Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Fix Problems in UL Allocation**
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Re:	Response to Sponsor Ballot on IEEE802.16-2004/Cor1/D3 document
Abstract	
Purpose	To incorporate the text changes proposed in this contribution into the 802.16-2004/Cor1/D4 draft.
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Fix Problems in UL Allocation

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1. Problem Statement

There are many optional features included in the current standard document. Associated with the optional features, there are some extended and several types of MAP messages (normal MAP and compact MAP for H-ARQ). In the current standard, it is not clearly stated that the MSs/SSs support of these IE and MAP message are mandatory. However, from optional nature of the features, and following text from the standard, we conclude that MS/SS support of these IEs/MAP messages can be optional. The standard text regarding extended IE is as the following:

" A UL-MAP IE entry with a UIUC value of 15, indicates that the IE carries special information and conforms to the structure shown in Table 291. A station shall ignore an extended IE entry with an extended UIUC value for which the station has no knowledge. In the case of a known extended UIUC value but with a length field longer than expected, the station shall process information up to the known length and ignore the remainder of the IE." Which allows the MS to not read any UL-MAP extended IE that it does not support".

Since most of the UL allocation is defined as sequential slot allocation with duration and the understanding that the new bursts starts from where the previous burst ends is used, a MS will not be able to correctly compute the slot offset for its UL allocation when its UL allocation is after an allocation included in an IEs or MAP message it does not support. This problem already exists in IEEE802.16- 2004 and IEEE 802.16e. A contribution was already submitted and accepted in IEEE 802.16e which addresses this problem. This contribution proposes the same change to 802.16-2004/Cor1/D3.

2. Proposed Solutions

We propose the following changes to resolve the UL allocation problem:

- Introduce a new UL extended IE, UL Allocation Start IE. This IE specifies a start offset that is to be used by all subsequence UL allocations (including allocations defined by UL_MAP_IE and extended UL_MAP_IE).
- This new extended UL_MAP_IE is supported by all SS.
- The BS may include this UL Allocation Start IE to help SSs that do not support H-ARQ MAP or an extended IE with allocation to skip the UL allocation that defined by H-ARQ MAP or extended IE.
- The BS only needs to include this new IE when necessary, i.e. where there are SSs don't not support all features supported by the system.

3. Specific Text Changes

[Insert the following section:]

8.4.5.4.15 UL Allocation Start IE

The UL Allocation Start IE indicates the start offset of all subsequent UL allocation including allocation done by UL-MAP_IE and extended UL-MAP_IE. When this IE is included in UL-MAP, a SS shall determine all subsequent UL allocations based on the start offset defined in this IE except when the UL allocation already specified a start offset.

This IE shall be supported by all SS.

Table 304—UL Allocation start IE

Syntax	Size	Notes
UL Allocation start IE () {	—	—
Extended UIUC	4	UL_Allocation_start_IE () = 0x0A
Length	4	Length in bytes
OFDMA Symbol offset	8	This value indicates start Symbol offset of all subsequent UL allocations in this UL_MAP message.
Subchannel offset	7	This value indicates start Subchannel offset of all subsequent UL data burst allocations in this UL_MAP message.
reserved	1	Shall be set to 0
}	—	—

4. References

[1] IEEE 802.16- 2004 IEEE Standards for local and metropolitan area networks part 16: Air interface for fixed broadband wireless access systems

[2] IEEE P802.16-2004/cor1/D3