IEEE 802.16 Working Group on Broadband Wireless Access

http://WirelessMAN.org

Dr. Roger B. Marks
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4 November 2005

Dear IEEE-SA RevCom:

This submittal is an application for approval of IEEE P802.16e/D12 ("Draft Amendment to IEEE Standard for Local and Metropolitan Area Networks - Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems - Amendment for Physical and Medium Access Control Layers for Combined Fixed and Mobile Operation in Licensed Bands"). It updates the previous tentative application (IEEE 802.16-05/059r3), which was submitted before completion of the final ballot recirculation.

Attached to this letter, please find the following:

Page 2-5:	IEEE-SA Standards Board Form for Submittal of Proposed Standards
Page 6-9:	Coordination comments and responses

The draft itself has been included separately in PDF format and supplied to the IEEE Staff Project Editor in FrameMaker format.

As noted in the submittal form, the result of the final recirculation was 137 Approve, 3 Disapprove, and 10 Abstain, for an approval ratio of 97.9%. Two of the remaining Disapprove voters (Rémi Chayer and Brian Kiernan) have virtually the same unresolved comment, which is the only unresolved comment remaining in the ballot. It has been recirculated multiple times. The third Disapprove voter, James Gilb, has no unresolved comments and sent this email message:

> Date: Mon, 12 Sep 2005 10:35:35 –0700 From: James Gilb To: Roger B. Marks
>
> Roger
>
> I accept all the resolutions to my comments and I intend to vote approve in the recirc.
>
> James Gilb

The cover letter for the final recirculation is available as hyperlinked document IEEE 802.16-05/073. It includes the text of the two unresolved Disapprove comments, along with the responses.

Please feel free to contact me with any questions or concerns.

Sincerely,

Roger Marks
Chair, IEEE 802.16 Working Group on Broadband Wireless Access

IEEE-SA STANDARDS BOARD
FORM FOR SUBMITTAL OF PROPOSED STANDARDS

1. PROJECT NUMBER: P802.16e **2. DATE:** 17 Oct 2005 (updated 3 Nov)

3. TITLE: IEEE Standard for Local and Metropolitan Area Networks - Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems - Amendment for Physical and Medium Access Control Layers for Combined Fixed and Mobile Operation in Licensed Bands

4. SPONSOR (Full name of society/committee): Computer Society/LMSC + Microwave Theory & Techniques Society

5. BALLOTING COMMITTEE: IEEE 802.16 Working Group + Microwave Theory and Techniques Society

6. NAME OF WORKING GROUP: IEEE 802.16 Working Group on Broadband Wireless Access

7. NAME AND ADDRESS OF SUBMITTER

Roger B. Marks
NIST
325 Broadway, MC 818.00
Boulder, CO 80305
USA

Telephone: +1 303 497 7837 Fax: E-Mail: r.b.marks@ieee.org

8. DESCRIPTION OF DOCUMENT (Check one from each column.)

☒ New	□ Standard	☒ Full Use (5-year life cycle)
□ Revision	□ Recommended Practice	□ Trial Use (2-year life cycle)
□ Reaffirmation	□ Guide	
□ Withdrawal	☒ Amendment/Corrigenda to an existing standard (Indicate number and year) 802.16-2004	

8A. REAFFIRMATION ONLY: The Sponsor confirms that the balloting group agrees that this standard continues to be useful in its current form and contains no significant obsolete or erroneous information.

□ Yes □ No

9. BALLOT INFORMATION

List the interest categories of **eligible** balloters only. Refer to the IEEE-SA Standards Board Operations Manual and the Working Guide for Submittal of Proposed Standards for the rules of balloting committee classification.

User	36	Producer	85	General Interest	61	Government	3
Interest Category	No.	Interest Category	No.	Interest Category	No.	Interest Category	No.

SUMMARY OF ELIGIBLE BALLOTS

	INITIAL BALLOT		RECIRCULATION BALLOT (if applicable)	
	Draft D5	Date Closed: 2004-11-04	Draft D12	Date Closed: 2005-11-01
	Number	Percentage	Number	Percentage
Eligible Balloters	185	100%	185	100%
Ballots Returned	141	76	150	81
Affirmatives	74	56	137	97
Total Negatives	58	N/A	3	N/A
Abstentions	9	06	10	06

Reasons for abstentions: Lack of time = 7 Lack of expertise = 1 Other = 2

10. RESOLUTION OF COMMENTS AND NEGATIVE VOTES

All balloting group members, observers, and coordinating groups have been advised of substantive changes made with respect to the balloted draft standard (in response to comments, in resolving negative votes, or for other reasons) and have received copies of all unresolved negative votes with reasons from the negative voter and the rebuttal, and have been advised that they have an opportunity to change their votes.

