

Governments, because it would not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes.

Energy Effects

We have analyzed this proposed rule under Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use. We have determined that it is not a "significant energy action" under that order because it is not a "significant regulatory action" under Executive Order 12866 and is not likely to have a significant adverse effect on the supply, distribution, or use of energy. The Administrator of the Office of Information and Regulatory Affairs has not designated it as a significant energy action. Therefore, it does not require a Statement of Energy Effects under Executive Order 13211.

Technical Standards

The National Technology Transfer and Advancement Act (NTTAA) (15 U.S.C. 272 note) directs agencies to use voluntary consensus standards in their regulatory activities unless the agency provides Congress, through the Office of Management and Budget, with an explanation of why using these standards would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.*, specifications of materials, performance, design, or operation; test methods; sampling procedures; and related management systems practices) that are developed or adopted by voluntary consensus standards bodies.

This proposed rule does not use technical standards. Therefore, we did not consider the use of voluntary consensus standards.

Environment

We have analyzed this proposed rule under Commandant Instruction M16475.1D, which guides the Coast Guard in complying with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321–4370f), and have concluded that there are no factors in this case that would limit the use of a categorical exclusion under section 2.B.2 of the Instruction. Therefore, this proposed rule is categorically excluded, under figure 2–1, paragraph (32)(e) of the Instruction, from further environmental documentation. Under figure 2–1, paragraph (32)(e) of the Instruction, an "Environmental Analysis Check List" and a "Categorical

Exclusion Determination" are not required for this proposed rule.

List of Subjects in 33 CFR Part 117

Bridges.

Regulations

For the reasons discussed in the preamble, the Coast Guard proposes to amend 33 CFR part 117 as follows:

PART 117—DRAWBRIDGE OPERATION REGULATIONS

1. The authority citation for part 117 continues to read as follows:

Authority: 33 U.S.C. 499; Department of Homeland Security Delegation No. 0170.1; 33 CFR 1.05–1(g); section 117.255 also issued under the authority of Pub. L. 102–587, 106 Stat. 5039.

2. Revise § 117.323 to read as follows:

§ 117.323 Outer Clam Bay.

The draw of the Outer Clam Bay boardwalk shall open on signal if at least 30 minutes advance notice is given.

Dated: October 31, 2006.

D.W. Kunkel,

Rear Admiral, U.S. Coast Guard, Commander, Seventh Coast Guard District.

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FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 15

[ET Docket No. 04–186 and 02–380; FCC 06–156]

Unlicensed Operation in the TV Broadcast Bands

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: This document asks questions and sets forth proposals concerning the rules that will be necessary to enable low power devices to operate in the TV bands without causing harmful interference to other authorized operations in those bands. The process that the Commission will follow in developing the final rules for devices in the TV bands will allow it to develop a thorough record on the various issues involved. While the Commission continues to focus on devices operating on an unlicensed basis, it also asks whether such devices should instead operate on a licensed or hybrid basis. The Commission expects to complete this work and make final decisions in sufficient time for industry to design

and produce new products by completion of the DTV transition.

DATES: Comments must be filed on or before January 31, 2007, and reply comments must be filed on or before March 2, 2007.

ADDRESSES: You may submit comments, identified by ET Docket No. 04–186 and 02–380, by any of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the instructions for submitting comments.
- *Federal Communications Commission's Web Site:* <http://www.fcc.gov/cgb/ecfs/>. Follow the instructions for submitting comments.
- *E-mail:* [Optional: Include the E-mail address only if you plan to accept comments from the general public]. Include the docket number(s) in the subject line of the message.
- *Mail:* [Optional: Include the mailing address for paper, disk or CD-ROM submissions needed/requested by your Bureau or Office. Do not include the Office of the Secretary's mailing address here.]
- *People with Disabilities:* Contact the FCC to request reasonable accommodations (accessible format documents, sign language interpreters, CART, etc.) by e-mail: FCC504@fcc.gov or phone: 202–418–0530 or TTY: 202–418–0432.

For detailed instructions for submitting comments and additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT:

Hugh Van Tuyl, Office of Engineering and Technology, (202) 418–7506, e-mail: Hugh.VanTuyl@fcc.gov, or Alan Stillwell, Office of Engineering and Technology, (202) 418–2925, e-mail: Alan.Stillwell@fcc.gov, TTY (202) 418–2989.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Further Notice of Proposed Rulemaking*, ET Docket No. 04–186 and 02–380, FCC 06–156, adopted October 12, 2006, and released October 18, 2006. The full text of this document is available for inspection and copying during normal business hours in the FCC Reference Center (Room CY–A257), 445 12th Street, SW., Washington, DC 20554. The complete text of this document also may be purchased from the Commission's copy contractor, Best Copy and Printing, Inc., 445 12th Street, SW., Room, CY–B402, Washington, DC 20554. The full text may also be downloaded at: <http://www.fcc.gov>.

Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR

1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using: (1) The Commission's Electronic Comment Filing System (ECFS), (2) the Federal Government's eRulemaking Portal, or (3) by filing paper copies. See *Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- **Electronic Filers:** Comments may be filed electronically using the Internet by accessing the ECFS: <http://www.fcc.gov/cgb/ecfs/> or the Federal eRulemaking Portal: <http://www.regulations.gov>. Filers should follow the instructions provided on the Web site for submitting comments.

- **For ECFS filers,** if multiple docket or rulemaking numbers appear in the caption of this proceeding, filers must transmit one electronic copy of the comments for each docket or rulemaking number referenced in the caption. In completing the transmittal screen, filers should include their full name, U.S. Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions, filers should send an e-mail to ecfs@fcc.gov, and include the following words in the body of the message, "get form." A sample form and directions will be sent in response.

