

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Enhanced MOB_HO_IND message	
Date Submitted	2005-01-26	
Source(s)	<p>Jianjun(Alen) Wu, John Lee, Duke Dang</p> <p>HUAWEI No.98,Lane91,Eshan Road,Pudong ,Shanghai,China Pudong Lujiazui Software Park ,200127 P.R. China,</p> <p>Mary Chion</p> <p>ZTE San Diego Inc 10105 Pacific Heights Blvd. San Diego, CA 92121 USA</p> <p>Philip Barber</p> <p>Broadband Mobile Technologies, Inc.</p>	<p>Voice: 86-21-68644808-24717 Fax: 86-21-50898375 mailto: wujianjun@huawei.com</p> <p>mailto: mchion@ztesandiego.com</p> <p>mailto:pbarber@BroadbandMobileTech.com</p>
Re:	Contribution on comments to IEEE P802.16e/D5a	
Abstract	Enhanced MOB_HO_IND message	
Purpose	Adoption	
Notice	This document has been prepared to assist IEEE 802.16. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.	
Release	The contributor grants a free, irrevocable license to the IEEE to incorporate material contained in this contribution, and any modifications thereof, in the creation of an IEEE Standards publication; to copyright in the IEEE's name any IEEE Standards publication even though it may include portions of this contribution; and at the IEEE's sole discretion to permit others to reproduce in whole or in part the resulting IEEE Standards publication. The contributor also acknowledges and accepts that this contribution may be made public by IEEE 802.16.	
Patent Policy and Procedures	The contributor is familiar with the IEEE 802.16 Patent Policy and Procedures < http://ieee802.org/16/ipr/patents/policy.html >, including the statement "IEEE standards may include the known use of patent(s), including patent applications, provided the IEEE receives assurance from the patent holder or applicant with respect to patents essential for compliance with both mandatory and optional portions of the standard." Early disclosure to the Working Group of patent information that might be relevant to the standard is essential to reduce the possibility for delays in the development process and increase the likelihood that the draft publication will be approved for publication. Please notify the Chair < mailto:chair@wirelessman.org > as early as possible, in written or electronic form, if patented technology (or technology under patent application) might be incorporated into a draft standard being developed within the IEEE 802.16 Working Group. The Chair will disclose this notification via the IEEE 802.16 web site < http://ieee802.org/16/ipr/patents/notices >.	

Enhanced MOB_HO_IND message

Jianjun (Alen) Wu, John Lee, Duke Dang

HUAWEI

Mary Chion

ZTE San Diego Inc

Philip Barber

Broadband Mobile Technologies, Inc.

1. Introduction

In the current IEEE P802.16e/D5a, after handover decision, the MSS sends MOB_HO_IND message. The function of the MOB_HO_IND message is as following:

- a) MSS sends MOB_HO_IND with option HO_IND_type = 00 indicating commitment to HO and intent to release the serving BS, the MSS is released from any obligation to monitor serving BS DL traffic.
- b) After an MSS or BS has initiated an HO using MOB_MSSHO/BSHO_REQ message, the MSS may cancel HO at any time. The cancellation shall be made through transmission of a MOB_HO-IND message with the HO cancel option (HO_IND_type=01).
- c) If the MSS signals rejection of serving BS instruction to HO, the MSS can set value of HO_IND_type=10 in the MOB_HO_IND. the BS may reconfigure the target BS list and retransmit MOB_BSHO_RSP message including a new target BS list.

In order to shorten the network re-entry process during handover, the serving BS may send messages to the recommended BSs after receiving the MOB_HO_IND message in order to make the BS to reserve the fast ranging resource for the MSS. And in order not to waste the reserved resource, the Serving BS should tell the Target BS the estimated HO start time. Although the MOB_MSSHO_REQ and MOB_BSHO_RSP message include the estimated HO start time, the MSS maybe delay or advance the HO start time for some cases. The estimated HO start time is in units of frame, so the Target BS can reserve UL resource at actual time, which can avoid a backbone message of Serving BS for notifying the Target BS release the meaningless reserved UL resource.

In this contribution, we propose to enhance the MOB_HO_IND message in order to avoid the waste of the reserved resource.

