IEEE P802.11
Wireless LANs

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| Proposed modifications to 11-18/708r1 |
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Abstract

This document proposes improvements to 11-18/708r1.

**Liaison statement**

**TO:**

* Edgard Vangeel, ETSI BRAN Chair, evangeel@cisco.com

**CC:**

* Dorothy Stanley, IEEE 802.11 WORKING GROUP Chair, dorothy.stanley@hpe.com
* Andrew Myles, IEEE 802.11 Coexistence Standing Committee Chair, amyles@cisco.com

**SUBJECT:** *Adaptivity*

**DATE:** xx May 2018

Dear Edgard,

This document is an approved Liaison Statement from the IEEE 802.11 Working Group (WG) to ETSI BRAN. The positions contained within this Liaison Statement are those of the IEEE 802.11 WG and do not necessarily reflect positions of the IEEE, the IEEE Standards Association, IEEE 802 or any other IEEE organisational unit.

The chairman of the IEEE 802.11 Coexistence Standing Committee made the IEEE 802.11 WG aware of recent discussions in BRAN#97 related to adaptivity. The chairman outlined that four alternatives have been discussed providing possible directions for refinements to the adaptivity clause in the next revision of Harmonized Standard (HS) EN 301 893. The four alternatives have been reviewed by the IEEE 802.11 Coexistence Standing Committee.

The four alternatives are characterised as follows:

* **Alt 1**: status quo in EN 301 893, with two mutually exclusive options:
	+ ED at -72 dBm for any equipment with any non-802.11a/n/ac modes
	+ ED at -62 dBm (implicitly with PD of -82 dBm) for any equipment with 802.11a/n/ac conformant modes only
	+ Note: a device can only ever use one of the two options.
* **Alt 2**: extension of status quo to include 802.11ax, with two mutually exclusive options:
	+ ED at -72 dBm for any equipment with any non-802.11a/n/ac/ax modes
	+ ED at -62 dBm (implicitly with a PD of -82 dBm) for any equipment with 802.11a/n/ac/ax modes only
	+ Note: a device can only ever use one of the two options
	+ Note: it was proposed that Alt 2 be justified as representing the “market reality” that 802.11ax will use the traditional dual thresholds. However, it was also only proposed on the understanding that further scientific evaluations of coexistence will be undertaken to better inform future revisions of EN 301 893.
* **Alt 3**: the proposal supported by IEEE 802.11 WG in BRAN(18)097012
	+ ED at -72 dBm for any equipment
	+ ED at -62 dBm (implicitly with PD of -82 dBm) for any equipment conformant with 802.11 clause 17.3
	+ Note: any device can use either of the two options at any time during its operation, but may switch between the two options at most once every minute.
* **Alt 4**: unique preambles
	+ ED at -72 dBm for any equipment
	+ ED at -62 dBm for any equipment that respects the preamble of other equipment using the same preamble at -82 dBm.

Alt 1 represents the status quo in EN 301 893 and does not allow IEEE 802.11ax compliant equipment implementing the traditional dual threshold mechanism used by IEEE 802.11a in the 5 GHz band in the USA since 1999. Because of the advanced stage of the development of the IEEE 802.11ax standard and announcements of related pre-standard products becoming available this year, the IEEE 802.11 WG does not support this alternative.

The IEEE 802.11 WG notes that Alt 4 is the most generic solution. However, this implies that non-802.11 technologies may use signals serving aspects of a preamble dissimilar to the one in use by IEEE 802.11a/n/ac/ax. Consequently, such non-802.11 technologies would coexist with 802.11 technologies at an ED threshold of −62 dBm. Therefore, the IEEE 802.11 WG also supports both Alt 2 & Alt 3 because they both allow IEEE 802.11ax using the traditional dual threshold mechanism.

Alt 2 is particularly attractive because it recognises the “market reality” that IEEE 802.11ax will specify the use of dual thresholds and documents a commitment by all stakeholders to undertake and act upon proper scientific investigation of coexistence in future revisions of EN 301 893. According to the currently predicted IEEE 802.11ax timeline, the IEEE 802.11ax standard will not be ratified before the end of 2019, however. Thus, the IEEE 802.11 WG assumes that IEEE 802.11ax cannot be easily referenced by an ETSI standard in the meantime.

The 802.11 WG suggests that ETSI BRAN also considers Alt 3 because the existing ratified IEEE 802.11-2016 standard can be referred to. If TC BRAN considers Alt 3, it shall consider the motivation and understanding from Alt 2, namely that:

* Alt 3 is justified as representing the “market reality” that IEEE 802.11ax is being specified to use dual thresholds
* Alt 3 is adopted on the understanding that further scientific evaluations of coexistence will be undertaken to better inform future revisions of EN 301 893.

We look forward to hearing the result of your deliberations on this matter.

Sincerely,

Dorothy Stanley
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