IEEE 802 LMSC Motion:

To forward IEEE P802.16a/D3 to LMSC Sponsor Ballot

Motion by: Roger Marks
Seconded by: Robert Heile

IEEE 802.16 Authorizing Motion

802.16 Session #18 Closing Plenary: 15 March 2002

Motion:

To authorize a confirmation ballot of P802.16a/D3 and forward it for LMSC Sponsor Ballot pending successful confirmation ballot.

Motion by:	Brian Kiernan, for Task Group a
Seconded by:	(none needed)
Approve:	32
Disapprove:	1
Abstain:	2

802.16 Working Group Letter Ballot #4
To forward IEEE P802.16a for IEEE Sponsor Ballot.

802.16 Letter Ballot #4 on IEEE P802.16a/D1 (2001-11-30 to 2002-01-04)
Ballots 104 (66% of 178 eligible members)
Approve 78 (75%)
Disapprove 26
Abstain 14
Comments 769

Recirculation Ballot #4a on IEEE P802.16a/D2 (2002-02-08 to 2002-02-25)
Approve 91 (86%)
Disapprove 15
Abstain 15
Comments: 409

Confirmation Ballot #4b on IEEE P802.16a/D3 (2002-03-25 to 2002-04-04)
Approve 99 (95%)
Disapprove 5
Abstain 18
Comments: 0

Final voting report:
<**http://ieee802.org/16/tga/ballot04/report4b.html**>

Disapprove Voter	LB#4 Vote	Recirc #4a	Recirc #4b	Disapprove Comments
Panyuh Joo	No ballot	Disapprove	No ballot	2
Thomas Kolze	Disapprove	No vote	No ballot	5
Lars Lindh	Disapprove	Disapprove	No ballot	2 (1 duplicated)
Heinz Lycklama	Disapprove	No ballot	No ballot	1
David Trinkwon	Disapprove	No ballot	No ballot	2

Attached: All Disapprove comments.

Complete comment database: IEEE 802.16-02/01r14

<http://ieee802.org/16/docs/02/80216-02_01r14.pdf> [PDF format]
<http://ieee802.org/16/docs/02/80216-02_01r14.zip> [database format]

Document under Review: 802.16a/D2 [D1<770] **Ballot Number:** 4b **Comment Date**

Comment # 0928 **Comment submitted by:** Panyuh Joo Member 2002/02/25

Comment Type Technical, Binding **Starting Page #** 69 **Starting Line #** 40 **Section** 6.2.11.2.1

Quasi-random Ranging Code Selection is necessary for OFDMA PHY. Quasi-random Ranging Code Selection has better benefit than Random selection for avoiding of collision in Bandwidth Request Ranging.

Suggested Remedy

Refer to coming contribution.

Proposed Resolution **Recommendation:** **Recommendation by**

Reason for Recommendation

Resolution of Group **Decision of Group:** **Rejected**

Reason for Group's Decision/Resolution

O for, 3 against
Current solution was deemed adequate in view of no simulation or other documentation on the superiority of the method suggested in the comment. Such documentation is invited.

Group's Notes

MAC

Group's Action Items

need rebuttal

Editor's Notes **Editor's Actions** I) none needed

Editor's Questions and Concerns

Editor's Action Items

Document under Review: 802.16a/D2 [D1<770] **Ballot Number:** 4b **Comment Date**

Comment # 1108 **Comment submitted by:** Panyuh Joo Member 2002/02/25

Comment Type Technical, Binding **Starting Page #** 179 **Starting Line #** 48 **Section** 8.3.5.6.3.2

Add subsection 8.3.5.6.3.2.1 assignment of pilots.
The Nused used carriers in the UL are partioned into constant-location pilots, variable location pilots, and data subchannels like those in the DL, However, because a subchannel in th UL has the number of pilots which is much smaller than those in the DL, they are not enough to do fuctions of pilots such as phase estimation and frequency offset estimation.

Suggested Remedy

8.3.5.6.3.2.1 Assignment of Pilots
In addition to Permutaion base algorithm, Pilot's sharing algorithm among users are suggested.

Proposed Resolution **Recommendation:** **Recommendation by**

Reason for Recommendation

Resolution of Group **Decision of Group:** **Rejected**

Reason for Group's Decision/Resolution

The entire structure of the design would need to be redone to accomodate this request.
The pilots for each uplink user are used to estimate the channel parameters for that user alone. Note also that there is an uplink preamble (not like in the downlink).

