

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)
)
Amendment of Parts 2 and 15 of the)
Commission's Rules to Permit Use)
of Radio Frequencies Above 40 GHz)
For New Radio Applications)

ET Docket No. 94-124
RM-8308

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY
JAN 30 1995
RECORDED

To: The Commission

COMMENTS OF THE AMERICAN RADIO RELAY LEAGUE, INCORPORATED

The American Radio Relay League, Incorporated (the League), the national non-profit association of amateur radio operators in the United States, by counsel and pursuant to Section 1.415 of the Commission's Rules (47 C.F.R. §1.415), hereby respectfully submits its comments in response to the Notice of Proposed Rule Making (the Notice), FCC 94-273, 9 FCC Rcd. 7078, released November 8, 1994. The Notice proposes to make available a total of 16 GHz of spectrum in the frequency range between 47.2 GHz and 153 GHz for commercial use, on a shared basis with existing and future government users, and 2 GHz of spectrum in the 40.5 to 42.5 GHz band for non-government users. The purpose of the proceeding is to create opportunities for short-distance wireless radio systems which in the past have had available for such purposes only coaxial and fiber optic cable. Such systems could support many short-range applications that require high bandwidth and high data transfer rates. In addition, the Commission wishes to provide for vehicular field disturbance sensor systems at 76-77 GHz, as part of the Intelligent Vehicle Highway Systems currently being developed by

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automotive manufacturers. In the interests of the Amateur Service relative to its allocations in this frequency range, the League states as follows:

1. The Commission's goal in this proceeding is laudable: the National Information Infrastructure (NII), which is formed around data communications systems and their interconnection, requires short-distance linking. The flexibility of short-distance wireless interconnection is, in certain applications, particularly those within and between multiple-unit buildings, an important facilitator to high-rate data communications. The Amateur Service has pioneered certain consumer uses of high-rate, wireless-interconnected packetized computer systems, especially wireless access to information systems, and recognizes the undeveloped potential which cannot be realized by coaxial and fiber-optic cable systems alone. Use of the millimeter-wave bands for vehicular, especially anti-collision radar and similar applications, is also in the public interest.

2. The Commission notes that the radio spectrum above 40 GHz is little used at the moment. This conclusion in the Notice is based on the fact that there are few service rules adopted to permit general use of millimeter wave spectrum above 40 GHz. One of the few exceptions to this general finding is that amateurs have, for years, been allocated numerous segments for experimentation in the 6 mm band (47.0-47.2 GHz), the 4 mm band (75.5-81.0 GHz), the 2.5 mm band (119-98-120.02 GHz), the 2 mm band (142-149 GHz), the 1 mm band (241-250 GHz) and all frequencies above 300 GHz. Sharing

provisions relative to certain of these amateur millimeter-wave allocations principally protect government and non-government radiolocation uses. These are not generally a practical limitation on amateur use of the bands for experimentation and short-distance communication.

3. Given this, the Amateur Service is most interested in protecting future use of the 4 mm allocation, and in avoiding preclusive sharing partners. The Notice, at footnote 5, states that the frequency band 76-81 GHz is allocated primarily for radiolocation services, and to the Amateur Service on a secondary basis. This is correct; the Amateur and Amateur-Satellite Services are allocated 75.5 to 76 GHz on a primary basis, and 76-81 GHz, secondary to the Government and non-government radiolocation services. However, that footnote also quotes the General Motors Research Corporation petition, RM-8308, filed July 13, 1993, which incorrectly claimed¹ that "the band (76-77 GHz) is not currently used by amateur operators." The General Motors petition purports to quote a representative of the League as the basis for that statement. That is an overstatement, and it was not ever made by any representative of the League. The League has insufficient information about the level of amateur experimentation ongoing presently in the 76-81 GHz band. It certainly is not prepared to state (and no representative of the League did state) that there is "no amateur operation" in the band now.

¹ See the Notice, at p. 2, footnote 5.

4. It is probably fair to say, however, that amateur use of the 76-77 GHz band is not significant at the present time. That band has potential for amateur short-range, high-speed data communications in the future. Just as commercial systems could utilize short-range, high-speed wireless data links in the millimeter-wave bands, new amateur communications systems, using similar interconnection, will refine and improve on the practical applications to be made in data communications technology, for the benefit of commercial users in other bands, and the public generally.

