IEEE P802.11
Wireless LANs

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| LB 200 cluase 10.47 comment resolution |
| Date: 2014-02-28 |
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Abstract

This submission proposes comment resolutions of the clause 10.47 from TGah Draft 1.0.

* CIDs: 1360, 2531, 2570, 1296, 1297, 1298, 2315, 1361, 1958, 1959, 1550, 2772, 1960, 1961, 2486

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 “TGah 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** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1360 | 229.48 | 10.47 | "by9.46" -> "by 9.46" | As in the comment | Accepted- Agree with the comment.  |
| 2531 | 228.00 | 10.47 | It is needed to define which MAC features are mandatory and which are optional as a baseline. For some cases, conditionally mandatory may be inevitable specially in the 802.11ah | Define mandatory MAC features of 802.11ah or at least conditional mandatory for each application mode such as sensor mode and offloading mode.  | Rejected- Please see the PICS on the Annex B. The PICS shows the mandatory and the optional feasures of the TGah.  |
| 2570 | 228.40 | 10.47 | While an S1G STA supports 1MHz bandwidth, it is necessary to define an S1G Channel Switch Announcement element while existing Channel Switch related elements (Channel Switch Announcement element, Extended Channel Switch Announcement element, and Wide Bandwidth Channel Switch element) do not support 1MHz bandwidth.Also, the channel switching methods for the S1G BSS needs to be defined. | 1) Inset a new subclause 8.170x (S1G Channel Switch Announcement element)2) Include the S1G Channel Switch Announcement element to a Beacon frame, a Channel Switch Announcement frame, a Extended Channel Switch Announcement frames, and a TDLS Channel Switch Request frame.3) Include the S1G Channel Switch Announcement subelement to a Measurement Request element and a Measurement Report element.4) Include the S1G Channel Switch Announcement element to a Multiple BSSID element and a Channel Switch Wrapper element.5) Add description about the S1G Channel Switch Announcement element to 8.6.8.3 (Measurement Pilot frame format), 10.11 (Radio measurement procedures), .and 10.23.6 (TDLS channel switching).6) Modify the 1st paragraph of 10.46.1 (System information update procedure) by adding a following new item to the event list: e) Inclusion of an S1G Channel Switch Announcement7) Insert a new subclause 10.47.6 (Channel switching methods for an S1G BSS) based on 10.39.4 of IEEE P802.11ac D7.0.Details are TBD. | Revised- Agree in principle. But, the proposed resolution of CID 1549 already resolved this comment. No change is needed. |
| 1296 | 228.45 | 10.47.1 | "The S1G STA that is creating the BSS" - grammer. There are no antecedents. | "An S1G STA that is creating a BSS" | Revised-Agree in principle. Current wording has a grammer error. Replace "The S1G STA that is creating the BSS" with “An S1G STA that is starting a BSS”.TGah editor to make changes shown in 11-14-0262r0 under the heading for CID 1296. |
| 1297 | 229.08 | 10.47.1 | "b1000" - Oh wonderful. The heading indicates the order of bits is least significant on the left, and the value shows a binary value with least significant on the right.This is guaranteed to create misinterpretations.There is no need to state the locations of these fields - the name suffices. | Delete "(B0)". Delete "(B1 B2 B3 B4)". Replace the binary values in the second column with decimal values. | Revised-Do not indicate the least significant bit and most significant bit in the binary value to avoid a misinterpretation.TGah editor to make changes shown in 11-14-0262r0 under the heading for CID 1297. |
