IEEE P802.11  
Wireless LANs

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| **Comment Resolution for Miscellaneous** | | | | |
| **Date:** 2013-08-01 | | | | |
| **Author(s):** | | | | |
| **Name** | **Affiliation** | **Address** | **Phone** | **email** |
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Abstract

This document provides comment resolution for TGah Draft 0.1 Comment Collection 9 with these CIDs: 820, 822, 827, and 923.

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 TGah Draft. This introduction is not part of the adopted material.

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

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

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| **CID** | **P.L** | **SC** | **Comment** | **Proposed Change** | **Resolution** |
| 820 | 165.1 | 10.1.2.1 | 10.1.2.1 TSF for infrastructure networks; need adaptation for Short Beacon | As in comment | Revised -  TGah editor to make changes shown in 11-13-1021-00-00ah under the heading for CIDs 820. |

**Discussion:** *None*

* **TSF for infrastructure networks**

**Instruction to Editor: *Please modify 1st and 2nd paragraphs of this subclause (@ REVmc D1.1):***

In an infrastructure BSS or in a PBSS,(11ad) the AP in the infrastructure BSS or the PCP in the PBSS(11ad) shall be the timing master for the TSF. A STA that is the AP or the PCP(11ad) shall initialize its TSF timer independently of any simultaneously started APs or PCPs, respectively(11ad) in an effort to minimize the synchronization of the TSF timers of multiple APs or PCPs(11ad). In a non-DMG BSS,(11ad) the AP that is not an S1G AP with dot11ShortBeaconOptionImplemented equal to true shall periodically transmit special frames called *Beacon frames*. An S1G AP with dot11ShortBeaconOptionImplemented equal to true shall periodically transmit Short Beacon frames as described in 10.1.3.7a.1 (General). In a DMG BSS, the PCP/AP shall periodically transmit special frames called DMG Beacon and Announce frames, which provide a similar function to the Beacon frame in a non-DMG BSS. (Short) Beacon, DMG Beacon, and Announce frames(11ad) contain the value of the PCP’s or AP’s(11ad) TSF timer in order to synchronize the TSF timers of other STAs in a BSS. A receiving STA shall accept the timing information in (Short) Beacon, DMG Beacon, and Announce(11ad) frames sent from the AP or PCP(11ad)(Ed) servicing its BSS. An S1G STA that receives a Short Beacon shall update its TSF timer according to the algorithm described in 10.1.3.7a.3 (TSF timer accuracy with Short Beacon). If a STA’s TSF timer is different from the timestamp in the received (Short) Beacon, DMG Beacon, or Announce(11ad) frame, the receiving STA shall set its local TSF timer to the received timestamp value.

In a non-DMG BSS,(11ad) Beacon frames shall be generated for transmission by the AP that is not an S1G AP with dot11ShortBeaconOptionImplemented equal to true once every dot11BeaconPeriod TUs. An S1G AP with dot11ShortBeaconOptionImplemented equal to true shall generate for transmission Short Beacons every dot11ShortBeaconPeriod as described in 10.1.3.7a.1 (General). In a DMG infrastructure BSS, zero or more DMG Beacon frames shall be generated for transmission by the AP every dot11BeaconPeriod TUs (see

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| **CID** | **P.L** | **SC** | **Comment** | **Proposed Change** | **Resolution** |
| 822 | 164. 14 | 9.32r | 9.32r OBSS Mitigation Procedure; transmitter implementaiton may be more complex if It does not know whether receiver will/will-not use lower BW response. Also this procedure is in conflict with similar procedure in 9.7.6.6 Channel Width selection for control frames. | Add capability indication for the procedure in 9.32r OBSS Mitigation Procedure, and merge with common behavior in 9.7.6.6 Channel Width selection for control frames. | Revised –  TGah editor to make changes shown in 11-13-1021-00-00ah under the heading for CIDs 822. |

**Discussion:**

*In D0.2 subclause 9.32r (OBSS Mitigation procedure):*

“To mitigate the interference between a 1MHz BSS, which has longer range and covers larger area, and one or more 2/4/8/16 MHz BSSs, which have shorter range and cover non-overlapping smaller areas, an STA in a 2/4/8/16 MHz BSSs may send a (duplicated) >= 2MHz NDP ACK in response to a frame carried in an S1G PPDU in a narrower bandwidth i.e., the TXVECTOR parameter CH\_BANDWIDTH of the STA is set to indicate a channel width that is less than the channel width indicated by the RXVECTOR parameter CH\_BANDWIDTH of the frame eliciting the response.*”*

*In D0.2 subclause 9.7.6.6 (Channel Width selection for control frames):*

“When both transmitting STA and receiving STA indicate the OBSS mitigation support in the OBSS mitigation support subfield of the S1G Capabilities element, the receiving STA operating in a 2/4/8/16MHz BSS that sends a (duplicated) >= 2MHz NDP ACK in response to a frame carried in an S1G PPDU may set the TXVECTOR parameter CH\_BANDWIDTH to indicate a channel width that is less than or equal to the channel width indicated by the RXVECTOR parameter CH\_BANDWIDTH of the frame eliciting the response.”

