

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	CR on SDD Chapter 15: Multi-carrier Operation for Femtocell	
Date Submitted	2009-4-24	
Source(s)	Motoki Morita, Nader Zein, Linghang Fan, Tetsu Ikeda NEC	E-mail: m-morita@bx.jp.nec.com
Re:	Category: SDD comments / Area: Chapter 15 (Femtocell) “Comments on SDD 15 Femtocell”	
Abstract	This contribution proposes a scheme allowing multi-carrier operation for femtocell.	
Purpose	To be discussed and adopted by TGm for use in the IEEE 802.16m SDD	
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 >.	

Multi-carrier Operation for Femtocell

Motoki Morita, Nader Zein, Linghang Fan, Tetsu Ikeda
NEC

Introduction

This contribution proposes a scheme that allows multi-carrier operation for femtocell.

Multi-carrier Operation for Femtocell

Femtocell BS may support multi-carrier operation like Macrocell BS. In this way, Femtocell BS can assign a secondary carrier to a MS in addition to a primary carrier. Femtocell BS should consider interference mitigation in assigning the secondary carrier.

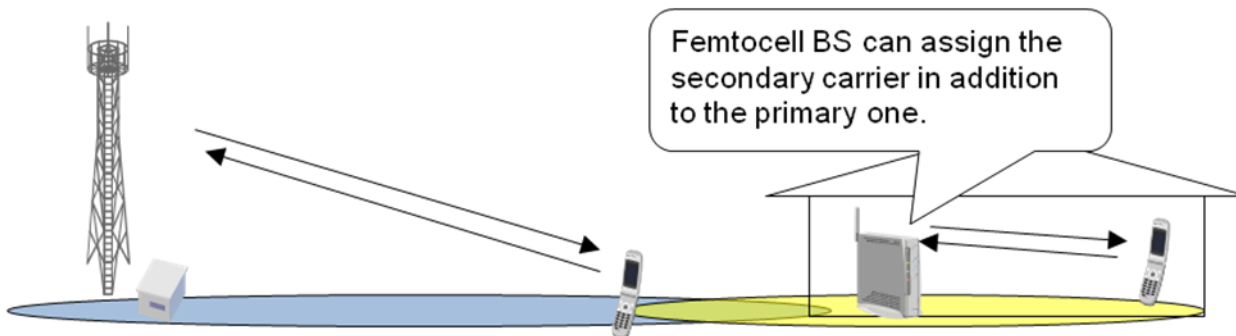


Figure 1 Illustration of the concept of Multi-carrier operation for femtocell

A femtocell BS shall monitor some carriers before cell establishment and select a (primary) carrier which has minimum impact on macro MSs. Then the macro MSs will receive little interference from that femtocell even if they go close to the femtocell.

In case of multi-carrier operation for femtocell BS, the highest priority should be avoiding increase of interference on macro cell rather than adding the secondary carrier.

