is the intent of the added restriction on 512 and 1024 bitmaps for MSTA BA when an HE STA is a transmitter of HE TB PPDU?

A: intent is that the recipients of the MSTA BA must all be EHT STA if 512 or 1024 bitmaps are included

C: MSTA BA, if the HE STAs are all listed before the EHT STAs, then it will be ok, right

A: probably not

C: the encoding does not follow the motion, but it is better

A: need to run a motion to amend, cannot just run the text

C: Disagree – no need to amend a primary motion, as a passing motion on text that goes beyond the motion is already a motion moved by the body to supersede the original motion, no need to have two motions to accomplish what one motion on the text can accomplish

A: prefer to keep things as clean as possible

C: can there be an objection to text in a PDT that is beyond a motion?

A: yes, discuss offline first, and if necessary, remove such text before a motion

C:

**NO SP**

* 1. [1395r8](https://mentor.ieee.org/802.11/dcn/20/11-20-1395-08-00be-pdt-mac-mlo-multi-link-channel-access-general-non-str.docx) PDT-MAC-MLO-Multi-Link-Channel-Access-General-Non-STR Matthew Fischer (Broadcom)

C: question on the scope of the motion relating to the inclusion of the last two paragraphs of the document

A: these were added in response to a general outcry from the public during offline review, we could straw poll whether the group is in favor of their inclusion

C: NSTR definition is being discussed elsewhere, this one might end up being different

A: agree to modify this one, changing ”inability to receive” to ”impaired ability to receive” – and contend that the definition will never be more formal or narrower than this, it will never mention numerical limits of any kind, to call a pair of links NSTR will be an implementation dependent decision

C: does RTS motion include the issue of response to MU RTS?

A: maybe, and maybe not

C: defintion of NSTR limited is not quite accurate

A: agreed, needs an explicit owner for NSTR links and needs a narrowing of the links that the TXOP owner is operating on, to one of the NSTR links of which the RTS is a member, rather than all of the MLD’s NSTR links

C: subclause naming does not match expansion of NSTR in other places

A: ok, will fix it

**NO SP, as it is felt that the group needs more time to consider**

* Chair notes that with 9 minutes remaining, there is not enough time to cover another presentation
* Chair asks if there is any other Business
  + - None noted
* Chair asks if there is objection to adjourning, and none being heard:

The meeting is recessed at 20:53 EDT.

**Wednesday 16 Sept 2020, 09:00 – 11:00 ET (TGbe MAC ad hoc conference call)**

Chairman: Jeongki Kim (LG Electronics)

Secretary: Liwen Chu (NXP)

This meeting took place using a webex session.

**Introduction**

1. The Chair (Jeongki, LG) calls the meeting to order at 09:04am EDT. The Chair introduces himself and the Secretary, Liwen Chu (NXP)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents. Nobody speaks up.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imat](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Jeongki Kim ([jeongki.kim@lge.com](mailto:jeongki.kim@lge.com)) and Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com))

**Recorded attendance through Imat and e-mail:**

|  |  |  |  |
| --- | --- | --- | --- |
| Breakout | Timestamp | Name | Affiliation |
| TGbe (MAC) | 9/16 | AbidRabbu, Shaima' | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 9/16 | Abouelseoud, Mohamed | Sony Corporation |
| TGbe (MAC) | 9/16 | Aboulmagd, Osama | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 9/16 | Akhmetov, Dmitry | Intel Corporation |
| TGbe (MAC) | 9/16 | Andersdotter, Amelia | None - Self-funded |
| TGbe (MAC) | 9/16 | Asterjadhi, Alfred | Qualcomm Incorporated |
| TGbe (MAC) | 9/16 | Au, Kwok Shum | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 9/16 | Au, Oscar | Origin Wireless |
| TGbe (MAC) | 9/16 | B, Hari Ram | NXP Semiconductors |
| TGbe (MAC) | 9/16 | Bankov, Dmitry | IITP RAS |
| TGbe (MAC) | 9/16 | baron, stephane | Canon Research Centre France |
| TGbe (MAC) | 9/16 | Beg, Chris | Cognitive Systems Corp. |
| TGbe (MAC) | 9/16 | Bei, Jianwei | NXP Semiconductors |
| TGbe (MAC) | 9/16 | Berkema, Alan | HP Inc. |
| TGbe (MAC) | 9/16 | Bredewoud, Albert | Broadcom Corporation |
| TGbe (MAC) | 9/16 | Carney, William | Sony Corporation |
| TGbe (MAC) | 9/16 | CHAN, YEE | Facebook |
| TGbe (MAC) | 9/16 | Chayat, Naftali | Vayyar Imaging |
| TGbe (MAC) | 9/16 | Chen, Canfeng | Xiaomi Inc. |
| TGbe (MAC) | 9/16 | Chen, Cheng | Intel Corporation |
| TGbe (MAC) | 9/16 | Chen, Cheng-Ming | Qualcomm Incorporated |
| TGbe (MAC) | 9/16 | Cheng, Paul | MediaTek Inc. |
| TGbe (MAC) | 9/16 | CHERIAN, GEORGE | Qualcomm Incorporated |
| TGbe (MAC) | 9/16 | Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 9/16 | Choo, Seungho | Senscomm Semiconductor Co., Ltd. |
| TGbe (MAC) | 9/16 | Chung, Chulho | SAMSUNG |
| TGbe (MAC) | 9/16 | Coffey, John | Realtek Semiconductor Corp. |
| TGbe (MAC) | 9/16 | Das, Dibakar | Intel Corporation |
| TGbe (MAC) | 9/16 | Das, Subir | Perspecta Labs Inc. |
| TGbe (MAC) | 9/16 | Davies, Robert | Signify |
| TGbe (MAC) | 9/16 | DeLaOlivaDelgado, Antonio | InterDigital, Inc. |
| TGbe (MAC) | 9/16 | Derham, Thomas | Broadcom Corporation |
| TGbe (MAC) | 9/16 | DOAN, DUNG | Qualcomm Incorporated |
| TGbe (MAC) | 9/16 | Dogukan, Ali | Vestel |
| TGbe (MAC) | 9/16 | Dong, Xiandong | Xiaomi Inc. |
| TGbe (MAC) | 9/16 | Fang, Yonggang | ZTE TX Inc |
| TGbe (MAC) | 9/16 | Fischer, Matthew | Broadcom Corporation |
| TGbe (MAC) | 9/16 | Gong, Bo | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/16 | Goto, Fumihide | Self |
| TGbe (MAC) | 9/16 | Guo, Yuchen | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/16 | Hamilton, Mark | Ruckus/CommScope |
| TGbe (MAC) | 9/16 | Han, Jonghun | SAMSUNG |
| TGbe (MAC) | 9/16 | Han, Zhiqiang | ZTE Corporation |
| TGbe (MAC) | 9/16 | Handte, Thomas | Sony Corporation |
| TGbe (MAC) | 9/16 | Hong, Hanseul | WILUS Inc. |
| TGbe (MAC) | 9/16 | Hsiao, Ching-Wen | MediaTek Inc. |
| TGbe (MAC) | 9/16 | Hsu, Chien-Fang | MediaTek Inc. |
| TGbe (MAC) | 9/16 | Hu, Chunyu | Facebook |
| TGbe (MAC) | 9/16 | Huang, Guogang | Huawei |
| TGbe (MAC) | 9/16 | Huang, Lei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbe (MAC) | 9/16 | Huang, Po-Kai | Intel Corporation |
| TGbe (MAC) | 9/16 | Ikegami, Tetsushi | Meiji University |
| TGbe (MAC) | 9/16 | Inohiza, Hirohiko | Canon |
| TGbe (MAC) | 9/16 | Inoue, Yasuhiko | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 9/16 | Jang, Insun | LG ELECTRONICS |
| TGbe (MAC) | 9/16 | Jeffries, Timothy | Futurewei Technologies |
| TGbe (MAC) | 9/16 | Ji, Chenhe | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/16 | Jones, Allan | Activision |
| TGbe (MAC) | 9/16 | Jones, Vincent Knowles IV | Qualcomm Incorporated |
| TGbe (MAC) | 9/16 | JUNG, MYUNG CHEUL | Pantech Inc. |
| TGbe (MAC) | 9/16 | Kain, Carl | USDoT |
| TGbe (MAC) | 9/16 | Kakani, Naveen | Qualcomm Incorporated |
| TGbe (MAC) | 9/16 | Kamel, Mahmoud | InterDigital, Inc. |
| TGbe (MAC) | 9/16 | Kandala, Srinivas | SAMSUNG |
| TGbe (MAC) | 9/16 | Kasher, Assaf | Qualcomm Incorporated |
| TGbe (MAC) | 9/16 | Kedem, Oren | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/16 | Khan, Naseem | Leidos Engineering. LLC |
| TGbe (MAC) | 9/16 | Khorov, Evgeny | IITP RAS |
| TGbe (MAC) | 9/16 | Kim, Myeong-Jin | SAMSUNG |
| TGbe (MAC) | 9/16 | kim, namyeong | LG ELECTRONICS |
| TGbe (MAC) | 9/16 | Kim, Sang Gook | LG ELECTRONICS |
| TGbe (MAC) | 9/16 | Kim, Sanghyun | WILUS Inc |
| TGbe (MAC) | 9/16 | Kim, Yongho | Korea National University of Transportation |
| TGbe (MAC) | 9/16 | Kim, Youhan | Qualcomm Incorporated |
| TGbe (MAC) | 9/16 | Kim, Youn-Kwan | The Catholic University of Korea |
| TGbe (MAC) | 9/16 | Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 9/16 | Klein, Arik | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/16 | Klimakov, Andrey | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/16 | Kneckt, Jarkko | Apple, Inc. |
| TGbe (MAC) | 9/16 | Ko, Geonjung | WILUS Inc. |
| TGbe (MAC) | 9/16 | Kondo, Yoshihisa | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 9/16 | Kwon, Young Hoon | NXP Semiconductors |
| TGbe (MAC) | 9/16 | Lalam, Massinissa | SAGEMCOM BROADBAND SAS |
| TGbe (MAC) | 9/16 | Lan, Zhou | Broadcom Corporation |
| TGbe (MAC) | 9/16 | Lee, Il-Gu | Sungshin University |
| TGbe (MAC) | 9/16 | Le Houerou, Brice | Canon Research Centre France |
| TGbe (MAC) | 9/16 | Levitsky, Ilya | IITP RAS |
| TGbe (MAC) | 9/16 | Levy, Joseph | InterDigital, Inc. |
| TGbe (MAC) | 9/16 | Li, Nan | ZTE Corporation |
| TGbe (MAC) | 9/16 | Li, Yiqing | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/16 | Li, Yunbo | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/16 | Lin, Wei | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/16 | Lindskog, Erik | SAMSUNG |
| TGbe (MAC) | 9/16 | Liu, Der-Zheng | Realtek Semiconductor Corp. |
| TGbe (MAC) | 9/16 | Liu, Yong | Apple, Inc. |
| TGbe (MAC) | 9/16 | Lopez, Miguel | Ericsson AB |
| TGbe (MAC) | 9/16 | Lorgeoux, Mikael | Canon Research Centre France |
| TGbe (MAC) | 9/16 | Lou, Hanqing | InterDigital, Inc. |
| TGbe (MAC) | 9/16 | Lu, Liuming | ZTE Corporation |
| TGbe (MAC) | 9/16 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbe (MAC) | 9/16 | Lv, kaiying | MediaTek Inc. |
| TGbe (MAC) | 9/16 | Ma, Mengyao | HUAWEI |
| TGbe (MAC) | 9/16 | Max, Sebastian | Ericsson AB |
| TGbe (MAC) | 9/16 | McGuire, Colin | The MathWorks, Inc. |
| TGbe (MAC) | 9/16 | Mehrnoush, Morteza | Facebook |
| TGbe (MAC) | 9/16 | Memisoglu, Ebubekir | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 9/16 | Montemurro, Michael | Self |
| TGbe (MAC) | 9/16 | Montreuil, Leo | Broadcom Corporation |
| TGbe (MAC) | 9/16 | Moon, Juseong | Korea National University of Transportation |
| TGbe (MAC) | 9/16 | Morioka, Hitoshi | SRC Software |
| TGbe (MAC) | 9/16 | Murti, Wisnu | SeoulTech |
| TGbe (MAC) | 9/16 | Naribole, Sharan | SAMSUNG |
| TGbe (MAC) | 9/16 | Nezou, Patrice | Canon Research Centre France |
| TGbe (MAC) | 9/16 | Nguyen, An | DHS/CISA |
| TGbe (MAC) | 9/16 | noh, yujin | Newracom Inc. |
| TGbe (MAC) | 9/16 | Ozbakis, Basak | VESTEL |
| TGbe (MAC) | 9/16 | Palm, Stephen | Broadcom Corporation |
| TGbe (MAC) | 9/16 | Park, Minyoung | Intel Corporation |
| TGbe (MAC) | 9/16 | Patil, Abhishek | Qualcomm Incorporated |
| TGbe (MAC) | 9/16 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| TGbe (MAC) | 9/16 | Petrick, Albert | InterDigital, Inc. |
| TGbe (MAC) | 9/16 | Pettersson, Charlie | Ericsson AB |
| TGbe (MAC) | 9/16 | QIU, WEI | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/16 | Rafique, Saira | Istanbul Medipol University ; VESTEL |
| TGbe (MAC) | 9/16 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbe (MAC) | 9/16 | Rantala, Enrico-Henrik | Nokia |
| TGbe (MAC) | 9/16 | Rege, Kiran | Perspecta Labs |
| TGbe (MAC) | 9/16 | Reshef, Ehud | Intel Corporation |
| TGbe (MAC) | 9/16 | Sakoda, Kazuyuki | Sony Corporation |
| TGbe (MAC) | 9/16 | Salman, Hanadi | Istanbul Medipol University; VESTEL |
| TGbe (MAC) | 9/16 | Sandhu, Shivraj | Qualcomm Incorporated |
| TGbe (MAC) | 9/16 | Sethi, Ankit | NXP Semiconductors |
| TGbe (MAC) | 9/16 | Sevin, Julien | Canon Research Centre France |
| TGbe (MAC) | 9/16 | Sherlock, Ian | Texas Instruments Incorporated |
| TGbe (MAC) | 9/16 | Smely, Di Dieter | Kapsch TrafficCom AG |
| TGbe (MAC) | 9/16 | Stacey, Robert | Intel Corporation |
| TGbe (MAC) | 9/16 | Stott, Noel | Keysight Technologies |
| TGbe (MAC) | 9/16 | Sun, Bo | ZTE Corporation |
| TGbe (MAC) | 9/16 | Sun, Li-Hsiang | InterDigital, Inc. |
| TGbe (MAC) | 9/16 | SURACI, FRANK | U.S. Department of Homeland Security |
| TGbe (MAC) | 9/16 | Tanaka, Yusuke | Sony Corporation |
| TGbe (MAC) | 9/16 | THOUMY, Francois | Canon Research Centre France |
| TGbe (MAC) | 9/16 | Torab Jahromi, Payam | Facebook |
| TGbe (MAC) | 9/16 | Urabe, Yoshio | Panasonic Corporation |
| TGbe (MAC) | 9/16 | VIGER, Pascal | Canon Research Centre France |
| TGbe (MAC) | 9/16 | Wang, Chao Chun | MediaTek Inc. |
| TGbe (MAC) | 9/16 | Wang, Hao | Tencent |
| TGbe (MAC) | 9/16 | Wang, Lei | Huawei R&D USA |
| TGbe (MAC) | 9/16 | Wang, Qi | Apple, Inc. |
| TGbe (MAC) | 9/16 | Wang, Xiaofei | InterDigital, Inc. |
| TGbe (MAC) | 9/16 | Want, Roy | Google |
| TGbe (MAC) | 9/16 | Wentink, Menzo | Qualcomm |
| TGbe (MAC) | 9/16 | Wilhelmsson, Leif | Ericsson AB |
| TGbe (MAC) | 9/16 | Wu, Tianyu | Apple, Inc. |
| TGbe (MAC) | 9/16 | Wullert, John | Perspecta Labs |
| TGbe (MAC) | 9/16 | Xin, Liangxiao | Sony Corporation |
| TGbe (MAC) | 9/16 | Xin, Yan | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/16 | Xue, Qi | Qualcomm Incorporated |
| TGbe (MAC) | 9/16 | Xue, Ruifeng | Cisco Systems, Inc. |
| TGbe (MAC) | 9/16 | YAGHOOBI, HASSAN | Intel Corporation |
| TGbe (MAC) | 9/16 | Yang, Bo | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/16 | Yang, Jay | Nokia |
| TGbe (MAC) | 9/16 | YANG, RUI | InterDigital, Inc. |
| TGbe (MAC) | 9/16 | Yang, Yunsong | Futurewei Technologies |
| TGbe (MAC) | 9/16 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 9/16 | Yee, James | MediaTek Inc. |
| TGbe (MAC) | 9/16 | yi, yongjiang | Futurewei Technologies |
| TGbe (MAC) | 9/16 | Yu, Heejung | Korea University |
| TGbe (MAC) | 9/16 | Yu, Jian | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/16 | Zein, Nader | NEC Laboratories Europe |
| TGbe (MAC) | 9/16 | Zeng, Yan | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 9/16 | Zuo, Xin | Tencent |

1. The Chair reminds that the agenda can be found in 11-20/1269r6. The Chair asked for the comments about the agenda. Tere was no further comments. The agenda was approved.

**Submissions**

1. [1359r3](https://mentor.ieee.org/802.11/dcn/20/11-20-1359-02-00be-pdt-mac-eht-operation-element.docx) EHT Operation element Guogang Huang [SP]

Discussion:

C: asked to remove to TBD in third row of the table (ENT Operation Informaiton field).

A: agreed.

C: 160+160 should be removed.

A: 160+160 is in the motion

C: 160+160 should be highlighted in yellow.

A: we should follow the passed motion.

SP:

Do you support to incorporate the proposed draft text in 11-20/1359r4 into TGbe Draft 0.1?

The straw polls are deferred.

51/13/35

1. 1353r5 EHT BSS operation Liwen Chu [SP]

Discussion:

C: change HE Operating element to HE Operation element.

A: agreed.

C: using same primary channel by HE and EHT should be clarified.

A: the same primary channel for HE Operation element and EHT Operaiton element since they share the same primary channel field.

SP:

Do you support to incorporate the proposed draft text in 11-20/1353r5 into TGbe Draft 0.1?

The straw polls are deferred.

54/1/39

1. 1309r5 ML General, Authentication, Association, and Setup Po-Kai Huang [SP]

Discussion:

C: P21, regarding data, do we support TDLS?

A: We don’t have motion about TDLS.

More discussion about TDLS, e.g. legacy TDLS. Most people agreed to not include TDLS.

SP:

Do you support to incorporate Part II of the proposed draft text in 11-20/1353r5 into TGbe Draft 0.1?

The straw polls are deferred.

Approved with unanimous consent

1. 1281r4 TXOP-Bandwidth Signaling Kaiying Lu [SP]

Discussion:

C: once the TXVECTOR is mentioned, the changes in 9.3 for various control frames are not needed.

A: in 9.2 scrambler sequence is mentioned. This is not true for >160MHz non-HT duplicate PPDU.

C: no change is needed in subcaluse 21.

A: so where should we put the changes.

C: we need to change subclause 17. But further discussion is needed.

C: TBD field in 9.3 seems MAC layer change.

A: But TBD field can be in RESERVED field of SERVICE field.

SP:

Do you support to incorporate the proposed draft text in 11-20/1281r4 into TGbe Draft 0.1?

The straw polls are deferred.

Approved with unanimous consent

1. 1336r5 MLO BA: share and extension of SN space Liwen Chu [SP]

Discussion:

The ahthor indicated that the BA bitmap length indication is not in line the passed motion.

1. 1295r9 Multi-Link-Channel-Access-General-Non-STR Matthew Fischer [SP]

Discussion:

C: the definition question. Why you called out receiving RTS.

A: the subclause is about CTS procedure.

The teleconference was adjourned at 11:00am EDT

**Monday 21 Sept 2020, 10:00 AM– 01:00PM ET (Gbe MAC ad hoc conference call)**

Chairman: Jeongki Kim (LG Electronics)

Secretary: Liwen Chu (NXP)

This meeting took place using a WebEx session.

