| Document under Review: | P802.16-REVd/D4 | Ballot Number: | 0000755 | Comment Date |
|---|---|---|---|---|
| Comment # 004 | Comment submitted by: Nico van Waes | | Member | 2004/04/15 |
| Comment Type | Technical, Binding | Starting Page # 1 | Starting Line # | Fig/Table# Section |

The removal of the lower limit on applicable frequencies violates the 16-REVd PAR.

The scope of the 16-REVd PAR reads:
*This revised standard specifies the air interface, including the medium access control layer and multiple physical layer specifications, of fixed broadband wireless access systems supporting multiple services. It consolidates IEEE Standards 802.16, 802.16a, and 802.16c, retaining all modes and major features without adding modes. Content is added or revised to improve performance, ease deployment, or replace incorrect, ambiguous, or incomplete material, including system profiles.*

The scope of the 16a PAR reads:
*This standard specifies the physical layer and medium access control layer of the air interface of interoperable fixed point-to-multipoint (and, in license-exempt bands, optional mesh topology) broadband wireless access systems (e.g., those supporting data rates of DS1/E1 or greater). The specification enables access to data, video, and voice services with a specified quality of service in licensed bands designated for public network access and license-exempt bands. It applies to systems operating between 2 and 11 GHz, where such services are permitted. This Amendment expands the scope of the IEEE Standard 802.16 by extending it to bands between 2-11 GHz, whereas the scope of the original project was limited to 10-66 GHz.*

From the 16a PAR, it is clear that the scope is limited to 2-11 GHz whereas the scope of the original project was 10-66 GHz. The total scope of the revision is hence 2-66 GHz, with permitted modifications as per the 16-REVd PAR. The 16-REVd PAR allows modifications which are not deletions of modes or features or additions of modes, but which fall into the category of performance improvements, deployment easements, or replacement of ambiguous, incorrect or incomplete material.

The removal of the lower frequency limit is not a performance improvement. It also is not related to easing deployment. The language in the standard limiting the frequency band was neither ambiguous, incorrect (as it adhered to the 16a PAR) or incomplete. The removal of this language therefore violates the 16-REVd PAR.

The notion that this limit could be deleted because it is not explicitly called out is nonsense. The requirement that a scope statement be limited to 5 lines of text makes it per definition impossible to crunch all components of the scopes of multiple PARs (the original standard and the various amendments) into a single scope. The notion is also not relevant, because the 16-REVd PAR states explicitly what is open for revision. The frequency limit removal falls in none of those categories.

As a matter of principle, it is important for scopes of Revisions (or any project for that matter) to be interpreted narrowly , as the precedent of an open-ended interpretation makes the undertaking of a Revision too risky for the members of most WGs to consider. The result will be a standards-process in which WGs produce increasingly unreadable amendments with occassional affirmation ballots and refuse to produce regular revisions for fear of leaving legal loopholes to be exploited (something already somewhat evident in certain 802 WGs).

Suggested Remedy

Undo changes implemented per comments:

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Proposed Resolution Recommendation: **Accepted** Recommendation by Nico van Waes

Undo changes implemented per comments:

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Reason for Recommendation

The notion that the majority view is in favor of this is irrelevant, because the majority also was in favor of the PARs when those were established. A PAR is a document that binds and limits the WG, and can only be adjusted for the changing view of the WG (which is evident) by changing the language of the PAR itself.

The notion that it is an informative item is nonsense. One could in the same fashion claim that this standard is applicable to WLANs, PANs, satellite communications etc, since applicability is supposedly informative anyway. With varying effectiveness, a communication system can after all be used for just about any application.

As noted before, the 2 GHz limit does not need to be in the REVd PAR, because the REVd PAR limits the changes that can be made to the standard as based on previous PARs. The notion that it eases deployment is a transparent excuse. There is not a single country that does have frequency bands for broadband fixed access available below 2 GHz but not between 2 and 11 GHz (though the contrary is true in various nations). That premise hence already falls apart on first inspection. Naturally, one cannot logically claim ease of deployment for instances that were strictly outside the scope of the standard as originally written.

