**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title | TG4v Coexistence Assurance Document |
| Date Submitted | 11 August 2016 |
| Source | Phil Beecher (Wi-SUN Alliance) |
| Re: | IEEE 802.15.4v Draft Amendment |
| Abstract | Analysis on coexistence of IEEE 802.15.4v with other IEEE 802 systems within the same frequency band |
| Purpose | To address the coexistence capability of IEEE 802.15.4v to satisfy requirements of the IEEE 802.19 Work Group and IEEE 802 Executive Committee to determine if a proposed IEEE 802 standard has made a reasonable effort to be able to coexist with devices compliant to other IEEE 802 standards in their operating band. |
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# Scope

The IEEE 802.19 Work Group has mandated that new wireless standards developed under IEEE 802 be accompanied by a *Coexistence Assurance* document. In [1], guidelines are provided for how coexistence can be quantified based on predicted packet error rates among IEEE 802 wireless devices. Hence, this coexistence assurance document is provided by the IEEE 802.15.4v Task Group to satisfy the requirements of the IEEE 802.19 Work Group and IEEE 802 Executive Committee.

The 802.15.4v Task Group has identified frequency bands suitable for low power wireless devices and uses that are currently not included in 802.15.4 [2]. The 802.15.4v amendment to the IEEE Standard 802.15.4 [2] defines band plans for use of specific existing 802.15.4 Physical Layers in these bands.

This document addresses the coexistence of the new frequency bands introduced in IEEE 802.15.4v with other IEEE 802 standards operating in the same frequency bands.

# References

1. S. Shellhammer, “Writing a Coexistence Assurance Document,” IEEE 802.19-09/0001r0, 2009.
2. IEEE Std 802.15.4TM-2015.

# IEEE 802.15.4v amendment overview

Amendment 802.15.4v uses modulations and other PHY layer characteristics already defined in the 802.15.4 standard; the amendment specifies regional channel plans.

## Operating frequency bands

The newly allocated frequency bands for the IEEE 802.15.4v amendment are shown in Table 1:

|  |  |
| --- | --- |
| Band Identifier (MHz) | Frequency band (MHz) |
|
| 870 (Europe) | 870 - 876 |
| 915 (Europe) | 915 - 928 |
| 915 (Mexico) | 902 - 928 |
| 915 (Brazil) | 902-907.5 & 915-928 |
| 915 (ANZ) | 915 - 928 |
| 915 (Philippines) | 915 - 918 |
| 919 (Malaysia) | 919 - 923 |
| 920 (China) | 920.5 – 924.5 |
| 920 (Hong Kong/ Singapore/ Thailand/ Vietnam) | 920 - 925 |

Table 1 – IEEE 802.15.4v New frequency bands

The IEEE 802.15.4v amendment updates the channel parameters of the frequency bands shown in Table 2:

|  |  |
| --- | --- |
| Band Identifier (MHz) | Frequency band (MHz) |
|
| 470 (China) | 470 - 510 |
| 863 (Europe) | 863 - 870 |

Table 2 –IEEE 802.15.4v Updated frequency bands

## Modulation parameters

No new modulation methods are introduced by this amendment.

## Coexistence mechanisms

This amendment makes no changes to the available coexistence mechanisms in 802.15.4.

# Other IEEE 802 standards occupying the same frequency bands

No other 802 standards operate in the newly added regional frequency bands shown in Table 1. There is no coexistence impact.

The channel parameters of the frequency bands shown in Table 2 have been modified to align with updated regional requirements. No changes have been made that affect coexistence in these bands.