**Introduction**

1. The Chair (Jeongki, LG) calls the meeting to order at 10:04am EDT. The Chair introduces himself and the Secretary, Liwen Chu (NXP)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents. Nobody speaks up.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imam](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Jeongki Kim ([jeongki.kim@lge.com](mailto:jeongki.kim@lge.com)) and Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com))

**Recorded attendance through Imat and e-mail:**

|  |  |  |  |
| --- | --- | --- | --- |
| Breakout | Timestamp | Name | Affiliation |
| TGbe (MAC) | 9/21 | Aboulmagd, Osama | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 9/21 | Akhmetov, Dmitry | Intel Corporation |
| TGbe (MAC) | 9/21 | Andersdotter, Amelia | None - Self-funded |
| TGbe (MAC) | 9/21 | Asterjadhi, Alfred | Qualcomm Incorporated |
| TGbe (MAC) | 9/21 | Baek, SunHee | LG ELECTRONICS |
| TGbe (MAC) | 9/21 | Bankov, Dmitry | IITP RAS |
| TGbe (MAC) | 9/21 | baron, stephane | Canon Research Centre France |
| TGbe (MAC) | 9/21 | Bredewoud, Albert | Broadcom Corporation |
| TGbe (MAC) | 9/21 | Carney, William | Sony Corporation |
| TGbe (MAC) | 9/21 | Chen, Na | MaxLinear Corp |
| TGbe (MAC) | 9/21 | Cheng, Paul | MediaTek Inc. |
| TGbe (MAC) | 9/21 | Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 9/21 | Chu, Liwen | NXP Semiconductors |
| TGbe (MAC) | 9/21 | Das, Dibakar | Intel Corporation |
| TGbe (MAC) | 9/21 | Das, Subir | Perspecta Labs Inc. |
| TGbe (MAC) | 9/21 | Derham, Thomas | Broadcom Corporation |
| TGbe (MAC) | 9/21 | Ding, Baokun | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/21 | Dong, Xiandong | Xiaomi Inc. |
| TGbe (MAC) | 9/21 | Fang, Yonggang | ZTE TX Inc |
| TGbe (MAC) | 9/21 | Ghosh, Chittabrata | Intel Corporation |
| TGbe (MAC) | 9/21 | Guo, Yuchen | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/21 | Han, Jonghun | SAMSUNG |
| TGbe (MAC) | 9/21 | Han, Zhiqiang | ZTE Corporation |
| TGbe (MAC) | 9/21 | Hong, Hanseul | WILUS Inc. |
| TGbe (MAC) | 9/21 | Hsu, Chien-Fang | MediaTek Inc. |
| TGbe (MAC) | 9/21 | Huang, Guogang | Huawei |
| TGbe (MAC) | 9/21 | Huang, Po-Kai | Intel Corporation |
| TGbe (MAC) | 9/21 | Inoue, Yasuhiko | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 9/21 | Kakani, Naveen | Qualcomm Incorporated |
| TGbe (MAC) | 9/21 | Kedem, Oren | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/21 | Khorov, Evgeny | IITP RAS |
| TGbe (MAC) | 9/21 | Kim, Sang Gook | LG ELECTRONICS |
| TGbe (MAC) | 9/21 | Kim, Sanghyun | WILUS Inc |
| TGbe (MAC) | 9/21 | Kim, Yongho | Korea National University of Transportation |
| TGbe (MAC) | 9/21 | Kim, Youn-Kwan | The Catholic University of Korea |
| TGbe (MAC) | 9/21 | Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 9/21 | Klein, Arik | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/21 | Klimakov, Andrey | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/21 | Kneckt, Jarkko | Apple, Inc. |
| TGbe (MAC) | 9/21 | Ko, Geonjung | WILUS Inc. |
| TGbe (MAC) | 9/21 | Kwon, Young Hoon | NXP Semiconductors |
| TGbe (MAC) | 9/21 | Le Houerou, Brice | Canon Research Centre France |
| TGbe (MAC) | 9/21 | Levitsky, Ilya | IITP RAS |
| TGbe (MAC) | 9/21 | Li, Yiqing | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/21 | Lin, Wei | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/21 | Liu, Yong | Apple, Inc. |
| TGbe (MAC) | 9/21 | Lu, Liuming | ZTE Corporation |
| TGbe (MAC) | 9/21 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbe (MAC) | 9/21 | Lv, kaiying | MediaTek Inc. |
| TGbe (MAC) | 9/21 | Ma, Mengyao | HUAWEI |
| TGbe (MAC) | 9/21 | Max, Sebastian | Ericsson AB |
| TGbe (MAC) | 9/21 | Moon, Juseong | Korea National University of Transportation |
| TGbe (MAC) | 9/21 | Naribole, Sharan | SAMSUNG |
| TGbe (MAC) | 9/21 | Nezou, Patrice | Canon Research Centre France |
| TGbe (MAC) | 9/21 | Ouchi, Masatomo | Canon |
| TGbe (MAC) | 9/21 | Park, Minyoung | Intel Corporation |
| TGbe (MAC) | 9/21 | Patil, Abhishek | Qualcomm Incorporated |
| TGbe (MAC) | 9/21 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| TGbe (MAC) | 9/21 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbe (MAC) | 9/21 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGbe (MAC) | 9/21 | Sedin, Jonas | Ericsson AB |
| TGbe (MAC) | 9/21 | Sevin, Julien | Canon Research Centre France |
| TGbe (MAC) | 9/21 | Solaija, Muhammad Sohaib | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 9/21 | Startsev, Ivan | IITP RAS |
| TGbe (MAC) | 9/21 | Wang, Chao Chun | MediaTek Inc. |
| TGbe (MAC) | 9/21 | Wang, Huizhao | Quantenna Communications, Inc. |
| TGbe (MAC) | 9/21 | Wang, Lei | Huawei R&D USA |
| TGbe (MAC) | 9/21 | Wang, Qi | Apple, Inc. |
| TGbe (MAC) | 9/21 | Wang, Xiaofei | InterDigital, Inc. |
| TGbe (MAC) | 9/21 | Wentink, Menzo | Qualcomm |
| TGbe (MAC) | 9/21 | Wullert, John | Perspecta Labs |
| TGbe (MAC) | 9/21 | Yang, Jay | Nokia |
| TGbe (MAC) | 9/21 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 9/21 | Yee, James | MediaTek Inc. |

1. The Chair reminds that the agenda can be found in 11-20/1269r8. The Chair asked for the comments about the agenda. Tere was no further comments. The agenda was approved.

**Submissions**

1. [1309r6](https://mentor.ieee.org/802.11/dcn/20/11-20-1309-04-00be-proposed-draft-specification-for-ml-general-mld-authentication-mld-association-and-ml-setup.docx) ML General, Authentication, Association, and Setup Po-Kai Huang [SP]

SP:

Do you support to incorporate Part III of the proposed draft text in 11-20/1309r6 into TGbe Draft 0.1?

Approved with unanimous consent.

1. [1336r](https://mentor.ieee.org/802.11/dcn/20/11-20-1336-05-00be-11be-spec-text-for-mlo-ba-share-and-extension-of-sn-space.docx)5 MLO BA: share and extension of SN space Liwen Chu [SP]

SP:

Do you support to incorporate the proposed draft text in 11-20/1336r5 into TGbe Draft 0.1?

Approved with unanimous consent.

1. [1292r6](https://mentor.ieee.org/802.11/dcn/20/11-20-1292-05-00be-pdt-mac-mlo-power-save-traffic-indication.docx) MLO Power Save Traffic Indication Minyoung Park [SP]

Discussion:

C: last sentence question. What is the purpose to use the recommended link?

A: this is based on Motion 106 from Abhi. Non-AP MLD uses single link for Beacon reception to save power. AP MLD recommend to non-AP MLD which link is recommended for receiving the buffered frames.

SP:

Do you support to incorporate the proposed draft text in 11-20/1292r6 into TGbe Draft 0.1?

Approved with unanimous consent.

1. [1395r10](https://mentor.ieee.org/802.11/dcn/20/11-20-1395-10-00be-pdt-mac-mlo-multi-link-channel-access-general-non-str.docx) Multi-Link-Channel-Access-General-Non-STR Matthew Fischer [SP]

Discussion:

C: the definition should not be normative text. It should refer to related normative subclause. The definition should be cleaned up.

C: concern on the definition on NSTR. The content should be moved to related normative subclause. The original definition is clearer.

A: the detail in the definition is addded to give the recipient more informaiton to decide which to do. This is based on the discussion in teleconference and offline discussion.

C: I am wondering whether we should consider the CCA.

A: minimum receive sensitivity is 20db less than ED. CCA is the combination of ED, minimum receive sensitivity etc.

C: the 3rd and 4th paragraph are contradicted with each other.

A: they don’t contradict.

C: they are not from the motion text.

A: we will do the SP about whether put the text in the draft.

C: remove receive minimum input from the contribution.

A: ok.

C: prefer simple definition. There is no motion related to the definition.

A: receive many comments that suggest more complex statement.

C:do you want to do separate SPs of the 3rd and 4th paragraphs (last two paragraphs)?

A: yes.

SP 1:

do you wish to keep 2nd from last paragraph?

”A STA that is affiliated with a non-AP MLD may transmit a frame on a link of one of its NSTR link pairs at the same time that another STA affiliated with the same non-AP MLD is not receiving a frame addressed to that receiving STA on the other link of the NSTR link pair, provided that the transmission meets other restrictions indicated in this subclause.”

29Y, 21N, 25A

SP 2:

do you wish to keep the last paragraph?

” A STA that is affiliated with a non-AP MLD and that transmits a frame on a link of one of its NSTR link pairs at the same time that another STA affiliated with the same non-AP MLD is receiving a frame on the other link of the NSTR link pair should ensure that the transmitted PPDU ends at the same time or earlier than the PPDU that is being recevied”

12Y, 41N, 27A

1. [1320r5](https://mentor.ieee.org/802.11/dcn/20/11-20-1320-04-00be-pdt-mac-mlo-multi-link-channel-access-capability-signaling.docx) Multi-link-channel-access-capability-signaling Yunbo Li

Discussion:

C: the last sentence of 1st paragraph duplicates with Matthew’s contribution. The contributions should be harmonized.

A: ok.

C: similar with the first commenter. The 3rd last paragraph seems to allow simultaneous transmission with NSTR.

A: it is not allowed. The paragraph refers to other paragraph which allows transmitting in one link and receiving in another link.

C: how dynamic about your dynamic STR capability? It is per TXOP capability?

A: agree that it should be clarified.

C: second part ofthe first paragraph is already coverred by Matthew’s contribution.

A: will check offline.

1. [1274r5](https://mentor.ieee.org/802.11/dcn/20/11-20-1274-04-00be-mac-pdt-mlo-ml-ie-structure.docx) ML-IE-Structure Abhishek Patil

Discussion:

C: P7, what is the meaning of ”Number of Supported Links”?

A: the links that the MLD can work on. It is not related to the radio.

C: Do you think we shuld put multi-link element in authentication frame?

A: I think so.

C: RNR element will be enough in DL. ML IE may not be needed.

A: With RNR, how do you know the number of supported links?

C: RNR will carry all the informaiton of the links.

A: no strong opinion of ”Number of Supported Links”. I can remove it.

C: comment of complete and partial indicaiton. There is no motion related to Complete Profile field.

A: sometimes partial profile is needed. Sometimes complete information is needed. We need clear indicaiton.

1. [1332r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1332-02-00be-pdt-mac-mlo-bss-parameter-update.docx) MLO BSS parameter update Ming Gan

Discussion:

C: we have no motion about how the change sequence will be carried when multi-BSSID is supported. The motion mentioned it as TBD.

A: ok.

C: in 3rd paragraph, another AP should be that AP.

A: agreed.

C: the length of Change Sequence should be TBD.

C: The motion doesn’t mention the Check Beacon field.

A: I can change the text to ”the Change Sequence field is TBD”.

C: the last paragraph should not be shall requirement. It is internal behavior.

A: it is copied from the motion.

1. [1333r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1333-01-00be-pdt-mac-mlo-discovery-ml-ie-usage-rules-in-the-context-of-discovery.docx) ML IE usage/rules in the context of discovery Ming Gan

Discussion:

C: you should not say common informaiton field. Common infomation includes multiple fields.

A: ok.

C: the last paragraph should cover Beacon also per the motion.

A: other paragraph already covers the Beacon.

C: no.

C: the first sentence. The motion is ”when including in the Beacon frame the ML element should...”. You should use the motion text.

C: the last sentence should be removed. It is in ML element.

A: there is no motion about it.

1. [1407r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1407-04-00be-pdt-mac-mlo-soft-ap-mld-operation.docx) Soft-AP-MLD-Operation Kaiying Lu

Discussion:

C: in the definition you should refer to a pair of links.

A: ok.

C: what do you mean by ”when the same physical device acts as non-AP MLD”?

A: change to ”with dot11softAPMLDActivated”.

The teleconference was adjourned at 01:00pm EDT

**Wednesday 23 Sept 2020, 10:00 AM– 01:00PM ET (Gbe MAC ad hoc conference call)**

Chairman: Jeongki Kim (LG Electronics)

Secretary: Liwen Chu (NXP)

This meeting took place using a WebEx session.

**Introduction**

1. The Chair (Jeongki, LG) calls the meeting to order at 10:04am EDT. The Chair introduces himself and the Secretary, Liwen Chu (NXP)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents. Nobody speaks up.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imam](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Jeongki Kim ([jeongki.kim@lge.com](mailto:jeongki.kim@lge.com)) and Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com))

**Recorded attendance through Imat and e-mail:**

|  |  |  |  |
| --- | --- | --- | --- |
| TGbe (MAC) | 9/23 | AbidRabbu, Shaima' | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 9/23 | Akhmetov, Dmitry | Intel Corporation |
| TGbe (MAC) | 9/23 | Asterjadhi, Alfred | Qualcomm Incorporated |
| TGbe (MAC) | 9/23 | Au, Kwok Shum | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 9/23 | Avital, Ziv | MaxLinear |
| TGbe (MAC) | 9/23 | Baek, SunHee | LG ELECTRONICS |
| TGbe (MAC) | 9/23 | Bankov, Dmitry | IITP RAS |
| TGbe (MAC) | 9/23 | baron, stephane | Canon Research Centre France |
| TGbe (MAC) | 9/23 | Cepni, Gurkan | Apple, Inc. |
| TGbe (MAC) | 9/23 | chen, jindou | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/23 | CHERIAN, GEORGE | Qualcomm Incorporated |
| TGbe (MAC) | 9/23 | Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 9/23 | Choi, Jinsoo | LG ELECTRONICS |
| TGbe (MAC) | 9/23 | Chu, Liwen | NXP Semiconductors |
| TGbe (MAC) | 9/23 | Das, Dibakar | Intel Corporation |
| TGbe (MAC) | 9/23 | Das, Subir | Perspecta Labs Inc. |
| TGbe (MAC) | 9/23 | Derham, Thomas | Broadcom Corporation |
| TGbe (MAC) | 9/23 | de Vegt, Rolf | Qualcomm Incorporated |
| TGbe (MAC) | 9/23 | Ding, Baokun | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/23 | Dong, Xiandong | Xiaomi Inc. |
| TGbe (MAC) | 9/23 | Fischer, Matthew | Broadcom Corporation |
| TGbe (MAC) | 9/23 | Ghosh, Chittabrata | Intel Corporation |
| TGbe (MAC) | 9/23 | Guo, Yuchen | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/23 | Han, Zhiqiang | ZTE Corporation |
| TGbe (MAC) | 9/23 | Handte, Thomas | Sony Corporation |
| TGbe (MAC) | 9/23 | Hervieu, Lili | Cable Television Laboratories Inc. (CableLabs) |
| TGbe (MAC) | 9/23 | Ho, Duncan | Qualcomm Incorporated |
| TGbe (MAC) | 9/23 | Hong, Hanseul | WILUS Inc. |
| TGbe (MAC) | 9/23 | Hsu, Chien-Fang | MediaTek Inc. |
| TGbe (MAC) | 9/23 | Hu, Chunyu | Facebook |
| TGbe (MAC) | 9/23 | Huang, Guogang | Huawei |
| TGbe (MAC) | 9/23 | Huang, Lei | Guangdong OPPO Mobile Telecommunications Corp.,Ltd |
| TGbe (MAC) | 9/23 | Huang, Po-Kai | Intel Corporation |
| TGbe (MAC) | 9/23 | Inohiza, Hirohiko | Canon |
| TGbe (MAC) | 9/23 | Inoue, Yasuhiko | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 9/23 | Ji, Chenhe | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/23 | Jiang, Jinjing | Apple, Inc. |
| TGbe (MAC) | 9/23 | Kamel, Mahmoud | InterDigital, Inc. |
| TGbe (MAC) | 9/23 | Kedem, Oren | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/23 | Khan, Naseem | Leidos Engineering. LLC |
| TGbe (MAC) | 9/23 | Kim, Jeongki | LG ELECTRONICS |
| TGbe (MAC) | 9/23 | Kim, Sang Gook | LG ELECTRONICS |
| TGbe (MAC) | 9/23 | Kim, Sanghyun | WILUS Inc |
| TGbe (MAC) | 9/23 | Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 9/23 | Klein, Arik | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/23 | Klimakov, Andrey | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/23 | Ko, Geonjung | WILUS Inc. |
| TGbe (MAC) | 9/23 | Kondo, Yoshihisa | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 9/23 | Lalam, Massinissa | SAGEMCOM BROADBAND SAS |
| TGbe (MAC) | 9/23 | Li, Yiqing | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/23 | Lin, Wei | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/23 | Liu, Der-Zheng | Realtek Semiconductor Corp. |
| TGbe (MAC) | 9/23 | Liu, Jianfei | HUAWEI |
| TGbe (MAC) | 9/23 | Lorgeoux, Mikael | Canon Research Centre France |
| TGbe (MAC) | 9/23 | Lou, Hanqing | InterDigital, Inc. |
| TGbe (MAC) | 9/23 | Lu, kaiying | MediaTek Inc. |
| TGbe (MAC) | 9/23 | Lu, Liuming | ZTE Corporation |
| TGbe (MAC) | 9/23 | Ma, Mengyao | HUAWEI |
| TGbe (MAC) | 9/23 | Memisoglu, Ebubekir | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 9/23 | Nezou, Patrice | Canon Research Centre France |
| TGbe (MAC) | 9/23 | Nguyen, An | DHS/CISA |
| TGbe (MAC) | 9/23 | Ozbakis, Basak | VESTEL |
| TGbe (MAC) | 9/23 | Patil, Abhishek | Qualcomm Incorporated |
| TGbe (MAC) | 9/23 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| TGbe (MAC) | 9/23 | Petrick, Albert | InterDigital, Inc. |
| TGbe (MAC) | 9/23 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbe (MAC) | 9/23 | Rege, Kiran | Perspecta Labs |
| TGbe (MAC) | 9/23 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGbe (MAC) | 9/23 | Salman, Hanadi | Istanbul Medipol University; VESTEL |
| TGbe (MAC) | 9/23 | Sambasivan, Sam | AT&T |
| TGbe (MAC) | 9/23 | Seok, Yongho | MediaTek Inc. |
| TGbe (MAC) | 9/23 | Startsev, Ivan | IITP RAS |
| TGbe (MAC) | 9/23 | SUH, JUNG HOON | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/23 | Sun, Bo | ZTE Corporation |
| TGbe (MAC) | 9/23 | Sun, Li-Hsiang | InterDigital, Inc. |
| TGbe (MAC) | 9/23 | Sun, Yanjun | Qualcomm Incorporated |
| TGbe (MAC) | 9/23 | SURACI, FRANK | U.S. Department of Homeland Security |
| TGbe (MAC) | 9/23 | THOUMY, Francois | Canon Research Centre France |
| TGbe (MAC) | 9/23 | Torab Jahromi, Payam | Facebook |
| TGbe (MAC) | 9/23 | Verenzuela, Daniel | Sony Corporation |
| TGbe (MAC) | 9/23 | Wang, Chao Chun | MediaTek Inc. |
| TGbe (MAC) | 9/23 | Wang, Huizhao | Quantenna Communications, Inc. |
| TGbe (MAC) | 9/23 | Wang, Lei | Huawei R&D USA |
| TGbe (MAC) | 9/23 | Wang, Qi | Apple, Inc. |
| TGbe (MAC) | 9/23 | Wang, Xiaofei | InterDigital, Inc. |
| TGbe (MAC) | 9/23 | Wu, Tianyu | Apple, Inc. |
| TGbe (MAC) | 9/23 | Wullert, John | Perspecta Labs |
| TGbe (MAC) | 9/23 | Yang, Bo | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/23 | Yang, Jay | Nokia |
| TGbe (MAC) | 9/23 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 9/23 | Yee, James | MediaTek Inc. |
| TGbe (MAC) | 9/23 | yi, yongjiang | Futurewei Technologies |
| TGbe (MAC) | 9/23 | Yu, Jian | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/23 | Zein, Nader | NEC Laboratories Europe |
| TGbe (MAC) | 9/23 | Zhou, Yifan | Huawei Technologies Co., Ltd |

1. The Chair reminds that the agenda can be found in 11-20/1269r10. The Chair asked for the comments about the agenda. Two SP (for 11-20/1274, 11-20/1320) are removed per the requests. The agenda was approved.

**Submissions**

1. [1395r12](https://mentor.ieee.org/802.11/dcn/20/11-20-1371-00-00be-pdt-phy-subcarriers-and-resource-allocation-for-wideband.docx) Multi-Link-Channel-Access-General-Non-STR Matthew Fischer [SP]

Discussion:

C: This is PHY related topic and should be discussed in joint meeting.

A: the motion will be in joint session. The PHY guys can review it.

C: Why the maximum Tx power is specified?

A: this NSTR link capability will be used by the other device. Under certain condition, a pair of link will be NSTR or STR link pair.

SP:

Do you support to incorporate the proposed draft text in 11-20/1395r12 into TGbe Draft 0.1?

29Y, 7N, 53A

1. [1332r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1332-02-00be-pdt-mac-mlo-bss-parameter-update.docx) MLO BSS parameter update Ming Gan [SP]

Discussion:

C: ”when critical update to any element occurs” should be changed to ”when critical update occurs”.

A: the text follows the baseline.

C: the text doesn’t work for non-transmitted BSSID.

C: lots of changes discussed in previous meeting are not adpoted. Agree with previous comments. Probe response also includes critical update. The text should cover it.

SP is deferred

1. [1333r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1333-01-00be-pdt-mac-mlo-discovery-ml-ie-usage-rules-in-the-context-of-discovery.docx) ML IE usage/rules in the context of discovery Ming Gan [SP]

SP:

Do you support to incorporate the proposed draft text in 11-20/1333r2 into TGbe Draft 0.1?

Approved with unanimous consent

1. [1407r6](https://mentor.ieee.org/802.11/dcn/20/11-20-1407-05-00be-pdt-mac-mlo-soft-ap-mld-operation.docx) Soft-AP-MLD-Operation Kaiying Lu [SP]

Discussion:

C: the definition can’t be mapped to the motion. What is the relation between AP MLD and non-AP MLD?

A: they share the same antenna connector.

Continue the discussions about the definition....

SP is deferred

1. [1409r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1409-02-00be-pdt-mac-sta-id.docx) STA-ID Yongho Seok

Discussion:

C: change ”is set to” to ”shall be set to”.

A: ok.

C: why the second paragraph is deleted?

A: I received the comment that we don’t have related text in SFD. I can add it back.

C: What does the element mean?

A: it is from the baseline.

SP:

Do you support to incorporate the proposed draft text in 11-20/1409r3 into TGbe Draft 0.1?

Approved with unanimous consent

1. [1434r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1434-02-00be-pdt-for-ns-ep-priority-access.docx) NS/EP Priority Access Subir Das

Discussion:

C: the document should be in line with the motion. Some are not coverred by the motions. Some motions are not coverred by the text.

A: please provide your further detail comments that we can incorporate.

C: there is no EHT in your text. Are you assuming that this is applied to EHT anf non-EHT device?

A: Yes.

SP is deferred.

1. [1408r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1408-00-00be-pdt-mac-txop-preamble-puncturing.docx) TXOP-Preamble-Puncturing Yanjun Sun

Discussion:

C: Do we need the note?

A: we don’t have term. I am open to delete it.

C: is this static or dynamic one?

A: it is open.

C: avoid is weak. Please change ”avoid” to ”not transmit”.

A: ok.

C: the inactive channel announcement should be in line with NDPA.

A: we can merge them later.

C: do you want to define the new parameter.

A: yes. We need to cover wider BW, e.g. 320MHz.

SP is deferred.

1. [1440r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1440-02-00be-pdt-mac-mlo-enhanced-multi-link-operation-mode.docx) MLO enhanced multi-link operation mode Young Hoon Kwon

Discussion:

C: Minyoung’s motion is for single radio. It doesn’t cover the last paragraph.

A: I have different opinion.

Continuing the debate about this comment...

SP is deferred.

1. [1445r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1445-02-00be-pdt-mac-mlo-setup-security.docx) MLO-Setup-Security Duncan Ho

Discussion:

C: we should change the 4-way handshake. GTK should be done in each link.

A: the issue with it is the timing concern.

Continuing the debate about this comment...

SP is deferred.

1. [1411r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1411-01-00be-pdt-mac-mlo-group-addressed-data-frame.docx) Group addressed data delivery Kaiying Lu

Discussion:

C: the first paragraph is more in scope of channel access than group address operation. The second paragraph can’t guarantee loop prevention. We should avoid the retransmission back to the initiating MLD.

A: we want to let the initiating MLD to filter out the group-addressed frames. The text is exact from the motion.

C: if there is technical issue, should we discuss it?

A: you can prepare the presentation about it (TG chair).

C: we can move the last paragraph to the related subclause in the baseline.

