

IEEE 802.16 Working Group on Broadband Wireless Access

<http://WirelessMAN.org>



Dr. Roger B. Marks
325 Broadway, MC 813.00
Boulder, CO 80305 USA
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Fax: +1 303 497 7828
<mailto:r.b.marks@ieee.org>
04 May 2001

Dear IEEE-SA RevCom:

Enclosed is an application for approval of P802.16.2 ("Local and Metropolitan Area Networks - Recommended Practice for Coexistence of Fixed BroadbandWireless Access Systems").

Please note that the draft is currently involved in its final confirmation ballot, to close on 13 May 2001. No negative votes were received in either the initial ballot or the single prior 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: Report of initial ballot (24 affirmative, 0 negative, 4 abstention)
- Page 10-12: Report of first recirculation ballot (24 affirmative, 0 negative, 4 abstention)
- Page 13-15: PAR
- Page 16: PAR approval letter
- Page 17: Editorial Review from IEEE Staff Project Editor (all issues were addressed)
- Page 18-22: Copyright permission letters
- Page 23-31: First Recirculation Package
- Page 32-37: Second Recirculation Package
- Page 38: Signature Page

The draft itself (P802.16.2/D3-2001) is a separate file.

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

Sincerely,

A handwritten signature in black ink that reads "Roger".

Roger B. Marks

Note regarding Rev. 1 (2001-05-18): Report of Final Recirculation Ballot added (p. 39)

IEEE-SA STANDARDS BOARD
FORM FOR SUBMITTAL OF PROPOSED STANDARDS

1. PROJECT NUMBER:

2.

DATE:

3. TITLE:

4. SPONSOR:

(Full name of society/committee)

5. BALLOTING COMMITTEE:

(Include written delegation of balloting authority.)

6. NAME OF WORKING GROUP:

7. NAME AND ADDRESS OF SUBMITTER

Name:

Company:

Street:

City:

State/Prov.:

ZIP/Postal Code:

Country:

E-Mail:

Telephone:

FAX:

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 in box on the right)

8A. REAFFIRMATION In the opinion of the balloting group, this standard continues to be useful in its current form and contains no significant obsolete or erroneous information.

ONLY:

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.

Interest Category	No.	Interest Category	No.	Interest Category	No.	Interest Category	No.
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SUMMARY OF ELIGIBLE BALLOTS

INITIAL BALLOT

RECIRCULATION BALLOT(if applicable)

Draft Date Closed:

Draft Date Closed:

Number Percentage

Number Percentage

Ballots Mailed

100%

100%

Ballots Returned

Affirmatives

Negatives

N/A

N/A

Abstentions

2nd Recirc: Draft D3

Open: 2001-05-04

Close: 2001-05-15

Reasons for abstentions:

Lack of Time

Lack of expertise

Other

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 negative votes been circulated?
<i>Include unresolved negative comments and rebuttal.</i> | Yes | No | No unresolved votes |
| 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.

Key:

R = Received

R/C = Received with comment

NR = Not received

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

	R	R/C	NR
	R	R/C	NR
	R	R/C	NR

Indicate below any unresolved problems from coordination activities.

12. PATENT/COPYRIGHT and REGISTRATION ISSUES

- A. Is there any patented material in the proposed standard? Yes No Originally indicated on the PAR, but not included in the final document
If yes, include letter(s) of assurance from the patent holder.
- B. Is there any copyrighted material in the proposed standard? Yes No
If yes, include copyright release(s).
- 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 (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 in box below)
No

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
- 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 N/A	This submittal form	
X N/A	Ballot summary forms(s) (1 per ballot cycle)	
X N/A	Copies of unresolved negatives & rebuttals	
X N/A	PAR and PAR approval letter	

X	N/A	Coordination comments & responses	
X	N/A	PDF of final balloted draft #	
X	N/A	Permissions & copyright releases	
X	N/A	Delegation of balloting authority	

Ballot Summary

P802.16.2

Closing date: 2001-04-12

1. This ballot has met the 75% returned ballot requirement.

30 eligible people in this ballot group.

24 affirmative votes

0 negative votes

4 abstention votes

=====

28 votes received = 93% returned
14% abstention

2. The 75% affirmation requirement is being met.

24 affirmative votes

0 negative votes

=====

24 votes = 100% affirmative

Ballot Details

Coordination Only

none

Balloters

Number	Name	Phone / E-mail	Vote	T	E	Graphics	Status Notes	Interest Category
05572953	Jim Carlo		Approve, no comments (Y)	-	-	-		producer
06503270	Jose M. Costa		Approve, no comments (Y)	-	-	-		producer
05046479	Guru Dutt Dhingra		Approve, no comments (Y)	-	-	-		user
40199311	Thomas Dineen		Approve, no comments (Y)	-	-	-		producer
40065638	Mary DuVal		Abstain for lack of time (A1)	-	-	-		government/academic/consultant

41311588	Vern Dubendorf		Approve, no comments (Y)	-	-	-		producer
05472527	Richard Eckard		Approve, no comments (Y)	-	-	-		user
06525786	John Eng		Abstain for lack of time (A1)	-	-	-		general interest
08518995	Avraham Freedman		Approve, no comments (Y)	-	-	-		general interest
40306847	Simon Harrison		Approve, no comments (Y)	-	-	-		user
01550144	Vic Hayes		-	-	-	-		general interest
01670801	Robert Heile		Approve, no comments (Y)	-	-	-		government/academic/consultant
02708451	Charles Jackson		Approve, no comments (Y)	-	-	-		producer
01556620	Hamadi Jamali		-	-	-	-		general interest
05995253	Brian Kiernan		Approve, no comments (Y)	-	-	-		general interest
05845615	Gregory Luri		Approve, no comments (Y)	-	-	-		user
06760854	James Scott Marin		Approve, no comments (Y)	-	-	-		general interest
08122103	Roger Marks		Approve, comments (Y1)	1	1	-		government/academic/consultant
08940611	Peter Martini		Approve, no comments (Y)	-	-	-		government/academic/consultant

02996635	Andy McGregor		Approve, no comments (Y)	-	-	-		producer
41340769	Roderick McMullin		Approve, no comments (Y)	-	-	-		producer
08944704	Robert O'Hara		Abstain for lack of time (A1)	-	-	-		user
07022429	Roger Pandanda		Approve, no comments (Y)	-	-	-		general interest
40300305	Ken Peirce		Approve, no comments (Y)	-	-	-		producer
01378470	Walt Roehr		Approve, comments (Y1)	1	1	-		government/academic/consultant
08097867	Jon Rosdahl		Abstain for lack of expertise (A2)	-	-	-		general interest
40247562	Jaideep Roy		Approve, no comments (Y)	-	-	-		general interest
03239332	John Viaplana		Approve, no comments (Y)	-	-	-		general interest
07284292	Don Wright		Approve, no comments (Y)	-	-	-		user
05907266	Oren Yuen		Approve, no comments (Y)	-	-	-		user

Summary of Eligible Voters by Interest Category

Interest Category	Affirmative(s)	Negative(s)	Abstention(s)	Not Returned	Total
user	6	0	1	0	7
producer	8	0	0	0	8
general interest	6	0	2	2	10

government/academic/consultant	4	0	1	0	5
Voting Tally	24	0	4	2	30

Abstention details:	3 for lack of time (A1)	1 for lack of expertise (A2)	0 for other reasons (A3)
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Ballot Summary

P802.16.2 Recirculation
Closing date: 2001-04-26

This is a recirculation ballot. The report collates the results from the following groups: 0000062 0000098.

