Project	**IEEE 802.16 Broadband Wireless Access Working Group**		
Title	**WiMAX Femtocell Base Station Network Entry**		
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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 WiMAX femtocell base station network entry		
Purpose	To discuss and adopt the proposed text in the next revision of the 802.16m SDD.		
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WiMAX Femtocell Base Station Network Entry

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NEC

1. Introduction

This contribution addresses WiMAX femtocell base station network entry procedure. We propose a method, which extends the standard network entry algorithm in the case that a femtocell BS joins the network.

2. Discussion

Femtocell is a wireless technology concept that can improve indoor coverage and capacity. A WiMAX femtocell BS has similar functionalities as a WiMAX macrocell BS. However, femtocell BSs need to address the following problems:

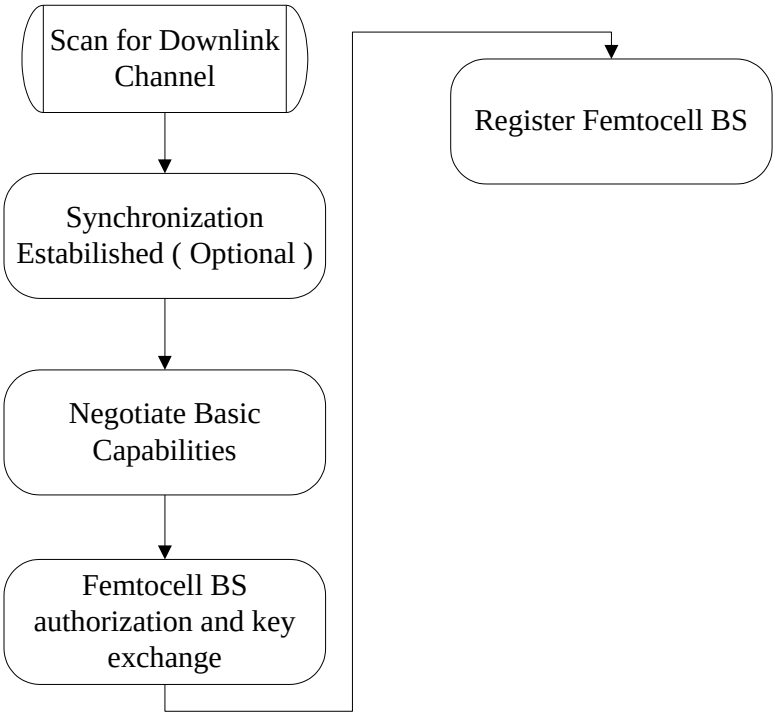
1) How to avoid/minimize the interference to co-located cellular networks, such as WiMAX macro-cells, relay stations, and other femtocell BS;
2) How to make sure that the WiMAX network is aware of the new joining Femtocell BSs;

The network entry procedure for WiMAX femtocell BS is not defined in the current standard.

3. General Network Entry Procedure

As shown in following figure, we propose a network entry procedure for the WiMAX femtocell BS.

1. A WiMAX femtocell BS performs downlink scan to detect neighboring BS/RS/Femtocell BSs.
2. The WiMAX femocell BS needs to achieve both radio and network layer synchronization.
3. After synchronization, the WiMAX femtocell BS negotiates with the high layer network controller the capabilities on each side.
4. After capability negotiation, the WiMAX femtocell BS need to be authenticated by the high layer network controller, and then performs the security key exchange to enable further traffic.
5. Then the WiMAXfemtocell BS is registered to the network.



The proposed scheme can reduce interference to neighbouring cellular systems, and would allow neighbouring WiMAX Network to be aware of a new Femtocell BS when it is deployed and commissioned.

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

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

17 Support for Femtocell

17.x WiMAX Femtocell BS Network Entry

Network entry procedure shall be supported for a WiMAX femtocell BS.
The Femtocell BS shall perform the downlink scan to detect the neighbouring BS/RS/Femtocell BSs.
The femocell BS shall achieve both the radio and network layer synchronization.
The femtocell BS shall negotiate with the high layer network controller on the capabilities.
The femtocell BS shall be authenticated by the high layer network controller,