- **Paper Filers:** Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (although we continue to experience delays in receiving U.S. Postal Service mail). All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

- **The Commission's contractor** will receive hand-delivered or messenger-delivered paper filings for the Commission's Secretary at 236 Massachusetts Avenue, NE., Suite 110, Washington, DC 20002. The filing hours at this location are 8 a.m. to 7 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of *before* entering the building.

- **Commercial overnight mail** (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300

East Hampton Drive, Capitol Heights, MD 20743.

- **U.S. Postal Service first-class, Express, and Priority mail** should be addressed to 445 12th Street, SW., Washington, DC 20554.

People with Disabilities: To request materials in accessible formats for people with disabilities (Braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

Summary of Further Notice of Proposed Rulemaking

1. The purpose of this *Further Notice of Proposed Rule Making* (FNPRM) is to develop additional information concerning the rules that will be necessary to enable low power devices to operate in the TV bands without causing harmful interference to other authorized operations in those bands. TV stations are generally protected from interference within defined signal contours, and the signal level that defines a TV station's protected contour varies depending on the type of station and the frequency band in which the station operates. Consequently, in the *Notice of Proposed Rule Making* (NPRM) 69 FR 34103, June 18, 2004, the Commission proposed to use these service area criteria to define the areas that unlicensed devices must protect from harmful interference, *i.e.*, TV service within the contours defined by these criteria would have to be protected. In the *NPRM*, the Commission considered several different interference avoidance approaches for unlicensed operations for two functional categories of operations—fixed/access and personal/portable devices. Fixed/access devices generally operate at higher power from a fixed location, including outdoors, and may be used to provide a commercial service. Personal/portable devices, on the other hand, are those generally anticipated to operate at lower power, usually indoors or within a small localized area, and include devices such as computers or personal digital assistants (PDAs) that can be moved to operate at different locations. The Commission proposed to require that fixed/access devices incorporate a geo-location method such as GPS or be professionally installed, and that they access a database to identify vacant channels at their location. The Commission proposed that personal/portable devices operate only when they receive a control signal from a source such as an FM or TV station that identifies the vacant TV channels in that

particular area. Finally, it sought comment on the possibility of using spectrum sensing as an alternative to the geo-location/database and control signal approaches, but did not make any specific proposals on the use of this technique for identifying unused TV channels.

2. The Commission does not believe there is sufficient information in the record to adopt rules for any of these interference avoidance approaches at this time. There are unresolved issues from the *NPRM* with respect to both the geo-location/database approach and the control signal approach, and the Commission is seeking further comment on ways to resolve those issues. Because the Commission believes that the spectrum sensing approach holds promise, it is making specific proposals concerning this approach. Although the *NPRM* included proposals that different interference avoidance schemes be used for fixed/access and personal/portable devices, commenters responding to this *Further NPRM* should address whether and how one interference avoidance scheme could be used effectively for both types of TV band devices. Commenters also should address how an interference avoidance scheme would protect TV services within their defined contours.

Licensed vs. Unlicensed Operation

3. In the *NPRM*, the Commission proposed to allow unlicensed operation in the TV bands, but did not address the possibility of instead providing for new low power operations on a licensed basis. A number of parties suggest that if new wireless operations are permitted in the TV bands, they should be on a licensed, rather than an unlicensed, basis. No party provided specific recommendations for how spectrum in the TV band could be assigned on a licensed basis for the devices contemplated in the *NPRM*. In the interest of obtaining a further record on this issue, the Commission seeks comment on whether proposed low power operations in the TV bands should be allowed on an unlicensed, licensed, or hybrid basis.

4. The Commission notes that licensing would require it to determine the rights and obligations of such licensees vis-à-vis other licensees. In contrast to unlicensed use, licensees would, by definition, have rights to transmit in this band with some interference protection. For instance, what would be the allocation status of such licensed operations? How would such services fit within the hierarchy of currently authorized TV and other services in the band? Should they have

equal, superior, or secondary rights to existing services, and if so, which ones? Would TV band devices used by licensed services be required to incorporate the same type of interference avoidance mechanisms and low power limits that are proposed for unlicensed devices? Would an exclusive licensing approach or a non-exclusive, shared approach better serve the Commission's spectrum policy objectives? If the Commission decides to license wireless services on an exclusive basis, it seeks comment on what licensing areas should be used in this band—e.g., nationwide, regional, small geographic areas, or a site-specific approach? Should the Commission divide the TV spectrum into different blocks of channels—e.g., Channels 5 and 6, Channels 7 through 13, Channels 21 through 36, and Channels 38 through 51—and issue separate authorizations to operate on each of these blocks of channels in the relevant geographic area?

5. The Commission seeks comment on these and any other issues relevant to whether TV band devices should be allowed on an unlicensed, licensed, or hybrid basis. It asks commenters to discuss the technical, operational, legal, or economic advantages and costs associated with the various options. Commenters should also discuss the benefits and disadvantages associated with each of these approaches.

Spectrum Sensing and Other Technical Requirements

6. The Commission further explores the viability of spectrum sensing as a method for identifying TV channels that may be used by TV band devices and offers specific technical proposals for the sensing capabilities and parameters that would need to be included in the Commission's rules. It requests additional comment on whether TV band devices should be allowed to use spectrum sensing as a means to determine the availability of unused frequencies in the TV bands and, if so, the technical features and parameters of the sensing capability to be required.