1. This ballot has met the 75% returned ballot requirement.

30 eligible people in this ballot group.

24 affirmative votes
0 negative votes
4 abstention votes

=====

28 votes received = 93% returned
14% abstention

2. The 75% affirmation requirement is being met.

24 affirmative votes
0 negative votes

=====

24 votes = 100% affirmative

Ballot Details

Coordination Only

none

Balloters

Number	Name	Phone / E-mail	Vote	T	E	Graphics	Status Notes	Interest Category
05572953	Jim Carlo		Approve, no comments (Y)	-	-	-		Producer
06503270	Jose M. Costa		Approve, no comments (Y)	-	-	-		Producer
05046479	Guru Dutt Dhingra		Approve, no comments (Y)*	1	-	-		User
40199311	Thomas Dineen		Approve, no comments (Y)	-	-	-		Producer
40065638	Mary DuVal		Abstain for lack of time (A1)	-	-	-		Government/Academic/Consultant
41311588	Vern Dubendorf		Approve, no comments (Y)	-	-	-		Producer
05472527	Richard Eckard		Approve, no comments (Y)	-	-	-		User
06525786	John Eng		Abstain for lack of time (A1)	-	-	-		General Interest

08518995	Avraham Freedman		Approve, no comments (Y)	-	-	-		General Interest
40306847	Simon Harrison		Approve, no comments (Y)*	-	-	-		User
01550144	Vic Hayes		-	-	-			General Interest
01670801	Robert Heile		Approve, no comments (Y)	-	-	-		Government/Academic/Consultant
02708451	Charles Jackson		Approve, no comments (Y)	-	-	-		Producer
01556620	Hamadi Jamali		-	-	-			General Interest
05995253	Brian Kiernan		Approve, no comments (Y)	-	-	-		General Interest
05845615	Gregory Luri		Approve, no comments (Y)	-	-	-		User
06760854	James Scott Marin		Approve, comments (Y1)*	-	2	-		General Interest
08122103	Roger Marks		Approve, comments (Y1)*	1	2	-		Government/Academic/Consultant
08940611	Peter Martini		Approve, no comments (Y)*	-	-	-		Government/Academic/Consultant
02996635	Andy McGregor		Approve, no comments (Y)	-	-	-		Producer
41340769	Roderick McMullin		Approve, no comments (Y)*	-	-	-		Producer
08944704	Robert O'Hara		Abstain for lack of time (A1)	-	-	-		User
07022429	Roger Pandanda		Approve, no comments (Y)	-	-	-		General Interest
40300305	Ken Peirce		Approve, no comments (Y)*	-	-	-		Producer
01378470	Walt Roehr		Approve, comments (Y1)	1	1	-		Government/Academic/Consultant
08097867	Jon Rosdahl		Abstain for lack of expertise (A2)	-	-	-		General Interest
40247562	Jaideep Roy		Approve, no comments (Y)	-	-	-		General Interest
03239332	John Viaplana		Approve, no comments (Y)	-	-	-		General Interest
07284292	Don Wright		Approve, no comments (Y)*	-	-	-		User

05907266	Oren Yuen		Approve, no comments (Y)	-	-	-		User
* This ballot cast this ballot in the current circulation of this recirc ballot.								

Summary of Eligible Voters by Interest Category

Interest Category	Affirmative(s)	Negative(s)	Abstention(s)	Not Returned	Total
User	6	0	1	0	7
Producer	8	0	0	0	8
General Interest	6	0	2	2	10
Government/Academic/Consultant	4	0	1	0	5
Voting Tally	24	0	4	2	30

Abstention details:	3 for lack of time (A1)	1 for lack of expertise (A2)	0 for other reasons (A3)
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PAR FORM

02/12/01

PAR Status: Revision of New PAR

1. Sponsor Date of Request: February 9, 2001

2. Assigned Project Number: 802.16.2

3. PAR Approval Date: 03/17/2001

PAR Signature Page on File: Yes

4. Project Title and Working Group/Sponsor for this project Document type and title:

Document type: Recommended Practice for

Title: Local and Metropolitan Area Networks - Recommended Practice for Coexistence of Fixed Broadband Wireless Access Systems

Name of Working Group (WG): IEEE 802.16 Working Group on Broadband Wireless Access

Name of Official Reporter: Roger B Marks

Telephone: (303) 497-3037

FAX: (303) 497-7828

Email: r.b.marks@ieee.org

Name of Working Group Chair: (if different than Reporter)

Telephone:

FAX:

Email:

Name of Sponsoring Society and Committee: C/LM

Name of Sponsoring Committee Chair: James T Carlo

Telephone: 214-693-1776

FAX: 214-853-5274

Email: jcarlo@ti.com

5. Type of Project:

5a. Is this an update to an existing PAR? Yes

If YES: Indicated PAR number/approval date: 802.16.2 - 09/16/1999

If YES: Is this project in ballot now? No

5b. The project is a: The project is a new standard

6. Life Cycle: Full Use

7. The type of ballot is: Individual Sponsor Ballot

Expected Date of Submission for Initial Sponsor Ballot: 02/27/2001

8. Fill in Projected Completion Date for Submittal to RevCom: 5/4/01

9. Scope of Proposed Project:

This project covers development of a Recommended Practice for the design and coordinated deployment of fixed broadband wireless access (BWA) systems operating from 10-66 GHz (with a focus on 23.5-43.5 GHz) in order to minimize interference so as to maximize system performance and/or service quality. This practice will provide for coexistence using frequency and spatial separation and will cover three areas. First, it will recommend limits of in-band and out-of-band emissions from BWA transmitters through parameters including radiated power, spectral masks and antenna patterns. Second, it will recommend receiver tolerance parameters, including noise floor degradation performance, for interference received from other BWA systems. Third, it will provide coordination parameters, including separation distances, and power flux density limits, to enable successful deployment of BWA systems with tolerable interference. The scope includes interference between systems deployed across geographic boundaries in the same frequency band and systems deployed in the same geographic area in different frequency bands (including different systems deployed by a single license-holder in sub-bands of the licensee's authorized bandwidth). The scope does not cover coexistence issues due to intrasystem frequency re-use within the operator's licensed band, and it does not consider the impact of interference created by BWA systems on non-BWA terrestrial and satellite systems.

10. Purpose of Proposed Project:

The purpose of this recommended practice is to provide coexistence guidelines to license holders, service providers, deployment groups, and system integrators. The equipment parameters contained within this practice will benefit equipment and component vendors and industry associations by providing design targets. The benefits of this practice will include:

- Coexistence of different systems with higher assurance that system performance objectives will be met.
- Minimal need for case-by-case interference studies and coordination between operators to resolve interference issues.
- Preservation of a favorable electromagnetic environment for deployment and operation of BWA systems, including future systems compliant to IEEE 802.16 interoperability standards.
- Improved spectrum utilization.
- Cost-effective system deployment.

