License-Exempt Task Group Meeting Minutes – Session #39

IEEE 802.16 Session #39 – Taipei, Taiwan
Chairman: Mariana Goldhamer, Alvarion
Vice Chairman: Barry Lewis, Redline Comm..
Editor: Xuyong WU, Huawei
Secretary: Nader Zein, NEC

Wednesday September 14, 2005, Afternoon Sessions

Agenda:

1 Opening of the LE TG Sessions
2 Revision and approval of LE TG Agenda
3 Approval of the minutes for session #38 – doc. IEEE 802.16h-05/15r1
4. Input contributions discussion and approval
      - Topics order.
      - Accept the two late contributions.
           IEEE802.16h-05/33, and IEEE802.16h-05/32.

Operational Issues

- IEEE802.16h-05/28: Message reported by SSs and share DB updating for neighbor discovery
- IEEE802.16h-05/29: Common PHY issue & Messages for Neighbor Discovery Using CTS
- IEEE802.16h-05/32: BS IP address transmission using Cognitive Signaling and some editorials

Working document

- IEEE C802.16h-05/030: Some issue to be fixed up for the working document of 80216h-05_017
- IEEE C802.16h-05/031r2: Architecture clarification and Coexistence Protocol messages cleaning
- IEEEC802.16h-05/33: Comments on Interference Detection and Prevention; General Architecture and Implementation Considerations

Security approach
IEEE C802.16h-05/027r1
      Privacy key management for BSs and BSISs in 802.16 LE Systems

5 Discussion on mapping the working document to a standard
      - 802.16f
      - Allocation of chapters
6 Explain the need for security
7 Elements for the next Call for contributions
8 A.O.B.

9 Closing the meeting

Meeting schedule

- Wednesday 1pm – 6pm
    - Breaks: 15 – 15.30, 17.00 – 17.30
- Thursday 8am – 12 am
    - Break 10 – 10 30
    - Total 8h 30 Min

AI.2
Agenda approved as submitted by unanimous voice vote

AI.3
Minutes of LE session #38 approved by unanimous voice vote

AI.4 Input contributions discussion and approval

<u>Operational Issues</u>

IEEEC802.16h-05/28: message reported by SSs and share DB updating for neighbor discovery
Presented by Mr Wu Xuyong (Huawei).

This contribution proposes message features which are needed from the SSs to report information to their Operating BS. It also describes the changes needed in order to support the proposed message format.

Discussion:
How is the IP@ of interfering BS is recognised? This is described in the working document Fig 7 where every base station and SS can identify the potential interferers and their parameters using a database.

Decision
Proposal accept the contribution and to include it in the working document.

Approval: Approved by unanimous voice vote.

IEEEC802.16h-05/29: Common PHY issue & Messages for Neighbor Discovery Using CTS
Presented by Mr Wu Xuyong (Huawei).
This contribution proposes a method for broadcasting its IP@ that can be received by any SS independently of its operating technology or phy mode. The method uses energy keying technique to broadcast its IP@.

Discussion
Is it used by systems using same physical layer? Mr Xuyong explained that it could be used by systems using different physical layer.

It was clarified to a question from Farideh that the scope of the PAR is for co-existence between IEEE802.16 systems only.

There was concern that the proposed system will imply modifying the SS. The proposed system is not reliable and it maybe better to propose a common modulation scheme that all systems can use reliably.
Answer from Mariana that according to the PAR it is not specified a new PHY, but rather mechanisms, as MAC and policies. The current problem is to be able to identify BS IP address without the availability of a database server. This is based on cognitive approach which was adopted in the working document at the last meeting.
Should we consider the IP version IPv4/v6? Mr Xuyong clarified that although current proposal is presented for IPv4, this can be extended to include IPv6 as well.

What if the IP broadcast fail? Need some back-off procedure similar to Wi-Fi, however the result in delay is undesirable.
There was concern on security, since the IP address is Broadcasted in the air. The question is how can we prevent DSA? Mariana explained that secure communication is required following the broadcast of the IP address.

Did you make evaluation on how long does it need to deliver the information? This need to be defined and agreed on the slot duration and symbol duration.

Are you proposing to send this information between the frame? It is transmitted in the coexistence time slot. There is one co-existence time slot which is shared by all BS to transmit they IP@.

Concern on the delay in which it may result which will restrict many applications.

Group decision: The group decided to include this contribution in the working document on provisional basis. Call for contribution and comments on this proposal will be called for.

Approval: Approved by unanimous voice vote.

IEEEC802.16h-05/32: BS IP address transmission using Cognitive Signaling and some editorials
Presented by Mariana Goldhammer (Alvarion).

This contribution present a method for transmitting BS IP address in the absence of coexistence database server sing cognitive signaling. It is base on a document presented at the last meeting.

Discussion
Concern expressed by Mr Xuyong that the cognitive signal definition using H and L would need some kind of error correction.

Mariana explained that the signalling is arranged in a predetermined bin for all OFDM/A sizes. Then the detection is based on the power detection.

Concern that this is a very unreliable method. Verification for this method that it could work is needed.

Concern that this method is for OFDM based signal. What happens to SC system? Still this can be received and detected by SC system. However for transmission supporter of SC need to come up with a co-existence method. In any case SC supporter claim that they use FFT equaliser.

Concern on reliability, length of frame and a way to distinguish the different signalling. Suggestion that it may need to occupy more bins.
Concern that this is like mixing MAC layer with that of the PHY layer.

Does we have to deal with different kind of BW. It should work with any BW.

Approval: Approved to be added provisionally in the working document and call for comment and further contribution to clean up this part.

