Project	**IEEE 802.16 Broadband Wireless Access Working Group**		
Title	**Power Saving Mode for Femtocell BS**		
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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 a power saving mode for femtocell BS		
Purpose	To discuss and adopt the proposed text in the next revision of the 802.16m SDD.		
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Power Saving Mode for Femtocell Base Stations

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1. Introduction

This contribution proposes a power saving mode for femtocell base stations.The power saving mode reduces energy consumption, interference and emission of femtocell base stations.We describe the transition to and from the power saving mode as well as the operational principles.

2. Discussion

Femtocell base stations are devices which are expected to be installed by the customers themselves in their premises. This means that aspects like energy consumption and electromagnetic emission are important factors for the acceptance of IEEE 802.16m femtocell products. In the SDD, power saving is currently defined for MS only.

It is essential that during a femtocell base station is in power saving mode connected MS do not lose synchronization to the femtocell base station in order to avoid time-consuming network re-entries. Furthermore, transitions from and to power saving mode must consider the states of connected MS as well as the possibility that unconnected MSs enter the coverage area of the femtocell base station.

3. Power Saving Mode

The Power saving mode for femtocell BS is a state where the femtocell BS stops transmitting on the air interface during the length of a power saving window. The power saving window alternates with a number of frames which are used for synchronization with connected MSs.

The femtocell BS may enter the power saving mode if either no MS is connected to the femtocell BS or all connected MSs are in sleep mode. The femtocell BS may initiate hand-overs of connected MSs to macrocell BSs. The power saving window and the sleep and listening windows of the femtocell BS and connected MSs shall be congruent.
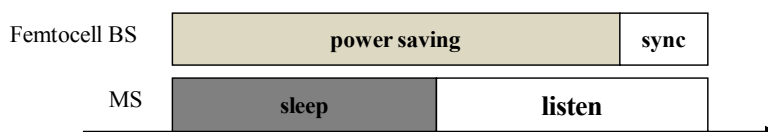
Transition from power saving mode to active mode may be initiated by connected or unconnected MSs, either by explicit signaling from connected MSs, or by passive measurement in case of unconnected MSs.

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

-- Proposed text --

17 Support for Femtocell

17.X Power Saving Mode for Femtocell Base Stations

Femtocell BSs shall support power saving mode. In the power saving mode, a power saving window should alternate with a number of frames which are used for synchronization with connected MSs. During a power-saving window, the femtocell BS shall not transmit on the air interface.
A femtocell BS may enter power saving mode if all connected MSs are in sleep mode, or if no MS is connected. Upon entering power saving mode, a femtocell BS should ensure that its   power saving window and the sleep and listening windows of the femtocell BS and connected MSs are congruent.

Transition from power saving mode to active mode may be initiated by connected or unconnected MSs.