C: we should separate the first paragraph to two: one for AP MLD behavior, another for non-AP MLD behavior.

SP is deferred.

1. [1431r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1431-00-00be-proposed-draft-specification-for-individual-addressed-data-delivery-without-ba-negotiation.docx) MLO-TID mapping/Link management: Individual addressed data delivery without BA negotiation Po-Kai Huang

Discussion:

C: the retry limit text miss the successful case.

A: will check the baseline.

C: many redundacy with baseline.

A: I can combine this with baseline.

The teleconference was adjourned at 01:00pm EDT

**Thursday 24 Sept 2020, 07:00 PM– 10:00PM ET (Gbe MAC ad hoc conference call)**

Chairman: Jeongki Kim (LG Electronics)

Secretary: Liwen Chu (NXP)

This meeting took place using a WebEx session.

**Introduction**

1. The Chair (Jeongki, LG) calls the meeting to order at 07:04pm EDT. The Chair introduces himself and the Secretary, Liwen Chu (NXP)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents. Nobody speaks up.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imam](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Jeongki Kim ([jeongki.kim@lge.com](mailto:jeongki.kim@lge.com)) and Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com))

**Recorded attendance through Imat and e-mail:**

|  |  |  |  |
| --- | --- | --- | --- |
| TGbe (MAC) | 9/24 | AbidRabbu, Shaima' | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 9/24 | Abushattal, Abdelrahman | Istanbul Medipol university ;Vestel |
| TGbe (MAC) | 9/24 | Adachi, Tomoko | TOSHIBA Corporation |
| TGbe (MAC) | 9/24 | Asai, Yusuke | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 9/24 | Baek, SunHee | LG ELECTRONICS |
| TGbe (MAC) | 9/24 | baron, stephane | Canon Research Centre France |
| TGbe (MAC) | 9/24 | Cariou, Laurent | Intel Corporation |
| TGbe (MAC) | 9/24 | Carney, William | Sony Corporation |
| TGbe (MAC) | 9/24 | Chen, Na | MaxLinear Corp |
| TGbe (MAC) | 9/24 | Cheng, Paul | MediaTek Inc. |
| TGbe (MAC) | 9/24 | CHERIAN, GEORGE | Qualcomm Incorporated |
| TGbe (MAC) | 9/24 | Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 9/24 | Chu, Liwen | NXP Semiconductors |
| TGbe (MAC) | 9/24 | Das, Dibakar | Intel Corporation |
| TGbe (MAC) | 9/24 | Das, Subir | Perspecta Labs Inc. |
| TGbe (MAC) | 9/24 | de Vegt, Rolf | Qualcomm Incorporated |
| TGbe (MAC) | 9/24 | Ding, Baokun | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/24 | Dong, Xiandong | Xiaomi Inc. |
| TGbe (MAC) | 9/24 | Fang, Yonggang | ZTE TX Inc |
| TGbe (MAC) | 9/24 | Fischer, Matthew | Broadcom Corporation |
| TGbe (MAC) | 9/24 | Ghosh, Chittabrata | Intel Corporation |
| TGbe (MAC) | 9/24 | Guo, Yuchen | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/24 | Haider, Muhammad Kumail | Facebook |
| TGbe (MAC) | 9/24 | Hamilton, Mark | Ruckus/CommScope |
| TGbe (MAC) | 9/24 | Han, Zhiqiang | ZTE Corporation |
| TGbe (MAC) | 9/24 | Ho, Duncan | Qualcomm Incorporated |
| TGbe (MAC) | 9/24 | Hong, Hanseul | WILUS Inc. |
| TGbe (MAC) | 9/24 | Hsu, Chien-Fang | MediaTek Inc. |
| TGbe (MAC) | 9/24 | Hu, Chunyu | Facebook |
| TGbe (MAC) | 9/24 | Huang, Guogang | Huawei |
| TGbe (MAC) | 9/24 | Huang, Po-Kai | Intel Corporation |
| TGbe (MAC) | 9/24 | Inoue, Yasuhiko | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 9/24 | Jang, Insun | LG ELECTRONICS |
| TGbe (MAC) | 9/24 | Jiang, Jinjing | Apple, Inc. |
| TGbe (MAC) | 9/24 | Jung, hyojin | Hyundai Motor Company |
| TGbe (MAC) | 9/24 | Kain, Carl | USDoT |
| TGbe (MAC) | 9/24 | Kandala, Srinivas | SAMSUNG |
| TGbe (MAC) | 9/24 | Khan, Naseem | Leidos Engineering. LLC |
| TGbe (MAC) | 9/24 | kim, namyeong | LG ELECTRONICS |
| TGbe (MAC) | 9/24 | Kim, Sang Gook | LG ELECTRONICS |
| TGbe (MAC) | 9/24 | Kim, Sanghyun | WILUS Inc |
| TGbe (MAC) | 9/24 | Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 9/24 | Kneckt, Jarkko | Apple, Inc. |
| TGbe (MAC) | 9/24 | Ko, Geonjung | WILUS Inc. |
| TGbe (MAC) | 9/24 | Kondo, Yoshihisa | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 9/24 | Kwon, Young Hoon | NXP Semiconductors |
| TGbe (MAC) | 9/24 | Le Houerou, Brice | Canon Research Centre France |
| TGbe (MAC) | 9/24 | Levy, Joseph | InterDigital, Inc. |
| TGbe (MAC) | 9/24 | Li, Yiqing | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/24 | Lin, Wei | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/24 | Lu, kaiying | MediaTek Inc. |
| TGbe (MAC) | 9/24 | Lu, Liuming | ZTE Corporation |
| TGbe (MAC) | 9/24 | Ma, Mengyao | HUAWEI |
| TGbe (MAC) | 9/24 | Mehrnoush, Morteza | Facebook |
| TGbe (MAC) | 9/24 | Monajemi, Pooya | Cisco Systems, Inc. |
| TGbe (MAC) | 9/24 | NANDAGOPALAN, SAI SHANKAR | Cypress Semiconductor Corporation |
| TGbe (MAC) | 9/24 | Naribole, Sharan | SAMSUNG |
| TGbe (MAC) | 9/24 | Nguyen, An | DHS/CISA |
| TGbe (MAC) | 9/24 | Ouchi, Masatomo | Canon |
| TGbe (MAC) | 9/24 | Park, Minyoung | Intel Corporation |
| TGbe (MAC) | 9/24 | Patil, Abhishek | Qualcomm Incorporated |
| TGbe (MAC) | 9/24 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| TGbe (MAC) | 9/24 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbe (MAC) | 9/24 | Rege, Kiran | Perspecta Labs |
| TGbe (MAC) | 9/24 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGbe (MAC) | 9/24 | Sambasivan, Sam | AT&T |
| TGbe (MAC) | 9/24 | Singh, Ray | Perspecta labs |
| TGbe (MAC) | 9/24 | SU, HONGJIA | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 9/24 | Sun, Li-Hsiang | InterDigital, Inc. |
| TGbe (MAC) | 9/24 | Sun, Yanjun | Qualcomm Incorporated |
| TGbe (MAC) | 9/24 | SURACI, FRANK | U.S. Department of Homeland Security |
| TGbe (MAC) | 9/24 | Torab Jahromi, Payam | Facebook |
| TGbe (MAC) | 9/24 | Wang, Chao Chun | MediaTek Inc. |
| TGbe (MAC) | 9/24 | Wang, Lei | Huawei R&D USA |
| TGbe (MAC) | 9/24 | Wang, Qi | Apple, Inc. |
| TGbe (MAC) | 9/24 | Wang, Xiaofei | InterDigital, Inc. |
| TGbe (MAC) | 9/24 | Wullert, John | Perspecta Labs |
| TGbe (MAC) | 9/24 | Yang, Bo | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/24 | Yang, Jay | Nokia |
| TGbe (MAC) | 9/24 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 9/24 | Yee, James | MediaTek Inc. |
| TGbe (MAC) | 9/24 | yi, yongjiang | Futurewei Technologies |
| TGbe (MAC) | 9/24 | Yukawa, Mitsuyoshi | Canon, Inc. |
| TGbe (MAC) | 9/24 | Zeng, Yan | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 9/24 | Zuo, Xin | Tencent |

1. The Chair reminds that the agenda can be found in 11-20/1269r12. The Chair asked for the comments about the agenda. 1440 was deferred per the request. Several revisions changes were requsted. 1255 was added per the request. The updated agenda was approved.

**Submissions**

1. [1320r6](https://mentor.ieee.org/802.11/dcn/20/11-20-1320-05-00be-pdt-mac-mlo-multi-link-channel-access-capability-signaling.docx) Multi-link-channel-access-capability-signaling Yunbo Li [SP]

Discussion:

C: If the limitation related sentence is removed, ”the signaling is TBD” open the door for everything.

A: will be added back with some modification.

C: many TBDs exist. Why so many inconsistant terms?

A: we don’t have motions for those TBDs.

C: are TBD Capability element and TBD element same or different?

A: currently there is not motion about it. Want to keep it open.

C: the capability doesn’t change.

A: STR capability may change.

C: So that should be operating parameter.

C: agreed with Alfred. We converged to pair-wise STR/NSTR operation. This may not be good for the case of MLD with many links.

C: there are so many updates. The SP should be deferred.

C: can we remove single radio MLD?

Continues the discussion whether single radio MLD should be removed or not...

SP (for the updated text in R7):

Do you support to incorporate the proposed draft text in 11-20/1320r7 into TGbe Draft 0.1?

32Y,12N,27A

1. [1274r6](https://mentor.ieee.org/802.11/dcn/20/11-20-1274-05-00be-mac-pdt-mlo-ml-ie-structure.docx) ML-IE-Structure Abhishek Patil [SP]

Discussion:

C: the link ID utility is not clear to me.

A: ML IE may carry multiple per link prifiles. The receiver needs know which per link profile is for which link.

C: can link ID be changed on both sides?

A: AP MLD decides the link ID.

C: Please remove the items that have no motions to support, e.g. ML element in Authentication frame.

C: ML element should be optional in Beacon.

A: change it to TBD.

C: MLD MAC address shouldn’t be optional in ML element.

A: we can leave is as is. If there is related motion in the future, we can change it.

C: complete indication should be removed sinec no motion supports it.

A: the feedback from the group is that we need it.

C: I prefer to remove link ID from ML element sine no motion supports it.

A: prefer to keep it.

SP (for updated text in R7):

Do you support to incorporate the proposed draft text in 11-20/1274r7 into TGbe Draft 0.1?

25Y, 23N, 27A

1. [1332r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1332-02-00be-pdt-mac-mlo-bss-parameter-update.docx) MLO BSS parameter update Ming Gan [SP]

Discussion:

C: same comments as before. Non-transmitted BSSID as part of MLD is missing

A: the motion doesn’t cover it.

C: multiple frames is not right since ths change sequence increases once when the critical update occurs.

A: the text is in line with baseline.

C: we shouldn’t copy the error from the baseline.

SP:

Do you support to incorporate the proposed draft text in 11-20/1332r4 into TGbe Draft 0.1?

25Y, 20N, 29A

C: (question to TG chair) my contribution is in line with motions. But many people voted no. Can TG chair gives the guideline?

A: the general rule is to biuld consensus. There are several contributions in today’s meeting without consensus. Those contributions should try before next Monday.

C: (question to TG chair) what is the time allocated to each SP.

A: each SP should have about 20 minutes.

1. [1407r8](https://mentor.ieee.org/802.11/dcn/20/11-20-1407-05-00be-pdt-mac-mlo-soft-ap-mld-operation.docx) Soft-AP-MLD-Operation Kaiying Lu [SP]

Discussion:

C: the definiton is based on MIB variable. Do you have behavior description for soft AP in this contribution?

A: the detail will be added later.

C: soft AP definition seems talk about a device with two parts: non-AP MLD and soft AP MLD.

A: we want to clarify that two logical MLDs are in a devcie.

C: are two logicl MLDs required to be active at the same time?

A: no. Whether the two MLDs are active at the same time is up to deployment.

C: how to differentiate soft AP from mesh STA?

A: here we don’t talk about easy mesh.

Continue the discussion of whether the defination text means that soft AP and non-AP MLD in a device at the same time...

SP:

Do you support to incorporate the proposed draft text in 11-20/1407r8 into TGbe Draft 0.1?

29Y, 20N, 27A

SP (for updated text in R9 where the soft AP definition is TBD):

Do you support to incorporate the proposed draft text in 11-20/1407r9 into TGbe Draft 0.1?

30Y, 26N, 22A

1. [1434r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1434-02-00be-pdt-for-ns-ep-priority-access.docx) NS/EP Priority Access Subir Das [SP]

Discussion:

C: do you assume all EHT APs will support it?

A: it is optional to EHT AP.

C: we should limit it to 11be. The authentication is out the scope of IEEE. 11be should just define Action frames.

A: You are right for your last comment. Any device supporting this feature can activate it.

C: How about my first comment.

A: we have some discussion. We thought it is good idea to open the door for the device other than EHT STA. If the group think the text should be in clause 33, we are also fine.

C: thanks for address my many concerns. I agreed with the previous commenter. We should limit the scope to EHT feature.

A: same reply to the previous commenter.

C: same comment as the previous two commenters.

A: I can move the text to subclause 33.

SP was deferred

1. [1408r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1408-00-00be-pdt-mac-txop-preamble-puncturing.docx) TXOP-Preamble-Puncturing Yanjun Sun [SP]

SP:

Do you support to incorporate the proposed draft text in 11-20/1408r2 into TGbe Draft 0.1?

Approved with unanimous consent

C: can we have SP other than DPTs before DPTs’SPs?

A: (TG chair) the priofity will be given to DPT contributions since next Monday is the last chance for approving the text for D0.1.

C: if the text is not approved by SP, the text will not be D0.1?

A: (TG chair) yes.

The teleconference was adjourned at 10:00pm EDT

**Monday 28 Sept 2020, 07:00 PM– 10:00PM ET (Gbe MAC ad hoc conference call)**

Chairman: Jeongki Kim (LG Electronics)

Secretary: Liwen Chu (NXP)

This meeting took place using a WebEx session.

**Introduction**

1. The Chair (Jeongki, LG) calls the meeting to order at 07:04pm EDT. The Chair introduces himself and the Secretary, Liwen Chu (NXP)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents. Nobody speaks up.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imam](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Jeongki Kim ([jeongki.kim@lge.com](mailto:jeongki.kim@lge.com)) and Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com))

**Recorded attendance through Imat and e-mail:**

|  |  |  |  |
| --- | --- | --- | --- |
| TGbe (MAC) | 9/28 | Abouelseoud, Mohamed | Sony Corporation |
| TGbe (MAC) | 9/28 | Adachi, Tomoko | TOSHIBA Corporation |
| TGbe (MAC) | 9/28 | Akhmetov, Dmitry | Intel Corporation |
| TGbe (MAC) | 9/28 | Aldana, Carlos | Facebook |
| TGbe (MAC) | 9/28 | Asai, Yusuke | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 9/28 | Au, Kwok Shum | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 9/28 | Carney, William | Sony Corporation |
| TGbe (MAC) | 9/28 | CHAN, YEE | Facebook |
| TGbe (MAC) | 9/28 | Chen, Na | MaxLinear Corp |
| TGbe (MAC) | 9/28 | Cheng, Paul | MediaTek Inc. |
| TGbe (MAC) | 9/28 | CHERIAN, GEORGE | Qualcomm Incorporated |
| TGbe (MAC) | 9/28 | Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 9/28 | Chu, Liwen | NXP Semiconductors |
| TGbe (MAC) | 9/28 | Coffey, John | Realtek Semiconductor Corp. |
| TGbe (MAC) | 9/28 | Das, Dibakar | Intel Corporation |
| TGbe (MAC) | 9/28 | Das, Subir | Perspecta Labs Inc. |
| TGbe (MAC) | 9/28 | de Vegt, Rolf | Qualcomm Incorporated |
| TGbe (MAC) | 9/28 | Ding, Baokun | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/28 | Dong, Xiandong | Xiaomi Inc. |
| TGbe (MAC) | 9/28 | Fang, Yonggang | ZTE TX Inc |
| TGbe (MAC) | 9/28 | Haider, Muhammad Kumail | Facebook |
| TGbe (MAC) | 9/28 | Hamilton, Mark | Ruckus/CommScope |
| TGbe (MAC) | 9/28 | Han, Jonghun | SAMSUNG |
| TGbe (MAC) | 9/28 | Han, Zhiqiang | ZTE Corporation |
| TGbe (MAC) | 9/28 | Ho, Duncan | Qualcomm Incorporated |
| TGbe (MAC) | 9/28 | Hsu, Chien-Fang | MediaTek Inc. |
| TGbe (MAC) | 9/28 | Hu, Chunyu | Facebook |
| TGbe (MAC) | 9/28 | Huang, Guogang | Huawei |
| TGbe (MAC) | 9/28 | Huang, Po-Kai | Intel Corporation |
| TGbe (MAC) | 9/28 | Huang, Xiaolong | Qualcomm Incorporated |
| TGbe (MAC) | 9/28 | Inohiza, Hirohiko | Canon |
| TGbe (MAC) | 9/28 | Inoue, Yasuhiko | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 9/28 | Ji, Chenhe | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/28 | Jiang, Jinjing | Apple, Inc. |
| TGbe (MAC) | 9/28 | Kakani, Naveen | Qualcomm Incorporated |
| TGbe (MAC) | 9/28 | Kedem, Oren | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/28 | Khan, Naseem | Leidos Engineering. LLC |
| TGbe (MAC) | 9/28 | kim, namyeong | LG ELECTRONICS |
| TGbe (MAC) | 9/28 | Kim, Sang Gook | LG ELECTRONICS |
| TGbe (MAC) | 9/28 | Kim, Yongho | Korea National University of Transportation |
| TGbe (MAC) | 9/28 | Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 9/28 | Ko, Geonjung | WILUS Inc. |
| TGbe (MAC) | 9/28 | Kondo, Yoshihisa | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 9/28 | Kwon, Young Hoon | NXP Semiconductors |
| TGbe (MAC) | 9/28 | Li, Yiqing | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/28 | Li, Yunbo | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 9/28 | Lin, Wei | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/28 | Liu, Jianfei | HUAWEI |
| TGbe (MAC) | 9/28 | Lu, kaiying | MediaTek Inc. |
| TGbe (MAC) | 9/28 | Lu, Liuming | ZTE Corporation |
| TGbe (MAC) | 9/28 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbe (MAC) | 9/28 | Ma, Mengyao | HUAWEI |
| TGbe (MAC) | 9/28 | Monajemi, Pooya | Cisco Systems, Inc. |
| TGbe (MAC) | 9/28 | Nezou, Patrice | Canon Research Centre France |
| TGbe (MAC) | 9/28 | Otani, Hanae | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 9/28 | Ouchi, Masatomo | Canon |
| TGbe (MAC) | 9/28 | Park, Minyoung | Intel Corporation |
| TGbe (MAC) | 9/28 | Patil, Abhishek | Qualcomm Incorporated |
| TGbe (MAC) | 9/28 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| TGbe (MAC) | 9/28 | Petrick, Albert | InterDigital, Inc. |
| TGbe (MAC) | 9/28 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbe (MAC) | 9/28 | Rege, Kiran | Perspecta Labs |
| TGbe (MAC) | 9/28 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGbe (MAC) | 9/28 | Salman, Hanadi | Istanbul Medipol University; VESTEL |
| TGbe (MAC) | 9/28 | Sambasivan, Sam | AT&T |
| TGbe (MAC) | 9/28 | Sandhu, Shivraj | Qualcomm Incorporated |
| TGbe (MAC) | 9/28 | Seok, Yongho | MediaTek Inc. |
| TGbe (MAC) | 9/28 | Sevin, Julien | Canon Research Centre France |
| TGbe (MAC) | 9/28 | Singh, Ray | Perspecta labs |
| TGbe (MAC) | 9/28 | Sun, Li-Hsiang | InterDigital, Inc. |
| TGbe (MAC) | 9/28 | Sun, Yanjun | Qualcomm Incorporated |
| TGbe (MAC) | 9/28 | SURACI, FRANK | U.S. Department of Homeland Security |
| TGbe (MAC) | 9/28 | Torab Jahromi, Payam | Facebook |
| TGbe (MAC) | 9/28 | Wang, Chao Chun | MediaTek Inc. |
| TGbe (MAC) | 9/28 | Wang, Lei | Huawei R&D USA |
| TGbe (MAC) | 9/28 | Wang, Qi | Apple, Inc. |
| TGbe (MAC) | 9/28 | Wullert, John | Perspecta Labs |
| TGbe (MAC) | 9/28 | Yang, Bo | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 9/28 | Yang, Jay | Nokia |
| TGbe (MAC) | 9/28 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 9/28 | Yee, James | MediaTek Inc. |
| TGbe (MAC) | 9/28 | yi, yongjiang | Futurewei Technologies |
| TGbe (MAC) | 9/28 | Yukawa, Mitsuyoshi | Canon, Inc. |
| TGbe (MAC) | 9/28 | Zou, Tristan | Qualcomm Incorporated |

1. The Chair reminds that the agenda can be found in 11-20/1269r14. The Chair asked for the comments about the agenda. Several request were made to update the revision numbers. The updated agenda was approved with the updated revision numbers.

**Submissions**

1. [1440r6](https://mentor.ieee.org/802.11/dcn/20/11-20-1440-04-00be-pdt-mac-mlo-enhanced-multi-link-operation-mode.docx) MLO enhanced multi-link operation mode Young Hoon Kwon [SP]

Discussion:

C: change ”suppoted” to ”support”

A: ok.

C: you miss one of my comment about including Nss and Nsts. Nsts shouldn’t be there since EHT will not include STBC.

A: STBC may still be used in HE PPDU.

C: but the capability announcement for Tx and Rx in 11ax is based on Nss.

A: ok I will change to Nss.

SP (for updated text in R7):

Do you support to incorporate the proposed draft text in 11-20/1440r7 into TGbe Draft 0.1?

Approved with unanimous consent

1. [1445r5](https://mentor.ieee.org/802.11/dcn/20/11-20-1445-03-00be-pdt-mac-mlo-setup-security.docx) MLO-Setup-Security Duncan Ho [SP]

Discussion:

C: In CCM originator processing subclause, why GTK is listed here?

A: broadcast can also use CCM.

C: broadcast will use per-link GTK.

A: I see your point. Will fix it.

C: GTKSA shouldn’t be deleted since the current GTKSA text is for AP not affiliated with AP MLD.

A: will fix it.

SP (for updated text in R6):

Do you support to incorporate the proposed draft text in 11-20/1445r6 into TGbe Draft 0.1?

Approved with unanimous consent

1. [1411r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1411-03-00be-pdt-mac-mlo-group-addressed-data-frame.docx) Group addressed data delivery Kaiying Lu [SP]

Discussion:

C: the last sentence in the document is technically wrong. We can fix it in the later round.

SP:

Do you support to incorporate the proposed draft text in 11-20/1411r4 into TGbe Draft 0.1?