Group's Notes

Group's Action Items

Editor's Notes **Editor's Actions** I) none needed

Editor's Questions and Concerns

Editor's Action Items

Document under Review: 802.16a/D2 [D1<770] **Ballot Number:** 4b **Comment Date**

Comment # 0049 **Comment submitted by:** Tom Kolze 2002/01/03

Comment Type Technical, Binding **Starting Page #** 22 **Starting Line #** 1 **Section** 6.

This MAC departs greatly from DOCSIS 1.1 MAC, although our working group has heard from some license holders that consider it highly desirable to be aligned with DOCSIS MAC. The changes to DOCSIS 1.1 MAC necessary for adaptation to wireless is very minimal, as discussed and presented in numerous presentations to the working group. Even given the above two facts, the working group DID vote to eliminate from consideration all but a small set of documents for forming the basis of its common MAC, and specifically voted DOWN the motion for INCLUDING DOCSIS 1.1 MAC in the set of documents which could be drawn upon. It is not surprising that the 802.16 MAC is a vast departure from the DOCSIS MAC, given this set of votes. The only surprise is that the group voted in this pattern in the face of license holders expressed wishes otherwise. It is my position that the 802.16 standard needs to align its MAC to the DOCSIS world.

Suggested Remedy

Adopt and build upon the recommendations and proposals from the individuals within 802.16 supporting the DOCSIS MAC.

Proposed Resolution **Recommendation:** **Recommendation by**

Reason for Recommendation

Resolution of Group **Decision of Group:** **Rejected**

Reason for Group's Decision/Resolution

The title of the project PAR ("Medium Access Control Modifications and Additional Physical Layer Specifications for 2-11 GHz") makes it quite clear that the intent of the project is to develop modifications to the MAC described in IEEE Standard 802.16. The Working Group has consciously made the decision, again and again, that the 802.16 MAC is best suited for wireless metropolitan area networks.
[Reason developed by Roger Marks and entered 4 April 2002]

Group's Notes

MAC

Group's Action Items

Retrieve rejection text from TG1 database

Editor's Notes **Editor's Actions** I) none needed

Editor's Questions and Concerns

Editor's Action Items

Document under Review: 802.16a/D2 [D1<770] **Ballot Number:** 4b **Comment Date**

Comment # 0270 **Comment submitted by:** Tom Kolze 2002/01/03

Comment Type Technical, Binding **Starting Page #** 70 **Starting Line #** 12 **Section** 8.3.1

Comment

The compliance with 802.16 allows for (at least) two separate systems which do not interoperate. There are multiple PHYs, but a BS does not have to support both, or even a subset of both, and the SS does not have to support both, either. This is effectively two different standards, which means the group did not do its work. In some other standardization activities, wireless and otherwise, a related family of modulation formats was selected for the standard: one example is a standard using single carrier, with various, well-thought-out modulation constellations of varying bits per symbol, and FEC from a family with great commonality, such as Reed-Solomon with common field; another example is multi-tone (OFDM) with family of constellations and FEC family from a convolutional code with various puncturing. There is even an example now with two different U/S modulation types, but with the "SS-like" units supporting BOTH, so that the benefits of standardization are provided for the industry and the

Suggested Remedy

Pick a standard, or develop an inclusion strategy that makes sense and shows the benefit to the industry of standardizingin common equipment mulitple disparate solutions. DO NOT just have separate standards for separate systems, which is AT ODDS with IEEE policy for its standards.

Proposed Resolution **Recommendation:** **Recommendation by**

Reason for Recommendation

Resolution of Group **Decision of Group:** Superceded

Reason for Group's Decision/Resolution

The standard has been reduced to define four major PHY configurations and a common MAC. Splitting the embodiments into separate documents is not permitted under the PAR. Furthermore, the 802.11 example is a bad one, since the various documents are logically a single document (and will eventually be united into a single physical document. A better solution is to name the embodiments. A good exampe is 10Base T and 100BaseT, both defined in IEEE standard 802.3.

Group's Notes

Group's Action Items

Editor's Notes **Editor's Actions** I) none needed

Editor's Questions and Concerns

Editor's Action Items

Document under Review: 802.16a/D2 [D1<770] **Ballot Number:** 4b **Comment Date**

Comment # 0476 **Comment submitted by:** Tom Kolze 2002/01/04

Comment Type Technical, Binding **Starting Page #** 160 **Starting Line #** 1 **Section** 8.3.5.3.4

Dozens of TBDs, question marks (?), and blank entries over three pages. These must be eliminated.

Suggested Remedy

Proposed Resolution **Recommendation:** **Recommendation by**

Reason for Recommendation

Resolution of Group **Decision of Group:** **Accepted-Modified**

Delete section 8.3.5.2.7.5.