| 1298 | 229.48 | 10.47.1 | " operation as constrained by9.46" - missing space | add space | Accepted- Agree with the comment. But, it is a duplicated comment with CID 1360. |
| 2315 | 228.01 | 10.47.1 | Since there is no 1MHz primary channel in a BSS with 4/8/16Mhz operation channel. S1G Operation element Channel Width field with 1 should be removed from the table. | As proposed. | Rejected- Even though the operating bandwidth of the BSS is 4/8/16MHz, the 1MHz primary channel indication is needed for a coexistence with the existing 1 MHz BSS. |
| 1361 | 230.12 | 10.47.2 | 10.43a.3 is a wrong reference. 10.47.3? | As in the comment | Revised- Change the reference with 10.47.4.TGah editor to make changes shown in 11-14-0262r0 under the heading for CID 1361. |
| 1958 | 252.16 | 10.47.2 | "any existing BSSs". I assume overlapping BSSs. | Replace 'existing' with 'overlapping' in two places lines 15 and 16. | Rejected- “If an S1G AP starts an S1G BSS with a 2 MHz primary channel width that occupies some or all channels of any existing BSSs,…”The purpose is to find the existing BSS. It is not constrained on the overlapping BSS.Also, the base draft (e.g., 802.11ac) is already using some wording.  |
| 1959 | 252.56 | 10.47.2 | "2/4/8/16 MHz BSS" Suddenly a different way of saying it. Up to this point expression has been "BSS with a 2 MHz, 4 MHz, 8 MHz or 16 MHz operating channel width." why not stick to it for one last sentence? | Replace "2/4/8/16 MHz BSS" with "BSS with a 2 MHz, 4 MHz, 8 MHz or 16 MHz operating channel width." | Accepted- Agree with the comment. |
| 1550 | 231.16 | 10.47.4 | Do you have to honor the RID/NAV in the secondary channels. | Clarify that RID is not set in the secondary channels same as NAV. | Rejected-I agree in principle. The RID is not set in the secondary channels. But, it is already specified in the second paragraph of the sub-clause 10.47.4 of Draft 1.0. |
| 2772 | 231.17 | 10.47.4 | Add "or Duration field value in NDP frame of which it is not the recipient STA" after "matching the STA's MAC address" | as commented | Accepted- Agree with the comment. |
| 1960 | 253.35 | 10.47.5 | "unless it supports (i.e., is able to both transmit and receive using) all the S1G-MCSs" Why not say what is intended? | Replace "unless it supports (i.e., is able to both transmit and receive using) all the S1G-MCSs" With "unless it is able to both transmit and receive on all the S1G-MCSs..." | Revised- See the discussion shown in 11-14-0262r0 under the heading for CID 1960, 1961.TGah editor to make changes shown in 11-14-0262r0 under the heading for CID 1960, 1961. |
| 1961 | 253.40 | 10.47.5 | "unless it supports (i.e., is able to both transmit and receive using) all the S1G-MCSs" Why not say what is intended? | Replace "unless it supports (i.e., is able to both transmit and receive using) all the S1G-MCSs" With "unless it is able to both transmit and receive on all the S1G-MCSs..." | Revised- See the discussion shown in 11-14-0262r0 under the heading for CID 1960, 1961.TGah editor to make changes shown in 11-14-0262r0 under the heading for CID 1960, 1961. |
| 2486 | 231.40 | 10.47.5 | "(re-)associate" | Delete the hyphen | Accepted- Agree with the comment. |

