

Before the
Federal Communications Commission
Washington, D.C. 20554

In the matter of)
)
Amendment of Part 15 of the Commission's)
Rules to allow certification of equipment in the) ET Docket No. 98-156
24.05 – 24.25 GHz band at field strengths up to)
2500 mV/m)

MEMORANDUM OPINION AND ORDER

Adopted: July 15, 2003

Released: July 21, 2003

By the Commission:

INTRODUCTION

1. By this memorandum opinion and order, we deny the petition for reconsideration filed by the National Association for Amateur Radio (ARRL)¹ in response to our *Report and Order* in this proceeding.² We affirm the decision to allow the unlicensed operation under Part 15 of the Rules of fixed point-to-point transmitters in the 24.05 - 24.25 GHz band at field strengths up to 2500 mV/m. We reject ARRL's argument that such operation will result in an increased risk of interference to licensed amateur operations.

BACKGROUND

2. In the *Report and Order*, the Commission amended Part 15 of the Rules to allow unlicensed operation of fixed point-to-point transmitters in the 24.05 - 24.25 GHz band with field strengths up to 2500 mV/m.³ The Commission also adopted strict frequency stability requirements to limit out-of-band emissions to minimal levels.⁴ The Commission further decided that such devices must use directional antennas with gains of at least 33 dBi or a main lobe beamwidth not exceeding 3.5 degrees.⁵ In taking this action, the Commission concluded that it is in the public interest to allow such operation on an unlicensed basis to supplement the growing demand for licensed point-to-point facilities that satisfy

¹ Petition for reconsideration filed by the National Association for Amateur Radio (ARRL), also known as The American Radio Relay League, Incorporated.

² *Amendment of Part 15 of the Commission's Rules to allow certification of equipment in the 24.05 – 24.25 GHz band at field strengths up to 2500 mV/m*, ET Docket No. 98-156, *Report and Order*, 16 FCC Rcd 22,337 (2001).

³ *Report and Order* at ¶ 7. 47 C.F.R. § 15.249 (b) (1).

⁴ *Id.* at ¶ 15.

⁵ *Id.*, 47 C.F.R. § 15.249 (b) (3). The Commission also licenses transmitters in the 24.05 - 24.25 GHz band under Part 90 of the Rules. 47 C.F.R. § 90.103.

important communications needs. For example, the Commission concluded that increasing the field strength limit would promote greater use of Part 15 unlicensed devices for emergency restoration of communications in disaster situations, low-cost telecommunications delivery in rural areas, and other beneficial applications.

3. The Commission declined to adopt ARRL's proposal to require manufacturers to maintain detailed records of unlicensed transmitter installations operating with the parameters authorized in this proceeding and to supply this information periodically to ARRL for coordination purposes. It found that ARRL had failed to demonstrate a sufficient potential for interference or to provide any other basis for such a requirement. The Commission also reaffirmed its initial decision to exclude the 24.00 – 24.05 GHz sub-band due to the potential interference to primary amateur satellite operations and the uncertain operating characteristics of future amateur satellites in that band.

DISCUSSION

4. *Petition for reconsideration.* In its petition, ARRL argues that the power level and antenna gain/beamwidth figures adopted in the *Report and Order* for fixed point-to-point equipment operating in the 24.05 - 24.25 GHz band are inappropriate for unlicensed operation under Part 15 due to the potential for interference to licensed amateur services.⁶ In particular, ARRL is concerned about interference to the terrestrial amateur weak-signal stations that operate at 24.192 GHz within the 24.05 – 24.25 GHz band and notes that these stations utilize the same sensitive receivers as do amateur satellite communications in the 24.00 – 24.05 GHz sub band. ARRL contends that unlicensed fixed point-to-point operation in the 24.05 - 24.25 GHz band with 2500 mV/m and antenna gains of 33 dBi will create a "significant interference potential" to these licensed amateur services.⁷ While admitting in their reply that it is proper for the Commission to make a determination of interference potential in each case,⁸ ARRL asserts that the Commission improperly drew the line in this proceeding.⁹ ARRL argues that the Commission's authority to authorize unlicensed operation under Part 15 is limited by Section 301¹⁰ of the Communications Act to instances where the Commission finds that there is not a "substantial" or "significant interference potential" to licensed services.¹¹ ARRL further argues that Section 302(a)¹² obligates the Commission to limit the interference potential of RF devices, and creates no exception to the Section 301 licensing requirement for devices that have significant potential for interference to licensed radio services.¹³ ARRL contends that if a RF device is found by the Commission to have a significant

⁶ ARRL petition at 2.

