

IEEE Standards
PROJECT AUTHORIZATION REQUEST (PAR)

1. Date of Request: 1990-11-15

2. Assigned Project #: 802.11

3. Does this PAR revise a previously approved PAR? YES NO
Note: see PAR 802.4c withdrawal

4. Description of Standard New Trial Use
Proposed Document: Recommended Practice Revision of Std. _____ Full Use
Guide

5. Project Title:

Standard for Wireless Medium Access Method (MAC) and Physical Layer (PHY) Specifications

6. Scope of Proposed Standard: (Use attachment sheet if necessary)

To develop a Medium Access Control (MAC) and Physical Layer (PHY) specification for wireless connectivity for fixed, portable and moving stations within a local area.

Refer to the attachment for details

7. Purpose of Proposed Standard: (Use attachment sheet if necessary)

To provide wireless connectivity to automatic machinery, equipment or, stations that require rapid deployment, which may be portable, or hand-held or which may be mounted on moving vehicles within a local area.

To offer a standard for use by regulatory bodies to standardize access to one or more radio frequency bands for the purpose of local area communication.

Refer to the attachment for details

8. SPONSOR: Society: Computer Society

Committee: Technical Committee on Computer Communications (TCCC)

9. Name of Group that will write the standard: IEEE P802.11

10. Target Completion Date: 1992-12-31

11. Proposed Coordination: (See instructions.)
SCC10 (IEEE Dictionary)

Method of Coordination:

Refer to the attachment for details

12. Are you aware of any patent, copyright, or trademark issues? YES NO

Are you aware of any standards or projects with a similar scope? YES NO

(If yes, attach a sheet with a complete description of the impact of the similarities.)

PROJECT AUTHORIZATION REQUEST (PAR)

(cont'd)

13. Copyright Agreements for IEEE Standards

I hereby acknowledge my appointment as Official Reporter to the IEEE P802 Committee to write/revise a Standards Publication (entitled or to be entitled) Wireless Access Method and Physical Layer Specifications

In consideration of my appointment and the publication of the Standards Publication identifying me, at my option, as an Official Reporter, I agree to avoid knowingly incorporating in the Standards Publication any copyrighted or proprietary material of another without such other's consent and acknowledge that the Standards Publication shall constitute a "work made for hire" as defined by the Copyright Act, and, that as to any work not so defined, I agree to and do hereby transfer any right or interest I may have in the copyright to said Standards Publication to IEEE.

Name Vic Hayes

(chair of working group)

Title Chairman IEEE P802.11 Working Group

Date _____

14. Person delegated to receive communications and conduct liaison with interested bodies:

(This is normally the chair of the working group. If not please indicate IEEE position.)

Name Vic Hayes Telephone +31 3402 76528

Company NCR Systems Engineering b.v. Fax +31 3402 39125

Address Zadelstede 1-10 Telex 47390

City Nieuwegein State NL Zip 3431 JZ E-Mail Vic.Hayes@Utrecht.NCR.COM

15. Submitted by:

(This is normally the sponsor's liaison to the Standards Board. If not please indicate IEEE position and relationship to the sponsor.)

Name Donald C. Loughry Telephone 408 447 2454

Company Hewlett-Packard Company Fax 408 447 3660

Address 19420 Homestead Road, M/S 43UC Telex _____

City Cupertino State CA Zip 95014 E-Mail Don.Loughry%HP6600@HPlabs.HP.COM

6. Scope of proposed standard

To develop a Medium Access Control (MAC) and Physical Layer (PHY) specification for wireless connectivity for fixed, portable and moving stations within a local area.

Type of medium

The goal is that the MAC shall support PHYs using electromagnetic waves through the air (i.e. radio waves as well as infra-red or visible light).

PHY layer suitable for use with the electromagnetic frequency spectrum as described in the following paragraph will be defined with this standard. If evidence of need and sufficient interest exists other PHY layers will be considered at a later time.

Radio spectrum

Currently the only available unlicensed spectrum is in the ISM bands in the USA provisionally 915 MHz band in Canada and Australia. Test programs are underway in the UK and elsewhere, evaluating license free operation.

The initial effort will be for the ISM bands and to consider the use of additional bands beyond ISM.

However, these ISM bands are already heavily used, and it is felt that service degradation from other users will happen, increasing with time. Therefore, in order to further development of the standard, the 802.11 committee should participate in the development of changed or new regulations for short distance radio services in which all authorized users of any new frequency allocation shall be permitted to radiate only a defined maximum power density. The goal is to provide regulations which allow for an easy approval process for the end-user.

