

Project	<b>IEEE 802.16 Broadband Wireless Access Working Group</b> < <a href="http://ieee802.org/16">http://ieee802.org/16</a> >
Title	<b>CR on SDD Section 17: Multi-carrier Operation for Femtocell</b>
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Re:	Change request to Project 802.16m System Description Document (SDD) (IEEE 802.16m-08/003r7)
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
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## Multi-carrier Operation for Femtocell

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### 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.

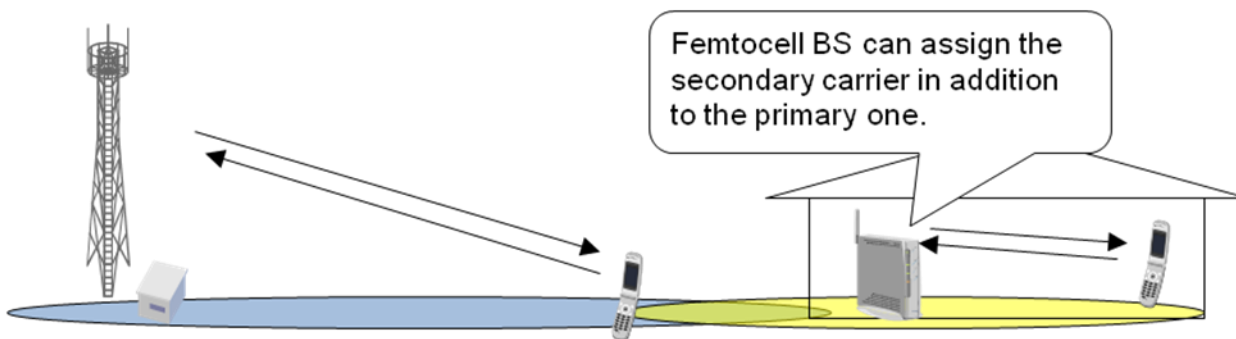


Figure 1 Illustration of the concept of Multi-carrier operation for femtocell

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.

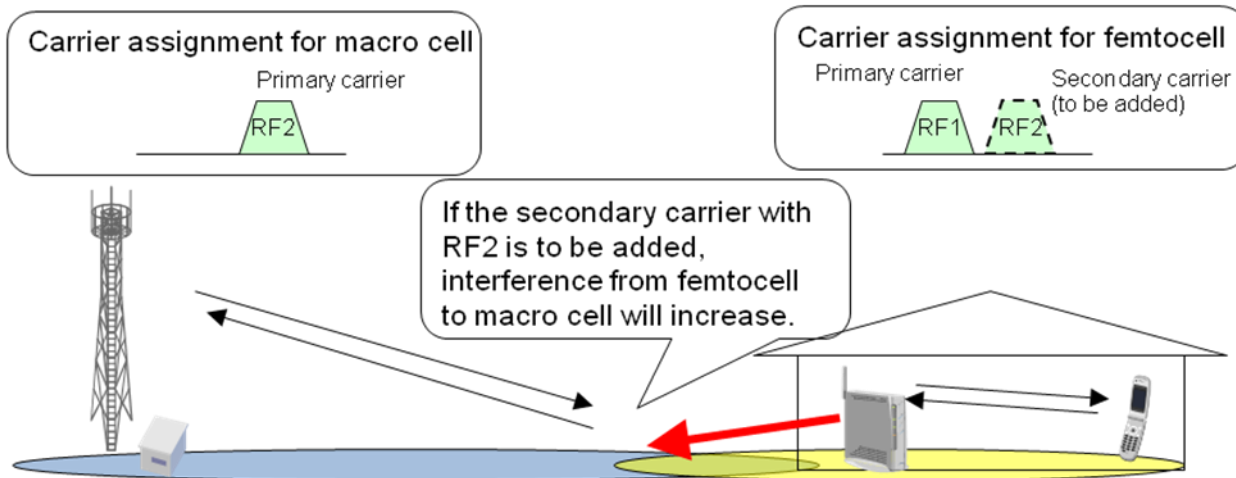


Figure 2 Illustration of the scenario that Interference increase in multi-carrier operation for Femtocell

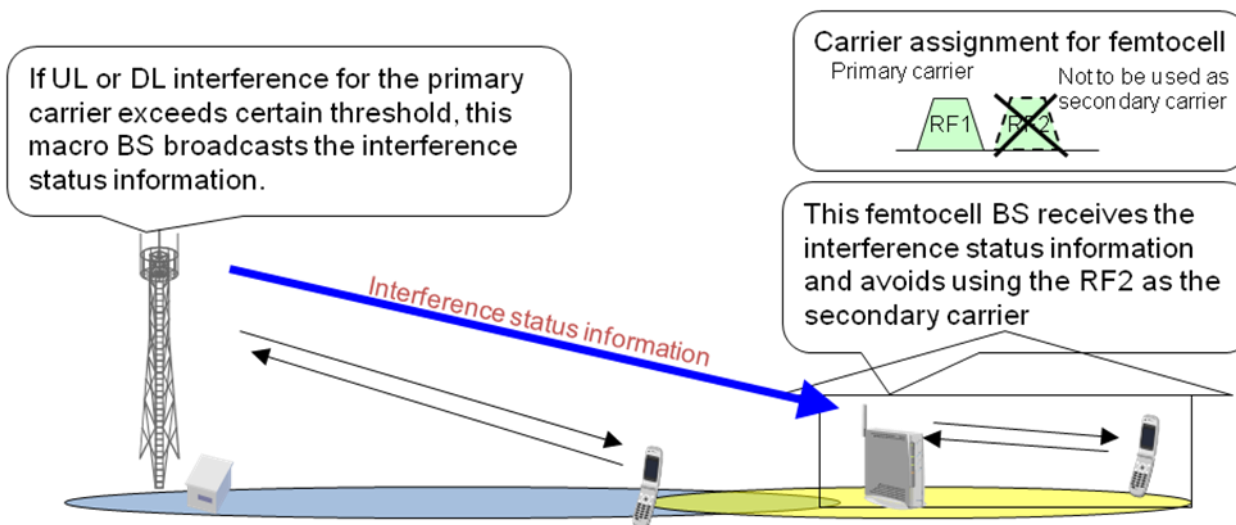


Figure 3 Proposal for interference mitigation in assigning the secondary carrier

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-08/003r7):*

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

## **17. Support for Femto**

### **17.X Multi-carrier Operation**

Multi-carrier operation may be supported by Femtocell. Femtocell BS can assign a secondary carrier to MS in addition to a primary carrier.

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. In order to avoid increase of interference on the macro cell, the macro BS could block the use of the secondary carrier(s) by Femtocell BS. Decision to block secondary carrier from being used by Femtocell BS may consider the interference conditions in the cell for each carrier. That is, if the interference in a cell for a carrier on the UL or DL exceeds certain threshold then the macro BS broadcasts the interference status information that prohibits the use of this carrier by Femtocell BSs overlapping the macro cell via SFH or backhaul. The Femtocell BSs receive the information and avoid using this carrier which are indicated by the macro BS as the secondary carrier.

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