7. *Detection Threshold.* The detection threshold is the sensitivity level that would be used to determine the presence of other signals. The Commission observes that IEEE 802.22 is considering different threshold detection levels depending on the nature of the source signal, with levels as low as -116 dBm. The Commission invites comment as to this value or alternative values for the detection threshold.

8. The Commission appreciates that a variety of additional considerations

need to be taken into account in developing the detection threshold for devices in the TV bands. For example, a lower detection threshold infers greater interference protection for services operating in the TV spectrum, but could also result in increased false positives as a response to spurious radio noise or other unlicensed devices, sharply reducing the usefulness of this spectrum for TV band devices. Also, the height of the TV band device transmitting antenna affects the distance that signals propagate, and therefore the distance at which interference could occur. The Commission asks interested parties to address how these factors might be taken into account in developing the appropriate detection threshold.

9. A number of parties have asserted that sensing alone will not be effective in preventing harmful interference to TV broadcasting within its protected contour and to other authorized services in this spectrum due to the problem of the "hidden node." This situation results when there is an obstruction between the sensing receiver and the signal to be detected. In this case, the sensing receiver may fail to detect that a channel is occupied and begin transmitting, thus causing interference to other nearby parties attempting to receive that channel along an unobstructed path. The Commission recognizes that this is indeed a potential problem and request views on its scope and how to deal with this phenomenon effectively. The Commission invites further comment as to how it can ensure the viability of a distributed sensing approach for systems deployed on an unlicensed basis. For example, could this type of operation be achieved simply by requiring every device in a network to have sensing capability and to pass its sensing information on to other devices on the network? Another approach would be to use sensing in combination with other information, such as geolocation, under a set of policy rules that would serve as the gating criteria for access to the spectrum. The Commission solicits comments on these and any other approaches that would deal effectively with the hidden node problem.

10. *Channel Availability Check Time, Move Time and Non-Occupancy Period.* The operating pattern in the TV spectrum typically does not change rapidly because TV stations rarely change their operating characteristics, such as hours of operation, antenna height, power, etc. Nevertheless, the Commission recognizes that operations in the TV spectrum can and do change over time. For example, certain TV

broadcasting operations may be on most of the day, but not for brief periods during late night or early morning hours. New low power TV and translator operations could be authorized and come on the air at any time. Wireless microphone operations tend to be used for a period of hours at a particular location, but can also operate anywhere at any time and may not have a signal that is on the air continuously.

11. In light of these factors, the Commission proposes to require that TV band devices that use sensing to determine the availability of unused TV band frequencies perform sensing before accessing a channel and periodically thereafter to ensure that the channel is still available, i.e., unoccupied. The Commission asks commenters to indicate whether there is a need to specify the period of time over which sensing must occur before a channel may be accessed, and if so, what that should be. For example, would 30 seconds be a necessary or sufficient period of time for the initial channel availability check when a device is placed in operation, i.e., turned-on? The Commission also invites comment as to the appropriate period when the channel must be rechecked to determine that it continues to be available. Its initial proposal is to require devices to recheck the channel at least every 10 seconds. The Commission does not propose to require devices to remain off the air for any prescribed period of time after a channel is first determined to be occupied. It believes the requirement to perform sensing before operating should ensure that devices will not cause harmful interference to authorized services that are already on the air.

12. *Channels Over Which Sensing Is Required.* In order to avoid co-channel interference to authorized services in the TV spectrum, sensing is clearly needed in the channel in which the device will operate. The Commission requests comment on the need for sensing in adjacent channels by fixed and personal/portable devices. It also requests comment and information on the threshold levels at which protection should be invoked for sensed adjacent channel signals and whether protections other than simply requiring an unlicensed device to not transmit would be workable and appropriate. For example, if an adjacent channel signal were sensed, could interference be avoided by requiring the device to reduce power rather than cease operation? The Commission further seeks comment on whether any protection requirements are needed for services outside of the channels where

TV band devices would be permitted to operate, and if so, what these would be.

13. *Bandwidth Considerations.* The Commission seeks comment on whether there is a need to specify a sensing bandwidth in addition to a detection threshold, or whether it is necessary to specify only the characteristics of the signals to be detected, and leave the sensing bandwidth to the manufacturer's discretion.

14. *Antenna Considerations.* The Commission invites comment about whether the Commission should require the use of an omnidirectional antenna with a 0 dBi gain for sensing. It also invites comment as to what considerations for sensing should be taken into account for devices that employ a gain antenna for transmission. For example, a TV band device with an omnidirectional sensing antenna may detect that TV signals on a channel are below the monitoring threshold and begin transmitting, but could conceivably cause interference if it uses a higher gain directional transmitting antenna aimed toward a TV receiver. What provisions would be necessary to avoid such a situation? Further, the Commission invites comment on whether any requirements are necessary with respect to the transmit antenna height, such as a maximum antenna height requirement or reduced power when a greater antenna height is used.

15. *Transmit power control.* The Commission proposes to apply the same transmit power control requirements to devices operating in the TV spectrum that apply to U-NII devices at 5 GHz. It invites comment as to whether it should require a greater dynamic range for transmit power control, such as the ability to operate 9 or 12 dB below the limits if that is sufficient to achieve the desired communications. In addition, the Commission invites comment as to whether it should permit adjustments to any TV band device operating parameters, such as the detection threshold, if a TV band device operates at a power level substantially below the limit.

