

Federal Communications Commission**NPRM: NOTICE OF PROPOSED RULE MAKING**

Amendment of Regulations for Part 15 Spread Spectrum Devices

ET Docket No. 99-231 FCC 99-149

Released: June 24, 1999**Comment Date:** [75 days after publication in the Federal Register]**Reply Comment Date:** [105 days after publication in the Federal Register]

FCC proposes to amend the Part 15 Section 247 rules regarding the operation of ISM spread spectrum systems.

➤ Frequency hopping systems operating in the 2.4 GHz band (2400 - 2483.5 MHz) to allow for wider operational bandwidths.

➤ Refine the method for measuring the processing gain of direct sequence systems.

➤ Goal: Facilitate development and deployment of spread spectrum technology, particularly for high data rate wireless applications.

Summary of WBFH Proposals

	Power (dBm)	Power (W)	Channel (MHz @ -20dB)	Frequencies Used	Max Dwell Per hop (ms)	Dwell per 30 sec (ms)
Now	30	1	1	75	400	400
Proposed	30	1	1	75	400	400
Proposed	25	0.32	3	75	50	400
Proposed	23	0.20	5	75	20	400
Now 5.725-5.850	30	1	1	75	400	400
Proposed 5.725-5.850	30	1	1	75	400	400

DS Processing Gain

Processing gain (PG) shall be $\geq 10\text{dB}$

PG = improvement in SNR after filtering from coding and spreading

Today: PG (dB) = $\frac{\text{SNR with spread on}}{\text{SNR with spread off}}$

Proposed Methods:

No changes If chip rate ≥ 10 chips/symbol

If chip rate < 10 chips/symbol

Traditional CW jammer test

AND

Mathematical calculation of processing gain

OR

Jamming margin test using Guassian Noise

FCC Invites Comments:

(9) FCC does not believe new rules will result in any significant increase in interference to direct sequence spread spectrum systems.

- WBFH interference on DSSS
- DSSS can compensate by improving processing gain
- WBFH interference to Amateur Radio

(10) FCC believes that WBFH systems will achieve data rates substantially greater than 1 MHz systems.

- Effects of multipath interference and subsequent retransmissions

(14) The current jamming margin test is based on use of a CW signal as an interference source but propose to use a Guassian interferer.

- Effect of using a Guassian interferer in the current jamming margin test set-up and detailed measurement procedures.

(15) FCC proposes that results of jamming margin test be submitted along with a mathematical calculation of processing gain, if the DS system uses fewer than 10 chips per symbol.

- Requirements to submit the results of the jamming margin test as well as a calculation of processing gain to verify compliance.

Motion 1

Form a 802.11 WBFH study group (liaison with 802.15)
Analyze interference impact on legacy 802.11 systems
Report findings/recommendations to 802.11 by Thursday
Suggest further actions

Motion 2

Form a 802.11 DS Processing Gain study group (liaison with 802.15)
Fully understand rule changes
Define Gaussian noise source
Report findings/recommendations to 802.11 by Thursday
Suggest further actions