

## PAR content

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**Type of Project:** New IEEE Standard

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**1.1 Assigned Project Number:** P802.1CF

**1.2 Type of Document:** Recommended Practice

**1.3 Life Cycle:** Full Use

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**2.1 Project Title:** Network Reference Model and Functional Description of IEEE 802 Access Network

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**3.1 Working Group:** t.b.d., proposed IEEE 802.1

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None

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**3.2 Sponsoring Society and Committee:** IEEE Computer Society/LAN/MAN Standards Committee (C/LM)

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**4.1 Type of Ballot:** Individual

**4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot:** 03/2016

**4.3 Projected Completion Date for Submittal to RevCom:** 02/2017

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**5.1 Approximate number of people expected to be actively involved in the development of this project:** 40

## **5.2 Scope:**

This Recommended Practice specifies an access network, which connects terminals to their access routers, utilizing technologies based on the family of IEEE 802 Standards by providing an access network reference model, including entities and reference points along with behavioral and functional descriptions of communications among those entities.

## **5.3 Is the completion of this standard dependent upon the completion of another standard: No**

## **5.4 Purpose:**

Heterogeneous networks may include multiple network interfaces, multiple network access technologies, and multiple network subscriptions. In some cases such heterogeneous functionality must be supported in a single user terminal.

This Recommended Practice supports the design and deployment of access networks based on IEEE 802 technologies, guides the developers of extensions to the existing standards in support of a heterogeneous access network, and enables the use of IEEE 802 standards in new network deployments by specifying the functions of the IEEE 802 technologies when deployed in access networks.

## **5.5 Need for the Project:**

Modern heterogeneous networks, for applications such as Smart Grid, Home Automation, and Internet of Things, suffer from limitations in service control, security and provisioning.

This project will help to unify the support of different interfaces, enabling shared network control and use of software defined network (SDN) principles, thereby lowering the barriers to new network technologies, to new network operators, and to new service providers.

The project will generate a Recommended Practice to deploy IEEE 802 technologies in an access network enabling such heterogeneity.

## **5.6 Stakeholders for the Standard:**

IEEE 802 Working Groups, network operators, service providers, network equipment manufacturers, consumer electronic (CE) device manufacturers, and other standards developing organizations (SDOs).

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### **Intellectual Property**

**6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?:** No

**6.1.b. Is the Sponsor aware of possible registration activity related to this project?:** No

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**7.1 Are there other standards or projects with a similar scope?:** No

### **7.2 Joint Development**

**Is it the intent to develop this document jointly with another organization?:** No

### **7.3 International Standards Activities**

**A. Adoptions: Is there potential for this standard to be adopted by another organization?:** No

**B. Harmonization: Are you aware of another organization that may be interested in portions of this document in their standardization efforts?:** No

**7.4 Does the sponsor foresee a longer term need for testing and/or certification services to assure conformity to the standard?:** No  
**Additionally, is it anticipated that testing methodologies will be specified in the standard to assure consistency in evaluating conformance to the criteria specified in the standard?:** No

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### **8.1 Additional Explanatory Notes:**

#1.2: As Recommended Practices do not include mandatory statements, this document is not intended to serve as the basis of statements of conformance. However, the material provides a basis for the development of normative protocol standards that include mandatory statements and to which conformance can be stated. The sponsor may initiate the development of such protocol standards based on the underlying foundation established in this Recommended Practice.

#3.2, #5.6: Development of this Recommended Practice will recognize the essential stakeholder role of the IEEE 802 Working Groups in the results.

#5.2: In the scope of this project a router represents any Layer 3 forwarding entity including but not limited to IP technology.

The standard shall comply with IEEE Std 802 (IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture), IEEE Std 802.1D (IEEE Standard for Local and metropolitan area networks: Media Access Control (MAC) Bridges) and IEEE Std 802.1Q (IEEE Standard for Local and metropolitan area networks - Media Access Control (MAC) Bridges and Virtual Bridged Local Area Networks).

