

## Appendix B

### Case Study: FCC License-by-Rule\*

#### Introduction

Federal law prohibits the “use or operat[ion of] any apparatus for the transmission of energy or communications or signals by radio” without a license granted by the Federal Communications Commission (FCC).<sup>1</sup> Licenses are generally issued pursuant to the authority and procedures laid out in 47 U.S.C. §§ 307-10, which include certain periods of time for public notice and may include full administrative hearings. Individual licenses generally provide the rights to use a certain component of the radio spectrum by certain parties for certain purposes in certain locations.<sup>2</sup> Licenses cover a wide range of activities, from traditional radio and television broadcasts, to satellite communications and broadcast services, to radio communication services, and wireless communications in a wide range of areas including transportation and health care. A primary harm (perhaps *the* primary harm) that radio licensing is intended to prevent is interference by one user or set of users with the radio communications by other users.

There are a few major exemptions to the general principle that individual licenses are required for use of the radio spectrum. First, pursuant to Section 302a(a), the FCC may issue regulations “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 radio communications.” Pursuant to this provision, the FCC has issued a series of regulations that cover radio emissions (intentional and unintentional) from a range of consumer, industrial, scientific, and medical products.<sup>3</sup> Second, pursuant to Section 307(e), the FCC is authorized to:

by rule authorize the operation of radio stations without individual licenses in the following radio services: (A) the citizens band radio service; (B) the radio control service; (C) the aviation radio service for aircraft stations operated on domestic flights when such aircraft are not otherwise required to carry a radio station; and (D) the maritime radio service for ship stations navigated on domestic voyages when such ships are not otherwise required to carry a radio station.<sup>4</sup>

This section sets up what is essentially a general permit system for these services. This case study examines how this system has been justified, how the FCC has implemented it, and how it has

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<sup>1</sup> 47 U.S.C. § 301. U.S. government-owned stations are exempted from this requirement. *Id.* § 305.

<sup>2</sup> Spectrum rights are not property rights. 47 U.S.C. §§ 301, 304, and 316.

<sup>3</sup> These are Parts 15 and 18 of the FCC rules.

<sup>4</sup> 47 U.S.C. § 307(e).

operated in practice. It then draws on that examination to critically assess the general permit framework we developed.<sup>5</sup>

## History

The license by rule provision was originally enacted by Congress in 1982 for citizens band (CB) and radio control (R/C) services.<sup>6</sup> Prior to 1982, theoretically all CB and R/C users were supposed to obtain individual licenses from the FCC before transmitting. The primary justification for the change to license by rule was the administrative burden on the FCC from licensing the large number of users of the CB and R/C services;<sup>7</sup> legislators also noted that there was a relatively high level of noncompliance with the licensing requirement.<sup>8</sup>

Shortly after Congress enacted the changes, the FCC used its new authority in Section 307(e) to eliminate the individual licensing requirement for CB and R/C services.<sup>9</sup> The FCC reiterated the congressional statements that individual licensing would reduce costs for the agency.<sup>10</sup> In the rulemaking, the FCC argued that individual licensing was not necessary because particularized scrutiny of individual CB and R/C operators was not required to prevent overuse of the radio spectrum or interference with other radio services:

Individualized R/C and CB licensing is not used to assign specific frequencies, output power or hours of operation. All R/C and CB licensees are authorized to operate on legal R/C and CB frequencies with legal power at any time of the day. Applicants are not required to show financial or technical qualifications, and need only meet minimal eligibility requirements (twelve years of age for R/C, eighteen years of age for CB, and not a foreign government or a representative thereof or a federal government agency). . . .

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<sup>5</sup> Parts 15 and 18 in many ways have similar general permit aspects to the “license by rule” provisions in 307(e), and indeed there are a number of radio transmission services (such as wireless medical telemetry) that may be conducted under either Part 15 or a license by rule provision. For the sake of brevity, however, we focus on the license by rule provision.

<sup>6</sup> Pub. L. No. 92-259 §§ 112(a), 113(a). Citizens band is a public radio service that allows individuals to communicate on specified channels. Radio control is a radio service that allows for the use of radio to control mechanical devices (e.g., model airplanes and ships).

<sup>7</sup> See, e.g., H.R. Rep. No. 97-765, at 18 (1982) (Conf. Rep.) (elimination of CB and R/C individual licensing will save FCC “at least \$400,000 annually”); *Id.* at 36 (“the cost of processing and granting the millions of license applications in these services has been substantial”). The FCC supported the change “[p]rimarily because of sheer number of licenses.” *U.S. House of Representatives, Hearing Before the Subcomm. on Telecomms., Consumer Protection and Finance, Comm. on Energy and Commerce, 97th Cong. 42* (1981). CB user groups opposed the change, expressing fears that it would harm enforcement against illegal CB use (e.g., use of high power equipment or use of emergency channels for non-emergency communications). *Id.* at 130-36.