A. Have unresolved comments accompanying negative votes been circulated? *Include unresolved negative comments and rebuttal.* ☒ Yes ☐ No ☐ No unresolved comments

B. Have substantive document changes been circulated? ☒ Yes ☐ No ☐ No substantive changes

11. COORDINATION ACTIVITY (Not required for reaffirmation)

Using the abbreviations listed below, indicate the response received from each committee/organization required for coordination and include a copy of the response. Include documentation authorizing coordination by common membership, if applicable.

R = Received R/C = Received with comment NR = Not received

Committee/Organization	Response	Committee/Organization	Response
SCC10 (IEEE Dictionary)	NR		
SCC14 (Quantities, Units, & Letter Symbols)	R/C		
IEEE Standards Editorial Staff	R/C		

Indicate below any unresolved problems from coordination activities.

An SCC14 comment from James Frysinger in the fourth recirculation has led to some discussion concerning the addition of a definition of "dBm". Mr. Frysinger accepted the decision to address the issue in the context of a parallel corrigendum draft. In the D11 recirculation, he requested documentation that the corrigendum draft has indeed addressed the issue. The group responded by providing such documentation.

12. PATENT/COPYRIGHT and REGISTRATION ISSUES

A. Any patent letters of assurance (LoAs) received by the Sponsor are to be forwarded to the PatCom Administrator [Fax: + 1 732 875 0524].

B. Is there any copyrighted material in the proposed standard? If yes, include copyright release(s). ☐ Yes ☒ No

C. Is the registration of objects and/or numbers a provision of the proposed standard? If yes, include a proposal for review by the IEEE-SA Registration Authority Committee (RAC). ☐ Yes ☒ No ☐ Already approved by RAC

13. INTERNATIONAL STANDARDS ACTIVITIES (Not required for reaffirmation)

Is this document intended to be the basis of or included in an international standard? ☒ Yes (Explain) ☐ No

This document is under consideration for reference in a Preliminary Draft New Recommendation under development in ITU-R Working Party 8A.

14. UNIT OF MEASUREMENT (check one)

☒ International System of Units (SI) - Metric ☐ Inch/Pound ☐ Both ☐ Not measurement sensitive

☐ Other _____

15. Source Materials Submitted to IEEE Standards Department

A. Have electronic versions of the source documents (text and figures) been provided? ☒ Yes ☐ No Format: FrameMaker

B. Will a diskette or other online material be required to accompany the published standard? ☐ Yes ☒ No

16. Submission checklist (X = included in submittal package N/A = Not applicable)

	Submission Package Item	**List URL if online**
X	This submittal form	http://ieee802.org/16/docs/05/80216-05_059r4.pdf
X	Ballot summary form(s) (1 per ballot cycle)	delivered to RevCom Admin by Balloting Center
X	Copies of unresolved negatives & rebuttals	http://ieee802.org/16/docs/05/80216-05_073.pdf
X	PAR and PAR approval letter	http://ieee802.org/16/docs/04/80216-04_33r6.pdf
X	Coordination comments and responses	http://ieee802.org/16/docs/05/80216-05_059r4.pdf
X	.pdf of final balloted draft #D12	http://ieee802.org/16/private/drafts/tge/P80216e_D12.zip
N/A	Permissions & copyright releases	

PROJECT NUMBER: P802.16e **DATE:** 17 Oct 2005

This draft standard has been developed in accordance with the policies and procedures of the Sponsor and I am authorized by those policies and procedures to make this submittal.	
[Roger B. Marks]	Chair, IEEE 802.16 Working Group
Signature of Submitter	**Title (role in Sponsor)**

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FOR STANDARDS DEPARTMENT USE ONLY

	IEEE-SA Standards Board Chair	
Signature of IEEE-SA Officer	**Title**	**Date**

Return to:

IEEE Standards Department
RevCom Secretary
445 Hoes Lane
PO Box 1331
Piscataway, NJ 08855-1331

Coordination Comments and Responses

(1) Editorial

# Submitted 6 Jun 6 2005
name = Michelle Turner
Separate electronic files of figures shall be supplied in TIFF format (unless created in FrameMaker).

(2) SCC14

# Submitted 29 Oct 2004
name = John T. Scott org = IEEE SCC14
This draft meets all the requirements of IEEE SCC14.

# Submitted 27 Apr 2005
name = John T. Scott org = IEEE SCC14
SCC14 is happy that our recommendations concerning typography etc. have been understood and addressed. Thank you.

