IEEE P802.11
Wireless LANs

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| D4 Comment Resolution, brianh, part 3 |
| Date: 2013-01-10 |
| Author(s): |
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##### Baseline is 11ac D4.1. Changes indicated by a mixture of Word track-changes and instructions. For equation changes, Tex notation is sometimes used. E.g. a\_{xyz}^b denotes axyzb .

MAC CIDs: 7150, 7156, 7153, 7152, 7149, 7151, 7100, 7131, 7395, 7318, 7315

MAC CIDs in r2: 7165

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| 7150 | David Hunter | 10.39.4 | 187.39 | Where is "Operating Table index" defined? Note that Annex E refers to indexes related to country strings, but doesn't include a reference to an "operating table index" and the definiton of the Country String subelement of the Country element makes no mention of "operating table index". In additon, "Country string" here is not referring to the subelement that has that name, so should not be in caps. | Replace "Country" with "country" and in the draft text somewhere define "Operating Table index". In addition, delete the upper case on "Operating Table" unless this is a defined interface object -- frame, field, element, primitive, primitive parameter, etc. | Revised. See changes under this CID in 12/1448r<motioned-rev#> which deals with the issues raised by the commenter. Discussion: “Country string”is intended to refer to the field “Country String” within the New Country (sub)element, which contains dot11CountryString, which refers to “Operating Class table number”. The comment resolution cleans up the language accordingly. No definition is required given that this phrase is used only once, here. |

***Discussion***: “Country string”is intended to refer to the field “Country String” within the New Country (sub)element, which contains dot11CountryString, which refers to “Operating Class table number”. Clean up the language accordingly. No definition is required given that this phrase is used only once, here.

***Change***

**10.39.4 Channel switching methods for a VHT BSS**

A VHT AP or a VHT mesh STA can also announce a new Country String field (possibly including a new Operating Class table number), new operating classes or new TPC parameters for the BSS that come into effect at the same time as

the switch of operating channel, operating bandwidth, or both.

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| 7165 | David Hunter | 10.39.4 | 189.40 | The scope of "unless it is a DO STA" is unclear: does it apply to the whole sentence, or just to the second half? | Here is one interpretation: separate the two parts of the sentence by replacing (on line 39) "timers) and shall not" with "timers). Unless it is a DO STA, the VHT STA shall not" and deleting "unless it is a DO STA" at the end of the sentence. If, instead, the "unless" applies to the the whole sentence, then begin the sentence (on line 37) with the phrase: "Unless it is a DO STA, " and delete that phrase from the end of the sentence. | Revised. See changes under this CID in 12/1448r<motioned-rev#> which deals with the wider issues raised by an IBSS changing its channel or its primary channel with relation to its channel width. These changes make the commenter’s concern no longer applicable. |

***Discussion***: During discussion, it was identified that a) the limitations on changing the SCO need ot be broader to avoid certain unsafe combinations within a large IBSS, and b) the change should be wrt the currently adopted parameters not the last switch (since the very first switch doesn’t have a last switch, and also the HT/VHT Operation elements can do funny things). Also the SCO language is already provided by the HT requirements in 10.15.2 which are inherited by VHT STAs so can be deleted.

***Change***

10.15.2 Basic 20/40 MHz BSS functionality

An HT STA that is a member of an IBSS adopts the value of the Secondary Channel Offset field in received

frames according to the rules in 10.1.5 and shall not transmit either

* a value for the Secondary Channel Offset field that differs from the most recently adopted value.
* an Operating Class in the Extended Channel Switch Announcement frame or element with a different behavior than the currently adopted PrimaryChannelLowerBehavior or PrimaryChannelUpperBehavior.

**10.39.4 Channel switching methods for a VHT BSS**

 A VHT STA that is a member of an IBSS shall not transmit values in the Wide Bandwidth Channel Switch element that change the frequency ordering of the primary 40 MHz channel and the secondary 40 MHz channel from the ordering of the most recently adopted operating channel, if the operating channel includes a secondary 40 MHz channel. A VHT STA that is a member of an IBSS shall not transmit values in the Wide Bandwidth Channel Switch element that change the frequency ordering of the primary 80 MHz channel and the secondary 80 MHz channel from the ordering of the most recently adopted operating channel, if the operating channel includes a secondary 80 MHz channel.