**Discussion:**

**CID 1960, 1961**

 “An S1G STA shall not attempt to join (MLME-JOIN.request) or start (MLME-START.request) a BSS unless it supports (i.e., is able to both transmit and receive using) all the S1G-MCSs in the BSSBasicS1GMCS\_NSSSet of the related BSSDescription.

An S1G STA shall not attempt to (re-)associate (MLME-ASSOCIATE.request and MLMEREASSOCIATE.request) with an S1G AP unless the S1G STA supports (i.e., is able to both transmit and receive using) all the S1G-MCSs in the BSSBasicS1GMCS\_NSSSet transmitted by the S1G AP.”

The corresponding paragraphs are unclear because the BSSBasicS1GMCS\_NSSSet is not well described. Throughout the current draft, replace the BSSBasicS1GMCS\_NSSSet with the Basic S1G-MCS and NSS Set field of the S1G Operation parameter. Similar wording changes can be found in 802.11ac spec. (see 10.39.1)

**Propose:**

Revised for CID 1360, 2531, 2570, 1296, 1297, 1298, 1361, 1959, 2772, 1960, 1961, 2486, per discussion and editing instructions in 11-14/0262r0.

***TGah editor: Modify the sub-clause 10.47 as the following:***

* S1G BSS operation
* Basic S1G BSS functionality

A S1G STA has dot11S1GOptionImplemented equal to true.

An S1G STA that is starting a BSS ~~The S1G STA that is creating the BSS~~ shall be able to receive and transmit at each of the <S1G-MCS, NSS> tuple values indicated by the Basic S1G-MCS and NSS Set field of the S1G Operation parameter of the MLME-START.request primitive ~~BSSBasicS1GMCS\_NSSSet~~ and shall be able to receive at each of the <S1G-MCS, NSS> tuple values indicated by the Supported S1G-MCS and NSS Set field of the S1G Capabilities parameter of the MLMESTART.request primitive ~~OperationalS1GMCS\_NSSSet~~.

An S1G STA that is an S1G AP declares its channel width capability in the Supported Channel Width Set subfield of the S1G Capabilities element S1G Capabilities Info field as described in Table 8-191d (Subfields of the S1G Capabilities Info field).

An S1G STA that is an S1G AP shall set the Channel Width subfield in the S1G Operation element S1G Operation Information field to indicate the BSS operating channel width as defined in Table 10-22 (S1G BSS operating channel width). Table 10-22 is the only combination allowed in an S1G BSS operation. The Channel Width field in the S1G Operation element not listed in Table 10-22 shall not be declared by an S1G STA that is an S1G AP.

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| * S1G BSS operating channel width
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| S1G Operation element Channel Width field (B0) | S1G Operation element Channel Width field (B1-B4)~~(B1 B2 B3 B4)~~ | BSS primary channel width | BSS operating channel width |
| 0 | 1000 ~~b1000~~ | 2MHz | 2 MHz |
| 0 | 1100 ~~b1100~~ | 2MHz | 4 MHz |
| 0 | 1110 ~~b1110~~ | 2MHz | 8 MHz |
| 0 | 1111 ~~b1111~~ | 2MHz | 16 MHz |
| 1 | 0000 ~~b0000~~ | 1MHz | 1 MHz |
| 1 | 1000 ~~b1000~~ | 1MHz | 2 MHz |
| 1 | 1100 ~~b1100~~ | 1MHz | 4 MHz |
| 1 | 1110 ~~b1110~~ | 1MHz | 8 MHz |
| 1 | 1111 ~~b1111~~ | 1MHz | 16 MHz |

An S1G STA shall determine the channelization based on the Channel Width and Primary Channel Number subfields of the S1G Operation Information field (see 24.3.13 (Channelization)).

An S1G STA that is a member of an S1G BSS with a 1 MHz, 2 MHz, 4 MHz, 8 MHz or 16 MHz operating channel width and 1 MHz primary channel width shall not transmit a 1 MHz S1G PPDU that does not use the primary 1 MHz channel of the BSS, except for a 1 MHz S1G PPDU transmission on an off-channel TDLS direct link as constrained by 10.22.6.4.2 (Basic wideband functionality).

An S1G STA that is a member of an S1G BSS with a 1 MHz, 2 MHz, 4 MHz, 8 MHz or 16 MHz operating channel width and 2 MHz primary channel width shall not transmit a 1 MHz S1G PPDU, except for a 1 MHz S1G PPDU transmission on an off-channel TDLS direct link.

An S1G STA that is a member of an S1G BSS with a 2 MHz, 4 MHz, 8 MHz or 16 MHz operating channel width shall not transmit a 2 MHz S1G PPDU that does not use the primary 2 MHz channel of the BSS, except for a 2 MHz S1G PPDU transmission either on an off-channel TDLS direct link or on a permitted channel of the SST operation as constrained by 9.46 ~~by9.46~~ (Subchannel Selective Transmission (SST)).

