IEEE P802.11
Wireless LANs

|  |
| --- |
| A PAR Proposal for BCS |
| Date: 2018-07-02 |
| Author(s): |
| Name | Affiliation | Address | Phone | Email |
| Hitoshi Morioka | SRC Software | 2-14-38 Tenjin, Chuo-ku, Fukuoka 810-0001 Japan |  | hmorioka@src-soft.com |
| Bahar Sadeghi | Intel |  |  | bahareh.sadeghi@intel.com |
| Xiaofei Wang | InterDigital |  |  | Xiaofei.Wang@InterDigital.com  |
| Yasuhiko Inoue | NTT |  |  | inoue.yasuhiko@lab.ntt.co.jp  |
| Marc Emmelmann | Koden TI | Berlin, Germany |  | emmelmann@ieee.org |
| Hiroshi Mano | Koden TI | Tokyo, Japan |  | mano@koden-ti.com |
| Stephen McCann | BlackBerry | The Pearce Building, West Street, Maidenhead, SL6 1RL, UK |  | smccann@blackberry.com  |

# PAR

**P802.11**

**Submitter Email:**
**Type of Project:** Amendment to IEEE Standard 802.11
**PAR Request Date:**
**PAR Approval Date:
PAR Expiration Date:
Status:** Unapproved PAR, PAR for an amendment to an existing IEEE Standard

**1.1 Project Number:**
**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 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications-- Amendment: Broadcast Service

**3.1 Working Group:** Wireless LAN Working Group (C/LM/WG802.11)
**Contact Information for Working Group Chair Name:** Dorothy Stanley
**Email Address:** dstanley@ieee.org
**Phone:** +1(630) 363-1389

**Contact Information for Working Group Vice-Chair
Name:** Jon Rosdahl
**Email Address:** jrosdahl@ieee.org
**Phone:** +1-801-492-4023

**3.2 Sponsoring Society and Committee:** IEEE Computer Society/LAN/MAN Standards Committee (C/LM)
**Contact Information for Sponsor Chair**

**Name:** Paul Nikolich
**Email Address:** p.nikolich@ieee.org
**Phone:** +1-857.205.0050

**Contact Information for Standards Representative**

**Name:** James Gilb
**Email Address:** gilb@ieee.org
**Phone:** +1-858-229-4822

**4.1 Type of Ballot:** Individual
**4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot:**July 2021
**4.3 Projected Completion Date for Submittal to RevCom:**March 2022

**5.1 Approximate number of people expected to be actively involved in the development of this project:** 50.

**5.2.a. Scope of the complete standard:**The scope of this standard is to define one medium access control (MAC) and several physical layer (PHY) specifications for wireless connectivity for fixed, portable, and moving stations (STAs) within a local area.

**5.2.b. Scope of the project:**

This amendment specifies modifications to the IEEE 802.11 medium access control (MAC) specifications that enable operation of Broadcast Service (BCS).

The Broadcast Service is a unidirectional data distribution service from one transmitter to multiple receivers. The frames for the Broadcast Service are expected to be transmitted unidirectionally from one transmitter to multiple receivers before or after Authentication/Association.

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

**5.4 Purpose:**The purpose of this standard is to provide wireless connectivity for fixed, portable, and moving stations within a local area. This standard also offers regulatory bodies a means of standardizing access to one or more frequency bands for the purpose of local area communication.

**5.5 Need for the Project:**

*Move some of this text to section 8.1*

Broadcast Services extends the reach of Wi-Fi to markets and use cases that require efficient distribution of local information such as:

* Information announcement systems in public locations, e.g., airports, stadium, etc.
* Sensor information collection, e.g., asset tracking
* Non-critical automotive applications operating in unlicensed bands

Distribution of local information requires efficient and secure broadcast of data. These requirements are not met with the current IEEE 802.11 specification for some usage scenarios. An optimization of broadcast mechanism is desirable. Optimizations may include improvements to:

* Security mechanisms for group-addressed frames
* Broadcast mechanisms before association
* Operation outside of context of a BSS

 e.g. timetable/floor map at an airport, is currently provided by signboard.

This type of information is considered useful to many people at the location.

Although the information can be distributed by unicast, broadcast is better by the following reasons.

* While unicast traffic consumes air time propotional to the number of users, broadcast traffic is not related to the number of users. This means when many users get the same information, air time consumption can be reduced., especially such as video live streaming in a stadium.
* Broadcast is unidirectional traffic. The overhead, such as authentication and association, can be skipped. This will enhance user experience. by omitting enter password.

To avoid fake-AP (transmitter) attack, broadcast frames must be authenticated by receivers.

Current IEEE 802.11 standard has GTKSA a security framework for multicast. GTKSA This security framework uses symmetric algorithm and all stations share the same key. This means any station in the framework in the GTKSA can spoof as a fake-AP. The GTKSAis security framework works well only if the all stations in the framework GTKSA are trusted.

New security mechanisms are required for the expected use cases, public use, because the current GTKSA IEEE 802.11 does not provide enough security.

The number of mobile devices incorporating IEEE 802.11 is steadily growing.

Broadcast service through IEEE802.11 creates new market.

It provides low cost, unlicensed broadcast method.

By this new standard, the user experience will be enhanced, and the market will grow

**5.6 Stakeholders for the Standard:**

Stakeholders include chip makers to deliver PHY and MAC sub-systems, mobile devices, personal computers, consumer electronics, as well as system integrators, telecom operator, and transportation industries.

**Intellectual Property**

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

**6.1.b. Is the Sposor aware of possible registration activity related to this project?: Yes**

**If yes please explain:** Project may define new management frames (extending the existing IEEE 802.11 frame structure) to support its new features. These frames will include fields that contain 48-bit MAC addresses. It is not expected that any new namespaces for allocation under

RAC control will be defined.

**7.1 Are there other standards or projects with a similar scope?: No**

**7.2 Joint Development**

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

**8.1 Additional Explanatory Notes (Item Number and Explanation):**