**DRAFT**

# 802.16h License-Exempt Task Group Meeting Minutes – Session #42

## IEEE 802.16 Session #42 – Denver, CO.

Chair: Mariana Goldhamer, Alvarion
Vice Chair: Barry Lewis, Redline Communications
Editor: Xuyong Wu, Huawei
Secretary (Acting): Paul Piggin, Cygnus Communications

## Tuesday 7 March 2006

First session: The meeting opened at 8:17am.
Hyatt Regency, Denver at Colorado Convention Center.
Denver, CO.

## 1. Opening of the LE TG Sessions

Planned sessions:
Tuesday 7 March: 8am-12noon, 1pm-6pm.
Wednesday 8 March: 8am-12noon, 1pm-6pm.
Thursday 9 March: 8am-12noon, 1pm-6pm.

## 2. Revision and approval of the LE TG Agenda

The agenda was discussed and finalized accordingly:

- Opening of the LE TG Sessions.
- Revision and approval of the LE TG Agenda.
- Approval of the Minutes for Session #41 – doc. IEEE 802.16h-06/003.
- 802.19 PAR discussion.
  - Barry Lewis.
- Contributions: IEEE C802.16h-06/011…020.
- Discussion of late contributions: IEEE C802.16h-06/021...025.
- Establishing presentation order:
  - Numbering order, if not requested otherwise.
- Presentation of the contributions.
- Tutorial in the use of the Commentary tool.
- Presentation of the 802.16h working document to the working group.
- Discuss the the proposed motion: Adopt the document IEEE 802.16h-06/004, modified as reflected by the 802.16h Session#42 minutes, as the first 802.16h draft and submit it for Working Group Letter Ballot.
- A.O.B.
- Close of the meeting.

***The agenda was approved by unanimous voice vote.***

## 3. Approval of the Minutes for Session #41 – IEEE 802.16h-06/003

The meeting reviewed the draft minutes from session #41 – IEEE 802.16h-06/003.

***The minutes for the last meeting at session #41 in New Delhi, were approved with no objection.***

## 4. 802.19 PAR – Recommended Practice on Methods for Assessing Coexistence of Wireless Networks; IEEE P802.19-05/0053r6

Also Five Criteria – Assessing Coexistence - IEEE P802.19-06/0002r1.

Barry Lewis presented the proposed PAR from IEEE P802.19 Coexistence TAG. This is a PAR for an 802.19 project on recommended practice for predicting coexistence between wireless networks.

Barry Lewis asked the meeting if there were any comments on the PAR. The group agreed that the scope was not specific for a good understanding to be gained of the intention of the project.

Barry Lewis, John Sydor, and Avi Freedman discussed a response in an ad hoc group.

Barry presented the Five Criteria document (IEEE P802.19-06/0002r1). Following discussion there was no comment on this document.

## 5. Input contributions discussion and approval

Discussion of the order and grouping of presentations.

10 contributions were uploaded by the deadline (C802.16h-06/011…020); with 5 late contributions (C802.16h-06/021...025).

***There was no objection to accepting the late contribution.***

The order of the presentation were discussed and concluded accordingly:

C802.16h-06/014,
C802.16h-06/017,
C802.16h-06/018,
C802.16h-06/019,
C802.16h-06/020,
C802.16h-06/021 (Late contribution),
C802.16h-06/022 (Late contribution),
C802.16h-06/023 (Late contribution),
C802.16h-06/024 (Late contribution),
C802.16h-06/013,
C802.16h-06/016,
C802.16h-06/025 (Late contribution),
C802.16h-06/011,
C802.16h-06/012,
C802.16h-06/015.

# 6. Contributions

The contributions were presented.

## Usage of the Coexistence Zone
*Mariana Goldhamer*
Alvarion

Contribution: IEEE C80216h-06_014r1

This contribution socialized within the meeting the use of the Coexistence Zone and how this zone can be used in the context of supporting the concept of the Master Sub-Frame. This presentation was for information only.

