
IEEE P802.11
Wireless LANs

Letter to Secretary of FCC on 3rd Proposal to Fusion Lighting

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Abstract

A revised proposal for a limit on in-band emissions from RF lighting devices operating in the 2.45 GHz ISM band has been made by Harris, Symbol, and 3Com. A working group was formed by IEEE 802.11 to study both the response from Fusion Lighting to the previous proposal and the revised proposal for a limit on in-band emissions. The findings of the study group are embodied in a draft letter to the FCC.

Draft Text

July 8, 1999

Magalie R. Salas, Esquire
Secretary
Federal Communications Commission
445 12th St. SW
Washington DC 20554

Re: ET Docket No. 98-42 --- Ex Parte Communication

Dear Ms. Salas:

IEEE 802, the LAN/MAN Standards Committee ("the Committee"), is writing in regard to ET Docket No. 98-42: 1998 Biennial Regulatory Review, Amendment of Part 18 of the Commission's Rules to Update Regulations for RF Lighting Devices. The Committee has already submitted comments in the Commission's Notice of Proposed Rulemaking ("the Notice"), FCC 98-42 on several previous occasions. The Committee respectfully submits this further statement in the matter specifically regarding the comments from Fusion Lighting in their letter of May 28th, and to the subsequently revised proposal for a limit on in-band emissions for RF lighting devices as proposed by the Part 15/MSS Interests.

Regarding Fusion Lighting's Correspondence of May 28, 1999, we would like to make the following points:

- a. data shown in Figure 3 shows many spikes of energy in the spectrum on the order of 10 dB in magnitude. These spikes are consistent with a spectral "splatter" effect which is commonly noted when magnetrons undergo on/off and off/on transients. This is precisely the type of effect which will be eliminated by the use of DC power supplies.
- b. Fusion noted that the level of background noise at the independent test facility is approximately 1 mV/m. We note that the spectrum analyzer settings in Figure 11 of Fusion's May 28th correspondence indicate that the analysis bandwidth of the spectrum analyzer was 1 MHz. If this is accurate, it would indicate that the noise level at the test facility is extraordinarily high. An equivalent point source at a distance of 3 meters would require an EIRP of -35 dBm to generate a field strength of this magnitude. It would also indicate that this test

facility is completely incapable of testing for compliance with Section 15.209 of the Commission's Rules, which requires field strength measurements of 500 $\mu\text{V/m}$ @ 3m (ie half of the proposed 1 mV/m limit described by Fusion) for spurious emissions from intentional radiators operating above 960 MHz. We submit that either the test set up lacks sufficient sensitivity, or the background level of RF emissions are too high to permit accurate measurement.

In addition, we have carefully reviewed the 3rd proposal by the Part 15 / MSS Interests (dated June 21, 1999) for a limit on in-band emissions. Based on that review, we offer the following comments:

- a. We support expansion of region of peak emissions from 5 MHz to 20 MHz. We further support the location of this band in the 2460 to 2480 MHz region, as this will minimize adverse impact on existing FHSS and DSSS Part 15 systems, and promote joint use of the 2.45 GHz ISM band by both RF lighting devices and Part 15/MSS communications equipment.
- b. We are of the opinion that the limit for emissions in the 2400 - 2460 MHz and 2480 - 2500 MHz bands should remain at 1mV/m @ 3m as previously stated in the second proposal. The measurement method described in the Mar. 15, 1999 letter from Mr. Ray LaForge to Mr. Michael Ury indicates a video bandwidth setting of 10 Hz. For magnetrons displaying the type of spectral splatter described above, a limit of 10 mV/m is not sufficiently low to preclude the use of half-wave or full-wave rectified power supplies which have inadequate ripple suppression to prevent significant and harmful frequency transients of the magnetrons.

Based on these considerations, we recommend the current Part 15/MSS proposed limitation on in-band emissions be revised as follows:

Region I (2400 - 2460 MHz): Emissions shall be limited to 1 mV/m @ 3 m(avg)

Region II (2460 - 2480 MHz): Emissions shall be limited to 330 mV/m @ 3m (avg)

Region III (2480 - 2500 MHz): Emissions shall be limited to 1 mV/m @ 3 m (avg)

We thank you for your continued attention in this matter. We remain hopefully that a solution which is mutually agreeable to all parties in this matter can be reached.

Respectfully,

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