⁷ ARRL reply at 1 - 5.

⁸ *Id.* at 3.

⁹ *Id.* at, e.g., 17, and generally.

¹⁰ Section 301 generally provides the statutory basis under the Communications Act for licensing the operation of "apparatus used for the transmission of energy or communications or signals by radio . . ." 47 U.S.C. § 301.

¹¹ ARRL petition at i, 5, and as clarified in ARRL reply at 1 - 5.

¹² Section 302 (a) states that "The Commission may, consistent with the public interest, convenience, and necessity, make reasonable regulations (1) governing the interference potential of devices which in their operation are capable of emitting radio frequency energy by radiation, conduction, or other means in sufficient degree to cause harmful interference to radiocommunications; and (2) establishing minimum performance standards for home electronic equipment and systems to reduce their susceptibility to interference from radio frequency energy. Such regulations shall be applicable to the manufacture, import, sale, offer for sale, or shipment of such devices and home electronic equipment and systems, and to the use of such devices." 47 U.S.C. § 302 (a).

¹³ ARRL petition at 1 and 7; and ARRL reply, generally, at 1-5.

interference potential, it is improper for the Commission to rely upon the requirement to cease operation under Section 15.5(c)¹⁴ in cases where harmful interference is being caused.¹⁵ It also asserts that devices such as those authorized in this proceeding serve the same function as licensed point-to-point microwave services, and therefore require individual licenses.¹⁶ Finally, ARRL requests that we “reconsider and reverse the portion of the *Report and Order* that addresses the Commission’s jurisdiction to authorize unlicensed operation of radio devices which have significant potential for interference to licensed radio services pursuant to Section 302(a) of the Communications Act . . .”¹⁷

5. On the other hand, as clarified in its reply, ARRL explicitly states that it does *not* challenge the Commission's general authority to authorize unlicensed operations under Part 15. ARRL also concurs that the Commission can make reasonable regulations regarding Part 15 devices pursuant to Section 302(a) of the Act.¹⁸ Indeed, ARRL notes that it takes no issue with the bulk of the Part 15 decisions made by the Commission over the years.¹⁹ ARRL states its belief that, below some interference potential, it is appropriate for the Commission to authorize unlicensed operation under Part 15.²⁰ In particular, ARRL accedes that the question of where to draw the line between licensed operation under Section 301 and unlicensed operation under Part 15 is “not a fixed, bright-line determination premised on an ERP or EIRP level, or a fixed field strength.”²¹ ARRL further states that the line is “dependent in every case on those factors, plus, for example, duty cycle, bandwidth, antenna gain or loss, emission type, deployment area, and the number of devices to be deployed.” Finally, ARRL acknowledges that “the Commission is the proper authority to draw the line in each instance, just as it does now.”

6. *Opposition.* In opposition to the petition for reconsideration, the IEEE Project 802 Local and Metropolitan Area Network Committee (IEEE 802) and the Information Technology Industry Council (ITI) argue that the Commission properly concluded that the potential for interference to licensed services from the systems authorized by the *Report and Order* is sufficiently low to allow their operation under Part 15.²² ITI argues that, unlike the 24.0 – 24.05 GHz band, which is designated primarily for amateur satellite operation, the 24.05 – 24.25 GHz band is shared with Radio Location Services, Earth Satellite Services, Part 90 Private Land Mobile devices, Part 18 Industrial, Scientific and Medical (ISM) equipment, and Part 15.249 radio devices.²³ ITI notes that the systems authorized in the *Report and Order* for unlicensed operation under Part 15 in this frequency range are highly directional point-to-point systems. Consequently, ITI argues that, even operating at 2500 mV/m using narrow beam directional antennas, these line-of-sight systems, should not pose any undue or significant threat to licensed amateur operation. Opponents also uniformly disagree with ARRL's interpretation that Section 301 posits a bright-line “significant interference potential” threshold for requiring individual licensing. They argue that the Commission properly exercised its authority in the *Report and Order* to authorize unlicensed

¹⁴ Section 15.5(c) states: “The operator of a radio frequency device shall be required to cease operating the device upon notification by a Commission representative that the device is causing harmful interference. Operation shall not resume until the condition causing the harmful interference has been corrected.” 47 U.S.C. § 15.5(c).

