MS Periodic Ranging with Non-transparent RS

IEEE 802.16 Presentation Submission Template (Rev. 8.3)

Document Number:
IEEE S802.16j-07/059
Date Submitted: 2007-01-16
Source:
Kanchei (Ken) Loa, Yi-Hsueh Tsai, Chih-Chiang Hsieh, Yung-Ting Lee, Hua-Chiang Yin, Shiann-Tsong Sheu, Frank C.D. Tsai, Youn-Tai Lee, Heng-Iang Hsu
Institute for Information Industry
8F., No. 218, Sec. 2, Dunhua S. Rd., Taipei City, Taiwan.
Hang Zhang, Peiying Zhu, Mo-Han Fong, Wen Tong,
David Steer, Gamini Senarath, Derek Yu, Mark Naden, G.Q. Wang
Nortel
3500 Carling Avenue, Ottawa, Ontario K2H 8E9
Yu Ge, Peng-Yong Kong, Chen-Khong Tham
21 Heng Mui Keng Terrace, Singapore 119613
[add co-authors here]

Venue:
IEEE 802.16 Session #47, London, UK

Base Document:

Purpose:
Propose the text regarding MS Periodic Ranging with Non-transparent RS.

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>.
Requirements on MS Periodic Ranging with Non-transparent RS

- The MS periodic ranging procedure with non-transparent RS should be designed for centralized scheduling scheme but allows RS-assisted scenarios under current security model defined in IEEE 802.16-2004/16e-2005

- There is no modification to legacy MS initial ranging procedure
Scenarios of MS Periodic Ranging with Non-transparent RS

- Two scenarios for MS Periodic Ranging are proposed based on RS capability and MR-BS policy
  - Conventional: RS transports CDMA code with associated measurement/adjustment results to MR-BS; MR-BS generates response message
  - RS-assisted: RS generates response message to the received CDMA code directly
Example of MS Periodic Ranging (Conventional)

- **MS**: Access-link
- **RS<sub>1</sub>**: Relay-link
- **MR-BS**: MR-BS

**Access-link**
- **UL-MAP**
- **MS CDMA PR Code**
- **RNG-RSP (Cont.)**

**Relay-link**
- **RLY-BST (MAPs)**
- **RLY_RC-REP** (code, ranging slot, power, time/freq. offset, status)
- **RLY-BST (RNG-RSP with Cont. Status)**
- **RLY_BST (RNG-RSP with Success Status)**

**MR-BS**
- **RLY_RC-REP (PRPara.)**
- **RLY-BST (RNG-RSP)**

**MS**
- **RLY_RC-REP (PRPara.)**
- **RLY_BST (RNG-RSP)**

**MS CDMA PR Code**
Example of MS Periodic Ranging
(RS-assisted)

Access-link

RS\textsubscript{1}

Relay-link

MR-BS

UL-MAP

MS CDMA PR Code

RNG-RSP (Cont.)

UL-MAP

MS CDMA PR Code

RNG-RSP (Success)

RLY-BST (MAPs)

RLY-BST (MAPs)

RS\textsubscript{1}

MR-BS

MS CDMA PR Code

RNG-RSP (Cont./Success)
Summary

- Propose the procedures of MS periodic ranging with non-transparent RS under centralized scheduling scheme
- Define relaying messages in the relay path for completing MS periodic ranging procedure with non-transparent RS