~ ~ ~ The meeting adjourned at 10:10am ~ ~ ~

~ ~ ~ The meeting reconvened at 10:45am ~ ~ ~

## Entering the community using coexistence proxy
Phillip Barber, Wu Xuyong, Pan Zhong, Zhao Quanbo.
*Huawei Technologies Co., Ltd.*

Contribution: IEEE C80216h-06_017r1

This contribution considered the security issues related to broadcasting the IP address of a BS. The contribution recognized the risk of attack via the internet and suggested the use of a coexistence proxy for improved security between BSs during coexistence negotiation and cooperation.

A decision on this contribution was deferred to allow offline discussion between the interested parties. A group resolution on the contribution was therefore deferred until Wednesday pm.

## Optimization of channel distribution
*Panzhong, Zhaoquanbo, Wuxuyong*
*Huawei Technologies Co., Ltd.*

Contribution: IEEE C80216h-06_018r1

The contribution recognized that different ACS (Adaptive Channel Selection) schemes present different network utilizations. Results from simulation were presented, together with suggested enhancement to the MAC messages included in the working document.

~ ~ ~ The meeting adjourned at 12:15pm ~ ~ ~

~ ~ ~ The meeting reconvened at 1:40pm ~ ~ ~

Continued discussion of IEEE C80216h-06_018r1. The group's decision for the contribution was accept-modify. The following modifications, for editorial instruction, were concluded:

- Retain messages numbered 37 and 38 as they provide the possibility of related approach.
- Rename *Primary users and neighbors* as simply *user*.
- Rename *Escape Channel* as *Alternative Channel*.
- Within the replacement figure the text 'a exclusive channel' is changed to 'an exclusive channel'.
- Within the replacement figure the text 'select one channel left with lest neighbors working on it' to 'select a channel left with le<u>a</u>st neighbors'.

There was further discussion of the morning session's presentation on the proposed 802.19 PAR.


## Comments of IEEE 802.16 Working Group on Proposed P802.19 PAR
Barry Lewis on behalf of the 802.16h Task Group

The contribution (802.16h-06/007) contained the following text:

*The 802.16 License Exempt Task Group, authorized by the 802.16 WG, has reviewed the draft PAR and Five Criteria documents proposed for 802.19 and can support them. However, we have the following comments on the draft PAR:*

*(1) In Section 13 (Scope of Proposed Project), it is not clear how rigorously the methodologies will assess coexistence of wireless networks. Will assessment involve only physical characteristics of transmissions (and reception) or go further to examine protocol or network aspects of potential coexistence?*

*(2) The statement in the Scope "though the methods developed here may be applicable in other places" is ambiguous.*

The contribution was accepted as a contribution from the 16h task group and addressed the issues arising from the morning discussion. The contribution was sent to 802.19 for consideration.


## CTS allocation for IBS and OBS
*Wu Xuyong, Zhao Quanbo, Pan Zhong,*
*Huawei Technologies Co., Ltd.*

Contribution: IEEE C80216h-06_019

The ICTS (Initialization Coexistence Time Slot) is for a BS which does not have access to a repetitively scheduled CTS (Coexistence Time Slot). OCTS (Operation Coexistence Time Slot) is periodically scheduled to the BS in a community. This contribution discussed the usage, timing and scheduling method of these CTS.

With no objection the contribution was accepted-modified. The modification was to section 15.3.1.1.1 in the contribution. Specifically the second and fourth paragraphs of the proposed text in this section were not included in the accepted revision.


~ ~ ~ The meeting adjourned at 3:20pm ~ ~ ~

~ ~ ~ The meeting reconvened at 3:50pm ~ ~ ~


## Definition of the process for Adaptive Channel Selection
Wu Xuyong, Zhao Quanbo, Pan Zhong,
*Huawei Technologies Co., Ltd.*

Contribution: IEEE C80216h-06_020

In order to collect information from all related BS, the IBS needs to scan all the channel and broadcast contact information on all candidate channels. After collecting the necessary information BSs start negotiating with their neighbors. The contribution develops the ideas behind this initialization process.

