IEEE P802.11
Wireless LANs

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| D1.0 Comment Resolution – Clause 8.5.2.6 |
| Date: Nov. 3 2011 |
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Abstract

This document provides resolutions for CIDs 3566 and 3330.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** | **Owing Ad-hoc** |
| 3330 | 59.39 | 8.5.2.6 | Which secondary channel is being referred to if the channel is more than 40 MHz wide? | Clarify (there might be a need to change secondary channel to secondary 20 MHz channel throughout the spec now) | AGREE IN PRINCIPLE. See doc. 11/1441r0. | MAC |
| <Discussion>TGmb Draft defines the Secondary Channel Offset field of the Secondary Channel Offset element as the position of the secondary channel relative to the primary channel. The values of the Secondary Channel Offset field aredefined in Table 8-57 (Values of the Secondary Channel Offset field) as follows: * 0 (SCN – no secondary channel) : indicates that the secondary channel is present
* 1 (SCA – secondary channel above) : indicates that the secondary channel is above the primary channel
* 3 (SCB – secondary channel below) : indicates that the secondary channel is below the primary channel
* 2, 4~255 : reserved

(P545L28 of TGmb Draft 10.0 - 8.4.2.22 Secondary Channel Offset element)TGac Draft 1.2 inherits the Secondary Channel Offset element, in which the secondary channel means the secondary 20MHz channel. TGac Draft is based on understanding that the secondary channel generally means the secondary 20MHz channel , that may be the main reason why there is no definition of secondary 20MHz channel or primary 20MHz channel in the official definition section of TGac Draft 1.2 (clause 3.2 Definitions specific to IEEE 802.11).In addition, TGac Draft has also another particular name “non-primary channel” when calling each 20MHz channel which is not the primary 20MHz channel. But, the term “the secondary 20MHz channel” is already widely used in the entire TGac draft to prevent any kind of ambiguities in the following sections:* 7.3.5.11 PHY-CCA.indication
* 9.19.2.8 EDCA channel access in a VHT BSS
* 22.2.3 Effects of CH\_BANDWIDTH parameter on PPDU format
* 22.3.19.5 CCA sensitivity

So, I think it may be helpful for better understanding to replace “the secondary channel” here by “the secondary 20MHz channel”. **TGac editor: modify the D1.2 text from P071L29, as follows**The Secondary Channel Offset element is defined in 8.4.2.22 (Secondary Channel Offset element). This element is present when switching to a 40 MHz or wider channel (in which case the Secondary Channel Offset field of this element represents the position of the secondary 20 MHz channel relative to the primary 20 MHz channel). It may be present when switching to a 20 MHz channel (in which case the Secondary Channel Offset field is set to SCN). |
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| 3566 | 59.39 | 8.5.2.6 | I've probabily missed this, but when receiving a channel switch announcement frame with a wide bandwidth element, how is the primary channel determined? The secondary channel offset has not been modified by .11ac, so it cannot convey this information. | How is the primary channel determined? Either tell me where I missed it, or provide the signalling to support it. | AGREE IN PRINCIPLE. See doc. 11/1441r0. | MAC |
| <Discussion>In TGn Draft, the Channel Switch Announcement element is used by an AP in a BSS or a STA in an IBSS to advertise when it is changing to a new 20MHz primary channel. The Secondary Channel Offset element is used by an AP in a BSS or a STA in an IBSS together with the Channel Switch Announcement element when changing to a new 40MHz channel as well in TGn Draft. To keep the legacy switching mechanisms backward compatible for VHT, mechanism which support channel switching of 80MHz, 160MHz, and 80+80MHz BSS is supplemented based on the TGn format of this field. In TGac Draft (since D1.0), Channel Switch Announcement frame is extended for VHT just by adding Wide Bandwidth Channel Switch element at the end of its conventional frame format defined in TGn Draft for the following reasons (c.f. See doc. 11/0305r1)* Backward compatible to the legacy switching mechanism
* Support for channel switching to 80MHz, 160MHz and (non-contiguous) 80+80MHz BSS
* VHT Operating Classes for 80MHz and 160MHz does not specifies the position of the primary and secondary channels by use of offsets any more, rather it specifies the channel bandwidth and the center carrier frequency in order to support 80, 160, and well as 80+80MHz BSS setups.

