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.lD, 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, since promulgation of drawbridge regulations has been determined not to have any effect on the environment.

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 § 117.150 to read as follows:

§ 117.150 Connection Slough.

The draw of the Reclamation District No. 2027 bridge between Mandeville and Bacon Islands, mile 2.5, near Stockton, from May 15 through September 15, shall open on signal between the hours of 9 a.m. and 5 p.m., and it shall open upon 12 hours notice between the hours of 5 p.m. and 9 a.m. From September 16 through May 14 the bridge shall open upon 12 hours notice between the hours of 9 a.m. and 5 p.m., and it shall open upon 24 hours notice between the hours of 5 p.m. and 9 a.m.

Dated: June 9, 2004.

Kevin J. Eldridge,

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

[FR Doc. 04–13821 Filed 6–17–04; 8:45 am]

BILLING CODE 4910–15–P

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 15

[ET Docket No. 04–186 and ET Docket No. 02–380; FCC 04–113]

Unlicensed Operation in the TV Broadcast Bands

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: This document proposes to amend the Commission's rules to allow unlicensed radio transmitters to operate in the broadcast television spectrum at locations where that spectrum is not being used. We believe that the proposals set forth will provide for more efficient and effective use of the TV spectrum and will have significant benefits for the public by allowing the development of new and innovative types of unlicensed broadband devices and services for businesses and consumers.

DATES: Comments must be filed on or before September 1, 2004, and reply comments must be filed on or before October 1, 2004.

FOR FURTHER INFORMATION CONTACT: Hugh VanTuyl, (202) 418–7506, email: *Hugh.VanTuyl@fcc.gov* or Alan Stillwell, (202) 418–2925, email: *Alan.Stillwell@fcc.gov*, Office of Engineering and Technology. e-mail:, TTY (202) 418–2989.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Notice of Proposed Rule Making,* ET Docket No. 04–186 and ET Docket No. 02–380, FCC 04–113, adopted May 13, 2004, and released May 25, 2004. 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: www.fcc.gov. Alternate formats are available to persons with disabilities by contacting Brian Millin at (202) 418–7426 or TTY (202) 418–7365.

Pursuant to §§ 1.415 and 1.419 of the Commission's rules, 47 CFR 1.415, 1.419, interested parties may file comments on or before September 1, 2004, and reply comments on or before October 1, 2004. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS) or by filing paper copies. *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121, May 1, 1998. Comments filed through the ECFS can be sent as an electronic file via the Internet to *http://www.fcc.gov/e-file/ecfs.html.* Although this proceeding is captioned under multiple dockets, only one copy of an electronic submission, captioned to ET Docket No. 04–186, should be filed. In completing the transmittal screen, commenters 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 for e-mail comments, commenters should send an e-mail to *ecfs@fcc.gov*, and should include the following words in the body of the message, ''get form <your e-mail address>.'' A sample form and directions will be sent in reply. Parties who choose to file by paper must file an original and four copies of each filing. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission. 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). The Commission's contractor, Natek, Inc., 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 mail, Express mail, and Priority Mail should be addressed to 445 12th Street, SW., Washington, DC 20554.

Summary of Notice of Proposed Rule Making

1. The Notice of Proposed Rule Making proposes to allow unlicensed radio transmitters to operate in the broadcast television spectrum at

locations where that spectrum is not being used. We believe that the proposals set forth herein would provide for more efficient and effective use of the TV spectrum and would have significant benefits for the public by allowing the development of new and innovative types of unlicensed broadband devices and services for businesses and consumers.

2. We recognize that broadcasters are currently undergoing a transition to digital operation, during which channel availability is likely to change more frequently. Our approach will appropriately account for these changes. To ensure that no harmful interference to authorized users of the spectrum will occur, we propose to define when a TV channel is ''unused'' and to require these unlicensed devices comply with significant restrictions and technical protections. Unlicensed devices would be required to incorporate ''smart radio'' features to identify the unused TV channels in the area where they are located. We intend to consider several alternative methods for identifying the unused TV channels, including approaches that would; allow existing television and/or radio stations to transmit information on TV channel availability directly to an unlicensed device; employ geo-location technologies such as the Global Positioning Satellite (GPS) system; or employ spectrum sensing techniques that would determine if the signals of authorized TV stations are present in an area.