5. The Commission should not make any allocation decision based on assumptions about the current level of amateur use of the 4 mm band, or based on any representation from non-amateur sources about the current level of use thereof. However, General Motors Research Corporation, in its petition, indicated that its proposed use of the 76.0-77.0 GHz band is not incompatible with future amateur use of the 76-81 GHz band, and noted its intention that amateur use of the 76-77 GHz segment not be disturbed by its use for anti-collision vehicular field disturbance sensors. Furthermore, the Commission's Notice, at footnote 30, indicates that the segment proposed to be allocated for unlicensed vehicular radar, 76.0-77.0 GHz, is also allocated to the Amateur Service, and is available for use under Part 97 of the Commission's Rules. The Notice states that this allocation, and its service rules, are not affected by the instant proceeding. With that understanding, and

based on the representations of General Motors discussed below, the League does not oppose the proposal.

6. Indeed, this segment is the sole part of the only amateur allocation to be affected by this proceeding. The remainder of the amateur allocation, 77.0-81.0 GHz and 75.5-76 GHz, is unaffected by this proceeding. General Motors has noted that its proposed anti-collision field disturbance sensors would not cause harmful interference to existing or future users of the band; they would be operated at extremely low power levels; and they would have a low susceptibility to receiving interference due to the type of modulation employed and the use of a narrow beamwidth antenna. The League also notes that, in order to minimize the potential for interference to Intelligent Vehicle Highway System (IVHS) radar systems, the Commission does not propose to add any other users to the 76.0-77.0 GHz band. Provided that the Commission does not intend that amateurs have to protect vehicular radar systems from interference,² the League has no objection to the use of the 76-77 GHz segment for non-government vehicular field disturbance sensors.

7. Finally, the appendix to the Notice, which contains proposed amendments to Section 2.106, the Table of Frequency

² Protection of vehicular radar systems by amateur users would be impossible in any case, due to the mobile character of vehicular radar systems. If there is to be any interference resolution necessary, it will have to be by virtue of interference susceptibility reduction characteristics integrated into the radar systems by the manufacturers ab initio. The minor power levels and the antenna beamwidths proposed for use by vehicular radar systems offer amateurs significant confidence that any interaction between vehicular radar systems and amateur uses will be negligible, and, at worst, transitory.

Allocations, with respect to the 76-81 GHz segment, is incorrect as stated, and must be corrected. The Notice indicates no intention on the part of the Commission to allow unlicensed radio frequency devices generally in the 76-81 GHz band. Rather, it proposes only to permit unlicensed vehicular field disturbance sensors in the 76-77 GHz segment. While the proposed amendments to the Part 15 rules contained in the Appendix properly provide for unlicensed devices only in the 76-77 GHz portion of the 76-81 GHz band, and only for vehicular radar, the proposed Table of Frequency Allocations would permit Part 15 unlicensed devices generally throughout 76-81 GHz. The Table must be broken out relative to the 76-77 GHz segment, and a separate part of the table should be listed for 77-81 GHz. This will clarify that 77-81 GHz is not available for unlicensed Part 15 devices. Furthermore, in the section listing the FCC Service rules for the services permitted at 76-81 GHz, unlicensed part 15 devices are listed in capital letters, while the Amateur Service is listed in lower case letters. This would indicate that the Amateur Service has a lower allocation status in the band relative to unlicensed Part 15 devices. Such is not the Commission's proposal, and the reverse should appear: the Amateur Service should be listed in capital letters, and unlicensed Part 15 devices in lower case.

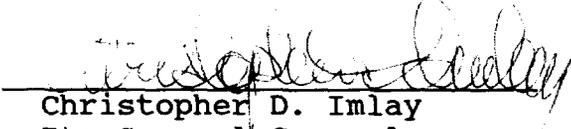
Therefore, with the changes noted above; with the understanding that the Commission proposes no change in the allocations or service rules for the Amateur Service at 76-77 GHz; and provided that there is no change proposed whatsoever for the 75.5-76 and 77-81 GHz segments, the League does not oppose the

proposed use of the 76-77 GHz band as set forth in the Notice. The Commission must correct the proposed Table of Allocations changes contained in the Appendix in any Report and Order adopted in this proceeding.

Respectfully submitted,

**THE AMERICAN RADIO RELAY
LEAGUE, INCORPORATED**

225 Main Street
Newington, CT 06111

By 
Christopher D. Imlay
Its General Counsel

BOOTH, FRERET & IMLAY
1233 20th Street, N. W.
Suite 204
Washington, D. C. 20036
(202) 296-9100

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