IEEE-SA STANDARDS BOARD

PROJECT AUTHORIZATION REQUEST (PAR) FORM (2004)

The submittal deadlines for the year 2004 are available.

Prior to submitting your PAR, please review the NesCom Conventions.

1. ASSIGNED PROJECT NUMBER P 802.16h **(Please leave blank if not available)**

2. SPONSOR DATE OF REQUEST Day: 15 **Month:** 10 **Year: 2004**

3. TYPE OF DOCUMENT (Please check one)

- ○ **Standard for** {document stressing the verb "shall"}
- ○ **Recommended Practice for** {document stressing the verb "should"}
- ○ **Guide for** {document in which good practices are suggested, stressing the verb "may"}

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4. TITLE OF DOCUMENT:

Draft Amendment to IEEE Standard for Local and Metropolitan Area Networks - Part 16: Air Interface for Fixed Broadband Wireless Access Systems - Improved Coexistence Mechanisms for License-Exempt Operation.

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5. LIFE CYCLE

- ○ Full-Use
- ○ Trial-Use

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6. TYPE OF PROJECT

- ○ New document
- ○ Revision of an existing document (indicate Number and year existing document was published in box to the right):
- ○ Amendment to an existing document (indicate Number and year existing document was published in box to the right): IEEE 802.16-2004 (####-YYYY)
- ○ Corrigendum to an existing document (indicate Number and year existing document was published in box to the right):

☐ Modified PAR (indicate PAR Number and Approval Date here: P [ ] - Day: [ ] Month: [ ] Year: [ ])

Is this project in ballot now? ○ Yes ○ No

State reason for modifying the PAR in Item #19.

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7. WORKING GROUP INFORMATION:

Name of Working Group:

IEEE 802.16 Working Group on Broadband Wireless Access

Approximate Number of Expected Working Group Members: 200

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8. CONTACT INFORMATION FOR WORKING GROUP CHAIR (must be an SA member as well as an IEEE and/or Affiliate Member)

Name of Working Group Chair: First Name: Roger Last Name: Marks

Telephone: +1 303 497 3037 FAX: E-mail: r.b.marks@ieee.org

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9. CONTACT INFORMATION FOR CO-CHAIR/OFFICIAL REPORTER, Project Editor or Document Custodian if different from the Working Group Chair (must be an SA member as well as an IEEE and/or Affiliate Member)

Name of Co-Chair/Official Reporter (if different than Working Group Chair): First Name: Last Name:

Telephone: FAX: E-mail:

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10. CONTACT INFORMATION FOR SPONSORING SOCIETY OR STANDARDS COORDINATING COMMITTEE

Sponsoring Society and Committee: C/LM (Please choose the correct acronym for your Sponsor Society/Technical Committee or SCC. For an acronym list, please click here.)

Sponsor Committee Chair: First Name: Paul Last Name: Nikolich

Telephone:	FAX:	E-mail:
+1 857 205 0050	+1 781 334 2255	p.nikolich@ieee.org

Standards Coordinator (Power Engineering Society Only):

Standards Coordinator: First Name: Last Name:

Telephone: FAX: E-mail:

IF THIS PROJECT IS BEING SPONSORED BY TWO SPONSORS, PLEASE COMPLETE THE INFORMATION BELOW

Sponsoring Society and Committee: MTT (Please choose the correct acronym for your Sponsor Society/Technical Committee or SCC. For an acronym list, please click here.)

Sponsor Committee Chair: First Name: Jeffrey Last Name: Jargon

Telephone: +1 303 497 3596 FAX: E-mail: jargon@boulder.nist.gov

Standards Coordinator (Power Engineering Society Only):

Standards Coordinator: First Name: Last Name:

Telephone: FAX: E-mail:

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11. SPONSOR BALLOTING INFORMATION (Please choose one of the following):

- ○ Individual Balloting
- ○ Entity Balloting
- ○ Mixed Balloting (combination of Individual and Entity Balloting)

Expected Date of Submission for Initial Sponsor Ballot: Month: 10 Day: 02 Year: 2006)

Please review the PAR form three months prior to submitting your draft for ballot to ensure that the title, scope and purpose on the PAR form match the title, scope and purpose on the draft. If they do not match, you will need to submit a modified PAR.