<sup>8</sup> See, e.g., H.R. Rep. No. 97-765, at 36 (1982) (Conf. Rep.) (“of the estimated twenty million operators in the CB service, some eight million are estimated to be operating without a license. This situation could create a regulatory nightmare for the Commission if serious attempts were made to remedy this situation.”).

<sup>9</sup> The rules are codified at 47 C.F.R. §§ 95.401-.428 (CB) and §§ 95.201-.225 (R/C).

<sup>10</sup> CB & R/C license by rule, 48 Fed. Reg. 24882 (June 3, 1983) (“We have estimated that in FY 1983 we will spend approximately \$361,000 for R/C and CB radio station licensing.”).

Spectrum management in the R/C and CB radio services is accomplished by way of type acceptance and operating rules, rather than by licensing. R/C and CB transmitters are type accepted to assure that they are operated on legal frequencies with legal power. Frequency assignments, power limitations and antenna height restrictions are determined by rule making, not by licensing.<sup>11</sup>

The FCC also argued that individual licenses were of minimal benefit in identifying and tracking violators of CB and R/C rules.<sup>12</sup>

In 1996 Congress added two additional categories to Section 307(e): aircraft and ships that are only making domestic voyages and are not legally required to operate a radio. Again, the FCC quickly implemented the provision, exempting a wide range of aircraft and ship radio usage from the individual licensing requirement. And again, the FCC cited reducing compliance costs for both the agency and individual entities as a reason to eliminate the requirement for individual licensing.<sup>13</sup> The agency particularly emphasized the large number of entities that would otherwise be covered by the licensing requirement,<sup>14</sup> and that some small entities might forego important radio safety equipment because of the burden of individual licensing.<sup>15</sup> It also stated that individual licensing was not required to prevent spectrum interference.<sup>16</sup>

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<sup>11</sup> CB & R/C license by rule, 48 Fed. Reg. 24882 (June 3, 1983). Type acceptance refers to technical limits on the capacity of the equipment authorized for the particular service (e.g., CB or R/C service equipment). Operating rules refers to requirements imposed on all operators within a particular service.

The FCC argued that CB and R/C services were different from other personal radio services (such as amateur radio users and private land mobile services (e.g., dispatch radios for taxi and delivery companies)) that would continue to use individual licensing on the grounds that in those other services other tools were used to reduce interference, either close scrutiny of individual operators (e.g., testing and classifications of expertise for amateur radio operators) or assignment of users to particular frequencies in specific locations (as in private land mobile services).

<sup>12</sup> See, e.g., CB & R/C license by rule, 48 Fed. Reg. 24882, 24886 (June 3, 1983) (licenses provide very little use in CB enforcement because “by and large CB violators fail to identify their communications and our field offices must use other means to determine the location and identity of a violator”).

<sup>13</sup> Maritime and aviation license by rule, 61 Fed. Reg. 58010 (Nov. 12, 1996). (“We are eliminating the unnecessary regulatory burdens associated with the filing of applications by hundreds of thousands of ship and aircraft station licensees as well as removing the administrative burden associated with the Commission’s processing of such applications.”)

<sup>14</sup> Aviation and Maritime Order, 11 F.C.C.R. 14849, 14850-51 (Oct. 25, 1996) (“there are approximately 581,000 ship station licensees and 131,000 aircraft station licensees that operate domestically”).

<sup>15</sup> Aviation and Maritime Order, 11 F.C.C.R. 14849, 14850 (Oct. 25, 1996) (recreational boat owners might go without marine VHF radios because of costs and burdens of licensing).

<sup>16</sup> Aviation and Maritime Order, 11 F.C.C.R. 14849, 14852 (Oct. 25, 1996) (spectrum management occurs through the sharing of communications channels by many different users, with operating rules reducing conflicts).

