**IEEE P802.19**

**Wireless Coexistence**

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| Project | IEEE P802.19 Wireless Coexistence WG |
| Title | **Draft CUB PAR** |
| Date Submitted | March 11, 2015 |
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| Re: | [] |
| Abstract | [] |
| Purpose | [] |
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Type of Project: Amendment to IEEE Standard 802.19.1-2014

PAR Request Date: xx-xxx-2015

PAR Approval: xx-xxx-2015

PAR Expiration Date: xx-xxx-2017

Status: PAR for an Amendment to an existing IEEE Standard

1.1 Project Number: P802.19.1a

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Standard for Information Technology - Telecommunications and Information Exchange Between Systems - Local and Metropolitan Area Networks - Specific Requirements - Part 19: TV White Space, 5GHz and 3.5GHz bands Coexistence Methods

3.1 Working Group: Coexistence TAG (C/LM/WG802.19)

Contact Information for Working Group Chair Name: Stephen Shellhammer

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Contact Information for Working Group Vice-Chair

None

3.2 Sponsoring Society and Committee: IEEE Computer Society/Local and Metropolitan Area Networks (C/LM)

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4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 12/2016

4.3 Projected Completion Date for Submittal to RevCom: 10/2017

5.1 Approximate number of people expected to be actively involved in the development of this project: 30

5.2.a. Scope of the complete standard: This standard specifies radio technology independent methods for coexistence among dissimilar or independently operated networks of unlicensed devices and dissimilar unlicensed devices.

Changes in scope: This standard specifies radio technology independent methods for coexistence among dissimilar or independently operated networks of unlicensed devices and dissimilar unlicensed devices. In addition, the standard is defined for device operating in the TV band White Spaces, the 5GHz license-exempt bands and the general authorized access in 3.5GHz bands.

5.2.b. Scope of the project: This amendment to IEEE 802.19.1-2014 specifies defines the coexistence information exchange among networks and devices to enable coexistence management. It specifies

- Procedures and protocols for collection and exchanging coexistence information of heterogeneous networks.

- Spectrum resource measurements and network performance metrics, such as packet error ratio, delay, etc,

- Information elements and data structures to capture coexistence information,

5.3 Is the completion of this standard dependent upon the completion of another standard: No

5.4 Purpose: The purpose of the standard is to enable the family of IEEE 802 Wireless Standards to most effectively use in TV band White Spaces, the5GHz license-exempt bands and the general authorized access in 3.5GHz bands by providing standard coexistence methods among dissimilar or independently operated networks of unlicensed devices and dissimilar unlicensed devices. This standard addresses coexistence for IEEE 802 networks and devices and will also be useful for non IEEE 802 networks and devices.

5.5 Need for the Project: Existing IEEE 802 standards groups are developing standards and amendments, to comply with the regulatory rules for use of the TV band white spaces, the 5GHz license-exempt bands and the general authorized access in 3.5GHz bands. Other non-IEEE 802 wireless standards for use of the TV band White Spaces, the 5GHz license-exempt bands and the general authorized access in 3.5GHz are also in development. In order for these various dissimilar networks of unlicensed devices and unlicensed devices to effectively coexist in these bands, fair and efficient spectrum sharing is needed. Fair and efficient spectrum sharing among dissimilar networks of unlicensed devices and unlicensed devices may require the coexistence methods provided in this standard. In order to enhance utilization of these bands standardized coexistence methods are needed. Methods such as those discussed in the explanatory notes may be considered.

5.6 Stakeholders for the Standard: Designers of MAC/PHY standards and implementations in the TV band white spaces, the 5GHz license-exempt bands and the general authorized access in 3.5GHz bands.

Intellectual Property

6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No

6.1.b. Is the Sponsor aware of possible registration activity related to this project?: No

7.1 Are there other standards or projects with a similar scope?: Yes

If Yes please explain: IEEE P1900.4a is a standards project which addresses dynamic spectrum access.

