IEEE P802.11
Wireless LANs

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| SB1 CIDs 6012-6016 |
| Date: 2013-10-20 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Peter Ecclesine | Cisco Systems | 170 W. Tasman Dr., MS SJ-14-4, San Jose, CA 95134-1706 | +1-408-527-0815 | pecclesi@cisco.com |
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Abstract

Proposed resolutions to CIDs 6012, 6013, 6014, 6015 and 6016.

R1 corrects some typos in R0.

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.***

The editing instructions are shown in ***bold italic***. Four editing instructions are used: ***change, delete, insert, and replace***. Change is used to make corrections in existing text or tables. The editing instruction specifies the location of the change and describes what is being changed by using ~~strikethrough~~ (to remove old material) and underscore (to add new material). ***Delete*** removes existing material. ***Insert*** adds new material without disturbing the existing material. Insertions may require renumbering. If so, renumbering instructions are given in the editing instruction. ***Replace*** is used to make changes in figures or equations by removing the existing figure or equation and replacing it with a new one. Editorial notes will not be carried over into future editions because the changes will be incorporated into the base standard.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 6012 |  |  | The recirculation cover letter states that: "all of the comments and their resolutions are available here:https://mentor.ieee.org/802.11/dcn/12/11-12-1017-57-00af-tgaf-wg-lb-comment-resolutions.xlsx". This file is not available at mentor.ieee.org | Provide the referenced document and reballot. |

**Discussion** Comment 6012 notes that 802.11-12/1017r57 was not posted during the recirculation ballot, but 12/1017r56 containing all approved comment resolutions was posted September 18, 2013, before the start of the recirculation ballot. “R57 adds Editor notes in preparing Draft 6.0.” The Edit notes are not part of the recirculation ballot, only the draft and comment resolutions are. TGaf revised 802.11-12/1017 continually through Working Group Letter Ballot and Initial Sponsor Ballot, and the revised 12/1017 has always been the document providing TGaf approved comment resolutions. TGaf considered this comment, but declined to make any changes.

**Propose** Rejected for CID 6012 per discussion in the current revision of 802.11-13/1287.

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| 6013 |  |  | The file:"Draft P802.11af\_D6.0.pdf" does not match the redline document "P802.11af\_D6.0 Redline.pdf" | Provide the correct matching documents and reballot |

**Discussion** Comment 6013 says the redline Draft 6.0 does not match Draft 6.0. The Editorial Notes on page xxiii describe the use of floating tables and figures that make document comparison difficult. Adobe Framemaker 11.0 is used to create the draft and the redline. The comparison utility shows inserted and deleted text with color coding, but changed figures and tables are shown in their entirety, first the old one, then the new one. The redline may not contain the final numbering for the new figures and tables, as the Framemaker sources use an autonumbering style. The Comment Resolution Committee examined both the redline Draft 6.0 and Draft 6.0 and found the redline is adequate to show changed text and consistent with other Framemaker redlines used in 802.11.

**Propose** Rejected for CID 6012 per discussion in the current revision of 802.11-13/1287.

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| 6014 |  |  | I opposed this standard since it will not meet the terms of the IEEE P802.11af PAR section 5.2 "to meet the legal requirements for the channel access and coexistence in the TV white space". I proposed that "As an international IEEE standard, this draft needs to address coexistence with incumbent radiocommunication services on a non-interference basis in accordance with the ITU-R Radio Regulations and Recommendations". The resolution comment states: "Regulators in every domain approve the operation of GDBs and constantly verify that the allowed frequencies and transmit powers do not cause harmful interference." The document only deals with the regulatory domains of the United States and Canada and EU countries. Since there are many international domains, the standard should explicitly state in the title "TV White Space Operation in the United States, Canada and portions of Europe" | Clearly state the limited application of the standard. Also refer to the appropriate ITU-R Radio Regulations and Recommendations to ensure non-interference in cross-border situations. |

**Discussion** Comment 6014 proposes to state some limits to the application to the standard. The approved resolution to CID 5130 removed specification of regional operating classes. The Global Operating Classes specified in Table E-4 can be used in any regulatory domain. The radio specified in this amendment can be used in VHF/UHF regulatory domains with 6 MHz, 7 MHz or 8 MHz TV channels, in accordance with their specific regulatory requirements.

