IEEE P802.11
Wireless LANs

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| LB203 MAC Resolution to Subclause 4.3.12b.1 Comments |
| Date: 2014-8-18 |
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Abstract

This submission proposes resolution to comments in subclause 4.3.12b.1. There are 14 CIDs:

3080, 3081, 3207, 3413, 3430, 3431, 3432, 3433, 3688, 3994, 3995, 3996, 3997, 4156

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.Line** | **Clause** | **Comment** | **Propose Change** | **Resolution** |
| 3430 | 7.11 | 4.3.12b.1 | The contents of clause 4 are described by its first sentence in 11mc: "This clause presents the concepts and terminology used within this standard." (from 11mc-D3.0). But much of the 4.3.12b.1 subclause is composed of lists of mandatory and optional requirements, which are out of scope for clause 4. Statements about which designs are mandatory and which optional do not belong in clause 4, and lists of requirements do not introduce concepts and terminology. (Yes, VHT violated this format, but efforts are underway to eliminate that inappropriate material from 11mc.) | Delete the paragraphs on lines: 11-12, 17-20, 22-50 and page8, lines 14-15. If they are thought valuable, move them to the S1G area in clause 9 (of course replacing 'mandatory'/'optional' with the IEEE-appropriate 'shall'/'may'). | Reject.This subclause is consistent with the VHT format in the latest REVmc\_D3.0. It would be modified in future should TGmc decide to change the format.  |
| 3413 | 7.22 | 4.3.12b.1 | PHY features in overview are marked mandatory and optional while MAC features are not and require reading the PICs in Annex B. | Make the MAC and PHY sections consistent | Revised.Agreed in principle with the commenter. TGah editor to instruct TG editor to make changes as shown under heading CID3413 in 11-14-1061r0 |
| 3994 | 7.25 | 4.3.12b.1 | Is S1G\_SHORT PPDU mandatory under all conditions. How this will work with S1G\_LONG PPDY for channel vandwidth greater or equal to 4 MHz. Does a STA needs to transmit a S1G\_SHORT and a S1G\_LONG PPDUs at the same time? | Clarify | Reject.This subclause is not supposed to provide the behavior information. Answer to the commenter’s question: S1G\_SHORT PPDU shall be supported (mandatory feature) by all S1G STAs. A STA may not always transmit S1G\_SHORT PPDU and it does not transmit a S1G\_SHORT and SIG\_LONG PPDU at the same time. Please refer to subclause 24, e.g subclause 24.1.4 (PPDU formats), for more information.  |
| 4156 | 7.28 | 4.3.12b.1 | "The forth bullet in 4.3.12b.1: ""Mandatory support for detection and decode of SIG-A field of the S1G\_LONG preamble""I'm confused by this sentence.S1G deveices that supports only 1MHz and 2MHz channel width is not required to support S1G\_LONG PPDU. S1G devices supporting >= 4MHz channel width is requred to support S1G\_LONG PPDU. I do not think this is a valid requirement for STAs not supporting S1G\_LONG PPDU and there should be a condition for this requirement." | "Change the sentence as follow.Mandatory support for detection and decode of SIG-A field of the S1G\_LONG preamble if >= 4MHz channel width is supported." | Reject.The original text is correct, even for a 2MHz channel. The “mandatory support for the detection and decode of S1G-A filed of the S1G\_LONG preamble” is different from “mandatory support of S1G\_LONG preamble”. The former is a receiver behavior and mandates the detection and decoding part of S1G\_LONG preamble. |
| 3080 | 7.30 | 4.3.12b.1 | You define an S1G-MCS term, but use the unqualified MCS term here. | Please use only S1G-MCS throughout the amendment when talking about clause 24 MCSs. | Revised.Agree to the comments. Instruction to TGah editor: please replace all “MCS” meant for S1G to “S1G-MCS” throughout the draft.  |
| 3688 | 7.38 | 4.3.12b.1 | This line is contradictory with line 26 | Change to "Optional support for 2 MHz PPDU with S1G\_LONG preamble if only 2MHz channel width is supported" | Revised.Agree with the commenter in principle. TGah editor to instruct TG editor to make changes as shown under heading CID3688 in 11-14-1061r0 |
| 3995 | 7.53 | 4.3.12b.1 | There is a need to indicate for each of the MAC features listed on pages 7-8 whether they are mandatory or optional. The reader doesn't need to go to Annex B for each feature. Otherwise the whole clause can be replaced by a reference to Annex B.  | as in comment | Revised.Agreed in principle with the commenter. TGah editor to instruct TG editor to make changes as shown under heading CID3995 in 11-14-1061r0 |
