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

In the Matter of	)	
	)	
	)	
Amendment of Parts 2 and 15 of the	)	
Commissions Rules to Further Ensure	)	ET Docket 98-76
That Scanning Receivers Do Not	)	RM-9022
Receive Cellular Radio Signals	)	
	)	
	)	

NOTICE OF PROPOSED RULE MAKING

Adopted: May 21, 1998 **Released: June 3, 1998**

Comment Date: [30 days from date of publication in the Federal Register]
Reply Comment Date: [45 days from date of publication in the Federal Register]

By the Commission:

INTRODUCTION

1. By this actior, the Commission proposes to amend Parts 2 and 15 of its rules to strengthen, improve and clarify our current regulations prohibiting scanning receivers from receiving transmissions from the Cellular Radiotelephone Service ("Cellular Service").[1] Specifically, we are proposing that scanning receivers include adequate filtering to ensure that they do not pick up Cellular Service transmissions even when tuned to frequencies outside those allocated to the Cellular Service. In addition, while our current rules prohibit the manufacture and importation of scanning receivers that can be readily altered to tune Cellular Service frequencies, parties with sufficient determination and technical expertise have sometimes found ways to perform such modifications. Accordingly, we are proposing to require that scanning receivers be designed so that the tuning and control circuitry is not easily accessible. In addition, the design must be such that any attempts to modify the equipment to receive Cellular Service transmissions will likely render the equipment inoperable. These proposals respond to a petition for rule making and comments filed by Uniden America Corporation ("Uniden").[2] We are also proposing certain additional rule changes to make the regulations for scanning receivers more effective.

BACKGROUND

2. As defined within our rules, scanning receivers, also known as scanners, are radio receivers that automatically switch between four or more frequencies anywhere within the 30 MHz through 960

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[1] The Commission's regulations regarding the Cellular Radiotelephone Service are set forth in Part 22 of the FCC rules, 47 C.F.R. Part 22, Subpart H. Cellular telephones use frequencies in the 824-849 MHz and 869-894 MHz bands to connect mobile users to other cellular system users and to the Public Switched Telephone Network.

[2] *See Petition for Rulemaking Regarding Radio Scanner Receivers* (RM-9022) dated February 3, 1997, and *Comments On Petition For Rulemaking* dated March 10, 1997 filed by Uniden America Corporation.

MHz band and are capable of stopping at and receiving a signal detected on a frequency.[3] The Commission's rules prohibit the manufacture and importation of scanning receivers that are capable of receiving transmissions in the frequencies allocated to the Cellular Service; prohibit the manufacture and importation of scanning receivers that can be readily altered to receive transmissions from the Cellular Service; and prohibit scanning receivers from being equipped with decoders that convert digital cellular transmissions to analog voice audio.[4] These requirements were adopted to ensure the privacy of communications in the Cellular Service. Scanning receivers must also meet radio emission limits that are intended to control the potential for causing harmful interference to authorized radio communications.[5] In order to ensure compliance with these regulations, scanning receivers must be authorized (certificated) by the Commission before they may be imported or marketed.[6]

3. On February 3, 1997, Uniden filed a petition for rule making stating that it had become aware that some scanning receivers could be used to receive signals from the Cellular Service when tuned to frequencies outside the cellular frequency bands.[7] Specifically, Uniden indicates that the "image frequency" characteristics of scanning receivers could be used to receive signals from the Cellular Service. Typical radio receivers are designed to tune one desired frequency at a time while rejecting other frequencies. An "image frequency" is an unwanted frequency that can be picked up as a result of the mixing of signals within the tuning circuitry of the receiver. Image frequencies are usually rejected through the use of filtering circuitry.[8] Uniden requests that the Commission modify its rules regarding scanning receivers to require an "image rejection ratio" of 38 dB for the cellular telephone frequencies.[9] Uniden suggests that the new rules should become effective 90 days after the effective date of the rule change for all scanning receivers manufactured or imported in the United States.[10] The petition was placed on Public Notice seeking comment on the requested rule modifications.[11] Uniden was the only party to file comments.[12] In its comments, Uniden further suggests that the Commission also take steps that require scanning receivers to be designed so that they are "hardened" against the possibility of being modified to receive Cellular Service transmissions. Uniden notes, for example, that the tuning and control circuitry could be encased in a non-clear reinforced epoxy or other material so that it would be virtually impossible to make modifications without destroying the device. Uniden also requests that the Commission modify its rules to specify

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[3] *See* 47 C.F.R. § 15.3(v).

[4] *See* 47 C.F.R. § 2.1033, § 15.37, and § 15.121.

[5] *See* 47 C.F.R. §§ 15.107 and 15.109.

[6] *See* 47 C.F.R. § 15.101(a) and § 2.1031 *et seq.*

[7] *See* Petition for Rulemaking Regarding Radio Scanner Receivers dated February 3, 1997 at para. 6.

[8] For a more detailed description of image frequencies see Appendix A.

[9] *See Petition for Rulemaking Regarding Radio Scanner Receivers* dated February 3, 1997 at paras. 1 and 8.

[10] *Id.* at para. 9.

[11] *See Public Notice* dated February 7, 1997, Report No. 2176.