3. On December 11, 2002, the Commission adopted a Notice of Inquiry (NOI), 68 FR 2730, January 21, 2003, in this proceeding seeking comment on the possibility of allowing unlicensed devices to operate in the TV broadcast bands at locations and times when the spectrum is not being used by authorized services. The Commission noted that unused portions of the TV spectrum appear to be a suitable choice for expanded unlicensed operations. In this regard, the Commission observed that there is significant bandwidth available because each TV channel occupies six megahertz and multiple channels are generally vacant or unused in a particular area. The Commission stated that allowing unlicensed devices to operate on unused TV channels would lead to more efficient use of the spectrum. Commenting parties representing the interests of manufacturers and users of unlicensed devices generally support this approach, while those representing the interests of the current users of the TV broadcast spectrum, both primary and secondary, express concern about potential interference from such new unlicensed operations.

Unlicensed Operation in the Broadcast TV Spectrum

4. Part 15 unlicensed devices and wireless broadband services using such devices have been extremely successful. The past few years have witnessed the development of broadband unlicensed industry standards such as IEEE 802.11b (Wi-Fi), Bluetooth, and Home RF that have greatly expanded the number and variety of devices that operate in the 2.4 GHz and 5 GHz industrial, scientific and medical equipment (ISM) bands. These standards have enabled the introduction of a host of new wireless Internet products as well as wireless computer peripherals such as printers and keyboards, and wireless headsets and computer connections for cellular and PCS phones.

5. The record developed in response to the *NOI* indicates that there is need for additional spectrum for unlicensed broadband devices. A number of commenting parties in particular state that unlicensed devices should be allowed to operate in the TV broadcast bands. Broadcasters, however, express concern that allowing unlicensed operation in the TV bands would pose a risk of interference to over-the-air television service and could adversely affect the DTV transition. They state that unlicensed operation in the TV bands would be problematic during the DTV transition because the television bands will be in a crowded, fluid and fragile state during that period, and unlicensed devices could cause significant disruption to DTV service. Other parties express concern about possible interference from unlicensed devices to licensed non-broadcast services that operate on TV channels. Parties representing Private Land Mobile Radio Service (PLMRS) and Commercial Mobile Radio Service (CMRS) interests do not believe that unlicensed devices should be permitted to operate on TV channels 14–20, which are used by the PLMRS/CMRS in certain parts of the country, or on TV channels above 51, which have been reallocated for other services. In addition, manufacturers of wireless microphones that operate on VHF and UHF TV channels are concerned about possible interference from unlicensed devices.

6. We request comment on our tentative conclusions regarding the interest in operation of unlicensed devices in the broadcast TV bands and the suitability of those bands for such operations. We request comment on proposals for requirements to ensure that unlicensed broadband devices operating in the TV bands would transmit on vacant spectrum and not interfere with authorized incumbent operations, including: analog and digital television, low power television, television translator, television booster, and Class A television stations (as well as future authorization of digital low power television, television translator and television booster stations being considered in MB Docket No. 03–185), 68 FR 55566, September 26, 2003, broadcast auxiliary services such as wireless microphones; and PLMRS and CMRS backhaul operations.

Requirements for Unlicensed Use of the TV Bands

7. Because unlicensed broadband devices would share spectrum with broadcast TV and other licensed services, they would need to have capabilities to avoid causing harmful interference to licensed services in the TV band. Specifically, an unlicensed device would need the ability to determine whether a TV channel or frequency band is unused before it could transmit. Additionally, an unlicensed device may need capabilities to avoid occupying a frequency band in the event a licensed user wishes to commence transmissions on a channel that was previously vacant. As pointed out by a number of parties with interest in TV broadcasting, this capability is especially important in light of the transition to DTV and the facts that many broadcasters may be required to change their current DTV channel and that new DTV stations may begin operation.

