IEEE P802.11
Wireless LANs

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| Proposed resolution for CID 4928 |
| Date: 2017-05-08 |
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Abstract

This submission proposes resolutions for CID 4928 related to TGax D1.0

Revisions:

* Rev 0: Initial version of the document.

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGax Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGax Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGax Editor: Editing instructions preceded by “TGax Editor” are instructions to the TGax editor to modify existing material in the TGax draft. As a result of adopting the changes, the TGax editor will execute the instructions rather than copy them to the TGax Draft.***

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| **CID** | **Section** | **Pg / Ln** | **Comment** | **Proposed Change** | **Resolution** |
| 4928 | 27.2.1 | 149.16 | OBSS interference should be minimized with NDP PPDUs in order that MU works reliably. | Therefore the proportional CCA rule should be disabled during NDP PPDUs (and, related concern, PPDUs containing FTM frames). Changes at P190L30 | RevisedAgree with the comment.TGax editor please make the changes as shown in 11-17/0669r1 |

***Discussion:***

Sounding procedure is quite important for reliable data transmission. Spatial reuse shall be disallowed during sounding procedure. In 11ax Draft1.2, rules have been set that a Non-HT PPDU which carries NDP Announcement frame is prevented from OBSS-PD based spatial reuse. In the case where an HE NDP and HE PPDU that carries NDP Announcement frame, both SRG/ NON SRG OBSS-PD based and SRP based spatial reuse shall also be prevented. However currently there is no way to identify HE NDP and HE PPDU that carries NDP Announcement frame based on HE-SIG-A.

An entry of SRP and NON SRG SR\_DISALLOW has been added in the SRP field of HE-SIG-A to turn off SRP based and NON SRG OBSS-PD based spatial reuse. However it cannot turn off SRG OBSS-PD based spatial reuse for protecting sounding procedure.

The entry of SR\_DELAY in the SRP field of HE-SIG-A can be used to indicate that the PPDU may carry a Trigger frame or sounding related frames (eg. NDPA, NDP, Beamforming report poll trigger, Beamforming feedback) for OBSS STAs to delay/disallow the spatial reuse depending on the specific frame type. When the PPDU is determined to be a sounding related frame, the NAV timer shall be updated based on the received PPDU without checking the spatial reuse conditions.

**27.9.2 OBSS\_PD-based spatial reuse operation**

**27.9.2.1 General**

***TGax Editor: Please modify the paragragh (Page 205, Line 65 and Page 206, Line 25 in D1.2)in this section as follows:***

If the PHY of a STA issues a PHY-CCA.indication with a value equal to BUSY followed by an RXSTART.indication due to a PPDU reception then the STA’s MAC sublayer may a) issue a PHY-CCA-RESET.request primitive and b) not update its NAV timers based on frames carried in the PPDU if all the following conditions are met:

 …

* The PPDU is not one of the following:

• A non-HT PPDU that carries an individually addressed Public Action frame where the RA field is equal to the STA MAC address

• A non-HT PPDU that carries a group addressed Public Action frame

• A ~~non-HT~~ non-HE PPDU that is an NDP or that carries an NDP Announcement frame or FTM frame (#8111)

An HE PPDU that is an HE NDP or that carries an FTM or NDP Announcement or a Beamforming feedback frame with SR\_DELAY in the RXVECTOR parameter SPATIAL\_REUSE.

(#8111)If the PHY of a STA issues a PHY-CCA.indication with a value equal to BUSY followed by an RXSTART.indication due to a PPDU reception then the STA's MAC sublayer may a) issue a PHYCCARESET. request primitive and b) not update its NAV timers based on frames carried in the PPDU if all the following conditions are met:

 …

— The PPDU is not one of the following:

• A non-HT PPDU that carries an individually addressed Public Action frame where the RA field is equal to the STA MAC address

• A non-HT PPDU that carries a group addressed Public Action frame

• A ~~non-HT~~ non-HE PPDU that is an NDP or that carries an NDP Announcement frame or FTM frame (#8111)

An HE PPDU that is an HE NDP or that carries an FTM or NDP Announcement or a Beamforming feedback frame with SR\_DELAY in the RXVECTOR parameter SPATIAL\_REUSE.

