IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Proposed Text Changes for SR Fields in HE Trigger-Based PPDU | | | | |
| Date: 2016-07-25 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Minho Cheong | Newracom | 9008 Research Dr.  Irvine, CA 92618 |  | minho.cheong@newracom.com |
| Reza Hedayat |  | reza.hedayat@newracom.com |
| Young Hoon Kwon |  | younghoon.kwon@newracom.com |
| Yongho Seok |  | yongho.seok@newracom.com |
| Daewon Lee |  | daewon.lee@newracom.com |
| Yujin Noh |  | yujin.noh@newracom.com |
| Ron Porat | Broadcom |  |  | rporat@broadcom.com |
| Sriram Venkateswaran |  |  |  |
| Matthew Fischer |  |  | mfischer@broadcom.com |
| Zhou Lan |  |  |  |
| Leo Montreuil |  |  |  |
| Andrew Blanksby |  |  |  |
| Vinko Erceg |  |  |  |
| Thomas Derham |  |  |  |
| Mingyue Ji |  |  |  |
| Robert Stacey | Intel | 2111 NE 25th Ave, Hillsboro OR 97124, USA | +1-503-724-893 | robert.stacey@intel.com |
| Shahrnaz Azizi |  | shahrnaz.azizi@intel.com |
| Po-Kai Huang |  | po-kai.huang@intel.com |
| Qinghua Li |  | quinghua.li@intel.com |
| Xiaogang Chen |  | xiaogang.c.chen@intel.com |
| Chitto Ghosh |  | chittabrata.ghosh@intel.com |
| Laurent Cariou |  | laurent.cariou@intel.com |
| Yaron Alpert |  | yaron.alpert@intel.com |
| Assaf Gurevitz |  | assaf.gurevitz@intel.com |
| Ilan Sutskover |  | ilan.sutskover@intel.com |
| Feng Jiang |  | feng1.jiang@intel.com |
| Hongyuan Zhang | Marvell | 5488 Marvell Lane, Santa Clara, CA, 95054 | 408-222-2500 | hongyuan@marvell.com |
| Lei Wang |  | Leileiw@marvell.com |
| Liwen Chu |  | liwenchu@marvell.com |
| Jinjing Jiang |  | jinjing@marvell.com |
| Yan Zhang |  | yzhang@marvell.com |
| Rui Cao |  | ruicao@marvell.com |
| Sudhir Srinivasa |  | sudhirs@marvell.com |
| Bo Yu |  | boyu@marvell.com |
| Saga Tamhane |  | sagar@marvell.com |
| Mao Yu |  | my@marvel..com |
| Xiayu Zheng |  | xzheng@marvell.com |
| Christian Berger |  | crberger@marvell.com |
| Niranjan Grandhe |  | ngrandhe@marvell.com |
| Hui-Ling Lou |  | hlou@marvell.com |
| Alice Chen | Qualcomm | 5775 Morehouse Dr. San Diego, CA, USA |  | alicel@qti.qualcomm.com |
| Albert Van Zelst | Straatweg 66-S Breukelen, 3621 BR Netherlands |  | allert@qti.qualcomm.com |
| Alfred Asterjadhi | 5775 Morehouse Dr. San Diego, CA, USA |  | aasterja@qti.qualcomm.com |
| Bin Tian | 5775 Morehouse Dr. San Diego, CA, USA |  | btian@qti.qualcomm.com |
| Carlos Aldana | 1700 Technology Drive San Jose, CA 95110, USA |  | caldana@qca.qualcomm.com |
| George Cherian | 5775 Morehouse Dr. San Diego, CA, USA |  | gcherian@qti.qualcomm.com |