Reason for Group's Decision/Resolution

no specific changes suggested
TBDs left after ballot 4a resolution are in Table 204 and Table 205 (D2)

Group's Notes

Group's Action Items

Editor's Notes **Editor's Actions** I) none needed

Editor's Questions and Concerns

Editor's Action Items

Document under Review: 802.16a/D2 [D1<770] **Ballot Number:** 4b **Comment Date**

Comment # 0491 **Comment submitted by:** Tom Kolze 2002/01/04

Comment Type Technical, Binding **Starting Page #** 163 **Starting Line #** 6 **Section** 8.3.5.3.1

Too many disparate "standards." Pick one, either AL or BL, or develop an inclusion strategy (if possible) for SS and BS that justifies for the industry and the consumer the multiplicity of standards here, rather than simply giving the appearance that 802.16 could not adhere to the IEEE "one problem, one solution" mandate.

Suggested Remedy

Proposed Resolution **Recommendation:** **Recommendation by**

Reason for Recommendation

Resolution of Group **Decision of Group:** **Rejected**

Reason for Group's Decision/Resolution

4a: The standard has been reduced to define four major PHY configurations and a common MAC.

Group's Notes

Group's Action Items

Editor's Notes **Editor's Actions** I) none needed

Editor's Questions and Concerns

Editor's Action Items

Document under Review: 802.16a/D2 [D1<770] **Ballot Number:** 4b **Comment Date**

Comment # 0638 **Comment submitted by:** Tom Kolze 2002/01/04

Comment Type Technical, Binding **Starting Page #** 209 **Starting Line #** 35 **Section** 8.3.5.4.3.3.4.2

TBDs in this section must be eliminated

Suggested Remedy

Proposed Resolution **Recommendation:** **Recommendation by**

Reason for Recommendation

Resolution of Group **Decision of Group:** **Rejected**

Reason for Group's Decision/Resolution

4a: TBDs are not yet resolved

Group's Notes

Group's Action Items

Editor's Notes **Editor's Actions** I) none needed

Editor's Questions and Concerns

Editor's Action Items

Document under Review: 802.16a/D2 [D1<770] **Ballot Number:** 4b **Comment Date**

Comment # 1069 **Comment submitted by:** Lars Lindh Member 2002/02/25

Comment Type Technical, Binding **Starting Page #** 155 **Starting Line #** **Section**

In WG letter ballot I submitted a tecnically binding comment 535 regarding the DL Frame Prefix. The comment was rejected by the group but did not contain any justification for the rejection. As I consider that the comment was not solved in satisfactory way I still have to disapprove of the DL Frame Prefix.

Suggested Remedy

Proposed Resolution **Recommendation:** **Recommendation by**

Reason for Recommendation

Resolution of Group **Decision of Group:** Rejected

Reason for Group's Decision/Resolution

See Comment 0535.

Group's Notes

Group's Action Items

Editor's Notes **Editor's Actions** I) none needed

Editor's Questions and Concerns

Editor's Action Items

Document under Review: 802.16a/D2 [D1<770] **Ballot Number:** 4b **Comment Date**

Comment # 0535 **Comment submitted by:** Lars Lindh 2002/01/04

Comment Type Technical, Binding **Starting Page #** 211 **Starting Line #** 40 **Section** 8.3.5.3.3.3

The intention of using a DL Frame prefix is not declared in the text and is not evident by itself. One purpose could be to get some information for the next burst a little earlier. Even this is questionable because almost the same kind of operations must be performed. The following kind of execution times for the different decoding phases can be foreseen:

FFT	256*8 cc	FFT-256 case
CC innercode	192*4 cc	192 symbols processed 4 times because of back-tracking and tail-biting
RS outercode	3*t + K cc	dependent on t=4 plus a constant usually a relative small number

Suggested Remedy

Delete the DL Frame Prefix from the FCH burst as it does not much speed up the process of knowing the modulation/coding and length of the next burst.

Proposed Resolution **Recommendation:** **Recommendation by**

Reason for Recommendation

Resolution of Group **Decision of Group:** **Rejected**

vote 7 against, 6 in favor

Reason for Group's Decision/Resolution

Rate_ID is an essential parameter for decoding the DL-MAP, if the Rate_ID is not fixed (see D2, page 155, line 63).