Additional communication and input from other organizations or other IEEE Standards Sponsors should be encouraged through participation in the working group or the invitation pool.

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12. PROJECTED COMPLETION DATE FOR SUBMITTAL TO REVCOM Day: 20 Month: 03 Year: 2007

If this is a MODIFIED PAR and the completion date is being extended past the original four-year life of the PAR, please answer the following questions. If this is not a modified PAR, please go to question #13

a. Statement of why the extension is required:	
b. When did work on the first draft begin?	Day: Month: Year:
c. How many people are actively working on the project?:	
d. How many times a year does the working group meet in person?:	
e. How many times a year does the working group meet using electronic means (i.e. teleconference, e-mail, web-based meetings)?:	
f. How frequently is a draft version circulated to the working group?:	
g. How much of the Draft is stable (Format: NN%)?:	%
h. How many significant working revisions has the Draft been through?:	
i. Briefly describe what the development group has already accomplished, and what remains to be done:	

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13. SCOPE OF PROPOSED PROJECT

Please detail the projected output including technical boundaries. Please be brief (less than 5 lines).

FOR REVISED DOCUMENTS ONLY - Please detail the projected output including the scope of the original document, amendments and additions.

This amendment specifies improved mechanisms, as policies and medium access control enhancements, to enable coexistence among license-exempt systems based on IEEE Standard 802.16 and to facilitate the coexistence of such systems with primary users.

Is the completion of this document contingent upon the completion of another document?

○ Yes (with detailed explanation below) ○ No

14. PURPOSE OF PROPOSED PROJECT

Please clearly and concisely define "why" the document is being done. Please be brief (less than 5 lines).

FOR REVISED DOCUMENTS ONLY - Please detail the projected output including the scope of the original document, amendments and additions.

This amendment provides measures to increase the efficiency and robustness of license-exempt operation.

14a. Please give the specific reason for the standardization project, with particular emphasis on the problem being solved, the benefit to be received and target users or industries.

This standard will improve the coexistence in license-exempt (LE) operation for IEEE 802.16 fixed wireless systems. It will reduce the potential for interference caused by such systems sharing the same LE bands. The mechanisms specified need to be widely implemented and interoperable for their benefits to be realized, so standardization is required. As result there will be improved user service experience and increased robustness and efficiency of spectrum use. This will expand the market opportunities for enterprise, service provider, and consumer applications.

15. INTELLECTUAL PROPERTY (Answer each of the questions below.)

Sponsor has reviewed the IEEE-SA patent material with the working group? ○ Yes ○ No

Sponsor is aware of copyright permissions needed for this project? ○ Yes ○ No

If yes, please explain:

Sponsor is aware of trademarks that apply to this project? ○ Yes ○ No

If yes, please explain:

Sponsor is aware of possible registration of objects or numbers to be included in or used by this project? ○ Yes ○ No

If yes, please explain:

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16. ARE THERE OTHER DOCUMENTS OR PROJECTS WITH A SIMILAR SCOPE?

○ Yes (with detailed explanation below) ○ No

If Yes, please answer the following:

Sponsor Organization:

Project Number:

Project Date: Day: Month: Year:

Project Title:

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17. FUTURE ADOPTIONS

Is there potential for this document (in part or in whole) to be adopted by another national, regional or international organization? Yes

If Yes, the following questions must be answered:

Technical Committee Name and Number: ITU TC SC WG

Other Organization Contact Information:

Contact Name: First Name: Jose Last Name: Costa

Contact Telephone Number: +1 613 763 7574

Contact FAX Number: +1 613 765 1225

Contact E-mail address: j.costa@ieee.org

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18. IF THE PROJECT WILL RESULT IN ANY HEALTH, SAFETY, OR ENVIRONMENTAL GUIDANCE THAT AFFECTS OR APPLIES TO HUMAN HEALTH OR SAFETY, PLEASE EXPLAIN, IN FIVE SENTENCES OR LESS.

No.