Working document

IEEEC802.16h-05/31r2: Architecture clarification and Coexistence Protocol messages cleaning
Presented by: Mr Chi-Chen Lee (ITRI)
This presentation responds to the call for contribution on document .16h-05/11. It also presents clarification on the architecture use for LE Coexistence protocol.

During the discussion it was identified that there are different coexistence protocol such as coexistence time slot, cognitive signaling, BS identification local server, which may not be working simultaneously or available in any one environment.

Table 3 change the length of payload from 24 bits to 16.

Call for contribution to clarify the differences and commonalities of the current coexistence approaches and mechanisms.
Proposal of the group is:
Figure 12 accepted.
Figure 14 on network architecture is not accepted
Accept the security parts page 27.
Accept modify table 3
Accept table 4.1
Accept table 4.
Accept table 5 on TLV.
Accept sections 6.1.2 on coexistence reply messages
Accept table 9.3 neighbor topology parameters set.
Accept table 11

All the above accepted with unanimous verbal vote.

Document IEEE802.16h-05/31r3 is produced and will be incorporated in the working document.

IEEEC802.16h-05/30: Some issue to be fixed up for the working document of 80216h-05_017
Presented by: Mr Wu Xuyong (Huawei)

Proposal on clarifying definitions and acronyms used in the working document.

Decision to consolidate with ITRI following presentation 31 below.

Agreed to keep the sentence crossed out in the initialisation states section.

Numbering of messages and rephrase last sentence in his contribution.

Thursday September 15, 2005, Morning Session 800 - 1200

Continue AI 4

Resume discussion on IEEEC802.16h-05/30

Mr Xuyong modified contribution IEEEC802.16h-05/30r1

Mr Xuyong coordinated his contribution with xxx and it was agreed that there is no conflicting issues between document 30r1 and 31r4.

Approval:
Both documents approved to be added in the working document.

IEEEC802.16h-05/33: Comments on Interference Detection and Prevention; General Architecture and Implementation Considerations

Mariana presented the contribution since the author of this contribution was absent.

Xuyong commented that the author may have not understood the CTS concept adopted by the group in the working document.

The group discussed the issues raised by this contribution and noted its implication.

Security approach
IEEE802.16h-05/27r1: Privacy key management for BSs and BSISs in 802.16 LE Systems

Presented: Hung-Lin Chou (ITRI)
The contribution proposes enhanced network architecture and introduces PKM
protocol for 802.16h to be used over the proposed network architecture.
It introduced detailed frame format. KPM is used to enhance IPsec connection
between BS-BS/BSIS.

Question on architecture, need a centralised security server in the architecture. Why
not use internet key security IKE protocol.
IKE provides Peer-Peer only. In this proposal based on policy server is easier to
generate key, while the AAA server is needed in any case to make authentication.

Mariana requested the author to make further contribution to show the architecture
without the centralised RADIUS server.

Proposal to accept this contribution with the following modification.
Figure 3 will be deleted and the text following it.

The author produced and presented modified document IEEEC802.16h-05/27r2 to be
included in the working document.

This is accepted by an unanimous voice vote.

AI.5 Discussion on mapping the working document to a standard
>   - 802.16f
>   - Allocation of chapters

Since no proposals were submitted Mariana proposed taking 802.16g as an example,
which is also a stand alone standard. Marina explained the structure of this example
document.

The proposal from Mariana is to have a sub-chapter in the common MAC chapter, a
TLV sub-chapter and a new chapter specific for coexistence protocol.

New chapter 15 structure: Mechanism for improved coexistence
TLV – new sub-chapter in Chapter 11
MAC messages: new sub-chapter in Chapter 6

The above structure was accepted by unanimous voice vote.

AI.6 Explain the need for security

Security is needed for protection of the following Information:
DB to be protected
-   BSIS (BS Identification Server)
    Country/Region database (DB)
    o   GPS information

      o   BS IP address

- Base Station DB,
  - o   Timing of the radio signature and coexistence time slot
    - ▪ CP uses the information to identify the interferer
    - ▪ A malicious user can create interference during these time slots
  - o   IP addressed in the community
  - o   Interference to SS database

Communication to be protected
- BS access via IP
  - o   Denial of Service
- Malicious use of coexistence protocol
  - o   False control commands requesting to stop operation
    - ▪ Reduce capacity of the systems

Avoid
- any un authorised BS or Laptop can get the location information – and eventually attack the HW
- Use the IP address to attack the servers or BS – Denial of Service
  - o   IP addresses should be hidden
- Any other users Sniffer the data connection

Why the inter-system secure communication is developed in LE TG
- There is a need for security
- No other group has defined yet such security mechanisms

Jeff commented that the need for security is pretty obvious. However the protocol that needs to be used for transmission between BS need to be harmonised with other group such as the NetMan or other project.

AI.7 Elements for the next call for contributions

- Contribution on selecting, for a community a single MAC frame duration, Tx/Rx intervals and synchronising them.
- Address comments in IEEE C802.16-05/33
- Clean-up the cognitive radio signalling
- Clarify the differences, commonalities and usage of the existing mechanisms for coexistence
- Security approach in different network architectures
- Securing the IP address transmission over the air
- Usage scenarios of 802.16h

AI.8 A.O.B

Mariana raised the issue of the mask in Europe. Alvarion is proposing a relaxed mask.

In MMDS 2 masks are proposed; a relaxed mask and a more stringent mask.

Mariana mentioned that CEPT/SE19 report 33 is proposing more stringent mask. If any one would like to influence the selection of the mask can attend next week meeting of the CEPT/ECC-E19 in Budapest. A relaxed mask may be use in conjuction with a coexistence protocol.

AI.9 Close of meeting.

Unanimous vote to close the meeting.

Meeting adjourned.