***TGax Editor: In TGax D1.2, insert the following text at the end of subclause 27.9.2.1 General as shown:***

The PHYCCARESET.request primitive shall be issued at the end of the PPDU if the PPDU is HE SU PPDU or HE extended range SU PPDU that carries a Trigger frame and the RXVECTOR parameter SPATIAL\_REUSE indicates SR\_DELAY.

If the PHYCCARESET.request primitive is issued before the end of the PPDU, and a TXOP is initiated within the duration of the PPDU, then the TXOP shall be limited to the duration of the PPDU if the PPDU is HE MU PPDU and the RXVECTOR parameter SPATIAL\_REUSE indicates SR\_RESTRICTED.

The HE NDP shall be detected if the RXVECTOR parameter SPATIAL\_REUSE of the detected HE PPDU indicates SR\_ DELAY.

The frame type and subtype subfield in the MAC header shall be decoded if the RXVECTOR parameter SPATIAL\_REUSE of the detected HE PPDU that is not an HE NDP indicates SR\_ DELAY.

**27.9.3 SRP-based spatial reuse operation**

***TGax Editor: Please modify the paragragh (Page 209, Line 38 in D1.2)in this section as follows:***

…

An AP sending a Trigger frame may set the SR field in the Common Info field of the Trigger frame to SR\_- DISALLOW to forbid OBSS STAs from performing SRP-based SR transmission during the ensuing uplink SRP\_PPDU duration. An AP sending a trigger frame that is not a Beamforming Report Poll variant shall not set the SR field in the Common Info field of the trigger frame to SR\_DELAY. An AP sending a trigger frame that is a Beamforming Report Poll variant may set the SR field in the Common Info field of the trigger frame to SR\_DELAY to forbid OBSS STAs from performing OBSS-PD based and SRP-based SR transmission during HE sounding feedback duration.

**27.11.6 SPATIAL\_REUSE**

***TGax Editor: Please modify the paragragh (Page 219~221 in D1.2)in this section as follows:***

…

An HE STA shall set the TXVECTOR parameter SPATIAL\_REUSE to ~~SR\_DISALLOW~~ SR\_DELAY for an NDP PPDU .

An HE STA shall set the TXVECTOR parameter SPATIAL\_REUSE to ~~SR\_DISALLOW~~ SR\_DELAY for a PPDU containing an FTM or NDP Announcement frame

An HE STA that transmits an HE SU PPDU or an HE ER SU PPDU that contains a Trigger frame should set the TXVECTOR parameter SPATIAL\_REUSE to SR\_DELAY or SR\_RESTRICTED.

An HE STA that transmits an HE PPDU that is not an NDP or that does not contain a Trigger or an FTM or NDP Announcement or a Beamforming Feedback frame shall not set the TXVECTOR parameter SPATIAL\_REUSE to SR\_DELAY or SR\_RESTRICTED.

An HE STA with dot11HESRPOptionImplemented set to false may set the TXVECTOR parameter SPATIAL\_ REUSE to SR\_DISALLOW for any PPDU that is not an HE TB PPDU ~~or an NDP PPDU or a PPDU containing an FTM or NDP Announcement frame~~.

…

(#8111)A STA shall set the TXVECTOR parameter SPATIAL\_REUSE of an HE PPDU that is not an NDP PPDU or that does not contain an FTM or NDP Announcement to SR\_DISAL-LOW if the STA is an HE non-AP STA and the SRP Disallowed subfield of the SR Control field of the most recently received Spatial Reuse Parameter Set element from its associated AP is equal to 1.

**27.6.4 HE NDP transmission**

***TGax Editor: Please modify the paragragh (Page 194, Line 1 in D1.2)in this section as follows:***

The TXVECTOR parameters for an HE NDP are as follows:(#8501)

…

— SPATIAL\_REUSE is set to ~~SR\_DISALLOW~~ SR\_DELAY