Approved with unanimous consent

1. [1431r5](https://mentor.ieee.org/802.11/dcn/20/11-20-1431-03-00be-proposed-draft-specification-for-individual-addressed-data-delivery-without-ba-negotiation.docx) MLO-TID mapping/Link management: Individual addressed data delivery without BA negotiation Po-Kai Huang [SP]

Discussion:

C: ”until retry limit is met” is not enough.

A: this sentence only talk about unsuccessful case.

C: the text is not in line with the baseline.

A: ok, will fix it by adding successful delivery case.

C: want to confirm this is applied to frame transmission with BA agreement.

A: these two are not same in baseline. Will fix it in the next round.

C: destinated MLD address is not right. It should be MLD address affiliated with Addr 1 (Addr2) in the received frame (transmitted frame).

A: will fix it.

SP(for updated text in R6):

Do you support to incorporate the proposed draft text in 11-20/1431r6 into TGbe Draft 0.1?

Approved with unanimous consent

1. [1320r8](https://mentor.ieee.org/802.11/dcn/20/11-20-1320-07-00be-pdt-mac-mlo-multi-link-channel-access-capability-signaling.docx) Multi-link-channel-access-capability-signaling Yunbo Li [SP]

Discussion:

C: 3rd paragraph, agreed you don’t want Action frame. The language is too loose. I put my suggestion in chat window.

A: some people have concern abouting updating the capability.

C: you can put the note in the motion back where the how often to make the change and how quick that the change takes effect are coverred.

A: people have concern to the original note.

C: we should either clarify all the TBDs or keep the motion text.

A: ok, will add the the switching delay for the TBD.

SP(for updated text in R9):

Do you support to incorporate the proposed draft text in 11-20/1320r9 into TGbe Draft 0.1?

Approved with unanimous consent

1. [1274r8](https://mentor.ieee.org/802.11/dcn/20/11-20-1274-07-00be-mac-pdt-mlo-ml-ie-structure.docx) ML-IE-Structure Abhishek Patil [SP]

Discussion:

C: You may not need non-ML Probe Request.

A: this claify two Probe Request.

C: complete or partial ML Probe Requesnse is not coverred by the motion. The ”ML” should be deleted.

A: change it to ”following the rules in 33.3.2.2 (ML Probing)”.

SP(for updated text in R9):

Do you support to incorporate the proposed draft text in 11-20/1274r9 into TGbe Draft 0.1?

Approved with unanimous consent

1. [1332r5](https://mentor.ieee.org/802.11/dcn/20/11-20-1332-04-00be-pdt-mac-mlo-bss-parameter-update.docx) MLO BSS parameter update Ming Gan [SP]

Discussion:

C: RNR will include Change Sequence field. You don’t need to mention it here.

A: the name is already used in baseline that may be different from the name here.

C: We can delete the sentence.

A: It follows the motion. I can use the sentence ”the name and the foramt is TBD”.

A: I put a note about the TBD for Change Sequence of non-transmitted BSSID AP and APs affiliated with non-transmitted BSSID AP.

C: Do you have some technical concern, or just want to reflect the motion?

A: for non-transmitted BSSID AP and APs affiliated with non-transmitted BSSID AP, various methods can be used.

C: we do want to carry the change sequence of non-transmitted BSSID AP and APs affiliated with non-transmitted BSSID AP. I think the note in the motion aleady imply it althorugh you may have other method to carry it. You may run SP about the two options.

A: I would like to put TBD now, and submit my contribution.

Contimue the discussion about the comment...

SP #1

Do you support the following text

If an AP within an AP MLD is transmitted BSSID in a Multiple BSSID set, the AP shall include in the the Beacon and Probe Response frames it transmits a Change Sequence field for each of other APs in the same AP MLD as a nontransmitted BSSID in the same multiple BSSID set as the AP.

27Y,30N,24A

SP #2 (for updated text in R6 by removing the text failed in SP #1):

Do you support to incorporate the proposed draft text in 11-20/1332r6 into TGbe Draft 0.1?

Approved with unanimous consent

1. [1407r11](https://mentor.ieee.org/802.11/dcn/20/11-20-1407-09-00be-pdt-mac-mlo-soft-ap-mld-operation.docx) Soft-AP-MLD-Operation Kaiying Lu [SP]

Discussion:

C: question to subclause 33, MIB varialbe should include NSTR.

A: NSTR soft AP should support soft AP, so the MIB variable doesn’t include NSTR.

C: I don’t understand why you emphisize non-AP MLD in the same devcie as soft AP MLD. I prefer option 2.

A: option 1 is in line with the passed motion.

C: I don’t think battery powered make sense for soft AP. Soft AP can be wall charged.

A: I understand your concernt. I can add the other charesteristics TBD in the definition.

C: ”other charesteristics TBD” open the door for all the possibilities.

A: I can do SPs for with and without ”other charesteristics TBD”.

C: it is not clear whether the other features of AP requrement are mandatory for soft AP or not.

SP #1:

Do you support to incorporate the proposed draft text (only including Option 1) in 11-20/1407r11 into TGbe Draft 0.1?

50Y, 29N, 24A

SP #2 (updated text in R12 by removing option 1):

Do you support to incorporate the proposed draft text (only including Option 2) in 11-20/1407r11 into TGbe Draft 0.1?

45Y, 27N, 18A

1. [1434r5](https://mentor.ieee.org/802.11/dcn/20/11-20-1434-04-00be-pdt-for-ns-ep-priority-access.docx) NS/EP Priority Access Subir Das [SP]

Discussion:

C: do we need mention EHT STA and EHT AP?

A: it implies EHT STA and EHT AP in this clause.

SP (updated text in R6 by removing TBD before EHT Capability element):

Do you support to incorporate the proposed draft text in 11-20/1434r6 into TGbe Draft 0.1?

Approved with unanimous consent

1. [1255r5](https://mentor.ieee.org/802.11/dcn/20/11-20-1434-04-00be-pdt-for-ns-ep-priority-access.docx) Laurent Cariou [SP]

Discussion:

C: it seems the second bullet in the first paragraph is not needed.

A: We should keep it.

C: thanks the new version addressed my concerns.

SP:

Do you support to incorporate the proposed draft text in 11-20/1255r5 into TGbe Draft 0.1?

Approved with unanimous consent

The chair annoucned that Edward will incorporate the text staw polled today, the POCs please do the review.

The teleconference was adjourned at 10:00pm EDT

**Thursday 08 Oct 2020, 07:00 PM– 10:00PM ET (Gbe MAC ad hoc conference call)**

Chairman: Jeongki Kim (LG Electronics)

Secretary: Liwen Chu (NXP)

This meeting took place using a WebEx session.

**Introduction**

1. The Chair (Jeongki, LG) calls the meeting to order at 07:04pm EDT. The Chair introduces himself and the Secretary, Liwen Chu (NXP)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents. Nobody speaks up.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imam](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Jeongki Kim ([jeongki.kim@lge.com](mailto:jeongki.kim@lge.com)) and Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com))

**Recorded attendance through Imat and e-mail:**

|  |  |  |  |
| --- | --- | --- | --- |
| TGbe (MAC) | 10/8 | Abdelaal, Rana | Broadcom Corporation |
| TGbe (MAC) | 10/8 | AbidRabbu, Shaima' | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 10/8 | Aboulmagd, Osama | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 10/8 | Abushattal, Abdelrahman | Istanbul Medipol university ;Vestel |
| TGbe (MAC) | 10/8 | Adachi, Tomoko | TOSHIBA Corporation |
| TGbe (MAC) | 10/8 | Agarwal, Peyush | Broadcom Corporation |
| TGbe (MAC) | 10/8 | Akhmetov, Dmitry | Intel Corporation |
| TGbe (MAC) | 10/8 | Asai, Yusuke | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 10/8 | Asterjadhi, Alfred | Qualcomm Incorporated |
| TGbe (MAC) | 10/8 | Baek, SunHee | LG ELECTRONICS |
| TGbe (MAC) | 10/8 | Batra, Anuj | Apple, Inc. |
| TGbe (MAC) | 10/8 | Bhandaru, Nehru | Broadcom Corporation |
| TGbe (MAC) | 10/8 | Boldy, David | Broadcom Corporation |
| TGbe (MAC) | 10/8 | Carney, William | Sony Corporation |
| TGbe (MAC) | 10/8 | CHAN, YEE | Facebook |
| TGbe (MAC) | 10/8 | CHERIAN, GEORGE | Qualcomm Incorporated |
| TGbe (MAC) | 10/8 | Chu, Liwen | NXP Semiconductors |
| TGbe (MAC) | 10/8 | Coffey, John | Realtek Semiconductor Corp. |
| TGbe (MAC) | 10/8 | Das, Subir | Perspecta Labs Inc. |
| TGbe (MAC) | 10/8 | Dash, Debashis | Apple, Inc. |
| TGbe (MAC) | 10/8 | Derham, Thomas | Broadcom Corporation |
| TGbe (MAC) | 10/8 | de Vegt, Rolf | Qualcomm Incorporated |
| TGbe (MAC) | 10/8 | Ding, Baokun | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/8 | Dong, Xiandong | Xiaomi Inc. |
| TGbe (MAC) | 10/8 | Fang, Yonggang | ZTE TX Inc |
| TGbe (MAC) | 10/8 | Garg, Lalit | Broadcom Corporation |
| TGbe (MAC) | 10/8 | Ghobrial, Ayman | Broadcom Corporation |
| TGbe (MAC) | 10/8 | Ghosh, Chittabrata | Intel Corporation |
| TGbe (MAC) | 10/8 | Guo, Yuchen | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/8 | Hamilton, Mark | Ruckus/CommScope |
| TGbe (MAC) | 10/8 | Han, Jonghun | SAMSUNG |
| TGbe (MAC) | 10/8 | Ho, Duncan | Qualcomm Incorporated |
| TGbe (MAC) | 10/8 | Hsu, Chien-Fang | MediaTek Inc. |
| TGbe (MAC) | 10/8 | Hu, Chunyu | Facebook |
| TGbe (MAC) | 10/8 | Huang, Guogang | Huawei |
| TGbe (MAC) | 10/8 | Inoue, Yasuhiko | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 10/8 | Jiang, Jinjing | Apple, Inc. |
| TGbe (MAC) | 10/8 | Jung, hyojin | Hyundai Motor Company |
| TGbe (MAC) | 10/8 | Kain, Carl | USDoT |
| TGbe (MAC) | 10/8 | Kedem, Oren | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/8 | Kim, Sang Gook | LG ELECTRONICS |
| TGbe (MAC) | 10/8 | Kim, Sanghyun | WILUS Inc |
| TGbe (MAC) | 10/8 | Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) |
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| TGbe (MAC) | 10/8 | Ko, Geonjung | WILUS Inc. |
| TGbe (MAC) | 10/8 | Kondo, Yoshihisa | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 10/8 | Kondylis, George | Broadcom Corporation |
| TGbe (MAC) | 10/8 | Kumar, Manish | Marvell Semiconductor, Inc. |
| TGbe (MAC) | 10/8 | Kwon, Young Hoon | NXP Semiconductors |
| TGbe (MAC) | 10/8 | Lan, Zhou | Broadcom Corporation |
| TGbe (MAC) | 10/8 | Li, Yiqing | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/8 | Li, Yunbo | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/8 | Lin, Wei | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/8 | Liu, Jeff | Broadcom Corporation |
| TGbe (MAC) | 10/8 | Liu, Jianfei | HUAWEI |
| TGbe (MAC) | 10/8 | Liu, Yong | Apple, Inc. |
| TGbe (MAC) | 10/8 | Lu, Liuming | ZTE Corporation |
| TGbe (MAC) | 10/8 | Lv, Lily | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/8 | Ma, Mengyao | HUAWEI |
| TGbe (MAC) | 10/8 | Montreuil, Leo | Broadcom Corporation |
| TGbe (MAC) | 10/8 | NANDAGOPALAN, SAI SHANKAR | Cypress Semiconductor Corporation |
| TGbe (MAC) | 10/8 | Otani, Hanae | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 10/8 | Ouchi, Masatomo | Canon |
| TGbe (MAC) | 10/8 | Palm, Stephen | Broadcom Corporation |
| TGbe (MAC) | 10/8 | Park, Minyoung | Intel Corporation |
| TGbe (MAC) | 10/8 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| TGbe (MAC) | 10/8 | Petrick, Albert | InterDigital, Inc. |
| TGbe (MAC) | 10/8 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 10/8 | QIU, WEI | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/8 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbe (MAC) | 10/8 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGbe (MAC) | 10/8 | Sevin, Julien | Canon Research Centre France |
| TGbe (MAC) | 10/8 | Shah, Tushar | Apple, Inc. |
| TGbe (MAC) | 10/8 | Song, Yi | Broadcom Corporation |
| TGbe (MAC) | 10/8 | Su, Hang | Broadcom Corporation |
| TGbe (MAC) | 10/8 | Sun, Li-Hsiang | InterDigital, Inc. |
| TGbe (MAC) | 10/8 | Sun, Yanjun | Qualcomm Incorporated |
| TGbe (MAC) | 10/8 | Tanaka, Yusuke | Sony Corporation |
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| TGbe (MAC) | 10/8 | Verma, Lochan | Qualcomm Incorporated |
| TGbe (MAC) | 10/8 | VIGER, Pascal | Canon Research Centre France |
| TGbe (MAC) | 10/8 | Wang, Hao | Tencent |
| TGbe (MAC) | 10/8 | Wang, Lei | Huawei R&D USA |
| TGbe (MAC) | 10/8 | Wang, Qi | Apple, Inc. |
| TGbe (MAC) | 10/8 | Wang, Xiaofei | InterDigital, Inc. |
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| TGbe (MAC) | 10/8 | Yong, Su Khiong | Apple, Inc. |
| TGbe (MAC) | 10/8 | Yuan, Fangchao | HUAWEI |
| TGbe (MAC) | 10/8 | Yukawa, Mitsuyoshi | Canon, Inc. |
| TGbe (MAC) | 10/8 | Zuo, Xin | Tencent |
| TGbe (MAC) | 10/8 | Patil, Abhishek | Qualcomm |

1. The Chair reminds that the agenda can be found in 11-20/1269r14. The Chair asked for the comments about the agenda. Several request were made to add the documents related to PDT, SPs. The updated agenda was approved.
2. The Chair went through 11-20/983r3 for the guidelines for solving TBDs on TGbe draft and asked whether theere are comments about it. No response was raised.

**Submissions**

1. [105r7](https://mentor.ieee.org/802.11/dcn/20/11-20-0105-07-00be-link-latency-statistics-of-multi-band-operations-in-eht.pptx) **Link Latency Statistics of Multi-band Operations in EHT** Frank Hsu [SP]

Discussion for SP2 that the author wanted to run:

C: this is general. Do you mean that this is the requirement at AP side?

A: AP can optionally provide the information. This will not be the mandatory requirement.

C: is the report provided per the request from STA?

A: we don’t touch the request from STA.

C: I see three types. Which type do you want?

A: downlink transmit delay covers the most important thing.

C: I think queue delay is the most important one. The information should be provided per the request by STA.

A: I think the information is the BSS announcement.

SP 2

**Do you support that “Link latency measurement and report in MLO” is in R1?**

43Y, 40N, 30A

1. [1046r](https://mentor.ieee.org/802.11/dcn/20/11-20-1046-05-00be-prioritized-edca-channel-access-slot-management.pptx)5 **Protected TWT Enhancement for Latency Sensitive Traffic** Chunyu Hu [SP]

Discussion for SP1 that the author wanted to run:

C: concern for this SP. You assume several points: no OBSS, better AP design etc. This is not realistic. It will harm 11be STA devices. I can’t support this proposal.

A: understand what you are saying about deployment issue. But we could start from link control.

C: covrered by previous comments. Skiped.

C: agree with the previous comments. Not sure about the mechanism. The maintaining of restricted TWT adds the complexity to the implementation.

C: similar concern about mandatory requirement. It is not clear what are the frame transmission rules in the restricted TWT SP.

A: we can add those rules later.

SP1

* **Do you agree to add to the TGbe SFD (in R1), a mode where an AP may announce restricted TWT session(s) such that:**
  + Any EHT STA associated to the AP shall end its TXOP before the start of the restricted SP(s)
  + *Note-1: the “restricted TWT” name is TBD.*
  + *Note-2: such restricted TWT SPs are intended to provide more predictable latency performance for latency sensitive traffic.*

45Y, 59N, 15A

SP1a:

* **Do you agree to add to the TGbe SFD (in R1), a mode where an AP may announce restricted TWT session(s) such that:** Any EHT STA that supports following restricted TWT schedule(s), and associated to the AP, shall end its TXOP before the start of the restricted SP(s) Note-1: The support for the restricted TWT feature is optional for the EHT Non-AP STA Note-2:  the “restricted TWT” name is TBD Note-3:  such restricted TWT SPs are intended to provide more predictable latency performance for latency sensitive traffic

45Y, 46N, 22A

1. [712r5](https://mentor.ieee.org/802.11/dcn/20/11-20-0712-04-00be-bqr-for-320mhz.pptx) **BQR for 320MHz** Yunbo Li [SP]

SP 3

* **Do you support below indications of BQR Control subfields in A-Control subfield in R2?**
  + When there are two BQR control subfields in A-Control subfield, the 1st BQR Control is used to indicate the primary 160MHz, the 2nd BQR Control is used to indicate the secondary 160MHz
  + When there is one BQR control subfield in A-Control subfield, the BQR Control is used to indicate the primary 160MHz

Approved with unanimous consent

1. [993r](https://mentor.ieee.org/802.11/dcn/20/11-20-1046-05-00be-prioritized-edca-channel-access-slot-management.pptx)7 **Discussion on methods for synchronous ML operations** Dmitry Akhmetov [SP]

Discussion for SP1 that the author wanted to run:

C: this SP was failed previously. Is there any change to the SP?

A: The SP is not changed. After the previous SP, some discussion was done. Hopefully the discussion can address the concern.

SP1

* **A non-STR MLD that intends to align the start time of the PPDUs sent on more than one link shall ensure that EDCA count down procedure is completed on all the links**
  + Note: The above restriction only applies to the case when the non-STR MLD is the TXOP initiator
  + Note: Whether to extend this mechanism to STR MLD is TBD
  + Note: R1 feature

52Y, 22N, 18A

1. [669r](https://mentor.ieee.org/802.11/dcn/20/11-20-1046-05-00be-prioritized-edca-channel-access-slot-management.pptx)5 **MLD Transition** Po-kai Huang [SP]

SP 6

* **Do you support the following in R1?**
  + For a ML transition from a legacy AP to an AP MLD, the MAC address of the non-AP STA that is associated with the legacy AP shall be used as the MLD MAC address of the non-AP MLD that is reassociated with the AP MLD
  + For a ML transition from an AP MLD to a legacy AP, the non-AP MLD MAC address of the non-AP MLD that is associated with the AP MLD shall be used as the MAC address of the non-AP STA that is reassociated with the legacy AP
  + Note: Tear down of previous association and have a new association is not an ML transition

Approved with unanimous consent

1. [974r1](https://mentor.ieee.org/802.11/dcn/20/11-20-0974-01-00be-channel-access-for-str-ap-mld-with-non-str-non-ap-mld.pptx) Channel Access for STR AP MLD with non-STR non-AP MLD Liangxiao Xin [SP]

Discussion for SP1 that the author wanted to run:

C: Is the proposal used to address the unfairness created by the blindness?

A: Yes.

C: I assume this is not unfairness issue. It is the issue related to non-AP MLD’s capability.

C: It goes too far. PPDU end time allignment should be enough. We shouldn’t add many rules at the TXOP level.

A: PPDU end time allignment can’t slove all the issues.

The author deferred the SP for offline discussion.

1. [921r2](https://mentor.ieee.org/802.11/dcn/20/11-20-0921-02-00be-discussion-about-str-capabilities-indication.pptx) **Discussion about STR Capabilities Indication**  Yunbo Li [SP]

Discussion for SP2 that the author wanted to run:

C: struggle of the definition of NSTR/STR of link pair. Is this MLD capability?

A: the link pair is related to the link numbers of the MLD.

C: Do you want to put the limit to the number of link pairs? the capability announcement has fixed length. The definition doesn’t easily scale up.

A: the capability length is the next level question.

C: suggest to replace STR capability with NSTR constraint.

A: ok.

C: please elabrate the NSTR constraint. Second sub-bullet opens the door for dynamic change of the capability and add lots of complexity for frequently updte the capability per MCS, Tx pwoer etc. Ok with the first sub-bullet.

A: the SP doesn’t touch the frequency.

SP 2 (updated SP in R3)

* **Do you support that a MLD indicates the NSTR constraint of each link pair as below?**
  + Mandatory to use 1 bit to indicate the link pair is STR or non-STR
  + If non-STR, optional to indicate other TBD parameters that describe the non-STR constraints.

44Y, 20N, 18A

1. 1407r13 Proposed Draft Text for MLO: Soft AP MLD Operation Kaiying Lu

After the discussion about whether the text should be straw polled paragraph by paragraph or as the whole, and whether 24-hour rule should be followed, the author decided to run the SP for the whole document.

Discussion:

C: struggling about what the soft AP is?

C: it is not clear about utilizing the links although I am ok with the direction.

A: ”ultilize” is in the related motion.

......

After further discussion, the author deferred the SP.

1. [1582r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1582-00-00be-ml-ie-complete-profile-indication.docx) ML IE Complete Profile indication Abhishek Patil

Discussion:

C: the change looks good. Please clarify that the whole information may be acquired with the help of inheritance.

A: ok.

C: do we allow some per STA info with whole informaiton and some per STA info with partial partial informaiton.

A: the framework allows this. But can’t fugure out the use case now.

1. [1592r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1592-00-00be-ml-ie-in-authentication-frame.docx) ML IE in Authentication frame Abhishek Patil

Discussion:

C: Do you see the need to indicate which AP will be associated in the AP MLD?

A: the link ID in association requet will announce which AP in AP MLD will be associated with.

1. [1009r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1009-03-00be-multi-link-hidden-terminal-followup.pptx) **Blindness issue for non-STR operations-followup**  Dibacar Das

SP

Do you agree to add the following to 11be SFD R1:  if during a transmission of a STA (STA-1) of a non-STR non-AP MLD, another STA (STA-2) of the same MLD cannot detect its medium state when required (due to STA-1’s UL transmission interference), STA-2 shall start a MediumSyncDelay timer at the end of STA-1's transmission, unless the STA-2 ended a transmission at the same time:

* + the MediumSyncDelay timer expires after a duration value that is either assigned by AP or specified in spec or if at least either of the following events happens:
    - any received PPDU with a valid MPDU
    - a received PPDU with a valid TxOP\_duration

whichever happens first

* + while the MediumSyncDelay timer is running the STA is only allowed to attempt to initiate up to number of TxOPs assigned by the AP (at least 1) and shall attempt to initiate that TxOP with the transmission of an RTS frame using regular EDCA backoff using baseline CCA but a TBD ED threshold value
    - The TBD ED threshold value has a default value specified in the spec (e.g., -62dBm) but can also be assigned by the AP MLD within a limited range such as between -82dBm and -62dBm
  + If the channel was busy immediately after the blind period, additional TBD rules to use RTS may apply.