A discussion on this contribution was deferred to consider a related contribution on ACS, i.e. contribution IEEE C80216h-06_024.


## Adaptive Channel Selection (Using GPS/UTC Synchronized CTS)
*John Sydor, Shanzeng Guo*
Communication Research Center

Contribution: IEEE C80216h-06_024

This contribution specified an ACS (Adaptive Channel Selection) process using GPS/UTC time synchronization.

There was group discussion on the two contributions (this and IEEE C80216h-06_020) as both contributions impacted section 15.4.1 and its subsections of the working document.

A decision on the documents was deferred until harmonization between the two contributions.

John updated the document with a revision to correct the flowchart in the contribution. Specifically it was decided that this aspect of ACS should be renamed *Candidate Channel Determination*, and that *Active Scan* should be renamed *Optimised Channel Selection*.


~ ~ ~ The meeting adjourned at 6:11pm ~ ~ ~


Wednesday 8 March 2006

Second session: The meeting opened at 8:10am
Hyatt Regency, Denver at Colorado Convention Center.
Denver, CO.


**New MAC message specification for Synchronized IEEE 802.16h Ad Hoc Networks**
*John Sydor, Shanzeng Guo*
Communication Research Center

Contribution: IEEE C80216h-06_021

This contribution specified two new MAC messages and delete two previous messages in the IEEE802.16h working document.

The meeting suggested editorial changes to the document and created a revision IEEE C80216h-06_021r1. There was no objection to the accepting as modified contribution IEEE C80216h-06_021r1.


## IBS entry process in Synchronized IEEE 802.16h Ad Hoc Networks
*John Sydor, Shanzeng Guo*
Communication Research Center

Contribution: IEEE C80216h-06_022

This document specified an entry process of a new BS into an Interference Neighborhood and the creation of a Coexistence Community using GPS/UTC time Synchronization.

There was an editorial comment for the contribution, namely add a definition of CCD (Candidate channel Determination).

Contribution IEEE C80216h-06_022r1. was accepted as modified.


~ ~ ~ The meeting adjourned at 10:40pm ~ ~ ~


~ ~ ~ The meeting reconvened at 11:05pm ~ ~ ~


## New Additions in BS and SS information table in IEEE 802.16h Networks
*John Sydor, Shanzeng Guo*
Communication Research Center

Contribution: IEEE C80216h-06_023

This document specified new additions in the BS and SS information table to the working document.

The meeting made editorial changes to the document and created an IEEE C80216h-06_023r1 for the contribution.

The following editorial changes to naming conventions were made to IEEE C80216h-06_023r1.

**PHY independent coexistence**
CTS -> CSI (Coexistence Signaling Interval),
ICTS -> ICSI,
OCTS -> OCSI.

**Same PHY with UTC/CPS synchronization coexistence**
CTS -> CMI (Coexistence Messaging Interval).

There was no objection to the accepting the modified contribution IEEE C80216h-06_023r1.

Barry Lewis reported on the 802.19 response to the Task Groups input to the proposed 802.19 PAR on 'Recommended practice for predicting coexistence between wireless networks' (IEEE 802.16h-06/007).

Clarification was provided on the first comment and an amendment to the PAR wording in response to the second comment.

The document is IEEE P802.19-06/0012r0, namely '*Response to comment from 802.16 to 802.19 PAR*'. The meeting was satisfied with the response from 802.19.


~ ~ ~ The meeting adjourned at 12:05pm ~ ~ ~


~ ~ ~ The meeting reconvened at 1:45pm ~ ~ ~


## Consideration on BS-BS Communication over the Air for Dynamic Resource Sharing
*David Grandblaise*
Motorola Labs, France

Contribution: IEEE C80216h-06_016r1

This contribution proposed a basis for over the air signaling between BSs for OFDMA PHY. The credit tokens based co-existence and negotiation protocol can reportedly enable IP-based wired communications (using the shared distributed system architecture) and over the air signaling.

The meeting accepted the proposed text in the section of editorial changes up to and including the phrase '*Transaction (sequence 9)*'.