| 3431 | 7.53 | 4.3.12b.1 | The long list that begins: "The main MAC features supported for S1G STA are the following:" does not present concepts or terminology. Presenting a long list of undefined terms is the opposite of introducing concepts. Remove this material from clause 4. If this material is still thought to be valuable, move it to the beginning of the S1G section in clause 9. | Delete the lines from page 7 line 53 through page 8 line 12. If this material is still thought to be valuable, move it to the beginning of the S1G section in clause 9. | Reject.This subclause is consistent with the VHT format in the latest REVmc\_D3.0. It could be modified in future should TGmc decide to change the format.  |
| 3207 | 8.12 | 4.3.12b.1 | "Small battery operated STA" does not exist anywhere but in this subclause. In 10.49 (Support for energy limited STAs) we define a procedure for energy limited (EL) STAs. Hence the correct terminology is energy limited (EL) STA. | Remove ", Small battery operated STA" and add a new item after that item (at P8L12) as follows: " - Support for energy limited (EL) STA". | Revised.Agreed with the commenter. TGah editor to instruct TG editor to make changes as shown under heading CID3207 in 11-14-1061r0 |
| 3081 | 8.14 | 4.3.12b.1 | "Note: whether a STA has mandatory support or optional supportto each of the features above is indicated in Annex B."This is wrong. While Annex B is normative, it is not definitive. Instead, it is supposed to reflect statements made in the text about required levels of support." | Remove cited statement. Add any missing required mandatory/optionals to the MAC features. | Revised. Agree to add in mandatory/optional support information to the MAC features. TGah editor to instruct TG editor to make changes as shown under heading CID3081 in 11-14-1061r0 |
| 3996 | 8.18 | 4.3.12b.1 | the paragraph starting with "Most S1G features....." seems to be speculative at best. It may be a good idea to delete it. | as in comment | Reject.The text in this subclause is meant to provide overview (informative instead of normative) to the futures introduced in TG11ah.  |
| 3432 | 8.18 | 4.3.12b.1 | "among other benefits": marketing phrase that does not help describe concepts. | Delete ", among other benefits,". | Reject.This subclause is consistent with the VHT format in the latest REVmc\_D3.0.  |
| 3433 | 8.19 | 4.3.12b.1 | The sentences "There are mainly two service types: sensor type and offloading type. An S1G AP may provide either or both of the services." can be put much more simply, without the inappropriate term "may". There appear to be no formally defined types, so drop the word "type". Also: the statement that there are differences still needs to be backed by definitions of what these services are. Otherwise there is no reason to include them in this standard. | Either delete these sentences "There are mainly two service types: sensor type and offloading type. An S1G AP may provide either or both of the services."or replace them with: "The S1G AP can provide either or both sensor services and offloading services". and then add short introductory descriptions of what constitutes a sensor service and what an offloading service. (Without those descriptions these sentences are worthless, so, if there are no descriptions, then just delete the two sentences quoted above.) | Revised.It is noted that the text in this subclause is meant to provide overview (informative instead of normative) to the features introduced in TG11ah. For service type information, please refer to subclause 10.3.5.11 (service type indication during association)TGah editor to instruct TG editor to make changes as shown under heading CID3433 in 11-14-1061r0 |
| 3997 | 8.20 | 4.3.12b.1 | need definitions for "sensor service type" and "offloading service type" | add definition or delete the whole paragraph. | Revised.It is noted that the text in this subclause is meant to provide overview (informative instead of normative) to the features introduced in TG11ah. For service type information, please refer to subclause 10.3.5.11 (service type indication during association)TGah editor to instruct TG editor to make changes as shown under heading CID3997 in 11-14-1061r0 |
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### [CIDs 3413, 3080, 3688, 3995, 3207, 3081, 3433, 3997]

**Instruction to TGah editor: Please modify subclause 4.3.12b.1 (Overview) of TGah D2.0 as follows:**

### 4.3.12b.1 Overview

The subclause summarizes the normative requirements for an IEEE 802.11 S1G STA stated elsewhere in this standard.

