IEEE P802.11
Wireless LANs

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Abstract

This document contains a proposed Liaison Statement from IEEE 802 to ETSI BRAN related to PDED issues, and particularly the next revision of EN 301 893

**Liaison statement**

**TO:**

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

**CC:**

* Adrian Stephens, IEEE 802.11 WG Chair, adrian.p.stephens@ieee.org
* Andrew Myles, IEEE 802.11 PDED ad hoc Chair, amyles@cisco.com

**SUBJECT:** Next revision of EN 301 893

**DATE:** 12 May 2017

Dear Edgard,

Over the last few years, the IEEE 802.11 Working Group has been monitoring the work in ETSI BRAN to develop a new version of EN 301 893. The revised adaptivity clause in EN 301 893 has been of particular interest to the IEEE 802.11 Working Group because it is a key to ensuring the fair sharing of the 5GHz unlicensed band in Europe into the future, particularly as new non-Wi-Fi technologies are introduced into the band.

The IEEE 802.11 Working Group is pleased to note that EN 301 893 v2.0 continues the tradition of previous versions of the standard by explicitly allowing the use by IEEE 802.11 conformant equipment at the same energy detection threshold that has been used since 1999, in combination with IEEE 802.11’s well established and advanced preamble detection mechanism (which we will refer to as the “dual threshold option”). In contrast, EN 301 893 v2.0 requires non-IEEE 802.11 conformant equipment to use a more conservative energy detection-only mechanism and threshold.

The inclusion of the dual threshold option in EN 301 893 is a strong recognition by ETSI BRAN that the hybrid preamble and energy detection mechanisms used by the IEEE 802.11 standard are robust and proven methods of enabling fair sharing of the 5GHz band. The continued inclusion of the dual threshold option also minimises the risk of disrupting the immense socio-economic benefits that Wi-Fi has brought to the European and global communities since about 2003.

The dual threshold option in EN 301 893 v2.0 has been drafted in such a way that it applies to existing IEEE 802.11a/n/ac based equipment. However, it does not yet apply to IEEE 802.11ax equipment, which will be the basis of the next generation of Wi-Fi. This is perfectly reasonable because IEEE 802.11ax was not even at early draft stage when EN 301 893 v2.0 was being developed.

The IEEE 802.11 Working Group now understands that ETSI BRAN is planning to start a new effort in about July 2017 to revise EN 301 893 yet again. We understand two of the items that may be addressed in the revision process are of particular relevance to sharing of the 5GHz band:

* *Consider a single ED threshold limit value applicable to all technologies*
* *Consider a general review of the adaptivity section (including ED threshold) in light of new technologies*

The IEEE 802.11 Working Group believes that requiring a single ED threshold limit value would be a retrograde step, not embracing the latest technology (from 1990!). If the single threshold is set too high then it has been well established by simulations in ETSI BRAN, the IEEE 802.11 Working Group and 3GPP RAN1 that newly defined technologies such as LAA will not share the 5GHz band fairly with Wi-Fi. If the threshold is set at the level promoted by 3GPP RAN1 for all equipment then it would have the bizarre effect of decreasing the performance of new generation Wi-Fi equipment compared to equivalent Wi-Fi equipment produced over the last 18 years, and disadvantaging new generation Wi-Fi equipment compared to LAA, MulteFire and similar technologies.

It is the view of the IEEE 802.11 Working Group that the best way to ensure fair and efficient use of the 5GHz band is for all technologies to embrace the robust and proven, hybrid preamble and energy detection mechanisms used by the IEEE 802.11 standard. This is a perspective that has been articulated by the IEEE 802.11 Working Group to 3GPP and other stakeholders multiple times in recent years. However, the IEEE 802.11 Working Group also recognises that the introduction of an energy detection-only mechanism (such as defined in EN 301 893), as an additional sharing mechanism, does have the important benefit of enhancing technology neutrality. Therefore, the IEEE 802.11 Working Group supports the ongoing inclusion of an energy detection-only mechanism in EN 301 893.

The IEEE 802.11 Working Group also believes that the upcoming revision of EN 301 893 should maintain the existing dual threshold option, and extend its applicability to IEEE 802.11ax conformant equipment, as well as equipment based on other technologies that would like to take advantage of its benefits .

Allowing the use of both the energy detection-only mechanism and the dual threshold option in EN301 893:

* **Enhances fair sharing** of the 5GHz unlicensed band for equipment using either the energy detection-only mechanism or the dual threshold option mechanism. Simulations in ETSI BRAN, 3GPP RAN1 and IEEE 802.11 Working Group have shown fair sharing occurs in most use cases when these mechanisms are used together with appropriate thresholds
* **Promotes technology neutrality** by allowing a wider diversity of sharing mechanisms to be employed at the choice of implementers, ie both the energy detection-only and dual threshold options
* **Avoids a backward technology step**, which would occur if the dual threshold option’s more sophisticated hybrid preamble and energy detection mechanism was restricted in favour of an energy detection-only mechanism
* **Minimises the socio-economic risk** of deprecating the well-established and proven sharing dual threshold option mechanisms used by IEEE 802.11 today.

The IEEE 802.11 Working Group requests that ETSI BRAN keeps it informed of ETSI BRAN’s plans to revise EN 301 893, and particularly any discussions in relation to removing, maintaining or extending the dual threshold option in future versions of EN 301 893. The IEEE 802.11 Working Group would be delighted to assist ETSI BRAN in relation to these topics.

Regards,

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