8. For the purpose of developing interference protection criteria, we propose to classify the unlicensed broadband devices to be used in the TV bands into these two general functional categories. The first category will consist of lower power ''personal/portable'' unlicensed devices, such as Wi-Fi like cards in laptop computers or wireless in-home LANs. The second category will consist of higher power ''fixed/access'' unlicensed devices that are generally operated from a fixed location and may be used to provide a commercial service such as wireless broadband internet access. We believe that both of these types of operations can be accommodated in the TV spectrum, provided appropriate measures are taken to ensure that operations are limited to unused TV channels. At the same time, we recognize that different requirements may be appropriate for ensuring interference protection to licensed operations from the two different types of devices, given the differences in the

uses and the interference potential of these types of unlicensed broadband applications. That is, certain methods that are appropriate for limiting the interference potential of personal/portable devices would be less appropriate for fixed/access devices and vice versa. Therefore, we propose different interference avoidance requirements for these two different types of unlicensed broadband applications. In both cases, however, our goal is to make the technical requirements as simple and as reliable as possible. We believe that this approach will provide flexibility to permit a wide range of unlicensed broadband uses and applications and ensure that the most appropriate and effective mechanisms are in place to limit such unlicensed use to only unused TV channels.

9. There are at least three methods that could be used to determine whether a portion of the TV band is unused at a specific time and/or location. First, the location of an unlicensed device could be determined by a professional installer or by using geo-location technology such as GPS incorporated within the device. Using either of these methods, it could then be determined from either an internal or external database whether the unlicensed device is located far enough outside the protected service contours of licensed stations to avoid causing harmful interference. A second method would be for an unlicensed device to receive information transmitted by an external source such as a broadcast station or another unlicensed transmitter indicating which channels are available at its geographic location. A third method would be to incorporate sensing capabilities in the unlicensed device to detect whether other transmitters are operating in an area. For example, a fixed unlicensed transmitter could be required to incorporate an antenna and a receiver capable of detecting signals down to a certain threshold level that would be used to determine if a particular TV channel is actually in use. Generally, such sensing would have to be much more sensitive than the receivers used in the licensed service. If no signals were detected above the threshold, the device would be allowed to transmit. If signals are detected above the threshold on a particular channel, the unlicensed device would have to search for another channel. As the Commission has previously noted, there are techniques that can be used to increase the ability of a sensing receiver to reliably detect other signals in a band which rely on the fact that it is not necessary to decode the information in a signal to determine whether a signal is present.

10. *Unlicensed Personal/Portable Operations.* Interference was the primary concern raised by parties opposed to unlicensed operations in the TV bands. These parties raise valid concerns that given the potential ubiquitous and uncontrolled deployment of unlicensed devices, any requirements on these devices must ensure that the devices only transmit on unused TV channels. To ensure that this is the case, we are proposing to allow personal/portable unlicensed broadband devices to transmit only after they receive a ''control'' signal that positively identifies which TV channels are vacant and therefore available for use. Without reception of this ''control'' signal, no transmissions would be permitted. This would provide positive assurance that these devices would operate only on unused TV channels. We propose to permit the transmission of control signal data by a number of sources. In particular, we propose that the control signal could be a data stream from a digital TV station, information transmitted in the vertical blanking interval (VBI) of an analog TV station, subcarrier data from an FM radio station, data transmitted by a licensed wireless provider, or channel availability data from a fixed/access unlicensed device. We propose that the transmission of this information would be on a voluntary basis and that parties could receive compensation for transmitting this information. Under the approach we are proposing, a TV channel would be considered vacant only if no portion of the service area of an authorized station assigned to use that channel was within the service area of the station transmitting the control signal. For example, if the information is transmitted by a DTV station, the identified vacant channels must not be used for the provision of television or other licensed services anywhere within the noise-limited service contour of that DTV station. We also seek comment on how often the control signal information should be transmitted and updated to take into account changes in TV station operations that arise due to the transition to DTV and the commencement of new stations. We tentatively believe that control signal information should be at a minimum current on a daily basis.

11. Given the portable and potentially ubiquitous nature of these devices and the importance of protecting television service, we believe that, at least initially, unlicensed personal/portable broadband devices that operate in the TV bands should be subject to certain additional requirements. In particular, we propose to limit the maximum power output of these devices to 100 milliwatts (mW) and to require that such devices have a permanently attached integral antenna with a maximum permissible gain of 6 dBi. We believe that these power and antenna provisions will provide sufficient communications capabilities to allow personal/portable broadband devices to serve a wide range of broadband applications, such as home networks, LANs and broadband connectivity, while at the same time limiting the potential for interference and RF safety concerns. We seek comment on whether these devices should be subject to routine evaluation for RF exposure. We also seek comment on whether we should allow higher power operation and what safeguards would be needed to protect current and future licensees in the TV bands. We further propose to require that such devices automatically and periodically transmit a unique identification signal. We seek comment on what information should be required to be transmitted and how often it should be repeated for easy identification of the unlicensed device. For example, should we require the device to transmit the name of its manufacturer, its FCC identifier, and its serial number? What time interval would be appropriate for periodic transmission of the identifying information? We believe that taken together these proposed requirements address the interference concerns raised by commenting parties. In particular, we believe that this plan will appropriately manage the potential for harmful interference to television and other licensed services from unlicensed personal/portable devices and, in the unlikely event that such interference were to occur, provide a positive means to identify its source so that it can be eliminated.

