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March 3, 1999

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Magalie Roman Salas
Secretary
Federal Communications Commission
The Portals Building
445 12th Street, SW
TW-A325
Washington, DC 20554

Re: *Ex Parte* Submission
ET Docket No. 94-124, RM-8308

Dear Ms. Salas:

On February 22, 1999, the Millimeter Wave Communications Working Group ("MWCWG") filed an opposition to a petition for reconsideration filed by Harmonix Corporation on August 20, 1998, in which Harmonix sought reconsideration of certain aspects of the Third Report and Order in the above-referenced proceeding.[1] The MWCWG's opposition also provisionally responded to a petition filed by New England Digital Distribution ("NEDD") on September 14, 1998, in the event the Commission accepts NEDD's late-filed petition.

After discussions with both the Commission staff and representatives of Harmonix, the MWCWG believes that additional background information regarding the transmitter ID requirement of Part 15.255 (3i) of the rules would assist the Commission in its review of the petition and MWCWG's opposition. Accordingly, the MWCWG is filing this supplemental letter.[2]

The MWCWG's goal in proposing the transmitter ID requirement, and the Commission's goal in adopting it, was to preserve the quality of the 59-64 GHz band for widespread use by many types of systems. The transmitter ID

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[1] Because the MWCWG's opposition was filed past the applicable Commission deadline, ,it was accompanied by a motion seeking leave to file.
[2] This letter is being submitted as an *ex parte* filing. If, however, the Commission concludes that it should be treated as a supplemental opposition to the Harmonix and NEDD petitions, the MWCWG hereby requests leave to file this supplemental response.

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requirement does nothing more than create a tool that manufacturers and operators of 60 GHz communications equipment will be able to use to mitigate and resolve interference among unlicensed transmitters operating in the 59-64 GHz band, without the intervention of the FCC.[3] The fundamental premise underlying the requirement is that, given this tool, users will find a way to share spectrum efficiently. Once an interfering device or installation is identified, a manufacturer or user can design a system around the interfering signal or work out an operating agreement with the other affected party.

The transmitter ID requirement is not a barrier to market entry for any manufacturer large or small. Initially different manufacturers will have different approaches to implementing the requirement, but it is hoped that an industry standard will evolve over time so that its use will be simplified throughout the community of operators. In its petition, Harmonix seems to urge adoption of "a publicly known standardized methodology for modulation, demodulation, access and conflict resolution in the coordinate channel is established."[4] While the MWCWG agrees that standardized methodology would be useful, it believes that a voluntary industry standard, which will evolve over time out of the industry's and users' experience, is more likely to yield the desired result than a government-mandated standard. For this reason the transmitter ID rule does not contain, nor should it contain, any reference to a standard.

As to practical implementation of the requirement, although some communications equipment may include features for receiving and displaying transmitter ID information, it is far more likely that system operators, who will equip themselves with diagnostic tools for the purpose, will be the principal users of transmitter ID signals.

Typical interference scenarios that could benefit from the transmitter ID include, but are not limited to, the following:

a. A popular line of sight from rooftop A to pole B that is shared by links operated by different users.

b. An indoor LAN which receives interference from an outdoor point-to-point link or another LAN.

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[3] Harmonix apparently believes that narrow beam width transmitters are incapable of causing interference into wide beam width receivers. In its "Proposed Solution," Harmonix defines a new class of devices called "diverse" transmitters. Further, it proposes that these devices, arbitrarily defined as those having half power beam width in both the E and H plane in excess of 60 degrees, be subject to transmitter I.D. requirements, whereas directional devices — such as Harmonix product — be exempt from this rule. In fact, both types are equally capable of causing interference into the other. There is no basis to exempt one class of transmitters from the transmitter ID rule.
[4] Harmonix Petition, paragraph 3b.

c. A critical point-to-point link which carries large volumes of data and must constantly monitor possible sources of interference.

d. A factory floor which uses 59-64 GHz industrial position monitoring equipment and may be subject to interference from nearby communications links, due to inadvertent reflections.

The following is an example of how the transmitter ID might be used in such scenarios:

1. Manufacturer A develops a high-speed data communications link intended for point-to-point use. To comply with the transmitter ID requirement, the manufacturer either inserts additional bits into the device's data stream or adopts a modulation scheme that will allow the transmitter ID information to be separated from the message information.

2. In its application for an equipment authorization, Manufacturer A describes how interested parties can obtain the information needed to detect and decode the device's transmitter ID. For example, it may state that a description of its transmitter ID modulation scheme is posted on its website, along with specific instructions for demodulating and reading it. Interested parties could find out about this website by checking the equipment authorization application or by reviewing Manufacturer A's product literature.

3. XYZ Communication Services installs and maintains 60 GHz communications equipment for clients. XYZ will make it its business to be current on transmitter ID modulation schemes currently in use by industry. In addition, it may equip itself with a test set consisting of a general purpose radio receiver whose software can implement frequency band searches and various demodulation schemes, as well as display information in the format mandated for the transmitter ID.

4. When an XYZ installation encounters interference, XYZ can determine the direction and present operating frequency of the interfering system. In the absence of a transmitter ID, XYZ would not be able to determine the range or exact location of the offending transmitter. Using its test set or otherwise testing alternative modulation schemes, however, XYZ will be able to read the transmitter ID, find a contact phone number and negotiate a band sharing arrangement based on frequency separation. If the interfering system has not identified itself in the transmitter ID field, XYZ could learn the type of equipment being used and take avoidance measures based on the known characteristics of this equipment or, alternatively, trace the user

through the manufacturer, using model number and serial number information decoded from the transmitter ID.

The opportunity presented by the transmitter ID requirement is worth the minimal burden it imposes. The transmitter ID function must be built in from the beginning. Once a large variety of equipment is in the field, it will be too late to implement it. Its use is intended to be simple and low cost. It is a reasonable response to the problem presented by the unlicensed "spectrum commons" and the FCC should reject any effort to eliminate it before it has had a chance to be tested.

Respectfully submitted,

Henry Goldberg
Attorney for
Millimeter Wave
Communications Working Group

cc: Robert A. Phaneuf
Paul Feldman