

Proposal for IEEE 802.16m MAC Addressing

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*<http://standards.ieee.org/faqs/affiliationFAQ.html>>

Re: IEEE 802.16m-08/024 – Call for Contributions on Project 802.16m System Description Document (SDD), on the topic of “Upper MAC – MAC Addressing”

Purpose: Adopt the proposal into the IEEE 802.16m System Description Document

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Further information is located at <http://standards.ieee.org/board/pat/pat-material.html> and <http://standards.ieee.org/board/pat>.

Introduction

- This contribution proposes the MAC addressing schemes that address the following TGm SRD (IEEE 802.16m-07/002r4) requirements:
 - Section 6.10 System overhead:
 - “Overhead, including overhead for control signaling as well as overhead related to bearer data transfer, for all applications shall be reduced as far as feasible without compromising overall performance and ensuring proper support of systems features.”

Issues with MAC Addressing in Legacy System

- The 16-bit CID is an over-kill for wireless system since the number of users supported per BS is much smaller than 2^{16} .
- 16-bit transport CID is unnecessary since a service flow or transport connection is local to each MS.
- Both the DL control (MAP) overhead and MAC header overhead are large due to the above issues
- During initial ranging process, the BS identity a MS performing ranging by its ranging resource, i.e. 32 bits. This is a large overhead to address an MS.

Proposed MAC Addressing Scheme for 802.16m (1/2)

- Three types of addressing are defined: 1) MS ID, 2) service flow ID, 3) access ID
- MS ID (8-10 bits) is an ID assigned to an MS in connected state. This ID is local to a BS. DL control information dedicated to a particular MS (e.g. DL PHY burst/resource allocation) is addressed using the MS ID.
- Service flow ID (3 bits) is an ID assigned to each established service flow of an MS. This ID is local to an MS. The MAC header of a MAC PDU contains the service flow ID corresponding to the payload that is contained within the MAC PDU.

Proposed MAC Addressing Scheme for 802.16m (2/2)

- Access ID (same length as user ID) is a temporary ID assigned to an MS who is performing initial ranging, prior to the MS being assigned an MS ID.
 - This ID is assigned to an MS by the BS, when the BS first detects the ranging code transmission from the MS and the BS sends a 16m RNG-RSP message to the MS which include the assigned Access ID to the MS.
 - Subsequent initial ranging signaling exchange between BS and MS uses this ID to uniquely identify the MS, until the MS has completed the initial ranging process and is assigned an MS ID.

Proposed Text for SDD

- Section 10.x: MAC Addressing
 - [*Copy the content in slides 4, 5 into this section*]