16. *Master/Client Operation.* The Commission proposes to allow fixed operations in the TV bands under a master/client model that is consistent with the model for U-NII devices. That is, each system of TV band devices will have one master device and one or more client devices. It proposes to define a master device as a device operating in a mode in which it has the capability to transmit without receiving an enabling signal. In this mode it would be able to select a channel and initiate a network by sending enabling signals to other devices. A network would always have

one device operating in master mode. The Commission proposes to define a client device as a device operating in a mode in which the transmissions are under control of the master. A device in client mode would not be able to initiate a network. A network could have one or more client devices. The Commission seeks comment on this proposal and whether any other approaches would be more appropriate.

17. *Spectrum Sharing.* The Commission invites comment as to whether it may be necessary or appropriate for the Commission to establish minimal technical requirements to facilitate sharing by unlicensed TV band devices, or by TV band devices licensed under a non-exclusive model if the Commission chose to adopt such an approach. For example, such steps might include limitations on the duration of transmissions and repeating spectrum sensing at intervals more frequently than 10 seconds. Parties addressing this matter should make specific proposals. In addition, the Commission asks that parties address the implications of their proposals for potential applications for TV band devices.

18. *Measurement procedures.* The Commission is presenting proposals and inviting comment on certain specific testing matters at this time. In performing the test for detection threshold, it proposes to subject the sensing capabilities of unlicensed devices to an ATSC DTV signal, an NTSC signal and a 200 kHz FM signal with peak levels adjusted to the threshold level. The Commission seeks comment on whether this approach is appropriate or whether some other method should be used. The test procedure for 5 GHz U-NII devices calls for performing the detection tests a number of times and specifies pass/fail ratios. The Commission does not believe such an approach is appropriate here because it should be simpler to detect signals from the types of devices operating in the TV spectrum than for radars, but it invites comment in this regard. Parties suggesting approaches based on multiple tests and pass/fail ratios should offer specific proposals.

Geo-Location/Database Approach

19. The Commission does not maintain a database of all TV and other stations in the TV bands that could be accessed in real-time (or near real-time) by large numbers of unlicensed devices dispersed throughout the country. However, in other cases, the Commission has relied on private parties to develop and maintain databases of certain operations that

others can access, and these databases are funded by the entities that use them. For example, the Commission selected the United Telecom Council (UTC) to maintain a database of broadband over power (BPL) systems, and the American Society for Healthcare Engineering of the American Hospital Association (ASHE/AHA) to maintain a database of wireless medical telemetry service devices. In these cases, the Commission developed basic regulations regarding the scope of the databases, solicited proposals from parties interested in developing and maintaining the database, and selected the database provider. The Commission seeks comment on relying on a similar approach here, particularly from parties who would be interested in developing and maintaining a database of operations in the TV bands. It also seeks further comment on some issues regarding the content of and access to a TV band database. For example, what information about stations should be in a database, such as geographic coordinates, type and class of station, power level, antenna height and other antenna characteristics? What information about wireless microphones could be entered in a database so that their location can be ascertained because the Commission does not license them by geographic coordinates? How would an unlicensed device access a database, and how often would a database need to be updated?

20. Finally, the Commission seeks additional comment on some of the technical requirements for TV band devices relying on the geo-location/database approach. For example, what is the appropriate method of geo-location: GPS, professional installation, or some other method? Could devices incorporate Assisted GPS to help receive GPS signals in obstructed and indoor locations? If a device is professionally installed, who should be permitted to install it? What is the appropriate method of determining the required separation from authorized users in the TV bands? How will the geo-location/database approach protect other authorized services, such as wireless microphones, the location of which may not be included in the databases? The Commission seeks comment on these and any other issues that need to be addressed to make this a viable interference avoidance scheme.

Control Signal Approach

21. The control signal approach is essentially a variation of the geo-location/database approach, and some of the same concerns apply to both methods, specifically, those about

maintaining the database and the method used to calculate the required separation between unlicensed devices and authorized stations in the TV bands. As discussed in regards to a geo-location database, a control signal database could be developed and maintained by a private entity selected by the Commission, and the database could be funded by parties who use it. The Commission seeks comment on whether it should develop basic regulations regarding the scope of a database to be used with a control signal approach, solicit proposals from parties interested in developing and maintaining a database, and select a database provider. The Commission particularly seeks comment from parties who would be interested in developing and maintaining a database for the control signal approach. It also seeks further comment on some issues regarding the content of and access to a TV band database. For example, what information about vacant TV spectrum should be in a database and who should determine the list of vacant TV channels in a broadcaster's service area, *e.g.*, the database manager, a designated frequency coordinator? Is there any inherent conflict of interest in permitting broadcasters to identify and to send information identifying channels not licensed to them as vacant and therefore available for use by unlicensed devices?

22. Regarding the technical requirements for unlicensed devices, the Commission seeks further comment on the format and content of the control signal. How will the control signal approach protect other authorized services, such as wireless microphones, the location of which may not be included in the databases? Also, can the control signal approach be relied upon as an interference avoidance mechanism in areas where no broadcast station or other facility sends a control signal?

