Project	**IEEE 802.16 Broadband Wireless Access Working Group** <http://ieee802.org/16>	
Title	**Persistent Assignment for VoIP Support**	
Date Submitted	**2007-11-04**	
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Re:	In response to IEEE 802.16 Working Group Letter Ballot #26	
Abstract	This contribution proposes persistent assignment to reduce the MAP overhead for VoIP support	
Purpose	To incorporate the proposed solution into P802.16Rev2/D1.	
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Persistent Assignment for VoIP Support

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1. Introduction

The amount of MAP overhead per frame is proportional to the number of MSs scheduled per frame. IEEE 802.16e-2005 is expected to support 200 VoIP users for an effective UL bandwidth of 5MHz [1]. Assuming voice activity factor of 50%, this corresponds to approximately 25 users scheduled per 5ms frame. The resultant MAP overhead is large.

2. Proposed Solution

For periodic type of traffic such as VoIP where the packet arrival is predictable, it is not necessary to send the burst assignment signaling for each packet transmission. Burst assignment can be sent once at the beginning to assign periodic recurring resource to an MS with a given period. Both the assigned resource and MCS are fixed until the persistent assignment is released or overridden.

Here is a summary of the persistent assignment scheme:

- BS assigns periodically recurring resource to an MS by sending the persistent IE. The persistent IE can be sent on normal MAP, compressed MAP and sub-MAPs.
- Persistent assignment is applicable for first sub-packet
- Retransmissions are non-persistently assigned
- If a persistent IE is used for new assignment, override existing assignment with new parameters and de-assignment, a burst collision handling mechanism shall be supported.
- De-assignment can be implicit by re-assigning some or all of the resource to another MS only if no major sleep/scanning and computation constraints are required.
- De-assignment can be explicit by sending another persistent IE to terminate the outstanding assignment.

The persistent assignment scheme shall support the following operations:

- DL HARQ
- UL HARQ and non-HARQ
- Non-MIMO
- MIMO

The existing IEs in IEEE 802.16e-2005 can be modified to add the persistent assignment scheme.

3. References

[1] WiMAX Forum, “Requirements and Recommendations for Rel 1.x WiMAX ForumTM Air Interface,” Ballot version 1.1, October 2, 2007.