Decision of Group **Rejected**

Resolution of Group

BRC Vote - Accept: 0 / Reject: 51 / Abstain: 1
Approval Ratio: 0

Rationale (by the Working Group Chair; not reviewed by Ballot Resolution Committee):
*This comment was rejected by unanimous vote of the Ballot Resolution Committee (0 Accept, 51 Reject).*

*The P802.16-REVd PAR Scope does not limit the standard to frequencies above 2 GHz, so lower frequencies are within the Scope. Also, the Scope says that content may be added to "ease deployment." Operation below 2 GHz could certainly ease deployment in some cases, such as when only such frequencies are available."*

**Document under Review:** P802.16-REVd/D4 **Ballot Number:** 0000755 **Comment Date**

**Comment #** 135 **Comment submitted by:** Nico van Waes Member 2004/04/15

**Comment Type** Technical, Binding **Starting Page #** 433 **Starting Line #** **Fig/Table#** **Section**

In comment 314, I proposed making the PHY_MOD_IE applicable only to AAS, where its use is obvious.

The response was that it might be used to reduce co-channel interference and provision simultaneous reception.

I do agree that it would lead to an improved channel estimate in the case of simultaneous reception. Since the reception in the co-channel interference case is non-synchronous due to different propagation durations from other cells (even if the BSs in the cells are synchronized), I don't see the gain in the co-channel case.
In the case of simultaneous reception, the channel estimate will be improved, but the signal to interference ratio of the data pieces of the bursts will be 0 dB.
I could envision a system with multiple co-located sectors, where you created AAS like spatial gain to get a better SIR on the data part, but the need to synchronize all uplink bursts (to get this minor preamble diversity) seems an usually high price to pay.

In other words, I don't believe the response to be accurate for co-channel interference, and impractical for simultaneous reception.

Suggested Remedy

Please reconsider comment 314

Proposed Resolution Recommendation: **Accepted-Modified** Recommendation by Nico van Waes

Change to
The PHYMOD_IE can appear anywhere in the UL map after the AAS UL IE, and it shall remain in effect until another PHYMOD_IE is encountered, or until the end of the UL map.

Establish the DL PHY mod IE as an optional capability: Indicate in bit#4 of 11.8.3.6.2 OFDM SS demodulator.
State that it shall have value 1 if bit#3 is set to 1.

Reason for Recommendation

Motivation for retaining the UL PHY mod IE for non-AAS devices has not been convincingly established in terms of advantages and has not been convincingly been countered in terms of noted substantial disadvantages.

Retaining the DL PHY mod IE is not so much of an issue, because it's a BS scheduling choice whether to use it. The training data will inherently be nicely synchronized, which creates no problems. An SS only has to understand that if it obtains DL-MAP_IE's after a concurrent_IE, that the list of IE's can be terminated by either a NULL IE (DIUC 14) or another concurrent_IE, and that the duration of the last burst before termination is either determined by the start time of the NULL IE or by the duration of the immediately preceeding concurrent_IE (which we'll assume not to conflict for the last burst in the entire DL-MAP). Since for some implementations, it's a nuisance, it is trivial to make it optional without additional overhead, such that the BS can schedule this for devices that support it and schedule non-concurrent bursts for devices that don't.

Decision of Group **Rejected**

Resolution of Group

BRC Vote - Accept: 32 / Reject: 32 / Abstain: 0
Approval Ratio: .5

Rationale (by the Working Group Chair; not reviewed by Ballot Resolution Committee):
*Members of the Ballot Resolution Committee responded to this comment in written form. Some of the responses addressed the added complexity this change would require. The commentor replied with a revised version of the comment, to address the concerns. Acceptance of the comment was voted upon by the Ballot Resolution Committee, failing by a margin of 21 Accept/ 27 Reject. The commentor was offered another opportunity to revise the comment but did not do so. Approval of the comment was then put to a second vote of the Ballot Resolution Committee, with the vote 32 Accept/32 Reject. The comment was therefore rejected for lack of a 75% approval ratio.*