¹⁵ ARRL petition at 10.

¹⁶ *Id.* at i and 12.

¹⁷ *Id.* at 1.

¹⁸ ARRL reply at 7.

¹⁹ *Id.* at 2 - 3.

²⁰ *Id.* at 3.

²¹ *Id.*

²² IEEE 802 opposition at paragraph 22, and ITI response at 2.

²³ ITI response at 2.

operation under Part 15 in this proceeding.

7. *Decision.* At its most fundamental level, ARRL asserts that the Commission improperly concluded in the *Report and Order* that the unlicensed operation authorized therein would not create an increased risk of interference to licensed amateur services. Specifically, ARRL argues that unlicensed point-to-point operation in the 24.05 – 24.25 GHz band at 2500 mV/m creates a “significant” or “substantial” interference potential to licensed amateur services. We reject that proposition and, in doing so, also find the remainder of ARRL's petition to be without merit.

8. We affirm the central technical finding made in the *Report and Order*, namely, that devices having field strengths up to 2500 mV/m and conforming to the specified directional antenna requirements are suitable for unlicensed operation under Part 15 in the 24.05 – 24.25 GHz band. In particular, we affirm the conclusion that devices operating within these requirements will not increase the interference potential to licensed amateur services in the band.²⁴ The Commission found that the use of a directional antenna would change the shape of the radiated field but not increase the total geographic area being radiated. In other words, while signals will travel further along the narrow path of intended communication, the signals will be limited in all other directions.²⁵ The Commission found support for this rationale in other proceedings which find that a directional antenna requirement would ensure that the area over which harmful interference can occur is equivalent to what would be caused by a transmitter using an omni-directional antenna operating at a lower output power.²⁶ The Commission further rejected arguments by ARRL that the decision strayed from an earlier Commission decision in Docket No. 79-337 that denied a request to allow low power, fixed systems in the 24.05 - 24.25 GHz band.²⁷ In light of the much higher transmitter output power levels involved in that proceeding (up to 100 mW, as compared with typically less than 1 mW herein), the Commission found that the interference concerns addressed in Docket No. 79-337 were significantly greater than those at issue in this proceeding.

9. Due to the very narrow transmit antenna beamwidth authorized in this proceeding, an amateur receive antenna is highly unlikely to be illuminated by an unlicensed transmitting antenna unless the two antennas are oriented in direct alignment. In the event that a boresight alignment occurs, any interference that might result should be readily identified for remedial action because of the fixed nature of the unlicensed operation authorized in this proceeding. Furthermore, as noted in the *Report and Order*, Part 15 field disturbance sensors are already permitted to operate at field strengths up to 2500 mV/m in the 24.075 - 24.175 GHz band segment.²⁸ These devices have been authorized for years with no adverse impact on other users in the band, including amateur operations.²⁹ Consequently, we agree with ITI that these line-of-sight systems authorized in the *Report and Order*, even operating at 2500 mV/m using narrow beam directional antennas, should not pose any undue or significant threat to licensed amateur operations.³⁰

10. ARRL presents no new information concerning the interference potential of the devices authorized in the *Report and Order* and merely reargues its contention that the interference potential is so

²⁴ *Report and Order* at ¶ 7, n. 13, and ¶ 8.

²⁵ *Id.* at ¶ 8.

²⁶ *Report and Order* ("*Spread Spectrum R&O*"), Amendment of Parts 2 and 15 of the Commission's Rules Regarding Spreading Spectrum Transmitters, ET Docket No. 96-8, 12 FCC Rcd 7488 (1997) at ¶ 17.

²⁷ *Report and Order, supra* at ¶ 9. Citing *Second Report and Order* in Gen. Docket No. 79-337, 55 RR 2d 1676 (1983).

²⁸ *Report and Order* at ¶ 8. 47 C.F.R. § 25.245.

²⁹ *Report and Order* at ¶ 8.