| Gwendolyn Barriac | 5775 Morehouse Dr. San Diego, CA, USA |  | gbarriac@qti.qualcomm.com |
| Hemanth Sampath | 5775 Morehouse Dr. San Diego, CA, USA |  | hsampath@qti.qualcomm.com |
| Lin Yang | 5775 Morehouse Dr. San Diego, CA, USA |  | linyang@qti.qualcomm.com |
| Lochan Verma | 5775 Morehouse Dr. San Diego, CA USA |  | lverma@qti.qualcomm.com |
| Menzo Wentink | Straatweg 66-S Breukelen, 3621 BR Netherlands |  | mwentink@qti.qualcomm.com |
| Naveen Kakani | 2100 Lakeside Boulevard Suite 475, Richardson TX 75082, USA |  | nkakani@qti.qualcomm.com |
| Raja Banerjea | 1060 Rincon Circle San Jose CA 95131, USA |  | rajab@qit.qualcomm.com |
| Richard Van Nee | Straatweg 66-S Breukelen, 3621 BR Netherlands |  | rvannee@qti.qualcomm.com |
| Rolf De Vegt | Qualcomm | 1700 Technology Drive San Jose, CA 95110, USA |  | rolfv@qca.qualcomm.com |
| Sameer Vermani | 5775 Morehouse Dr. San Diego, CA, USA |  | svverman@qti.qualcomm.com |
| Simone Merlin | 5775 Morehouse Dr. San Diego, CA, USA |  | smerlin@qti.qualcomm.com |
| Tevfik Yucek | 1700 Technology Drive San Jose, CA 95110, USA |  | tyucek@qca.qualcomm.com |
| VK Jones | 1700 Technology Drive San Jose, CA 95110, USA |  | vkjones@qca.qualcomm.com |
| Youhan Kim | 1700 Technology Drive San Jose, CA 95110, USA |  | youhank@qca.qualcomm.com |
| Jianhan Liu | Mediatek  USA | 2860 Junction Ave, San Jose, CA 95134, USA | +1-408-526-1899 | jianhan.Liu@mediatek.com |
| Thomas Pare |  |  | thomas.pare@mediatek.com |
| ChaoChun Wang |  |  | chaochun.wang@mediatek.com |
| James Wang |  |  | james.wang@mediatek.com |
| Tianyu Wu |  |  | tianyu.wu@mediatek.com |
| Russell Huang |  |  | russell.huang@mediatek.com |
| James Yee | Mediatek | No. 1 Dusing 1st Road, Hsinchu, Taiwan | +886-3-567-0766 | james.yee@mediatek.com |
| Frank Hsu |  |  | frank.hsu@mediatek.com |
| Joonsuk Kim | Apple |  |  | joonsuk@apple.com |
| Aon Mujtaba |  |  | mujtaba@apple.com |
| Guoqing Li |  |  | guoqing\_li@apple.com |
| Eric Wong |  |  | ericwong@apple.com |
| Chris Hartman |  |  | chartman@apple.com |
| Jarkko Kneckt |  |  | jkneckt@apple.com |
| David X. Yang | Huawei | F1-17, Huawei Base, Bantian, Shenzhen |  | david.yangxun@huawei.com |
| Jiayin Zhang | 5B-N8, No.2222 Xinjinqiao Road, Pudong, Shanghai | +86-18601656691 | zhangjiayin@huawei.com |
| Jun Luo | 5B-N8, No.2222 Xinjinqiao Road, Pudong, Shanghai |  | jun.l@huawei.com |
| Yi Luo | F1-17, Huawei Base, Bantian, Shenzhen | +86-18665891036 | Roy.luoyi@huawei.com |
| Yingpei Lin | 5B-N8, No.2222 Xinjinqiao Road, Pudong, Shanghai |  | linyingpei@huawei.com |
| Jiyong Pang | 5B-N8, No.2222 Xinjinqiao Road, Pudong, Shanghai |  | pangjiyong@huawei.com |