So, modified Channel Switch Announcement frame format for VHT is as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Category | Spectrum Management Action | Channel Switch Announcement element | Secondary Channel Offset element | Wide Bandwidth Channel Switch element |
| Octets: | 1 | 1 | 5 | 3 | 5 |

**Figure 8-385—** **Channel Switch Announcement frame format**where Channel Switch Announcement element is where Secondary Channel Offset element iswhere Wide Bandwidth Chanenl Switch element is (Note that this format is captured from the VHT Operation Information field of the VHT Operation element, which is defined in clause **8.4.2.141 VHT Operation element**)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Element ID | Length | New STA Channel Width | New Channel Center Frequency Segment 1 | New Channel Center Frequency Segment 2 |
| Octets: 1 | 1 | 1 | 1 | 1 |

**Figure 8-ac21- Wide Bandwidth Channel Switch element format**By clause 10.4.1 Basic VHT BSS functionality, it is certain that the New Channel Number field in the Channel Switch Announcement element identifies the primary 20MHz channel after the switch for VHT as well. The Secondary Channel Offset element shall be present when a switch to a 40, 80, 160, (non-contiguous) 80+80 MHz operating bandwidth. When a switch to a 20MHz operating bandwidth, the Secondary Channel Offset element may be present with a value of SCN or not present. And Wide Bandwidth Channel Switch element shall be present when a switch to an 80, 160, (non-contiguous) 80+80 MHz operating bandwidth. <P122L42 of TGac Draft 1.2> **10.40.1 Basic VHT BSS functionality**The New Channel Number field in the Channel Switch Announcement Element identifies the primary 20 MHz channel after the switch. <P122L48 of TGac Draft 1.2> **10.40.1 Basic VHT BSS functionality**When announcing a switch to a 40 MHz operating bandwidth, either in conjunction with a channel switch oralone, the Secondary Channel Offset Element shall be present in the same frame as the Channel Switch Announcement element.<P122L56 of TGac Draft 1.2> **10.40.1 Basic VHT BSS functionality**When announcing a switch to a 80 MHz, 80+80 MHz or 160 MHz operating bandwidth, either in conjunctionwith a channel switch or alone, the Secondary Channel Offset Element and the Wide Bandwidth ChannelSwitch Element shall be present in the same frame as the Channel Switch Announcement element. Thus, how to determine the primary 20MHz channel for every case by Channel Switch Announcement frame can be summarized as follows: (field value which is indispensable to use is colored orange)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| When switch to | New Channel Number | Secondary Channel Offset | New STA Channel Width | New Channel Center Frequency Segment 1 | New Channel Center Frequency Segment 2 | NOTE(Information to get) |  |  |  |  |  |  |
| 20MHz operating bandwidth | Channel number of new primary 20MHz channel  | 0: SCN orNot present | 0 orNot present | 0 orNot present | ReservedOr not present | P20 |  |  |  |  |  |  |
| 40MHz operating bandwidth | Channel number of new primary 20MHz channel | 1: SCA or3: SCB | 0 orNot present | 0 orNot present | ReservedOr not present | P20, S20 |  |  |  |  |  |  |
| 80MHz operating bandwidth | Channel number of new primary 20MHz channel | 1: SCA or3: SCB | 1 | Channel center frequency index of 80MHz segment | Reserved | P20, S20 => P40S40 |  |  |  |  |  |  |
| 160MHz operating bandwidth | Channel number of new primary 20MHz channel | 1: SCA or3: SCB | 2 | Channel center frequency index of 160MHz segment | Reserved | P20, S20 => P40S40 => P80S80 |  |  |  |  |  |  |
| (non-contig.) 80+80MHz operating bandwidth | Channel number of new primary 20MHz channel | 1: SCA or3: SCB | 3 | Channel center frequency index of 80MHz segment 1 | Channel center frequency index of 80MHz segment 2 | P20, S20 => P40S40 => P80S80 |  |  |  |  |  |  |

As a result, Channel Switch Announcement frame can advertise all the channel number information to be used including the primary 20MHz channel which the commeter poins out. So, the current text in D1.2 seems self-sufficient. **TGac editor:**No Change |