[12] *See Comments on Petition for Rulemaking* dated March 10, 1997.

that all applications for equipment authorization for scanning receivers be automatically afforded confidentiality protection, without the need for a special request or payment of an additional filing fee. Uniden indicates that this will keep individuals from obtaining the technical details contained in equipment authorization applications. Uniden indicates that most scanning receivers are used for legitimate and legal purposes but that the proposed rule changes are needed to help prevent the interception of, and eavesdropping on, cellular telephone conversations by users of scanning receivers.[13]

DISCUSSION

4. Our current rules are intended to prohibit the manufacture and importation of scanning receivers that are capable of receiving Cellular Service transmissions. We believe the rules generally have been successful in preventing the manufacture and import of scanning receivers that can tune Cellular Service frequencies directly. We recognize, however, that the current rules have not been fully effective. As Uniden points out in its petition, it is possible for some scanning receivers to pick up cellular signals indirectly, even though "tuned" to a different frequency band. Further, as noted by Uniden in its comments, notwithstanding the efforts of manufacturers to design their scanning receivers such that they cannot be readily altered to tune cellular frequencies, parties have found ways to perform such alterations. Given this information, we believe that our regulations need to be strengthened and expanded to ensure that the objectives of our rules governing scanning receivers are not thwarted.

Scanning Receiver Standards to Prevent Reception of Cellular Signals

5. We recognize that receivers sometimes pick up signals other than the ones to which they are tuned. For example, older model TV receivers may pick up amateur radio and citizen's band radio signals under certain conditions. AM or FM broadcast receivers often pick up the signals of high-powered broadcast stations when they are in close proximity to the transmitting antenna tower. The ability to reject signals other than the "tuned" or "desired" signal is a function of the receiver's filtering and other technical characteristics. This phenomenon is easily controlled for receivers that tune a narrow range of frequencies. However, scanning receivers generally tune a broad range of frequencies and often use different internal tuning techniques for various segments of the overall tuning range. As a result, scanning receivers often present an increased possibility of responding to signals other than the ones to which they are tuned. It is our aim to establish standards for scanning receivers such that they will not pick up Cellular Service transmissions under typical operating conditions.

6. We believe that Uniden's proposal to require an image frequency rejection of 38 dB is a positive step towards preventing scanning receivers from picking up Cellular Service transmissions. Uniden's proposed 38 dB standard appears to be based on what it believes a scanning receiver can achieve at a reasonable cost. No information has been presented, however, as to the actual effectiveness of this standard. Scanning receivers complying with this standard may still be able to pick up Cellular Service transmissions when used in close proximity to cellular base stations or mobile equipment. No quantitative or theoretical data has been provided demonstrating how the proposed standard would prevent scanning receivers located near cellular base stations from receiving Cellular Service transmissions. While we are proposing a signal rejection standard of 38 dB, we invite comment as to whether this signal rejection standard is adequate. For parties that may advocate a more rigorous standard, we solicit specific information on the technical feasibility and cost impact of

[13] *See Petition for Rulemaking Regarding Radio Scanner Receivers* dated February 3, 1997 at para. 10.

the standard. We are also concerned that reception of cellular signals on "image frequencies" may not be the only way that a scanning receiver might pick up such signals. Accordingly, we are proposing that scanning receivers provide at least 38 dB rejection of signals in the cellular band for any frequency to which the receiver can be tuned.

7. Uniden did not propose specific measurement techniques for determining compliance with the 38 dB rejection level. We observe that the measurement techniques must be clearly defined in order to give meaning to the proposed standard. We understand that image frequency rejection tests are typically performed using a S/N ratio of 12 dB because this is the typical sensitivity threshold where a signal can be clearly discerned from any interfering signals and background noise. Accordingly, we are proposing to require that compliance with the 38 dB standard be determined with a signal-to-noise (S/N) ratio of 12 dB. We observe, however, that the proposed 38 dB rejection standard could create some inequities. For example, a low-cost scanning receiver with poor sensitivity would have to reject much stronger signals in the cellular frequency band than a costlier scanning receiver with good sensitivity. We invite comments and suggestions as to whether an alternative standard and measurement procedure may be more equitable. For example, we could simply specify a signal level to be injected in the cellular frequency bands and require that there be no response for any frequencies to which the scanning receiver can tune. Assuming a typical scanning receiver sensitivity of 0.5 μV, we estimate that rejection of signal levels of 40 μV or more in the cellular frequency bands would be approximately equivalent to Uniden's proposal. We request comment on this alternative approach.

8. The proposed signal rejection of 38 dB is based on the signal level measured at the antenna input of the scanning receiver. We are concerned that scanning receivers may also receive Cellular Servi e transmissions by direct pick-up through the cabinet. This phenomena occurs when the circuitry of the device itself picks up signals over the airwaves and converts them to audio signals. We tentatively believe that a standard that only addresses signals picked up via the antenna input may be inadequate to prevent reception of Cellular Service transmissions. Accordingly, we are proposing to require that scanning receivers not be able to receive a signal level of 5 mV/m or less in the cellular frequency bands for any tunable frequency. This level is based on the field strength level required to produce a nominal 40 μV output from antennas typically supplied with handheld scanning receivers. We invite comment on this proposal.

Prevention of Scanner Modifications

9. Our current rules require that scanning receivers, and frequency converters designed or marketed for use with scanning receivers, must be incapable of operating (tuning), or readily being altered to operate, within the frequencies allocated to the Cellular Service.[14] Scanning receivers capable of "readily being altered" include but are not limited to, those for which the ability to receive transmissions in the Cellular Service frequency bands can be added by clipping the leads of, or installing, a simple component such as a diode, resistor or jumper wire; replacing a semiconductor chip; or programming a semiconductor chip using special access codes or an external device, such as a personal computer.