| Zhigang Rong | 10180 Telesis Court, Suite 365, San Diego, CA  92121 NA |  | zhigang.rong@huawei.com |
| Jian Yu | F1-17, Huawei Base, Bantian, Shenzhen |  | ross.yujian@huawei.com |
| Ming Gan | F1-17, Huawei Base, Bantian, Shenzhen |  | ming.gan@huawei.com |
| Yuchen Guo | F1-17, Huawei Base, Bantian, Shenzhen |  | guoyuchen@huawei.com |
| Yunsong Yang | 10180 Telesis Court, Suite 365, San Diego, CA  92121 NA |  | yangyunsong@huawei.com |
| Junghoon Suh | 303 Terry Fox, Suite 400 Kanata, Ottawa, Canada |  | Junghoon.Suh@huawei.com |
| Peter Loc |  |  | peterloc@iwirelesstech.com |
| Edward Au | 303 Terry Fox, Suite 400 Kanata, Ottawa, Canada |  | edward.ks.au@huawei.com |
| Teyan Chen | F1-17, Huawei Base, Bantian, Shenzhen |  | chenteyan@huawei.com |
| Yunbo Li | F1-17, Huawei Base, Bantian, Shenzhen |  | liyunbo@huawei.com |
| David X. Yang | Huawei | F1-17, Huawei Base, Bantian, Shenzhen |  | david.yangxun@huawei.com |
| Jiayin Zhang | 5B-N8, No.2222 Xinjinqiao Road, Pudong, Shanghai | +86-18601656691 | zhangjiayin@huawei.com |
| Jun Luo | 5B-N8, No.2222 Xinjinqiao Road, Pudong, Shanghai |  | jun.l@huawei.com |
| Yi Luo | F1-17, Huawei Base, Bantian, Shenzhen | +86-18665891036 | Roy.luoyi@huawei.com |
| Yingpei Lin | 5B-N8, No.2222 Xinjinqiao Road, Pudong, Shanghai |  | linyingpei@huawei.com |
| Jiyong Pang | 5B-N8, No.2222 Xinjinqiao Road, Pudong, Shanghai |  | pangjiyong@huawei.com |
| Zhigang Rong | 10180 Telesis Court, Suite 365, San Diego, CA  92121 NA |  | zhigang.rong@huawei.com |
| Jian Yu | F1-17, Huawei Base, Bantian, Shenzhen |  | ross.yujian@huawei.com |
| Ming Gan | F1-17, Huawei Base, Bantian, Shenzhen |  | ming.gan@huawei.com |
| Yuchen Guo | F1-17, Huawei Base, Bantian, Shenzhen |  | guoyuchen@huawei.com |
| Yunsong Yang | 10180 Telesis Court, Suite 365, San Diego, CA  92121 NA |  | yangyunsong@huawei.com |
| Junghoon Suh | 303 Terry Fox, Suite 400 Kanata, Ottawa, Canada |  | Junghoon.Suh@huawei.com |
| Peter Loc |  |  | peterloc@iwirelesstech.com |
| Edward Au | 303 Terry Fox, Suite 400 Kanata, Ottawa, Canada |  | edward.ks.au@huawei.com |
| Teyan Chen | F1-17, Huawei Base, Bantian, Shenzhen |  | chenteyan@huawei.com |
| Yunbo Li | F1-17, Huawei Base, Bantian, Shenzhen |  | liyunbo@huawei.com |
| Jinmin Kim | LG Electronics | 19, Yangjae-daero 11gil, Seocho-gu, Seoul 137-130, Korea |  | Jinmin1230.kim@lge.com |
| Kiseon Ryu |  |  | kiseon.ryu@lge.com |
| Jinyoung Chun |  |  | jiny.chun@lge.com |
| Jinsoo Choi |  |  | js.choi@lge.com |
| Jeongki Kim |  |  | jeongki.kim@lge.com |
