Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Normal HO Parameters**
Date Submitted	**2005-03-10**
Source(s)	Jaesun Cha, Kwangjae Lim, and Chulsik Yoon jscha@etri.re.kr ETRI 161, Gajeong-dong,Yuseong-Gu, Daejeon, 305-350, Korea
Re:	Contribution on comments to IEEE P802.16e/D6
Abstract	In this contribution, we propose to add some parameters for the performance enhancement of normal HO.
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 text 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 (Version 1.0) <http://ieee802.org/16/ipr/patents/policy.html>, including the statement "IEEE standards may include the known use of patent(s), including patent applications, if there is technical justification in the opinion of the standards-developing committee and provided the IEEE receives assurance from the patent holder that it will license applicants under reasonable terms and conditions for the purpose of implementing 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:r.b.marks@ieee.org> as early as possible, in written or electronic form, of any patents (granted or under application) that may cover technology that is under consideration by or has been approved by IEEE 802.16. The Chair will disclose this notification via the IEEE 802.16 web site <http://ieee802.org/16/ipr/patents/notices>.

Normal HO Parameters

Jaesun Cha, Kwangjae Lim, and Chulsik Yoon

ETRI

1. Problem Statement

A hand-over process can be originated either at an MS or at the serving BS. The HO may be initiated in a number of situations such as a signal to interference ratio, loading conditions, and so on. However, the current standard does not recommend any methodology for the HO decision and initiation at the MS. Although it is not necessary to recommend some methods including a measurement method on the CINRs of neighbor BSs, it is very useful and practical to suggest MSs a guideline about desirable HO decision and initiation criteria on the BS CINRs because of the following reasons:

- The number of possible target BSs in MOB_MSHO-REQ message can be restricted so that overhead in backbone communications can be decreased.
- Unnecessary HO trials can be decreased so that radio resources can be economized and ping-pong situation may be avoided.
- Although the final decision is made by MS, the system may enhance the overall system performance by providing a guideline based on HO rate and dropping rate.
- That every BS uses different criteria means they defines a logical assignment of handoff priorities or preferences

For normal HHO, a generally recommended method for deciding possible target BSs is:
- BS broadcasts two parameters; a hysteresis margin and a time-to-trigger duration.
- MS includes a BS into the set of possible target BSs, when the CINR of the BS is larger than the sum of the CINR of the current serving BS and the hysteresis margin for the time-to-trigger duration.

2. Proposed Text Changes

[*Modify the contents of Table 358a as indicated:*]

Name	Type (1 byte)	Length	Value (variable length)	PHY scope
Hysteresis margin	51	1	Hysteresis margin is used by the MSS to include a neighbor BS to a list of possible target BSs. When the CINR of a neighbor BS is larger than the sum of the CINR of the current serving BS and the hysteresis margin for the time-to-trigger duration, then the neighbor BS is included in the list of possible target BSs in MOB_MSHO-REQ. It is the unit of dB and applicable for only HHO.	All
Time-to-Trigger duration	52	1	Time-to-Trigger duration is the time duration for MS decides to select a neighbor BS as a possible target BS. It is the unit of msec and applicable only for HHO.	All