11. Intellectual Property

Has the sponsor reviewed the IEEE Patent policy with the Group? Yes

Are you aware of the possibility of any copyrights relevant to this project? Yes

Are you aware of the possibility of any trademarks relevant to this project? Yes

Are you aware of possible registration of objects or numbers due to this project? No

12. Are you aware of other standards or projects with a similar scope? Yes

Administrations are developing general coordination criteria and procedures to allow BWA operators to deploy systems. Detailed co-existence guidance, such as described in this PAR, is in its early stages of development in other regional and international standards bodies. Studies addressing certain aspects of the coexistence issues are being developed by or have been completed by organizations such as:

1. International Telecommunications Union (ITU): ITU-R JRG 8A/9B and ITU-R 9B
 2. European Telecommunications Standards Institute (ETSI): Technical Committee TM (Transmission and Multiplexing), Working Group TM4 (Fixed Radio Systems)
 3. Inter-American Telecommunication Commission (CITEL): Permanent Consultative Committee III: Radiocommunications (PCC-III)
 4. Association of Radio Industries and Businesses (ARIB): R&D Group for the Fixed Wireless Access System
 5. National Spectrum Managers Association (NSMA)
 6. Radio Advisory Board of Canada (RABC)
- We will coordinate with these groups as appropriate.

13. Will this standard (in part or in whole) be submitted to an international organization for consideration/Adoption? Yes

If yes, please answer the following question:

Which International Organization/Committee? ITU-R

International Contact Information:

Name: Jose M Costa
Address: Nortel Networks
14 Ridgefield Crescent
Nepean, Ontario K2H 6R9
Canada

Phone/FAX: Phone: 613-763-7574, FAX: 613-765-1225

Email: j.costa@ieee.org

14. Is this project intended to focus on health, safety environmental issues? No

15. Mandatory Coordination:

SCC10 (IEEE Dictionary) by Circulation of Drafts
IEEE Staff Editorial Review by Circulation of Drafts
SCC14 (Quantities, Units and Letter Symbols) by Circulation of Drafts

16. Additional Explanatory Notes:(Item Number and Explanation)

5a) This revision simplifies the title and slightly reduces the scope. The PAR is also brought into the current format.

20 March 2001

Dr. Jim Carlo
Texas Instruments
9208 Heatherdale Drive
Dallas, TX 76243

Re: P802.16 Local and Metropolitan Area Networks - Part 16: Standard Air Interface for Fixed Broadband Wireless Access Systems

P802.16a Local and Metropolitan Area Networks - Amendment to Standard Air Interface for Fixed Broadband Wireless Access Systems -
Media Access Control Modifications and Additional Physical Layer
for 2-11 GHz

P802.16b Local and Metropolitan Area Networks - Amendment to Standard Air Interface for Fixed Broadband Wireless Access Systems -
Media Access Control Modifications and Additional Physical Layer for
License-Exempt Frequencies

P802.16.2 Local and Metropolitan Area Networks - Recommended Practice
for Coexistence of Fixed Broadband Wireless Access Systems

Dear Dr. Carlo:

I am pleased to inform you that on 17 March 2001 the IEEE-SA Standards Board approved P802.16 and P802.16.2 until December 2003 and P802.16a and P802.16b until December 2004. Copies of the files are attached in .pdf format.

Now that your projects have been approved, please forward a roster of participants involved in the development of these projects. This request is in accordance with the IEEE-SA Operations Manual, Clause 5.1.2f under Duties of the Sponsor which states:

"Submit annually to the IEEE Standards Department an electronic roster of individuals participating on standards projects"

Attached is an Excel spreadsheet for your convenience. Please forward these lists to me via e-mail at j.haasz@ieee.org no later than 1 June 2001.

At the bottom of this e-mail, please find URLs which you may find useful in the development of your proposed standards and in submitting your final draft for approval. We strongly recommend that a copy of your draft be sent to this office for review prior to the final voting by the working group to allow for a quick review by the editorial staff before sponsor balloting.

If you should have any further questions or would like to receive this information in paper, please contact me at 732-562-6367 or by email at j.haasz@ieee.org.

Sincerely,

Jodi Haasz
Senior Administrator, Standards Board

Editorial Review

To: 802.16.2 Working Group

From: Jennifer Longman

Date: 27 February 2001

Re: Editorial review of P802.16.2/D2-2001

I have reviewed P802.16.2/D2-2001 and I have the following comments:

a) Delete "IEEE" from the title and runninghead. Only approved drafts have the IEEE designation. Instead, use "P802.16.2/D2."

b) Review the use of "shall/should/may/can," to be sure they are used properly throughout the document.

c) Provide an electronic copy of all figures, preferably in tiff or eps formats.

From: Stephane Tronchon <Stephane.Tronchon@etsi.fr>
To: "'marks@nist.gov'" <marks@nist.gov>
Cc: 'roberto.macchi@aicn.siemens.it'
<roberto.macchi@ficn.siemens.it>,
Bernt Mattsson
<Bernt.Mattsson@etsi.fr>,
Karl Heinz Rosenbrock
<Karl-Heinz.Rosenbrock@etsi.fr>,
Jeanne Lancry <Jeanne.Lancry@etsi.fr>,
Günther Zedler Internet <guenther.zedler@telekom.de>
Subject: Copyright authorisation to cite Figures 1 & 2 of EN 301-390 V1.1.1
Date: Mon, 22 Jan 2001 10:03:58 +0100

Dear Sir,

This message is in response to your attached letter addressed to Mr Macchi, Chairman of ETSI WG-TM4.

By the present e-mail and on behalf of Mr Karl Heinz Rosenbrock, the ETSI Director General, I am pleased to grant IEEE (Working Group 802.16) the cited extract of EN 301-390 V1.1.1., from the attached letter.

Due to the fact that ETSI owns the copyright in EN 301-390 V1.1.1., the present copyright authorization is granted to IEEE provided that the following paragraph is inserted: "© ETSI 2000. Further use, modification, redistribution is strictly prohibited. The standards are available from publication@etsi.fr <mailto:publication@etsi.fr>, and <<http://www.etsi.org/eds/eds.htm>>."

This copyright authorisation allows for reproduction only in printed and computer materials of the above-cited standards, on a regional scale and for an unlimited period of time.

Should the above information fall under patent protection, this copyright authorisation is not to be construed as an authorisation to use and/or implement patent information without fulfilling attached obligations.

Yours sincerely.

Mr. Stéphane Tronchon
Legal Adviser

European Telecommunications Standards Institute
Tel: +33 (0)4.92.94.42.60.
Fax: +33 (0)4.93.65.47.16.
<mailto:stephane.tronchon@etsi.fr>
<http://www.etsi.org/ipr>

From: c.stanziola@ieee.org
Subject: Re: Fwd: Copyright authorisation to cite Figures 1 & 2 of EN 301-390 V1.1.1
To: "Roger B. Marks" <marks@boulder.nist.gov>
Date: Wed, 28 Mar 2001 08:23:23 -0500

Mr. Marks,

In answer to your question, yes, that is an acceptable copyright permission letter. I apologize that you have had to wait so long for a response.

Claudio

Robert Whiting
Gabriel Electronics
Scarborough, Maine 04074
April 9, 2001

Mr. Philip Whitehead, Chairman
IEEE 802.16 TG 2
Radiant Networks Plc
The Mansion, Chesterford Park, Little Chesterford, Essex CB10 1XL, UK.