An S1G STA that is a member of an S1G BSS with a 4 MHz, 8 MHz or 16 MHz operating channel width shall not transmit a 4 MHz S1G PPDU that does not use the primary 4 MHz channel of the BSS, except for a 4 MHz S1G PPDU transmission either on an off-channel TDLS direct link or on a permitted channel of the SST operation.

An S1G STA that is a member of an S1G BSS with an 8 MHz or 16 MHz operating channel width shall not transmit an 8 MHz S1G PPDU that does not use the primary 8 MHz channel of the BSS, except for an 8 MHz S1G PPDU transmission either on an off-channel TDLS direct link or on a permitted channel of the SST operation.

An S1G STA that is a member of an S1G BSS with a 16 MHz operating channel width shall not transmit a 16 MHz S1G PPDU that does not use the primary 8 MHz channel and the secondary 8 MHz channel of the BSS, except for a 16 MHz S1G PPDU transmission either on an off-channel TDLS direct link or on a permitted channel of the SST operation.

An S1G STA shall not transmit to a second S1G STA using a bandwidth that is not indicated as supported in the Supported Channel Width Set subfield in the S1G Capabilities element received from that S1G STA.

* Channel selection methods for an S1G BSS

Before an S1G STA starts an S1G BSS, the STA shall perform a minimum of dot11S1GOBSSScanCount OBSS scan operations to search for existing BSSs (see 10.47.4  ~~10.43a.3~~ (Scanning requirement for S1G STA)).

If an S1G AP starts an S1G BSS with a 2 MHz primary channel width that occupies some or all channels of any existing BSSs, the S1G AP may select a 2 MHz primary channel of the new S1G BSS that is identical to the 2 MHz primary channel of any one of the existing BSSs.

If an S1G AP selects a 2 MHz primary channel for a new S1G BSS with a 4 MHz, 8 MHz or 16 MHz operating channel width from among the channels on which no beacons are detected during the OBSS scans, then the selected 2 MHz primary channel meets the following conditions:

* It shall not be identical to the secondary 2 MHz channel of any existing BSSs with a 4 MHz, 8 MHz or 16 MHz operating channel width.
* It should not overlap with the secondary 4 MHz channel of any existing BSSs with a 16 MHz operating channel width.

An S1G STA that is an S1G AP should not start an S1G BSS with a 2 MHz operating channel width on a channel that is the secondary 2 MHz channel of any existing BSSs with a 4 MHz, 8 MHz or 16 MHz operating channel width, or is overlapped with the secondary 4 MHz channel of any existing BSSs with a 16 MHz operating channel width.

NOTE-An S1G AP operating an S1G BSS with a 4 MHz, 8 MHz or 16 MHz operating channel width, on detecting an OBSS whose primary channel is the S1G AP's secondary 2 MHz channel, might switch to 2 MHz BSS operation and/or move to a different channel.

If an S1G AP starts an S1G BSS with a 1 MHz primary channel width that occupies some or all channels of any existing BSSs, the S1G AP may select a 1 MHz primary channel of the new S1G BSS that is identical to the 1 MHz primary channel of any one of the existing BSSs.

If an S1G AP selects a 1 MHz primary channel for a new S1G BSS with a 2 MHz, 4 MHz, 8 MHz or 16 MHz operating channel width from among the channels on which no beacons are detected during the OBSS scans, then the selected 1 MHz primary channel meets the following conditions:

* It shall not be identical to the secondary 1 MHz channel of any existing BSSs with a 2 MHz, 4 MHz, 8 MHz or 16 MHz operating channel width.

An S1G STA that is an S1G AP should not start an S1G BSS with a 1 MHz operating channel width on a channel that is the secondary 1 MHz channel of any existing BSSs with a 2 MHz, 4 MHz, 8 MHz or 16 MHz operating channel width.

When establishing a BSS with a 2 MHz, 4 MHz, 8 MHz or 16 MHz operating channel width ~~2/4/8/16 MHz BSS~~, the S1G AP determines and announces the location of 1MHz primary channel located at either upper or lower side of the 2MHz primary channel.

