Functional Requirements

IEEE Project 802.11

DRAFT
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Version 0.3

Dear reviewers -

This is the third version of the functional requirements document.

This version reflects changes made to the version 0.2 (document 92/50) at the Leiden meeting.

Please see document 92-50 (version 0.2 of this document) and the minutes from the Leiden meeting to understand the changes contained herein. The change bars reflect the lines changed from version 0.2 (note: change bars can not reflect lines deleted from version 0.2, the editor urges you to compare the two documents).

This version of the document has been forwarded by the Functional Requirements working group to 802.11 with a recommendation for adoption during the July 1992 meeting.

Additional functional requirements are under discussion and will be added to this document as voted by the members of 802.11.

The functional requirements group has also adopted a formal procedure for processing issues related to functional requirements. Please see the minutes of the May 1992 meeting for a description of the process.

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Introduction:

This document contains the agreed upon definitions and functional requirements for 802.11.

Definitions:

The following definitions are used within this document:

MAC Service Data Unit (MSDU): The MAC Service Data Unit is information that is delivered as a unit between MAC service access points.

Wireless Medium (WM): The medium used to implement a wireless LAN.

Station (STA): Any *device* which contains an 802.11 conformant MAC and PHY interface to the wireless medium.

Coordination function (CF): That logical function which determines *when* a station operating within a BSS transmits and receives via the WM.

Distributed CF (DCF): A class of possible CFs where the same CF logic is active in every STA at any given time.

Point CF (PCF): A class of possible CFs where the CF logic is active in only one STA at any given time.

Basic Service Set (BSS): A set of STAs controlled by a single CF.

Extended Service Set (ESS): A set of interconnected BSSs which appear as a single BSS to LLC.

Basic Service Area (BSA): The area within which members of a BSS can communicate.

Extended Service Area (ESA): The area within which members of an ESS can communicate. An ESA is larger than or equal to a BSA.

Distribution System (DS): A system used to interconnect a set of BSSs to create an ESS.

Distribution System Medium (DSM): The medium used by a DS (for BSS interconnections).

Distribution System Services (DSS): The set of services provided by the DS which enable the MAC to transport MSDUs between BSSs within an ESS.

Access Point (AP): Any entity that has STA functionality and provides access to the DS.

Sign-On:
The process by which one STA identifies (and possibly authenticates) itself, and exchanges operational parameters in order to participate in a BSS.

Registration:
A process by which a STA gets it's "identity" (address, signature & certificates, etc.).

Authentication:
A higher layer process by which one STA convinces other STAs of it's "identity".

Functional requirements:

Externally Imposed requirements:

Documents which contain functional requirements that are hereby incorporated as 802.11 functional requirements:

802 Functional Requirements (document number P802-91/152).

802.11 PAR. (P802.11-91/58)

The 802.11 PAR supersedes the 802 Functional Requirements (P802-91/152) where they conflict.

General requirements:

The primary service provided by 802.11 is to deliver MSDUs between LLCs.

Continuity of service to the LLC layers within an ESS will be supported.

The MAC must accommodate *any* PHY transmission rate between 1 and 20 Mbs.

The 802.11 MAC and PHY will support the applications described in the 802.11 Market Requirements Document.

Any function or service unique to wireless networks will be handled within the 802.11 standard.

802.11 will support multicast services (including broadcast services).

The standard will support network management services.

Data Service Types:

802.11 will provide two classes of MSDU delivery service:

1) An *Asynchronous* MSDU delivery service.

2) A *Time-bounded* MSDU delivery service.

All 802.11 implementations will support the *Asynchronous* class service.

Stations using the *Asynchronous* and/or *Time-bounded* service must coexist within the same BSS.

Coordination Functions:

All 802.11 implementations will support a common default Coordination Function.

There will be a method for dynamically switching from the default Coordination Function and any other defined Coordination Function.

A single MAC shall be used to support all Coordination Functions.

There shall be mechanisms defined to resolve medium use conflicts.

MAC / PHY interface:

A single MAC will be used to support multiple PHYs.

A single MAC/PHY interface will be defined.

If the MAC/PHY interface is exposed, a conformant implementation must adhere to the defined MAC/PHY interface.

Security:

The standard shall support registration services.

The standard shall support authentication services.

Additional mechanisms beyond 802.10 shall be provided to address security issues unique to 802.11.