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| 7156 | David Hunter | 10.39.4 | 188.13 | The words "mandatory" and "optional" are alternative means of stating requirements and permissions, the exact concepts that the IEEE Style Manual assigns to "shall" and "may". Beyond that, the related requirement is stated immediately above, and the first sentence of this NOTE is an adequate informative explanation of that requirement. | Delete the second sentence of this NOTE. | See changes under this CID in 12/1448r<motioned-rev#> which deals with the issues raised by the commenter by replacing “optional” by “unnecessary”.  |

***Discussion***: Agreed that we shouldn’t use “optional”; however the second sentence remains a helpful clarification.

***Change***

**10.39.4 Channel switching methods for a VHT BSS**

If an Extended Channel Switch Announcement element is used in a Beacon or Probe Response frame to announce

a switch to a 40 MHz operating channel width(#7393)(#7154), then the Wide Bandwidth Channel

Switch subelement in the Channel Switch Wrapper element may be present in the same frame.

NOTE—The indicated operating class within the Extended Channel Switch Announcement element identifies the bandwidth

and the relative position of the primary 20 MHz and secondary 20 MHz channels. Hence a Wide Bandwidth Channel

Switch subelement is unnecessary when the Extended Channel Switch Announcement element is used for a channel

switch to a 40 MHz bandwidth.

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| 7153 | David Hunter | 10.39.4 | 187.57 | This statement would be clearer if rewritten in parallel to the rewritten paragraph immediately above (see the comment above on that paragraph). In addition, the time implication of "when" is irrelevant to this requirement. Also: why is the requirement about the Secondary Channel Offset element put in an informmative note -- NOTE: saying "never" in an an informative note has no force whatsoever -- the implementer is free to ignore anything in informative paragraphs. | Replace this requirement with:"If the Extended Channel Switch Announcement frame or element is used to announce a switch to a 20 MHz band, the Wide Bandwidth Channel Switch element and subelement shall not be present in the frame." Suggest that the first sentence in the NOTE that begins on line 60 be made a normative statement similar to the second sentence in the proposed text for the paragraph on line 50 (of course without the exception for SCN). | Revised: See changes made under CID 7393 and 7154 which substantially make the “if” change requested by the commenter, and see discussion under this CID in 12/1448r<motioned-rev#> which identifies that a normative version of the NOTE is not required. |

***Discussion:***

D4.0 has:

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| When announcing a switch to a 20 MHz operating bandwidth using the Extended Channel Switch Announcementelement in a frame or the Extended Channel Switch Announcement frame, then the Wide BandwidthChannel Switch element shall not be present in the same frame.NOTE—A Secondary Channel Offset element is never present with the Extended Channel Switch Announcement elementin a frame or in the Extended Channel Switch Announcement frame. Instead, the indicated operating class withinthe Extended Channel Switch Announcement element or frame identifies the BSS operating channel bandwidth. |

D4.1 has:

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| If an Extended Channel Switch Announcement element in a frame or an Extended Channel Switch Announcementframe is used to announce a switch to a 20 MHz operating channel width(#7393)(#7154), thenthe Wide Bandwidth Channel Switch element shall not be present in the same frame.NOTE—A Secondary Channel Offset element is never present with the Extended Channel Switch Announcement elementin a frame or in the Extended Channel Switch Announcement frame. Instead, the indicated operating class withinthe Extended Channel Switch Announcement element or frame identifies the BSS operating channel width(#7393). |

So the “if “ language is already taken care of.

As well, the NOTE does not need to be normative since by inspecting the ECSA frame we see that the SCO element is not present.



Taken together with 8.1.1’s “A compliant STA shall transmit frames using only the frame formats described in Clause 8.”, then no additional normative language is required.

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| 7152 | David Hunter | 10.39.4 | 187.50 | "neither x, nor y, nor z shall be present" literally means that they are not required to be present. But the intent appears to be that they shall not be present. In addition, the time implication of "when" is irrelevant to this requirement. | Specific requirements will make this paragraph clearer. Replace the paragraph with:"If the Channel Switch Announcement frame or element is used to announce a switch to a 20 MHz band, the Wide Bandwidth Channel Switch element and subelement shall not be present in the frame. In addition, the Secondary Channel Offset element shall not be present in the frame, unless its Secondary Channel Offset field is set to SCN." | Revised. See CIDs 7393 and 7154 re the requested “if” change. In regards to “Neither x nor y not z shall be present”, this does not contain any sense of “they are not required to be present”. Rather it says that “x shall not be present” and “y shall not be present” and “z shall not be present”. |

***Discussion:***

Context is

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| If a Channel Switch Announcement frame is used to announce a switch to a 20 MHz operating channelwidth(#7393)(#7154), then neither a Wide Bandwidth Channel Switch element, a Wide Bandwidth ChannelSwitch subelement nor a Secondary Channel Offset element shall be present in the frame, except that a SecondaryChannel Offset element may be present in a Channel Switch Announcement frame if the SecondaryChannel Offset field within the Secondary Channel Offset element is set to SCN. |

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| 7149 | David Hunter | 10.39.4 | 187.39 | This "can" is not a statement of physical or logical possibility, but an explicit permission being given by this specification. | Replace "can" with "may". | Accepted |

***Discussion:*** This is introductory text not really intended to specify anything: e.g. previous paragraphs merely say “STA … announces”but that doesn’t work here since these we’re talking about optional

 Extnesions. Could say “STA .. may … optionally announce” but this is tautologous (given that “may” = “optional”) – so just go with commenter’s proposal.

