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FCC

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554
FCC 96-36

In the Matter of)
)
Amendment of Parts 2 and 15 of the) ET Docket No.96-8
Commission's Rules Regarding Spread) RM-8435, RM-8608,
Spectrum Transmitters) RM-8609

To: The Commission

REPLY COMMENTS OF MULCAY CONSULTING ASSOCIATES

Pursuant to Section 1.415 of the Commissions Rules and Regulations, Mulcay Consulting Associates (MCA) respectfully submits an original and nine copies of Reply Comments in response to the Notice of Proposed Rulemaking (NPRM) in the above referenced proceeding.

1. MCA's INTEREST

MCA is a consulting company with many years of experience in the design, development, operation and marketing of microwave communications equipment and systems. MCA is interested in supporting changes in regulations that promote competition through technological innovation.

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List A B C D E

**2. CONSIDERATION MUST BE GIVEN TO RADIATION FROM
NON-COMMUNICATIONS EQUIPMENT OPERATING IN THE 2450 MHZ AND 5800
MHZ ISM BANDS**

2.1 The Part 15 Coalition, Western Multiplex Corporation, Metricom Inc. and Cylink Corporation, organizations and companies with considerable experience in the operation of spread spectrum radio systems in the ISM bands, made the point that radiation from non-communications equipment, operating under Part 18 of the Commissions Rules, was the most significant threat to communications equipment operating in the ISM bands.

**3. LIMITING THE EIRP IN THE 2450 MHZ BAND WOULD BE COUNTER
PRODUCTIVE**

3.1 Many of the commenting parties referenced studies¹ that showed significant background radiation levels in the 2450 MHz band. Their conclusion was that limiting the EIRP to 6 dBW would make many applications unusable, due to the received signal level being below the background radiation produced by non-communications equipment.

1. NTIA Report 91-279 and NTIA Special Publication 94-27

3.2 Radiation from non-communications equipment, operating under Part 18 of the Rules, is the major source of interference to communications equipment. Therefore, limiting the EIRP to 6 dBW would worsen the interference levels and unnecessarily eliminate many applications.

3.3 In many countries the 2450 MHz ISM band is being opened to spread spectrum communications equipment. However, CISPR 11, the international equivalent to Part 18 of the Rules, also allows unlimited radiation from non-communications ISM equipment. Measurements of background radiation have shown levels similar to those found in the United States. Because the Commission is often considered, by foreign regulators, as the leader in the regulation of new technologies, the way the Commission addresses the issue of the operation of communications equipment in the presence of radiation from non-communications equipment will have a significant impact on the export of 2450 MHz spread spectrum radios.

4. THE USE OF DIRECTIONAL ANTENNAS SHOULD BE ENCOURAGED

4.1 Many of the commenting parties noted that it is well known that as the gain (directivity) of antennas is increased, the frequency re-use within a given area is also increased.

4.2 MCA believes that maximizing frequency re-use is in the public interest and therefore, the use of directional (high gain) antennas should be encouraged.

5. THE POTENTIAL FOR EXCESSIVE RF EXPOSURE FROM HIGH GAIN ANTENNAS IS LESS THAN THE POTENTIAL EXPOSURE FROM LOW GAIN ANTENNAS

Several of the commenting parties correctly stated that as the gain of an antenna is increased, the RF power density in front of the antenna will decrease. It was also correctly stated that high gain antennas will usually be mounted in inaccessible locations, such as roof tops or on microwave towers, with limited public access. On the other hand, low gain antennas will usually be used in close proximity to the public, in wireless LANs or cordless phones, with frequent public exposure over long periods

of time. Therefore, if the Commission is concerned about the risk to the public from excessive RF exposure from communications equipment, the primary focus should be on the use of systems using low gain antennas, in devices such as cellular telephones, PCS equipment, cordless phones and Wireless LANs.

Respectfully submitted



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