10. Despite good faith efforts of manufacturers, determined individuals with appropriate technical know-how have sometimes found ways to modify scanning receivers to tune Cellular Service frequencies. We agree with Uniden that additional measures are required to ensure that scanning

[14] *See* 47 C.F.R. § 15.121(a).

receivers can not be modified to tune Cellular Service frequencies. We therefore are proposing to require that scanning receivers be designed so that the tuning and control circuitry is inaccessible. Further, the design must be such that any attempt to modify the scanning receiver to receive Cellular Service transmissions will likely render it inoperable. One approach would be to cover the control and tuning circuitry with epoxy or some other substance so that it is not possible to access the electrical circuits or components. Another possibility would be to encase the control and tuning circuitry in a metal compartment that can not be removed. We believe such features would prevent modifications of scanning receivers and would be economical to the manufacturer. We request comment on these and any other manufacturing methods that may be employed to better prevent modification of scanning receivers to receive Cellular Service transmissions.

11. On February 13, 1997, the Commission's Office of Engineering and Technology issued a *Public Notice* alerting the public that modification of scanning receivers to receive Cellular Service transmissions is a violation of our rules.[15] The *Public Notice* stated that manufacturing a scanning receiver to receive cellular telephone frequencies is a violation of Section 302(d) of the Communications Act and Sections 15.37(f) and 15.121 of the Rules. Further, the *Public Notice* advised that modification of scanning receivers on a substantial scale to receive cellular frequencies will be considered to constitute manufacture of such equipment in violation of the FCC Rules. We propose to amend Section 15.121 of the rules to specifically add language to this effect. Further, we propose to interpret the phrase "modification of scanning receivers on a substantial scale" to include any entity or organization that modifies scanning receivers as a business or on an ongoing basis. We invite comment on this proposal.

12. It has come to our attention that some parties believe that it is permissible to modify scanning receivers that were originally manufactured or imported prior to the effective date of the current scanning receiver rules. We take this opportunity to emphasize that this it is not permissible to modify scanning receivers to tune Cellular Service frequencies even if the equipment was originally manufactured or imported prior to the effective date of the current scanning receiver rules.[16] Such modifications would constitute new manufacture in violation of Section 15.121(a).[17] Therefore, we are proposing to add language to the rules for scanning receivers in Section 15.121 to specifically reflect this prohibition.

Information Required for Equipment Authorization Applications

13. As previously noted, scanning receivers are required to be certificated by the Commission. The application for FCC certification of a scanning receiver must include a statement attesting that the unit is incapable of tuning Cellular Service frequencies and is incapable of being modified to do so.[18] The application must also include block and schematic diagrams of the circuitry, photographs of the

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[15] *See Public Notice* "Manufacturing Illegal Scanners Includes Scanner Modification", DA 97-1440, released July 10, 1997 (revision of February 13, 1997 edition). A copy is attached as Appendix D.

[16] See 47 C.F.R § 15.37(f).

[17] We also note that modification of equipment such that it no longer complies with the Commission's rules invalidates the certification for that equipment. *See* 47 C.F.R. § 2.1043(b)(3).

[18] *See* 47 C.F.R. § 2.1033(b)(12)

inside and outside of the unit, and a copy of the user manual.[19] We are proposing to require that any application for certification for a scanning receiver include additional information to ensure that our proposed requirements will be met. Specifically, we are proposing to require that the application for certification include a detailed showing describing the testing method used to determine compliance with any rejection ratio the Commission may adopt, such as 38 dB for all tunable frequencies. We are also proposing to require a statement assessing the vulnerability of the scanning receiver to possible modification and describing the design features that prevent modification of the scanning receiver to receive Cellular Service transmissions.

14. Uniden also requested that the Commission modify its rules to specify that all applications for equipment authorization for scanning receivers be automatically afforded confidentiality protection, without the need for a special request or payment of the additional filing fee. Uniden indicates that this will keep individuals from obtaining the technical details contained in equipment authorization applications by restricting access to the information contained in the application. We do not believe that such a change in the rules is necessary. The Commission's rules already provide any applicant with the ability to file a written request to keep confidential information submitted to the Commission that would be privileged under the Freedom of Information Act.[20] In addition, the associated filing fee that accompanies the request for confidentiality is necessary to cover the cost of additional handling that confidential information requires. However, we invite comment on Uniden's proposal.

Scanning Receiver Definition

15. As noted above, our rules currently define scanning receivers as radio receivers that automatically switch between four or more frequencies anywhere within the 30 MHz through 960 MHz band and are capable of stopping at and receiving a signal detected on a frequency.[21] We recognize that some parties may attempt to circumvent this definition by developing a scanning receiver that tunes the cellular frequencies but automatically switches among only three or two frequencies. We also note that manually tuned receivers that cover Cellular Service frequencies are not covered by the current definition. It is our intent to close any perceived loop-holes that might be used to thwart the objectives of our scanning receiver rules. Accordingly, we invite comment as to whether our definition of a scanning receiver needs to be modified to include receivers that automatically switch among fewer than four frequencies, as well as receivers that can be manually tuned.

