

INTERNATIONAL
STANDARD

ISO/IEC/
IEEE
8802-21-1

First edition
2018-04

**Information technology —
Telecommunications and information
exchange between systems — Local
and metropolitan area networks —**

**Part 21-1:
Media independent services**

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*Technologies de l'information — Télécommunications et échange
d'information entre systèmes — Réseaux locaux et métropolitains —*

Partie 21-1: Services indépendants des supports

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Reference number
ISO/IEC/IEEE 8802-21-1:2018(E)

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IEEE Standard for Local and metropolitan area networks— Part 21.1: Media Independent Services

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Abstract: Several use cases and services are defined, namely, handover between heterogeneous networks, home energy management system, software-defined radio access networks (SDRANs), radio resource management (RRM), and device-to-device (D2D) communication service that need to be implemented in conjunction with the media independent services (MIS) framework as specified in IEEE Std 802.21™-2017.

Keywords: home energy management system, IEEE 802®, IEEE 802.21™, IEEE 802.21.1™, media independent handover, media independent service, mobile node, mobility, network-assisted device-to-device communication, point of attachment, point of services, radio resource management, seamless, software-defined radio access network, use case

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PDF: ISBN 978-1-5044-3706-6 STD22402
Print: ISBN 978-1-5044-3707-3 STDPD22402

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Introduction

This introduction is not part of IEEE Std 802.21.1-2017, IEEE Standard for Local and metropolitan area networks—Part 21.1: Media Independent Services.

This standard defines several use cases and services, namely, handover between heterogeneous networks, home energy management system (HEMS), software-defined radio access networks (SDRANs), radio resource management (RRM), and device-to-device (D2D) communication service that need to be implemented in conjunction with the media independent services (MIS) framework as specified in IEEE Std 802.21-2017.

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IEEE Standard for Local and metropolitan area networks— Part 21.1: Media Independent Services

1. Overview

1.1 Scope

This standard defines several media independent services (MIS); handover, home energy management system (HEMS), software-defined radio access networks (SDRANs), radio resource management (RRM), and device-to-device (D2D) communication that shall be implemented in conjunction with the MIS framework as defined in IEEE Std 802.21™-2017 to optimize the performance of such services.

1.2 Purpose

The purpose of this standard is to describe the media independent use cases and services, and when implemented using the framework described in IEEE Std 802.21-2017, the user experience and management of mobile devices can be greatly improved. The services described in this specification are applicable for interworking between IEEE 802® networks and non IEEE 802 networks (e.g., cellular networks).

1.3 General

This standard describes the following use cases that can be independently implemented using the MIS framework (IEEE Std 802.21-2017), which improves the user experience of mobile devices and management of these devices by operators while mobile devices are either connected or interworking in a heterogeneous networking environment:

- Media independent handover service (Clause 5).
- Media independent service for software-defined radio access networks (SDRANs) (Clause 6).
- Media independent service for home energy management system (HEMS) (Clause 7).
- Media independent service for radio resource management (RRM) (Clause 8).
- Media independent service for device-to-device (D2D) communication (Clause 9).

The handover service use case provides link-layer intelligence and other related network information to upper layers to optimize handovers between heterogeneous networks. This includes media types specified by Third Generation (3G) Partnership Project (3GPP™), 3G Partnership Project 2 (3GPP2), both wired and wireless media in the IEEE 802 family of standards, and downlink-only (DO) media such as Digital Video