Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	Text proposal for deployments of cooperative small base-stations in hierarchical networks
Date Submitted	**2012-01-13**
Source(s)	Seungbae Kim, E-mail: sbkim@itc.kaist.ac.kr, Ju Yong Lee, jylee@itc.kaist.ac.kr, Dong-Ho Cho dhcho@kaist.ac.kr KAIST IT Convergence Seong Hwan Kim, shkim@cnr.kaist.ac.kr, Eun Mi Chu, emchu@ cnr.kaist.ac.kr, Inkyu Bang, ikbang@ cnr.kaist.ac.kr, Dan Keun Sung dksung@ee.kaist.ac.kr Department of Electrical Engineering, KAIST Hyunjeong Kang hyunjeong.kang@samsumg.com Jaeweon Cho jaeweon.cho@samsung.com Samsung Electronics
Re:	Call for contributions for the 802.16 PPC
Abstract	It proposes deployments of cooperative small base-stations in Hierarchical Networks Study Report.
Purpose	For discussion
Notice	*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.
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>.

TEXT PROPOSAL FOR DEPLOYMENTS OF COOPERATIVE SMALL BASE-STATIONS IN HIERARCHICAL NETWORKS

Seungbae Kim, Ju Yong Lee, Dong-Ho Cho

KAIST IT Convergence

Seong Hwan Kim, Eun Mi Chu, Inkyu Bang, Dan Keun Sung

Department of Electrical Engineering, KAIST

Hyunjeong Kang, Jaeweon Cho

Samsung Electronics

Introduction

This contribution suggests deployments of cooperative small base-stations to achieve higher system capacity and solve interference problem in C802.16ppc-11/0004r2. The proposed text is described in cooperative small BSs deployments section, and a new figure is added accordingly.

Proposed text change

Adopt the following remedies in IEEE 802.16ppc-11/0004r2.

--------------------------------- The start of text ---

[Remedy #1: Add the texts as indicated.]

2   Usage Models

…

2.1.1.1.2 Access Rules in Multi-Tier Deployments

…

2.1.1.1.3 Deployments of Cooperative Small BSs

We can achieve higher system capacity by increasing the number of small BSs. However, it may cause serious interference problem if small BSs do not cooperate with other small BSs. One solution of the interference problem can be a cooperative cluster of small BSs. To form a cluster of small BSs, the system may keep candidate group lists based on physical information of each small BS (e.g. location), which is called a physical cluster. Each user may be served in a subset of a physical cluster, which is called a logical cluster. In order to determine logical clusters, several factors such as user's SINR(signal-to-interference and noise ratio), user mobility, their requested service rates, or nearby other BSs' interference, should be considered. Also, a cluster of cooperative small BSs may be dynamically reconfigured by adding or subtracting small BSs.
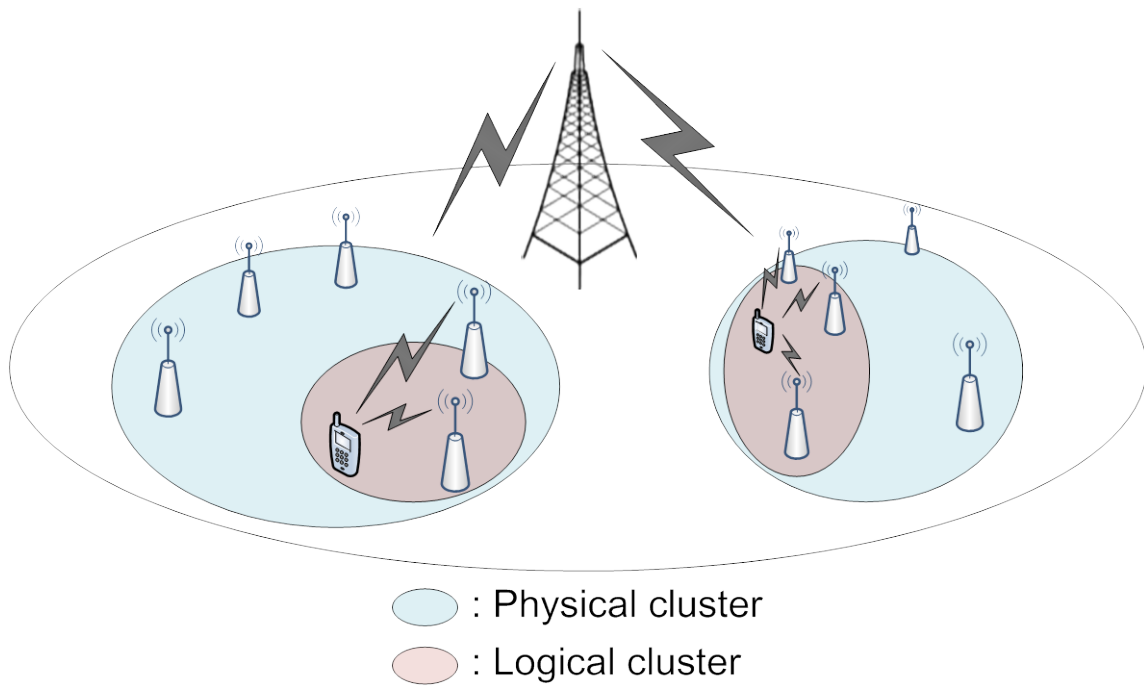
: Physical cluster

: Logical cluster

Figure: Deployments of cooperative physical and logical clusters of small base-stations

...
---------------------------------- The end of text --