Note:

* + If either the intra-BSS NAV or the inter-BSS NAV is non-zero in STA-2 at the end of transmission of STA-1, STA-2 does not transmit any PPDU using EDCA until the NAV expires.
  + If either the intra-BSS NAV or the inter-BSS NAV is non-zero in STA-2 at the end of transmission of STA-1, there could be further TBD conditions and requirements to expire the MediumSyncDelay timer.

30Y, 26N, 15A

The teleconference was adjourned at 10:03pm EDT

**Monday 12 Oct 2020, 07:00 PM– 10:00PM ET (Gbe MAC ad hoc conference call)**

Chairman: Jeongki Kim (LG Electronics)

Secretary: Liwen Chu (NXP)

This meeting took place using a WebEx session.

**Introduction**

1. The Chair (Jeongki, LG) calls the meeting to order at 07:04pm EDT. The Chair introduces himself and the Secretary, Liwen Chu (NXP)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents. Nobody speaks up.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imam](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Jeongki Kim ([jeongki.kim@lge.com](mailto:jeongki.kim@lge.com)) and Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com))

**Recorded attendance through Imat and e-mail:**

|  |  |  |  |
| --- | --- | --- | --- |
| TGbe (MAC) | 10/12 | Adachi, Tomoko | TOSHIBA Corporation |
| TGbe (MAC) | 10/12 | Aldana, Carlos | Facebook |
| TGbe (MAC) | 10/12 | Baek, SunHee | LG ELECTRONICS |
| TGbe (MAC) | 10/12 | CHAN, YEE | Facebook |
| TGbe (MAC) | 10/12 | chen, jindou | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/12 | Chen, Na | MaxLinear Corp |
| TGbe (MAC) | 10/12 | Chu, Liwen | NXP Semiconductors |
| TGbe (MAC) | 10/12 | Das, Subir | Perspecta Labs Inc. |
| TGbe (MAC) | 10/12 | Derham, Thomas | Broadcom Corporation |
| TGbe (MAC) | 10/12 | de Vegt, Rolf | Qualcomm Incorporated |
| TGbe (MAC) | 10/12 | Ding, Baokun | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/12 | Dong, Xiandong | Xiaomi Inc. |
| TGbe (MAC) | 10/12 | Erceg, Vinko | Broadcom Corporation |
| TGbe (MAC) | 10/12 | Fang, Yonggang | ZTE TX Inc |
| TGbe (MAC) | 10/12 | Fischer, Matthew | Broadcom Corporation |
| TGbe (MAC) | 10/12 | Ghobrial, Ayman | Broadcom Corporation |
| TGbe (MAC) | 10/12 | Ghosh, Chittabrata | Intel Corporation |
| TGbe (MAC) | 10/12 | Guo, Yuchen | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/12 | Haider, Muhammad Kumail | Facebook |
| TGbe (MAC) | 10/12 | Hamilton, Mark | Ruckus/CommScope |
| TGbe (MAC) | 10/12 | Han, Jonghun | SAMSUNG |
| TGbe (MAC) | 10/12 | Han, Zhiqiang | ZTE Corporation |
| TGbe (MAC) | 10/12 | Hong, Hanseul | WILUS Inc. |
| TGbe (MAC) | 10/12 | Hu, Chunyu | Facebook |
| TGbe (MAC) | 10/12 | Huang, Guogang | Huawei |
| TGbe (MAC) | 10/12 | Huang, Po-Kai | Intel Corporation |
| TGbe (MAC) | 10/12 | Inoue, Yasuhiko | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 10/12 | Jiang, Jinjing | Apple, Inc. |
| TGbe (MAC) | 10/12 | Kandala, Srinivas | SAMSUNG |
| TGbe (MAC) | 10/12 | Kedem, Oren | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/12 | kim, namyeong | LG ELECTRONICS |
| TGbe (MAC) | 10/12 | Kim, Sang Gook | LG ELECTRONICS |
| TGbe (MAC) | 10/12 | Kim, Sanghyun | WILUS Inc |
| TGbe (MAC) | 10/12 | Kneckt, Jarkko | Apple, Inc. |
| TGbe (MAC) | 10/12 | Ko, Geonjung | WILUS Inc. |
| TGbe (MAC) | 10/12 | Kondo, Yoshihisa | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 10/12 | Kondylis, George | Broadcom Corporation |
| TGbe (MAC) | 10/12 | Kwon, Young Hoon | NXP Semiconductors |
| TGbe (MAC) | 10/12 | Lan, Zhou | Broadcom Corporation |
| TGbe (MAC) | 10/12 | Li, Qinghua | Intel Corporation |
| TGbe (MAC) | 10/12 | Li, Yiqing | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/12 | Li, Yunbo | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/12 | Liu, Yong | Apple, Inc. |
| TGbe (MAC) | 10/12 | Lu, kaiying | MediaTek Inc. |
| TGbe (MAC) | 10/12 | Lu, Liuming | ZTE Corporation |
| TGbe (MAC) | 10/12 | Ma, Mengyao | HUAWEI |
| TGbe (MAC) | 10/12 | Monajemi, Pooya | Cisco Systems, Inc. |
| TGbe (MAC) | 10/12 | Montreuil, Leo | Broadcom Corporation |
| TGbe (MAC) | 10/12 | Nezou, Patrice | Canon Research Centre France |
| TGbe (MAC) | 10/12 | Ouchi, Masatomo | Canon |
| TGbe (MAC) | 10/12 | Palm, Stephen | Broadcom Corporation |
| TGbe (MAC) | 10/12 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| TGbe (MAC) | 10/12 | Petrick, Albert | InterDigital, Inc. |
| TGbe (MAC) | 10/12 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 10/12 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbe (MAC) | 10/12 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGbe (MAC) | 10/12 | Song, Yi | Broadcom Corporation |
| TGbe (MAC) | 10/12 | Su, Hang | Broadcom Corporation |
| TGbe (MAC) | 10/12 | Sun, Li-Hsiang | InterDigital, Inc. |
| TGbe (MAC) | 10/12 | Sun, Yanjun | Qualcomm Incorporated |
| TGbe (MAC) | 10/12 | Tanaka, Yusuke | Sony Corporation |
| TGbe (MAC) | 10/12 | Wang, Chao Chun | MediaTek Inc. |
| TGbe (MAC) | 10/12 | Wang, Lei | Huawei R&D USA |
| TGbe (MAC) | 10/12 | Wu, Hao | XGIMI Technology Co.Ltd |
| TGbe (MAC) | 10/12 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 10/12 | Yee, James | MediaTek Inc. |
| TGbe (MAC) | 10/12 | Yukawa, Mitsuyoshi | Canon, Inc. |
| TGbe (MAC) | 10/12 | Zhou, Yifan | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/12 | Zuo, Xin | Tencent |
| TGbe (MAC) | 10/12 | Patil, Abhishek | Qualcomm |

1. The Chair reminded that the agenda can be found in 11-20/1269r22. The Chair asked for the comments about the agenda. Several requests were made to add the SPs. Several people raised the concern about reruning SP of 1009. After the discussion, the SP of 1009 was added. 1407 was deferred per the request. The updated agenda was approved.

**Submissions**

1. [1009r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1009-03-00be-multi-link-hidden-terminal-followup.pptx) **Blindness issue for non-STR operations-followup**  Dibacar Das

After the further discussion about whether the SP of 1009 should be run, the group decided to run another SP about whether SP of 1009 should be deleted from the agenda.

SP:

Do you support to remove the 1009r4 in today’s agenda?

38Y, 39N, 16A

Per the SP result, SP in 1009r4 was run.

SP

Do you agree to add the following to 11be SFD R1:  if during a transmission of a STA (STA-1) of a non-STR non-AP MLD, another STA (STA-2) of the same MLD cannot detect its medium state when required (due to STA-1’s UL transmission interference), STA-2 shall start a MediumSyncDelay timer at the end of STA-1's transmission, unless the STA-2 ended a transmission at the same time:

* + the MediumSyncDelay timer expires after a duration value that is either assigned by AP or specified in spec or if at least either of the following events happens:
    - any received PPDU with a valid MPDU
    - a received PPDU with a valid TxOP\_duration

whichever happens first

* + while the MediumSyncDelay timer is running the STA is only allowed to attempt to initiate up to number of TxOPs assigned by the AP (at least 1) and shall attempt to initiate that TxOP with the transmission of an RTS frame using regular EDCA backoff using baseline CCA but a TBD ED threshold value
    - The TBD ED threshold value has a default value specified in the spec (e.g., -62dBm) but can also be assigned by the AP MLD within a limited range such as between -82dBm and -62dBm
  + If the channel was busy immediately after the blind period, additional TBD rules to use RTS may apply.

Note:

* + If either the intra-BSS NAV or the inter-BSS NAV is non-zero in STA-2 at the end of transmission of STA-1, STA-2 does not transmit any PPDU using EDCA until the NAV expires.
  + If either the intra-BSS NAV or the inter-BSS NAV is non-zero in STA-2 at the end of transmission of STA-1, there could be further TBD conditions and requirements to expire the MediumSyncDelay timer.

35Y, 38N, 18A

1. [586r9](https://mentor.ieee.org/802.11/dcn/20/11-20-0586-09-00be-mlo-signaling-of-critical-updates.pptx) **MLO Indication of Critical Updates** Abhishek Patil [SP]

The SP was deferred since the presentation can’t be shown.

1. [1046r6](https://mentor.ieee.org/802.11/dcn/20/11-20-1046-06-00be-prioritized-edca-channel-access-slot-management.pptx) **Protected TWT Enhancement for Latency Sensitive Traffic**  Chunyu Hu [SP]

Discussion:

C: concern about restricting non-AP STAs supporting the feature to stop their TXOP at the beginning of the restricted SP. I don’t see the value of this if other STAs not supporting such feature can’t stop at the beginning of the negotiated SP.

A: I agree with you. But other people have concern about mandating all STAs to stop at the beginning of the negotiated SP.

C: question about whether the AP should be optional.

A: this SP doesn’t discuss whether AP should be mandatory to support such feature.

.

SP (updated in R7)

* **Do you agree to add to the TGbe SFD (in R1), a mode where an EHT AP may announce restricted service periods (SPs) such that:**
  + Any EHT non-AP STA that supports following the announced restricted SPs, and associated to the AP, shall end its TXOP before the start of the restricted SP(s)
  + The support for the restricted SPs  is optional for the EHT non-AP STA
  + If the support of the mode for EHT AP is mandatory or optional is TBD
  + *Note:  such restricted SPs are intended to provide more predictable latency performance for latency sensitive traffic*

45Y, 45N, 18A

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1. [586r9](https://mentor.ieee.org/802.11/dcn/20/11-20-0586-09-00be-mlo-signaling-of-critical-updates.pptx) **MLO Indication of Critical Updates** Abhishek Patil [SP]

Discussion:

C: how many change sequences do you need?

A: each AP of each AP MLD (MLD related to transmitted BSSID and nontransmitted BSSIDs) has change sequence.

C: I have some method to avoid the method of SP. Have concern about the overhead of the method.

A: each AP has its own critical event update.

C: you didn’t follow my point.

Continue the discussion...

SP 7

* **Do you support the following:** 
  + if an AP corresponding to a nontransmitted BSSID in a multiple BSSID set is affiliated with an AP MLD, then the AP corresponding to the transmitted BSSID in the same Multiple BSSID set shall include in the Beacon and Probe Response frames it transmits the Change Sequence fields that indicate changes of system information for that AP corresponding to a nontransmitted BSSID and other APs within the AP MLD to which that AP corresponding to the nontransmitted BSSID is affiliated with, where the change sequence field value for each AP is initialized to 0, and is incremented when there is a critical update to the operational parameters for that AP

41Y, 26N, 22A

1. **992r3 MLO mandatory/optional** Laurent Cariou [SP]

Discussion fpr SP 1:

C: I assume that your text covers STA1 onperaes in one band and another STA operates in another band.

A: What you proposed is related to a device. The SP tries to avoid it.

C: do you mean one STA can have multiple links?

SP 1:

* **Do you agree to add the following to the SFD:**
  + An EHT STA that is capable of operating in at least 2 bands (or 2 channels within one band) shall be part of an MLD

26Y, 40N, 19A

1. [1582r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1582-00-00be-ml-ie-complete-profile-indication.docx) ML IE Complete Profile indication Abhishek Patil [SP]

SP:

Do you support to incorporate the proposed draft text of 11-20-1582r0 into TGbe Draft 0.1?

Agreed with unanimous consent

1. [1592r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1592-00-00be-ml-ie-in-authentication-frame.docx) ML IE in Authentication frame Abhishek Patil [SP]

SP:

Do you support to incorporate the proposed draft text of 11-20-1592r0 into TGbe Draft 0.1?

31Y, 1N, 46A

1. [1610r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1610-00-00be-pdt-mac-mlo-6-3-5-and-6-authentication.docx) pdt-mac-mlo-6-3-5-and-6-authentication Yonggang Fang

Discussion:

C: why only authentication is changed?

A: several contributions will be presented.

C: the meaning of peer STAaddress is not clear to me.

A: it is MLD address.

Based on the discussion, some clarification text about peerSTAaddress was added in 6.3.5 about authentication.

SP (R1 with updated text):

Do you support to incorporate the proposed draft text in 11-20/1610r1 into TGbe Draft 0.1?

30Y, 2N, 37A

1. [1611r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1611-00-00be-pdt-mac-mlo-6-3-7-to-9-association.docx) pdt-mac-mlo-6-3-7-to-9-association Yonggang Fang

Discussion:

C: the peerSTaddress should be clarified as in 1610.

A: agreed.

C: EHT Operation element is missing.

A: will add it later.

SP (R1 with updated text):

Do you support to incorporate the proposed draft text in 11-20/1611r1 into TGbe Draft 0.1?

Approved with unanimous consent.

The chair asked if there are other business.

C: This is no time to discuss the new contributions since most time of the call is allocated to PDT.

A: from next call, more time will be allocated to the new contributions.

The teleconference was adjourned at 09:50pm EDT

**Wendesday 14 Oct 2020, 10:00AM– 01:00PM ET (Gbe MAC ad hoc conference call)**

Chairman: Jeongki Kim (LG Electronics)

Secretary: Liwen Chu (NXP)

This meeting took place using a WebEx session.

**Introduction**

1. The Chair (Jeongki, LG) calls the meeting to order at 10:04am EDT. The Chair introduces himself and the Secretary, Liwen Chu (NXP)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents. Nobody speaks up.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imam](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Jeongki Kim ([jeongki.kim@lge.com](mailto:jeongki.kim@lge.com)) and Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com))

**Recorded attendance through Imat and e-mail:**

|  |  |  |  |
| --- | --- | --- | --- |
| TGbe (MAC) | 10/14/2020 | Aboulmagd, Osama | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 10/14/2020 | Adhikari, Shubhodeep | Broadcom Corporation |
| TGbe (MAC) | 10/14/2020 | Asterjadhi, Alfred | Qualcomm Incorporated |
| TGbe (MAC) | 10/14/2020 | baron, stephane | Canon Research Centre France |
| TGbe (MAC) | 10/14/2020 | Carney, William | Sony Corporation |
| TGbe (MAC) | 10/14/2020 | Chen, Cheng | Intel Corporation |
| TGbe (MAC) | 10/14/2020 | chen, jindou | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/14/2020 | Chen, Na | MaxLinear Corp |
| TGbe (MAC) | 10/14/2020 | Cheng, Paul | MediaTek Inc. |
| TGbe (MAC) | 10/14/2020 | Chu, Liwen | NXP Semiconductors |
| TGbe (MAC) | 10/14/2020 | Coffey, John | Realtek Semiconductor Corp. |
| TGbe (MAC) | 10/14/2020 | Das, Dibakar | Intel Corporation |
| TGbe (MAC) | 10/14/2020 | Das, Subir | Perspecta Labs Inc. |
| TGbe (MAC) | 10/14/2020 | Ding, Baokun | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/14/2020 | Dong, Xiandong | Xiaomi Inc. |
| TGbe (MAC) | 10/14/2020 | Fischer, Matthew | Broadcom Corporation |
| TGbe (MAC) | 10/14/2020 | Ghosh, Chittabrata | Intel Corporation |
| TGbe (MAC) | 10/14/2020 | GUIGNARD, Romain | Canon Research Centre France |
| TGbe (MAC) | 10/14/2020 | Guo, Yuchen | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/14/2020 | Haider, Muhammad Kumail | Facebook |
| TGbe (MAC) | 10/14/2020 | Han, Jonghun | SAMSUNG |
| TGbe (MAC) | 10/14/2020 | Han, Zhiqiang | ZTE Corporation |
| TGbe (MAC) | 10/14/2020 | Hervieu, Lili | Cable Television Laboratories Inc. (CableLabs) |
| TGbe (MAC) | 10/14/2020 | Ho, Duncan | Qualcomm Incorporated |
| TGbe (MAC) | 10/14/2020 | Hong, Hanseul | WILUS Inc. |
| TGbe (MAC) | 10/14/2020 | Hsu, Chien-Fang | MediaTek Inc. |
| TGbe (MAC) | 10/14/2020 | Hu, Chunyu | Facebook |
| TGbe (MAC) | 10/14/2020 | Jiang, Jinjing | Apple, Inc. |
| TGbe (MAC) | 10/14/2020 | Kain, Carl | USDoT |
| TGbe (MAC) | 10/14/2020 | Kandala, Srinivas | SAMSUNG |
| TGbe (MAC) | 10/14/2020 | Khorov, Evgeny | IITP RAS |
| TGbe (MAC) | 10/14/2020 | Kim, Jeongki | LG ELECTRONICS |
| TGbe (MAC) | 10/14/2020 | kim, namyeong | LG ELECTRONICS |
| TGbe (MAC) | 10/14/2020 | Kim, Sanghyun | WILUS Inc |
| TGbe (MAC) | 10/14/2020 | Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 10/14/2020 | Klein, Arik | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/14/2020 | Ko, Geonjung | WILUS Inc. |
| TGbe (MAC) | 10/14/2020 | Kondo, Yoshihisa | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 10/14/2020 | Kwon, Young Hoon | NXP Semiconductors |
| TGbe (MAC) | 10/14/2020 | Le Houerou, Brice | Canon Research Centre France |
| TGbe (MAC) | 10/14/2020 | Levitsky, Ilya | IITP RAS |
| TGbe (MAC) | 10/14/2020 | Levy, Joseph | InterDigital, Inc. |
| TGbe (MAC) | 10/14/2020 | Li, Yiqing | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/14/2020 | Lorgeoux, Mikael | Canon Research Centre France |
| TGbe (MAC) | 10/14/2020 | Lu, kaiying | MediaTek Inc. |
| TGbe (MAC) | 10/14/2020 | Lu, Liuming | ZTE Corporation |
| TGbe (MAC) | 10/14/2020 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbe (MAC) | 10/14/2020 | Ouchi, Masatomo | Canon |
| TGbe (MAC) | 10/14/2020 | Park, Minyoung | Intel Corporation |
| TGbe (MAC) | 10/14/2020 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| TGbe (MAC) | 10/14/2020 | Pettersson, Charlie | Ericsson AB |
| TGbe (MAC) | 10/14/2020 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 10/14/2020 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbe (MAC) | 10/14/2020 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGbe (MAC) | 10/14/2020 | Sevin, Julien | Canon Research Centre France |
| TGbe (MAC) | 10/14/2020 | Solaija, Muhammad Sohaib | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 10/14/2020 | Sun, Li-Hsiang | InterDigital, Inc. |
| TGbe (MAC) | 10/14/2020 | Sun, Yanjun | Qualcomm Incorporated |
| TGbe (MAC) | 10/14/2020 | Verma, Sindhu | Broadcom Corporation |
| TGbe (MAC) | 10/14/2020 | Wang, Chao Chun | MediaTek Inc. |
| TGbe (MAC) | 10/14/2020 | Wang, Hao | Tencent |
| TGbe (MAC) | 10/14/2020 | Wang, Huizhao | Quantenna Communications, Inc. |
| TGbe (MAC) | 10/14/2020 | Wang, Lei | Huawei R&D USA |
| TGbe (MAC) | 10/14/2020 | Wentink, Menzo | Qualcomm |
| TGbe (MAC) | 10/14/2020 | Wullert, John | Perspecta Labs |
| TGbe (MAC) | 10/14/2020 | Zhou, Yifan | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/14/2020 | Zuo, Xin | Tencent |
| TGbe (MAC) | 10/14 | Patil, Abhishek | Qualcomm |

1. The Chair reminded that the agenda can be found in 11-20/1269r22. The Chair asked for the comments about the agenda. No comments for the agenda. The agenda was approved.

**Submissions**

1. [1140r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1140-00-00be-ecsa-for-multi-link-operation.pptx) eCSA for multi link operation Laurent Cariou

Summary: the presentation idscussed the method to mandate any AP of and AP MLD announces the channel switch and quiet period for amother AP of the same AP MLD.

Discussion:

C: for quiet element, what do you mean by the other work?

A: I don’t SP it. We can discuss it offline.

C: all the elements are related to critical update. We already have the change sequence in Beacon. Why do you include the elements related to critical update in Beacon?

A: channel switch doesn’t happen frequently. The overhead is not high.

C: But channel switch doesn’t happen right away.

A: for some case it is pretty short.

C: slide 4, the Beacon transmission time may be delayed. The beacon interval count value may have some issue.

A: need some thinking about it.

The SPs were deferred.

1. [1141r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1141-00-00be-restrictions-on-mld-probe.pptx) Restrictions on MLD Probe Cheng Chen

Summary: several methods to decrease the overhead of ML Probe Request that are simlar to decrease 6GHz Probe overhead are proposed.

Discussion:

C: do we have rules on responder side?

A: the respond rules in 11be is TBD now. Even if we add the respond rules, the issue may still there, e.g. Probe overhead. 11ax desn’t have such responding rules

C: did you do analyze the size of ML Probe Request?

A: the frame format is TBD. Accurate analyze is not possible now. The frame size will be doubled if two links are supported.

C: the inherit mechanism can decrease the overhead. The size shouldn’t be doubled.

The SP is derferred

1. [1187r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1187-00-00be-multi-link-setup-discussion.pptx) Multi-link setup discussion Yonggang Fang

Summary: the proposal discusses some issues of multi-link setup, and suggests that a non-AP MLD associates with an AP MLD for all possible supported links provided by AP MLD based on the capability of the non-AP MLD.

Discussion:

C: slide 7, 8 do make sense. I discussed the similar issue in my presentaiton. The STA MLD should be able to have different choice, e.g. whether an STA MLD establishes association with all AP MLD’s links when STA MLD has less links.

C: slide 8, do you use same MAC address when you do the link siwtch?

A: Yes.

C: this may create the nounce issue for security.

C: SP2 is already coverred by 11be D0.1.

A: SP2 disables other link.

C: you can use power save mechanism instead of link disabling.

C: for SP2, it is already allowed by 11be D0.1. For SP1 the association is in MLD level. The first sentence is already there. You may do the SP of your second sentence. I can’t find the discussion of the sencond sentence in the slides.

