Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**IEEE 802.16 Study Group on LE Coexistence - Session #33 Meeting Minutes**
Date Submitted	**2004-09-01**
Source(s)	Mariana Goldhamer Chair – SG on LE Coexistence Alvarion Tel Aviv, 21 HaBarzel Street Israel Voice: +972 3 6456241 Fax: +972 3 645 6204 mailto:marianna.goldhammer@alvarion.com
Re:	IEEE 802.16 SG on LE Coexistence Session #33 Minutes (Seoul, Korea)
Abstract	Meeting Minutes
Purpose	To record meeting discusions
Notice	
Release	
Patent Policy and Procedures	

IEEE 802.16 Study Group on License Exempt Co-existence -

Session #33 Minutes

Note on formatting
- Text developed by the group is captured in a unique font: Blue, 12pt. Arial that is indented from the surrounding text.

Tuesday, August 31, 2004, Morning Session 0800-1200

-- Meeting called to order at 0815

Attendance

- Mariana Goldhamer (Chair)
- Barry Lewis
- Naftali Chayat
- Ravi Kalavakunta
- Paul Odlyzko
- Charles Rush
- Guo Qiang Wang
- Mike Sanderson
- Terri Brooks
- Michael Lynch
- Don Leimer* Attended but did not sign in
- Gordon Antonello* Attended but did not sign in

Agenda

Chair presented the proposed agenda
1) Select secretary
2) Contribution on Potential Solutions
3) PAR Proposal
4) Coexistence with licensed users in LE bands

1) Chair called for volunteers for group secretary. No volunteers responded. Chair asked Mike Sanderson to do the job. Mike agreed and captured these minutes.

After a discussion the group agreed to re-order the 2nd item on the agenda was to modify the agenda to have the PAR Proposal discussion ahead of the Contribution for Potential Solutions

Revised Agenda
1) Select secretary
2) PAR Proposal
3) Contribution on Potential Solutions
4) Coexistence with licensed users in LE bands

Chair called for approval of agenda, no one objected verbally so agenda is considered approved as S802le.16-04/03

PAR Proposal

Chair presented a set of PowerPoint slides that contained draft text for some of the fields that are required for the PAR:

Type of Document
Title
Sponsor Ballot Information
Scope
Purpose
Amendment to

The group discussed the best way to review the text. The final decision was to consider the text in the following order:

Scope
Purpose
Title
Type
Amendment To
Sponsor Ballot Information

Scope

This amendment enhances the IEEE Standard 802.16 by providing spectrum sharing mechanisms and additional specifications to Physical and Medium Access Control Layers required to support coexistence between IEEE 802.16 systems

Purpose

First Paragraph

The standard will allow more efficient and robust use of the license-exempt (LE) bands increasing the market for broadband wireless access solutions. It will support services for both enterprise and consumer markets.

Second Paragraph

This standard will create better co-existence in LE bands. In LE conditions, the potential for interference is high and interference changes dynamically. The increased use of the LE spectrum will increase the interference problems. Higher immunity to interference while avoiding creating and receiving interference is required. The target users (service providers and consumers) will receive better service experience.

Title

Amendment to IEEE Standard for Local and Metropolitan Area Networks - Part 16: Air Interface for Broadband Wireless Access Systems - Amendments for Improved Coexistence in License-Exempt Bands

Sponsor Ballot Information

It was noted that the default (longest) interval between PAR approval and sponsor ballot was four years. It was stated that the only reason to provide an earlier date in the PAR would be to indicate that the group intends to progress and complete the work rapidly.

2 years was selected

Type of Document

The chair presented the guidelines for determining the type of document:
- Standard ("shall" documents)
- Recommended Practices ("should" documents)
- Guide ("may" documents)

The chair presented justification for considering this a Standard type document.

Standard

Amendment To

Amendment to IEEE 802.16-2004

Motion

Motion to approve to portions of the slide show (802.16le-04/02) that address the PAR form fields:

Type of Document
Title
Sponsor Ballot Information
Scope
Purpose
- Part a
- Part b

Amendment to

Motion put forth by:
- Mike Sanderson

Motion seconded by:
- Paul Odlyzko

Discussion:
- None

Vote Method:
- Show of hands

Vote Results:
- 11 votes in favor
- 0 votes against
- 0 votes abstained

Motion carried by unanimous vote.