Group's Notes

Group's Action Items

Editor's Notes **Editor's Actions** I) none needed

Editor's Questions and Concerns

Editor's Action Items

Document under Review: 802.16a/D2 [D1<770] **Ballot Number:** 4b **Comment Date**

Comment # 0221 **Comment submitted by:** Heinz Lycklama 2002/01/04

Comment Type Technical, Binding **Starting Page #** 52 **Starting Line #** 53 **Section** 6.2.7.7.2.1

The standard needs to support both TDD and FDD for both licensed and licensed-exempt bands. This makes it easier to use the same chipsets for various licensed and licensed-exempt bands. For example, some equipment suppliers for the UNII band wish to use both the 5.25 GHz and the 5.725 GHz bands. The most efficient way to use this spectrum is to use FDD.

Suggested Remedy

Delete the sentence starting at line 53 in Section 6.2.7.7.2.1 "Systems in the licensed-exempt bands shall use TDD only."

Proposed Resolution **Recommendation:** **Recommendation by**

Reason for Recommendation

Resolution of Group **Decision of Group:** Rejected

Reason for Group's Decision/Resolution

This necessitate addressing TDD/FDD co-existence problems in the license-exempt bands. From a chip perspective, it makes no difference. It would also lead to more interoperability issues. Further, with FDD in license-exempt bands, periodic DFS presents the challenge of switching frequencies on the Rx chain to check the Tx channel, during which the Tx chain must cease.

Group's Notes

Group's Action Items

Editor's Notes **Editor's Actions** I) none needed

Editor's Questions and Concerns

Editor's Action Items

Document under Review: 802.16a/D2 [D1<770] **Ballot Number:** 4b **Comment Date**

Comment # 0034 **Comment submitted by:** David Trinkwon 2002/01/04

Comment Type Technical, Binding **Starting Page #** 19 **Starting Line #** 15 **Section** Overview

With this proposed amendment, IEEE 802 will offer six (or more) air intefaces for license exempt bands :

a) 802.11 variants
b) 802.16 OFDM PMP 64-FFT
c) 802.16 OFDM PMP 256-FFT
d) 802.16 OFDM PMP 512-FFT
e) 802.16 OFDM Mesh

Suggested Remedy

Add a Summary table of the various alternatives in the Overview, together with main characteristics / differentiators.

Create an ad hoc group to add an informative appendix containing the comparative performance / evaluation characteristics of the alternatives (incl 802.11).

Proposed Resolution **Recommendation:** **Recommendation by**

Reason for Recommendation

Resolution of Group **Decision of Group:** **Rejected**

vote 7 in favor, 12 against

Reason for Group's Decision/Resolution

Rejected due to lack of text proposed for the document.
Rejected due to forseeable lack of consensus on performance data.

Group's Notes

Group's Action Items

Editor's Notes **Editor's Actions** h) defer to next round

Commenter claimed comment was inappropriate superceeded. Deferred to next round.
Comment will be rejected by default unless any discrete text changes are proposed.

Editor's Questions and Concerns

Editor's Action Items

Document under Review: 802.16a/D2 [D1<770] **Ballot Number:** 4b **Comment Date**

Comment # 0035 **Comment submitted by:** David Trinkwon 2002/01/04

Comment Type Technical, Binding **Starting Page #** 19 **Starting Line #** 15 **Section** Overview

With this proposed amendment, IEEE 802 will offer five (or more) air intefaces for license bands :

a) Single Carrier PMP (10-66GHz)
b) Single Carrier PMP (2-11GHz)
c) OFDM PMP (various FFT sizes)
d) OFDMA (DVB) PMP
e) OFDM (AMB) PMP

Suggested Remedy

Add a Summary table of the various alternatives in the Overview, together with main characteristics / differentiators

Create an ad hoc group to add an informative appendix containing the comparative performance / evaluation characteristics of the alternatives (incl the existing 802.16 air interface). Bearing in mind the NLOS FRD Requirments, all compartive analysis should be done at a 16-QAM benchmark modulation rate.

Contribution 802.16.3c-01/41 (accepted by TG3 at Mtg #12 (Hilton Head Island) includes the "Key System Characteristics and Evaluation Criteria"

Proposed Resolution **Recommendation:** **Recommendation by**

Reason for Recommendation

Resolution of Group **Decision of Group:** **Rejected**

vote 4 in favor, 11 against

Reason for Group's Decision/Resolution

Rejected due to lack of text proposed for the document.
Rejected due to forseeable lack of consensus on performance data.

Group's Notes

Group's Action Items

Editor's Notes **Editor's Actions** h) defer to next round

Commenter claimed comment was inappropriate superceeded. Deferred to next round.
Comment will be rejected by default unless any discrete text changes are proposed.

Editor's Questions and Concerns

Editor's Action Items