High Level Introduction and some other changes
*Mariana Goldhamer*
Alvarion

Contribution: IEEE C80216h-06_025

This contribution presented additions to the working document to provide a high-level introduction to Chapter15 and some notation changes.


~ ~ ~ The meeting adjourned at 3:05pm ~ ~ ~


~ ~ ~ The meeting reconvened at 3:30pm ~ ~ ~

Further discussion of IEEE C80216h-06_025.

The meeting made editorial changes to the document and created an IEEE C80216h-06_025r1. There was no objection to accepting the modified contribution IEEE C80216h-06_025r1.

Enhancements to reporting structures within WirelessMAN-CX
*Paul Piggin*
Cygnus Communications

Contribution: IEEE C80216h-06_011

This contribution contained suggested enhancements to the working draft and base standard to facilitate a framework from which MAC enhancements for license-exempt and uncoordinated system operation could be developed.

Contribution accepted with no objection.


Enhancements to Co-existence Zone (CXZ) for OFDMA PHY
*Paul Piggin*
Cygnus Communications
*Mariana Goldhamer*
Alvarion

Contribution: IEEE C80216h-06_012r1

The meeting asked for the minutes to reflect that this contribution is OFDMA specific. Other PHYs, specifically OFDM, should not be ruled out in other contributions.

Contribution deferred for further editorial and harmonization work.


Signaling using the energy keying in the frequency domain
*Mariana Goldhamer*
Alvarion

Contribution: IEEE C80216h-06_015

The Working document defines signaling methods using energy bins and proposes to find messages which have the required spectral power density appearance. Further studies have demonstrated that this approach is not feasible due to the fact that the bit interleaver whitens the spectral appearance of the OFDM/OFDMA signals.

This contribution proposed another approach of sending energy in the frequency domain, using the OFDM preambles used in sub-channelization. This contribution defined the relation between the preamble and the energy bin coding. The detection of the energy bins is similar with the detection of the OFDM preambles for different sub-channels.

Contribution accepted with no objection.


Output from review of document IEEE 802.16h-06/004
**Soma Bandyopadhyay**
**TATA Consultancy Services Limited**

Contribution: IEEE C80216h-06_013

This contribution proposes to provide extended UL_MAP_IE, DL_MAP_IE for WMAN-CX (co existence) for OFDM (modify channel measurement IE), UL MAP for SSURF

The contribution was rejected due to lack of editorial instruction.


~ ~ ~ The meeting adjourned at 6:07pm ~ ~ ~


## Thursday 9 March 2006

Third session: The meeting opened at 8:15am
Hyatt Regency, Denver at Colorado Convention Center.
Denver, CO.


There was further discussion on the deferred contributions.


**Entering the community using coexistence proxy**
Phillip Barber, Wu Xuyong, Pan Zhong, Zhao Quanbo.
*Huawei Technologies Co., Ltd.*
Contribution: IEEE C80216h-06_017r3

There were no objections to accepting the revised contribution.


## Contribution: IEEE C80216h-06_020r2

There were no objections to accepting the revised contribution.


## Contribution: IEEE C80216h-06_021r1

Editor's note: All references to '*Home*' should be changed to '*Associated*'. These changes were not uploaded as a revision.

There were no objections to accepting the revised contribution – with this editorial note in place.


## Contribution: IEEE C80216h-06_022r1

Editor's note: Add '15.2.1.3.1' to the first title in the contribution, namely '*Entry of a new BS into a Interference Neighborhood and the Creation of a Coexistence Community Using GPS/UTC Time Synchronization and Common System Profile*'.

There were no objections to accepting the revised contribution.

## Contribution: IEEE C80216h-06_023r1

There were no objections to accepting the revised contribution.


## Contribution: IEEE C80216h-06_024r1

There were no objections to accepting the revised contribution.


The meeting accepted a late contribution.

