

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Zone-based Multicast Broadcast Service (MBS) with Cooperative Relays	
Date Submitted	2007-11-07	
Source(s)	Sang G. Kim, Li-Hsiang Sun, Shu Wang, Ki-Dong Lee LG Mobile Research U.S.A.* San Diego, CA 92131	Voice: 858-635-5294 E-mail:sanggook@lge.com * http://standards.ieee.org/faqs/affiliationFAQ.html
Re:	[Cite the specific document number of the appropriate Call for Contributions, the ballot number, etc. Contributions that are not responsive to this section of the template, may be refused or assigned a low priority for review.]	
Abstract	Integrating the relay station (RS) into existing cellular architecture gives benefits such as coverage and capacity enhancements. Coverage enhancement by providing improved signal reception quality to the users in the cell edge is especially important in MBS. We propose the methods for MBS transmission with cooperative relays.	
Purpose	[Description of what <i>specific</i> action is requested of the 802.16 Working Group or subgroup.]	
Notice	<i>This document does not represent the agreed views of the IEEE 802.16 Working Group or any of its subgroups. It represents only the views of the participants listed in the "Source(s)" field above. It is offered as a basis for discussion. It is not binding on the contributor(s), who reserve(s) the right to add, amend or withdraw material contained herein.</i>	
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	The contributor is familiar with the IEEE-SA Patent Policy and Procedures: < http://standards.ieee.org/guides/bylaws/sect6-7.html#6 > and < http://standards.ieee.org/guides/opman/sect6.html#6.3 >. Further information is located at < http://standards.ieee.org/board/pat/pat-material.html > and < http://standards.ieee.org/board/pat >.	

Zone-based Multicast Broadcast Service (MBS) with Cooperative Relays

Sang G. Kim
LG Electronics

Suggested ToC Topic for IEEE 802.16m SDD: Enhancements on Multicast and Broadcast Services (MBS)

Title: Zone-based MBS with Cooperative Relays

Description: Current cellular communications are based on single hop transmission from the base station (BS) to the multiple mobile stations for MBS transmission. Integrating the relay station (RS) into existing cellular architecture gives benefits such as coverage and capacity enhancements. Coverage enhancement by providing improved signal reception quality to the users in the cell edge is especially important in MBS because the performance of MBS system is normally described in terms of the coverage area that supports a certain amount of data with predefined performance metrics, e.g., bit error rate (BER). The RS can simply repeat the signal from the BS or can introduce redundancy smartly by coordinating with other RS or BS. In zone-based MBS, the cells at the zone edge suffer from interference from neighboring zones due to different content transmissions. We propose transmission methods for zone-based MBS using cooperative relaying concept. Figure 1 and Figure 2 show the concept of MBS with cooperative relay and the timing relationship between BS and RS transmissions assuming TDD operation, respectively.

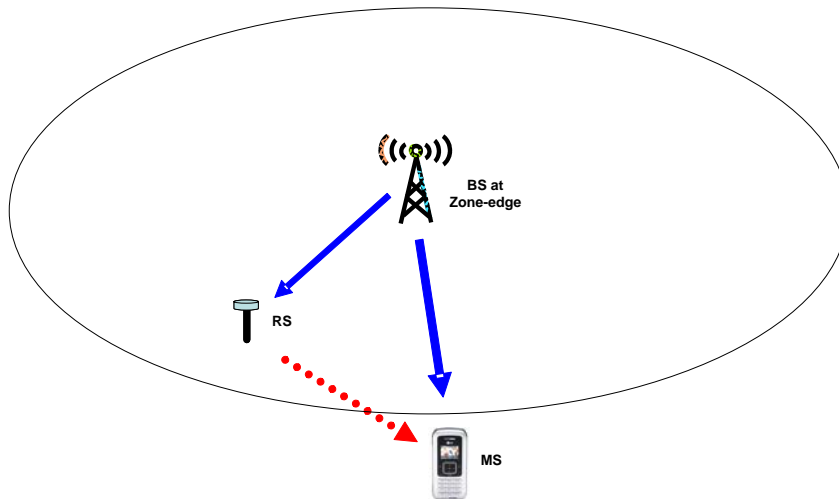


Figure 1: Concept of Zone-based MBS with a Relay

Related Area(s) in SRD: Section 6.7: Enhanced multicast broadcast service

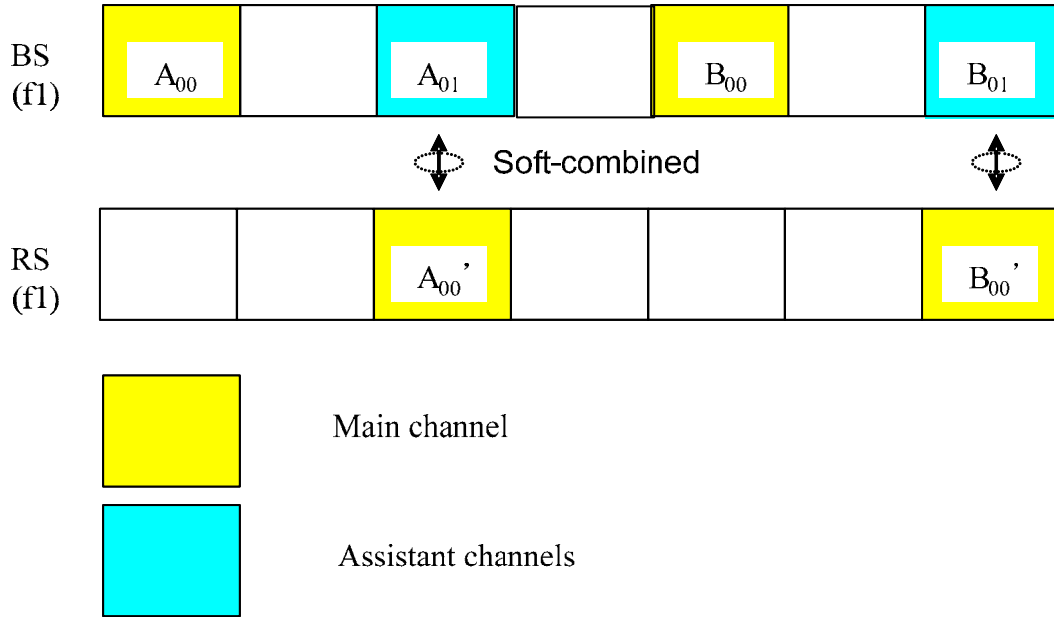


Figure 2: Exemplary Timing Relationship between BS and RS Transmissions