IEEE P802.22 is a MAC/PHY standards project for operation in the TVWS which includes coexistence mechanisms.

Ecma International TC48-TG1 is a MAC/PHY standards project for operation in the TVWS which includes coexistence mechanisms

and answer the following

Sponsor Organization: IEEE / IEEE / ECMA International Project/Standard Number: P1900.4a / P802.22 / TC48-TG1 Project/Standard Date: 30-Dec-2012

Project/Standard Title: Standard for Architectural Building Blocks Enabling Network-Device Distributed Decision Making for Optimized Radio Resource Usage in Heterogeneous Wireless Access Networks - Amendment: Architecture and Interfaces for Dynamic Spectrum Access Networks in White Space Frequency Bands / Draft Standard for Wireless Regional Area Networks Part 22: Cognitive Wireless RAN Medium Access Control (MAC) and Physical Layer (PHY) specifications: Policies and procedures for operation in the TV Bands / Wireless Communications using Television White Spaces (TVWS)

7.2 International Activities

a. Adoption

Is there potential for this standard (in part or in whole) to be adopted by another national, regional or international organization?: No

b. Joint Development

Is it the intent to develop this document jointly with another organization?: No

c. Harmonization

Are you aware of another organization that may be interested in portions of this document in their standardization development efforts?: Do Not Know

Organization:

Technical Committee Name: Technical Committee Number: Contact Name:

Phone: Email:

8.1 Additional Explanatory Notes (Item Number and Explanation): Section 5.2a (Scope) Coexistence Method - Consists of the following components,

 A means of communication between nodes

 A protocol for exchanging information

 A set of coexistence parameters providing information about the interference environment and the set of MAC/PHY capabilities

 Algorithms for adapting MAC/PHY parameters to enhancing coexistence between networks

The communication between the nodes is based on other standards, either wired or wireless, and is not part of this standard. Section 5.2a (Scope)

The term "radio technology independent" means that the methods work with a variety of MAC/PHY standards, which support some or all of a set of typically implemented MAC/PHY capabilities.

Section 5.2a (Scope)

The term dissimilar used in this document refers to the networks and devices, which use different radio technologies adapted for the TV band white spaces, the 5GHz license-exempt bands and the general authorized access in 3.5GHz bands.

Section 5.2a (Scope)

The term independently operated used in this document refers to networks which may or may not use the same radio technology but are operated by independent entities which do not necessarily have a business relationship for coordinating their use of the TV band White Space, the 5GHz license-exempt bands and the general authorized access in 3.5GHz bands; furthermore, such similar radio access technologies may not have an otherwise available means of coexistence. For example, this differentiates independently operated from a situation in which a single administrative authority manages the coexistence between dissimilar technologies deployed in a composite network.

Section 5.2a (Scope)

The term “general authorized access” means that users would be entitled to use the spectrum on opportunistic basis and not be entitled to interference protection.

Sec. 5.5 (Need):

The radio technology independent coexistence methods that are standardized may address the following and related areas:

Discovery is the process of determining that there are two or more dissimilar and independently operated wireless networks or devices attempting to use the same White Space frequency range in the same location. This can occur in two ways. The two networks or devices may attempt to enter at the same time or one may be present and a second seek to enter. In the second case, a network operating in White Space, must periodically check for new entrants and a new entrant must check before entering.

A Connection for coexistence may be useful for two dissimilar and independently operated wireless networks or devices to exchange information in order to share spectrum.

A Logical Method for Promoting Coexistence is a method that involves the exchange of information between different dissimilar or independently operated networks or devices and may also involve algorithms seeking to maximize the quality of service for all participants.

This standard project addresses USA Rules and may address the rules of other regulatory domains in the TV band white spaces, the 5GHz license-exempt bands and the general authorized access in 3.5GHz bands. During the project lifetime, the draft standard may be modified to address any new or changing regulatory rule in the TV band white spaces, the 5GHz license-exempt bands

Reference:

19-09/0078r5: TVWS Coexistence PAR