16. Receivers designed solely for the reception of broadcast signals under Part 73 of this chapter or for operation as part of a licensed station are not included in the definition of a scanning receiver.[22] Therefore, receivers that are contained within transceivers that operate in the Cellular Service are not covered by the definition. We understand, however, that some models of Cellular

[19] It is seldom possible to review the technical information in an application and detect whether a scanning receiver is capable of being modified. A thorough analysis would require in-depth study of the workings of internal parts such as microprocessors and hundreds of lines of programming code. Such an approach would severely delay the approval of scanners and require an unreasonable expenditure of Commission resources.

[20] *See* 47 C.F.R. § 0.459.

[21] *See* 47 C.F.R. § 15.3(v).

[22] *See* 47 C.F.R. § 15.3(v).

Service transceivers can be programmed through the keypad to operate in a scanning mode. We invite comment as to whether there is a need to modify our definition of a scanning receiver to include Cellular Service equipment that can be programmed by the user to perform as a scanning receiver.

Test Equipment

17. We are aware that certain professional test equipment, such as spectrum analyzers, field intensity meters and communications service monitors, are capable of receiving cellular signals. There is a legitimate need for such equipment for purposes such as testing cellular systems and equipment, determining compliance of equipment with FCC technical standards, investigating sources of radio frequency interference, and research on the effects of radio frequency exposure. Modern test equipment often includes programming capability and features such that it technically meets the definition of a scanning receiver. The Commission's rules do not specifically exclude test equipment from the definition of a scanning receiver. However, we do not believe it was the intent of Congress to ban legitimate test equipment from tuning cellular frequencies. Therefore, on a case-by-case basis, we have interpreted the rules to permit marketing of professional test equipment that is capable of tuning the Cellular Service frequency bands. We are proposing to codify our current policy by proposing to exempt test equipment from the definition of a scanning receiver. We are proposing to define test equipment as equipment that is not marketed or sold to the general public and is used by professional technical personnel in conjunction with testing of equipment or systems or for scientific investigations. A receiver that meets this definition would not be required to block the Cellular Service frequency bands.[23] We invite comment on the proposed exemption and definition for test equipment. We also invite comment as to whether we should permit marketing to the public of test equipment that can tune the cellular frequency bands but is incapable of demodulating cellular transmissions or producing an audio output.

Kits

18. Section 15.3(p) of the Commission's rules defines a kit as any number of electronic parts, usually provided with a schematic diagram or printed circuit board, which, when assembled in accordance with instructions, results in a device subject to the regulations in Part 15, even if additional parts of any type are required to complete assembly. However, the Commission's rules do not require that the party marketing a kit obtain an equipment authorization, even though one would be required if the finished product were marketed. This has led to the practice of parties marketing kits for devices which will not comply with our rules when assembled in order to avoid the equipment authorization requirements. We believe that since Congress specifically directed the Commission to prohibit receivers, such as scanning receivers, and frequency converters which can tune Cellular Service frequencies, we should also address the import and manufacture of those devices in kit form. One approach would be to require that scanning receivers and frequency converter kits be designed to block Cellular Service frequencies, just like finished products. However, it would be difficult to enforce this rule in the absence of a requirement for equipment authorization for such kits. Accordingly, we are proposing to prohibit the importation and manufacture of scanning receiver and frequency converter kits that are capable of receiving and decoding signals from the Cellular Service frequency bands.

Manufacture of Equipment in Violation of Section 705 of the Communications Act

[23] Under the current rules, scanning receivers used by communication service providers and their agents do not have to block the cellular bands. *See* 47 C.F.R. § 15.121(b) and 18 U.S.C. § 2512(2).

19. Section 705 of the Communications Act of 1934, as amended, (47 U.S.C. § 605), "Unauthorized Publication of Communications", generally prohibits the reception of radio communication and the divulgence or beneficial use of radio communications.[24] The Communications Act, however, does not prohibit the mere reception of the radio communications. Therefore, people who listen to police channels, or a cellular or cordless telephone conversation, but do not publish or divulge what they hear or use the information for their own benefit or the benefit of another, are not in violation of Section 705. Other federal criminal statutes, including the 1986 Electronics Communications Privacy Act, which is part of the federal criminal code, do generally prohibit the intentional interception of Cellular Service transmissions. Many states also have statutes in this area. The Commission has published an FCC Fact Sheet "Interception and Divulgence of Radio Communications" that can be obtained by calling the Commission's Public Services Division at 202-418-0200 or accessing it on the Commission Internet Web site at http://www.fcc.gov/Consumer_Info.html/.

20. Section 705(e)(4) of the Communications Act of 1934, as amended, makes it unlawful for any person to manufacture, assemble, modify, import, export, sell, or distribute any electronic, mechanical, or other device or equipment that is intended for reception and divulgence or beneficial use of radio communications.[25] This provision of the Act applies not only to equipment intended to decrypt satellite signals, but also applies to reception and divulgence or beneficial use of communications in the Cellular and other radio services such as personal communications services and other commercial mobile radio services. In order to call attention to this provision of the Act, we are proposing to amend our rules to include a section that reflects the language in Section 705(e)(4).[26] We note that Section 705(e)(4) provides for penalties of up to $500,000 for each violation of this provision of the Act. We intend to enforce this provision on a case-by-case basis.

Effective date

21. We are proposing to make these rules effective 90 days from the date of publication in the Federal Register of any Report and Order in this proceeding, as requested by Uniden. While this is a relatively short time frame, we believe it is important to act promptly to ensure the privacy of the cellular radio service. However, we invite comment on the proposed effective date. The text of all the proposed rule additions and modifications can be found in Appendix B.