2. Proposed Text Changes

Modify the text of Page 100E'Line35 in IEEE P802.16e/D5a in section 6.3.2.3.54 shown as indicated .

6.3.2.3.54 HO Indication (MOB-HO-IND) message

An MSS shall transmit a MOB_HO-IND message for final indication that it is about to perform a HO. When the MSS cancels or rejects the HO, the MSS shall transmit a MOB_HO-IND message with appropriate HO_IND type field. The message shall be transmitted on the basic CID.

Table 106m—MOB-HO-IND Message Format

Syntax	Size	Notes
		1

```

MOB_HO-IND_Message_Format()
{
    Management Message Type = 59          8 bits
    reserved                               6 bits    Reserved; shall be set to zero
                                                0b00: HHO request
                                                0b01: SHO/FBSS request: Anchor BS
                                                update
    Mode                                   2 bits    0b10: SHO/FBSS request: Active Set
                                                update
                                                0b11: reserved

    if (Mode == 0b00)
    {
        HO_IND_type                       2 bits    0b00: Serving BS release
                                                0b01: HO cancel
                                                0b10: HO reject
                                                0b11: reserved

        if (HO_IND_type == 0b00)
        {
            Target_BS_ID                  48 bits    Applicable only when HO_IND-type is set
                                                to
                                                0b00.
            Estimated HO start             4 bits

        }
    }

    if (Mode == 0b01)
    {
        SHOFBSS_IND_Type                  2 bits    0b00: confirm Anchor BS update
                                                0b01: Anchor BS update cancel
                                                0b10: Anchor BS update reject
                                                0b11: reserved

        if (SHOFBSS_IND_Type == 0b00)
        {
            Anchor BS ID                   3 bits    TEMP_BS_ID of the Anchor BS
            Action time                     8 bits    Action time when the Anchor BS shall be
                                                updated
        }
    }

    if (Mode == 0b10)
    {
        SHOFBSS_IND_Type                  2 bits    0b00: confirms Active Set update
                                                0b01: Active Set update cancel
                                                0b10: Active set update reject
                                                0b11: reserved

        if (SHOFBSS_IND_Type == 0b00)
        {
            Active Set Included Indicator   1 bit     1: Final decision of Active Set members
                                                included in the message
                                                0: Active Set members are as specified in
                                                MOB_xxHO_RSP message. No Active Set
                                                information included in this message.
    }
}

```

if (Active Set Included Indicator==1)			
{			
Anchor BS ID	3 bits		TEMP_BS_ID of the Anchor BS
N_BSs	3 bits		Number of BS in the Active Set, excluding the Anchor BS
For (j=0 ; j<N_BSs ; j++)			
{			
Temp BS-ID	8 bits		Active Set member ID assigned
}			
Action time	8 bits		Action time when the Anchor BS shall be updated
}			
Preamble index/ Subchannel Index	8 bits		For the SCa and OFDMA PHY this parameter defines the PHY specific preamble for the target BS. For the OFDM PHY the 5 LSB contain the active DL subchannel index for the target BS. The 3 MSB shall be Reserved and set to '0b000'.
Padding	variable		Shall be set to zero.
HMAC Tuple	21 bytes		See 11.4.11
}			

An MSS shall generate MOB-HO-IND messages in the format shown in Table 106m. The following parameters shall be included in the message:

Target_BS_ID

Same as the Base Station ID parameter in the DL-MAP message of Target BS. This may include the Serving BS.

Preamble Index/ Subchannel Index

For the SCa and OFDMA PHY this parameter defines the PHY specific preamble for the target BS. For the OFDM PHY the 5 LSB contain the DL subchannel index (as defined in Table 211) used in the target BS sector. The 3 MSB shall be Reserved and set to '0b000'.

Estimated HO start

Estimated number of frames starting from the frame following the reception of the MOB_HO-IND message until the HO may take place. A value of zero in this parameter signifies that this parameter should be ignored.

If Privacy is enabled, the MOB-HO-IND message shall include the following TLV value,

HMAC Tuple (see 11.1.2)

The HMAC Tuple Attribute contains a keyed Message digest (to guarantee the origin and integrity of the message).