A. Operation on Channels 14–20 and 2–4

23. The Commission seeks additional comment on whether fixed TV band devices should be allowed on channels 14–20 in those areas of the country where those channels are not used by public safety. It notes that the PLRMS/CMRS is permitted to operate in only 13 metropolitan areas in the country, and on only one to three channels in each area. Further, PLRMS/CMRS operations are limited to a defined radius around geographic coordinates specified in the rules for each metropolitan area. Thus, prohibiting operation of all fixed TV band devices (*e.g.*, devices used for backhaul) on all channels in the range

of 14–20 in all parts of the country could preclude operation of fixed low power devices in many areas where these channels are not in use by the PLRMS/CMRS or other authorized services. The Commission seeks comment on whether allowing fixed operation of TV band devices on channels 14–20 would cause harmful interference to public safety. If the Commission were to allow such use, how would it be implemented? Would any of the proposals have to be modified to protect the PLRMS/CMRS? Should the Commission define an “exclusion zone” around the specified coordinates of each of the 13 metropolitan areas where operation of low power devices would be prohibited? If so, what would be the appropriate size of the zone and how could it be enforced?

24. The Commission seeks further comment on whether it should allow TV band devices to operate on channels 2–4. In particular, the Commission seeks comment on whether TV interface devices would be more susceptible to interference from low power TV band devices than other TV receivers. The Commission also seeks comment on whether the cabling between a TV interface device and a TV receiver typically provides adequate shielding from unwanted signals on channels 2–4. The Commission also seeks information indicating the extent to which such signals may be picked up directly within the TV receiver. In addition, it notes a trend toward devices that connect directly to a TV receiver without going through the tuner. The Commission seeks comment on how much longer consumers are expected to use TV interface devices that connect to a TV through the tuner rather than an alternative interface connection.

B. Other Issues

25. *Types and Applications of Devices.* The Commission seeks additional comment on the types and applications of unlicensed devices that parties expect to be developed to operate in the TV bands. In particular, it seeks comment on the relationship between the technical requirements it is now proposing and the potential types of TV band devices that could be needed and developed. For example, how would a specific interference avoidance mechanism affect the types of potential applications? The Commission also invites comment as to whether the applications would be different if the Commission were to provide for TV band devices on a licensed basis instead of an unlicensed basis.

26. *Out of Band Emission Limits.* The Commission proposes to require that

emissions outside a TV band device's operating channel comply with the § 15.209 limits, but seek comment on whether different emission limits would be more appropriate. Parties that believe limits other than those in § 15.209 are necessary to protect incumbent TV band operations against harmful interference may perform tests and submit the results into the record in this proceeding.

27. The Commission also seeks comment on how out-of-band limits should be specified. Radiated emission limits at TV band frequencies are based on measuring equipment employing CISPR quasi-peak detector function and related measurement bandwidths. The Commission seeks comment on whether there is a better measure available for quantifying effects of interference on incumbent services in the TV bands, *e.g.*, ATSC digital television signals. For example, should measurement bandwidth be larger than the 120 kHz used by CISPR quasi-peak detectors in this frequency range in order to more closely match DTV receiver bandwidths? Should interference effects be quantified by measurements of average power, peak power, or some other function within the recommended measurement bandwidth? The Commission also seeks input on the appropriate emission levels using the proposed measurements. Should the levels be set to be equivalent in some sense to the 15.209 limits or should they be set at a different level?

28. *Direct Pickup Interference and Receiver Desensitization.* The Commission believes that fixed TV band devices will typically not be operated as close to TV receivers as some parties assume and should not generally cause direct pickup interference problems. Although personal/portable TV band devices could be located in close proximity to TV receivers, such devices are typically under control of the same party who can increase the separation distance between them or cease operating a device to eliminate any interference that occurs. The Commission invites parties to submit test results to evaluate the interference potential of low power devices to TV receivers. If any parties discover actual direct pickup interference or other adverse effects on TV receivers or other radio equipment in or adjacent to the TV bands during testing, they can submit results to the Commission that it will consider in the rule making process.

29. *Certification by TCBS.* Because TV band devices would contain new technologies and the Commission proposes new rules to accommodate

them, it expects that many questions about the application of the rules would arise. The Commission proposes that Telecommunication Certification Bodies not be permitted to certify TV band devices until the Commission has experience with them and can properly advise the TCBs on how to apply the applicable rules. The Commission's Laboratory maintains a list of types of devices that TCBs are excluded from certifying, and it proposes to place TV band transmitters on this list until such time as it determines that TCBs are capable of certifying them. The Commission seeks comment on this proposal.

30. *Unlicensed Use in Border Areas near Canada and Mexico.* The Commission asks whether the agreements with Canada and Mexico would need to be modified before it allows unlicensed TV band devices to operate in the border areas. To the extent they would need to be modified, the Commission seeks further comment on the methods that could be used to ensure that unlicensed TV band devices do not operate in the border areas until such time as the appropriate agreements are concluded. The Commission also seeks comment on whether the answers to these questions would be different under a licensed approach, and if so, how. Would these matters be more easily addressed under a licensed approach rather than an unlicensed approach?

Initial Regulatory Flexibility Analysis

31. As required by the Regulatory Flexibility Act of 1980, as amended (RFA), the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities small entities by the policies and rules proposed in this Notice of Proposed Rule Making (NPRM). 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 provided in paragraph 69 of the Further NPRM. The Commission will send a copy of the Report and Order and Further Notice of Proposed Rulemaking, including this IRFA, to the Chief

Counsel for Advocacy of the Small Business Administration (SBA).¹

A. Need for, and Objectives of, the Proposed Rules

32. This *Further NPRM* proposes to allow low power transmitters to operate in the TV broadcast bands at locations where spectrum is not being used by authorized services without causing harmful interference to these services. The *Further NPRM* seeks comment on whether these TV band devices should be authorized on a licensed, unlicensed or hybrid basis.² It would propose to require TV band devices to incorporate "smart radio" features to detect vacant TV channels and prevent harmful interference from TV band devices to authorized services operating in the TV bands. These features would include the abilities to (1) Monitor spectrum prior to transmitting to ensure that it is not in use by authorized services, (2) switch frequencies or cease transmitting if an authorized service begins using a previously unused frequency, (3) adjust transmit power to the minimum needed to establish a link, (4) determine geographic location and access a database to determine which channels are in use, and/or (5) receive a control signal and select the operating frequency based on data in the control signal.