The IEEE 802.11 STA operates in frequency bands below 1 GHz excluding the TV White Space bands.

An S1G STA supports S1G features identified in Clause8 (Frame formats), Clause9 (MAC sublayer functional description), Clause10 (MLME), Clause 11 (Security) and Clause 24 (Sub 1 GHz (SIG) PHY specification).

The main PHY features in an S1G STA are the following:

* Mandatory support for 1 MHz and 2 MHz channel width
* Mandatory support for S1G\_1M, S1G\_SHORT PPDU
* Mandatory support for S1G\_LONG PPDU if ≥4MHz channel width is supported
* Mandatory support for the detecting and decoding of SIG-A field of the S1G\_LONG preamble
* Mandatory support for single spatial stream S1G-MCS 0 to S1G-MCS 2 and S1G-MCS10 (for 1 MHz PPDU only)
* Mandatory support for single spatial stream S1G-MCS 3 to S1G-MCS 7 for an S1G AP STA
* Mandatory support for Binary convolutional coding
* Mandatory support for Normal Guard Interval
* Mandatory support for Fixed Pilots
* Optional support for 2 or more spatial streams (transmit and receive)
* Optional support for ~~2MHz, 4MHz, 8MHz and 16MHz PPDU with~~ S1G\_LONG ~~preamble~~ PPDU if only 2MHz channel width is supported.
* Optional support for Beamforming sounding (by sending an S1G NDP)
* Optional support for Respond to transmit beamforming sounding (compressed beamforming feedback)
* Optional support for STBC, LDPC (transmit and receive)
* Optional support for S1G MU PPDUs (transmit and receive)
* Optional support for 4 MHz, 8 MHz, or 16 MHz channel width
* Optional support for S1G-MCSs 8 and 9 (transmit and receive)
* Optional support for Short Guard Interval
* Optional support for Traveling Pilots

The main MAC features supported for S1G STA are the following~~\*~~:

* ~~NDP frames and short MAC frames~~
* Mandatory support for NDP Ack and NDP CTS frames; mandatory support for the reception of NDP Probe Request frame for S1G AP STA; optional support for other NDP frames\*
* Mandatory support for the reception of short MAC frames but optional support for the transmission of short MAC frames
* Mandatory support for the ~~S~~second virtual carrier sensing - RID
* Mandatory support for TIM for an S1G AP STA
* Mandatory support for Extended BSS Max Idle periods and extended listen intervals with USF
* Optional support for RAW
* Optional support for Relay
* Optional support for Grouping on non-AP STA and Multicast AID
* Optional support for TWT
* Optional support for BDT ~~Speed Frame Exchange~~
* Optional support for Sectorization
* Optional support for Non-TIM STA operation
* Optional support for Asymmetric Block Ack operation, Fragment Block Ack operation
* ~~TIM, Page slicing, Dynamic AID assignment~~
* Optional support for Page slicing, Dynamic AID assignment for an S1G AP STA
* Optional support for Authentication control
* Optional support for SST
* ~~Extended Max Idle periods, listen intervals, WNM-sleep intervals~~
* Optional support for Rescheduling STA’s doze/awake cycle
* Optional support for Sensor type STA, non-Sensor type STA, ~~Small battery operated~~ EL STA

\*Note: ~~whether a STA has mandatory support or optional support to each of the features above is~~ some optional NDP frames are mandatory under certain conditions as indicated in **AnnexB.4.4.2 (MAC frames).**

Most S1G features, among other benefits, either reduce the energy consumption of an STA or increase the achievable range between an S1G AP and an S1G non-AP STA. ~~There are mainly two service types: sensor type and offloading type. An~~ The SIG AP ~~may~~ can provide either or both of ~~the~~ sensor services and offloading services.

An S1G STA is also a QoS STA, but does not support HCCA.