

Project	<b>IEEE 802.16 Broadband Wireless Access Working Group</b>		
Title	<b>Identification of Femtocell and its Operation Mode in IEEE 802.16m</b>		
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Re:	TGm SDD: Femtocells; in response to the TGm Call for Contributions and Comments 802.16m-08/040 for Session 58		
Abstract	This contribution is a high level proposal for identification of femtocell and its operation mode in IEEE 802.16m		
Purpose	To discuss and adopt the proposed text in the next revision of the 802.16m SDD.		
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# Identification of Femtocell and its Operation Mode in IEEE 802.16m

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## 1. Introduction

This contribution addresses identification issues for femtocell and its operation modes. Femtocell are small WiMAX BS which are installed mainly for indoor coverage. It is therefore required for WiMAX MSs to distinguish between Macrocell and Femtocell coverage. Access to Femtocell could be configured as either open or closed mode. In open mode, all MSs can use the femtocell services; in closed mode, only provisioned MSs will be allowed to use any service offered by a femtocell. This contribution proposes a method allowing the MSs to detect the type of WiMAX BS and its operation mode.

## 2. Discussion

WiMAX Femtocells will play an important part for extending indoor coverage and reducing the load on the macrocell.

Femtocells are like mini Base Stations.

It is important for the WiMAX MSs to distinguish between macrocell and femtocell coverage, which is not covered by the current standard.

It is crucial for the WiMAX MSs to detect a femtocell's operation mode (Open/Closed modes), which is also not covered by the current standard.

## 3. Identification of Femtocell and Operation mode

We propose a method which is based on the existing BSID broadcasted in DL-MAP message to identify a Femtocell and its operation mode (Open/Closed).

In 802.16Rev2/D7, the Base Station ID is a 48-bit long field identifying the BS. The most significant 24 bits of the Base Station ID shall be used as the Operator ID, and the least significant 24 bits of the Base Station ID shall be programmable.

We propose to use one of the Least Significant Bit (LSB) of the Base Station ID to represent whether the BSID is the macrocell BSID or femtocell BSID.

- 0, Representing Macrocell
- 1, Representing Femtocell

We also propose using one of the LSB of the Base Station ID to represent whether the operation mode of a femtocell is

- 0, Representing Open Mode
- 1, Representing Closed Mode

*Insert the following text into the “Support for Femtocell” clause (IEEE 802.16m-08/003r5):*

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

## **17 Support for Femtocell**

### **17.x Identification of Femtocell and Operation modes**

Femtocell BS shall broadcast Femtocell ID and operation mode information to MS.

MS should be able to distinguish the type of the BS and identify the operation mode using the BSID.

In Femtocell, there are 2 modes of operation: open and closed operation mode.

In open mode, all MSs use the femtocell services; in closed mode, only provisioned MSs are allowed to access the services offered by the femtocell.