

Project	<b>IEEE 802.16 Broadband Wireless Access Working Group</b> < <a href="http://ieee802.org/16">http://ieee802.org/16</a> >	
Title	<b>Protocol Structure to Support Cooperative Transmission</b>	
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Re:	IEEE 802.16m-07/040– Call for Contribution on IEEE 802.16m System Description Document	
Abstract	This contribution proposes the protocol structure that supports cooperative transmission in IEEE 802.16m	
Purpose	To incorporate the proposed protocol structure into the IEEE 802.16m System Description Document	
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# Protocol Structure to Support Cooperative Transmission

Mo-Han Fong, Hang Zhang, Sophie Vrzić, Kelvin Au, Robert Novak; Steve Yuan, Dongsheng Yu, Peiyong Zhu; Wen Tong; Jianglei Ma, Sang-Youb Kim

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## 1. Introduction

Cooperative transmission across multiple network nodes to the same MS can provide macro-diversity gain, interference mitigation and spatial multiplexing gain which can lead to improved capacity and coverage. Cooperative transmission can be applied to both BS and RS depending on the user's location within the network and the type of network deployment. Cooperative relaying is one form of cooperative transmission.

This contribution proposes the cooperative transmission function to be added to the overall IEEE 802.16m protocol structure.

## 2. IEEE 802.16m Protocol Structure with Cooperative Transmission Function

Figure 1 shows the addition of the Cooperative Transmission Management functional block on the upper MAC and the interaction of the Cooperative Transmission Management function with other control plane functions for the processing of user data.

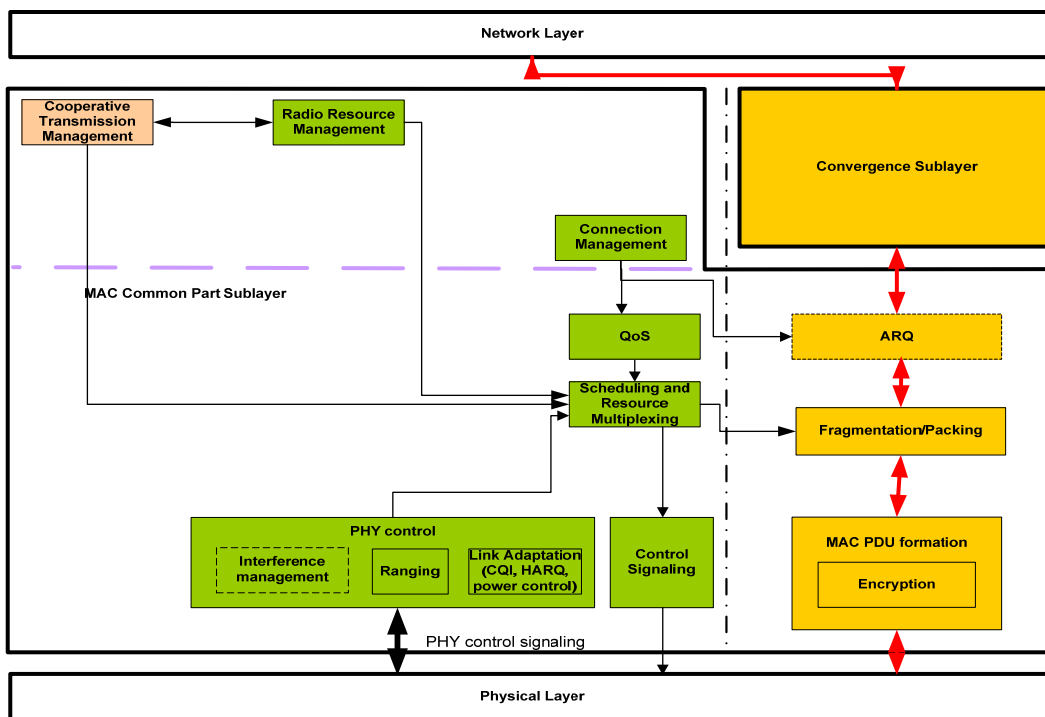


Figure 1 Interaction between Cooperative Transmission Management Function with Other Control Plane Functions for the Processing of User Data

Figure 2 shows the processing of MAC signaling associated with cooperative transmission operation.

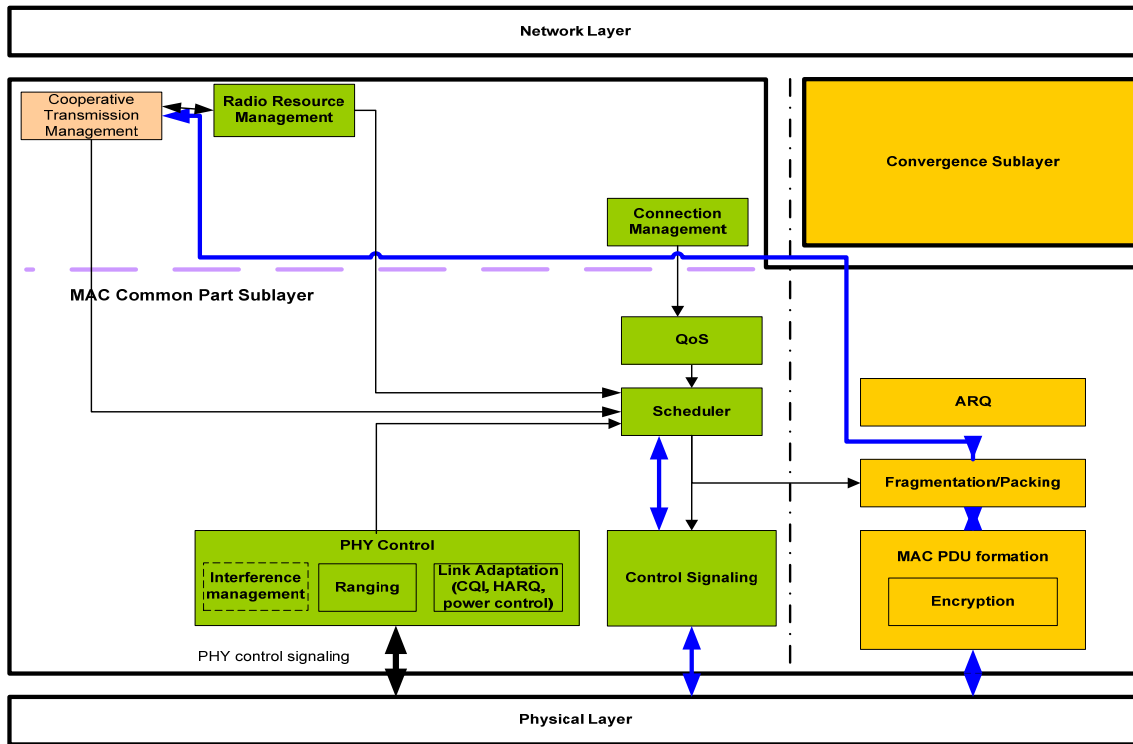


Figure 2 Interaction between Cooperative Transmission Management Function with Other Control Plane Functions for the Processing of MAC Signaling Flow Associated with Cooperative Transmission

### 3. Conclusion and Recommendation

Our recommendation is to include the cooperative transmission function into the IEEE 802.16m protocol structure as described in Section 2.