Based on initial voting by the BRC, revision of the comment was invited for reconsideration. No revision was provided, so the version of the comment first voted upon was identical to the one reconsidered. The results of the first vote were:

BRC Vote - Accept: 21 / Reject: 27 / Abstain: 0
Approval Ratio: .438

**Document under Review:** P802.16-REVd/D4 **Ballot Number:** 0000755 **Comment Date**

**Comment #** 154 **Comment submitted by:** Nico van Waes Member 2004/04/15

**Comment Type** Technical, Binding **Starting Page #** 453 **Starting Line #** **Fig/Table#** **Section**

In comment 321, I noted that an inconsistency exists between the language in 8.3.6, the language in 11.8.2.2, and the actual parameters in 11.8.2.2.
The description talks about power levels, while the parameters are backoff values.
When backoff values are reported, the peak value (P1dB or so) against which these backoff values are applied is missing as well.

The group response is a rejection because of lack of text. The WG can however not reject the observation of an inconsistency by a sponsor ballot member on that basis, because it cannot publish a standard with known and observed errors.

In my view, one can either report max. power values for each modulation, or backoffs with a value to backoff from, but in either case, the text in the referenced places must be consistent.

Suggested Remedy
Fix error.

Proposed Resolution Recommendation: **Accepted-Modified** Recommendation by Nico van Waes
Change the table in 11.8.3.2 to
Byte 0: Maximum transmitted power for BPSK.
Byte 1: Maximum transmitted power for QPSK.
Byte 2: Maximum transmitted power for QAM16.
Byte 3: Maximum transmitted power for QAM64. SSs that do not support 64-QAM shall report the value 0x00.

Decision of Group **Accepted**

Resolution of Group

BRC Vote - Accept: 24 / Reject: 0 / Abstain: 10
Approval Ratio: 1

Rationale (by the Working Group Chair; not reviewed by Ballot Resolution Committee):
*Members of the Ballot Resolution Committee responded to this comment in written form. The commentor responded with a modified version of the comment, detailing the specific change request. Comment was voted upon by Ballot Resolution Committee and approved unanimously (24 Accept/ 0 Reject). Ballot Resolution Committee considers the comment closed but has not received formal notification by commentor.*

**Document under Review:** P802.16-REVd/D4 **Ballot Number:** 0000755 **Comment Date**

**Comment #** 368 **Comment submitted by:** Nico van Waes Member 2004/04/15

**Comment Type** Technical, Binding **Starting Page #** 737 **Starting Line #** **Fig/Table#** **Section**

In Table B.28, Tb for 10 MHz OFDM is listed as 22.4 us.
In Table 364, Tb for 10 MHz OFDM is listed as 22 146/357
In 8.3.2.2, Tb for 10 MHz OFDM is defined as 256/ (floor(1.44/1.25*10/0.008)*0.008) = 22 2/9

As a sidenote, I'm thinking that it's not going to be easy to design clocking trees for the awkward clock rates resulting from "n" in Table 208.

Suggested Remedy

Ensure that for the OFDM PHY, Tb and related numbers are consistent throughout standard with whatever equation is provided in 8.3.2.2.

Proposed Resolution Recommendation:**Superceded** Recommendation by Nico van Waes

Superceded by the acceptance of 96

Decision of Group **Accepted**

Resolution of Group

BRC Vote - Accept: 10 / Reject: 2 / Abstain: 9
Approval Ratio: .833

Rationale (by the Working Group Chair; not reviewed by Ballot Resolution Committee):
*Members of the Ballot Resolution Committee responded to this comment in written form. The commentor responded by requesting that his comment be marked Superceded because another comment (Comment 096) had taken precedence. The implication was this comment would become irrelevant due to the acceptence of Comment 096, which was indeed accepted. Ballot Resolution Committee considers the comment closed, but has not received formal notification by commentor.*