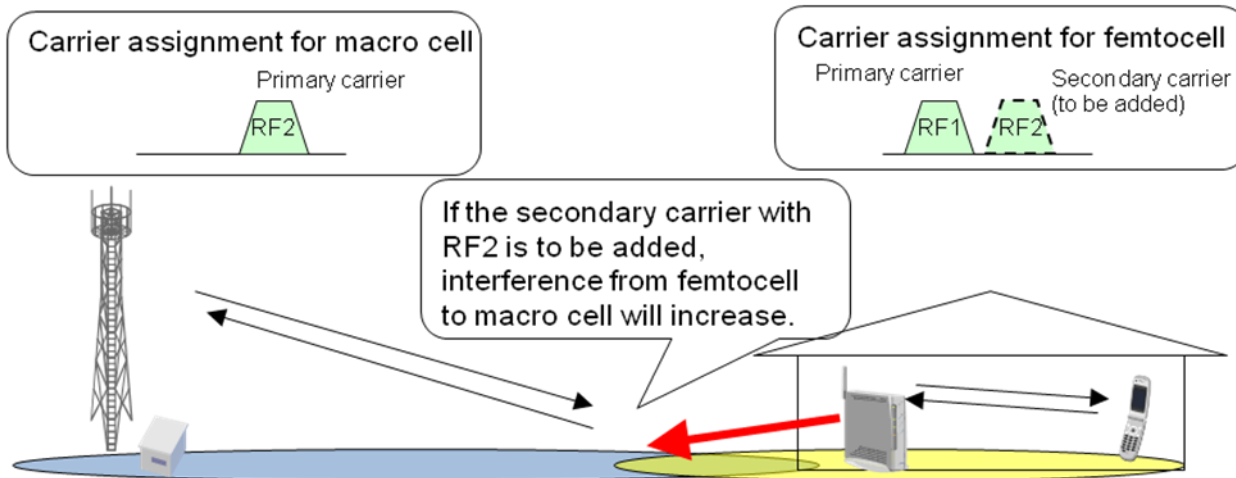


Figure 2 Illustration of the scenario that Interference increase in multi-carrier operation for Femtocell

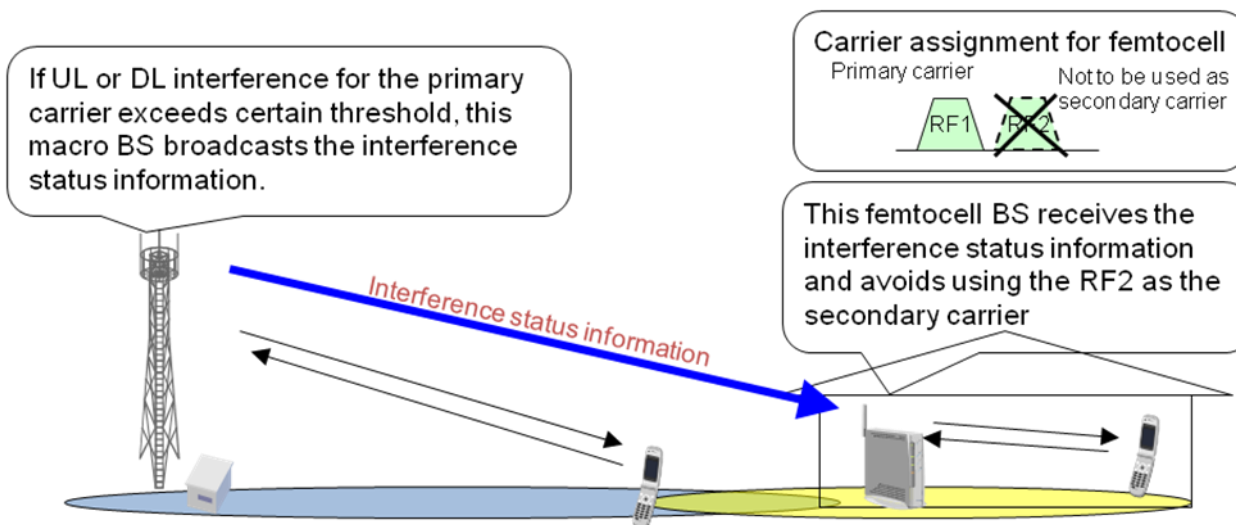


Figure 3 Proposal for interference mitigation in assigning the secondary carrier

The proposed procedure for multi-carrier operation for femtocell is as follows:

1. Macro BSs measure UL or DL interference for each carrier.
2. If the interference for a carrier exceeds certain threshold, the macro BS broadcasts interference status information which prohibits the use of this carrier as the secondary carrier to femtocell BSs overlapping the macro cell via SFH or backhaul.
3. The femtocell BSs receive the reported information and avoid using this carrier which are indicated by the macro BS as the secondary carrier.

Insert the following text into the “Support for Femto” clause (IEEE 802.16m-08/003r8):

----- Proposed text -----

17. Support for Femto

17.X Multi-carrier Operation

Multi-carrier operation may be supported by Femtocell. All operational principles for multi-carrier operation apply to a system involving femtocell unless explicitly stated otherwise. Femtocell ABS may select carriers to assign them to an AMS as secondary carriers and the section of carriers is made based on interference management schemes described in 15.8

----- End of Proposed Text-----