***Change***

A VHT AP or a VHT mesh STA may also announce a new Country string (including a new Operating Table

index), new operating classes or new TPC parameters for the BSS that come into effect at the same time as

the switch of operating channel, operating channel width(#7393), or both.

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| 7151 | David Hunter | 10.39.4 | 187.47 | "is set equal to ... after the switch" is a direct violation of the use of "set" specified in the IEEE 802.11 Style Guide -- "set" is to be used only as an input, not an output. | Delete "set". It also would be clearer writing to begin, rather than end, the sentence with "After the switch". | Revised: See changes made under this CID in 12/1448r<motioned-rev#> which deletes identifies this as an “input” case so deletes “equal” rather than “Set”; and clarifies the “after the switch”  |

***Discussion***: This is an input – how to set a field about to be transmitted - hence delete “equal” rather than “set.” Also, “After the switch” is intended to modify “dot11CurrentPrimaryChannel, not the timing of the “set”, so the language is ambiguous to at least one reader, so change the language accordingly.

***Change:***

The New Channel Number field in the Channel Switch Announcement element(#7338), Extended Channel

Switch Announcement element(#7338), Channel Switch Announcement frame(#7337) or Extended Channel

Switch Announcement frame(#7337), identifies the primary 20 MHz channel after the switch. The value of the New Channel Number field is set to the value that dot11CurrentPrimaryChannel (see 22.3.14 (Channelization)) will have after the switch.

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| 7100 | Youhan Kim | 10.39.4 | 187.18 | P187L18 indicates that either the Channel Switch Announcement Elemant/Frame or Extended Channel Switch Announcement Element/Frame needs to be used to change the operating bandwidth. However, P191L39 allows an AP to change its operating channel width by simply changing the HT Operation element and/or Channel Width field in the VHT Operation element. Also, Operating Mode Notification frames could be used as well. | Clarify in P187L18 that HT Operation element, Channel Width field in the VHT Operation element and/or Operating Mode Notification frames can be used to change the operating bandwidth as well. | Revised: See changes made under this CID in 12/1448r<motioned-rev#> which substantially follow the commenter’s requested change |

A VHT AP announces a switch of operating channel by either

— using the Channel Switch Announcement element(#7338), Channel Switch Announcement

frame(#7337) or both, following the procedure described in 10.9.8.2 (Selecting and advertising a

new channel in an infrastructure BSS)

— using the Extended Channel Switch Announcement element(#7338), Extended Channel Switch

Announcement frame(#7337) or both, following the procedure described in 10.10 (Extended channel

switching (ECS))

and, in addition, following the procedures in this section.

A VHT mesh STA announces a switch attempt of operating channel

by either:(#7148)

— using the Channel Switch Announcement element, Channel Switch Announcement frame or both,

following the procedure described in 10.9.8.4 (MBSS channel switching)

— using the Extended Channel Switch Announcement element, Extended Channel Switch Announcement

frame or both, following the procedure described in 10.10 (Extended channel switching (ECS))

and in addition following the procedures in this section.

A VHT AP or a VHT mesh STA can also announce a switch of operating channel width, a new Country string (including a new Operating Table index), new operating classes or new TPC parameters for the BSS that come into effect at the same time as the switch of operating channel.

NOTE: Other means to switch the operating channel width are described in 10.41 (Notification of operating mode changes).

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| 7131 | David Hunter | 8.4.2.164 | 104.08 | Whan a noun is used as an adjective in American English, the noun is singular. "Units Interpretation" is not correct English. | Replace "Units Interpretation" with "Unit Interpretation" throughout the draft. | Accept |

***Discussion:*** Although we popularly refer to “units”, the singular usage is common also e.g. “unit of length” etc etc.