In the 1990s and 2000s, the FCC added a range of additional services to the license by rule category:<sup>17</sup> Family Radio Service (FRS),<sup>18</sup> a range of radio services for medical technologies, radio service to support automobile on-board safety technologies,<sup>19</sup> and low-powered radio services for a range of personal, business, and public safety purposes.<sup>20</sup> Most recently, the FCC has created a new service for “citizens broadband” transmissions.<sup>21</sup>

In approving these various services, the FCC emphasized similar reasons that it had articulated for license by rule for CBs, R/C, and aviation and maritime radio services: reducing administrative burdens;<sup>22</sup> the lack of any significant risk of interference with other radio service (particularly given the low-power of many of the approved services and restrictions on the technologies that

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<sup>17</sup> All of these additional services were categorized by the FCC as “citizen band radio services,” and codified in Part 95 of the agency’s rules for Personal Radio Services. The statute grants authority for FCC to define the categories that fall within the license by rule provisions. *See* 47 U.S.C. § 307(e)(3).

<sup>18</sup> FRS allows for low-powered, short-distance voice communications. *See* 47 C.F.R. §§ 95.191-.194.

<sup>19</sup> These included wireless medical telemetry and radio services for medical devices worn by or implanted in patients. *See* 47 C.F.R. §§ 95.1101-.1129 (wireless medical telemetry service (WMTS)); *id.* §§ 95.1201-.1225 (medical implant device radiocommunication service); *id.* §§ 95.1501-.1511 (on-board units for automobiles).

<sup>20</sup> *See* 47 C.F.R. §§ 95.1001-.1019 (low power radio service (LPRS)); *id.* §§ 95.1301-.1317 (multi-use radio service (MURS)); *id.* §§ 95.1400-.1402 (personal locator beacons).

<sup>21</sup> *See* Citizens Broadband Order, 30 F.C.C.R. 3,959 (Apr. 21, 2015). This new service operates in a spectrum shared with certain government and satellite transmitters. The service consists of two tiers: Priority Access Licenses (PALs) which are individual licenses distributed by auction, and General Authorized Access (GAA) which is covered by the license-by-rule system. PAL has priority over GAA in usage of the spectrum. *Id.* at ¶ 4.

<sup>22</sup> *See, e.g.*, LPRS License by Rule, 61 Fed. Reg. 46,563 (Sept. 4, 1996) (license by rule approach “greatly reduces administrative and economic burdens for individuals and organizations that will use LPRS systems by not requiring them to file license applications”); FRS Order, 11 F.C.C.R. 12,977, 12,983 (May 15, 1996) (“individual licensing is costly to the public and administratively burdensome to the Commission”); MURS Second Order, 14 F.C.C.R. 9,830, 9,838-39 (May 23, 2002) (“decision to license by rule relieved Industrial/Business Pool eligibles, including small businesses, of the information collection, paperwork and financial burdens, including statutory application and regulatory fees, associated with applications and licensing.”); Medical Implant Order, 14 F.C.C.R. 21,040, 21,044 (Nov. 29, 1999) (“we believe that individual licensing in this context would be costly to the public and administratively burdensome to the Commission”); Citizens Broadband Order, 30 F.C.C.R. 3,959 at ¶ 161 n.366 (Apr. 21, 2015) (noting that Citizens Broadband service, like other license-by-rule services, is a service “for which the high cost of licensing so many eligible users is not justified in light of the public interest benefits”).

can be used in the services);<sup>23</sup> and the desire to encourage innovation by a broad range of entities, including small businesses.<sup>24</sup>

The FCC in 2010 opened a proceeding to examine its overall use of license by rule for personal radio services in Part 95 of its regulations (all license by rule services except for aircraft and ships). In its notice, the FCC noted that in general the technical restrictions on equipment in license by rule services was preventing interference, though there were concerns that in some services manufacturers were producing equipment that allowed for use in licensed spectrum,<sup>25</sup> or end-users

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<sup>23</sup> See, e.g., LPRS License by Rule, 61 Fed. Reg. 46,563, 46,564-65 (Sept. 4, 1996) (limit to certain power and other technical requirements to minimize interference with other transmissions, and requirement to have unit type accepted under Commission rules); LPRS Order, 11 F.C.C.R. 18,517, 18,517 (Aug. 2, 1996) (“new low power uses involve short range transmitters that are unlikely to cause harmful interference to TV reception on adjacent frequencies or government operations in the upper portion of the band.”); WMTS License by Rule, 65 Fed. Reg. 43,995 (July 17, 2000) (“Given the low-power nature of this equipment, we do not anticipate any interference issues in border areas.”); *id.* at 43,998 (set standards to reduce risk of interference, consistent with Part 15 rules); MURS Second License by Rule, 67 Fed. Reg. 63,279 (Oct. 11, 2002) (impose certification requirements on MURS equipment to minimize risk of interference); MedRadio License by Rule, 74 Fed. Reg. 22,696, 22,697 (May 14, 2009) (minimal risk of interference “given the ultra low power limits and intermittent operating modes that will be used by these medical devices, and the expectation of large separation distances, there is little likelihood that these medical devices could cause harmful interference to incumbent operations”); MedRadio License by Rule, 74 Fed. Reg. 22,696, 22,699 (May 14, 2009) (technical restrictions on equipment to ensure efficient use of spectrum and minimal interference without coordination of assigning frequencies); DSRC Order, 19 F.C.C.R. 2,458, 2,474-75 (Feb. 10, 2004) (“given the low power of RSUs and other interference-mitigation provisions of the ASTM-DSRC Standard, interference disputes among DSRC operations should be rare”); DSRC Order, 19 F.C.C.R. 2,458, 2,488 (Feb. 10, 2004) (license by rule for transmitters is consistent with using technical characteristics to regulate the service); Citizens Broadband Order, 30 F.C.C.R. 3,959 at ¶¶ 4, 156, 162 (Apr. 21, 2015) (noting that most wireless broadband use is indoors, with small geographic ranges and low power, and that transmitters would be required to use technology that coordinated use and avoided interference).