Dear Phil,

I hereby grant permission to the Institute of Electrical and Electronics Engineers, Inc., to print the material contained in Draft Document IEEE 802.16-00/D2-2000 which I co-authored and is listed below:

Figure 11.	Page 47 BS RPE in the azimuth plane- Electrical Class 1
Table 3	Page 47 BS RPE in the azimuth plane- Electrical Class 1
Figure 12	Page 48 BS RPE in the azimuth plane- Electrical Class 2
Table 4	Page 48 BS RPE in the azimuth plane- Electrical Class 2
Figure 13	Page 49 BTS elevation co-polarized maximum above the horizon
Table 5	Page 50 BTS elevation co-polarized maximum above the horizon
Figure 14	Page 50 BS co-polarized minimum below the horizon
Table 6	Page 50 BS co-polarized minimum below the horizon
Figure 15	Page 51 BS cross-polarized maximum above and below the horizon
Table 7	Page 51 BS cross-polarized maximum above and below the horizon
Figure 16	Page 53 SS RPE Class 1
Table 8	Page 53 SS RPE Class 1
Figure 17	Page 54 SS RPE Class 2
Table 9	Page 54 SS RPE Class 2
Figure 18	Page 55 SS RPE Class 3
Table 10	Page 55 SS RPE Class 3

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Robert Whiting

April 9, 2001

Ray Blasing
Endwave Corp.
321 Soquel Wy.
Sunnyvale, CA 94086

Mr. Philip Whitehead, Chairman
IEEE 802.16 TG 2
Radiant Networks Plc
The Mansion, Chesterford Park, Little Chesterford, Essex CB10 1XL, UK.

Dear Phil,

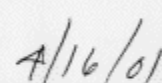
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Figure 17	Page 54 SS RPE Class 2
Table 9	Page 54 SS RPE Class 2
Figure 18	Page 55 SS RPE Class 3
Table 10	Page 55 SS RPE Class 3

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Ray Blasing



April 16, 2001

Spectrum, Information Technology and Telecommunication
300, Slater street
Ottawa (Ontario)
K1A 0C8
Telephone: (613) 990 4700
Facsimile: (613) 952 5108

Notre référence Our file

May 2nd, 2001

Philip Whitehead, IEEE 802.16.2 Chair
Radiant Networks Plc
The Mansion, Chesterford Park
Little Chesterford,
Essex CB10 1XL
UK

Dear Mr Whitehead:

I hereby grant permission to the Institute of Electrical and Electronic Engineers Inc., to reprint the material mentioned below in:

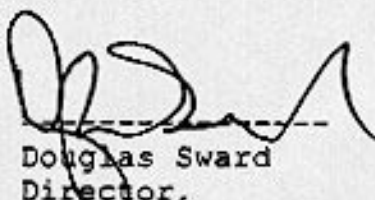
IEEE Project 802.16.2; "Recommended Practice for Coexistence of Fixed Broadband Wireless Access Systems." The document reference is IEEE 802.16.2/D2-2001, dated February 2001.

The material to be reproduced is as follows:

Annex A, titled "Test and measurement/ hardware parameter summary" starting on page 79, line 7, as far as page 82, line 23.

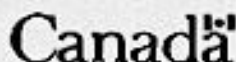
Annex F, titled "Industry Canada coordination process" starting on page 115, line 1 as far as the end of page 118.

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Douglas Sward
Director,
Terrestrial, Spectrum Engineering

This letter has been executed on behalf of Her majesty the Queen in right of Canada by the duly authorized officer.





File: 3400

2001-05-02

Phil Whitehead
Radiant Networks Plc
IEEE 802.16 TG2 Chair

Dear Mr. Whitehead;

With regard to your query regarding copyright of Radio Advisory Board of Canada documents: **the Radio Advisory Board of Canada s documents posted in either the Publications or Reports sections of the RABC web site at : www.rabc.ottawa.on.ca are not protected by copyright.** It is, indeed, the Board's intention that its reports and publications should be used by individuals and groups involved in radiocommunication issues.

The Board is pleased that the IEEE is interested in making use of RABC work.

The RABC would be grateful if the use of such work is briefly acknowledged (e.g. Courtesy Radio Advisory Board of Canada) when it is copied or cited.

Yours truly

A handwritten signature in blue ink that reads "E.R. Campbell".

E.R. Campbell
General Manager
Radio Advisory Board of Canada

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2001-04-17

IEEE 802.16-01/21

IEEE 802.16 Working Group on Broadband Wireless Access

<http://WirelessMAN.org>



Dr. Roger B. Marks
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17 April 2001

Dear P802.16.2 Balloting Group:

Thank you for your participation in the Sponsor Ballot of P802.16.2. The ballot closed on 12 April 2001. The results <<http://ieee802.org/16/tg2/ballots/sponsorballot/group.html>> are, in summary:

24	Approve
4	Abstain
0	Disapprove
2	Not Voting

By virtue of these numbers, the ballot is considered to have passed.

We received four comments; both an editorial and a technical from each of two voters. In the case of one voter, both were compound comments containing a number of changes. Resolutions were developed by a comment resolution group, chaired by Phil Whitehead. All of the editorial comments were accepted, as was the simple technical comment. The compound technical comment was accepted with modifications. I can certify that the originator of the compound technical comment accepts these resolutions. The full details are attached to this letter.

At this time, we are initiating a ten-day recirculation of these comments and resolutions.

Please take this opportunity to review this package. You need not reply; if you do not, your current vote will stand. Based on these comment resolutions, you may change your vote or submit additional comments. If you wish to do so, please keep the deadline in mind. Instructions have been provided by the IEEE Balloting Center.

Sincerely,

A handwritten signature in black ink that reads "Roger".

Roger Marks

cc: Jim Carlo, Chair, IEEE 802

Comments received on P802.16.2, along with resolutions of ballot resolution committee:

(1) From: Walter C. Roehr

Type: Editorial

Comment: Heading on last column of Table 13, page 68 should read "6 dB" (without the degree symbol)

Suggested Remedy: delete the degree symbol

Response of ballot resolution group: Accepted (change already incorporated in Comment 3)

(2) From: Walter C. Roehr

Type: Technical

Comment: comment (remove degree symbol from heading of last column of Table 13) submitted previously

Suggested Remedy:

Response of ballot resolution group: Accepted (change already incorporated in Comment 3)

(3) From: Roger B. Marks

Type: Editorial

Comment: This is a compound editorial comment. Details are in Document IEEE 802.16c-01/06, which is available at:

<http://iee802.org/16/docs/01/80216c-01_06.pdf>

Suggested Remedy:

Response of ballot resolution group: Accepted

Note: The document is available for inspection at the URL cited.

(4) From: Roger B. Marks

Type: Technical

Comment: This is a compound technical comment. Details are in Document IEEE 802.16c-01/07, which is available at:

<http://iee802.org/16/docs/01/80216c-01_07.pdf>

Suggested Remedy:

Response of ballot resolution group: Accepted, with modifications and clarifications as shown in attachment.

Reaction of voter: Accepts the resolutions.

Details of Comment 4 (submitted by Roger Marks), with resolutions

[Note: each element in Comment 4 is cited below by the comment number used in the submission, followed by the quoted page number, line number, and section.]