# Submitted 10 Jun 2005
name = John T. Scott org = IEEE SCC14
This document meets SCC14 standards.

# Submitted 10 Jul 2005
name = James R. Frysinger
Throughout the document, the unit symbol dBm is found. This is not defined in IEEE/ASTM SI 10 nor in IEEE Std 260.1; these define instead the unit decibel (dB). In fact, IEEE/ASTM SI 10 states in clause 3.5.5, "Attachments of letters to a unit symbol as a means of giving information about the nature of teh quantity is incorrect." IEEE Std 260.1 states that reference levels are to be indicated in the text or as part of the quantity symbol, not as part of the unit symbol. The proper emendment would be to either provide annotated quantity symbols or to make a blanket statement that all levels are referenced to some particular value (perhaps 1 mV or perhaps 1 mW, but not both globally) and then to change all instances of dBm to dB.

It is recognized that other SDOs may recognize the unit with symbol dBm but support for its use here ought to be made readily available to the reader. If the WG considers it absolutely essential, for the sake of harmony with standards from other SDOs to use dBm, then this document needs to define that symbol up front and not leave it to the reader to find the correct answer. It would be circular logic to aver that those who already "know the meaning" do not need this support since they already know the meaning. Those who do not know the answer probably also do not know where to find it on their own and they would find no help on that in IEEE/ASTM SI 10 or IEEE Std 260.1.

suggested_remedy = *Emend to change all instances of dBm to dB (preferred) or provide a local definition at the front of the document for dBm (acceptable).*

Response to Comment of James Frysinger

The term “dBm” is used in IEEE Std 802.16-2004, the base standard. Therefore, we prefer to choose the second option of the suggested remedy. However, the comment is more appropriately addressed within the existing IEEE P802.16-2004/Cor 1 project, which is developing a Corridendum to the same base standard. A relevant Coordination comment was submitted in the recent IEEE-SA Sponsor Ballot of this Corrigendum project:

> *SCC14 Coordination Comments on P802.16-2004/Cor 1: Corrigendum to IEEE Standard for Local and Metropolitan Area Networks - Part 16: Air Interface for Fixed Broadband Wireless Access Systems*

Very little in this long standard raises any concerns from SCC14. Here are a couple of picky points:
1) The decibel, dB, is of course a permitted unit (although, oddly, it is not SI). Likewise, the dBm is well-enough understood to be permitted also. But I'd like to see a definition (that is, the reference level) of dBi when it first appears (in subclause 8.3.10). The "m" and the "i" would be better as subscripts. 2) A little more care needs to be taken to ensure that all quantity symbols are set, as they should be, in italic. Note that k and k appear interchangeably in 8.4.4.5 2) (k is correct). The integer counting symbol n or N occasionally appears incorrectly as roman. 3) Note that the unit symbol for "second" is "s" and that for "millisecond" is "ms." In Table 342 I find the incorrect "msec," which is specifically not permitted.
For IEEE SCC14
John T. Scott
21 June 2005

The response to that comment will be:

1) In section 4, we have included the following abbreviations:
"dBm Decibels relative to one milliwatt dBi Decibels of gain relative to the zero dB gain of a free-space isotropic radiator"
[Note that dBm is taken from the IEEE Dictionary (IEEE Std 100-1996); dBi is taken from <http://ntia.its.bldrdoc.gov/fs-1037/fs-1037c.htm>]
Regarding subscripting the "m" or the "i", note that the IEEE Dictionary does not subscript the "m" in dBm. Nor does the baseline document IEEE Std 802.16-2004 subscript the "m" or the "i" in dBm or dBi, so I do not want the Corrigendum to be inconsistent with that document. Making such a change would be in the authority of the IEEE staff editor, however.
2) We have reviewed all quantity symbols through out the document (for example the symbol k in section 8.4.4.5.2), and edited them to be italic.
3) We have changed every instance of "msec" to "ms".

Since the P802.16e SCC14 Coordination comment is being fully addressed by the response to the Corrigendum Coordination comment, we believe it is most appropriate to make no corresponding change to the P802.16e draft.

Acceptance of comment resolution by Jim Frysinger:

Dear Roger, and all,

I greatly appreciate your forwarding of the link to the resolution comments. Perhaps it was in the package I downloaded but I did not see it; I was looking for a separate document. Nonetheless, the information provided here by you is very useful and it clarifies matters nicely. Thank you.

Your point is well taken that the PARs must be respected in the preparation of documents to be balloted. Particularly useful was the information you provided on the corrigendum of the base document, which was reviewed by my colleague, John Scott. Your file notes that we have expressed contrary views regarding the dBm and that deserves comment.