A: I will revise the SP.

The SP is derferred

1. [1396r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1396-00-00be-multi-link-probe-request-design.pptx) Multi-Link Probe Request Design Jason Guo

Summary: the proposal discusses a unified design of multi-link probe request, which carries multi-link element to indicate: target MLD, multiple MLDs, the target links, the target information of a link.

Discussion:

C: you use MLD address to identify which MLD is requested. We have several ways to address it. Today probe one SSID at a time. Most likely one MLD should be requested.

A: for multiple BSSID case, a STA can request multiple APs.

C: we need to identify which link to be polled. For partial informaiton polling, it is better to not use inheritance element.

C: slide 10, prefer to not use inheritance element. We can use request element.

The SP is derferred

1. [1041r3](https://mentor.ieee.org/802.11/dcn/20/11-20-1041-00-00be-edca-queue-for-rta.pptx) EDCA queue for RTA Liangxiao Xin

Summary: this presentation proposes to differentiate RTA traffic from non-RTA traffic and prioritize the transmission of RTA traffic. Multiple solutions to provide low latency service in the existing EDCA queue systems are proposed: new features to the existing EDCA queue system, new queues, new TIDs.

Discussion:

C: what is your proposal to differentiate the RTA traffic?

A: we are open to any possible solution.

C: do you think queue management is the main issue? I assume the main issue is to avoid the channel access delay.

A: I propose the new queue with high priority EDCA parameters.

C: we need to consider the scalability issue. No more room to add new queue.

C: similar comments as previous commenter. The previous simulation showed that adding more queues doesn’t help. The channel access is critical.

A: As I mentioned, the purpose is that the RTA traffic should be served first. The benefit of adding the new queue is easier for such purpose.

C: low latency support is already in PAR. Do you still need SP1?

A: we want to include it in R1.

SP1:

* **Do you support to include the following in SFD?**
  + 11be shall define a mechanism that differentiates low latency traffic from regular traffic and prioritizes the transmission of low latency traffic in R1.

Question on SP1:

C: do you mean mechanism currently defined in baseline? singling support?

A: TSPEC is one possible method.

42Y, 9N, 27A

1. [1058r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1058-00-00be-low-latency-support.pptx) Low Latency Support Liwen Chu

Summary: this presentation proposes several methods for low latency support: the frame restriction in the negotiated SP, the duration guarantee of the negotiated SP, the TID-link mapping support for low latency support.

The teleconference was adjourned at 01:00pm EDT

**Monday 19 Oct 2020, 10:00AM– 01:00PM ET (Gbe MAC ad hoc conference call)**

Chairman: Jeongki Kim (LG Electronics)

Secretary: Liwen Chu (NXP)

This meeting took place using a WebEx session.

**Introduction**

1. The Chair (Jeongki, LG) calls the meeting to order at 10:04am EDT. The Chair introduces himself and the Secretary, Liwen Chu (NXP)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents. Nobody speaks up.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imam](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Jeongki Kim ([jeongki.kim@lge.com](mailto:jeongki.kim@lge.com)) and Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com))

**Recorded attendance through Imat and e-mail:**

|  |  |  |  |
| --- | --- | --- | --- |
| TGbe (MAC) | 10/19 | AbidRabbu, Shaima' | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 10/19 | Akhmetov, Dmitry | Intel Corporation |
| TGbe (MAC) | 10/19 | Baek, SunHee | LG ELECTRONICS |
| TGbe (MAC) | 10/19 | baron, stephane | Canon Research Centre France |
| TGbe (MAC) | 10/19 | ben yahia, olfa | Olfa ben yahia  Vestel |
| TGbe (MAC) | 10/19 | Carney, William | Sony Corporation |
| TGbe (MAC) | 10/19 | CHAN, YEE | Facebook |
| TGbe (MAC) | 10/19 | chen, jindou | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/19 | Chen, Na | MaxLinear Corp |
| TGbe (MAC) | 10/19 | Cheng, Paul | MediaTek Inc. |
| TGbe (MAC) | 10/19 | CHERIAN, GEORGE | Qualcomm Incorporated |
| TGbe (MAC) | 10/19 | Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 10/19 | Chu, Liwen | NXP Semiconductors |
| TGbe (MAC) | 10/19 | Coffey, John | Realtek Semiconductor Corp. |
| TGbe (MAC) | 10/19 | Das, Dibakar | Intel Corporation |
| TGbe (MAC) | 10/19 | Das, Subir | Perspecta Labs Inc. |
| TGbe (MAC) | 10/19 | Ding, Baokun | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/19 | Dong, Xiandong | Xiaomi Inc. |
| TGbe (MAC) | 10/19 | Fischer, Matthew | Broadcom Corporation |
| TGbe (MAC) | 10/19 | Ghosh, Chittabrata | Intel Corporation |
| TGbe (MAC) | 10/19 | Gu, Xiangxin | Unisoc |
| TGbe (MAC) | 10/19 | Han, Jonghun | SAMSUNG |
| TGbe (MAC) | 10/19 | Han, Zhiqiang | ZTE Corporation |
| TGbe (MAC) | 10/19 | Handte, Thomas | Sony Corporation |
| TGbe (MAC) | 10/19 | Ho, Duncan | Qualcomm Incorporated |
| TGbe (MAC) | 10/19 | Hu, Chunyu | Facebook |
| TGbe (MAC) | 10/19 | Huang, Po-Kai | Intel Corporation |
| TGbe (MAC) | 10/19 | Jang, Insun | LG ELECTRONICS |
| TGbe (MAC) | 10/19 | Jiang, Jinjing | Apple, Inc. |
| TGbe (MAC) | 10/19 | Kain, Carl | USDoT |
| TGbe (MAC) | 10/19 | Kandala, Srinivas | SAMSUNG |
| TGbe (MAC) | 10/19 | Kedem, Oren | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/19 | Kim, Jeongki | LG ELECTRONICS |
| TGbe (MAC) | 10/19 | Kim, Sang Gook | LG ELECTRONICS |
| TGbe (MAC) | 10/19 | Kim, Sanghyun | WILUS Inc |
| TGbe (MAC) | 10/19 | Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 10/19 | Klein, Arik | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/19 | Ko, Geonjung | WILUS Inc. |
| TGbe (MAC) | 10/19 | Kondo, Yoshihisa | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 10/19 | Kwon, Young Hoon | NXP Semiconductors |
| TGbe (MAC) | 10/19 | Le Houerou, Brice | Canon Research Centre France |
| TGbe (MAC) | 10/19 | Li, Yiqing | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/19 | Liu, Jianfei | HUAWEI |
| TGbe (MAC) | 10/19 | Liu, Yong | Apple, Inc. |
| TGbe (MAC) | 10/19 | Lorgeoux, Mikael | Canon Research Centre France |
| TGbe (MAC) | 10/19 | Lu, Liuming | ZTE Corporation |
| TGbe (MAC) | 10/19 | Lv, Lily | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/19 | Max, Sebastian | Ericsson AB |
| TGbe (MAC) | 10/19 | McCann, Stephen | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 10/19 | Montemurro, Michael | Huawei |
| TGbe (MAC) | 10/19 | NANDAGOPALAN, SAI SHANKAR | Cypress Semiconductor Corporation |
| TGbe (MAC) | 10/19 | Naribole, Sharan | SAMSUNG |
| TGbe (MAC) | 10/19 | Patil, Abhishek | Qualcomm Incorporated |
| TGbe (MAC) | 10/19 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| TGbe (MAC) | 10/19 | Petrick, Albert | InterDigital, Inc. |
| TGbe (MAC) | 10/19 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 10/19 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbe (MAC) | 10/19 | RISON, Mark | Samsung Cambridge Solution Centre |
| TGbe (MAC) | 10/19 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGbe (MAC) | 10/19 | Salman, Hanadi | Istanbul Medipol University; VESTEL |
| TGbe (MAC) | 10/19 | Sedin, Jonas | Ericsson AB |
| TGbe (MAC) | 10/19 | Seok, Yongho | MediaTek Inc. |
| TGbe (MAC) | 10/19 | Solaija, Muhammad Sohaib | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 10/19 | Sun, Li-Hsiang | InterDigital, Inc. |
| TGbe (MAC) | 10/19 | Sun, Yanjun | Qualcomm Incorporated |
| TGbe (MAC) | 10/19 | VIGER, Pascal | Canon Research Centre France |
| TGbe (MAC) | 10/19 | Wang, Chao Chun | MediaTek Inc. |
| TGbe (MAC) | 10/19 | Wang, Hao | Tencent |
| TGbe (MAC) | 10/19 | Wang, Huizhao | Quantenna Communications, Inc. |
| TGbe (MAC) | 10/19 | Wang, Lei | Huawei R&D USA |
| TGbe (MAC) | 10/19 | Wullert, John | Perspecta Labs |
| TGbe (MAC) | 10/19 | Yang, Bo | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/19 | Yang, Jay | Nokia |
| TGbe (MAC) | 10/19 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 10/19 | Yee, James | MediaTek Inc. |
| TGbe (MAC) | 10/19 | yi, yongjiang | Futurewei Technologies |
| TGbe (MAC) | 10/19 | Zeng, Yan | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 10/19 | Zhou, Yifan | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/19 | Zuo, Xin | Tencent |

1. The Chair reminded that the agenda can be found in 11-20/1269r25. The Chair asked for the comments about the agenda. No comments for the agenda. The agenda was approved.

**Submissions**

1. [993r7](https://mentor.ieee.org/802.11/dcn/20/11-20-0993-07-00be-sync-ml-operations-of-non-str-device.pptx) Sync ML operations of non-STR device Dmitry Akhmetov [SP]

SP 1

* **A non-STR MLD that intends to align the start time of the PPDUs sent on more than one link shall ensure that EDCA count down procedure is completed on all the links**
  + Note: The above restriction only applies to the case when the non-STR MLD is the TXOP initiator
  + Note: Whether to extend this mechanism to STR MLD is TBD
  + Note: R1 feature

Voice problem. Deferred

1. [1659r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1659-00-00be-pdt-mac-mlo-6-3-7-to-6-3-9-association-1.docx) MAC MLO 6.3.7 to 6.3.9 Association 1 Zhiqiang Han

Discussion:

C: the related TBD MIB (dot11EHTOptionImpelemented) variable should be added.

A: ok.

SP (R1 with dot11EHTOptionImpelemented being added):

**Do you support to incorporate the proposed draft text in 11-20/1659r1 to the TGbe Draft 0.1?**

Approved with unanimous consent

1. [993r7](https://mentor.ieee.org/802.11/dcn/20/11-20-0993-07-00be-sync-ml-operations-of-non-str-device.pptx) Sync ML operations of non-STR device Dmitry Akhmetov [SP]

SP 1

Do you support ot add the following text to 11be SFD?

* **A non-STR MLD that intends to align the start time of the PPDUs sent on more than one link shall ensure that EDCA count down procedure is completed on all the links**
  + Note: The above restriction only applies to the case when the non-STR MLD is the TXOP initiator
  + Note: Whether to extend this mechanism to STR MLD is TBD
  + Note: R1 feature

Approved with unanimous consent

1. [1058r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1058-00-00be-low-latency-support.pptx) Low Latency Support Liwen Chu

Summary: this presentation discusses the low latency traffic support through TWT SP: restricting the traffic to be used in the negotiated SP, restriction of other link oeration of non-AP MLD.

1. [1067r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1067-00-00be-traffic-indication-of-latency-sensitive-application.pptx) Traffic indication of latency sensitive application Frank Hsu

Summary: the presentation designs a method so that STA can provide UL periodic traffic indication (PTI) to AP: a control subfield or a new management frame.

Discussion:

C: is the parameter frame by frame?

A: no. It is more static.

C: it sounds like TSPEC through management frame.

A: we may need more simple signaling.

C: do you think some requirement at AP side?

A: AP may have methods to satisfy STA’s requirement. AP can try its best.

C: we think TPSEC can be used with only some parameters being used.

A: TSPEC is negotiation based. We think the negotiation may not be needed. The new mechanism is better.

1. [1350r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1350-00-00be-enhancements-for-qos-and-low-latency-in-802-11be-r1.pptx) Enhancements for QoS and low latency in 802.11be R1 Dave Cavalcanti

The presentation was deferred.

1. [1355r3](https://mentor.ieee.org/802.11/dcn/20/11-20-1355-02-00be-access-mechanisms-to-meet-the-requirements-of-low-latency-traffics.pptx) Access mechanisms to meet the req.s of low lat. traffics Boyce Bo Yang

Summary: the presentation proposes the resource reservation mechanism to improve delay performance in heavy congestion cases by using Quiet element.

Discussion:

C: we like the method at TID level. Do you think Quiet element can be done at TID level?

A: Quiet element can be done at STA level. We can use TID level e.g. in slide 27 by changing the rule.

1. [675r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0675-00-00be-buffer-management-for-multi-link-device.pptx) Buffer Management for Multi-link Device Ming Gan

Summary: the presentation proposes the AP MLD uses Listen Interval field in determining the lifetime of the frames that it buffers for a STA MLD. The listen Interval field in the association request frame applies to the MLD level, not to the STA level.

Discussion:

C: We support same listen intervals among STAs of non-AP MLD. do you assume the beacon intervals are same?

A: may be yes or not.

C: we prefer same Beacon Intervals (BI) among APs of AP MLD.

A: we assume the maximal beacon interval when deciding listen interval.

C: I support the idea of listen interval at MLD level. How about WLAN sleep interval?

A: it is also should be at MLD level.

C: qestion about options of listen interval selection. Option 2 needs to know the BI before announcing the listen interval.

A: same as the first comment?

C: no. Association request incldues the listen interval. Before it, the STA has to receive all the beacon interval information.

A: yes.

C: the group should consider same BIs among APs of AP MLD.

C: SP2 has strong shall statement.

A: it is copied from the spec.

SP1

**Do you agree that Listen Interval field in the (Re)Association Request frame sent by a non-AP MLD shall apply to the MLD level, not to the STA level in r1?**

46Y, 13N, 26A

SP2

**Do you agree that AP MLD shall not discard the buffered BUs to a non-AP MLD after any period that is shorter than that indicated by the non-AP MLD for which the BUs are buffered, in the Listen Interval field of its (Re)Association Request frame in r1?**

C: it seems to me the spec allows the frame dropping because of the other reasons.

A: I can change the SP.

C: the aging function should be mentioned.

A: ok.

Updated SP2

Do you agree that AP MLD aging function shall not cause the buffered BUs to be discarded after any period that is shorter than that indicated by the non-AP MLD for which the BUs are buffered, in the Listen Interval field of its (Re)Association Request frame in r1?This is independent of MSDU lifetime which also be used to discard the framesThe exact specification of the aging function is beyond the scope of this standard.

47Y, 1N, 23A

SP 3

Do you agree to reuse the existing Listen Interval field in the (Re)Association Request frame for the non-AP MLD in r1?

45Y, 0N, 24A

1. [881r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0881-00-00be-multi-link-individual-addressed-management-frame-delivery.pptx) ML Individual Addressed MGMT Frame Delivery Po-Kai Huang

Summary: the presentation discusses how to transmit individual addressed MMPDU in multi-link: at most one outstanding individual addressed MMPDU, separate Shared SN space for individual addressed management frame.

Discussion:

C: understand separate the sequence number space for individual management frame. If separate sequence space is used, false duplicate detection from different sequence number space may occur.

A: the duplicate check needs to be done per MLD address.

C: management frames are forwarded to MLD.

A: yes, PMF is done in MLD level.

C: but many management frames are specific to a link.

A: PTK is done at MLD level.

C: I am not sure whether individual addressed frames should be addressed to MLD level and should have separate sequence number space.

A: with PMF you have do replay check at MLD level.

The teleconference was adjourned at 01:00pm EDT

**Wednesday 21 Oct 2020, 10:00AM– 01:00PM ET (Gbe MAC ad hoc conference call)**

Chairman: Jeongki Kim (LG Electronics)

Secretary: Liwen Chu (NXP)

This meeting took place using a WebEx session.

**Introduction**

1. The Chair (Jeongki, LG) calls the meeting to order at 10:04am EDT. The Chair introduces himself and the Secretary, Liwen Chu (NXP)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents. Nobody speaks up.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imam](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Jeongki Kim ([jeongki.kim@lge.com](mailto:jeongki.kim@lge.com)) and Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com))

**Recorded attendance through Imat and e-mail:**

|  |  |  |  |
| --- | --- | --- | --- |
| TGbe (MAC) | 10/21 | AbidRabbu, Shaima' | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 10/21 | Aboulmagd, Osama | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 10/21 | Akhmetov, Dmitry | Intel Corporation |
| TGbe (MAC) | 10/21 | baron, stephane | Canon Research Centre France |
| TGbe (MAC) | 10/21 | Bredewoud, Albert | Broadcom Corporation |
| TGbe (MAC) | 10/21 | Carney, William | Sony Corporation |
| TGbe (MAC) | 10/21 | CHAN, YEE | Facebook |
| TGbe (MAC) | 10/21 | Chen, Na | MaxLinear Corp |
| TGbe (MAC) | 10/21 | Cheng, Paul | MediaTek Inc. |
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| TGbe (MAC) | 10/21 | de Vegt, Rolf | Qualcomm Incorporated |
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| TGbe (MAC) | 10/21 | Dong, Xiandong | Xiaomi Inc. |
| TGbe (MAC) | 10/21 | Fischer, Matthew | Broadcom Corporation |
| TGbe (MAC) | 10/21 | Galati Giordano, Lorenzo | Nokia |
| TGbe (MAC) | 10/21 | Ghobrial, Ayman | Broadcom Corporation |
| TGbe (MAC) | 10/21 | Ghosh, Chittabrata | Intel Corporation |
| TGbe (MAC) | 10/21 | Gu, Xiangxin | Unisoc |
| TGbe (MAC) | 10/21 | Haider, Muhammad Kumail | Facebook |
| TGbe (MAC) | 10/21 | Han, Jonghun | SAMSUNG |
| TGbe (MAC) | 10/21 | Han, Zhiqiang | ZTE Corporation |
| TGbe (MAC) | 10/21 | Hong, Hanseul | WILUS Inc. |
| TGbe (MAC) | 10/21 | Hu, Chunyu | Facebook |
| TGbe (MAC) | 10/21 | Huang, Guogang | Huawei |
| TGbe (MAC) | 10/21 | Inohiza, Hirohiko | Canon |
| TGbe (MAC) | 10/21 | Jang, Insun | LG ELECTRONICS |
| TGbe (MAC) | 10/21 | Khorov, Evgeny | IITP RAS |
| TGbe (MAC) | 10/21 | Kim, Sanghyun | WILUS Inc |
| TGbe (MAC) | 10/21 | Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 10/21 | Klein, Arik | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/21 | Klimakov, Andrey | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/21 | Ko, Geonjung | WILUS Inc. |
| TGbe (MAC) | 10/21 | Kondo, Yoshihisa | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 10/21 | Kondylis, George | Broadcom Corporation |
| TGbe (MAC) | 10/21 | Kwon, Young Hoon | NXP Semiconductors |
| TGbe (MAC) | 10/21 | Lalam, Massinissa | SAGEMCOM BROADBAND SAS |
| TGbe (MAC) | 10/21 | Lan, Zhou | Broadcom Corporation |
| TGbe (MAC) | 10/21 | Le Houerou, Brice | Canon Research Centre France |
| TGbe (MAC) | 10/21 | Levy, Joseph | InterDigital, Inc. |
| TGbe (MAC) | 10/21 | Li, Yiqing | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/21 | Li, Yunbo | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/21 | Liu, Jianfei | HUAWEI |
| TGbe (MAC) | 10/21 | Lorgeoux, Mikael | Canon Research Centre France |
| TGbe (MAC) | 10/21 | Lu, Liuming | ZTE Corporation |
| TGbe (MAC) | 10/21 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbe (MAC) | 10/21 | Ma, Mengyao | HUAWEI |
| TGbe (MAC) | 10/21 | Max, Sebastian | Ericsson AB |
| TGbe (MAC) | 10/21 | McCann, Stephen | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 10/21 | Montemurro, Michael | Huawei |
| TGbe (MAC) | 10/21 | Ozbakis, Basak | VESTEL |
| TGbe (MAC) | 10/21 | Park, Minyoung | Intel Corporation |
| TGbe (MAC) | 10/21 | Patil, Abhishek | Qualcomm Incorporated |
| TGbe (MAC) | 10/21 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| TGbe (MAC) | 10/21 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 10/21 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGbe (MAC) | 10/21 | Salman, Hanadi | Istanbul Medipol University; VESTEL |
| TGbe (MAC) | 10/21 | Santulli, Jennifer | IEEE STAFF |
| TGbe (MAC) | 10/21 | Sedin, Jonas | Ericsson AB |
| TGbe (MAC) | 10/21 | Solaija, Muhammad Sohaib | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 10/21 | Song, Yi | Broadcom Corporation |
| TGbe (MAC) | 10/21 | Sun, Li-Hsiang | InterDigital, Inc. |
| TGbe (MAC) | 10/21 | Sun, Yanjun | Qualcomm Incorporated |
| TGbe (MAC) | 10/21 | Turkmen, Halise | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 10/21 | Ustunbas, Seda | Vestel |
| TGbe (MAC) | 10/21 | Verenzuela, Daniel | Sony Corporation |
| TGbe (MAC) | 10/21 | VIGER, Pascal | Canon Research Centre France |
| TGbe (MAC) | 10/21 | Wang, Huizhao | Quantenna Communications, Inc. |
| TGbe (MAC) | 10/21 | Wang, Lei | Huawei R&D USA |
| TGbe (MAC) | 10/21 | Wang, Qi | Apple, Inc. |
| TGbe (MAC) | 10/21 | Wentink, Menzo | Qualcomm |
| TGbe (MAC) | 10/21 | Wullert, John | Perspecta Labs |
| TGbe (MAC) | 10/21 | Yang, Jay | Nokia |
| TGbe (MAC) | 10/21 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 10/21 | Yee, James | MediaTek Inc. |
| TGbe (MAC) | 10/21 | yi, yongjiang | Futurewei Technologies |
| TGbe (MAC) | 10/21 | Zeng, Yan | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 10/21 | Zhou, Yifan | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/21 | Zuo, Xin | Tencent |

1. The Chair reminded that the agenda can be found in 11-20/1269r25. The Chair asked for the comments about the agenda. Sereval requests were raised for changing revision number, adding SPs. The chair announced to separate the requested SPs to mutliple calls to give time for new contributions (3 SPs for each call). The SPs of two contributions related to today’s topic were added. The updated agenda was approved.

**Submissions**

1. [1046r8](https://mentor.ieee.org/802.11/dcn/20/11-20-1046-08-00be-prioritized-edca-channel-access-slot-management.pptx) Prioritized EDCA channel access - slot management Chunyu Hu [1 SP]

SP 1:

* **Do you agree to add to the TGbe SFD (in R1), a mode where an EHT AP may announce restricted service periods (SPs) such that:**
  + Any EHT non-AP STA that supports following the announced restricted SPs, and associated to the AP, shall end its TXOP before the start of the restricted SP(s)
  + The support for the restricted SPs  is optional for the EHT non-AP STA
  + The support for this mode is optional for the EHT AP
  + *Note:  such restricted SPs are intended to provide more predictable latency performance for latency sensitive traffic*

C: originally this is based on TWT. Now it is generic.