## 10.5 Criteria for standards development (five criteria)

Source: [http://www.ieee802.org/PNP/approved/IEEE\\_802\\_OM\\_v12.pdf](http://www.ieee802.org/PNP/approved/IEEE_802_OM_v12.pdf)

### 10.5.1 Broad market potential

A standards project authorized by IEEE 802 LMSC shall have a broad market potential.

Specifically, it shall have the potential for:

a) Broad sets of applicability.

The proposed 'Recommended Practice for Network Reference Model and Functional Description of IEEE 802 Access Network' is applicable to IEEE 802 technologies for a broad set of deployment cases and should guide new users of IEEE 802 technologies in the appropriate arrangement of IEEE 802 standards for access networks. The broad applicability was verified by the EC SG during its investigation of use cases like Wi-Fi offloading, Smart Grid and Software Defined Networking. Reference: <https://mentor.ieee.org/omniran/dcn/13/omniran-13-0048-04-0000-omniran-ecsg-results-and-outlook.pptx>

b) Multiple vendors and numerous users.

Due to the applicability based on the use of the existing IEEE 802 access technologies, the Recommended Practice is relevant to the vendors of IEEE 802 conformant equipment and will find usage for a variety of applications requiring communication infrastructures.

### 10.5.2 Compatibility

IEEE 802 LMSC defines a family of standards. All standards should be in conformance: IEEE Std 802, IEEE 802.1D, and IEEE 802.1Q. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with IEEE 802.1 WG. In order to demonstrate compatibility with this criterion, the Five Criteria statement must answer the following questions.

a) Does the PAR mandate that the standard shall comply with IEEE Std 802, IEEE Std 802.1D and IEEE Std 802.1Q?

Yes

b) If not, how will the WG ensure that the resulting draft standard is compliant, or if not, receives appropriate review from the IEEE 802.1 WG?

### 10.5.3 Distinct identity

Each IEEE 802 LMSC standard shall have a distinct identity. To achieve this, each authorized project shall be:

c) Substantially different from other IEEE 802 LMSC standards.

No current IEEE 802 standard specifies the access network reference model and functional interactions for IEEE 802 access networks.

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

The Recommended Practice will provide a generic model and a functional description of access networks based on IEEE 802 technologies. As the functional description is derived from the existing IEEE 802 protocols, the uniqueness of the IEEE 802 standards provides uniqueness for the described solutions as well.

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

The Recommended Practice will explain the use and combination of the existing IEEE 802 specifications for creating access networks guiding the reader in the selection of the appropriate specifications.

#### 10.5.4 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.

The Recommended Practice will document a reference model comprising widely used IEEE 802 protocols and procedures for access networks building the base for further deployments and possible functional enhancements of the IEEE 802 protocol suite.

Currently deployed networks manifest this functionality, e.g. integrated Wi-Fi/WiMAX networks.

b) Proven technology, reasonable testing.

As the project is based on the existing IEEE 802 specifications, proven technologies and reasonable testing can be assumed. Recommended Practices do not include mandatory statements, and this specification is not intended to serve as the basis of statements of conformance.

c) Confidence in reliability.

As the project is based on the existing IEEE 802 protocols and will not add new protocol specifications, the reliability of the IEEE 802 protocols will not be impacted.

##### *10.5.4.1 Coexistence of IEEE 802 LMSC wireless standards specifying devices for unlicensed operation*

A WG proposing a wireless project is required to demonstrate coexistence through the preparation of a Coexistence Assurance (CA) document unless it is not applicable.

- The WG will create a CA document as part of the WG balloting process.
- If the WG elects not to create a CA document, it will explain to the Sponsor the reason the CA document is not applicable.

Not applicable to the project, as it will not address any changes to the IEEE 802 wireless standards.

#### 10.5.5 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.

We anticipate that the implementation of this Recommended Practice will entail harmonization of existing network interfaces rather than adding new ones. This will ultimately lead to economic benefits by fostering economy of scale.