IEEE P802.11
Wireless LANs

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| Complete RTS enablement |
| Date: 2016-11-01 |
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Abstract

This submission proposes resolutions for multiple comments related to TGax D0.1 with the following CIDs:

* There are no CIDs, but builds on top of comment resolution document 11-16/1211r2.

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.***

**Discussion:** *The proposed spec text related to MU RTS enablement is incomplete regarding the normative behavior that is followed by the non-AP STA when the AP enables this feature. This document, among some language clarifications, proposes also to add the missing normative behavior, inline with past motions, and passed proposals on the topic.*

**9.4.2.219 HE Operation element**

**TGax Editor: *Change the paragraphs below of this subclause as follows (#FIX):***

(#576)The HE Duration Based RTS Threshold field enables an HE AP to manage RTS/CTS usage by HE non-AP STAs that are associated to it. The HE Duration Based RTS Threshold field contains the Duration Based RTS Threshold in units of 32 us, which enables the use of RTS/CTS except for the values 0 and 1023. The value 0 indicates that RTS/CTS must be used for all frame exchanges. The value 1023 indicates that HE duration-based RTS is disabled.

**10.3.1 General**

***(#576)Change the 12th paragraph as follows:***

~~The~~ When HE duration-based RTS is disabled, the use of the RTS/CTS mechanism is under control of dot11RTSThreshold. This attribute may be set on a per-STA basis. This mechanism allows STAs to be con-figured to initiate RTS/CTS either always, never, or only on frames longer than a specified length.

**TGax Editor: *Change the paragraphs below of this subclause as follows (#FIX):***

When HE duration-based RTS is enabled, the use of the RTS/CTS mechanism is under control of dot11Du-rationRTSThreshold. This mechanism requires STAs to use an RTS/CTS exchange for individually addressed frames when the duration of the TXOP is greater than the duration threshold indicated by dot11DurationRTSThreshold.

NOTE 1—A STA configured not to initiate the RTS/CTS mechanism updates its virtual CS mechanism with the dura-tion information contained in a received RTS or CTS frame, and responds to an RTS frame addressed to it with a CTS frame if permitted by medium access rules.

**10.3.2.4 Setting and resetting the NAV**

***Insert the following at the end of 10.3.2.4:***

An HE AP may use the HE duration-based RTS threshold to configure the use of RTS/CTS initiated by non- AP HE STA.(#576)

***Insert a new subclause following 10.3.2.4:***

**10.3.2.4a Duration-based RTS/CTS**

In dense environments, managing RTS usage by an AP can help the overall interference situation since the AP may have better view of the network situation. To improve spectrum utilization, RTS usage should be duration-based, rather than length-based.(#576)

**10.3.5 Individually addressed MPDU transfer procedure**

**TGax Editor: *Change the paragraphs below of this subclause as follows (#FIX):***

When HE duration-based RTS is disabled, a STA using the DCF shall use an RTS/CTS exchange for individually addressed frames when the length of the PSDU is greater than the length threshold indicated by dot11RTSThreshold. When HE duration-based RTS is enabled, a non-AP STA using the DCF or EDCA shall use an RTS/CTS exchange for individually addressed frames when the duration of the TXOP is greater than the duration threshold indicated by dot11DurationRTSThreshold. A STA may also use an RTS/CTS exchange for individually addressed frames when it is necessary to distribute the NAV or when it is necessary to establish protection (see 10.26 (Protection mechanisms)). Otherwise a STA using the DCF shall not use the RTS/CTS exchange.

If dot11RTSThreshold is 0 or dot11DurationRTSThreshold is 0, all MPDUs shall be delivered with the use of RTS/CTS. If dot11RTSThreshold is larger than the maximum PSDU length, all PSDUs shall be delivered without RTS/CTS exchanges.

NOTE—A non-AP STA that transmits the MPDUs in a Trigger-based PPDU is exempt from these requirements.

When an RTS/CTS exchange is used, the PPDU containing the PSDU shall be transmitted starting one SIFS after the end of the CTS frame.

NOTE—No regard is given to the busy or idle status of the medium when transmitting this PSDU.

When an RTS/CTS exchange is not used, the PSDU shall be transmitted following the success of the basic access procedure. With or without the use of the RTS/CTS exchange procedure, the STA that is the destination of a Data frame shall follow the acknowledgment procedure.