M01 68 13 8.1.7

Change:

Table 13, column 5 heading to “Spacing at which simulation results have shown the interference to be generally below target level” with a note following the table regarding the target level and the range of possibilities.

The Note should read: “While the target level of interference is generally referenced to a level which is 6dB below the receiver noise floor, in many scenarios the acceptability of the spacing guideline requires assessment of the results of a statistical analysis and the acceptability of a small percentage of instances when this target level is exceeded.”

Reason:

The current proposal is misleading because in some cases the spacing guidelines do not always ensure interference below the target “6dB below noise floor”.

Resolution: Accept

M02 35 4 5.3.1.3.2

Change:

In Figure 6, change “Hub” to “BS”

Reason:

Consistency with text

Resolution: Accept

M03 37 24 6.1.1

Change:

delete quotation marks around “Carrier Bandwidth”, or add a definition

Reason:

“Carrier Bandwidth” appears in quotation marks. This suggests that there is something unusual about the use of the term. If so, that use should be defined.

Resolution: Accept: delete quotation marks around “Carrier Bandwidth”

M04 38 13

Change:

6.1.1.1 In view of the Note, add the following (with correct citations) to the normative references:

- * ITU-R Document 9/2 (currently in bibliography)
- * Addendum 1 to Document 9/2
- * RR Article S21
- * Recommendation ITU-R F.1336
- * Recommendation ITU-R SA.1276

Reason:

This note seems to be a recommendation; it uses the word “should”. If so, then the references on which it is based need to be normative.

Resolution: Accept/modified. Resolution:

-Replace from the beginning of line 13 of Page 38 to Line 6 of Page 39 with the following:

“For the specific sub-band 25.25–25.75 GHz, the recommended BS EIRP spectral limits as stated in ITU-R Recommendation 9/2 should be observed.”

-Move the citation of ITU-R Recommendation 9/2 from Bibliography to References. Correct the citation as necessary to reflect the most recent publicly-available edition.

M05 40 6 6.1.1.4

Change:

Rewrite the sentence “When point-to-point IILSs are employed, if the recommendations for SS EIRP and unwanted emissions provided in Sections 6.1.1.2 and 6.1.3, respectively, are followed, the coexistence environment described elsewhere in this Recommended Practice should apply.” to reflect its intent.

Perhaps: “Coexistence issues related to point-to-point in-band inter-cell link stations should be subject to the recommendations of 6.1.1.2.”

Delete the abbreviation “IILS” from the abbreviation list, the header, and the paragraph.

Reason:

I don't understand the sentence. One problem here is the casual use of the critical word “should”.

Resolution: Accept/modified. Resolution:

Rewrite the paragraph starting at line 6 as follows:

“An operator may employ point to point links that use adjacent channel or co-channel frequencies and that are in the same geographical area as a point to multipoint system. If the recommendations for SS EIRP in 6.1.1.2 and unwanted emissions in 6.1.3 are applied to these links, then they can operate within the coexistence framework described in this document. If not, then re-evaluation of the coexistence recommendations is recommended.”

Delete the abbreviation “IILS” from the abbreviation list, the header, and the paragraph

M06 41 31 6.1.3

Change:

Rewrite the sentence “Several transmitters into a common non-active antenna cannot use the multi-carrier mask for the composite signal. In this case, the appropriate mask applies to the individual transmitter.” to reflect its intent.

Perhaps: “When several transmitters share a passive antenna, each transmitter should satisfy the individual mask; the multi-carrier mask should not be applied in this case.”

Reason:

I don't understand the sentence.

Resolution: Accept modification as proposed.

M07 43 8

Change:

6.1.3 If, in ETSI territory, the recommendations of 6.1.3 are supposed to be superceded by those in [13], then:

(a) [13] should be moved to the normative references

(b) the note should be rewritten, because the relevant comparison is not of [13] to [14] but [13] to the recommendations of 6.1.3.

Also, “within Europe” should be replaced by something like “Within areas subject to regulation tied to ETSI standards” (or a more accurate version of this).

Reason:

This note:

“NOTE Unwanted emission in Europe

Within Europe the ETSI limits of EN 301 390 [13] should be applied which has limits that are 10 dB more stringent than CEPT/ERC Recommendation 74-01 [14] for noise-like emissions over 10 certain frequency bands.”

seems to mean that, in ETSI territory, the recommendations of 6.1.3 are superceded by those in [13]

Resolution: Accept/modified. Resolution:

- Move [13] from the (informative) Bibliography to the (normative) References
- Change Line 8 of Page 43 to “Unwanted Emission Levels Specified in ETSI Standards”
- Replace Lines 9-11 of Page 43 with “In regions where they apply, the ETSI limits of EN 301 390 [B13] should be followed.”
- On line 13, delete “NOTE-“ from the beginning of the sentence

M08 44 3 6.1.3

Change:

Rewrite the sentence “allowance is given for no more than 10 discrete (CW) spurious emissions which are permitted to exceed the limit up to -30 dBm”

to reflect its intent. I have tried to suggest an alternative, but I can't because I simply don't understand it.

Reason:

I don't understand the sentence.

Resolution: Accept/modified. Resolution:

- On Line 3 of Page 44, replace “permitted” with “each permitted”

M09 44 9 6.1.3

Change:

Change abbreviation of “CS” (for “channel separation”) in Figs. 9-10 to something else. “S” would be fine.

Delete footnotes in Fig 9-10.

Modify abbreviation of “CS” in abbreviation list (p. 18)

Reason:

“CS” is already used for “Central Station” and needs to remain that way due to reference to work of other bodies in Annex D.

This double usage is needlessly confusing. The Figures are in vector graphics and can easily be edited. No body text need be changed.

Resolution: Reject. Explanation: The figures are used by permission of ETSI and should not be altered. The abbreviation is commonly used in ITU.

M10 58 17 6.3.1.3

Change:

Rewrite the sentence: “Simulation results described in other sections of this document indicate that limiting co-channel interference impairments will likely occur as the result of some-one major interference conflict.”

to reflect its intent. I have tried to suggest an alternative, but I can't because I simply don't understand it.

Reason:

I don't understand the sentence.

Resolution: Accept/modified. Resolution:

- On Lines 17-18 of Page 58, replace sentence with “From the simulation results described in other sections of this document, it has been found that some single interference coupling is usually dominant when worst case interference levels are examined”.

M11 60 2 6.3.2

Change:

Rewrite: “Where coordination between the victim and interfering operators is possible, the occasions where this kind of interference is experienced may be reduced.”

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I suggest, "Coordination between operators will reduce the likelihood of this kind of interference." [provided that this matches the intent.]

Reason:

I don't understand the sentence.

Resolution: Accept

M12 69 24 8.1.8

Change:

Rewrite the sentence: "It is concluded that, although many results are improved by use of more tightly specified antennas, the absolute value (probability of interference) tends to be quite low with all the antennas considered."

to reflect its intent. I have tried to suggest an alternative, but I can't because I simply don't understand it. I suggest deleting "absolute value," because that is particularly mysterious.

Reason:

I don't understand the sentence.