A: this change is based on the feedback. The next step will discuss the mechanism.

C: I request this change since several methods can be used here. Interference will increase because of optional requirement to EHT STA/AP.

A: Understand the concern. This change is based on the feedback. With this change, it is easy to get this feature in.

C: same questions: TWT or not, M/O. AP side’s option is ok. STA side should be TBD.

49Y, 35N, 16A

1. [1041r3](https://mentor.ieee.org/802.11/dcn/20/11-20-1041-03-00be-edca-queue-for-rta.pptx) EDCA queue for RTA Liangxiao Xin [SP]

SP 2:

* **Which option do you support to enhance EDCA queue for low latency traffic?**
  + Option 1: EDCA queue management
  + Option 2: new transmit queues for current EDCAF
  + Option 3: a new low latency EDCAF
  + Something else
  + Abstain

C: seems option 3 cover option1 and 2. It seems queue management is implementation issue. Adding new queue don’t help a lot.

C: can you add a new option of ” None of above”?

A: ok.

C: similar to previous comments. Option 1 and 2 don’t help low latency traffic.

C: not clear about the intention. Not clear whether this will be in R1 or R2.

The updated SP 2 after the discussion:

Which option do you support to enhance EDCA queue for low latency traffic?Option 1: EDCA queue management Option 2: new transmit queues for current EDCAFOption 3: a new low latency EDCAFOption 4: Something elseOption 5: Nothing above Abstain

7/5/6/17/34/26

1. [899r2](https://mentor.ieee.org/802.11/dcn/20/11-20-0899-02-00be-tim-follow-up.pptx) TIM follow up Young Hoon Kwon [SP]

SP 2:

* **Do you agree in R1 that:**
  + WNM sleep interval of a non-AP MLD is applied at the MLD level and not at the STA level.

Approved with unanimous consent

1. [1407r14](https://mentor.ieee.org/802.11/dcn/20/11-20-1407-14-00be-pdt-mac-mlo-soft-ap-mld-operation.docx) Soft-AP-MLD-Operation Kaiying Lu [SP]

SP:

**Do you support to incorporate the proposed draft text in this document 11-20/1407r14 to the TGbe Draft 0.1?**

C: not sure what you are trying to do here. How do I know support or not support? What you get?

A: The text is based on the motion: giving the general concept, the detail operation is TBD.

C: same as the previous comment. Your previous contrbiutions have more information that is in the right direction.

A: the definition will be discussed in separate contribution. This is just for general subcaluse.

32Y, 32N, 22A

1. [1651r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1651-00-00be-pdt-tbds-mac-mlo-discovery-discovery-procedures-including-probing-and-rnr.docx) Discovery procedures including probing and RNR Laurent Cariou

C: probing should be changed to active scanning.

A: will check it offline.

C: no decision about whether all APs of AP MLD have same SSID. SSID should be TBD.

A: the added text is not related to the debate about where all APs of AP MLD have same SSID.

C: the three combinations are too restrictive. Other combinations should be fine.

A: I can change this.

C: can we transmit Probe Response by unicast way?

A: I can change the shall to should if the group agrees.

C: regarding to ML element and the new element, I prefer the ML element so that for different links, different detail information can be requested.

C: in favor to decrease the length of Probe Request. However, I have some concern about legacy inter-op.

A: will check this.

C: agree the ML element is better. It is not clear about multiple BSSID case.

C: the new element seems cleaner solution.

1. 772r2 Multi-link Element format Rojan Chitrakar [SP]

SP 1:

* **Do you support to add to the 11be SFD in R1:**
  + A common Multi-link element is defined to carry the information for various Multi-link operations, the element carrying a Type field to differentiate the various formats of the element.

45Y, 4N, 23A

SP 2:

* **Do you support to add to the 11be SFD in R1:**
  + The Type field is carried as the first sub-field in the Control field of the common Multi-link element.

Approved with unanimous consent

1. 675r5 Buffer Management for Multi-link Device Ming Gan [SP]

SP 4

* **Do you agree that the value of Listen Interval field sent by the non-AP MLD is in units of the maximum value of beacon intervals corresponding to the setup links in r1?**

Updated SP per the discussion in R6

* **Do you agree that the value of Listen Interval field sent by the non-AP MLD is in units of the maximum value of beacon intervals corresponding to the links that the non-AP MLD intends to setup in r1?**

41Y, 7N, 26A

SP 5

* **Do you agree that an AP MLD may delete buffer for the implementation dependent reasons, including the use of an aging function and availability of buffers where the aging function is based on listen interval indicated by the non-AP MLD in its (Re)Association Request frame in r1?**

Approved with unanimous consent

1. [903r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0903-00-00be-multi-link-group-addressed-data-frame-delivery-follow-up.pptx) ML Group Addressed Data Frame Delivery Follow up Po-Kai Huang

Summary: the presentation discusses the basic operation of non-AP MLD to receive group addressed data frame, the miss and duplicate solution for receiving group addressed data frame.

C: issues of missing and duplicate create some problems. If we have link switch signaling, the solution could be easily defined.

A: I think we receive feedback that no indication from AP to non-AP MLDs should be defined.

C: I assume the negotiation instead of AP’s decision.

A: your proposal is not new. It is not free.

C: the group should consider how to avoid the duplication. We can’t assume that the up layer can filter out the duplication.

C: is this (SP1) internal behavior?

A: yes.

C: 11be may do lower layer MAC receives the group-addressed frames and up layer to do the duplication detection.

A: With your solution you need unified sequence number.

The teleconference was adjourned at 01:00pm EDT

**Thursday 22 Oct 2020, 07:00PM– 10:00PM ET (Gbe MAC ad hoc conference call)**

Chairman: Jeongki Kim (LG Electronics)

Secretary: Liwen Chu (NXP)

This meeting took place using a WebEx session.

**Introduction**

1. The Chair (Jeongki, LG) calls the meeting to order at 07:10pm EDT. The Chair introduces himself and the Secretary, Liwen Chu (NXP)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents. Nobody speaks up.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imam](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Jeongki Kim ([jeongki.kim@lge.com](mailto:jeongki.kim@lge.com)) and Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com))

**Recorded attendance through Imat and e-mail:**

|  |  |  |  |
| --- | --- | --- | --- |
| TGbe (MAC) | 10/22 | Adachi, Tomoko | TOSHIBA Corporation |
| TGbe (MAC) | 10/22 | Agarwal, Peyush | Broadcom Corporation |
| TGbe (MAC) | 10/22 | Akhmetov, Dmitry | Intel Corporation |
| TGbe (MAC) | 10/22 | Baek, SunHee | LG ELECTRONICS |
| TGbe (MAC) | 10/22 | baron, stephane | Canon Research Centre France |
| TGbe (MAC) | 10/22 | ben yahia, olfa | Olfa ben yahia  Vestel |
| TGbe (MAC) | 10/22 | Carney, William | Sony Corporation |
| TGbe (MAC) | 10/22 | CHAN, YEE | Facebook |
| TGbe (MAC) | 10/22 | chen, jindou | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/22 | Chen, Na | MaxLinear Corp |
| TGbe (MAC) | 10/22 | Cheng, Paul | MediaTek Inc. |
| TGbe (MAC) | 10/22 | Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 10/22 | Chu, Liwen | NXP Semiconductors |
| TGbe (MAC) | 10/22 | Das, Dibakar | Intel Corporation |
| TGbe (MAC) | 10/22 | Das, Subir | Perspecta Labs Inc. |
| TGbe (MAC) | 10/22 | de Vegt, Rolf | Qualcomm Incorporated |
| TGbe (MAC) | 10/22 | Ding, Baokun | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/22 | Dong, Xiandong | Xiaomi Inc. |
| TGbe (MAC) | 10/22 | Fischer, Matthew | Broadcom Corporation |
| TGbe (MAC) | 10/22 | Garg, Lalit | Broadcom Corporation |
| TGbe (MAC) | 10/22 | Ghosh, Chittabrata | Intel Corporation |
| TGbe (MAC) | 10/22 | Haasz, Jodi | IEEE Standards Association (IEEE-SA) |
| TGbe (MAC) | 10/22 | Hamilton, Mark | Ruckus/CommScope |
| TGbe (MAC) | 10/22 | Han, Jonghun | SAMSUNG |
| TGbe (MAC) | 10/22 | Han, Zhiqiang | ZTE Corporation |
| TGbe (MAC) | 10/22 | Hsu, Chien-Fang | MediaTek Inc. |
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| TGbe (MAC) | 10/22 | Huang, Po-Kai | Intel Corporation |
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| TGbe (MAC) | 10/22 | Jiang, Jinjing | Apple, Inc. |
| TGbe (MAC) | 10/22 | Jung, hyojin | Hyundai Motor Company |
| TGbe (MAC) | 10/22 | Kain, Carl | USDoT |
| TGbe (MAC) | 10/22 | kim, namyeong | LG ELECTRONICS |
| TGbe (MAC) | 10/22 | Kim, Sang Gook | LG ELECTRONICS |
| TGbe (MAC) | 10/22 | Kim, Sanghyun | WILUS Inc |
| TGbe (MAC) | 10/22 | Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 10/22 | Ko, Geonjung | WILUS Inc. |
| TGbe (MAC) | 10/22 | Kondo, Yoshihisa | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 10/22 | Kwon, Young Hoon | NXP Semiconductors |
| TGbe (MAC) | 10/22 | Levy, Joseph | InterDigital, Inc. |
| TGbe (MAC) | 10/22 | Li, Yiqing | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/22 | Li, Yunbo | Huawei Technologies Co., Ltd |
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| TGbe (MAC) | 10/22 | Lu, Liuming | ZTE Corporation |
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| TGbe (MAC) | 10/22 | Montemurro, Michael | Huawei |
| TGbe (MAC) | 10/22 | Nezou, Patrice | Canon Research Centre France |
| TGbe (MAC) | 10/22 | Ouchi, Masatomo | Canon |
| TGbe (MAC) | 10/22 | Patil, Abhishek | Qualcomm Incorporated |
| TGbe (MAC) | 10/22 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| TGbe (MAC) | 10/22 | Petrick, Albert | InterDigital, Inc. |
| TGbe (MAC) | 10/22 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbe (MAC) | 10/22 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGbe (MAC) | 10/22 | Sun, Li-Hsiang | InterDigital, Inc. |
| TGbe (MAC) | 10/22 | Torab Jahromi, Payam | Facebook |
| TGbe (MAC) | 10/22 | Urabe, Yoshio | Panasonic Corporation |
| TGbe (MAC) | 10/22 | Wang, Chao Chun | MediaTek Inc. |
| TGbe (MAC) | 10/22 | Wang, Lei | Huawei R&D USA |
| TGbe (MAC) | 10/22 | Wang, Qi | Apple, Inc. |
| TGbe (MAC) | 10/22 | Wullert, John | Perspecta Labs |
| TGbe (MAC) | 10/22 | Yang, Jay | Nokia |
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| TGbe (MAC) | 10/22 | Zeng, Yan | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 10/22 | Zhou, Yifan | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/22 | Zuo, Xin | Tencent |

1. The Chair reminded that the agenda can be found in 11-20/1269r25. The Chair asked for the comments about the agenda. Sereval requests were raised for changing revision number. The updated agenda was approved.

**Submissions**

1. [1067r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1067-03-00be-traffic-indication-of-latency-sensitive-application.pptx) Traffic indication of latency sensitive application Frank Hsu [2 SP]

SP 1:

* **Do you support to define a mechanism so that a non-AP STA can provide AP its TBD parameters to optimize AP’s scheduling for low latency periodic applications?**

NOTE: How to signal is TBD

C: non-AP provides info to AP. This may not help AP’s optimization of scheduling.

A: the AP can use the information for transmitting Trigger frame for low latency traffic.

C: kind of agree with previous comment. Scheduling could be used for other cases than the low latency. Can provide some SP text if you are ok.

A: The SP doesn’t intend to cover DL case.

C: can you clarify that TSPEC will not be used?

A: SP 2 will ask the group about the direction.

C: it is hard to vote for this text.

Updated SP per the discussion:

Do you support in R1 to define or reuse a mechanism so that a non-AP STA can provide AP TBD parameters to optimize AP’s scheduling for low latency applications? NOTE: How to signal is TBD

37Y, 19N, 31A

1. [586r9](https://mentor.ieee.org/802.11/dcn/20/11-20-0586-09-00be-mlo-signaling-of-critical-updates.pptx) MLO: Signaling of critical updates Abhishek Patil [2 SP]

SP 7:

* **Do you support the following:** 
  + if an AP corresponding to a nontransmitted BSSID in a multiple BSSID set is affiliated with an AP MLD, then the AP corresponding to the transmitted BSSID in the same Multiple BSSID set shall include in the Beacon and Probe Response frames it transmits the Change Sequence fields that indicate changes of system information for that AP corresponding to a nontransmitted BSSID and other APs within the AP MLD to which that AP corresponding to the nontransmitted BSSID is affiliated with, where the change sequence field value for each AP is initialized to 0, and is incremented when there is a critical update to the operational parameters for that AP

C: we have offline discussion. Please defer this SP. I can provide my contrbution about the problem and let the group to decide which one will work.

A: it seems your idea doesn’t work. Non-AP MLD should be able to use any link to receive the information.

Keeping debating between the commenter and Abhi.

38Y, 21N, 22A

SP 8:

* **Do you agree that** 
  + an AP of an MLD shall provide early indication (in the Capability Information field) in Beacon frame(s) until (and including) the next DTIM Beacon frame when there is a change to the change sequence value for any other AP of that MLD reported in the RNR
  + For the AP corresponding to nontransmitted BSSID in a multiple BSSID set, that is part of an MLD, the early indication shall be carried in the Nontransmitted BSSID Capability field (for that Nontransmitted BSSID) in the Beacon frame(s) transmitted by the transmitted BSSID until (and including) the next DTIM Beacon frame of the nontransmitted BSSID when there is a change to the change sequence value for any other AP of that MLD reported in the RNR

C: this SP is on top of SP 7. This SP is not needed since SP 7 fails.

A: I can separate this SP to two SPs.

Updated SP per the discussion:

* **Do you agree, in R1 that** 
  + an AP of an MLD shall provide early indication (in the Capability Information field) in Beacon frame(s) until (and including) the next DTIM Beacon frame when there is a change to the change sequence value for any other AP of that MLD reported in the RNR

46Y, 3N, 24A

1. [1652r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1652-00-00be-pdt-tbds-mac-mlo-tid-mapping-link-management-default-mode-and-enablement.docx) TID-mapping - link management - default mode and enablement Laurent Cariou

C: after association, 4-way handshake will be done. For roaming, in the current spec, the data can be delivered immediately.

A: in fast BSS transition, it is true. We may need to allow all links active in that case. However the achivement is small.

C: general comment, comparing with OCT is not valid. OCT is for power save. ML operation is used for improve the throughput. I believe we should provide the signaling about which links can be in active state.

A: I am ok with the group’s decision.

C: are you ok to be acitve as the default mode for multiple radio MLD?

A: D0.1 defines default mode the opposite way.

C: it is better to have explicit signaling for cross-link state (power save or not).

C: agree to remove TBD. Power save is critical topic for STA. We have signaling for power save state change by each STA does its own announcement. Agree with the default rules.

The SP is deferred.

1. [1650r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1650-00-00be-proposed-tbd-fix-for-mld-association-sa-query.docx) Proposed TBD fix for MLD Association - SA Query Po-Kai Huang

C: P3, do we need to define timeout? At STA level we already have such mechanism.

A: timeout at STA level may give different timeout values when the association is done in different links. I am open to use STA level value.

C: I have some concern about the way of reusing STA level value.

C: the maximal value of all link’s timeout values can be used.

1. [992r4](https://mentor.ieee.org/802.11/dcn/20/11-20-0992-03-00be-mlo-optional-mandatory.pptx) MLO optional mandatory Laurent Cariou [7 SP]

SP 1 bis.

* **Do you agree to add the following to the SFD:**
  + If an EHT AP is in the same co-located set as other EHT AP with the same SSID, these EHT APs shall be part of the same AP MLD

C: the SP implicitly says that if two APs have different SSIDs, they can’t be in one MLD.

A: this is not what the SP says.

31Y, 22N, 29A

1. [881r3](https://mentor.ieee.org/802.11/dcn/20/11-20-0881-02-00be-multi-link-individual-addressed-management-frame-delivery.pptx) Multi-link Individual Addressed MGMT Frame Delivery Po-Kai Huang [1 SP]

SP 1.

* **Do you support to include the following in 11be SFD in R1?**
* **Deliver individual addressed management frame (except sounding feedback, probe response, LMR and FTM) between two MLDs as follows:**
  + For transmitter MLD
    - Expand Table 10-5—Transmitter sequence number spaces to have a new entry for delivering individual addressed management frame (except sounding feedback and probe response, LMR and FTM) Indexed by <MLD MAC Address that the STA identified by Address 1 is affiliated with> per MLD
    - A MLD shall continue to deliver the failed individual addressed management frame (except sounding feedback, probe response, LMR and FTM) until retry limit is met or the individual addressed management frame is successfully delivered whichever occurs first
    - A STA affiliated with the MLD shall not transmit other individually addressed management frame to another STA affiliated with the associated MLD on the corresponding link until the current individually addressed management frame finishes transmission or is dropped.
  + For receiver MLD
    - Expand Table 10-6—Receiver caches to have a new entry for individual addressed management frame (except sounding feedback, probe response , LMR and FTM) indexed by <peer MLD address, sequence number>
    - Maintain at least the most recent record of <peer MLD address, sequence number> for received individual addressed management frame (except sounding feedback, probe response, LMR and FTM)
    - Drop the individual addressed management frame (except sounding feedback and probe response, LMR and FTM) with retry bit set and record match
* **NOTE- QMF is TBD**

C: what the sequence number space will be used for sounding feedback, Probe etc.

A: it is not that improtent since they are not retransmitted.

C: Can we say that other frames will not be per link level frames?

A: this SP is not about defining per link or MLD level management frame.

C: the link specific frames for different links can be transmitted parallely.

A: PMF doesn’t work if you do that.

19Y, 12N, 36A

1. [772r4](https://mentor.ieee.org/802.11/dcn/20/11-20-0772-04-00be-multi-link-element-format.pptx) Multi-link element format Rojan Chitrakar[SP 3]

SP 3.

* **Do you agree to define the following two entries for the Type field in the Multi-Link element in R1:** 
  1. Basic
     + Note: used in Beacon, Probe Response, Authentication, Association frames
  2. ML probe request
     + Note: used in Probe Request frames (for MLD Probing)

C: add other type TBD.

A: ok.

C: Is there basic type in probe request?

A: the SP doesn’t preclude it.

C: change basic note to ML element as used in D0.1.

Updated SP per the discusison

Do you agree to define the following two entries for the Type field in the Multi-Link element in R1: Basic Note: ML element as used in D0.1 ML probe request Note: used for soliciting MLD Probe Response. Note: Other Types are TBD

35Y, 9N, 25A

1. [1060r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1060-00-00be-discussion-on-multi-link-with-multiple-ap-mlds.pptx) Discussion on Multi-link with Multiple AP MLDs Yoshihisa Kondo

Summary: the presentation discusses the scenario where a multi-link non-AP MLD can associate with multiple AP MLDs.

C: I think it is not allowed for one STA MLD to associate with different AP MLD in 11be D0.1.

A: We can extend the framework.

C: for slide 2, you can set 4 APs as same AP MLD.

SP:

* **Do you support that the multi-link operation with multiple AP MLDs should be discussed in TGbe?** 
  + Not R1 feature

17Y, 26N, 31A

The teleconference was adjourned at 10:01pm EDT

**Monday 26 Oct 2020, 07:00PM– 10:00PM ET (Gbe MAC ad hoc conference call)**

Chairman: Jeongki Kim (LG Electronics)

Secretary: Liwen Chu (NXP)

This meeting took place using a WebEx session.