*The two sections describe the same protocol behavior with 9.7.6.6 being clearer. Proposed resolution is to keep only one section (remove 9.32r as paragraph in 9.7.6.6 is clearer) so that to avoid adding modifications to two different parts of the specs.*

**Instruction to Editor: *Please remove subclause 9.32r (OBSS Mitigation Procedure).***

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| **CID** | **P.L** | **SC** | **Comment** | **Proposed Change** | **Resolution** |
| 827 | 121.1 | 9.3.2.5a | 9.3.2.5a VHT RTS procedure; need a similar description for 11ah based on new format of BW indication and new BW options | Write text to describe the RTS/CTS operation with BW indication in 11ah | Revised –  TGah editor to make changes shown in 11-13-1021-00-00ah under the heading for CIDs 827. |

**Discussion:** *None*

**Instruction to Editor: *Please change title and add the following paragraph at the end of the subclause (@ IEEE802.11ac D5.0):***

**9.3.2.5a VHT and S1G RTS procedure**

An S1G STA using dynamic bandwidth operation (see 9.3.2.6 (CTS and DMG CTS procedure)) that transmits an RTS frame shall set the Dynamic Indication field in the Frame Control field of the RTS frame to 1. Otherwise, the S1G STA shall set the Dynamic Indication field in the Frame Control field of the RTS frame to 0 to indicate that it is capable of static bandwidth operation (see 9.3.2.6 (CTS and DMG CTS procedure)).

**9.3.2.6 CTS and DMG CTS procedure**

**Instruction to Editor: *Please add the following after 3rd paragraph of this subclause (@ IEEE802.11ac D5.0):***

An S1G STA that is addressed by an RTS frame that has the Dynamic Indication field in the Frame Control field set to 0 (Static) behaves as follows:

— If the NAV indicates idle and the CCA has been idle for all secondary channels within the channel width indicated in the Bandwidth Indication field of the Frame Control field of the RTS frame for a PIFS period prior to the start of the RTS frame, then the STA shall respond with a NDP CTS frame after a SIFS period.

— Otherwise the STA shall not respond with a (NDP) CTS frame.

A S1G STA that is addressed by an RTS frame that has the Dynamic Indication field in the Frame control field set to 1 (Dynamic) behaves as follows:

— If the NAV indicates idle, then the STA shall respond with a NDP CTS frame after a SIFS period. The NDP CTS frame's TXVECTOR parameter’s CH\_BANDWIDTH may be set to any channel width for which the CCA on all secondary channels has been idle for a PIFS prior to the start of the RTS frame and that is equal to or less than the channel width indicated in the Bandwidth Indication field of the Frame Control field of the RTS frame. The NDP CTS frame shall have a Bandwidth Indication field set to the TXVECTOR parameter’s CH\_BANDWIDTH.

— Otherwise the STA shall not respond with a NDP CTS frame.

**Instruction to Editor: *Please modify the 4th paragraph of this subclause (@ IEEE802.11ac D5.0):***

A non-VHT STA that is not an S1G STA that is addressed by an RTS frame or a VHT STA that is addressed by an RTS frame carried in a non-HT or non-HT duplicate PPDU that has a non-bandwidth signaling TA or a VHT STA that is addressed by an RTS frame in a format other than non-HT or non-HT duplicate behaves as follows:

* If the NAV indicates idle, the STA shall respond with a CTS frame after a SIFS period.
* Otherwise, the STA shall not respond with a CTS frame.
* **Channel Width in non-HT and non-HT duplicate PPDUs**

**Instruction to Editor: *Please add after the 2nd paragraph of this subclause (@ IEEE802.11ac D5.0):***

An S1G STA shall set the Bandwidth Indication field in the Frame Control field of an S1G Control frame to the value of the TXVECTOR’s parameter CH\_BANDWIDTH. An S1G STA shall set the Dynamic Indication field in the Frame Control field of S1G Control frames, other than RTS, to 0.

* NDP CTS

**Instruction to Editor: *Please modify table 8-33e as follows:***

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| * **NDP MAC frame body of NDP CTS (≥2MHz)** | | |
| Field | Size (bits) | Description |
| NDP MAC Frame Type | 3 | NDP MAC Frame Type field is set to 0. |
| … |  |  |
| Bandwidth Indication | 3 | The Bandwidth Indication field is 3 bits in length, identifies the bandwidth of the PPDU frame, and is set according to Table 8-4a (Bandwidth Indication encoding). |
| Reserved | 5 | Reserved for future use |

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| **CID** | **P.L** | **SC** | **Comment** | **Proposed Change** | **Resolution** |
| 923 | 169.35 | 10.2.1.1 | Better expression is recommended. Also, to be logically match with contents in 10.1.3.7a.1, it is better to rephrase the sentence. | Modify the sentence from "... a Short Beacon may be sent or instead of a Beacon during at a TBTT that coincides with a TSBTT." to "... a Beacon frame may be sent instead of a Short Beacon frame at a TSBTT that coincides with a TBTT." | Accepted –  Editor to make the changes proposed by the commenter. |

**Discussion:** *None*