Resolution: Accept/modified. Resolution:

-Replace the two sentences from Lines 23 to 26 on Page 69 with:

"In particular, simulations have been completed using data for antennas with a range of RPEs. While many of the simulation results show improvement with the use of antennas with enhanced RPEs, the relative value of the performance improvement was found to be modest for all of the antennas considered."

M13 73 38 9.4

Change:

Delete the paragraph on lines 38-40.

Reason:

This paragraph is inconsistent with 5.3.1.3.1, Case B, which says: "Note that downstream power control from BS transmitters is usually not employed, as the BS signal is received by a variety of SSs, both near and far, and power control would tend to create an imbalance in the level of signals seen from adjacent sectors."

It is also inconsistent with the statement in 6.1.1.6 that "This Practice assumes that no downstream power control is employed." If someone follows the suggestion in 9.4, then they will be in violation of the assumptions of the Recommended

Resolution: Accept

M14 76 17 9.10

Change:

Delete subclause 9.10.

Alternately, decide the topic of the subclause and whether emissions are part of it. Explain the topic in the opening paragraph of the subclause. If appropriate, delete the reference to emission in 9.10.2. Explain in Proposal 3 whether the references refer to emission or immunity. I don't understand the topic of 9.10. The opening paragraph seems to describe the problem of interference with a BWA system. However, 9.10.2 introduces BWA emissions as a topic. It also speaks of "regulatory requirements," which I assume are mainly on emissions (but it also refers to "stringent requirements for immunity stated in many regulatory requirements"; I don't understand). Are emissions addressed in any of the proposals? I don't see them anywhere, although they might be in the references cited in Proposal 3.

Reason:

What is the problem this subclause is solving?

Resolution: Accept/modified. Resolution:

Make the following changes:

- Delete subclause 9.10.
- Delete “EMC” and “EMI” from abbreviation list
- Delete second paragraph of Subclause 4.1 (this paragraph introduces 4.1)

M15 76 29 9.10

Change:

Replace the word “Proposal” with the word “Technique” for the six items labeled as “Proposals” in 9.10.1 and 9.10.2. This corresponds to the word “technique” used in the introductory paragraph to 9.10.

Reason:

The use of the word “Proposal” is ambiguous. The purpose of a Recommended Practice is to state what “should” be done, not to list “proposals” for what should be done.

Resolution: Superseded by Resolution of Comment 14.

M16 76 34 9.10.1

Change:

Change the statement:

“It has been considered that grounding the coax cable every 50 feet will mitigate voltage potential differences.”

to say something specific, such as “Coax cables should be grounded every 50 feet to mitigate voltage potential differences.”
Alternatively, delete the sentence.

Reason:

The intent of this statement is impossible to decipher. Is this a recommendation, or is it not? If not, do you need it?

Resolution: Superseded by Resolution of Comment 14.

M17 76 40 9.10.2

Change:

Change first paragraph of 9.10.2 to “Human-generated EMI effects can be avoided by good design.”

Reason:

Line 40, refers to “the product”; this is repeated on Page 77 (Lines 2, 6, and 17). What product is this? The document as a whole refers not to products but to behaviors of operators. If the concept of products is suddenly introduced, there is an obligation to explain. It would be easier and more effective to delete most of the words.

Resolution: Superseded by Resolution of Comment 14.

M18 77 6 9.10.2

Change:

Add to Clause 2 the following, with the correct citation format:

*“ETSI standard EN 300 385 (new number EN 301 489-4) ‘ EMC standard for fixed radio links and ancillary equipment’

*Bellcore GR-1089-CORE ‘ Electromagnetic Compatibility and Electrical Safety – Generic Criteria for Network Telecommunications Equipment ’

Reason:

Proposal 3 is a serious recommendation, since it uses the word “should”. The “should” refers to the recommendation to follow two standards. If the intent is really to make this recommendation, then the two standards should be cited in the normative reference list (Clause 2). [Right now, they aren't even in the Bibliography.]

Resolution: Superseded by Resolution of Comment 14.

M19 77 6 9.10.2

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Change:

Change “The product” to “The system”

Reason:

I don't know what “the product” is, but this document is supposed to apply to the operation of a system.

Resolution: Superseded by Resolution of Comment 14.

M20 77 13 9.10.2

Change:

Delete Proposal 4.

Reason:

I cannot understand the meaning of Proposal 4: “In a fixed BWA inter-system environment, the system many have to be located at a minimum distance from the other operator's equipment, to reduce interference to an acceptable level.” In any case, the issue of inter-system interference is dealt with at great length elsewhere in the draft. This cursory reference to the issue here trivializes the entire matter.

Resolution: Superseded by Resolution of Comment 14.

M21 77 17 9.10.2

Change:

Change “The product” to “The system”

Reason:

I don't know what “the product” is, but this document is supposed to apply to the operation a system.

Resolution: Superseded by Resolution of Comment 14.

M22 77 18 9.10.2

Change:

Change “interference with” to “interference from”

Reason:

To clarify that the issue is BWA system immunity, not BWA system emissions.

Resolution: Superseded by Resolution of Comment 14.

M23 90 6 Annex C

Change:

Add captions to captionless figures in Annex C:

C.3: Layout Model

C.4: Victim CS

C.5: Worst-Case Interference

C.6: Subscriber-to-subscriber (TS-to-TS), same area, adjacent channel, TDD only

C.8: Simulation Geometry

C.9: Mesh to PMP CS, co-channel, adjacent area

Reason:

All figures should have captions.

Resolution: Accept/ modified

Make changes as proposed except for C.5 . Change the C.5 text to “C.5: Worst-Case Interference” (spelling correction)

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M24 102 1 Annex C

Change:

Add caption to captionless Table C.1 in Annex C:

C.1: Simulation Results

Reason:

All tables should have captions.

Resolution: Accept

M25 104 1 Annex D

Change:

Add caption to captionless Table D.1 in Annex D:

D.1: Interference Classes

Reason:

All tables should have captions.

Resolution: Accept

M26 120 Annex G

Change:

Move References 16, 21, 22, 26, 27, 28, and 29 to the end of the bibliography.

Preface that section with the statement:

“The following documents, while not directly referenced in the text, are related and may be helpful to the reader.”

Reason:

These references are not cited in the text

Resolution: Accept

IEEE 802.16 Working Group on Broadband Wireless Access<http://WirelessMAN.org>

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01 May 2001

Dear P802.16.2 Balloting Group:

Thank you for your participation in the Sponsor Ballot of P802.16.2. The recirculation ballot closed on 26 April 2001. No votes were changed during this recirculation. The results <<http://ieee802.org/16/tg2/ballots/sponsorballot/group.html>> remain:

24 Approve
4 Abstain
0 Disapprove
2 Not Voting

By virtue of this result, the comment resolutions have been approved, and ballot is still considered to have passed.

We received three comments; all editorial. One was a compound comment containing multiple changes. Resolutions were developed by a comment resolution group, chaired by Phil Whitehead. All of the comments were accepted, although in some cases with modifications. I can certify that the originators of all the comments accept these resolutions.

At this time, we are initiating a ten-day recirculation of these comments and resolutions. Attached to this letter is a summary of the disposition of the comments. We expect this to be the final recirculation, so we are at the same time circulating the final draft that we plan submit to the IEEE-SA RevCom. You will find this included in the ballot package as Document P802.16.2/D3-2001.