33. These proposals, if adopted, will prove beneficial to manufacturers and users of low power transmitters because they will provide for more efficient and effective use of the TV spectrum and allow the development of new and innovative types of wireless devices and communication services for businesses and consumers. The additional frequency bands where operation is proposed can provide an alternative last mile solution to cable or DSL services for delivering high speed Internet services, other data applications, or even video and voice services. This

could particularly benefit underserved, rural, or isolated communities where cable and DSL services are not available. Also, because transmissions in the TV band have less signal attenuation through foliage and walls than frequencies above 900 MHz (such as unlicensed operations in the 2.4 GHz band), operations in the TV bands can improve the service range of wireless operations, thereby allowing operators to reach new customers and improve service to existing customers.

B. Legal Basis

34. 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 U.S.C. Sections 154(i), 301, 302, 303(e), 303(f), 303(r), 304 and 307.

C. Description and Estimate of the Number of Small Entities To Which the Proposed Rules Will Apply

35. The RFA directs agencies to provide a description of, and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.³ The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."⁴ In addition, the "small business" has the same meaning as the term "small business concern" under the Small Business Act.⁵ A "small business concern" is one which: (1) Is independently owned and operated; (2) is not dominant in its field of operations; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).⁶

³ See 5 U.S.C. 603(b)(3).

⁴ 5 U.S.C. 601(6).

⁵ 5 U.S.C. 601(3) (incorporating by reference the definition of "small-business concern" in the Small Business Act, 15 U.S.C. 632). Pursuant to 5 U.S.C. 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the *Federal Register*."

⁶ 15 U.S.C. 632.

¹ See 5 U.S.C. 603(a).

² Licensed operation requires the operator to obtain an authorization issued by the Commission to use a particular frequency band. Unlicensed operation may be done without a prior authorization from the Commission. Hybrid operation would be some mix of these two approaches but is not specifically defined in the *Further NPRM*.

36. *Radio and Television Broadcasting and Wireless Communications Equipment*

Manufacturers. The Commission has not developed a definition of small entities applicable to unlicensed communications devices manufacturers. Therefore, we will utilize the SBA definition application to manufacturers of Radio and Television Broadcasting and Communications Equipment. Under the SBA's regulations, a Radio and Television Broadcasting and Wireless Communications Equipment Manufacturer must have 750 or fewer employees in order to qualify as a small business concern.⁷ Census Bureau data indicate that there are 1,215 U.S. establishments that manufacture radio and television broadcasting and wireless communications equipment, and that 1,150 of these establishments have fewer than 500 employees and would be classified as small entities.⁸ The remaining 65 establishments have 500 or more employees; however, we are unable to determine how many of those have fewer than 750 employees and, therefore, also qualify as small entities under the SBA definition. We therefore conclude that there are at least 1,150 small manufacturers of radio and television broadcasting and wireless communications equipment, and possibly there are more that operate with more than 500 but fewer than 750 employees.

37. *Cellular and Other Wireless Telecommunications.* The SBA has developed a small business size standard for Cellular and Other Wireless Telecommunications, which consists of all such firms having 1,500 or fewer employees.⁹ According to Census Bureau data for 1997, in this category there were 977 firms that operated for the entire year.¹⁰ Of this total, 965 firms had employment of 999 or fewer employees, and an additional twelve firms had employment of 1,000 employees or more.¹¹ Thus, under this

size standard, the majority of firms can be considered small.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

38. Most licensed and unlicensed transmitters are required to be authorized under the Commission's certification procedure as a prerequisite to marketing and importation, and the proposed new types of TV band devices would be subject to the same certification requirement. There are no proposed new recordkeeping or reporting requirements in the Further Notice. There are a number of proposed compliance requirements for TV band devices.

39. Transmitters capable of operating in the TV bands would have to incorporate the following features to ensure that they operate on only vacant TV channels. Specifically, a transmitter would have to incorporate a dynamic frequency selection (DFS) mechanism to monitor a TV channel before transmitting. If no signals on a channel were detected above a specified level within a specified period of time, the device would be allowed to transmit on that channel. Otherwise, the device would have to monitor other TV channels to find one that is vacant, or if no vacant TV channels were available, the device would not be allowed to transmit. A TV band device would have to periodically monitor the TV channel on which it transmits during operation, and if any new signals appear, the device would have to switch to another channel within a specified period of time or cease transmitting if no vacant channels are available. A TV band device would also have to incorporate a transmit power control mechanism to lower the output power by 6 dB (4 times lower) than the maximum permitted power of one watt if that level is sufficient to accomplish the desired communications.

E. Steps Taken To Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

40. The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): "(1) The establishment of differing compliance or reporting

requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance, rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities."¹²

41. If the rules proposed in this notice are adopted, we believe they might have a significant economic impact on a substantial number of small entities. For an entity that chooses to manufacture or import equipment for the subject bands, the rules would impose costs for compliance with equipment technical requirements, such as incorporating a DFS mechanism to detect vacant TV channels where the equipment can operate. However, the burdens for complying with the proposed rules would be the same for both large and small entities. Therefore, no disproportionate burden of compliance would be sustained by small entities. Further, the proposals in this NPRM are ultimately beneficial for both large and small entities because they will provide for more efficient and effective use of the TV spectrum and allow the development of new and innovative types of wireless devices and communication services for businesses and consumers. Also, because transmissions in the TV band are subject to less propagation attenuation than transmissions in other bands where lower power operations are permitted (such as unlicensed operations in the 2.4 GHz band), operations in the TV bands can improve the service range of wireless operations, thereby allowing operators to reach new customers.

