

IEEE 802.11
Wireless Access Method and Physical Layer Specifications

Title: **Regulatory Document References for the Frequency Hop
PHY(Revised)**

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Abstract: This submission documents text changes to regulatory references in the frequency hop PHY section of the draft as approved by the FH PHY subgroup in the May 1995 interim meeting. The text reflects modifications to the proposals made in document 119574.

Introduction:

Regulatory references are distributed throughout the FH PHY PMD specification. This submission was prepared in response to various letter ballot comments that regulatory information should be consolidated in an introductory paragraph in the PMD.

Note that the text of the draft standard was modified and issued in document 95-76, and subsequently approved by letter ballot. The adopted text was adapted from this document.

Summary of FH PHY subgroup approved changes

1. An introductory paragraph is added at the beginning of the PMD section.
2. Minor revisions are adopted in sections 10.6.5., 10.6.6.
3. Editorial changes are proposed for 10.6.8, and 10.6.9.

The following text changes were approved by the FH PHY subgroup 10.6.1.2, 10.6.5, 10.6.6

(NEW Paragraph) 10.6.1.2 Regulatory Requirements

Wireless LANs implemented in accordance with this standard are subject to equipment certification and operating requirements established by Regional and National regulatory administrations. The PMD specification establishes minimum technical requirements for interoperability, based upon established regulations for Europe, Japan, and the USA at the time of the draft. These regulations are subject to revision, or may be superseded. Requirements that are subject to local geographic regulations are annotated within the PMD specification. Regulatory requirements that do not affect interoperability are not addressed within this standard. Implementers are referred to the following regulatory sources for further information. Operation in countries within Europe, or other regions outside Japan or North America, may be subject to additional or alternative National regulations.

The documents listed below specify the current regulatory requirements for various geographic areas at the time the standard was developed. They are provided for information only, and are subject to change or revision at any time.

Europe:

Approval Standards: European Technical Standards Institute

Documents: ETS 300-328, ETS 300-339

Approval Authority: National Type Approval Authorities

Japan:

Approval Standards: Research and Development Center for Radio Communications (RCR)

Documents: RCR STD-33

Approval Authority: Ministry of Telecommunications (MKK)

North America:

Approval Standards: Department of Communications (DOC), Canada

Documents: GL36

Federal Communications Commission (FCC), USA

Documents: CFR47, Part 15, Sections 15.205, 15.209, 15.247.

Approval Authority: DOC (Canada), FCC (USA)

10.6.5 Occupied Channel Bandwidth

Replace current text with:

Occupied channel bandwidth shall meet all applicable local geographic regulations for 1 MHz channel spacing.

10.6.6 Minimum Hop Rate

Replace current text with:

The ~~rate at which the~~ PMD entity will hop at a rate ~~is required to hop~~ is governed by the MAC. The hop rate, ~~on the other hand,~~ is a managed object with a maximum dwell time subject to local geographic regulations.

The following proposed changes (10.6.8), (10.6.9), were designated as editorial.

10.6.8 Unwanted Emissions

Conformant PMD implementations of this FHSS standard shall limit the emissions that fall outside of the operating frequency range, defined in Table 10-10 of Section 10.6.2, to the geographically applicable ~~regulations~~ limits. ~~For the U.S.A., the Rules of the FCC parts 15.247, 15.205 and 15.209 are the applicable regulations that govern these emissions. For Japan, RCR STD-33 and for Europe, ETS 300-328, are the applicable regulations.~~

10.6.9 Modulation

The PMD shall be ~~It is~~ capable of operating using 2 level Gaussian Frequency Shift Key (GFSK) modulation with a nominal bandwidth bit-period (BT)=0.5. The PMD shall accept symbols from the set $\{\{1\},\{0\}\}$ from the PLCP. The symbol $\{1\}$ shall be ~~is~~ encoded with a peak deviation of (+f), giving a peak transmit frequency of (F_c+f) , which is greater than the carrier center frequency (F_c). The symbol $\{0\}$ shall be ~~is~~ encoded with a peak frequency deviation of (-f), giving a peak transmit frequency of (F_c-f) .

The peak frequency deviation, as shown in Figure10-16 below shall be greater than 110 kHz relative to the nominal center frequency F_c . F_c is the average center frequency of the last 8 bits of the preamble prior to the unique word. The deviation shall ~~is to~~ be measured mid symbol. Maximum deviation is not specified, but modulation is subject to the occupied bandwidth limits of 10.6.5.

The zero crossing error shall be less than +/- 1/8 of a symbol period. The zero crossing error is the time difference between the ideal symbol periods and measured crossings of F_c . This is illustrated in Figure 10-16 below.

References

1. DOC: IEEE P802.11-95/76, FH PHY Proposed Revisions to Section 10, Dean Kawaguchi, Ed Geiger, Jim Renfro, Jerry Loraine, Editors. March 1995.
2. P802.11/D1 Draft Standard IEEE 802.11. Sections 10.
3. DOC: IEEE P802.11-95/74, Regulatory Document References for the Frequency Hop PHY, R. Mahany, May 1995.

