IEEE P802.11  
Wireless LANs

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| Issues Tracking | | | | |
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Abstract

Issues Tracking sheet for P802.11bh - Operation with Randomized and Changing MAC Addresses.

R0 – Initial discussion document.

R1 – With modifications/updates/notes from still-in-progress discussion of the Terminology section, from March 9 meeting.

R2 – Removed other “example” material in sections 3, 4 and 5. Task group will insert this material as it is reviewed and agreed.

R3 – Updates in sections 3 and 4, from March 29 teleconference.

R4 – Editorial clean-up/organization, prep for April 12 teleconference.

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# Introduction

This document serves as a tracking sheet for issues raised within the context of P802.11bh, Operation with Randomized and Changing MAC Addresses.

Section 3 is a “scratch pad” for brainstorming comments and ideas, and other discussion points to remember.

Section 4 has a set of use cases which provide real-world example contexts in which some issue(s) arise from randomized and/or changing MAC addresses.

Specific technical issue are then presented in Section 5, including a technical description of the scenario which raises the issue (and mapping back to relevant use case(s)), the technical details of the problem, and the impacts on the overall system including what users/components are impacted, what 802.11 features are

Section 6 provides proposed technical solutions to address the issues (including mapping back to the specific issue(s) addressed by each solution), and discussion of any trade-offs or shortcomings of the solution.

# Terminology

**Randomized MAC address:** An individual MAC address (layer-2 MAC/PHY entity identification, or more specifically a MAC SAP identification) used by a MAC entity as its identification, but that is either not assigned as a globally unique or is not a permanent identifier (in what scope?).

NOTE: Such randomized MAC address should have the U/L bit set to indicate a local MAC addresses, per Std IEEE 802-2014. For the scope of this document, no compliance with 802c-2017 or P802.1CQ direction is assumed.

NOTE: The duration of use of the randomized address could be permanent or only for a shorter duration. Such a randomized address can obscure the real identification of the device and/or its user, for purposes of privacy, for example.

Syn: Local MAC address (OR… do we say it is a special case of Local MAC address, and say something about how it is special?)

Something about 802c-2017??

When dot11MACPrivacyActivated??

P802.1CQ??

**Changing MAC address**: A ~~Randomized~~ MAC address which is also changed over time. Such changes may be periodic, event driven, or triggered by other inputs. Note that IEEE 802.11 requires that a device’s MAC address not change during the lifetime of an association to an ESS. However, the time bounds of such an ESS association are not clearly specified or signalled in 802.11, and the interpretation of this requirement is varying across implementations.

**Rapidly changing MAC address**: A Changing MAC address which is generally changed within a time-frame that is approximately equal or less than the time constants for an 802.11 feature, usually impacting the feature’s correct operation.

NOTE—the interval that defines whether a changing MAC is rapidly changing varies with the feature and use case being considered, but is generally on the order of several minutes or less. For instance, changing MAC address in each probe request, or changing MAC address between each new association to the same ESS.

# Brainstorming ideas/discussion

* Lawful intercept requirements and/or limitations
* Use cases where privacy is desired/expected
  + Privacy from whom?
  + Privacy of what information? MAC address, and/or other information. How is the information used?
  + User consent?
* Use cases where RCM is causing issues
* Pre-association and/or post-association (to the ESS) use cases
* Network operator monitoring location of assets
* Duplicate MAC addresses and issues caused
* STA “doesn’t want to/care about maintaining state” with the network
* TGaz ranging, pre-association or post-association, TGaz’s security?
* TGbc features (pre-association/non-associated)
* Airport security queue is not a feature we need to make work

# Use cases – “user level” view of behaviors and the gap between desired and current behaviors when RCM is used

## Pre-association client steering (AP steering, band steering, network steering)

## Post-association access control

## Post-association home automation (including arrival detection)

## Emergency services (pre- or post-association)

## Public Wi-Fi hotspot and roaming (AP to AP – is this the same ESS??)

# Issues and analyses – discussion of 802.11 features/actions, per se

## …

# Proposed Solutions

## …

## …