Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**New MAC messages specification in Synchronized IEEE 802.16h Ad Hoc Networks**
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Re:	Call for Comments and Contribution, "IEEE 802.16's License-Exempt (LE) Task Group", 2006-02 Item 8.
Abstract	This document specifies two new MAC messages and delete two previous messages to the draft IEEE802.16h working document. The sections and paragraphs given below refer to those of the subject working draft document IEEE802.16h-06/004.
Purpose	This document specifies two new MAC messages to the draft IEEE802.16h working document dealing with the use of CTS in a synchronized network environment. The document IEEE802.16h-06_003 details a synchronized CTS system and describes how these two message are used to coordinate co-channel networks, resolve entry of new networks and undertake interference control between networks in a co-existing community as well as new interference, some of which may not be due to IEEE 802.16h systems. This document is a continuation of documents IEEE802.16h-06_003 and IEEE 802..16h-06_010r1.
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New MAC message specification for Synchronized IEEE 802.16h Ad Hoc Networks

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6.3.2.3.44. Base Station Descriptor (BSD) message

[*add it as a new section 6.3.2.3.44 in IEEE 802.16h-2006*]
[delete section 15.6.6.2.2 in IEEE 802.16h-2006]

The base station descriptor (BSD) message specifies the base station identification information. This message is sent only in the CTS slot claimed by the Base Station.

The length of BSD message is an integral number of bytes. The BSD messages are generated and broadcast within the downlink portion of a CTS every minute by a base station.

The BSD has two purposes. First, it contains pertinent information related to the base station, allowing foreign (interfered-with) Subscriber Stations to identify it as interference. Secondly, it allows the differentiation of a CTS frame from a non-CTS frame. When it is received, SS associated with the BS will recognize the frame containing the BSD message as a CTS frame, and will transmit SSURF messages in response to it. Note that SSURF will use the uplink bandwidth granted only in the CTS frame, and is not transmitted in the data link.

A BSD message shall includes the following parameters:

IP address information
The IP address information and base station ID contained in the DL_MAP message are uniquely identifying a base station. The encoding of this field is given below in TLV format.

BS EIRP
The BS EIRP field is included this message to help determine the interference content. It is signed in units of 1 dBm.

RF Antenna Sector ID
The RF antenna sector ID is used to identify the RF antenna in a base station if multiple RF antenna Are used for RF reuse purpose.

Table 1. BSD message format

Syntax	Size	Notes
BSD_Message_Format ( ) {		
Management Message Type =50	8 bits	
BS EIRP	16 bits	
BS RF antenna sector ID	8 bits	1-255 for RF reuse BS 0 reserved for no RF reuse BS
BS IP_Address_IE( )	Variable	TLV specific
}		

Table 2. IP_Address_IE Encoding

Name	Type (1 byte)	Length (bytes)	Value	Phy Scope
BS IPv4 Address	1	4	Base station IP address if IPv4 supported.	All
BS IPv6 Address	2	16	Base station IP address if IPv6 is supported.	All

There can be one and only one information element in an IP_Addree_IE.

6.3.2.3.45. Subscriber Station Uplink Radio Frequency (SSURF) message

[*add it as a new section 6.3.2.3.45 in IEEE 802.16h-2006*]

[delete section 15.6.6.2.3 in IEEE 802.16h-2006]

The Subscriber Station uplink radio frequency (SSURF) message is the complement to the BSD message except it is sent on the uplink during the CTS frame claimed by the Base Station to which the SS is registered.
This message if received by foreign (interfered-with) Base Stations, will identify the SS as being an interferer.

A SSURF message shall includes the following parameters to identify a subscriber station:

SS ID

Subscriber station identifier is a 48-bit long field identifying a subscriber station. This SS is the victim of co-channel interferences reported in this message.

Home BS ID

Home base station identifier is a 48-bit long field identifying the home BS. Home base station is a base station to which a subscriber station registered.

Home BS Antenna Sector ID

The RF antenna sector ID is used to identify the RF antenna in a base station if multiple RF antenna Are used for RF reuse purpose.

Home BS IP address information

The BS IP address information uniquely identifies a home base station. The encoding of this field is given above in TLV format.

Table 3. SSURF message format

Syntax	Size	Notes
SSURF_Message_Format ( ) {		
Management Message Type =51	8 bits	
SS ID	8 bits	
Home BS ID	48 bits	Home base station identifier
Home BS Antenna sector ID	8 bits	
Home BS IP_Address_IE( )	Variable	
}		

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