12. We seek comment on these proposals. In particular, we seek specific comment on what is the most efficient and effective method for providing control signals to unlicensed devices. In this regard, we ask whether broadcasters would voluntarily engage in agreements with unlicensed device manufacturers or service providers to transmit this information. We note agreements with unlicensed device manufacturers to carry channel availability data could provide broadcasters a new source of revenue. For example, we understand that many FM radio broadcasters have agreed to transmit information to support devices

using Microsoft's Smart Personal Object Technology (''SPOT''). While we believe that voluntary approaches are the most desirable means for providing control channel information, we also request comment on whether we should require TV stations to transmit this information and how frequently such information should be transmitted. We further request comment on whether we should designate specific entities that would be responsible for determining the unused channels in a station's service area. For example, this function could be performed by frequency coordinators, engineering consulting firms, or broadcast trade associations. We also seek comment on the frequency with which these entities update their information on allotments and vacancies and whether we should provide guidelines in that regard. Additionally, we seek comment on whether constraints are needed on stations retransmitting control signals to ensure that the control signals are not transmitted or received beyond the originating station's service area. For example, translator stations generally retransmit the entire signal of a primary TV station. How should we ensure that translators do not inappropriately retransmit the control signals of their primary TV stations beyond the coverage area of those stations? We also request comment on the desirability and practicality of using other approaches for preventing harmful interference to TV services from personal/portable unlicensed devices in the TV bands. In particular, parties favoring such approaches should describe how such techniques would ensure that unlicensed devices only operate on vacant spectrum and not cause harmful interference to licensed services. We also request comment on whether additional requirements would be appropriate for personal/portable operations. For example, should we require that all personal/portable devices be registered with an industry-accepted entity, such as a frequency coordinator, that maintains a registration database of all models of personal/portable transmitters along with their operating frequencies? This registration data base could include the unique identification of the personal/portable device. We also request comment and suggestions on the appropriate entity that we should select to maintain such a registration database.

13. *Fixed/Access Unlicensed Devices.* Fixed/access types of devices present different operational and interference considerations. In general, we anticipate that these devices would be used by WISPs and others as base stations to provide internet access and other broadband data services to homes and businesses, including to personal/portable services. We propose to allow fixed/access devices to operate under the same technical provisions as digital transmission systems that operate under § 15.247 of the rules. This would permit fixed/access devices to operate with a transmitter output power of up to one watt and to employ higher gain directional antennas, with requirements for transmitter output reductions for antennas with gains above 6 dBi. We believe that these power levels are sufficient to be useful for WISPs and other wireless networking applications and will ensure that these devices can successfully share the TV spectrum. We also believe that these power and antenna provisions will limit the potential for interference and RF safety concerns. We seek comment on whether these devices should be subject to routine evaluation for RF exposure. We further propose to require that such devices automatically and periodically transmit a unique identification so that any harmful interference situation, should it occur, can be quickly identified and remedied. We request comment on what information should be required to be transmitted, in what format, and how often it should be repeated for easy identification of the unlicensed device. For example, should we require unlicensed fixed/access devices to transmit location information, name of manufacturer, FCC identifier, and serial number? What time interval would be appropriate for periodic transmission of the identification information?