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[24] Section 705(a) prohibits, except as authorized by law, any person "receiving, assisting in receiving, transmitting, or assisting in transmitting, any interstate or foreign communication by wire or radio" from divulging or publishing "the existence, contents, substance, purport, effect, or meaning" of such communication. In addition, § 705(a) prohibits any person from intercepting any radio communication and divulging or publishing "the existence, contents, substance, purport, effect, or meaning or such intercepted communication to any person." Nor may any person, not being entitled thereto, "receive or assist in receiving any interstate or foreign communication by radio and use such communication (or any information therein contained) for his own benefit or for the benefit of another not entitled thereto." Further, § 705(a) provides that "[n]o person having received any intercepted radio communication or having become acquainted with the contents, substance, purport, effect, or meaning of such communication (or any part thereof) knowing that such communication was intercepted, shall divulge or publish the existence, contents, substance, purport, effect, or meaning of such communication (or any part thereof) or use such communication (or any information therein contained) for his own benefit or for the benefit of another not entitled thereto." *See* 47 U.S.C.§ 605(a).

[25] *See* 47 U.S.C. § 605(e)(4).

[26] *See* 47 C.F.R. § 15.9.

PROCEDURAL MATTERS

22. This is a non-restricted notice and comment rule making proceeding. *Ex parte* presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed as provided in the Commission's rules. *See generally* 47 CFR Sections 1.1202, 1.1203, and 1.1206(a).

23. Comment Dates. Pursuant to applicable procedures set forth in Sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. § 1.415 and § 1.419, interested parties may file comment on the Notice of Proposed Rule Making on or before **[30 days from date of publication in the Federal Register]** and reply comments on or before **[45 days from date of publication in the Federal Register]**. To file formally in this proceeding, you must file an original and five copies of all comments, reply comments, and supporting comments. If you want each Commissioner to receive a personal copy of your comments, you must file an original plus nine copies. You should send comments and reply comments to the Office of the Secretary, Federal Communications Commission, Room 239, 1919 M Street, N.W., Washington DC 20554. Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center of the Federal Communications Commission, Room 239, 1919 M Street, N.W., Washington DC 20554. Written comments by the on the proposed and/or modified information collections are due **[30 days from date of publication in the Federal Register]**. Written comments must be submitted by the Office of Management and Budget ("OMB") on the proposed and/or modified information collection on or before **[30 days from date of publication in the Federal Register]**. In addition to filing comments with the Secretary, a copy of any comments on the information collections contained herein should be submitted to Judy Boley, Federal Communications Commission, Room 234, 1919 M Street, N.W., Washington, DC 20554, or via the Internet to jboley@fcc.gov and to Timothy Fain, OMB Desk Officer, 10236 NEOB, 725 - 17th Street, N.W., Washington, DC 20503 or via the Internet to fain_t@al.eop.gov.

24. The proposed action is authorized under Sections 4(i), 301, 302, 303(e), 303(f), 303(r), 304, and 307 of the Communications Act of 1934, as amended, 47 USC Sections 154(i), 301, 302, 303(e), 303(f), 303(r), 304 and 307.

25. IT IS ORDERED that the Commission's Office of Public Affairs, Reference Operations Division, SHALL SEND a copy of this Notice of Proposed Rule Making, including the Initial Regulatory Flexibility Certification, to the Chief Counsel for Advocacy of the Small Business Administration.

26. For further information regarding this Notice of Proposed Rule Making, contact Rodney Conway at (202) 418-2904 or Hugh Van Tuyl at (202) 418-7506 via e-mail rconway@fcc.gov or hvantuyl@fcc.gov or via TTY (202) 418-2989, Office of Engineering and Technology, Federal Communications Commission, Washington DC 20554.

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas

Magalie Roman Salas
Secretary

APPENDIX A

HOW RECEPTION OCCURS ON IMAGE FREQUENCIES

Most VHF/UHF receiver systems employ simple conversion techniques which introduce the possibility of a phenomenon called image reception. The image reception of a receiver is a function of the desired RF signal (f_{RF}), the IF frequency of the receiver (f_{IF}), and the local oscillator frequency of the receiver (f_{LO}). The block diagram below gives an overview of a typical receiver design. Within the mixer section of the receiver the desired signal (f_{RF}) is converted to an intermediate frequency, f_{IF}, by subtracting the local oscillator frequency (f_{LO}). The intermediate frequency ($f_{IF} = f_{RF} - f_{LO}$) is then demodulated to receive an output signal.