³⁰ ITI Response at 2.

great as to be inappropriate for unlicensed status under Part 15. We find that ARRL's arguments do little more than disagree with the technical analysis and conclusions in the *Report and Order* concerning the interference potential of the operation authorized therein. Bare disagreement, absent new facts and arguments, is insufficient grounds for granting reconsideration.³¹ Furthermore, petitions for reconsideration are not granted for the purpose of altering our basic findings or debating matters that have been fully considered and substantively settled.³² The resolution of the issue regarding the interference potential of operation with 2500 mV/m has been the central question of this rule making from the outset. Full opportunity for all affected parties to comment has been afforded and we have fully considered all relevant matters in the record. In the absence of any new information, and in light of our review herein of the analysis and judgments made in the *Report and Order*, we find ARRL's arguments about the increased interference potential to be repetitive and without merit.

11. According to ARRL, Section 301 of the Act requires individual licensing whenever there is a finding by the Commission of a significant interference potential to licensed services. Consequently, under ARRL's interpretation of our statutory authority, the purported violation of Section 301 has no basis unless we accept ARRL's proposition that the interference potential with 2500 mV/m is so high in this particular case as to be inappropriate for unlicensed operation under Part 15. As affirmed above, we reject the assertion that there is a significant interference potential from the unlicensed operation authorized in the *Report and Order*. Because we find no such significant interference potential, we need not reach ARRL's statutory argument.

12. ARRL also asserts that devices such as those authorized in this proceeding may be used to serve the same function as licensed point-to-point microwave services, and therefore must be licensed.³³ However, ARRL provides no support or rationale for the proposition that a device is *per se* disqualified from unlicensed operation solely because it may be used for a similar function as provided by another service that might be licensed. We find ARRL's contention in that regard to be without merit.

13. Finally, ARRL requests "that the Commission reconsider and reverse that portion of the *Report and Order* which addresses the Commission's jurisdiction to authorize the unlicensed operation of radio frequency devices which have significant potential for interference to licensed radio services, pursuant to Section 302(a) of the Communications Act . . ."³⁴ Citing paragraph 12 of the *Report and Order*, ARRL argues that ". . . the Commission is incorrect in its assumption that it has unfettered jurisdiction pursuant to Section 302(a) of the Communications Act to authorize unlicensed devices, regardless of the interference potential of those devices to licensed radio services."³⁵

14. We reject ARRL's characterization of the Commission's decision in the *Report and Order*. In paragraph 12 of the *Report and Order*, the Commission cited Section 302 of the Act as a basis for our authority to adopt rules governing unlicensed operations under Part 15. By way of explaining that authority, the Commission noted that the operating requirements of Part 15 appropriately provide a means for allowing unlicensed devices to share spectrum with licensed services with little risk of interference to licensed services. Significantly, ARRL concurs in its reply that it is appropriate for the Commission to

³¹ See, e.g., Regulatory Policy Regarding the Direct Broadcast Satellite Service, *Memorandum Opinion and Order*, 94 FCC 2d 741, 747-748 (1983) (citing, e.g., *WWIZ, Inc.*, 37 F.C.C. 685, 686 (1964), *aff'd sub nom., Lorain Journal Co. v. FCC*, 351 F.2d 824 (D.C. Cir. 1965), cert. denied, 383 U.S. 967 (1966); *Florida Gulfcoast Broadcasters, Inc.*, 37 F.C.C. 833 (1964); *Employment Practices of Stations--Charlotte, N.C. Market*, 77 F.C.C. 2d 1 (1980); *WEOK Broadcasting*, 4 Rad. Reg. 2d (P & F) 503 (1965)).

³² *Id.*

³³ ARRL petition at i and 24.

³⁴ *Id.* at 1.

³⁵ *Id.* at 4 - 5.

make reasonable regulations regarding Part 15 devices pursuant to Section 302(a) of the Act.³⁶ The technical operating parameters adopted in the *Report and Order* are designed to ensure that the interference risk will not be increased to licensed amateur services and we affirm that the rules adopted in the *Report and Order* are reasonable for regulating the unlicensed operation that was authorized under Part 15 in this proceeding.

ORDERING CLAUSES

15. Accordingly, IT IS ORDERED that pursuant to Sections 4(i), 302, 303(e) 303(f), 303(g), 303(r) and 405 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 302, 303(e), 303(f), 303(g) and 405, the petition for reconsideration filed by ARRL IS DENIED.

16. IT IS FURTHER ORDERED that the proceeding in ET Docket No. 98-156 IS TERMINATED.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

³⁶ ARRL reply at 7.