To further enhance the standard the 802.11 committee will undertake to document the benefits of, and make recommendations for international spectrum allocation and use, where possible.

Supported Stations

The standard shall support stationary stations, movable stations, and mobile stations moving at pedestrian and vehicular (local premises environment) speeds. This is to be implemented with one PHY if feasible.

Environment

Because the range of wireless transmission / reception may be smaller than the physical coverage area desired, a distribution system designed to provide range extensibility will be addressed as part of this standard.

The standard will include support of the following:

- Basic Service Area (BSA) in which each station can communicate with any other station in the BSA.
- Extended Service Area (ESA) in which each station can communicate with any other station via the defined and managed Distribution System.
- Stations which interoperate in both BSA and ESA shall be defined if feasible.

Possible target environments include:

- * in buildings and other premises such as offices, financial institutions, shops, malls, small and large industry, hospitals and residences,
- * outdoor areas such as parking lots, campuses, building complexes and outdoor plants and storages.

Note: The definition of performance classes within a PHY may be necessary to support environments with benign or hostile characteristics.

Supported service

The Wireless MAC shall support both connectionless service as defined in the MAC Service definition at rates between 1 and 20 Mbit/s as well as a service supporting packetized voice.

Compatibility requirements

The specification shall meet the following standards and documents:

- the IEEE P802 Functional Requirements including section 5.6.1 (in version 6.5) as defined below:

"5.6.1 The MAC Service Data Unit (MSDU) loss rate shall be less than $4 \cdot 10^{-5}$ for an MSDU length of 512 octets."

A minimally conformant IEEE P802.11 network will meet all of the P802 requirements except that 5.6.1 will be met at least 99.9 % of the time on a daily basis, in 99.9 % of the total geography of the service area.

IEEE P802.11 will define approaches to allow a minimally conformant network to achieve full conformance over the total geography of the service area.

- IEEE 802.2 MAC service Definition
 - ISO 10039 MAC Service Definition
 - IEEE 802.1 A Overview and Architecture,
 - IEEE 802.1 B for LAN/MAN Management,
 - IEEE 802.1 D for T and SRT bridges,
 - IEEE 802.1 F for Guidelines for the Development of Layer Management Standards,
 - IEEE 802.10 Secure Data Exchange.
- The standard shall anticipate restrictions on Electromagnetic fields and pulsing of Electromagnetic fields due to potential biological hazards.

7 Purpose of proposed standard.

To provide wireless connectivity to automatic machinery, equipment or, stations that require rapid deployment, which may be portable, or hand-held or which may be mounted on moving vehicles, within a local area.

To offer a standard for use by regulatory bodies to standardize access to one or more radio frequency bands for the purpose of local area communication.

Note: To make this purpose feasible, this PAR also authorizes IEEE P802 to petition or provide comments to regulatory bodies worldwide (e.g. the FCC in the USA, the Department of Communications in Canada, the RF agency of the Department of Trade and Industry in the UK and the Radio Frequency Commission of the CEPT of Europe)

10 Target completion

Architecture definition available	March 1991
First draft standard ready for ballot in 802.11	Nov 1991
First draft conformance standard ready for ballot in 802.11	March 1992
TCCC ballot of MAC & PHY standard	July 1992
TCCC ballot for conformance standard	Nov 1992
Submission to ISO of MAC & PHY standard and conformance standard	Dec 31, 1992

11 Proposed Coordination

SCC28	circulation of drafts
EMC	circulation of drafts
CCIR Task Group 8/1 (formerly IWP 8/13)	draft circulation
CEPT/RFC/FM	draft circulation
ETSI RES	corresp/membership overlap
ECMA TC32/TG10	corresp/participation
ISA SP-50	membership overlap
SCC10 (IEEE dictionary)	draft circulation
ASC X3S3	draft circulation
ISO/IEC JTC1/SC6/WG1 and WG3	Through ASC X3S3
ASC T1P1	correspondence

12. Patent, Related Project

Patents potentially relevant to the work of IEEE P802.11 are known to exist.

CCIR Study Group 9 owns a project designated "Question AM/8 or Z/9" titled "Radio Local Area Networks". To date there is no understanding of the level of interest of the project.

To prevent duplication of effort, IEEE P802.11 has requested the mandate to liaise to CCIR.