14. To ensure that fixed/access devices operate only on unused TV channels, we propose to require that such devices incorporate a method for determining geographic location with a minimum accuracy of 10 meters. To meet this requirement, for example, the device could incorporate a GPS receiver to determine its geographic coordinates. Using this location information, local broadcast station data and the protection requirements described, channel availability for the unlicensed device can be determined. We therefore propose to require that the fixed/access unlicensed transmitter have the capability to access such a database and appropriate computational software to determine which TV channels are available for unlicensed use based on its location. The equipment would also be required to have the capability to limit its transmissions to only those channels that are identified as unused through this process. As an alternative, we propose to require that the unlicensed device be professionally installed by a party that would determine the device's geographic location and the available unused channels at that location. In this case, the installer could provide the device's coordinates to a frequency coordinator, industry association, local broadcast group or other party that maintains an appropriate and current data base to determine which TV channels are unused at the device's location. The installing party would then configure the device to operate only on unused channels. We seek comment on the qualifications an individual must possess in order to be classified as a professional installer. We recognize that industry organizations such as the National Association of Radio Telecommunications Engineers (NARTE) and the Part 15 Organization have developed Professional Installer Certification programs designed to ensure that installers are able to set up unlicensed links in a manner to minimize the possibility of creating harmful interference to other users of the spectrum. Should the Commission consider completion of industry-based certification programs such as these to be sufficient training to be recognized as a professional installer? What criteria should the Commission place on any such programs that it deems acceptable? As a second alternative, we seek comment on whether the control signal approach would also be appropriate for fixed/access devices. Under any of these approaches, we would require that the unlicensed device or its operator periodically access the channel availability database and software to ensure that the channels on which the device operates remain unused. We anticipate that this database and software could be made available by unlicensed equipment vendors, broadcast engineering firms or other third-party providers. We request comment on how often an unlicensed device or operator must access the channel availability database and update or reprogram the device's usable channel list.

15. We request comment on this approach, recognizing in particular the changes that will occur during the DTV transition. We also seek comment on whether we should allow fixed/access devices to operate with higher power than proposed above and, if so, what safeguards would be needed to protect current licensees in the TV bands. We note that we recently proposed to allow certain unlicensed devices to operate with higher power in rural or other

areas with limited spectrum use. We also seek comment on whether we should require devices to use transmit power control (TPC) and operate with the minimum power necessary to achieve reliable communication to reduce the possibility of interference to licensed services and to enable better spectrum sharing between unlicensed devices.

16. We also request comment on whether additional requirements would be appropriate for fixed/access operations. For example, should we require that all fixed/access devices also be registered with an industry-accepted entity, such as a frequency coordinator, that maintains a registration database of all fixed/access transmitters along with their operating frequencies? This registration data base would include the unique identification of the fixed/access device, its geographic coordinates, and the channels available for use at that location. We also request comment and suggestions on the appropriate entity that we should select to maintain such a registration database. In addition, we request comment on whether we should permit fixed/access devices to use a spectrum sensing approach, as an alternative to the geo-location approach described above. We request comment on what would be the appropriate signal levels that an unlicensed device would need to be capable of detecting to ensure that no harmful interference is caused to licensed operations, and the current availability of suitable detection measures and devices. In addition, when making a determination as to an appropriate signal level, it would also be necessary to specify other parameters of the detection methodology to the extent these could not be incorporated in a signal level measurement, including, for example, the length, location, and frequency of the detection measurement. In particular, we request parties to address how such an approach would consider the so-called ''hidden node'' problem where the unlicensed transmitting device may be shielded from the TV transmitter but have a direct path to a nearby TV receiver.

Protection of Broadcast Television Service

17. We propose to define the technical criteria for determining when a TV channel can be considered vacant for the purpose of allowing operation of an unlicensed device on that channel. Analog and digital full service TV stations and Class A TV, low power TV, TV translator and TV booster stations are generally protected from interference within defined signal contours. The signal level defining a television station's protected contour varies depending on the type of station, *e.g.*, analog or digital TV, and the band in which a TV station operates. Different protected contour values are specified for both analog and digital stations that operate in the low VHF band (channels 2–6), the high VHF band (channels 7–13) and the UHF band (channels 14–69), see chart in paragraph 29 of the NPRM. We propose to use the service area criteria to define the areas that unlicensed devices must protect from harmful interference. All unlicensed operations would be required to protect TV service within the contours defined by the criteria.

