
IEEE P802.15
Wireless Personal Area Networks

Project	IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)
Title	TG3f Coexistence Assurance Document
Date Submitted	05 May 2017
Source	Benjamin A. Rolfe (BCA)
Re:	802.15.3f Draft Amendment
Abstract	Analysis on coexistence of 802.15.3f with other IEEE 802 systems within the same frequency band.
Purpose	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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Release	The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.15.

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1 Introduction

The IEEE 802 process requires that new wireless standards and amendments 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 802.15.3f Task Group according to the requirements and guidelines established by IEEE 802.19.

Amendment 802.15.3f adds no new operating features or modes to the base standard; it modifies the channel plan for the mmWave PHYs (clause 11). The FCC extended the license exempt frequency band around 60 GHz so that it is now usable to 71 GHz in the US. There is anticipation that other regions will adopt a similar extension in the future. IEEE Std 802.11TM (the only other 802 service currently defined in the band) adopted an extended channelization to enable use of the additional spectrum in the most recently approved revision. The purpose of the 802.15.3f amendment is to bring the channelization in harmony with the IEEE Std 802.11TM mmWave PHY channelization.

2 References

1. Federal Communications Commission, CFR 47, Chapter 1, Subchapter A, Part 15 Subpart C §15.255: Operation within the band 57-71 GHz.
2. S. Shellhammer, "Writing a Coexistence Assurance Document," IEEE 802.19-09/0001r0, 2009.
3. IEEE P802.15-09-0022-09-003c 802.15.3c Coexistence assurance document
4. IEEE Std 802.15.3TM-2016.
5. IEEE Std 802.15.3eTM -2017

3 802.15.3f amendment overview

Amendment 802.15.3f uses modulations and other PHY layer characteristics already defined in the IEEE Std 802.15.3TM standard; the amendment specifies a regional channel plan.

3.1 Operating frequency bands

The allocated frequency band for the IEEE Std 802.15.3TM mmWave PHYs as extended by the amendment is shown in Table 1. The new channels are highlighted.

CHNL_ID	Start frequency (GHz)	Center frequency	Stop frequency
1	57.240 GHz	58.320 GHz	59.400 GHz
2	59.400 GHz	60.480 GHz	61.560 GHz
3	61.560 GHz	62.640 GHz	63.720 GHz
4	63.720 GHz	64.800 GHz	65.880 GHz
5	65.880 GHz	66.960 GHz	68.040 GHz
6	68.040 GHz	69.120 GHz	70.200 GHz

Table 1 – mmWave PHY channelization

3.2 Modulation parameters

No new modulation methods are introduced by this amendment.

3.3 Coexistence mechanisms

This amendment makes no changes to the available coexistence mechanisms in IEEE Std 802.15.3™. The availability of additional spectrum improves interference avoidance with legacy services based on IEEE Std 802.15.3™ and IEEE Std 802.11™ which may not be configured to use the additional channels, and the additional channels provide for greater opportunity to find an interference free channel for systems capable of use the additional channels.

Coexistence mechanisms provided by IEEE Std 802.15.3™ are defined in [4].

Coexistence characteristics of the mmWave PHYs are described in [3].

4 Other IEEE 802 standards occupying the same frequency bands

IEEE Std 802.11™ operates in the 60 GHz band. This amendment ensures the channelization remains compatible with IEEE Std 802.11™. This amendment makes no changes that would decrease coexistence with existing services.