We believe the currently specified radio will eventually be permitted in the majority of regulatory domains. The IEEE 802.11-2012 baseline does not refer to ITU-R Radio Regulations or Recommendations, but does refer to regulations in some regulatory domains in Annex D. IEEE 802.11 maintenance actions update the “**Table D-1 List of Regulatory Requirements**” as rules applying to our radios change. The table is based on Geographic Areas, and specifies regulations specific to those regulatory domains, not ITU-R Radio Regulations and Recommendations.

**Propose** Rejected for CID 6012 per discussion in the current revision of 802.11-13/1287.

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| 6015 |  |  | The document does not refer to or implement specific ITU-R Recommendations (e.g., BT.1386, BT.1895, and BT.2036) which would provide interference protection to the Broadcasting Service. The comment resolution refering to a Report (e.g., Report ITU-R SM.2132) is not sufficient. | Reference the ITU-R Recommendations in order to ensure compliance with the Radio Regulations. |

**Discussion** Comment 6015 proposes that the draft should refer to specific ITU-R Recommendations that inherently would provide interference protection to the Broadcasting Service. The radio specified in this amendment can be used in VHF/UHF regulatory domains with 6 MHz, 7 MHz or 8 MHz TV channels, in accordance with their specific regulatory requirements.

We believe the currently specified radio will eventually be permitted in the majority of regulatory domains. The IEEE 802.11-2012 baseline does not refer to ITU-R Recommendations, but does refer to regulations in some regulatory domains in Annex D. The table is based on Geographic Areas, and specifies regulations specific to those regulatory domains, not ITU-R Radio Regulations and Recommendations.

**Propose** Rejected for CID 6012 per discussion in the current revision of 802.11-13/1287.

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| 6016 | 252.18 | 23.3.18.1 | The RF mask is unsatisfactory for the protection of adjacent channels and should be consistent with the RF mask contained in the existing IEEE Standard 802.22. The emission mask must take into account the RF characteristics of the TV receiver and must include the application of the parameters for the reference receiver contained in Recommendation ITU-R BT.2036. | Replace the mask with those contained in IEEE 802.22 as a minimum. |

**Discussion** Comment 6016 says the RF mask is unsatisfactory for the protection of adjacent channels, and proposed that the 802.11 RF mask should be consistent with the RF mask in IEEE 802.22, which is specified for operation in Regional Area Networks. US 47 C.F.R. 15.709 defines general technical requirements, including RF mask, and other sections define protection mechanisms like the use of a geo-location and database access mechanism. ETSI TV Band Harmonized Standard EN 301 598 v1.0.0 defines two set of RF characteristics, one for fixed devices, and another for devices that are not intended for fixed use and which have an integral antenna or a dedicated antenna. The standard sets unwanted emissions limits into adjacent channels “**Table 3: Adjacent channel Frequency Leakage Ratios (AFLR) for different device classes**”. Regulators consider protection requirements when determining what transmit powers will be allowed for each white space technology and set regulations accordingly.

The TGaf task group has reviewed existing Canadian regulations, FCC regulations and the Harmonized Standard, and determined that the RF mask meets regulations for the allowed transmit powers.

Recommendation ITU-R BT.2036 “Characteristics of a reference receiving system for frequency planning of digital terrestrial television systems” defines characteristics of reference receiving systems for various digital terrestrial television systems employed as a basis for frequency planning digital terrestrial television services in the VHF/UHF bands. The Recommendation specifies characteristics for two generations of TV receivers. By design, geo-location databases can block access to TV bands by any white space devices which are shown to cause harmful interference as TV receiver technology progresses. Regulators allow operation in TV white spaces after considering the characteristics of TV receivers and the characteristics of white spaces devices such as are defined in 802.11 standard.

**Propose** Rejected for CID 6012 per discussion in the current revision of 802.11-13/1287.