Please take this opportunity to review this package. You need not reply; if you do not, your current vote will stand. You are entitled to change your vote, or to submit additional comments, if you object to the comment resolutions recorded here or if you object to the way any of the resolutions (in either round of recirculation) were incorporated in the final attached ballot draft. If you do not wish to change your vote or record a comment, please do not submit a new vote.

If you wish to re-vote or comment, please keep the deadline in mind. Instructions have been provided by the IEEE Balloting Center.

Sincerely,

A handwritten signature in black ink that reads "Roger".

Roger Marks

Comments received on P802.16.2, along with resolutions of ballot resolution committee:

(1) From: Scott Marin

Type: Editorial

Comment: The Table of Contents should show the titles of the Annexes.

Suggested Remedy: Add the title for each annex to the table of contents.

Proposed resolution: Accepted; IEEE Staff Project Editor will be instructed to generate complete Table of Contents in appropriate style.

(2) From: Scott Marin

Type: Editorial

Comment: ITU-R Document 9/2 has now been released as Recommendation ITU-R F.1509. The titles of the documents are the same except that Document 9/2 was an internal ITU-R draft and F.1509 is not the publicly available document that should be referenced.

Suggested Remedy:

*page 38, line 5, replace reference to "ITU-R Document 9/2 [9] and Addendum 1 to Document 9/2" with "Recommendation ITU-R F.1509 [9]"

*page 38, line 46 and page 39 line 17 replace "ITU-R Document 9/2" with "Recommendation ITU-R F.1509 [9]"

*page 39 line 23 Replace "ITU-R 9/BL/1 Draft new Rec.F[Doc9/2]" with "ITU-R Recommendation F.1509"

Proposed resolution: Accepted with modifications. Previous comment resolution moved the document from the Bibliography to the References, so references in text will be modified accordingly. The full reference will be “[ITU-R F.1509] Recommendation ITU-R F.1509: “Technical and operational requirements that facilitate sharing between point-to-multipoint systems in the fixed service and the inter-satellite service in the band 25.25-27.5 GHz.”

(3) From: Roger B. Marks

Type: Editorial

Comment: This is a compound editorial comment. Details are in Document IEEE 802.16c-01/08r1

Suggested Remedy:

Proposed resolution: Accepted, with some modifications [see detail below]

Contents of Comment 3, with proposed resolutions inserted:

The following page, line, and figure number refer to P802.16.2/D2-2001:

R01:

*Page 12, Lines 1-3: Replace the sentence with: "This document is not intended to be a replacement for applicable regulations, which would take precedence." This change is to supercede changes under consideration in this recirculation. It is intended to simplify and clarify the wording.

Proposed resolution: Accepted

R02:

*Page 15, Line 33: subscript the "o" in "Bo"

Proposed resolution: Accepted

R03:

*Page 13, Lines 9-10: change definition to "Wireless access in which the connection(s) capabilities are broadband." This change is to supercede changes under consideration in this recirculation.

Reasons:

- (a) The definition should refer to existing definition of "wireless access" so that the two are fully consistent.
- (b) Consistency with ITU-R F.1399. The definition there is "Wireless access in which the connection(s) capabilities are higher than the primary rate." However, P802.16.2 doesn't define "primary rate", so it would be better to make use of its definition of "broadband".

Proposed resolution: Accepted

R04:

*Page 13, Lines 36-38: change definition to "A contiguous portion of spectrum within a sub-band or frequency band, typically assigned to a single operator. NOTE - A collection of frequency blocks may form a sub-band and/or a frequency band." This change is to supercede changes under consideration in this recirculation.

Reason:

- (a) This makes the definition identical to that of ITU-R F.1399.
- (b) One key difference is the word "contiguous". The definitions are very different when the authorized band includes noncontiguous spectrum, as it often does in BWA. It seems that the draft generally seems to be thinking of the ITU-R definition.

Proposed resolution: Accepted

R05:

Figure 3: Fix the unintelligible screen version so that it looks like the printed version.

Proposed resolution: Accepted

R06:

Figure 4: the word “Victim” should be moved so that it’s clearly attached to the nearest arrow

Proposed resolution: Accepted

R07: Figure 6: change “Hub” to “SS”

Proposed resolution: Accepted with modification: change “Hub” to “BS”; change first two sentences following figure to: “The victim subscriber station is shown along with its radiation pattern (ellipses). The BS and several interferers are also shown.”

R08: Figure 8: subscript the “o” in “Bo” (six places); move the large double-headed arrow so it doesn’t lie on top of the “1”; add space between number and “dBW” (five places)

Proposed resolution: Accepted, provided that editable artwork can be obtained. IEEE Staff Project Editor will be directed to make this change when figure is redrawn.

R09: Figures 11-18: delete title inside figure frame (this is redundant with caption)

Proposed resolution: Accepted

R10: Figures 11-18: change “dBrel” to “pdf relative to 0° (dB)”; make same change in Tables 3-10

Proposed resolution: Accepted with modification: in Figures 11-18 and Tables 3-10, change “dBrel” to “relative gain (dB)”

R11: Figures 11-18: change “deg.” to “degrees”

Proposed resolution: Accepted

R12: Figures 11-20: delete frame around figure

Proposed resolution: Accepted

R13: Figure 19: delete title inside figure frame; delete legend (the box showing the symbol for “Availability”); add to end of caption the words “ R=3.6 km”); put “%” in parenthesis in vertical axis label; put “dB” in parentheses in horizontal axis label; delete hyphen before “dB” in horizontal axis label

Proposed resolution: Accepted

R14: Figure 20: delete title inside figure frame; delete legend (the box showing the symbol for “Series 1”); add to end of caption the words “ of 99.995%”); put “km” in parenthesis in vertical axis label; put “dB” in parentheses in horizontal axis label; delete hyphen before “km” in vertical axis label

Proposed resolution: Accepted

R15: Figure 22: delete Figure 22; change final sentence of 8.1.5 from “Figure 21 provides an example.” to “Figure C.5 provides an example.”; [If this is not acceptable, then: label the axes; delete legend (the box showing the symbol for “Series 1”); delete frame around figure.]

Proposed resolution: Accepted primary suggestion; delete Figure 22 and make change in 8.1.5

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R16: Figure A.1: move the arrows on “Min Sep’n” to clarify what they are pointing to; change “Min Sep’n” to “Minimum Separation”

Proposed resolution: Accepted, provided that editable artwork can be obtained. IEEE Staff Project Editor will be directed to make this change when figure is redrawn.

R17: Figure C.1: subscript the “i” in “Ri”

Proposed resolution: Accepted

R18: Figure C.2: subscript the “rc” in “Drc” and the “c” in “Rc”

Proposed resolution: Accepted

R19: Figure C.3: subscript the “c” in “Rc”

Proposed resolution: Accepted

R20: Figure C.7: change “Atm= 0.21 dB/km” to “Attenuation = 0.21 dB/km”

Proposed resolution: Accepted with modification: change "Atm=" to "Atmospheric attenuation ="

R21: Figure C.7: delete “O” below upper square

Proposed resolution: Accepted

R22: Figure C.8: change “Locus ofx 60 km psfd Test Probe” to “Locus of 60 km psfd Test Probe”; change “LMDS Deployment” to “Deployment” (two places); change “sq km” to “km²” [where the ‘2’ is superscripted]

Proposed resolution: Accepted

R23: Fig C.9: change “rx” to “Rx”; change “tx” to “Tx”; change “sub” to “subscriber”

Proposed resolution: Accepted; IEEE Staff Project Editor will be directed to make this change when figure is redrawn.

