**MS Network Entry for non-transparent Relay Station**

**IEEE 802.16 Presentation Submission Template (Rev. 8.3)**

**Document Number:**
- IEEE S802.16j-06/133

**Date Submitted:**
- 2006-11-07

**Source:**
- Masato Okuda, Antoni Oleszczuk, Mike Hart
  - Voice: +81-44-754-2811
  - Fujitsu
  - okuda@jp.fujitsu.com

- Chie Ming Chou, Tzu-Ming Lin, Wern-Ho Sheen,
  - chieming@itri.org.tw
- Fang-Ching Ren, Jen-Shun Yang, I-Kang Fu,
- Ching-Tang Hsieh
  - Industrial Technology Research Institute (ITRI)/
  - National Chiao Tung University (NCTU), Taiwan

**Venue:**
- IEEE 802.16 Session #46, Dallas, USA

**Base Document:**
- IEEE C802.16j-06/133r2

**Purpose:**
- For discussion and approval of inclusion of the proposed text into the P802.16j baseline document.

**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.

**IEEE 802.16 Patent Policy:**
- 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>.
Introduction

• This contribution proposes MS network entry procedures for transparent RS systems.
  – In centralized scheduling model, the MR-BS need to know information of ranging code received by RS in order to create CDMA_Alloc-IE.
  – In distributed scheduling model, the RS has no need to forward ranging code information to the MR-BS.

• Related sections in the standard:
  – 6.3.9.16 Support for network entry and initialization in relay mode
Network Entry Example (Centralized)

- **MR-BS**
  - RS UL-MAP
  - RNG-REQ containing status (success), code attributes
  - RNG-RSP
  - RS UL-MAP (CDMA_Alloc-IE)
  - RNG-REQ
  - RNG-RSP containing MSID, Basic/primary CID

- **RS**
  - UL-MAP
  - CDMA Ranging Code
  - RNG-RSP
  - UL-MAP (CDMA_Alloc-IE)
  - RNG-REQ (MSID)
  - RNG-RSP

- **MS**
  - SBC-REQ
  - SBC-RSP
  - SBC-REQ
  - SBC-RSP

Transmitted with RS Basic CID
Transmitted with MS Basic CID
Network Entry Example (Distributed)

check resource availability to accept a new MS entry.

Transmitted with RS Basic CID

Transmitted with MS Basic CID

UL-MAP

CDMA Ranging Code

RNG-REQ

RNG-RSP

RNG-REQ

RNG-RSP

RNG-REQ (MSID)

RNG-RSP

UL-MAP (CDMA Alloc-IE)

SBC-REQ

SBC-RSP

SBC-REQ

SBC-RSP

successfully received

containing MSID, Basic/primary CID

RNG-RSP (success)
Advantages

• To simplify RS function by locating MS management and connection management at the MR-BS.

• To minimize relay link traffic load by performing ranging adjustment between RS and MS in distributed scheduling model.

• To minimize new definition or changes by using the existing message with new TLVs.