

Before the
Federal Communications Commission
Washington DC 20554

In the Matter of)	
)	
Modification of Parts 2 and 15 of the)	ET Docket No. 03-201
Commission's Rules for Unlicensed)	
Devices and Equipment Approval)	

COMMENTS OF THE ZIGBEE ALLIANCE

The ZigBee Alliance files these comments in response to the above-captioned Further Notice of Proposed Rule Making.¹

A. ABOUT THE ZIGBEE ALLIANCE

The ZigBee Alliance is a U.S.-based association of over 220 companies working together to enable two-way, reliable, cost effective, low-power, wirelessly networked monitoring and control products based on an open global IEEE wireless standard. The organization includes six of the world's top-ten semiconductor manufacturers, in addition to technology providers and original equipment manufacturers worldwide, and U.S.-based energy utility companies. Membership is open to all.

In the United States, ZigBee uses the 902-928 and 2400-2483.5 MHz unlicensed ISM bands.² ZigBee products are certified under Section 15.247. Industry analysts expect sales of ZigBee-enabled devices to reach 100 million units per year by 2010.³

¹ *Modification of Parts 2 and 15 of the Commission's Rules for Unlicensed Devices and Equipment Approval*, 22 FCC Rcd 11383 (2007) ("Notice").

² **Technical note.** ZigBee two-way wireless networking technology is based on the industry standard IEEE 802.15.4 wireless digital packet technology. In the 902-928MHz band, ZigBee wireless operates on 10 non-overlapping 2 MHz-wide channels, uses Offset-QPSK and Direct-Sequence Spread Spectrum, with a instantaneous data rate of up to 250kbps and transmit output levels generally between 0 and +10dBm, to ensure quick and efficient, low-duty-cycle

B. THE COMMISSION SHOULD CAREFULLY LIMIT THE APPLICABILITY OF A SPECTRUM ETIQUETTE.

The ZigBee Alliance takes no position on whether a spectrum etiquette is necessary to prevent interference in the ISM bands.

But if the Commission decides to adopt an etiquette, the ZigBee Alliance -- like other parties to the proceeding -- urges that it do so as narrowly as possible, being careful to exclude devices that are not part of the problem to be solved. The Commission should, further, draw the boundary between etiquette and non-etiquette devices so as to minimize the marginal cases. Where reasonable questions arise at the margin, the Commission should resolve them against imposing the etiquette.

As one possible boundary, the Commission could impose an etiquette only as to devices:

- operating in the 902-928 MHz band; and
- certified pursuant to Section 15.247; and
- capable of operation at data speeds in excess of 1 Mbps.

The last provision appropriately exempts ZigBee devices. The other provisions do the same for other non-interfering technologies, including RFID, narrow-band operation, meter-reading, and a host of other applications for which an etiquette is unnecessary.

We emphasize that an etiquette may be unnecessary even for many of the devices that meet these criteria. In particular, the Commission proposes duty cycle limitations on all

communications over interferor-laden channels. Channel access is via Carrier-Sense Multiple Access with Collision Avoidance (CSMA-CA).

³ For additional information, see www.zigbee.org.

transmitters operating at over 0 dBm.⁴ We note, however, that consumer and industrial devices with powers 10 to 20 dB higher have been operating in vast numbers with no systematic interference problems.

CONCLUSION

The Part 15 rules have been a fruitful basis for innovation. Unless it is designed and administered with the greatest care, a spectrum etiquette threatens to shut off this source of economic growth. The Commission should identify the categories of device that need additional controls (if indeed any do) as narrowly as possible, and should set up an etiquette that entails a minimum of restraint on those devices. The scope of the solution should not exceed that of the problem.

Respectfully submitted,

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As an accommodation to the ZigBee Alliance.

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⁴ Notice at para. 22.

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