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19. ADDITIONAL EXPLANATORY NOTES{Item Number and Explanation}

☑ I acknowledge having read and understood the IEEE Code of Ethics. I agree to conduct myself in a manner which adheres to the IEEE Code of Ethics when engaged in official IEEE business.

Save This Form Review the Submittal

The **PAR Copyright Release and Signature Page** must be submitted by FAX to +1 732-875-0695 to the NesCom Administrator before this PAR will be sent on for NesCom and Standards Board approval.

Five Criteria for IEEE P802.16h Licence-Exempt Coexistence PAR

IEEE P802.16h Five Criteria, Revision 1

CRITERIA FOR STANDARDS DEVELOPMENT (FIVE CRITERIA)

Broad Market Potential
A standards project authorized by IEEE 802 shall have a broad market potential. Specifically, it shall have the potential for:
a) Broad sets of applicability.
b) Multiple vendors and numerous users.
c) Balanced costs (LAN versus attached stations).

a) IEEE 802 standards for wireless devices are widely implemented and widely used for numerous applications, such as local area networking, wireless Internet hotspots and home networks. Tens of millions of LE systems have been deployed from multiple vendors and are operating in LE bands. The IEEE 802.16 standard includes specifications for operation in the LE bands. As networks based on IEEE 802.16 cover larger areas, interference between IEEE 802.16-based LE systems poses a more significant problem than, for example, IEEE 802.11-based technologies. Radio compatibility and coexistence among multi-vendor IEEE 802.16-based systems is an important aspect of these new systems to mitigate LE performance impairment and ensure acceptance in the marketplace.
b) The goal of this project is to ensure that multi-vendor IEEE 802.16-based systems may be readily deployed in the LE bands with reduced interference to other, geographically co-located IEEE 802.16 –based LE services. Such a standards-based license exempt coexistence protocol is essential for mitigating potential concerns over 802.16 inter-system interference in license exempt bands. The result will increase significantly the market potential.
c) Given that a base station in a point-to-multipoint network can serve many user stations, improved coexistence will support an increase in the number of attached stations and the cost of the equipment will therefore be effectively spread over more users.

Compatibility
IEEE 802 defines a family of standards. All standards shall be in conformance with the IEEE 802.1 Architecture, Management and Interworking documents as follows: 802.Overview and Architecture, 802.1D, 802.1Q and parts of 802.1f. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with 802.
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 with the IEEE 802 Overview and Architecture, IEEE 802.1D, IEEE 802.1Q and parts of IEEE 802.1f.

Distinct Identity
Each IEEE 802 standard shall have a distinct identity. To achieve this, each authorized project shall be:
a) Substantially different from other IEEE 802 standards.

b) One unique solution per problem (not two solutions to a problem).
c) Easy for the document reader to select the relevant specification.

a) No current wireless project addresses the issue of coexistence of different IEEE 802.16 compatible systems operating in the shared LE bands.
c) A separate clause addressing LE coexistence will be provided, addressing the proposed modifications, to ease the readability of the standard.

Technical Feasibility
For a project to be authorized, it shall be able to show its technical feasibility. At a minimum, the proposed project shall show:
a) Demonstrated system feasibility.
b) Proven technology, reasonable testing.
c) Confidence in reliability

a) Ideas discussed in IEEE 802.16 Working Group Study Group on License-Exempt Coexistence, demonstrate the technical feasibility of the proposed goal. Inter-system communication and the scheduled nature of the 802.16 systems may be the basics for achieving the desired spectrum sharing.
b) The new protocols may use technology elements already defined in 802.16 or implemented in other wireless systems.
c) Systems using shared media rely on contention based multiple access protocols to share radio channels. Several wireless systems, including IEEE 802.11, use such mechanisms.

Economic Feasibility
For a project to be authorized, it shall be able to show economic feasibility (so far as can reasonably be estimated), for its intended applications. At a minimum, the proposed project shall show:
a) Known cost factors, reliable data.
b) Reasonable cost for performance.
c) Consideration of installation costs.

a) The economic feasibility of IEEE 802.16–based wireless devices is well documented.
b) The device cost will not be affected by the new protocols.
c) The operational costs will be lowered by including dynamic interference mitigation techniques in the IEEE 802.16 standards.