18. Whether or not interference occurs depends on the desired-to-undesired (D/U) signal ratio needed for acceptable service. This D/U ratio will vary depending on the type of station, the frequency band and the nature of the undesired signal. In considering digital broadband unlicensed operations in the television band, we note that such operations will be at very low power compared to television operations. We also believe that the signals from such unlicensed devices can be expected to appear ''noise-like'' and that the carrier-related interference mechanisms that can affect analog television would not occur. We therefore believe that the requirements needed to protect television service from digital unlicensed devices should be limited to co- and adjacent channel operations only for fixed/access operations and co-channel operations only for personal/portable operations. Given the expected noise-like character of signals from unlicensed devices, we are proposing to use the same protection criteria that are currently specified in the rules for digital television. We request comment on this approach and on whether we need to proscribe a modulation requirement for such unlicensed devices to ensure that their transmissions appear noise-like. With regard to personal/portable operations, we believe at this time that the potential for harmful interference to adjacent channel television operations is sufficiently low that we do not need to impose adjacent channel restrictions on these devices. We note that even in the ''worst case'' situation at the edge of a television station's service area, *i.e.*, where the TV station's signal is the lowest, the interference potential from an adjacent channel personal/portable device would be minimal and, in practice, would be mitigated by the effects of ambient noise, shielding from buildings, walls, ground clutter, etc. We therefore are proposing to use the criteria in paragraph 30 of the NPRM, to ensure that unlicensed devices do not cause harmful interference to TV service.

19. We propose to require that the service and protection criteria be used in conjunction with appropriate computational software, including use of the Commission's propagation curves, and a television station engineering database to develop the control signal information on available channels for unlicensed personal/portable devices and for coordination and deployment of unlicensed fixed/access devices. All unlicensed operations in the TV bands would be subject to the general requirements of part 15 for not causing harmful interference and would be required to ensure that the D/U ratios for acceptable television service always maintained. We also seek comment on whether there are any special considerations for cases where consumers use indoor DTV antennas. As indicated, fixed/access unlicensed devices would be subject to the co- and adjacent channel D/U criteria while personal/portable devices would be subject only to the co-channel criteria. The adjacent channel D/U criteria would not apply to fixed/access devices between channels 4 and 5, channels 6 and 7, and channels 13 and 14 because of the frequency separations that exist between those channels. That is, those channels are not actually on adjacent frequencies. For adjacent channel operations within the protected service contour, we propose to require that calculation of desired signal levels be based on FCC F(90,90) curves or the protected contour field strength value, whichever is higher. For unlicensed operation outside the protected contour of a television station, calculations of television (desired) signal levels would be based on the FCC F(50,50) curves. Calculations of unlicensed (undesired) signal levels would be based on the FCC F(50,50) curves or other appropriate models. We believe this approach should provide additional protection to television viewers within the protected contour of an adjacent channel station.

20. In addition, we propose to not allow unlicensed devices to operate within the protected contour of any co-channel TV operation. This proposal along with the minimum D/U requirements would mean that such devices would have to be located at least some minimum distance outside the protected signal contours of co-channel television stations. This minimum distance would be determined using the values in above Table and would depend on the maximum power and antenna

characteristics of the unlicensed device, the signal strength of the licensed station's protected service contour, the desired-to-undesired (D/U) signal ratio permitted at the licensed station's protected service contour, and the method used to calculate the signal contours of the unlicensed device. We seek comment on these proposals, including whether the proposed protection criteria are appropriate.

Permissible Channels for Unlicensed Operation

21. We believe it is generally desirable to allow unlicensed devices to access the largest practicable number of the 68 television channels. This would maximize the opportunities for operation of unlicensed devices in all areas, and would be particularly important for the successful implementation of unlicensed devices in areas where the TV bands are crowded with other services. There are, however, certain channels that we believe are, not suitable or appropriate for use by unlicensed devices, see paragraphs 34–36 of the NPRM for more discussion. These include channels 2–4, 37, and 52–69. In addition, we tentatively conclude that channels 14–20 are not suitable for use in markets where they are used for PLMRS and CMRS. With the exception of these channels, we propose to allow unlicensed devices to operate on any unused TV channel. Thus, TV channels 5–36 and 38–51 would be generally available for unlicensed operation and channels 14–20 would be available in most locations.

22. We seek comment on our proposals for the TV channels that would be available for unlicensed use. We also request comment on whether the proposed minimum separations to protect PLMRS/CMRS operations are appropriate, and in particular, what special protections, if any, are necessary to accommodate these operations, including those operations that are licensed pursuant to a waiver.

