

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >
Title	Proposal for FIVE CRITERIA FOR IEEE 802.16 update for IMT-Advance PAR
Date Submitted	2006-09-28
Source(s)	Roger B. Marks NextWave Broadband, Inc. Scott Probasco Nokia Phil Barber Huawei
Re:	
Abstract	This contribution proposes the 5C to go with the PAR for the advanced 802.16 air interface.
Purpose	For consideration for forwarding to the IEEE 802 EC.
Notice	This document has been prepared to assist IEEE 802.16. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.
Release	The contributor grants a free, irrevocable license to the IEEE to incorporate material contained in this contribution, and any modifications thereof, in the creation of an IEEE Standards publication; to copyright in the IEEE's name any IEEE Standards publication even though it may include portions of this contribution; and at the IEEE's sole discretion to permit others to reproduce in whole or in part the resulting IEEE Standards publication. The contributor also acknowledges and accepts that this contribution may be made public by IEEE 802.16.
Patent Policy and Procedures	The contributor is familiar with the IEEE 802.16 Patent Policy and Procedures (Version 1.0) < http://ieee802.org/16/ipr/patents/policy.html >, including the statement "IEEE standards may include the known use of patent(s), including patent applications, if there is technical justification in the opinion of the standards-developing committee and provided the IEEE receives assurance from the patent holder that it will license applicants under reasonable terms and conditions for the purpose of implementing the standard." Early disclosure to the Working Group of patent information that might be relevant to the standard is essential to reduce the possibility for delays in the development process and increase the likelihood that the draft publication will be approved for publication. Please notify the Chair < mailto:r.b.marks@ieee.org > as early as possible, in written or electronic form, of any patents (granted or under application) that may cover technology that is under consideration by or has been approved by IEEE 802.16. The Chair will disclose this notification via the IEEE 802.16 web site < http://ieee802.org/16/ipr/patents/notices >.

FIVE CRITERIA FOR IEEE 802.16 update for IMT-Advance PAR

IEEE P802.16advance Five Criteria, Draft 0

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) The IMT-Advance radio interface standards is being developed by ITU-R based on global user and technology trends, the needs of developing countries, on common technical, operational and spectrum-related parameters of systems thus maximizing the commonality between IMT-Advanced air interfaces. By updating IEEE Std. 802.16 to meet the requirements of IMT-Advance, this amendment will ensure that IEEE Std. 802.16 fulfills a broad and globally defined set of use cases.

b) The internationally harmonized requirements of IMT-Advance and the consensus building process which is used to develop the radio interface standards will ensure wide industry support of the radio interfaces that are developed for IMT-Advanced. This wide support is anticipated to lead to reduced equipment complexity thus promoting multiple vendors to implement which meets the needs and requirements of ~2 billion users [Ref M.1645] utilizing the globally harmonized spectrum identified for IMT-Advance.

c) The requirements of IMT-Advance will apply equally to MS and the BS. Implementation complexity will be balanced between MS and BS.

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 IMT-Advance will specify requirements which can be met by various radio interfaces and system architectures. It is expected that the architecture, management and interworking principles from IEEE 802 can be used in the development of this amendment to IEEE Std. 802.16 to meet the IMT-Advance requirements. IEEE802.16 will thoroughly disclose and review with 802 any variance which emerges.

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) There is no other IEEE 802 standard which meets the IMT-Advance target requirements (1 Gbps in low mobility applications, 100 Mbps in high speed mobility applications)*
- b) The IMT-Advance radio interfaces will be developed through consensus building which will ensure that necessary unique solutions are achieved.*
- c) The project will produce an interoperable and distinguishable extension to the IEEE Std 802.16 so that users can easily distinguish the amendment from the original 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
- d) Coexistence of 802 wireless standards specifying devices for unlicensed operation

a) Initial deployments of 802.16 technology provide confidence that enhancements are feasible which will meet the IMT-Advance requirements. As part of the ITU process, there will be opportunity to submit input to the development of the requirements, ensuring a good match between the 802.16 amendment capabilities and the specified IMT-Advance requirements.

- b) Existing deployments of 802.16 technology have proven the technology, including testing and certification.*
- c) IEEE Std 802.16 technologies are now mature, with industry confidence in the reliability*
- d) not applicable since the project is only for licensed operation.*

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 viability of IEEE 802.16 systems has been analyzed within the industry and a number of development efforts are ongoing. The existence of these development efforts indicates that IEEE 802.16 systems are expected to have a cost that is consistent with reasonable business strategies. The proposed amendment is done within the framework of international standardization, which will further enhance the economic viability of the standard. The deployment costs of IEEE Std 802.16, such as radio and base-band architecture, are well known.

b) Because IMT-Advance is intended to be a global system, it is expected that superior performance can be achieved with massive economies of scale.

c) The anticipated installation costs for this type of technology are in-line with current industry practices for cellular systems.