42. The Further NPRM seeks comment on alternatives to the proposed DFS mechanism for detecting vacant TV channels. Specifically, it seeks additional comment on how to implement the geo-location/database and control signal approaches for identifying vacant TV channels that was proposed in the original NPRM in this proceeding. The geo-location/database method would require that a TV band device incorporate a Global Positioning System (GPS) receiver or be professionally installed to determine its location, and that the device would have to access a database to identify vacant channels at its location. The control signal approach would require that a TV band device operate only when it receives a control signal from a source such as an FM or TV station that identifies the vacant TV channels that

⁷ 13 CFR 121.201, NAICS code 334220.

⁸ Economics and Statistics Administration, Bureau of Census, U.S. Department of Commerce, 1997 Economic Census, Industry Series—Manufacturing, Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, Table 4 at 9 (1999). The amount of 500 employees was used to estimate the number of small business firms because the relevant Census categories stopped at 499 employees and began at 500 employees. No category for 750 employees existed. Thus, the number is as accurate as it is possible to calculate with the available information.

⁹ 13 CFR 121.201, NAICS code 517211.

¹⁰ U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513322 (issued October 2000).

¹¹ U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment

Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513322 (issued October 2000). The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1000 employees or more."

¹² 5 U.S.C. 603(c)(1)–(c)(4).

could be used by the device in that particular area. We cannot find electrical engineering alternatives, such as exemptions from the requirements to include certain interference avoidance mechanisms into TV band devices that would achieve our goals while treating small entities differently. Nonetheless, we solicit comment on any alternatives commenters may wish to suggest for the purpose of facilitating the Commission's intention to minimize the compliance burden on smaller entities. As described, the compliance burdens would include incorporating certain features into TV band devices to prevent interference to authorized services, such as DFS, transmit power control, geo-location/database access and/or the ability to receive and respond to a control signal.

F. Federal Rules That May Duplicate, Overlap, or Conflict With the Proposed Rule

None.

43. Pursuant to sections 4(i), 302, 303(e), 303(f), 303(r) and 307 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 302, 303(e), 303(f), 303(r) and 307, this First Report and Order and Further Notice of Proposed Rulemaking is hereby adopted.

44. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, *Shall send* a copy of this First Report and Order and Further Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Analysis and Final Regulatory Flexibility Certification, to the Chief Counsel for Advocacy of the Small Business Administration.

List of Subjects in 47 CFR Part 15

Communications equipment, Radio.

Federal Communications Commission.

Marlene H. Dortch,
Secretary.

Rules Changes

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 CFR part 15 to read as follows:

PART 15—RADIO FREQUENCY DEVICES

1. The authority citation of part 15 continues to read as follows:

Authority: 47 U.S.C. 154, 302a, 303, 304, 307, 336, and 544a.

2. Section 15.209 is amended by revising the footnote to the table in paragraph (a) to read as follows:

§ 15.209 Radiated emission limits, general requirements.

(a) * * *

* * * Except as provided in paragraph (g) of this section, fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permitted under subpart H and under other sections of this part, e.g., §§ 15.231, 15.241 and 15.242.

* * *

3. Subpart H is added to part 15 to read as follows:

Subpart H—Unlicensed TV Band Devices

Sec.

15.701 Scope.

15.703 Definitions.

15.705 Cross reference.

15.707 General technical requirements.

§ 15.701 Scope.

This subpart sets out the regulations for unlicensed TV band devices operating in the 76–88 MHz, 174–216 MHz, 512–608 MHz and 614–698 MHz bands.

§ 15.703 Definitions.

(a) *Available Channel.* A radio channel on which a *Channel Availability Check* has not identified the presence of a signal.

(b) *Channel Availability Check.* A check during which the TV band device listens on a particular radio channel to identify whether there is a station operating on that radio channel.

(c) *Channel Move Time.* The time needed by a TV band device to cease all transmissions on the current channel upon detection of a station above the DFS detection threshold.

(d) *Dynamic Frequency Selection (DFS).* A mechanism that dynamically detects signals from other systems and avoids co-channel operation with these systems.

(e) *DFS Detection Threshold.* The required detection level defined by detecting a received signal strength that is greater than a threshold specified, within the TV band device channel bandwidth.

(f) *In-Service Monitoring.* A mechanism to check a channel in use by the TV band device for the presence of a station.

(g) *Operating Channel.* Once a TV band device starts to operate on an *Available Channel* then that channel becomes the *Operating Channel*.

(h) *Maximum Conducted Output Power.* The total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the *maximum conducted output power* is the highest total transmit power occurring in any mode.

(i) *TV band devices.* Intentional radiators operating in the frequency bands 76–88 MHz, 174–216 MHz, 470–608 MHz and 614–698 MHz.

§ 15.705 Cross reference.

(a) The provisions of subparts A, B, and C of this part apply to unlicensed TV band devices, except where specific provisions are contained in subpart H. Manufacturers should note that this includes the provisions of §§ 15.203 and 15.205.

