

Five Criteria Statement for P802.16m PAR Proposal

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) IMT-Advanced radio interface standardization is being developed by ITU-R, based on global user and technology trends for next generation mobile networks and on the needs of developing countries. Common technical, operational and spectrum-related parameters of systems will maximize the commonality between IMT-Advanced air interfaces. By updating IEEE Std 802.16 to meet the requirements of next generation mobile networks targeted by IMT-Advanced, 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-Advanced and the consensus building process used to develop those radio interface standards will ensure wide industry support. This wide support is anticipated to lead to multiple vendor sources to meet the needs and requirements of ~2 billion users [ITU-R Rec. M.1645] utilizing the globally harmonized spectrum identified for IMT-Advanced.

c) The requirements of IMT-Advanced will apply equally to the mobile station (MS) and the base station (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.

IMT-Advanced will specify requirements that 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-Advanced requirements. IEEE 802.16 will thoroughly disclose and review with 802 any variance that 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) No other IEEE 802 standard meets the preliminary IMT-Advanced target requirements, including 1 Gbit/s data rate in low mobility applications and 100 Mbit/s in high-speed mobility applications.*
- b) The IMT-Advanced radio interfaces will be developed through consensus-building to achieve appropriate harmonization.*
- c) The project will produce an interoperable and distinguishable extension to the IEEE Std 802.16 so that users can easily distinguish the enhancements 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 to meet the IMT-Advanced requirements are feasible. 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-Advanced 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 their 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 baseband architecture, are well known.

b) Because IMT-Advanced is intended to be a global system, it is expected that significantly improved performance can be achieved with large economies of scale.

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