Wireless Microphone Operations

23. As noted, manufacturers of wireless microphones express concern that operation of new unlicensed devices in the TV bands could cause interference to wireless microphones. We believe that the operational characteristics of wireless microphones significantly reduce the likelihood of interference from unlicensed devices for several reasons. Wireless microphones are permitted relatively high output power given the range over which they are typically operating. The maximum permitted output power of these devices is 50 milliwatts in the VHF band and 250 milliwatts in the UHF band. Wireless microphones are used in locations such as theaters and sports arenas where the operating range would typically be hundreds of feet at the most, so operation at the power levels permitted in the rules results in a significant signal level at the wireless microphone receiver. Further, the vast majority of wireless microphones are frequency modulated (FM). FM receivers exhibit a ''capture effect'' in which they respond to only the strongest signal received on a frequency and reject any weaker interfering signals. Because the desired signal at a wireless microphone receiver is relatively strong, we believe that the likelihood of interference from unlicensed device signals is therefore low such that unlicensed use should generally be compatible with wireless microphones. Nonetheless, we seek comment on whether other measures are needed to protect wireless microphone operation including the possibility of designating one or two unused TV channels in each market for use by only wireless microphones.

Other Issues

24. *Out of Band Emission Limits.* We propose to require that unlicensed devices operating in the TV bands comply with the same out-of-band emission limits that apply to other part 15 digital transmission system transmitters. These limits seem appropriate given that we are proposing power and antenna characteristics for unlicensed devices in the TV bands that are similar to those for other part 15 devices that employ digital modulation. Specifically, we propose to require that out-of-band emissions in any 100 kHz bandwidth outside the frequency band in which the unlicensed device operates be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. Consistent with the current rules, we also propose to not require attenuation of emissions below the general limits specified in § 15.209(a). To reduce the likelihood of harmful interference to licensed services on adjacent channels or outside the TV bands, we further propose to require that emissions outside the TV channel(s) where an unlicensed device operates comply with the general limits in § 15.209(a). This is consistent with the out-of-band emission requirements for certain other part 15 intentional radiators. We seek comment on these proposals.

25. *Security Requirements.* As the Commission noted in the cognitive radio proceeding, equipment that relies on new capabilities such as geo-location raises the possibility of new types of abuse, such as reprogramming GPS receivers with geographic offsets or altering database information. In addition, the software used to select the appropriate operating parameters could be altered to make an unlicensed device transmit at frequencies, power levels or locations where it should not. To prevent devices from being modified to transmit on occupied frequencies and causing harmful interference to licensed services, we propose to require that an unlicensed device that operates in the TV bands have certain capabilities to ensure that it cannot be easily modified. Specifically, we propose to require that an unlicensed device not have any controls accessible to any party, other than a professional installer, that allow selection of the transmit channel or output power. We also propose to require that manufacturers of unlicensed devices that operate in the TV bands take steps to ensure that only the software that was approved with a device can be loaded into a device, and that the software not allow the user to operate the device with parameters outside those that were approved. This proposed requirement would apply to software that selects a device's operating frequency, to software used in determining a device's geographic location or identifying TV channels that are vacant, and to the information in the database accessed by a device. We further propose to require that an unlicensed device incorporate a means to detect whether tampering with the hardware or software has occurred, and that a device not operate if tampering is detected. We also propose to require that manufacturers describe their device's security features in the application for equipment authorization. We seek comment on these proposals. In particular, we seek comment on the steps manufacturers could take to protect hardware and software from modifications for improper purposes and how tampering with hardware or software could be detected.

26. *Compliance and Enforcement.* We propose to subject unlicensed devices operated under the proposals to the general operating conditions in § 15.5 that an unlicensed device not cause harmful interference and that it must accept interference caused by the operation of an authorized radio station. The operator of an unlicensed device operating under the rules proposed would be required to cease operation upon notification by a Commission

representative that the device was causing harmful interference, regardless or whether the device was otherwise in compliance with the rules, until such time as the condition causing the harmful interference was corrected. We also ask whether we should hold parties that provide information on channel availability to unlicensed devices responsible for the validity of that information. To what extent should these parties be able to rely on information obtained from the Commission? In cases where errors or other inaccuracies were found in such data, we would require the responsible party to cease distributing the control information when advised that it is incorrect by a Commission representative. Such party would be allowed to resume distribution of channel availability information if and when that information was corrected. We request comment on these proposals for ensuring that harmful interference is not caused by the operation of these devices and the enforcement of the rules we are proposing for unlicensed operation on vacant channels. We also invite interested parties to submit comments and suggestions regarding any other possible enforcement mechanisms that might be appropriate and effective for unlicensed devices operating in the broadcast TV bands.

