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| Project | **IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>** | |
| Title | **Corrections for OFDM AAS mode** | |
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| Re: | **Call for Comments on Maintenance Issues regarding IEEE Standard 802.16** | |
| Abstract | Additional description for the OFDM AAS mode | |
| Purpose | Enable implementation of the OFDM AAS mode | |
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# Correction for OFDM AAS mode

## 1 Statement of the problem and proposed resolution

Section 8.3.5.2 describes a protocol suitable for implementation of adaptive antennas in the OFDM PHY. Several issues arise when considering practical implementation:

### *1.1 Burst Ordering*

There is no indication on a relation between the order of the FCH bursts and the order of the bursts described in the AAS_DLFP. This makes processing difficult.

**Solution proposed** : Mandate that all the FCH describing the uplink and all the FCH describing the downlink must describe bursts in ascending order.

### *1.2 FCH relevance time*

There is no specified minimum relevance time for the FCH when describing zones in the UL frame. This is necessary as a minimum processing time is necessary to decode the FCH message and program the UL.

**Solution proposed** : Define a minimum FCH relevance time equal to the minimum DL-MAP relevance time.

### *1.3 Duplicate MAP description*

It is not said in the standard if the AAS portion of the frame is described or not in the broadcast DL/UL-MAPs. This leads to potential confusion.

**Solution proposed** : Specify that the AAS zone is not described in the broadcast DL-MAP and UL-MAP.

### *1.4 Preamble in the AAS zone*

In section 8.3.3.6, it is specified that all allocations in the AAS zone shall be preceded by the short preamble. Also, in section 8.3.5.2 it is specified that a preamble should precede a body in the AAS zone when it does not follow the FCH immediately. These 2 assertions are in contradiction, because in a body, not all bursts are preceded by a preamble.
Also, there seems to be an error in Figure 209 because DL burst 3 should be preceded by a preamble.

**Solution proposed** : In section 8.3.3.6, specify that the short preamble is used in the AAS portion, instead of preceding all allocations. Correct Figure 209.

## 2 Specific text changes

### *2.1 Burst Ordering*

In section 8.3.5.2, add to the text p.454 starting line 26:

"AAS_DLFP contains information (DL IEs or UL IEs) on location and transmission rate of PHY bursts. There is a possibility of more than one concatenated DL PHY bursts, each one described by a DL IE. UL IEs specify either UL PHY burst (a single burst per SS) or contention region for initial ranging or bandwidth requesting. The DL IEs and UL IEs in each AAS_DLFP should appear in the same order as the allocations to which they refer."

## *2.2 FCH relevance time*

In section 8.3.5.2, add to the text p.454 starting line 37

"Alternatively, AAS_DLFP may contain UL IEs. There are two options:
1) A single UL IE
2) "Compressed" UL IE, which contains a network entry allocation and a regular allocation.

The minimum time between an UL IE and the corresponding UL burst shall be equal to the relevance time of an UL-MAP as described in section 6.3.7.5"

## *2.3 Duplicate MAP description*

In section 8.3.5.2, add to the text p.454 starting line 26

"AAS_DLFP contains information (DL IEs or UL IEs) on location and transmission rate of PHY bursts. There is a possibility of more than one concatenated DL PHY bursts, each one described by a DL IE. UL IEs specify either UL PHY burst (a single burst per SS) or contention region for initial ranging or bandwidth requesting. The DL IEs and UL IEs described in the AAS portion of the zone shall not be described in the broadcast DL-MAP and UL-MAP."

## *2.4 Preamble in the AAS zone*

In section 8.3.3.6, p.447 line 60, change the text as following:

"This preamble ~~shall also precede all allocations during the AAS portion of a frame and~~ shall be used as burst preamble on the downlink bursts when indicated in the DL-MAP_IE."

Correct Figure 209, to replace last FCH by a preamble