We two reviewers have differing views on some minor matters; alas, the alteration of the unit symbol, dB, is one of them. This is of course a matter of ongoing and spirited, but friendly, dialog on our committee. I have been operating from a literal interpretation of IEEE/ASTM SI 10-2002 3.5.5 and the amplified explanation and application to level indications in IEEE Std 260.1-2004 Annex A (normative). The former document is the one cited as our reference in the IEEE SA Implementation Plan for the IEEE Metric Policy.

John Scott takes a more pragmattic approach than I; he bends more readily to observed practice and other documents of the proposed document's milieu. As one might expect, especially in times of change, one might find documents that reflect styles that heed various norms. Hopefully this will explain the discrepant views

expressed in our two sets of comments, which your document quotes.

Your point is well taken that the place to address the dBm was in the corrigendum reviewed by John Scott and I will stand behind him on that review. I greatly appreciate your adding the comments you added in response to his comments.

Your link to the source of the definition for dBi is appreciated. I see that Fed-Std-1037C lists some 22 modifications to the symbol dB by means of attachments to the symbol. I cannot tell from the material I have in hand so I must trust that the baseline document includes the citation in its bibliography or references. In fact, I had to refer to the cited Fed-Std-1037C so that I could understand the sentence you are adding to section 4 of the base document to define the symbol dBm in terms of dBi.

This provides an interesting contrast to NIST SP 811 (1995) 8.7, http://physics.nist.gov/Pubs/SP811/sec08.html on which Annex A of IEEE Std 260.1-2004 was patterned. That section of NIST SP 811 in turn cites IEC 27-3 (1989), http://physics.nist.gov/Pubs/SP811/appenD.html#07iec27-3 This section of SP 811 also cites the rule given in Sec. 7.4 of SP 811, as precluding the use of the symbol dBm and other modifications of the symbol dB by means of attachments. One can fairly state that the business of standardization is interesting!

My apologies to the group if my reviews of P802.16e and P802.16f have caused any consternation or inconvenience. I now accept these packages (P802.16e and P802.16f) as presented and ask that you use this email as certification of that to RevCom.

best regards,
Jim Frysinger
2005-08-27

Followup Comment of James Frysinger (submitted during D11 recirculation)

# Submitted 24 Sep 2005
name = James R. Frysinger
In D9 I made a comment on "dBm". In D10 I commented that my comment on D9 had apparently not been addressed. The problem was resolved by conversation between Roger Marks and me last month. There, Roger pointed out that actually the corrigendum document in circulation was the appropriate place to make the changes we agreed to.

Though I am personally opposed to the use of "dBm" I was swayed by citation of a supporting document and indications that either a definition of "dBm", a citation to that defining document, or both would appear in P802.16-2004_Cor1. My acceptance of "dBm" here in P802.16e hinges on that.

On Saturday 27 August 2005 20:14, Roger B. Marks wrote:

> *Jim,*
>
> *Thanks for your response. I've incorporated it into a revised version of the P802.16f/D6 ballot report: http://ieee802.org/16/docs/05/80216-05_063r1.pdf*
>
> *We will also include it in the P802.16e/D10 ballot report.*
>
> *Regarding the corrigendum in ballot, I will request consideration of your comment regarding citation of Fed-Std-1037C.*

Regards,

Roger

suggested_remedy = *Please, demonstrate some indication that the action offered on the corrigendum document (P802.16-2004_Cor1) has been taken. That would clear the issue up on this document (P802.16e).*

Response to Followup Comment of James Frysinger (included in D12 recirculation)

We can confirm that a definition of "dBm" is indeed present in the version of P802.16-2004/Cor1 that was submitted to RevCom for approval:

dBm decibels relative to one milliwatt

Noting that Mr. Frysinger has also been concerned with the term "dBi", we note that P802.16-2004/Cor1 defines that term as well:

dBi decibels of gain relative to the zero dB gain of a free-space isotropic radiator

Following Mr. Frysinger's suggestion in the final recirc of P802.16-2004/Cor1, a recommendation was made to request that the IEEE-SA editorial staff carry out the following editorial instruction:

In Annex A [Bibliography], Insert new reference and renumber the remaining references as needed:
**Federal Standard 1037C, Telecommunications: Glossary of Telecommunication Terms, August 1996* <http://ntia.its.bldrdoc.gov/fs-1037/fs-1037c.htm>

Finally, we can confirm that this recommendation is acceptable to the IEEE-SA editorial staff:

It would be okay to identify the source of the definition in the definition clause and add it to the bibliography as an editorial change (you are not changing the definition, just saying where it came from so no technical change was made).
Regards,
Yvette Ho Sang
Manager, Standards Publishing Programs
IEEE Standards Activities

Final acceptance of comment resolution by Jim Frysinger (16 October 2005):

Roger,

Very good! Thank you for following through on this. Best of wishes for your document to go forward smoothly.

regards,

Jim