-- Meeting adjourned for coffee break

Five Criteria Review

-- Meeting called to order

Three options exist
1) To complete the template from scratch
2) To use the 802.16 five criteria and modify from them
3) To use the document that Michael Lynch had developed and submitted as a contribution to LE Ad-Hoc

Group agreed to option #3 while referencing 802.16 five criteria

Broad market potential

IEEE 802 standards for wireless devices are widely implemented and widely used for numerous applications, such as local area networking, wireless Internet hotspots, streaming video, and home networks. Tens of millions of L.E. systems have been shipped from multiple vendors and are operating in LE bands. New 802 standards are being proposed for operation in the LE bands such as the 802.16. Radio compatibility and coexistence among these multi-vendor 802.16-based systems is an important aspect of these new systems to ensure acceptance in the marketplace.

This goal of this project is to ensure that multi-vendor LE systems may be readily deployed in the LE bands without disruption to existing and newly deployed services. The uncertainty in the marketplace from concerns about inter-system interfaces will be significant and could decrease the market potential if a license-exempt spectrum sharing protocol is not implemented.

Given that base station in a point to multipoint network can serve many user stations, improved coexistence will support an increase in the number of attached stations and the cost of the equipment will therefore be effectively spread over more users. Typically it will represent a small fraction of the total investment in computing and telecommunications hardware.

Compatibility

The proposed standard will conform to the 802 Functional Requirements document in the same way that the IEEE 802.16-2004 conforms to these documents.

Distinct Identity

No current wireless project addresses the issue of coexistence of different 802.16 compatible systems operating in the shared LE bands. The new standardized unique solution will address all the PHY modes defined in 802.16. A separate chapter addressing LE coexistence will be provided addressing the proposed modifications, to ease the readability of the standard.

Technical Feasibility

Ideas discussed in 802.16 LE Ad-Hoc and Study Groups; show the technical feasibility of achieving the proposed goal. Inter-system communication and the scheduled nature of the

802.16 systems may be the basics for achieving the spectrum sharing. The new protocols may use technologies already defined in 802.16 or implemented in other wireless systems. Commercial deployment of point-to-point and point-to-multipoint systems at millimeter-wave frequencies by carriers is evidence of proven reliability.

Economic Feasibility

The economic feasibility of IEEE 802.16 wireless devices is well documented. The device cost will not be affected by the new protocols. The operational costs will be lowered by including dynamic interference mitigation techniques in the 802.16 standards.

Motion

Motion to approve to portions of the slide show (802.16le-04/03) that address the five criteria which are:

Broad market potential
Compatibility
Distinct Identity
Technical Feasibility
Economic Feasibility

Motion put forth by:
- Gordon Antonello
Motion seconded by:
- Guo Qiang Wang
Discussion:
- None
Vote Method:
- Show of hands
Vote Results:
- 10 votes in favour
- 0 votes against
- 0 votes abstained
Motion carried by unanimous vote.

-- Meeting adjourned for lunch break 1200

Tuesday, August 31, 2004, Afternoon Session 1300-1700

-- Meeting called to order 1310

Attendance

- Marriana Goldhammer (Chair)
- Barry Lewis
- Mike Sanderson
- Paul Odlyzko
- Ravi Kalavakunta

- Michael Lynch
- Emmanuel F. Retnasothie
- Charles Rush
- Guo Qiang Wang
- Terri Brooks

Review of Contribution on Potential Solutions

Chair presented a summary of the history of the work that has led up to the formation of this group.

Mariana presented a contribution for discussion and consideration, C802.16le-04/01

The group agreed that additional interference scenarios would need to be identified and then any solution be measured as to how well and how many scenarios are addressed. The group discussed the need for requirements to establish target performance objectives, when the TG will be eshtablish.

Chair Presented the FCC NPRM (FCC-04-113A1) and that discussed emissions that may interfere with TV receivers. The Chair suggested that it might be useful to ask the FCC to change the rules such that some channels are allowed for LE FWA uplink only services. No solution(s) were offered by the group at this time.

Motion

Motion to adjourn the meeting

Motion put forth by:
- Barry Lewis
Motion seconded by:
- Paul Odlyzko
Discussion:
- None
Vote Method:
- Verbal
Vote Results:
- Motion carried by unanimous vote.

-- Meeting adjourned 1500