<sup>24</sup> See, e.g., WMTS License by Rule, 65 Fed. Reg. 43,995 (July 17, 2000) (use license by rule to “minimize regulatory procedures to facilitate rapid deployment”); MedRadio License by Rule, 74 Fed. Reg. 22,696, 22,697 (May 14, 2009) (license by rule “minimizes regulatory procedures and will facilitate the more expeditious deployment of new generations of beneficial wireless medical devices in these bands that can improve the quality of life for countless Americans, thus serving the public interest, convenience and necessity”); FRS License by Rule, 61 Fed. Reg. 28,768 (June 6, 1996) (goal is to “provide a high-quality low-cost communications service that will be useful to hunters, campers, hikers, bicyclists and other outdoor activity enthusiasts”); FRS Order, 11 F.C.C.R. 12,977, 12,981 (May 15, 1996) (public disinclined to use services that require individual licenses, especially where license cost is large compared to cost of product); WMTS License by Rule, 65 Fed. Reg. 43,995, 43,997, 44,001 (July 17, 2000) (license by rule reduces burdens on users of medical equipment who may be small actors) (“Licensing by rule benefits small businesses by eliminating the expense and delays that would result if parties were required to obtain individual operators’ licenses.”); MURS License by Rule, 65 Fed. Reg. 60,869 (Oct. 13, 2000) (goal of changes is to reduce regulatory burdens, particularly on small businesses and local governments); Citizens Broadband Order, 30 F.C.C.R. 3,959, at ¶ 156 (Apr. 21, 2015) (stating that a “license by-rule licensing framework would allow for rapid deployment of small cells by a wide range of users, including consumers, enterprises, and service providers, at low cost and with minimal barriers to entry”); see also Review of Part 95 Personal Radio Services Rules, 25 F.C.C.R. 7,651, (June 7, 2010) (FCC “generally intended that Part 95 Services would be used by the public for a wide range of applications, and therefore adopted technical rules designed to minimize harmful interference, while providing flexibility in where and how Part 95 devices could be used.”).

<sup>25</sup> See Review of Part 95 Personal Radio Services Rules, 25 F.C.C.R. 7,651, 7,668-19 (June 7, 2010) (concern that FRS manufacturers are now selling equipment that allows use that interferes with other spectrum users, including in licensed areas of spectrum that are used for emergency purposes)

were altering equipment in ways that was increasing interference with other users.<sup>26</sup> The FCC also proposed expanding license by rule to other low-power radio services with similar characteristics to existing license by rule services.<sup>27</sup>

## Analysis

Overall, the reasons that we identified for using general permits appear to be the same rationales that the FCC has relied upon in using general permits in the license by rule context:

- *Barriers to Entry:* The license by rule approach has been justified in a number of contexts by the FCC on the grounds that it will allow widespread use of important radio transmission technologies by members of the public, and/or that it will facilitate innovations in important areas by small businesses. The FCC has highlighted the costs and burdens of individual licensing in making these arguments.<sup>28</sup>
- *Information:* The FCC has argued that the data provided by individual licensing are not particularly useful in these contexts for understanding how radio spectrum is being used and identifying interference problems.<sup>29</sup>
- *Tailoring:* The FCC has argued that particularized analysis of individual operators of these technologies is not required to minimize spectrum interference. Instead, the FCC has relied on conclusions that interference is unlikely because the power of the relevant service is

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<sup>26</sup> Review of Part 95 Personal Radio Services Rules, 25 F.C.C.R. 7,651, 7,672 (June 7, 2010) (“we observe that interference to other services is frequently caused by the use of CB equipment that has been modified by the CB operator or persons other than the manufacturer to operate on unauthorized frequencies or increase power beyond what is allowed.”)