### Changes to IEEE 802.16h-06/004 relating to CMI Definition
*John Sydor, Shanzeng Guo*
Communication Research Center

Contribution: IEEE C80216h-06_026

The meeting considered the contribution and the sections it proposed to add to the working document. The following was the decision of the meeting:

Section 15.2.1.1.3.1. was accepted but will be labeled as section 15.2.1.1.6.
Section 15.2.2.3.1.1 was accepted.
Section 15.3.1.1.3.1 was not accepted.
Section 15.3.1.1.3.2 was not accepted.


Contribution: IEEE C80216h-06_015r1

There were no objections to accepting the revised contribution.

Contribution: IEEE C80216h-06_025r1

There were no objections to accepting the revised contribution.

Contribution: IEEE C80216h-06_012r2

Contribution withdrawn due to lack of time to edit a harmonized contribution.


~ ~ ~ The meeting adjourned at 9:42pm ~ ~ ~


~ ~ ~ The meeting reconvened at 10:15pm ~ ~ ~


The meeting reviewed the task group informative presentation document.

### 802.16h Main Concepts – March 2006
*License Exempt Task Group*

Contribution: IEEE C80216h-06_027

This task group document was intended to provide an overview to the working group on the techniques for license-exempt operation described within the working document. The document was originally created by Mariana Goldhamer, and subsequently reviewed and augmented by the task group. With no objection the contribution was approved by the meeting for presentation to the Working Group.

~ ~ ~ The meeting adjourned at 12:08pm ~ ~ ~


~ ~ ~ The meeting reconvened at 2:10pm ~ ~ ~


Mariana presented the TG document IEEE C80216h-06_027 to an open meeting which was attended by members of the 802.16 and 802.18 Working Groups.

~ ~ ~ The meeting adjourned at 3:33pm ~ ~ ~


~ ~ ~ The meeting reconvened at 4:05pm ~ ~ ~


Mariana provided a tutorial overview of the commentary tool.

Paul Piggin proposed to reopen a previously withdrawn contribution IEEE C80216h-06_012r2. There was no objection from the meeting.

## Enhancements to Co-existence Zone (CXZ) for OFDMA PHY
*Paul Piggin*
Cygnus Communications
*Mariana Goldhamer*
Alvarion

## Contribution: IEEE C80216h-06_012r3

There was no objection to accepting the revised contribution IEEE C80216h-06_012r3.

There were no objections to accepting the revised contribution.


~ ~ ~ The meeting reconvened at 4:05pm ~ ~ ~


Discussion of the Letter Ballot

*The following motion was discussed*: Adopt the document IEEE 802.16h-06/004, modified as reflected by the 802.16h Session#42 minutes, as the first 802.16h draft and submit it for Working Group Letter Ballot

Group feeling:
- Still contributions to be made.
- Sections missing.
- Need a stronger link between Section 15 and the existing sections of the standard.

Majority opinion:
- Allow another meeting to fill in the major gaps and avoid superfluous comments.

**Prefer to defer this decision until the May meeting.**

*Motion to be proposed to the WG*: Authorize the 802.16 Working Group to start a Letter Ballot on P802.16h/D1, in its May meeting, even without a quorum.

# 7. Meeting report out

The chair reviewed with the group the report out for the working group closing plenary. This is document IEEE80216h-06_008.

The task group did not agree that the draft was ready for a WG Letter Ballot motion and expressed a desire for one more drafting / contribution session before formally starting this WG process.

The topics to be clarified or the next session were discussed, specifically these were

- Suggested profiles, including MAC frame sizes,
- Acceptable S/(N+I) for suitable operation,
- Frame number sync between systems,
- Missing text for the sections mentioned in Table of Contents,
- Missing messaging,
- Missing/TBD parameters for messages,
- BS-BS communication over the air.

# 8. AOB

There was no objection to empower the editor to make editorial changes to contribution IEEE C80216h-06_024r1. Specifically all references to 15.4.1.1 will change to 15.4.1.1.1.

# 9. Close the meeting

Motion: To adjourn
Proposer: Wu Xuyong
Second: Barry Lewis


~ ~ ~ The meeting closed at 6:31pm ~ ~ ~