| Dongguk Lim |  |  | dongguk.lim@lge.com |
| Suhwook Kim |  |  | suhwook.kim@lge.com |
| Eunsung Park |  |  | esung.park@lge.com |
| JayH Park |  |  | Hyunh.park@lge.com |
| HanGyu Cho |  |  | hg.cho@lge.com |
| Bo Sun | ZTE | #9 Wuxingduan, Xifeng  Rd., Xi'an, China |  | sun.bo1@zte.com.cn |
| Kaiying Lv |  |  | lv.kaiying@zte.com.cn |
| Yonggang Fang |  |  | yfang@ztetx.com |
| Ke Yao |  |  | yao.ke5@zte.com.cn |
| Weimin Xing |  |  | xing.weimin@zte.com.cn |
| Brian Hart | Cisco Systems | 170 W Tasman Dr, San Jose, CA 95134 |  | brianh@cisco.com |
| Pooya Monajemi |  |  | pmonajem@cisco.com |
| Fei Tong | Samsung | Innovation Park,  Cambridge CB4 0DS (U.K.) | +44 1223 434633 | f.tong@samsung.com |
| Hyunjeong Kang | Maetan 3-dong; Yongtong-Gu Suwon; South Korea | +82-31-279-9028 | hyunjeong.kang@samsung.com |
| Kaushik Josiam | 1301, E. Lookout Dr,  Richardson TX 75070 | (972) 761 7437 | k.josiam@samsung.com |
| Mark Rison | Innovation Park,  Cambridge CB4 0DS (U.K.) | +44 1223 434600 | m.rison@samsung.com |
| Rakesh Taori | 1301, E. Lookout Dr,  Richardson TX 75070 | (972) 761 7470 | rakesh.taori@samsung.com |
| Sanghyun Chang | Maetan 3-dong; Yongtong-Gu Suwon; South Korea | +82-10-8864-1751 | s29.chang@samsung.com |
| Yasushi Takatori | NTT | 1-1 Hikari-no-oka, Yokosuka, Kanagawa 239-0847 Japan | +81 46 859 3135 | takatori.yasushi@lab.ntt.co.jp |
| Yasuhiko Inoue | +81 46 859 5097 | inoue.yasuhiko@lab.ntt.co.jp |
| Shoko Shinohara | +81 46 859 5107 | Shinohara.shoko@lab.ntt.co.jp |
| Yusuke Asai | +81 46 859 3494 | asai.yusuke@lab.ntt.co.jp |
| Koichi Ishihara | +81 46 859 4233 | ishihara.koichi@lab.ntt.co.jp |
| Junichi Iwatani | +81 46 859 4222 | Iwatani.junichi@lab.ntt.co.jp |
| Akira Yamada | NTT DOCOMO | 3-6, Hikarinooka, Yokosuka-shi, Kanagawa, 239-8536, Japan | +81 46 840  3759 | yamadaakira@nttdocomo.com |
| Masahito Mori | Sony Corp. |  |  | Masahito.Mori@jp.sony.com |
| Yusuke Tanaka |  |  | YusukeC.Tanaka@jp.sony.com |
| Yuichi Morioka |  |  | Yuichi.Morioka@jp.sony.com |
| Kazuyuki Sakoda |  |  | Kazuyuki.Sakoda@am.sony.com |
| William Carney |  |  | William.Carney@am.sony.com |
| Sigurd Schelstraete | Quantenna |  |  | Sigurd@quantenna.com |
| Huizhao Wang |  |  | hwang@quantenna.com |
| Narendar Madhavan | Toshiba |  |  | narendar.madhavan@toshiba.co.jp |
| Masahiro Sekiya |  |  |  |
| Toshihisa Nabetani |  |  |  |
| Tsuguhide Aoki |  |  |  |
| Tomoko Adachi |  |  |  |
| Kentaro Taniguchi |  |  |  |
| Daisuke Taki |  |  |  |
| Koji Horisaki |  |  |  |
| David Halls |  |  |  |
| Filippo Tosato |  |  |  |
| Zubeir Bocus |  |  |  |
| Fengming Cao |  |  |  |