R24: Figure D.1: change “Pfd” to “pfd” (5 places); add space in “30days”

Proposed resolution: Accepted

R25: Figure F.1: change “Pfd” to “pfd” in note

Proposed resolution: Accepted

R26: Change first sentence of Recommendation 8 from “Utilize antennas for the base station and subscriber stations at least as good as shown in 6.2.” to “Utilize antennas for the base station and subscriber stations at least as good as the Class 1 antennas described in 6.2.”

Reason: to clarify that it is the Class 1 antennas that this sentence refers to.

Proposed resolution: Accepted

R27: Change the first two paragraphs of 6.2.2.1 from “The performance of BS antennas is divided into two electrical classes. Depending on the deployment environment, the specific antenna class may be chosen to provide suitable coverage. The distinguishing factor between the classes is the severity of interference into other transceivers. Although it is outside the scope of this document to address intra-system interference, selection of antennas may be principally determined by interference arising from within an operator's own network rather than from external sources.” to:

“The performance of BS antennas is here divided into two electrical classes. Class 1 represents the minimum recommended performance. Class 2 antennas have enhanced RPEs and represent more favorable coexistence performance.”

Reason: To distinguish the two classes by stating the Class 1 is recommended.

Proposed resolution: Accepted

R28: Change introduction to 6.2.3 (“Fixed BWA systems employ SS antennas that are highly directional, narrow-beam antennas. Although it is not as important for coexistence as the BS RPE, the RPE of the SS antenna is a factor in determining inter-system interference.”) by adding a second paragraph:

“The performance of SS antennas is here divided into three electrical classes. Class 1 is defined with moderate sidelobe characteristics and represents the minimum recommended performance. Class 2 and Class 3 antennas have enhanced RPEs and represent increasingly favorable coexistence performance.”

Reason: To introduce the concepts of antenna classes on the SS side, and to distinguish the classes by stating the Class 1 is recommended.

Proposed resolution: Accepted

R29: From this sentence in 6.2.2.1.1: “Figure 10 and Figure 11 illustrate the recommended azimuth co-polar and cross-polar RPEs for the two Electrical Classes of antenna.”

delete the word “recommended”.

Reason: because the word “recommended” should only be applied to Class 1

Proposed resolution: Accepted

R30: From this sentence in 6.2.2.1.2:

“Figure 12, Figure 13, and Figure 14 illustrate the recommended elevation RPEs for Classes 1 and 2. Some specific data points are provided in Table 5, Table 6, and Table 7; between these points, linear interpolation is used.”

delete the word “recommended”.

Reason: because the word “recommended” should only be applied to Class 1

Proposed resolution: Accepted

PROJECT NUMBER: P802.16.2

DATE: 04 May 2001

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.

Working Group Chair

Signature of Submitter

Title (role in Sponsor)

=====

FOR STANDARDS DEPARTMENT USE ONLY

Signature of IEEE Officer

IEEE-SA Standards Board Chair

Title

Date

Return to:

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

Ballot Summary

P802-16-2_D3-2001_2nd_Recirculation

Closing date: 2001-05-16

This is a recirculation ballot. The report collates the results from the following groups: 0000062 0000098 0000104.

1. This ballot has met the 75% returned ballot requirement.

30 eligible people in this ballot group.

25 affirmative votes

0 negative votes

4 abstention votes

=====

29 votes received = 96% returned
13% abstention

2. The 75% affirmation requirement is being met.

25 affirmative votes

0 negative votes

=====

25 votes = 100% affirmative

Ballot Details

Coordination Only

Name	Phone	E-mail
Bruce Barrow		
Yvette Ho Sang		

Balloters

Number	Name	Phone / E-mail	Vote	T	E	Graphics	Status Notes	Interest Category
05572953	Jim Carlo		Approve, no comments (Y)	-	-	-		Producer
06503270	Jose M. Costa		Approve, no comments (Y)	-	-	-		Producer

05046479	Guru Dutt Dhingra		Approve, no comments (Y)*	1	-	-		User
40199311	Thomas Dineen		Approve, no comments (Y)*	-	-	-		Producer
40065638	Mary DuVal		Abstain for lack of time (A1)	-	-	-		Government/Academic/Consultant
41311588	Vern Dubendorf		Approve, no comments (Y)*	-	-	-		Producer
05472527	Richard Eckard		Approve, no comments (Y)	-	-	-		User
06525786	John Eng		Abstain for lack of time (A1)	-	-	-		General Interest
08518995	Avraham Freedman		Approve, no comments (Y)*	-	-	-		General Interest
40306847	Simon Harrison		Approve, no comments (Y)	-	-	-		User
01550144	Vic Hayes		-	-	-	-		General Interest
01670801	Robert Heile		Approve, no comments (Y)	-	-	-		Government/Academic/Consultant
02708451	Charles Jackson		Approve, no comments (Y)	-	-	-		Producer
01556620	Hamadi Jamali		Approve, no comments (Y)*	-	-	-		General Interest

05995253	Brian Kiernan		Approve, no comments (Y)	-	-	-		General Interest
05845615	Gregory Luri		Approve, no comments (Y)*	-	-	-		User
06760854	James Scott Marin		Approve, comments (Y1)	-	2	-		General Interest
08122103	Roger Marks		Approve, comments (Y1)	1	2	-		Government/Academic/Consultant
08940611	Peter Martini		Approve, no comments (Y)*	-	-	-		Government/Academic/Consultant
02996635	Andy McGregor		Approve, no comments (Y)	-	-	-		Producer
41340769	Roderick McMullin		Approve, no comments (Y)*	-	-	-		Producer
08944704	Robert O'Hara		Abstain for lack of time (A1)	-	-	-		User
07022429	Roger Pandanda		Approve, no comments (Y)	-	-	-		General Interest
40300305	Ken Peirce		Approve, no comments (Y)*	-	-	-		Producer
01378470	Walt Roehr		Approve, comments (Y1)	1	1	-		Government/Academic/Consultant
08097867	Jon Rosdahl		Abstain for lack of expertise (A2)	-	-	-		General Interest

40247562	Jaideep Roy		Approve, no comments (Y)	-	-	-		General Interest
03239332	John Viaplana		Approve, no comments (Y)	-	-	-		General Interest
07284292	Don Wright		Approve, no comments (Y)*	-	-	-		User
05907266	Oren Yuen		Approve, no comments (Y)	-	-	-		User

* This ballot cast this ballot in the current circulation of this recirc ballot.

Summary of Eligible Voters by Interest Category

Interest Category	Affirmative(s)	Negative(s)	Abstention(s)	Not Returned	Total
User	6	0	1	0	7
Producer	8	0	0	0	8
General Interest	7	0	2	1	10
Government/Academic/Consultant	4	0	1	0	5
Voting Tally	25	0	4	1	30

Abstention details:	3 for lack of time (A1)	1 for lack of expertise (A2)	0 for other reasons (A3)
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