Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	MMR PAR and Five Criteria draft
Date Submitted	**2005-11-11**
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Re:	IEEE P802.16 MMR Study Group
Abstract	This contribution provides draft for the MMR PAR and Five Criteria
Purpose	Review and discuss MMR PAR and Five Criteria
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IEEE P802.16

MMR PAR and Five Criteria draft

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PAR FORM

PAR Status: Amendment of Standard
PAR Approval Date:
PAR Signature Page on File:
1. Assigned Project Number: none assigned [P802.16i]

2. Sponsor Date of Request:

3. Type of Document: Standard for

4. Title of Document:
Draft: Amendment to IEEE Standard for Local and Metropolitan Area Networks - Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems - extensions for support of relay stations

5. Life Cycle: Full-Use

6. Type of Project:
6a. Is this an update to an existing PAR? No
6b. The Project is a: Amendment to Std 802.16d/e

7. Working Group Information:
Name of Working Group: IEEE P802.16, Working Group on Broadband Wireless Access
Approximate Number of Expected Working Group Members: 50

8. Contact information for Working Group Chair:
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9. Contact information for Co-Chair/Official Reporter, Project Editor or Document Custodian if different from the Working Group Chair:
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Name of Co-Sponsoring Society and Committee:
Name of Co-Sponsoring Committee Chair:
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Name of Liaison Rep. (if different from the Sponsor Chair):
Telephone:
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11. The Type of ballot is: Individual Sponsor Ballot
Expected Date of Submission for Initial Sponsor Ballot: March 2007

12. Projected Completion Date for Submittal to RevCom: September 2007
Target Extension Request Information for a Modified PAR whose completion date is being extended past the original four-year life of the PAR: none currently

13. Scope of Proposed Project:
The proposed project seeks to create extensions to the IEEE 802.16 to provide, as appropriate, interoperable support for Relay Stations for 'Multi-hop" operation. The extensions will support transport of data, video, and voice services. It is anticipated that the Relay Stations may be of two types, stations that are notionally fixed in location and relays stations that are mobile.

Is the completion of this document contingent upon the completion of another document?
No

14. Purpose of Proposed Project:
The purpose of the extensions is to improve improve the coverage and capacity of 802.16 networks through the use of interoperable relay stations.

15. Reason for the Proposed Project:

The current IEEE 802.16 standard supports only two classes of devices, mobile stations (MSS) and and network base stations (BS) and traffic flows between these two station classes. The coverage and performance of a network may be enhanced if traffic may also be relayed through intermediate relay stations (RS). These relay stations may be in locations that provide advantageous radio coverage to both the network base station and the mobile station, and hence provide improved performance and coverage for mobile stations.

The work envisioned in this project will extend the protocols of 802.16 to support relay nodes for multi-hop traffic forwarding.

16. Intellectual Property:

a. Has the IEEE-SA policy on intellectual property been presented to those responsible for preparing/submitting this PAR? Yes
b. Is the sponsor aware of copyright permissions needed for this project? No
c. Is the sponsor aware of trademarks that apply to this project? No
d. Is the sponsor aware of possible registration activity related to this project? No

17. Are there other documents or projects with a similar scope? No
Similar Scope Project Information:

18. 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:
Organization Name: ITU
Technical
Committee ITU
International Yes
Contact Jose Costa
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19. Will this project result in any health, safety, or environmental guidance that affects or applies to human health or safety? No
If yes, please explain:

20. Sponsor Information
a. Is the scope of this project within the approved/scope/definition of the Sponsor's Charter? Yes
If no, please explain:
b. Have the Sponsor's procedures have been accepted by the IEEE-SA Standards Board Audit Committee? Yes

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

IEEE 802 Five Criteria

1. BROAD MARKET POTENTIAL

a) Broad sets of applicability.

The extension of the 802.16 to support relay stations is applicable to all 802.16 networks and enhances their coverage and operation for mutli-media traffic. The relay stations may be applied to existing or new-build networks. The principles of the enhancements may be applied to other radio communications networks.

b) Multiple vendors, numerous users.

The 802.16 support for relay stations may be used for products manufactured by existing and future vendors and support a wide range of network users including individual mobile subscribers and broadcast groups.

c) Balanced costs.

The support for relay stations does not change the costs for existing stations or networks, and enables improved performance capacity and coverage through their addition to existing or future networks.

2. COMPATABILITY

The proposed amendment will be compatible with the 802.16 architecture and standards.

3. DISTINCT IDENTITY

a) Substantially different from other 802 Projects

There are no other IEEE 802 projects working to develop support of relay stations for 802.16 networks.

b) One unique solution per problem (not two solutions to a problem).

The support of relay stations to enhance coverage in shadowed or underserved coverage regions is a unique solution applicable to 802.16 networks.

c) Easy for document reader to select the relevant specification.

The project will produce an interoperable extension to the IEEE 802.16 standard.

4. TECHNICAL FEASIBILITY

a) Demonstrated system feasibility.

The practical feasibility of supporting relay stations with 801.16 equipment has not yet been demonstrated, although technical studies have indicated its feasibility and value.

b) Proven technology, reasonable testing.

The main components of 802.16 technology and signalling are in use today and are readily extended to support relay nodes.

c) Confidence in reliability

There are outdoor IEEE 802.16 systems in operation today, and they have demostarted reliability for the services offered.

d) Coexistence of 802 wireless standards specifying devices for unlicensed operation

The working group proposing a wireless project is required to demonstrate coexistence through the preparation of a Coexistence Assurance (CA) document unless it is not applicable.
The project will create a CA document for those aspects of the 802.16 relay station operation that may occur in unlicensed spectrum to assure compatibility with other 802 wireless standards that may be sharing the same spectrum band.

5. ECONOMIC FEASIBILITY

a) Known cost factors, reliable data

The fundamental radio and base-band architecture of the 802.16 radios and networks is well known, and the addition of a relay station class is a low risk extension.

b) Reasonable cost for performance.

The extension of IEEE 802.16 products and/or chipsets to cover relay station operation is incremental to basic operation and is only applicable to those networks that opt to use the capability.

c) Consideration of installation costs.

The installation cost 802.16 networks with relay stations do not affect existing network costs and is anticipated to reduce cost for improved coverage and performance for new networks.