IEEE P802.11
Wireless LANs

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| Total power in UK regulatory domain comment resolution |
| Date: 2012-11-13 |
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Abstract

In this submission we propose a resolution to CID 276.

The CID points to the UK regulatory domain information in clause 8.2 and “other places;” the first version of this document addresses “other places” i.e. clauses 8.4, 8.5 and 10.42.

The baseline of this text is P802.11af\_D2.0, the proposed changes are intended to be compatible with D2.1

# 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.

This amendment’s baseline is IEEE Std 802.11™–2012, as amended by

* Amendment 1 802.11ae-2012
* Amendment 2 802.11aa-2012
* Amendment 3 P802.11ad Draft 8.0
* Amendment 4 P802.11ac Draft 3.0

# Comment and discussion

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 276 | 38 | 8.2.6.1.3 | Is the maximum transmit total power the same thing as EIRP (typical in ETSI)? TPO? Conducted power? | Clarify. Ditto other places, e.g. 41.38 |

## Discussion

The comment points to the first instance (the spectrum mask descriptor for the UK regulatory domain) and other instances. We will use some features from 802.11AF D2.1 (abbreviations) in proposing resolutions.

“Channel bandwidth” should be used to mean “BCU” (a new abbreviation in 802.11AF D2.1), which is 6, 7 or 8 MHz depending on the regulatory domain. 802.11AC has work on power limits in different bandwidths (clause 8.4.2.164 in 8032.11AC D3.1) which will probably be part of the baseline for the next round of comments.

### First instance, spectrum mask descriptor

No longer part of the regulations in the UK, [1] sections 3.8 to 3.22, 4.8 to 4.18

### Following instances, various “Maximum Transmit Power”

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| --- | --- | --- | --- |
| **Page.Line** | **Clause** | **Text** | **Comment** |
| 41.38 | 8.2.6.1.6 **WSM Information Values** | When the Channel Number and Maximum Power Level pairs are repeated, they shall be listed in ascending TV channel order | ~~Refers to “Maximum Power Level” sub-element in 41.40~~Not in D 2.1 |
| 41.40 | -“- | The Maximum Transmit Power Level field indicates the maximum power, in units of 0.5 dBm, allowed to be transmitted on the Channel Number | Channel is well defined |
| 51.6 | 8.4.2.169**Channel Power Management Announcement element** | The Constrained Maximum Transmit Power field indicates the maximum power, in units of 0.5 dBm, allowed to be transmitted on the specified channel, after the channel power management announcement takes effect. | Not in 802.11AF D2.1  |
| 61.62 | 8.4.5.5**RLQP Network Channel Control element** | The Maximum Transmit Power gives the intended maximum transmit power in dBm for TV frequency oper­ation in the request frame and indicates the maximum allowable transmit power in dBm for TV frequency operation in the response frame. The field is coded as a signed integer in units of 0.5 dBm.  | ~~Power in each channel (channels being defined in the same sub-element triplet)~~Not in D2.1 |
| 63.27 | 8.4.5.6**Neighboring Network Information Query element** | The Estimated Maximum Transmit Power field indicates the power, in units of 0.5 dBm, of the expected maximum power level the device will be using for its operation, as allowed for its device class. The Esti­mated Maximum Transmit Power field is a signed integer and is 1 octet in length. | Not in D2.1 |
| 64.28 | 8.4.5.7**Neighboring Network Information Response element** | The Operating Transmit Power field indicates the power, in units of 0.5 dBm, set as the maximum power allowed for transmissions within the BSS with the preceding BSSID value, for the specified channel in which the BSS is operating on. | -“- |
| 69.39 | 8.5.8.33**Network Channel Control frame format** | The Maximum Transmit Power gives the intended maximum transmit power in dBm for TV frequency oper­ation in the request frame and indicates the maximum allowable transmit power in dBm for TV frequency operation in the response frame. The field is coded as a signed integer in units of 0.5 dBm. | Power in each channel (channels being defined in the same sub-element triplet) |
| 86.6, 86.31, 87.21 | 10.42.7.1 | The Maximum Transmit Power, as described in 8.4.5.5 (RLQP Network Channel Control element), sets to intended maximum transmit power in dBm for TV frequency operation of the requesting ST | Refers back to 8.4.5.5, no additional information should be needed here |
| 88.4 | 10.42.8.2 | -“- | -“- |
| 88.60 | 10.42.8.3 | -“- | -“- |

The commenter’s point is well taken, and we propose to add words to indicate that the power in question is all of the EIRP, i.e. not a density but an integrated power. Clause 10 contents do not appear to need changing since it refers back to clause 8.

# Proposed resolution

**Revised**. Make no changes to 8.2.6.1.3 in the expectation that it will be deleted from the draft. Propose edits to 8.4 and 8.5 . We try to follow the wording of 802.11AC D3.1 clauses 8.4.2.164 and 10.8.2 (“NOTE—This table is only expected to be updated if regulatory domains mandate the use of transmit power control with limits that cannot be converted into an **EIRP value per PPDU bandwidth**.” from table 8-183y, my bold)

## ~~8.2.6.1.6 WSM Information Values~~

***~~TGaf Editor: insert the following text in clause 8.2.6.1.6 as follows~~***

~~The Maximum Transmit Power Level field indicates the maximum power, EIRP per channel bandwidth in units of 0.5 dBm~~

## ~~8.4.5.5 RLQP Network Channel Control element~~

***~~TGaf Editor: insert the following text in clause 8.4.5.5 as follows~~***

~~The field contains EIRP per channel bandwidth and is coded as a signed integer in units of 0.5 dBm~~

## 8.5.8.33 Network Channel Control frame format

***TGaf Editor: insert the following text in clause 8.5.8.32 of D2.1-151 (was 8.5.8.33 in D2.0) as follows***

The field contains EIRP per channel bandwidth and is coded as a signed integer in units of 0.5 dBm

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| **References: [1] “**Regulatory requirements for white space devices in the UHF TV band,” Ofcom, 4th July 2012 |