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| 7395 | Mark RISON | 10.39.4 | 189.26 | "A STA that advertises a channel switch using one or more Channel Switch Announcement frames, Channel Switch Announcement elements, Extended Channel Switch Announcement frames or Extended Channel Switch Announcement elements includes a New Country subelement, Wide Bandwidth Channel Switch subelement or a New VHT Transmit Power Envelope subelement in a Channel Wrapper." -- this is not true for a switch to 20 MHz, right? | Soften the claim | Revised: See changes made under this CID in 12/1448r<motioned-rev#> which soften the claim with extreme prejudice.  |

***Discussion***: DELETE THIS PARAGRAPH. MAKE IT GONE. REMOVE IT REMOVE IT REMOVE IT.

(From the author), this para came as an oversight in 12/379. It was just some random text at the bottom of a section kept for possible reuse (that never happened). It should have been deleted before being put on the server or motioned.

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| A STA that advertises a channel switch using one or more Channel Switch Announcement frames or elements, Extended Channel Switch Announcement frames or elements or a , includes a New Country subelement, Wide Bandwidth Channel Switch subelement or a New VHT Transmit Power Envelope subelement in a Channel Wrapper  |

For instance, this text is just plain wrong – e.g. 1) New Country subelement and New VHT Transmit Power Envelope subelement are optional, and oftentimes may not be present, and 2) a New Country element just doesn’t belong in CSA frames/elements.

Still, this para was included in D3.0 as gobbledegook, where the Editor helpfully identified and pointed out that it was gobbledegook.

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| ***EDITORIAL NOTE—I can’t discern the intended meaning of the following paragraph to correct******grammar; quoted verbatim from resolution to #4252.***A STA that advertises a channel switch using one or more Channel Switch Announcement frames or elements,Extended Channel Switch Announcement frames or elements or a , includes a New Country subelement,Wide Bandwidth Channel Switch subelement or a New VHT Transmit Power Envelope subelement ina Channel Wrapper. |

The author submitted a comment to delete the para.

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| 6306 | 161.29 | 10.39.1 | V | Delete this para - it adds nothing | As in comment | REVISED (MAC: 2012-09-15 00:32:11Z) - See resolution for CID 6633 in Tgac D3.1 |

But the D4.0 revision instead made the incorrect language grammatical – it didn’t make it correct.

***Change:***

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| 7318 | Mark RISON | 8.4.2.10 | 78.05 | "do not have overlapping channel identifiers" is too vague, given the need to support the situation in the NOTE below | Change to "No channel is indicated by more than one pair of FCN and NoC fields within a STS field" | Revised: See changes made under this CID in 12/1448r<motioned-rev#> which substantially follow the commenter’s requested change |

***Discussion***: Agreed – the “overlapped channel identifiers”language is a bit stale.

***Change:***

8.4.2.10 Country element

The First Channel Number~~/Operating Extension Identifier~~ field ~~is 1 octet in length. If the field has a positive~~

~~integer value less than 201, then it contains a positive integer value that~~ indicates the lowest channel number

in the Subband triplet ~~subband described in this element~~. No channel is indicated by more than one pair of First Channel Number and Number of Channels fields within a Subband Triplet Sequence field. [For example, the (First Channel Number, Number of Channels) pairs (2,4) and (5,2) in 2.4 GHz each indicate channel 5 so are not used within the same Subband Triplet Sequence field ~~together~~.]

NOTE—For example, the channels 1 to 11 in the 2.4 GHz band can be represented using one Subband Triplet subfield

with First Channel Number = 1 and Number of Channels = 11. The channels 36, 40, 44 and 48 with 20 MHz operating

channel width in the 5 GHz band can be represented using one Subband Triplet subfield with First Channel Number = 36

and Number of Channels = 4. The six channels 183, 184, 185, 187, 188 and 189 (but not 186) with 10 MHz operating

channel width can be represented using three Subband Triplet subfields: one with First Channel Number = 183 and

Number of Channels = 4, one with First Channel Number = 184 and Number of Channels = 1 and one with First Channel

Number = 188 and Number of Channels = 1.

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| 7315 | Yasuhiko Inoue | 8.4.2.22 | 85.24 | The Secondary Channel Offset element in 8.4.2.22 assumes only 20 MHz and 40 MHz channels and needs to be modified to support 80 MHz and 160 MHz channels. | Perhaps, we want(1) to define VHT Secondary Channel Offset that has Secondary 20 MHz Channel Offset, Secondary 40 MHz Channel Offset and Secondary 80 MHz Channel Offset fields,(2) to modify Table 8-57 to support 80 MHz and 160 MHz channels. | Reject. The extension of the SCO element to wider bandwidths is already available via the Wide Bandwidth Channel Switch element. This is now available in CSA and ECSA frames, or as a subelement in the Channel Switch Wrapper element in Beacons/Probe Responses. The SCO element only needs to be adapted to say “40 MHz or wider”, which it does already also. |