

Responses to comments on the GRIDMAN PAR and Five Criteria

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N/A

Purpose:

Provide response to question and comments on the draft GRIDMAN PAR and Five Criteria

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Further information is located at <http://standards.ieee.org/board/pat/pat-material.html> and <http://standards.ieee.org/board/pat>.

Contents

- This document includes three section containing question and comments from
 - The IEEE 802.11 WG
 - The IEEE 802 Executive Committee Chair
 - The IEEE SA Standards Board Chair
- Response are provide at the end of each section

From IEEE 802.11 WG

802.16 PAR

as stated in proposed PAR

- 5.2 Scope of Proposed Standard:
 - This amendment specifies changes to the most recently approved version of the IEEE 802.16 MAC with its management and data interfaces for operation with increased robustness in degraded infrastructure. It will make no PHY changes. This amendment will support path redundancy, mobile and local relaying, multi-hop relaying, Mobile Base Station, Low Duty Ratio, as well as operation in licensed, unlicensed and lightly licensed spectrum bands below 6 GHz with means and mechanisms to coexist with other radio access technologies (RATs).

802.16 PAR

- Scope Issues/Questions:
- What is “the most recently approved” it is not specific. What is “mobile and local relaying”? What is multi-hop relaying? Is a Mobile base station mobile, or is it talking to a Mobile Station? What is “low duty Ratio”? What bands are left after licensed, un-licensed and lightly licensed bands are excluded?
- The Scope statement seems loaded with terms lacking definition, but not substance.
- The Scope statement should be in present tense...”will support” should be changed to indicate what will be in the document.

WG11 proposed update to 802.16 PAR

- Propose that the PAR Scope statement be replaced with the following:
 - This amendment specifies changes to the IEEE 802.16 MAC and its management and data interfaces for operation with increased robustness in degraded infrastructure. No PHY changes are included. This amendment identifies means and mechanisms to coexist with other radio access technologies (RATs) in licensed, unlicensed and lightly licensed spectrum bands below 6 GHz.

802.16 PAR

- Reference in the 5C is not available:
- In your 5C Technical Feasibility clause a) there are references that we cannot access. Would you please provide a means for dot11 to get to this material?
- a) The IEEE 802.16 GRIDMAN Study Group and prior NRR WG Ad Hoc Committee have reviewed several presentations indicating that the proposed functions are technically feasible. The technical reference documents and in particular the NRR report (C802.16nrr-08_004r3) are available on the link; <http://dot16nrr.wirelessman.org>. Moreover there are examples of prototypes that have demonstrated that the goal of the project is achievable.

Response

- The GRIDMAN SG has received conflicting requests for both more specificity, and more generality for the scope. We have also received requests to modify / clarify the scope. To respond to this, we have added some definitions in subclause 8.1 of the PAR form. We have also both streamlined and clarified the content of the Scope in subclause 5.2.
- The referenced document has been moved to a more accessible location with the document number of 802.16gman 10/0019r1.
 - http://ieee802.org/16/sg/gridman/index.html#10_0019
- The reference in the five criteria has been updated.
- The following sides contain
 - Redline of changes made to Scope subclause referenced to 10/0013
 - Clean copy of changed text in scope
 - Copy of notes added in Notes subcluse

Redlined Copy of Modified Scope

Modify Scope statement as follows:

“5.2 Scope of Proposed Standard:

“This amendment specifies ~~changes~~ protocol enhancements to the ~~most recently approved version of the IEEE 802.16 MAC with its management and data interfaces for~~ enabling increased robustness and alternate radio path establishment in degraded network conditions. ~~It will make no~~ Limited OFDMA PHY extensions are included for enabling operation with radio path redundancy and direct communication between subscriber stations. ~~This amendment will support path redundancy, mobile and local relaying, multi hop relaying, Mobile Base Station, Low Duty Ratio, as well as~~ Also mobile base stations and mobile relay stations are supported. Operation in licensed, unlicensed and lightly licensed spectrum bands below 6 GHz with means and mechanisms to coexist with other radio access technologies (RATs) is supported. Support for enabling application specific specialized security suites is also provided.”

Clean Copy of Modified Scope

Modify Scope statement as follows:

“5.2 Scope of Proposed Standard:

“This amendment specifies protocol enhancements to the IEEE 802.16 MAC for enabling increased robustness and alternate radio path establishment in degraded network conditions. Limited OFDMA PHY extensions are included for enabling operation with radio path redundancy and direct communication between subscriber stations. Also mobile base stations and mobile relay stations are supported. Operation in licensed, unlicensed and lightly licensed spectrum bands below 6 GHz with means and mechanisms to coexist with other radio access technologies (RATs) is supported. Support for enabling application specific specialized security suites is also provided.”

Response

8.1 Additional Explanatory Notes:

In Section 5.2 the following definitions apply:

Degraded Network: The failure of one or more 802.16 network infrastructure nodes or network connectivity.

Robustness: The capability of the network to withstand and automatically recover from degradation to provide the required availability to support mission critical applications (essential to the core function of society and the economy). E.g. the ability to recover from a single point of failure.

Mobile Base Station: A base station which is capable of maintaining service while moving.

Radio Path Redundancy: The ability to provide alternative paths between base stations, relay stations, and subscriber stations.

From IEEE 802 Executive Committee Chair

PAR Comments from EC Chair

The scope of the PAR says "This amendment specifies changes to the most recently approved version of the IEEE 802.16 MAC with its management and data interfaces for operation with increased robustness in degraded infrastructure. "

The requirements are subjective. My specific concern is with the qualitative terms in the phrase "...for operation with increased robustness in degraded infrastructure."

Can you quantify/define "degraded infrastructure"? If yes, then perhaps "increased robustness" can be quantified by stating the system capacity won't fall below XXX% of theoretical max once the infrastructure has degraded as defined.

I encourage the group to try to remove as much subjectivity from the Scope as possible.

Response

- The GRIDMAN SG considered these comments. Some definitions were added in subclause 8.1 to clarify the intent and requirements the PAR addresses. (See slides at the end of the IEEE 802.11 response)
- Note that the quantitative increase in reliability required will be different for specific applications.

From IEEE SA Standards Board Chair

PAR Comments from SB Chair

Looks like a slightly dated PAR form was used (no substantive issues). Why wasn't it entered into myProject (that can be done without submitting)?

2.1 Title -- Improper title format (<base standard title first>, then “Amendment #:” (number may be excluded), then amendment title.

7.1 There are many communications technologies playing for Smart Grid business. Either answer the question No (other standards aren't making changes to 802.16), or state broader potential similar scope. For example:

Any particular network technology may target or be in the process of incorporating improvements for similar environmental circumstances (e.g., to improve applicability to Smart Grid). This project is limited to 802.16 network technology.

Response

- In 2.1, the PAR title has been updated in My Project to
 - Standard for Local and metropolitan area networks
Part 16: Air Interface for Broadband Wireless
Access Systems- Amendment: Higher Reliability
Networks
- In 7.1, the response has been changed to “no”.

Motion to WG

- Request renewal of the GRIDMAN Study Group