### Project
IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>

### Title
HO Overview Section Cleanup 5 – Termination of Service Section

### Date Submitted
2004-03-16

### Source(s)
Phillip Barber  
Broadband Mobile Technologies, Inc.  
8302 Sebastian Inlet  
Frisco, Tx 75035  
Voice: +1 (972) 365-6314  
Fax: +1 (925) 396-0269  
mailto:pbarber@BroadbandMobileTech.com

### Re:
Response to IEEE 802.16e-04/06 (Call for Contributions on IEEE 802.16e/D1)

### Abstract
HO Overview Section Cleanup 5 – Termination of Service Section

### Purpose
Correct overview section flow and language in HO Overview Section

### 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>. 

---

0
HO Overview Section Cleanup 5

Phillip Barber
Broadband Mobile Technologies

Problem:
As currently defined, mechanics for hand-over are incomplete or poorly defined. Elements are out of order.

Remedy:
Revise hand-over process overview to more logical format and increase language clarity.

Remedy 1:
Provide specific timing for break-before-make/make-before-make Serving BS resources release (MSS needs to know how much time it has to get an HO done to make decisions). Give the MSS an easy mechanism for Re-entering Normal Operations with the current Serving BS on failed/aborted HO attempt. Move Termination with the Serving BS in logical section sequence.

[Modify 1.4.1.2.2.4 Termination with the Serving BS, page 12, lines 20-29, relocate modified/normative text for section to section 6.4 Data/Control Plane; editor will make appropriate allocation of numbering (??) for subsection:]

1.4.1.2.2.4 6.4.??.5 Termination with the Serving BS

After the [MSS/BS]MOB_HO_REQ/MOB_HO_RSP handshake is completed, the MSS may begin the actual HO. At some stage during the HO process the MSS terminates service with the Serving BS. This is done by sending a MOB_HO_IND MAC message with the Serving BS release option (HO_IND_type=00). If the HO_IND_type field has the value of 00 (Serving BS release option), the BS may either close all connections and discard MAC state machines and MAC PDUs associated with the MSS or it may retain the connections, MAC state machine and PDU associated with the MSS to be forwarded to the Target BS for service continuation, or to be discarded upon reception of hand-over indication from the Target BS.

The final step in hand-over/network re-entry is any termination of MSS services with previous Serving BS and the transition of a Target BS to be the new Serving BS.

If Target BS had received a HO notification from Serving BS over the backbone (see section Backbone network HO procedures), or MSS RNG-REQ to Target BS during HO network entry included an unexpired Serving BS ID, then upon MSS entering Normal Operation mode with Target BS, Target BS may send an I-am-host-of message notification message over the backbone network to the Serving BS and any Authorizing Station.

For break-before-make HO, the Serving BS shall terminate MSS services, all connections belonging to the MSS and the context associated with them (i.e. information in queues, PDUs, ARQ state-machine, counters, timers, etc…), at a time no sooner than 200ms after receipt of a MOB_HO-IND MAC message with the Serving BS release option (HO_IND_type=00). For make-before-break HO, the Serving BS shall terminate MSS services the sooner of 1) 200ms after MOB_HO-IND Serving BS release notification or 2) after receipt of a backbone message acknowledging MSS network re-entry at another BS. Up until the time of termination of MSS services...
on a Serving BS, an MSS may return to Normal Operations with the Serving BS through the initiation of any UL traffic and the cancellation of the pending HO prior to timer expiration.

Regardless of transmittal of a backbone message or its acknowledgment during HO, Target BS becomes the new Serving BS for all purposes upon MSS entering Normal Operations with the Target BS.