PROJECT	IEEE P802.16 Broadband Wireless Access Working Group
TITLE	Draft Coexistence PAR Adopted on May 11, 1999
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DIST	IEEE P802.16 Working Group
ABSTRACT	This document contains the wording for the PAR on "Coexistence of Broadband Wireless Access Systems" as agreed to by members of the IEEE 802.16 Coexistence Task Group on 11 May 1999. It is presented for acceptance as wording of the document to be submitted to the IEEE 802 Sponsor Executive Committee (SEC) for approval at the 802 SEC meeting on July 8, 1999. [Note: a vote of 12 May 1999 authorized the 802.16 Working Group Chair to submit this document, with suitable editorial revisions, to the IEEE 802 Sponsor Executive Committee (SEC) by 4 June 1999, requesting SEC approval at its meeting of 8 July 1999.]
NOTICE	

IEEE-SA Standards Board Project Authorization Request (PAR) Form

1. Sponsor Date of Request	2. Assigned Project Number	3. PAR Approval Date
8 July 1999 (expected)	tbd	16 September 1999 (expected)

4. Project Title, Recorder and Working Group/Sponsor for this Project

Document type and title:

- [ ] **Standard for**{document stressing the verb "shall"}
- [x] **Recommended Practice for**{document stressing the verb "should"}
- [ ] **Guide for** {document in which good practices are suggested}

Title: Telecommunications and Information Exchange Between Systems - LAN/MAN Specific Requirements - Coexistence of Broadband Wireless Access Systems

Name of Working Group:			IEEE P802.16: Broadband Wireless Access
Name of Official Reporter (usually the W.G. Chair) who must be IEEE/Affiliate AND Standards Association (SA) members.			Roger B. Marks
Title in WG:	Chair	IEEE/Affiliate Member #	[ ]
Company:	National Institute of Standards and Technology	Telephone:	303-497-3037
Address:	325 Broadway, MC 813.00	FAX:	303-497-7828
City/State/Zip:	Boulder, CO 80303	Email:	r.b.marks@ieee.org

Name of Sponsoring Society and Committee:			Computer Society, LAN/MAN Standards Committee; Microwave Theory and Techniques Society
Name of Committee Sponsor Chair:			Jim Carlo, LAN/MAN Standards Committee
		IEEE/Affiliate Member #	[ ]
Company:	Texas Instruments	Telephone:	[ ]
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City/State/Zip:	Dallas, TX 75243-6332	Email:	jcarlo@ti.com

5. Describe This Project; *Answer each of four questions below:*

a. Update an existing PAR No
b. Choose one from the following:
   - [x] New Standard
   - [ ] Revision of existing standard[ ]
   - [ ] Supplement to existing standard[ ]
c. Choose one from the following:
   - [x] Full Use (5-year life cycle)
   - [ ] Trial Use (2-year life cycle)
d. Fill in Target Completion Date to IEEE RevCom : 30 June 2000

6. Scope of Proposed Project:

This project covers development of a Recommended Practice for the design and coordinated deployment of broadband wireless access (BWA) systems 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 and blocking performance, for interference received from other BWA systems as well as from other terrestrial and satellite systems. Third, it will provide coordination parameters, including band plans, 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 licensees authorized bandwidth). The scope does not cover coexistence issues due to intra-system 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.

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7. 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 the 802.16 interoperability standard.
- Optimization of coverage and spectrum utilization.
- Cost-effective system deployment.

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8. Intellectual Property

a. Are you aware of any patents relevant to this project?
[Yes] {Yes, with detailed explanation below / No}

{Some companies within the group have indicated that they may have IP interest.}

b. Are you aware of any copyrights relevant to this project?
[No]

c. Are you aware of any trademarks relevant to this project?
[No]

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9. Are you aware of any other standards or projects with a similar scope?

[Yes] {Yes, with detailed explanation below / No}

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:

- International Telecommunications Union (ITU): ITU-R JRG 8A/9B and ITU-R 9B
- European Telecommunications Standards Institute (ETSI): Technical Committee TM (Transmission and

Multiplexing), Working Group TM4 (Fixed Radio Systems)
- Inter-American Telecommunication Commission (CITEL): Permanent Consultative Committee III: Radiocommunications (PCC-III)
- Association of Radio Industries and Businesses (ARIB): R&D Group for the Fixed Wireless Access System
- National Spectrum Managers Association (NSMA)
- Radio Advisory Board of Canada (RABC)

We will coordinate with these groups as appropriate.

10. International Harmonization

Is this standard planned for adoption by another international organization?
[Yes]
If Yes: Which International Organization [ITU-R]
If Yes: Include coordination in question 13 below

11. Is this project intended to focus on health, safety or environmental issues?

[No]

12. Proposed Coordination/Recommended Method of Coordination

Mandatory Coordination

SCC 10 (IEEE Dictionary)	by DR {Circulation of DRafts}
IEEE Staff Editorial Review by	by DR
SCC 14 (Quantities, Units and Letter symbols)	by DR

Coordination requested by Sponsor:

[ITU-R, esp. Joint Working Group 8A/9B]	by [LI]	{Circulation of DRafts/LIaison memb/COmmon memb}
[ETSI TM4]	by [LI]	{Circulation of DRafts/LIaison memb/COmmon memb}
[Others TBD]	by [DR]	{Circulation of DRafts/LIaison memb/COmmon memb}

Note: As required by the LAN/MAN Standards Committee, documentation of how of the project will address the Five Criteria for Standards Development is attached.

Rationale for a Broadband Wireless Access Coexistence Standard: Meeting the Five Criteria

1. Broad Market Potential

The 802.16 interoperability PAR (P802.16: Telecommunications and Information Exchange Between Systems - LAN/MAN Specific Requirements - Air Interface for Fixed Broadband Wireless Access Systems) justified the market potential for BWA systems (see Five Criteria Statement). However, successful deployment of BWA systems compliant to the future 802.16 interoperability standard will depend, in part, on a defined electromagnetic interference environment. As such, the guidelines developed in this project, which can be applied to existing systems in advance of the interoperability standard, will benefit the future success of systems compliant to that standard in the market.

2. Compatibility

This recommended practice will cover both existing BWA systems and systems compliant to a future 802.16 interoperability standard. As these latter systems will be compliant to the IEEE 802 architecture, this practice is applicable to 802. There will be nothing in this practice which contradicts or forces any deviation from IEEE 802 architecture in compliant systems.

Each standard in the IEEE 802 family of standards shall include a definition of managed objects which are compatible with systems management standards.

The proposed standard will conform to the 802 Functional Requirements Document, with the possible exception of the Hamming distance.

3. Distinct Identity

The 802.16 interoperability standard will cover interoperability of hub and subscriber stations. This practice covers coexistence of BWA systems that may or may not be capable of interoperation. As such, the subject is distinct from the interoperability project.

4. Technical feasibility

The 802.16 interoperability PAR addressed technical feasibility of BWA systems. A recommended coexistence practice is also technically feasible. There are precedents in cross-border coordination procedures, e.g. Radio Advisory Board of Canada has drafted a report regarding LMDS/LMCS cross border sharing. Another precedent is the FCC part 15 spectral "etiquette" for unlicensed systems in the band 1910-1930 MHz.

5. Economic feasibility

The 802.16 inteoperability PAR addressed economic feasibility of BWA systems. This recommended coexistence practice will enhance economic feasibility by reducing the need for case-by-case interference analysis that would otherwise add to the deployment cost of BWA systems. Furthermore, identification of equipment performance parameters will help focus component suppliers on design criteria which promotes lower deployment cost.