10.47.4 Scanning requirements for S1G STA

An OBSS scan operation is a passive or active scan of a set of channels that are potentially affected by S1G BSS operation (see 10.1.4.1 (General)). Each channel in the set may be scanned more than once during a single OBSS scan operation. OBSS scans are performed by S1G STAs that start an S1G BSS.

During an individual scan within an OBSS scan operation, the minimum per-channel scan duration is dot11OBSSScanPassiveDwell TUs (for a passive scan) or dot11OBSSScanActiveDwell TUs (for an active scan). During an OBSS scan operation, each channel in the set is scanned at least once per dot11BSSWidthTriggerScanInterval seconds, and the minimum total scan time (i.e., the sum of the scan durations) per channel within a single OBSS scan operation is dot11OBSSScanPassiveTotalPerChannel TUs (for a passive scan) or dot11OBSSScanActiveTotalPerChannel TUs (for an active scan).

NOTE-The values provided in the previous paragraph are minimum requirements. For some combinations of parameter values the minimum might be exceeded for some parameters in order to meet the minimum value constraints of other parameters.

* + 1. NAV and RID assertion in an S1G BSS

An S1G STA shall update its NAV as described in 9.3.2.4 (Setting and resetting the NAV) using the Duration/ID field value in any frame that does not have an RA matching the STA's MAC address or the Duration field value in NDP MAC frames of which it is not the recipient STA and that was received in a 1 MHz PPDU in the primary 1 MHz channel or received in a 2 MHz PPDU in the primary 2 MHz channel or received in a 4 MHz PPDU in the primary 4 MHz channel or received in an 8 MHz PPDU in the primary 8 MHz channel or received in a 16 MHz PPDU.

An S1G STA shall update its RID as described in 9.3.2.4a (Setting and resetting the RID) using the RXVECTOR parameters' PREAMBLE TYPE, RESPONSE\_INDICATION, AGGREGATION, MCS, and CH\_BANDWITH in any frame that was received in a 1 MHz PPDU in the primary 1 MHz channel or received in a 2 MHz PPDU in the primary 2 MHz channel or received in a 4 MHz PPDU in the primary 4 MHz channel or received in an 8 MHz PPDU in the primary 8 MHz channel or received in a 16 MHz PPDU.

NOTE-The PHY layer might filter out a PPDU as described in 22.3.21 (PHY receive procedure). If so, frames in the PPDU are not received by the MAC and have no effect on the NAV.

* + 1. BSS basic S1G-MCS and NSS set operation ~~BSSBasicS1GMCS\_NSSSet operation~~

The BSS basic S1G-MCS and NSS set is the set of <S1G-MCS, NSS> tuples that are supported by all S1G STAs that are members of an S1G BSS. It is established by the STA that starts the S1G BSS, indicated by the Basic S1G-MCS and NSS Set field of the S1G Operation element in the MLME-START.request primitive. Other S1G STAs determine the BSS basic S1G-MCS and NSS set from the Basic S1G-MCS and NSS Set field of the S1G Operation element in the BSSDescription derived through the scan mechanism (see 10.1.4.1).

An S1G STA shall not attempt to join (MLME-JOIN.request) ~~or start (MLME-START.request)~~ a BSS unless it supports (i.e., is able to both transmit and receive using) all the <S1G-MCS, NSS> tuples in the BSS basic S1G-MCS and NSS set ~~S1G-MCSs in the BSSBasicS1GMCS\_NSSSet of the related BSSDescription~~.

An S1G STA shall not attempt to (re)associate~~(re-)associate~~ (MLME-ASSOCIATE.request and MLME-REASSOCIATE.request) with an S1G AP unless the S1G STA supports (i.e., is able to both transmit and receive using) all the <S1G-MCS, NSS> tuples in the Basic S1G-MCS and NSS Set field in the S1G Operation element ~~S1G-MCSs in the BSSBasicS1GMCS\_NSSSet~~ transmitted by the S1G AP.