**Introduction**

1. The Chair (Jeongki, LG) calls the meeting to order at 07:10pm EDT. The Chair introduces himself and the Secretary, Liwen Chu (NXP)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents. Nobody speaks up.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imam](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Jeongki Kim ([jeongki.kim@lge.com](mailto:jeongki.kim@lge.com)) and Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com))

**Recorded attendance through Imat and e-mail:**

|  |  |  |  |
| --- | --- | --- | --- |
| TGbe (MAC) | 10/26 | Aboulmagd, Osama | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 10/26 | Abushattal, Abdelrahman | Istanbul Medipol university ;Vestel |
| TGbe (MAC) | 10/26 | Adachi, Tomoko | TOSHIBA Corporation |
| TGbe (MAC) | 10/26 | Akhmetov, Dmitry | Intel Corporation |
| TGbe (MAC) | 10/26 | Asterjadhi, Alfred | Qualcomm Incorporated |
| TGbe (MAC) | 10/26 | Baek, SunHee | LG ELECTRONICS |
| TGbe (MAC) | 10/26 | baron, stephane | Canon Research Centre France |
| TGbe (MAC) | 10/26 | ben yahia, olfa | Olfa ben yahia  Vestel |
| TGbe (MAC) | 10/26 | Carney, William | Sony Corporation |
| TGbe (MAC) | 10/26 | CHAN, YEE | Facebook |
| TGbe (MAC) | 10/26 | chen, jindou | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/26 | Chen, Na | MaxLinear Corp |
| TGbe (MAC) | 10/26 | Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 10/26 | Chu, Liwen | NXP Semiconductors |
| TGbe (MAC) | 10/26 | Das, Dibakar | Intel Corporation |
| TGbe (MAC) | 10/26 | Das, Subir | Perspecta Labs Inc. |
| TGbe (MAC) | 10/26 | de Vegt, Rolf | Qualcomm Incorporated |
| TGbe (MAC) | 10/26 | Ding, Baokun | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/26 | Dong, Xiandong | Xiaomi Inc. |
| TGbe (MAC) | 10/26 | Fischer, Matthew | Broadcom Corporation |
| TGbe (MAC) | 10/26 | Guo, Yuchen | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/26 | Haasz, Jodi | IEEE Standards Association (IEEE-SA) |
| TGbe (MAC) | 10/26 | Hamilton, Mark | Ruckus/CommScope |
| TGbe (MAC) | 10/26 | Han, Zhiqiang | ZTE Corporation |
| TGbe (MAC) | 10/26 | Ho, Duncan | Qualcomm Incorporated |
| TGbe (MAC) | 10/26 | Hong, Hanseul | WILUS Inc. |
| TGbe (MAC) | 10/26 | Hu, Chunyu | Facebook |
| TGbe (MAC) | 10/26 | Huang, Po-Kai | Intel Corporation |
| TGbe (MAC) | 10/26 | Jiang, Jinjing | Apple, Inc. |
| TGbe (MAC) | 10/26 | Jung, hyojin | Hyundai Motor Company |
| TGbe (MAC) | 10/26 | Kedem, Oren | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/26 | kim, namyeong | LG ELECTRONICS |
| TGbe (MAC) | 10/26 | Kim, Sang Gook | LG ELECTRONICS |
| TGbe (MAC) | 10/26 | Kim, Sanghyun | WILUS Inc |
| TGbe (MAC) | 10/26 | Kim, Yongho | Korea National University of Transportation |
| TGbe (MAC) | 10/26 | Ko, Geonjung | WILUS Inc. |
| TGbe (MAC) | 10/26 | Kondo, Yoshihisa | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 10/26 | Kwon, Young Hoon | NXP Semiconductors |
| TGbe (MAC) | 10/26 | Levy, Joseph | InterDigital, Inc. |
| TGbe (MAC) | 10/26 | Li, Yiqing | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/26 | Liu, Jianfei | HUAWEI |
| TGbe (MAC) | 10/26 | Lu, kaiying | MediaTek Inc. |
| TGbe (MAC) | 10/26 | Lu, Liuming | ZTE Corporation |
| TGbe (MAC) | 10/26 | Luo, Chaoming | Beijing OPPO telecommunications corp., ltd. |
| TGbe (MAC) | 10/26 | Mehrnoush, Morteza | Facebook |
| TGbe (MAC) | 10/26 | Monajemi, Pooya | Cisco Systems, Inc. |
| TGbe (MAC) | 10/26 | Montemurro, Michael | Huawei |
| TGbe (MAC) | 10/26 | NANDAGOPALAN, SAI SHANKAR | Cypress Semiconductor Corporation |
| TGbe (MAC) | 10/26 | Naribole, Sharan | SAMSUNG |
| TGbe (MAC) | 10/26 | Ouchi, Masatomo | Canon |
| TGbe (MAC) | 10/26 | Park, Minyoung | Intel Corporation |
| TGbe (MAC) | 10/26 | Patil, Abhishek | Qualcomm Incorporated |
| TGbe (MAC) | 10/26 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| TGbe (MAC) | 10/26 | Petrick, Albert | InterDigital, Inc. |
| TGbe (MAC) | 10/26 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 10/26 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbe (MAC) | 10/26 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGbe (MAC) | 10/26 | Sun, Li-Hsiang | InterDigital, Inc. |
| TGbe (MAC) | 10/26 | Tanaka, Yusuke | Sony Corporation |
| TGbe (MAC) | 10/26 | Torab Jahromi, Payam | Facebook |
| TGbe (MAC) | 10/26 | Ustunbas, Seda | Vestel |
| TGbe (MAC) | 10/26 | Wang, Lei | Huawei R&D USA |
| TGbe (MAC) | 10/26 | Wu, Hao | XGIMI Technology Co.Ltd |
| TGbe (MAC) | 10/26 | Wullert, John | Perspecta Labs |
| TGbe (MAC) | 10/26 | Yang, Jay | Nokia |
| TGbe (MAC) | 10/26 | Yang, Yongchao | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/26 | Yano, Kazuto | Advanced Telecommunications Research Institute International (ATR) |
| TGbe (MAC) | 10/26 | Yee, James | MediaTek Inc. |
| TGbe (MAC) | 10/26 | Yuan, Fangchao | HUAWEI |
| TGbe (MAC) | 10/26 | Yukawa, Mitsuyoshi | Canon, Inc. |
| TGbe (MAC) | 10/26 | Zeng, Yan | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 10/26 | Zhou, Yifan | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/26 | Zuo, Xin | Tencent |

1. The Chair reminded that the agenda can be found in 11-20/1269r31. The Chair asked for the comments about the agenda. Sereval requests were raised for changing revision number. The updated agenda was approved.

**Submissions**

1. [921r4](https://mentor.ieee.org/802.11/dcn/20/11-20-0921-04-00be-discussion-about-str-capabilities-indication.pptx) Discussion about STR capabilities indication Yunbo Li [SP]

SP 3:

* **Which option do you prefer for an MLD to indicate NSTR constraints of each link pair?**
  + Opt 1:
    - Mandatory to use 1 bit to indicate the link pair is STR or non-STR, without extra information.
  + Opt 2:
    - Mandatory to use 1 bit to indicate the link pair is STR or non-STR.
    - If non-STR, optional to indicate other TBD parameters that describe the non-STR constraints.
  + Abs

C: opt 1 uses one bit to announce NSTR or STR, opt 2 uses addtional field to describe the restrtriction, right?

A: yes.

C: so why do you mention mandatory in the options?

A: one bit for NSTR/STR is agreed in the group.

C: you should ask the question directly, i.e. whether you support additional information...

A: from offline discussion, I got the feedback for running such SP.

C: when the MLD does assoiation, does the MLD send the other imformaiton, e.g. BW, MCS etc.? I don’t think the additional information is needed. Please clarify it?

A: Yes, BW, MCS will be annoucned through capabilities. But the capabilities don’t give the information in which condition NSTR/STR will change. Here I give example about the additional condition that the NSTR/STR change.

27Option1, 32Option2, 23Abstain (after one announcement of vote change from Opt2 to Opt1)

1. [898r3](https://mentor.ieee.org/802.11/dcn/20/11-20-0898-03-00be-mld-discovery-follow-up.pptx) MLD Discovery follow up Young Hoon Kwon [SP]

SP 2:

* **Do you agree in R1 that:**
  + The non-AP MLD shall not operate on the link until it retrieved the most recent parameters for an AP (AP1) operating on that link
    - The non-AP STA may determine that it does not have the most recent parameters by receiving a change sequence for that AP (AP1) that is different than the change sequence it stored for that AP (AP1)
    - The non-AP STA may retrieve the most recent parameters by receiving a Beacon or Probe Response frame from the AP (AP1) or other AP (AP2) that is affiliated with the same AP MLD with the AP (AP1)
      * The non-AP STA may send a probe request frame to the AP (AP1)
      * Another non-AP STA of the same non-AP MLD may send an ML probe request to another AP (AP2) of the AP MLD

C: I don’t think the use of Probe Reuest is good approach when critical update happens.

A: it depends on case by case about which way is better. So I list multiple methods here.

C: when critical update happens, Probe Request shouldn’t be used.

C: What does ”shall not operate” include?

A: not do medium access in the link.

SP was deferred.

1. [1141r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1141-00-00be-restrictions-on-mld-probe.pptx) Restrictions on MLD Probe Cheng Chen [SP]

SP 1:

* **Do you agree with the following:**
  + A non-AP STA affiliated with a non-AP MLD shall not transmit an ML Probe Request to the broadcast destination address with the Address 3 field set to the wildcard BSSID, and the SSID set to the wildcard SSID
  + Note: 6 GHz is already covered by existing rules in 11ax.

C: this is related to the assumption that multi-link discovery happens after the regular probe. I assume this is not good.

A: the problem is that if we don’t have such restriction, any STA MLD may send ML Probe Request. This will increase the overhead.

C: there is no analysis about the size of ML Probe Request/Response. I have some privacy concern abut cross-link information broadcast.

A: since the format is not finalized, it is difficult to do size analysis. The size depends on the ineheritance etc. For 2nd comment, baseline already allow cross-link SSID announcement.

30Y, 21N, 25A

1. [1650r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1650-01-00be-proposed-tbd-fix-for-mld-association-sa-query.docx) Proposed TBD fix for MLD Association - SA Query Po-Kai Huang [SP]

SP:

Do you support to incorporate the proposed draft text in 11-20/1650r1 to the TGbe Draft 0.2?

36Y, 4N, 30A

1. [1115r4](https://mentor.ieee.org/802.11/dcn/20/11-20-1115-00-00be-mld-ap-power-saving-ps-considerations.pptx) MLD AP power save mode consideration Jay Yang

Summary: this presentation discusses the case of battery powered AP MLDs which would benefit from ability to use the multi-link operations without the burden of “always-on APs”.

C: slide 4, where is secondary link? Do you assume that secondary link is between two STAs?

A: yes.

C: why can this save power?

A: the current spec doesn’t allow AP to do powere save. Once non-AP STAs are introduced in one AP MLD with AP, the power can ve saved.

C: in this figure, why do you want to add non-AP STA with AP.

A: Non-AP STA can save power.

C: My question is that non-AP STA and AP in same device can be in separate MLDs.

A: with your proposal, AP MLD can’t operate in two links.

SP was deferred

1. [1122r3](https://mentor.ieee.org/802.11/dcn/20/11-20-1122-02-00be-802-11be-architecture-association-discussion.pptx) 802.11be Architecture/Association Discussion Joseph Levy

Summary: this contribution discusses an MLD architecture that is well aligned with the current 802.11 basic architecture and will hopefully allow many existing 802.11 features to be reused to support MLD operation.

C: in slide 9, why is MPDU encrption/decryption done in up layer?

A: this is strawman.

C: slide 6, we discussed at the beginning about 802.1ax. 11be is different from 802.1ax that multiple links share the sequence number space.

A: the presentation is proposing the direction to not use 802.1ax.

C: we already go this way. You don’t need to mention it.

C: slide 8 may requre the rewriting of clause 9, 10 etc.

SP was deferred

1. [593r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0593-00-00be-eht-bss-follow-up-eht-bw-nss-mcs-and-he-bw-nss-mcs.pptx) EHT BSS Op.: EHT BW Nss MCS and HE BW Nss MCS Liwen Chu

Summary: this pesentation discusses the relationship between EHT BW, Nss capabilities and HW BW, Nss capabilities in EHT STA.

1. [882r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0882-00-00be-320-mhz-and-16-ss-om-operation.pptx) 320 MHz and 16 SS OM Operation Po-Kai Huang

Summary: this presentation discusses the design choices of Operting Mode in HE Control field and Operating Mode Notification element for EHT STAs.

C: option 1 of HE control method duplictes many information. Once we define a new control field for EHT variant, reserved field exist where new information will be added.

A: I think both options require the new Control ID.

C: if we define the new control ID, do we need to copy all the fields from HE OM Control field?

A: I am open to it.

The teleconference was adjourned at 09:58pm EDT

**Wednesday 28 Oct 2020, 10:00AM– 01:00PM ET (Gbe MAC ad hoc conference call)**

Chairman: Jeongki Kim (LG Electronics)

Secretary: Liwen Chu (NXP)

This meeting took place using a WebEx session.

**Introduction**

1. The Chair (Jeongki, LG) calls the meeting to order at 07:10pm EDT. The Chair introduces himself and the Secretary, Liwen Chu (NXP)
2. The Chair goes through the 802 and 802.11 IPR policy and procedures and asks if there is anyone that is aware of any potentially essential patents. Nobody speaks up.
3. The Chair recommends using IMAT for recording the attendance.
   * Please record your attendance during the conference call by using the IMAT system:
     1. 1) login to [imam](https://imat.ieee.org/attendance), 2) select “802.11 Telecons (<Month>)” entry, 3) select “C/LM/WG802.11 Attendance” entry, 4) click “TGbe <MAC/PHY/Joint> conference call that you are attending.
   * If you are unable to record the attendance via [IMAT](https://imat.ieee.org/attendance) then please send an e-mail to Jeongki Kim ([jeongki.kim@lge.com](mailto:jeongki.kim@lge.com)) and Liwen Chu ([liwen.chu@nxp.com](mailto:liwen.chu@nxp.com))

**Recorded attendance through Imat and e-mail:**

|  |  |  |  |
| --- | --- | --- | --- |
| TGbe (MAC) | 10/28 | AbidRabbu, Shaima' | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 10/28 | Aboulmagd, Osama | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 10/28 | Abushattal, Abdelrahman | Istanbul Medipol university ;Vestel |
| TGbe (MAC) | 10/28 | Adhikari, Shubhodeep | Broadcom Corporation |
| TGbe (MAC) | 10/28 | Akhmetov, Dmitry | Intel Corporation |
| TGbe (MAC) | 10/28 | Bankov, Dmitry | IITP RAS |
| TGbe (MAC) | 10/28 | baron, stephane | Canon Research Centre France |
| TGbe (MAC) | 10/28 | ben yahia, olfa | Olfa ben yahia  Vestel |
| TGbe (MAC) | 10/28 | Bims, Harry | Bims Laboratories, Inc. |
| TGbe (MAC) | 10/28 | Carney, William | Sony Corporation |
| TGbe (MAC) | 10/28 | CHAN, YEE | Facebook |
| TGbe (MAC) | 10/28 | Cheng, Paul | MediaTek Inc. |
| TGbe (MAC) | 10/28 | Chitrakar, Rojan | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 10/28 | Coffey, John | Realtek Semiconductor Corp. |
| TGbe (MAC) | 10/28 | Das, Dibakar | Intel Corporation |
| TGbe (MAC) | 10/28 | Das, Subir | Perspecta Labs Inc. |
| TGbe (MAC) | 10/28 | Davies, Robert | Signify |
| TGbe (MAC) | 10/28 | Derham, Thomas | Broadcom Corporation |
| TGbe (MAC) | 10/28 | de Vegt, Rolf | Qualcomm Incorporated |
| TGbe (MAC) | 10/28 | Ding, Baokun | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/28 | Dong, Xiandong | Xiaomi Inc. |
| TGbe (MAC) | 10/28 | Fischer, Matthew | Broadcom Corporation |
| TGbe (MAC) | 10/28 | Ghosh, Chittabrata | Intel Corporation |
| TGbe (MAC) | 10/28 | GUIGNARD, Romain | Canon Research Centre France |
| TGbe (MAC) | 10/28 | Guo, Yuchen | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/28 | Han, Jonghun | SAMSUNG |
| TGbe (MAC) | 10/28 | Han, Zhiqiang | ZTE Corporation |
| TGbe (MAC) | 10/28 | Handte, Thomas | Sony Corporation |
| TGbe (MAC) | 10/28 | Ho, Duncan | Qualcomm Incorporated |
| TGbe (MAC) | 10/28 | Hong, Hanseul | WILUS Inc. |
| TGbe (MAC) | 10/28 | Hsu, Chien-Fang | MediaTek Inc. |
| TGbe (MAC) | 10/28 | Hu, Chunyu | Facebook |
| TGbe (MAC) | 10/28 | Huang, Po-Kai | Intel Corporation |
| TGbe (MAC) | 10/28 | Kakani, Naveen | Qualcomm Incorporated |
| TGbe (MAC) | 10/28 | Khorov, Evgeny | IITP RAS |
| TGbe (MAC) | 10/28 | Kim, Sanghyun | WILUS Inc |
| TGbe (MAC) | 10/28 | Kim, Yongho | Korea National University of Transportation |
| TGbe (MAC) | 10/28 | Kishida, Akira | Nippon Telegraph and Telephone Corporation (NTT) |
| TGbe (MAC) | 10/28 | Klein, Arik | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/28 | Ko, Geonjung | WILUS Inc. |
| TGbe (MAC) | 10/28 | Le Houerou, Brice | Canon Research Centre France |
| TGbe (MAC) | 10/28 | Levitsky, Ilya | IITP RAS |
| TGbe (MAC) | 10/28 | Levy, Joseph | InterDigital, Inc. |
| TGbe (MAC) | 10/28 | Li, Yiqing | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/28 | Lu, kaiying | MediaTek Inc. |
| TGbe (MAC) | 10/28 | Lu, Liuming | ZTE Corporation |
| TGbe (MAC) | 10/28 | Lv, Lily | Huawei Technologies Co. Ltd |
| TGbe (MAC) | 10/28 | Max, Sebastian | Ericsson AB |
| TGbe (MAC) | 10/28 | Mehrnoush, Morteza | Facebook |
| TGbe (MAC) | 10/28 | Montemurro, Michael | Huawei |
| TGbe (MAC) | 10/28 | Nezou, Patrice | Canon Research Centre France |
| TGbe (MAC) | 10/28 | Park, Minyoung | Intel Corporation |
| TGbe (MAC) | 10/28 | Patil, Abhishek | Qualcomm Incorporated |
| TGbe (MAC) | 10/28 | Patwardhan, Gaurav | Hewlett Packard Enterprise |
| TGbe (MAC) | 10/28 | Pushkarna, Rajat | Panasonic Asia Pacific Pte Ltd. |
| TGbe (MAC) | 10/28 | Raissinia, Alireza | Qualcomm Incorporated |
| TGbe (MAC) | 10/28 | Rosdahl, Jon | Qualcomm Technologies, Inc. |
| TGbe (MAC) | 10/28 | Salman, Hanadi | Istanbul Medipol University; VESTEL |
| TGbe (MAC) | 10/28 | Sevin, Julien | Canon Research Centre France |
| TGbe (MAC) | 10/28 | Solaija, Muhammad Sohaib | Istanbul Medipol University; Vestel |
| TGbe (MAC) | 10/28 | Verenzuela, Daniel | Sony Corporation |
| TGbe (MAC) | 10/28 | Wang, Huizhao | Quantenna Communications, Inc. |
| TGbe (MAC) | 10/28 | Wang, Lei | Huawei R&D USA |
| TGbe (MAC) | 10/28 | Wullert, John | Perspecta Labs |
| TGbe (MAC) | 10/28 | Yang, Jay | Nokia |
| TGbe (MAC) | 10/28 | yi, yongjiang | Futurewei Technologies |
| TGbe (MAC) | 10/28 | Yuan, Fangchao | HUAWEI |
| TGbe (MAC) | 10/28 | Zeng, Yan | Huawei Technologies Co.,  Ltd |
| TGbe (MAC) | 10/28 | Zhou, Yifan | Huawei Technologies Co., Ltd |
| TGbe (MAC) | 10/28 | Zuo, Xin | Tencent |

1. The Chair reminded that the agenda can be found in 11-20/1269r33. The Chair asked for the comments about the agenda. The updated agenda was approved.

**Submissions**

1. [1355r5](https://mentor.ieee.org/802.11/dcn/20/11-20-1355-04-00be-access-mechanisms-to-meet-the-requirements-of-low-latency-traffics.pptx) Access mechanisms to meet the requirements of low latency traffics Boyce Bo Yang [SP]

SP 1:

* **Do you agree that 11be introduces a resource reservation element including the following information.**
  + Traffic identifier
  + Count
  + Offset
  + Duration
  + Interval
  + Period
* **Note:**
  + The new element is used by EHT AP to announce the reserved resources for prioritized transmission of low latency traffics
  + The definitions of above fields are in slide 7
  + Traffic identifier is expressed in TBD.
  + Other information in resource reservation element is TBD

C: it seems the idea is in line with other proposals. We haven’t agreed the basic idea about how to use the service period. We should go back to do the straw poll of the basic idea first.

A: the service period reservation is similar. The SP is open to how to use the reserved service period.

C: see a lot of unknowns in this straw poll, e.g. the gap between the current mechanism and what EHT requires, the negotiation procedure etc.

A: agree more detail needs to be defined for the whole feature. This presentation just wants to give the parameters for service period definition.

C: You keep mentioning Quiet element for low latency traffic support. Quiet element is not the right thing since it quiets everything.

A: We can define the new rules about how EHT STAs use Quiet element.

C: The straw poll is not saying the procedure from STA point of view. Chunyu’s straw poll answers it. Do you share the same way?

A: My proposal defines the definition of service period. Chunyu’s proposal defines how to use the service period.

24Y, 39N,19A

1. [1005r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1005-01-00be-yet-another-fast-link-adaptation-attempt.pptx) Yet Another Fast Link Adaptation Attempt Jinjing Jiang

Summary: the presentation proposes the new methods to *enable* Fast Link Adaptation: measurement result feedback, immediate feedback through control frames (e.g. M-BA).

C: it is interesting idea. There are many things that need to be discussed. The key point in your straw poll is the immediate feedback. Other thing for feedback may include BW feedback. The current negotiation seems not work. Do you think this will be in R2?

A: this will not be in R1.

C: We have this topic in every generations. We have many information for link adaptation currently in 802.11 baseline. It is better in R2.

A: When I presented this in PHY group, it seems PHY guys still want computation-based feedback.

C: do you have some simulation result for such method?

A: one contribution in PHY group show 20% improvement.

C: the method could be to put the feedback in element of Action no Ack frame.

A: will think about it.

C: example about how to use the proposed method and simulation result may help.

A: I already mentioned that PHY group has the contribution about the idea.

No SP running

1. [1052r1](https://mentor.ieee.org/802.11/dcn/20/11-20-1052-00-00be-eht-bss-follow-up-eht-bss-operating-parameter-update.pptx) EHT BSS Follow Up: EHT (BSS) Op. Param. Update Liwen Chu

Summary: this presentation discusses the design choices of Operting Mode in HE Control field and Operating Mode Notification element for EHT STAs.

SP was deferred per the request.

1. [882r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0882-00-00be-320-mhz-and-16-ss-om-operation.pptx) 320 MHz and 16 SS OM Operation Po-Kai Huang

SP

* **Do you support to define a new Control ID in A-Control for EHT Operating mode (OM) that enables indication of 320 MHz, Tx NSTS larger than 8, and Rx NSS larger than 8?**
  + Signaling TBD

Approved with unanimous consent

1. [1324r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1324-00-00be-txop-and-bss-color-fields-in-u-sig.pptx) TXOP and BSS Color fields in U-SIG Minyoung Park

Summary: the proposal proposes to use 11-bit in U-SIG with 8 µsec time resolution to represent TXOP\_DURATION for better coexistence support and the latest draft of the 5 GHz spec in ETSI.

C: slide 3, the case doesn’t happen when Ack is used.

A: this is just an example. Multiple frame exchanges may also be possible.

C: this topic is PHY topic. You should run it in joint session.

A: the field is in PHY preamble. But the usage of the field should be defined in MAC. MAC needs to decide the size.

C: you should run the SP in joint session or send the contribution to the reflector to let PHY guys know.

A: ok.

C: we have offline discussion. Believe this is PHY topic. The U-SIG is quite limited. 8us resolution still has some issue. Same resolution as MAC header duration should be preferable.

A: Probably we can’t use 1us resolution. 8 us resolution can address the issue in some sense.

C: ax is loose on how to set the TXOP Duration in PHY header.

A: I am not sure about it. Slide 4 give the rules.

C: do you have unspecified value?

A: I haven’t thought about it.

No SP running

1. [1402r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1402-00-00be-issues-on-mld-power-saving.pptx) Issues on MLD Power Saving Ronny Kim

Summary: this presentation discusses some issues on multi-link power saving: link unavailability from STA side, non-STR AP MLD’s deaf period. Some methods were proposed (Triggered-enabled TWT etc.).

C: do you run the SP today? I have some questions about SP.

A: No, I would like to get the feedback.

C: the issue exists today.

A: I assume AP should do the DL transmission in the link where PS-Poll is received. We should clarify this.

C: Management frame for a specific link should be transmitted in the specific link. The TIM can’t indicate this. Any thought on this?

A: Can you provide the information about it?

C: TWT related frame etc.

A: haven’t thought about it. We can discuss it further.

C: the solution in slide 9 seems not work for legacy STAs.

No SP running

1. [923r0](https://mentor.ieee.org/802.11/dcn/20/11-20-0923-00-00be-channel-access-for-constrained-mld.pptx) Channel-access-for-constrained-mld Yiqing Li