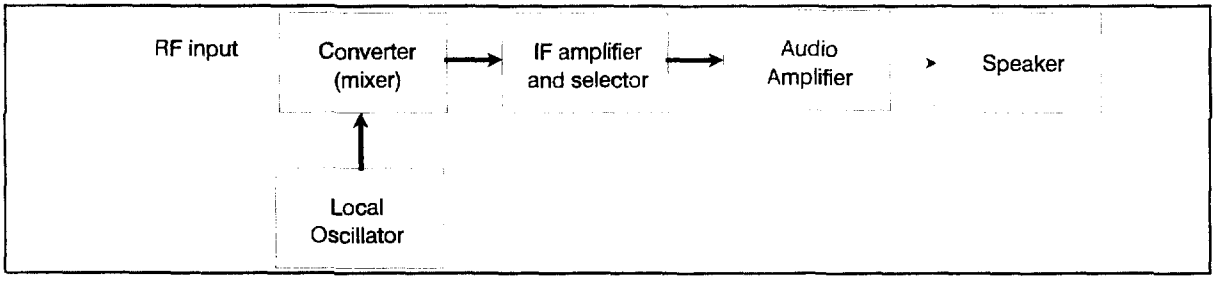
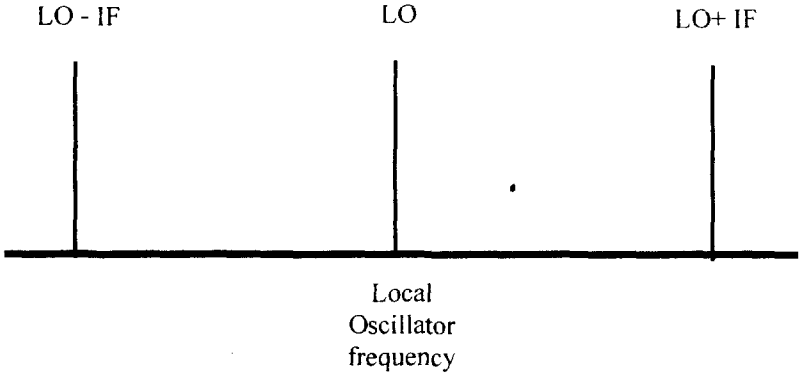


Image reception occurs when a receiver encounters a signal which is spaced either above or below the local oscillator frequency (f_{LO}) by an amount equal the IF frequency (f_{IF}). Two input frequencies, either $f_{LO} + f_{IF}$ or $f_{LO} - f_{IF}$, may then result in f_{IF} at the output of the mixer. The desired signal is $f_{LO} + f_{IF}$ and the undesired signal is $f_{LO} - f_{IF}$.[27] The line drawing below illustrates the presence of the desired signal and the undesired signal as it relates to the local oscillator frequency. Most receivers are designed to attenuate or reject the undesired signal with the use of filters and different mixing techniques.



[27] Systems may also be designed to receive the desired signal as $f_{LO} - f_{IF}$. In this case the undesired signal would be $f_{LO} + f_{IF}$.

However, if a receiver does not contain properly operating filtering or mixing then VHF/UHF receiver imaging may result in the reception of signals from other radio services.

An Example:

A listener tunes his receiver to 902 MHz. Typically, scanner radios operate with an IF frequency of 10.7 MHz. The local oscillator frequency in this case would be 891.3 MHz. Unless appropriate filtering is used, two signals may enter the mixer section and produce the intermediate frequency. Specifically, 902 MHz ($f_{LO} + f_{IF}$) and 880.6 MHz ($f_{LO} - f_{IF}$) will both produce the 10.7 MHz intermediate frequency. Both signals would then be demodulated to produce an output. However, while 902 MHz is a band used for Part 15 unlicensed devices and for other purposes, 880.6 MHz is allocated to cellular phone operation.

APPENDIX B

Part 2 of Title 47 of the Code of Federal Regulations is proposed to be amended as follows:

PART 2--FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS: GENERAL RULES AND REGULATIONS

1. The authority citation for Part 2 continues to read as follows:

AUTHORITY: Sec. 4, 302, 303 and 307 of the Communications Act of 1934, as amended, 47 U.S.C. 154, 154(i), 302, 303, 303(r) and 307.

2. Section 2.1033 paragraph (b)(12) is revised to read as follows:

Section 2.1033 Application for certification.

(b) * * *

(12) Applications for the certification of scanning receivers shall include a statement describing the methods used to comply with the design requirements of all parts of Section 15.121 of this chapter. The application must specifically include a statement assessing the vulnerability of the equipment to possible modification and the design features that prevent the modification of the equipment by the user to receive transmissions from the Cellular Radiotelephone Service. The application must also demonstrate compliance with the signal rejection requirement of Section 15.121 of this chapter, including details on the measurement procedures used to demonstrate compliance.

* * * * *

Part 15 of Title 47 of the Code of Federal Regulations is proposed to be amended as follows:

PART 15--RADIO FREQUENCY DEVICES

1. The authority citation for Part 15 continues to read as follows:

AUTHORITY: Sec 4, 302, 303 and 307 of the Communications Act of 1934, as amended, 46 U.S.C. 154, 302, 303 and 307.

* * * * *

2. Section 15.3 is amended by adding paragraph (cc)

Section 15.3 Definitions

(bb) * * * * *

(cc) Test Equipment is defined as equipment that is not marketed or sold to the general public and is used by professional technical personnel in conjunction with the testing of equipment or systems or for scientific investigations.

3. Section 15.20 is added to the rules to read as

Section 15.20 Prohibition against use of scanning receiver to violate Section 705 of the Communications Act of 1934, as amended.

No person or persons may manufacture, assemble, modify, import, export, sell or distribute any scanning receiver knowing or having reason to know that the scanning receiver is intended for any activity prohibited in 47 U.S.C. § 705(a).

Section 15.37 is amended by modifying paragraph (f) and adding paragraph (h) as follows:

4. Section 15.37 is amended by modifying paragraphs (f) and (h) to read as follows:

Section 15.37 Transition provisions for compliance with the rules.

* * * * *

(f) The manufacture or importation of scanning receivers, and frequency converters designed or marketed for use with scanning receivers, that do not comply with the provisions of § 15.121(a)(1) shall cease on or before April 26, 1994. Effective April 26, 1993, the Commission will not grant equipment authorization for receivers that do not comply with the provisions of § 15.121(a)(1). This paragraph does not prohibit the sale or use of authorized receivers manufactured in the United States, or imported into the United States, prior to April 26, 1994.