<sup>27</sup> See Review of Part 95 Personal Radio Services Rules, 25 F.C.C.R. 7,651, 7,662 (June 7, 2010) (proposing to extend license by rule to General Mobile Radio Service (GMRS)). The FCC contended that GMRS has similar characteristics to the other license by rule services that would support similar treatment: “For example, once authorized, a GMRS licensee may operate on any GMRS frequency; there is no requirement for frequency coordination; and none of the GMRS frequencies are assigned on an exclusive-use basis. In addition, all licensees must cooperate in the selection and sharing of the available channels to make the most effective use of the channels and to reduce the possibility of interference. Furthermore, we believe that licensing GMRS by rule would reduce administrative and other burdens on GMRS users, as well as on the Commission.” *Id.*

<sup>28</sup> The tradeoff between lowering barriers to entry into a wireless transmission market and minimizing interference is one that has been highlighted more broadly in debates in the academic literature over appropriate broadband policy. See Kenneth R. Carter, *Policy Lessons From Personal Communications Services: Licensed vs. Unlicensed Spectrum Access*, 15 COMMLAW CONSPECTUS 93, 115 (2006).

<sup>29</sup> FRS Order, 11 F.C.C.R. 12,977, 12,983 (May 15, 1996) (“The FRS is a very low power, short-range, person-to-person radio service with users operating in a mobile environment. Experience has shown that the existence of a data base of licensees in such a service will not assist us in enforcement efforts nor is it useful for spectrum management purposes.”); Medical Implant Order, 14 F.C.C.R. 21,040, 21,044 (Nov. 29, 1999) (same).

For example, in one service, wireless medical telemetry, the FCC did require users to register their devices in order to help reduce conflicts. WMTS License by Rule, 65 Fed. Reg. 43,995, 43,997 (July 17, 2000). Likewise, the FCC requires the use of coordination technology and protocols in its Citizens Broadband service to minimize interference problems; these systems, while they will not be run by the agency, will require the collection and retention of information about usage of the service. Citizens Broadband Order, 30 F.C.C.R. 3,959 at ¶¶ 316, 319, 326 (Apr. 21, 2015).

very low, on regulations of the technical characteristics of the technology to minimize the risk of interference, or on regulations that specify how the technology is used that minimize the risk of interference.

- *Enforcement*: The FCC has argued that individual licenses are not generally needed for enforcement in this context: because broadcasts on most of these services are not identified, it would be difficult or impossible to track a violation back to an individual permittee through self-identification by the transmitter.<sup>30</sup>
- *Reducing Regulatory Burdens*: The FCC has repeatedly emphasized the reduction in regulatory burdens that license by rule can provide on individual entities, as well as on the agency.

The FCC (so far as we have been able to determine) has not relied on political justifications, or on concerns about reducing agency discretion in its license by rule decisions. Nor can we identify any particularly strong political reasons, or concerns about agency discretion, that would apply in this context.<sup>31</sup>

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<sup>30</sup> See, e.g., CB & R/C License by Rule, 48 Fed. Reg. 24,882, 24,886 (June 3, 1983) (licenses provide very little use in CB enforcement because “by and large CB violators fail to identify their communications and our field offices must use other means to determine the location and identity of a violator”); FRS Order, 11 F.C.C.R. 12,977, 12,983 (May 15, 1996) (“The FRS is a very low power, short-range, person-to-person radio service with users operating in a mobile environment. Experience has shown that the existence of a data base of licensees in such a service will not assist us in enforcement efforts nor is it useful for spectrum management purposes.”); LPRS Order, 11 F.C.C.R. 18,517, 18,528 (Aug. 2, 1996) (individual licensing would be very burdensome, and any less burdensome systems would have minimal enforcement benefits); Medical implant Order, 14 F.C.C.R. 21,040, 21,044 (Nov. 29, 1999) (“We do not believe that a data base of licensees in this service will assist us in enforcement efforts or would be useful for spectrum management purposes.”).

<sup>31</sup> Where consistent with statutory authority, there is a general trend in FCC regulation to move away from highly detailed, prescriptive licenses that closely screen the entity who is to be licensed, and towards licensing systems that allow broad flexibility with respect to the use that the spectrum can be put to, and minimal or no scrutiny of the characteristics of the licensed entity. These are generally consistent with the increased use of license-by-rule. They are also generally consistent with the political environment at the federal level, which has become more suspicious of intrusive and inflexible regulatory standards.