Abstract

This document provide proposed text changes to resolve SR field interpretation ambiguity. Please refer to document “11-16/0901r0 Clarification of SR Fields in HE Trigger Based PPDU” for details of the discussion.

Rev0: initial draft

Rev1: added proposed text changes to the common field of the trigger frame.

This document shows the proposed text changes for resolving SR field ambiguity, which is discussed in document 11-16/0901r0.

**To TGax Editor:** Replace the “Spatial reuse field” in Table 26-17 of the secton 26.3.9.7.2 (Content) with four new field entries as shown below. Add a note shown below to the end of the Table 26-17 of section 26.3.9.7.2 (Content).

Details of the proposed changes are shown below.

***----- Start of proposed text changes ------***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| * Fields in the HE-SIG-A for an HE trigger-based PPDU | | | | |
| Two Parts of HE-SIG-A | Bit | Field | Number of bits | Description |
|  | B7:B10 | Spatial Reuse 1 | 4 | If Bandwidth is set to 20 MHz   * Spatial Reuse field for the 20MHz bandwidth   If Bandwidth is set to 40 MHz   * Spatial Reuse field for the first 20 MHz of the 40 MHz operating band. (See Note 1)   If Bandwidth is set to 80 MHz   * Spatial Reuse field for the first 20 MHz of the 80 MHz operating band. (See Note 1)   If Bandwidth is set to 160/80+80 MHz   * Spatial Reuse field for first 40 MHz of the 160 MHz operating band. (See Note 1)   “SR\_allowed” signaling indicates whether SR operation is allowed or not.   * Set to 0 to indicate SR is disallowed * The conditions to disallow SR are TBD   Other details are TBD.  Notes: this part needs further development.(#2169) |
|  | B11:B14 | Spatial Reuse 2 | 4 | If Bandwidth is set to 20 MHz   * Spatial Reuse field for the 20MHz bandwidth. * This field is set to same value as Spatial Reuse 1 field.   If Bandwidth is set to 40 MHz   * Spatial Reuse field for the second 20 MHz of the 40 MHz operating band. (See Note 1). * This field is set to same value as Spatial Reuse 1 field when operating in 2.4 GHz band.   If Bandwidth is set to 80 MHz   * Spatial Reuse field for the second 20 MHz of the 80 MHz operating band. (See Note 1)   If Bandwidth is set to 160/80+80 MHz   * Spatial Reuse field for second 40 MHz of the 160 MHz operating band. (See Note 1) |
|  | B15:B18 | Spatial Reuse 3 | 4 | If Bandwidth is set to 20 MHz   * Spatial Reuse field for the 20MHz bandwidth. * This field is set to same value as Spatial Reuse 1 field.   If Bandwidth is set to 40 MHz   * Spatial Reuse field for the first 20 MHz of the 40 MHz operating band. (See Note 1). * This field is set to same value as Spatial Reuse 1 field.   If Bandwidth is set to 80 MHz   * Spatial Reuse field for the third 20 MHz of the 80 MHz operating band. (See Note 1)   If Bandwidth is set to 160/80+80 MHz   * Spatial Reuse field for third 40 MHz of the 160 MHz operating band. (See Note 1). * This field is set to same value as Spatial Reuse 1 field when bandwidth of the HE PPDU is 80+80 MHz. |
|  | B19:B22 | Spatial Reuse 4 | 4 | If Bandwidth is set to 20 MHz   * Spatial Reuse field for the 20MHz bandwidth. * This field is set to same value as Spatial Reuse 1 field.   If Bandwidth is set to 40 MHz   * Spatial Reuse field for the second 20 MHz of the 40 MHz operating band. (See Note 1). * This field is set to same value as Spatial Reuse 2 field.   If Bandwidth is set to 80 MHz   * Spatial Reuse field for the fourth 20 MHz of the 80 MHz operating band. (See Note 1)   If Bandwidth is set to 160/80+80 MHz   * Spatial Reuse field for fourth 40 MHz of the 160 MHz operating band. (See Note 1). * This field is set to same value as Spatial Reuse 2 field when bandwidth of the HE PPDU is 80+80 MHz. |
| Note 1: First, second, third, and fourth 20 or 40MHz band is enumerated from the lowest frequency to highest frequency. | | | | |

***----- End of proposed text changes ------***

Following resolution is proposed changes on top of proposed changes in document 11-16/0780r1, “CIDs for: Section 9.3.1.23 Trigger Frame Format”.

**To TGax Editor:** Apply the following proposed text changes on top of the proposed changes in document 11-16/0780r1.

***----- Start of proposed text changes ------***

The Spatial Reuse bits indicates the value of the Spatial Reuse in the HE-SIGA of the HE\_TRIG PPDU transmitted as a response to the Trigger frame. For HE trigger-based PPDU, 4 SR fields are signaled:

* For 20MHz one SR field corresponding to entire 20MHz (other 3 fields indicate identical values)
* For 40MHz two SR fields for each 20MHz (other 2 fields indicate identical values)
* For 80MHz four SR fields for each 20MHz
* For 160MHz and 80+80MHz four SR fields for each 40MHz

When operating 40MHz in 2.4GHz band, two SR fields, SR field 1 and SR field 2, shall be set to same values. When operating 80+80MHz, SR field 3 shall be set to same value as SR field 1, and SR field 4 shall be set to to same value as SR field 2.

***----- End of proposed text changes ------***