(g) * * *

(h) The manufacture or importation of scanning receivers, and frequency converters designed or marketed for use with scanning receivers, that do not comply with the provisions of § 15.121(a)(1), § 15.121(a)(2), § 15.121(b), § 15.121(c), § 15.121(d), and § 15.121(e) shall cease on or before **[insert 90 days after publication of the Report and Order in the Federal Register]**. Effective **[insert 30 days after publication of the Report and Order in the Federal Register]** the Commission will not grant equipment authorization for receivers that do not comply with the provisions of § 15.121(a)(1), § 15.121(a)(2), § 15.121(b), § 15.121(c), § 15.121(d) and § 15.121(e). This paragraph does not prohibit the sale or use of authorized receivers manufactured in the United States, or imported into the United States, prior to **[insert 90 days after publication of the Report and Order in the Federal Register]**.

* * * * *

5. Section 15.121 is amended by modifying paragraph (a) and adding a new paragraphs (c), (d) and (e) to read as follows:

Section 15.121 Scanning receivers and frequency converters used with scanning receivers.

(a) Except as provided in paragraph (c) of this section, scanning receivers and frequency converters designed or marketed for use with scanning receivers, must:

(1) be incapable of operating (tuning), or readily being altered by the user to operate, within the frequency bands allocated to the Cellular Radiotelephone Service in Part 22 of this chapter (cellular telephone bands). Scanning receivers capable of "readily being altered by the user" include, but are not limited to, those for which the ability to receive transmissions in the cellular telephone

bands can be added by clipping the leads of, or installing, a simple component such as a diode, resistor or jumper wire; replacing a plug-in semiconductor chip; or programming a semiconductor chip using special access codes or an external device, such as a personal computer. Scanning receivers, and frequency converters designed for use with scanning receivers, must also be incapable of converting digital cellular communication transmissions to analog voice audio.

(2) be designed so that the tuning and control circuitry is completely inaccessible. The design must be such that any attempts to modify the equipment to receive transmissions from the Cellular Radiotelephone Service will likely render the receiver inoperable.

(b) Except as provided in paragraph (c) of this section, scanning receivers, on any tunable frequency, must reject any signals from the Cellular Radiotelephone Service frequency bands that are up to 38 dB higher than the minimum receiver sensitivity for the tunable frequency. This standard is based upon a measured signal-to-noise ratio of 12 dB, which is considered the threshold where a signal can be clearly discerned from any interference that may be present. The scanning receiver must not generate a response to any field strength of up to 5 mV/m or less from the Cellular Radiotelephone Service frequency bands.

(c) Scanning receivers, and frequency converters designed or marketed for use with scanning receivers, that are manufactured exclusively for, and marketed exclusively to, entities described in 18 U.S.C. Section 2512(2), or which are marketed exclusively as test equipment pursuant to § 15.3(cc) are not subject to the requirements of paragraphs (a) and (b) of this section.

(d) Modification of a scanning receiver on a substantial scale to receive transmissions from Cellular Radiotelephone Service frequency bands will be considered to constitute manufacture of such equipment. The term "substantial scale" includes any entity or organization that modifies scanners as a business or on an ongoing basis. Any modification to a scanning receiver to receive transmissions from the Cellular Radiotelephone Service frequency bands voids the certification of the scanning receiver, irrespective of the date of manufacture of the original unit.

(e) Scanning receivers and frequency converters designed for use with scanning receivers may not be assembled from kits or marketed in kit form.

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APPENDIX C

INITIAL REGULATORY FLEXIBILITY ANALYSIS FOR THE NPRM

As required by the Regulatory Flexibility Act (RFA),[28] the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities by the policies and rules proposed in this Notice of Proposed Rule Making. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the Notice of Proposed Rule Making provided in paragraph 23. The Commission will send a copy of the Notice of Proposed Rule Making, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration. *See* 5 U.S.C. § 603(a). In addition, the Notice of Proposed Rule Making and IRFA (or summaries thereof) will be published in the Federal Register. *See* id.

Need for and Objective of the Proposed Rules. This NPRM is initiated to obtain comments regarding the proposed rules which seek to further ensure that scanning receivers do not receive signals from the cellular radiotelephone frequency bands.

Legal Basis. The proposed action is authorized under Sections 4(j), 301, 302, 303(e), 303(f), 303(g), 303(r), 304 and 307 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 301, 302, 303(e), 303(f), 303(g), 303(r), 304 and 307.

Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply. For purposes of this NPRM, the RFA defines a "small business" to be the same as a "small business concern" under the Small Business Act, 15 U.S.C. § 632, unless the Commission has developed one or more definitions that are appropriate to its activities.[29] Under the Small Business Act, a "small business concern" is one that: 1) is independently owned and operated; 2) is not dominant in its field of operation; and 3) meets any additional criteria established by the Small Business Administration ("SBA").[30]

The Commission has not developed a definition of small entities applicable to unlicensed communications devices. Therefore, we will utilize the SBA definition applicable to manufacturers of Radio and Television Broadcasting and Communications Equipment. According to the SBA regulations, unlicensed transmitter manufacturers must have 750 or fewer employees on order to qualify as a small business concern.[31] Census Bureau data indicates that there are 858 U.S. companies that manufacture radio and television broadcasting and communications equipment, and that 778 of

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[28] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996)(CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

[29] *See* 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 5 U.S.C. § 632).