(b) The requirements of subpart H apply only to the radio transmitter contained in the TV band device. Other aspects of the operation of a TV band device may be subject to requirements contained elsewhere in this chapter. In particular, a TV band device that includes digital circuitry not directly associated with the radio transmitter also is subject to the requirements for unintentional radiators in subpart B of this part.

§ 15.707 General technical requirements.

(a) The maximum conducted output power is 1 watt. If a transmitting antenna of directional gain greater than 6 dBi is used, the peak output power shall be reduced by the amount in dB that the maximum directional gain of the antenna exceeds 6 dBi.

(b) Unwanted emissions shall comply with the following:

(1) Unwanted emissions outside the channel of operation must comply with the general field strength limits set forth in § 15.209.

(2) The provisions of § 15.205 apply to intentional radiators operating under this section.

(3) Any devices using an AC power line are required to comply with the conducted limits set forth in § 15.207.

(c) The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling

information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

(d) TV band devices are subject to the radio frequency radiation exposure requirements specified in §§ 1.1307(b), 2.1091 and 2.1093 of this chapter, as appropriate. All equipment shall be considered to operate in a "general population/uncontrolled" environment. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

(e) Manufacturers of TV band devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

(f) Dynamic Frequency Selection (DFS). TV band devices shall employ a DFS detection mechanism to detect the presence of authorized stations in the TV bands and to avoid co-channel operation with them. The detection threshold is referenced to a 0 dBi gain antenna. The minimum DFS detection threshold for TV band devices is -116 dBm.

(1) Channel Availability Check Time. A TV band device shall check if there is a station already operating on the channel before it may initiate a transmission on a channel and when it has to move to a new channel. The TV band device may start using the channel if no station with a power level greater than the detection threshold value listed in paragraph (f) of this section is detected within 30 seconds.

(2) In-Service Monitoring. A TV band device shall perform in-service monitoring at intervals no greater than 10 seconds.

(3) Channel Move Time. After a station's presence is detected, all transmissions shall cease on the operating channel within 10 seconds. Transmissions during this period shall consist of normal traffic for a maximum of 200 ms after detection of the station's signal. In addition, intermittent management and control signals can be sent during the remaining time to facilitate vacating the operating channel.

(g) Transmit power control (TPC). TV band devices shall employ a TPC

mechanism. The TV band device is required to have the capability to operate at least 6 dB below the maximum conducted output power limit of 1 watt. A TPC mechanism is not required for devices with a maximum conducted output power of less than 500 mW.

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 679

[Docket No. 060511126-6285-02; I.D. 050306E]

Fisheries of the Exclusive Economic Zone Off Alaska; Allocating Gulf of Alaska Fishery Resources; Notification of Rockfish Pilot Program Public Workshop

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notification of public workshop.

SUMMARY: NMFS will present a public workshop on the Central Gulf of Alaska Rockfish Pilot Program (Program) for potentially eligible participants and other interested parties. NMFS will provide an overview of the Program, discuss the key Program elements and answer questions. NMFS is conducting this public workshop to provide assistance to fishery participants in understanding and reviewing this new Program.

DATES: The workshop will be held on Friday, December 1, 2006, 9 a.m. to 12 p.m. Alaska Standard Time, Kodiak, AK.

ADDRESSES: The workshop will be held at the following location: Kodiak Fisheries Research Center (Main Conference Room), 301 Research Court, Kodiak, AK 99615.

FOR FURTHER INFORMATION CONTACT: Glenn Merrill, 907-586-7228 or glenn.merrill@noaa.gov.

SUPPLEMENTARY INFORMATION: On June 7, 2006 (71 FR 33040), NMFS published a proposed rule that would implement the Program as Amendment 68 to the Fishery Management Plan for Groundfish of the Gulf of Alaska (FMP). On August 10, 2006, NMFS approved Amendment 68 to the FMP. Amendment 68 establishes a program to

allocate specific Central Gulf of Alaska groundfish resources among harvesters and processors. Harvesting and processing privileges for several species of rockfish, incidental harvests of other groundfish species, and halibut prohibited species catch would be allocated to participants that meet specific requirements. Amendment 68 was approved by the North Pacific Fishery Management Council (Council) on June 6, 2005. Amendment 68 implements the Program and is designed to meet the requirements of section 802 of the Consolidated Appropriations Act of 2004 (Public Law 108-109, Section 802). Section 802 specifies the eligible participants, duration of the program, methods for allocating harvesting and processing privileges, and provides NMFS with the authority to regulate processors under this Program.

A final rule implementing Amendment 68 will be published in the **Federal Register** on November 20, 2006. NMFS is conducting public workshops to provide assistance to fishery participants in reviewing the requirements of this new program. A workshop was conducted on November 17, 2006, at the Nordby Conference Center in Fishermen's Terminal, 3919 18th Ave. W. Seattle, WA 98119. NMFS has scheduled a second workshop for December 1, 2006, to be held at the Kodiak Fisheries Research Center (Main Conference Room), 301 Research Court, Kodiak, AK 99615.

At each workshop, NMFS will provide an overview of the Program, and discuss the key Program elements. The key Program elements to be discussed include quota share application; cooperative, limited access, and opt-out fishery participation provisions; cooperative quota transfer provisions; the appeals process; monitoring and enforcement; and electronic reporting. Additionally, NMFS will answer questions from workshop participants. For further information on the Program, please visit the NMFS Alaska Region website at <http://www.fakr.noaa.gov>.

Special Accommodations

The workshop is physically accessible to people with disabilities. Requests for special accommodations should be directed to Glenn Merrill (see **FOR FURTHER INFORMATION CONTACT**) at least 5 working days before the workshop date.