IEEE P802.11
Wireless LANs

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| LB189 D2.0 comment resolution (PHY –11af comment resolutions) |
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Abstract

This document contains proposed resolution of some of the comments in LB189 of P802.11af D2.0. Proposed resolutions are based on 802.11af draft text D2.0.

This submission provides resolution to comments 12, 15, 58, 60, 63, 204, 244, 291, 763, 66, 352, and 500.

**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 TGaf Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGaf Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGaf Editor: Editing instructions preceded by “TGaf Editor” are instructions to the TGaf editor to modify existing material in the TGaf draft. As a result of adopting the changes, the TGaf editor will execute the instructions rather than copy them to the TGaf Draft.***

***Submission Note: Notes to the reader of this submission are not part of the motion to adopt. These notes are there to clarify or provide context.***

# Comments:

| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| --- | --- | --- | --- | --- | --- |
| 15 | 243.45 | 23.3.9 | Why support non-HT format and HT format? | This is a new band with no legacy devices. Make the BSSBasicMCSSet only include TVHT and get rid of non-HT format and HT format. It will also be necessary to define a TVHT duplicate. | Rejected:Transmission of HT format is not allowed in 11af. Transmission of NON\_HT format except for NON\_HT\_DUP format is not allowed in 11af.Non-HT Dup mode is kept for the following reason:1. It has the shortest preamble,
2. It provides better range (duplication).
3. There are rules in 802.11 about MCS selection for control frames which basically require the use of non-HT duplicate.

Because of these reasons, we would like to keep format of Non-HT duplication. Please also see: doc.: IEEE 802.11-10/1013r2 |
| 12 | 230.19 | 23.1.4 | Why support non-HT format? | This is a new band with no legacy devices. Make the BSSBasicMCSSet only include TVHT and get rid of non-HT format. It will also be necessary to define a TVHT duplicate. | Rejected: Refer to CID 15 resolution. |
| 63 | 241.51 | 23.3.8.1 | The use of L-STF, L-LTF, and L-SIG is confusing. These fields are used in HT and VHT to allow backward compatibility with legacy stations. It is not clear what role the play in TVHT since there is no legacy stations in TV White spaces. | Clarify | Reject: 802.11af PHY (clause 23) aims to minimize the changes from 11ac PHY (clause 22). In Clause 23, we only point out the difference relative to 11ac “delta” The reason 11af kept the frame format of NON-HT Dup and VHT is not to address the legacy devices. Rather to have a spec compatible with 11ac PHY so that 11af implementations can share the same PHY/Mac with 11ac designs. It is envisioned that improvements to the spec can be done in an addendum spec once TGaf based products gain market traction. Simply changing the naming would not make it clearer. Please note that we would like to keep the preamble compatible with 11ac so that we can share hardware cores/designs with 11ac. |
| 60 | 230.34 | 23.2.2 | The use of the term "NON\_HT" is confusing since it means specific format which is not applicable for TVHT. | Need to find a suitable name other than NON\_HT | Rejected: Refer to resolution for CID 63.  |
| 58 | 230.19 | 23.1.4 | non-HT format in TVHT seems to different from the non-HT format for HT. It is confusing to use the same name to define two different concepts. | Need to find a suitable name other than NON\_HT | Rejected: Format for non-HT duplicate is the same for both TVHT and HT. |
| 204 | 241.51 | 23.3.8.1 | The use of L-STF, L-LTF, and L-SIG fields are for the backward compatibility with legacy stations. There is no legacy stations in TV White spaces, and the terms need to be clarified or renamed into different ones. | Rename or Clarify | Rejected: refer to CID 63 comment resolution. |
| 763 | 241.51 | 23.3.8.1 | Unlike 11ac, there is no need to support legacy devices in 11af. 802.11ah has a new preamble designed for 11ah devices without legacy support. Why do we need non-TVHT portion of preamble? | Remove the non-TVHT portion of the preamble or add a greenfield preamble mode. In order to support multi-band medium reservation, 11af may use a TVHT-duplicated version of RTS and CTS over the appropriate channels, similar to 11ah. A non-HT-duplicated version could be replaced by TVHT-duplicated frames since there is no backward compatibility issue. | Rejected: Please refer to the resolution to CID 63. |
| 244 | 228.01 | 23 | There are no such things of legacy STAs. Why do you need L-SIG etc.? This will waste medium time especially when the channel bandwidth is narrow. | Remove legacy related staff from 23. | Rejected: Please refer to the resolution to CID 63 |
| 291 | 228.24 | 23.1.1 | The statement "The TVHT PHY is based solely on the VHT PHY as defined in subclauses 22.3 (VHT PLCP sublayer), 22.4 (VHT PLME), 22.5 (Parameters for VHT MCSs), and 22.6 (VHT PMD sublayer)" is very unclear. Meaning of "is based solely" could be interpreted that only requirement of subclause 22.3, 22.4, 22.5, 22.6 are applicable. However in subclause 23.1.4 PPDU formats is defined that "Non-HT format (NON\_HT). Support for non-HT format is mandatory." which indicated to subclause 18. | Define physical layer so that only PHY requirements of subclause 22 (VHT) are applicable with minimum additions from subclause 20 (HT) and subclause 18 OFDM. There seems to be no clear reason why all backward compatibility requirements are maintained towards subclause 18. | Rejected:We already define a PHY which only use “PHY requirements of subclause 22 (VHT) are applicable with minimum additions from subclause 20 (HT) and subclause 18 OFDM”. Furthermore, the text in 23.1.1 has been updated in Draft P802.11af\_D2.1-149. New text reads:“The TVHT PHY is based on the VHT PHY as defined in subclauses 22.3 (VHT PLCP sublayer), 22.4 (VHT PLME), 22.5 (Parameters for VHT MCSs), and 22.6 (VHT PMD sublayer) and on the Clause 18 (Orthogo­nal frequency division multiplexing (OFDM) PHY specification). The VHT acronym in Clause 22 is replaced with TVHT in Clause 23.” |
| 66 | 242.61 | 23.3.8.2.3 | Assuming VHT-SIG-A symbols are BCC encoded with rate R=1/2 and using 108 data subcarriers, then the number of bits in each of the TVHT-SIG-A symbols is 54 bits. Is that true? If yes then TVHT-SIG-A doesn't have the same number of bits as in VHT-SIG-A (24 bits). | clarify | Rejected:11af has adopted VHT40 frame structure. Hence SIG field is duplicated over each “VHT20” section using 54 tones. Furthermore, 11af uses the same bit-mapping with 11ac.  |
| 352 | 242.61 | 23.3.8.2.3 | Assuming VHT-SIG-A symbols are BCC encoded with rate R=1/2 and using 108 data subcarriers, then the number of bits in each of the TVHT-SIG-A symbols is 54 bits. Is that true? If yes then TVHT-SIG-A doesn't have the same number of bits as in VHT-SIG-A (24 bits). | Clarify | Rejected:11af has adopted VHT40 frame structure. Hence SIG field is duplicated over each “VHT20” section using 54 tones. Furthermore, 11af uses the same bit-mapping with 11ac. |
| 500 | 35.06 | 8.2.3 | Table 8-0a needs update for TVHT, second column heading plus fourth column, PSDUSize and PSDUduration row entries | Second column heading just needs to include TVHT, fourth column mentioned rows need to include references to TVHT Characteristics table. | Rejected: Table 8-0a is removed from 11ac draft. |