IEEE P802.11  
Wireless LANs

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| Assorted 11ak Improvements | | | | |
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Abstract

This document proposes text for improvements to P802.11ak D0.07.

# Introduction

This document proposes text and rational for a number of improvements to P802.11ak D0.07. There are written as changes to D0.07 using the usual ***change, delete, insert, replace*** notation. The *Editorial Notes* are just for explanation in this document and would not be added to the draft.

Introduction 2

a No IBSS/Mesh Selective Reception 3

b GLK STA versus Transmission 3

c 9.42 SYNRA address filtering 4

d More MIB Stuff 5

e Minor Miscellaneous 5

# AP only, No IBSS/Mesh, Selective Reception

Editorial Note: These changes clarify that selective reception (SYNRA) is NOT available in an IBSS or Mesh.

***Change text in Clause 4.3.23.1 as follows:***

As described in clause 4.3.23.3, in a data MPDU transmitted ~~between~~ by a GLK AP ~~STAs~~ that has a group address RA, the RA will be a SYNRA and therefore not equal the DA; a non-AP GLK STA supports selective reception of group addressed MPDUs using SYNRA.

It only applies when there is ~~a “central control point” of some sort (~~ an AP, ~~PCP, etc.),~~ thus we will not try to apply it to IBSS, or Mesh.

***Change the last two paragraphs of Clause 4.3.23.4.3 as follows:***

Implementation of this selective reception facility in the AP case includes use of a synthetic group address RA (SYNRA, see clause 8.3.2.1.2). As an alternative to the use of a SYNRA, a copy of the data MPDU can be sent to each intended receiver using MPDUs with individual address RAs, a process known as serial unicast. In either case, an appropriate address format must be used given that the DA will differ from the RA, because the RA is the SYNRA or a serial unicast individual RA. In the case of IBSS or mesh, the choice for MPDUs intended for a group of receivers is either a non-SYNRA group addressed RA or serial unicast, because SYNRA is only used by APs.

All non-mesh GLK STAs support receipt of SYNRAs (see 8.3.2.1.2 and 9.42) but are not required to be able to construct a SYNRA MPDU, since it is always possible to use serial unicast.

Change text in Clause 9.43 as follows:

If a corresponding IEEE 802.1Q Bridge specifies multiple immediate STA destinations, GLK transmission of a MSDU shall use one of the following methods:

* Transmit multiple individually addressed MPDUs to each immediate destination.
* If the transmitter is an AP, transmit group addressed MPDU(s) using a SYNRA as specified in 9.42 (SYNRA address filtering operation).

# Update Figure 4-14a

# GLK STA versus Transmission

Editorial Note: Although we still have the concept of a GLK STA, that is a STA that is GLK capable and enabled, transmissions from such STAs can be to another GLK STA or, in the case of a mixed infrastructure BSS, can be to a non-GLK STA. So text about GLK traffic should not be conditional on being sent by a GLK STA but rather conditional on being a GLK transmission or sent over a GLK link or the like.

***Change text in Clause 9.12* A-MSDU Operation *as follows:***

In non-GLK transmissions, ~~The~~ Address 1 field of an MPDU carrying an A-MSDU ~~transmitted by a non-GLK STA~~ shall be set to an individual address or to the GCR concealment address. ~~If such an MPDU is transmitted by a GLK STA~~ In GLK transmissions, the Address 1 field may be group addressed.

***Change text in Clause 9.13.4* A-MPDU aggregation of group addressed data *as follows:***

A STA ~~that is a DMG STA or a GLK~~ may transmit an A-MPDU containing MPDUs with a group addressed RA if it is (a) a DMG STA or (b) a GLK STA transmitting to a GLK STA.

# 9.42 SYNRA address filtering

***Change text as follows:***

Editorial Note: The text in Clause 9.2.8 as amended by D0.06 includes validation of the BSSID but only for non-SYNRA Address 1. So that needs to be added to 9.42 (not sure if we need the stuff about OCB).

A GLK STA receiving an MPDU with a SYNRA performs the address filtering described in this clause and the STA also validates the BSSID to verify either that the group addressed frame originated from a STA in the BSS of which the receiving STA is a member, or that it contains the wildcard BSSID value, indicating a Data frame sent outside the context of a BSS (dot11OCBActivated is true in the transmitting STA). If the ToDS bit is zero, the MPDU is discarded. The structure of a SYNRA is shown in Figure 9-90-SYNRA structure.

***Change text as follows:***

Editorial Note: The text for SYNRA type zero does not clearly state what happens if the receiver AID is outside of the limited range covered by the 22-bit array.

If the SYNRA type is zero, the SYNRA control field is a bit array indicating which receivers in the AID range 1000 to 1021 are to accept the MPDU. B26 corresponds to AID 1000 and B47 corresponds to AID 1021. For this SYNRA type, receivers will an AID less than 1000 or greater than 1021 shall discard the MPDU. If the bit corresponding to an AID is 0, the STA having that AID for its association with the transmitter shall discard the MPDU. If the bit is a 1, the MPDU passes the address 1 filter.

***Change text as follows:***

If the SYNRA type is 1, the Extended SYNRA Information is a vector of bits representing AIDs whose length in octets is equal to the Extended SYNRA Size subfield. This size may be zero, in which case all receivers shall discard the MPDU. If this size is non-zero, bit 0 of the vector represents the 14-bit AID (see 8.4.1.8) contained in the 14-bit Extended SYNRA Second subfield. Subsequent bits of the vector represent AIDs formed by the sum of the bit index and the Extended SYNRA Second subfield treated as an unsigned integer. If the bit corresponding to an AID is 0, the station with that AID assigned to its association with the transmitter discards the MPDU. If the bit is a 1, the MPDU passes the Address 1 filter. Any bits in the Extended SYNRA Information shall be ignored if they correspond to an AID of greater than 2007 for a non-DMG STA or greater than 254 for a DMG STA.

Editorial Note: “254” really is correct above. AID 255 is reserved as the broadcast AID for DMG STAs.

# More MIB Stuff

# GLK Mesh

# Minor Miscellaneous

Editorial Note: Clarify as follows.

Replace the following sentence in 4.3.23.2 with the second sentence below.

Pairwise communication between two EPD STAs in a BSS uses EPD otherwise LPD is used.

Communication in a BSS between two EPD STAs with an individually addressed RA uses EPD; if either STA does not support EPD, such communication uses LPD.

Editorial Note: Fix typos:

Change the first sentence of 4.3.23.4.2 as follows:

Figure 4-14a shows a GLK IBSS involving three ~~two~~ GLK STAs. Each participating STA provides the MAC service via ~~an~~ ISS SAPs.

Editorial Note: MMRP is used in Clause 8.4.2.171 but not expanded nor any reference given.

***Insert in alphabetic order in Clause 3.4 Abbreviations and acronyms:***

MMRP Multiple Mac Registration Protocol (IEEE Std 802.1Q-2014)