[30] *See* 15 U.S.C. § 632.

[31] *See* 13 C.F.R. § 121.201, (SIC) Code 3663.

these firms have fewer than 750 employees and would be classified as small entities.[32] The Census Bureau category is very broad, and specific figures are not available as to how many of these firms will manufacture unlicensed communications devices. However, we believe that many of them may qualify as small entities.

Description of Projected Reporting, Recordkeeping and Other Compliance Requirements. We propose to establish rules that would require scanning receivers to be manufactured to reduce the possibility of receiving signals from the cellular telephone frequency bands. The proposed rules will require design details and test measurements to be reported to the Commission as part of the normal equipment authorization process under our certification procedure.

Any Significant Alternatives Minimizing the Impact on Small Entities Consistent with Stated Objectives. None.

Federal Rules Which Overlap, Duplicate or Conflict With These Rules. None.

[32] *See* U.S. Dept. of Commerce, *1992 Census of Transportation, Communications and Utilities* (issued May 1995), SIC category 3663.

APPENDIX D

PUBLIC NOTICE

Federal Communications Commission
1919 M St., N.W.
Washington, D.C. 20554

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Internet: http://www.fcc.gov
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DA 97-1440

July 10, 1997
(Revision of February 13, 1997 edition)

MANUFACTURING ILLEGAL SCANNERS INCLUDES SCANNER MODIFICATION

It has come to our attention that entities are offering to modify scanning receivers (scanners) in order to receive frequencies allocated to the Domestic Public Cellular Radio Telecommunications Service. Such modifications are not permitted under federal law and the Commission's rules.

Scanners are radio receivers that can automatically switch between four or more frequencies anywhere in the frequency range of 30-960 MHz. On April 19,1993, the Commission adopted a Report and Order in ET Docket 93-1 amending Parts 2 and 15 of the FCC Rules to prohibit the manufacture and importation of scanners capable of receiving, or readily being altered to receive, frequencies allocated to the Cellular Radio Service. The Commission adopted these rules to implement Section 302(d) of the Communications Act of 1934, as amended (47 U.S.C. 302 (d)).

Scanning receivers are required by Section 15.101(a) of the FCC Rules to be certificated by the Commission. Section 15.121 states that scanning receivers, and frequency converters designed or marketed for use with scanning receivers, must be incapable of operating (tuning), or incapable of readily being altered by the user to operate, within the frequency bands allocated to the Domestic Public Cellular Radio Telecommunications Service. Scanners that are capable of "readily being altered by the user" include, but are not limited to scanners to which the ability to receive cellular telephone frequencies can be added by: installing or clipping the leads of a simple component, such as a diode, resistor and/or jumper wire; replacing a plug-in semiconductor chip; or programming a semiconductor chip using special access codes or an external device. Scanners and frequency converters for use with scanners, must also be incapable of converting digital cellular frequencies to analog voice audio. Under Section 15.37(f), the manufacture or importation of scanning receivers, and frequency converters used with scanning receivers, that do not comply with Section 15.121 has been prohibited since April 26, 1994.

Manufacturing a scanner to receive cellular telephone frequencies is a violation of Section 302(d) of the Communications Act (47 U.S.C. § 302(d)) and Sections 15.37(f) and 15.121 of the Rules (47 C.F.R. §§ 15.37(f) and 15.121). The modification of scanners on a substantial scale to receive cellular frequencies will be considered to constitute manufacture of such equipment in violation of Section 302(d) of the Communications Act and FCC Rules. Entities engaged in such activity are cautioned to cease advertising and/or performing any such activity immediately.

The Commission will vigorously take enforcement action against parties found to violate Section 302(d) and these rules. Willful or repeated violations may be subject to a monetary forfeiture of not more than $11,000 for each violation or each day of a continuing violation, except that the amount assessed for any continuing violation shall not exceed a total of $82,500. See 47 U.S.C. § 503(b), 47 C.F.R. § 1.80(a). Further, pursuant to 47 U.S.C § 510, such devices may be seized and forfeited to the United States. Continuing violations will be referred to the Department of Justice for possible criminal prosecution.

Use of scanners by individuals to intercept and divulge or use beneficially wireless telephone conversations (not just cellular conversations) without authorization is generally prohibited by Section 705(a) of the Act, 47 U.S.C. § 605(a). Administrative forfeitures may be imposed for such violations. Violations of this provision may also be referred to the Department of Justice for possible criminal prosecution. In addition, Section 705(e)(4) of the Communications Act prohibits the manufacture, assembly, modification, import, export, sale or distribution of any scanner that is intended for an activity prohibited by Section 705(a). Violations of this provision will also be referred to the Department of Justice for possible criminal prosecution.

Other Federal and State statutes also apply in this area. For more information regarding the interception and divulgence of radio communications, see FCC FACT SHEET, "Interception and Divulgence of Radio Communications," dated January 1997, which can be obtained by calling the Public Service Division at 202-418-0200 or accessing it on the Commission Internet web site at **http://www.fcc.gov/Consumer_Info.html/.**

Additional questions concerning this notice may be addressed to Art Wall at 301-725-1585 (ext. 205), fax: (301) 344-2050, email: awall@fcc.gov.

By the Chief, Office of Engineering and Technology

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