27. *Measurement/Testing Procedures.* Unlicensed transmitters must be tested to show compliance with the applicable technical requirements in part 15 of the rules before they can be certified. Part 15 specifies general testing requirements applicable to unlicensed transmitters and incorporates some industry procedures into the rules by reference, such as the American National Standards Institute (ANSI) C63.4–2001 measurement procedure. The types of tests required typically include the maximum output power or field strength, spurious emissions, occupied bandwidth and operating frequency.

28. We expect that any new testing procedures would be specified at the time any rules are adopted, as the Commission did in the proceeding making additional spectrum available for unlicensed devices in the 5 GHz band. We seek comment on any new tests that may be required for unlicensed devices that operate in the TV bands and on the appropriate testing procedures.

29. *Certification by TCBs.* Unlicensed transmitters operating under part 15 of the rules are required to be certified by the Commission or a designated Telecommunication Certification Body (TCB) before they may be legally marketed within the United States. In establishing the requirements and rules for TCBs, the Commission stated that while it intended to allow TCBs to certify a broad range of equipment, certain functions should continue to be performed by the Commission. These functions include certifying new or unique equipment for which the rules or requirements do not exist or for which the application of the rules is not clear. Because unlicensed devices operating in the TV bands would contain new technologies and we are proposing new rules to accommodate them, we expect that many questions about the application of the rules would arise. Consistent with the Commission's previous action in the software defined radio proceeding, we tentatively conclude that TCBs should not be permitted to certify unlicensed devices that operate in the TV bands until the Chief of the Office of Engineering and Technology issues a public notice announcing that TCBs may certify such devices. We seek comment on this tentative conclusion.

30. *Unlicensed Use in Border Areas near Canada and Mexico.* The allotment and assignment of TV channels in the border areas with Canada and Mexico are subject to agreements with each of those countries. Low power TV assignments within 32 kilometers (20 miles) of the Canadian border must be referred to the Canadian authorities for approval. In addition, low power UHF TV stations that are located less than 40 kilometers (25 miles) from the Mexican border, and low power VHF TV stations that are less than 60 kilometers (37 miles) from the Mexican border, must be referred to the Mexican government for approval. In keeping with the current agreements with Canada and Mexico, we propose to prohibit unlicensed fixed/access devices from operating less than these distances from the Canadian and Mexican borders until agreements are reached with those countries. We seek comment on this proposal. In particular, we request comment on how to ensure that unlicensed devices using vacant TV channels do not operate within the border areas, whether the methods used to ensure that these devices operate only on vacant TV channels could be adapted to preclude operation in the border areas, or whether some other methods would be more appropriate in this regard.

31. *Need for Voluntary Standards.* Unlicensed devices operating under part 15 of the rules have no protection from interference from other unlicensed devices. In bands that are heavily used by unlicensed devices such as the spread spectrum bands under § 15.247 of the rules, industry bodies have developed voluntary standards that facilitate spectrum sharing between unlicensed devices, such as the IEEE 802.11 standards. We seek comment on whether there is a need for such voluntary standards to facilitate sharing between unlicensed users in the TV bands. If so, how should such voluntary standards be developed and what should the Commission's role, if any, be in such a process to make certain that the standards remain current and support innovation?

Initial Regulatory Flexibility Analysis

32. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[1] the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of 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 NPRM provided in paragraph 51 of the NPRM. The Commission will send a copy of the NPRM, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[2] In addition, the Notice and IRFA (or summaries thereof) will be published in the **Federal Register**.[3]

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

33. The NPRM would propose to allow unlicensed devices to operate in the TV broadcast bands at locations where spectrum is not being used by licensed services. The NPRM would propose to require unlicensed devices to incorporate ''smart radio features'' to prevent harmful interference from unlicensed devices to licensed services. For the purpose of developing interference protection criteria, the NPRM would propose to classify unlicensed broadband devices to be used in the TV bands into two general functional categories. The first category would consist of lower power ''personal/portable'' unlicensed devices, such as Wi-Fi like cards in laptop computers or wireless in-home LANs. The second category would consist of higher power ''fixed/access'' unlicensed devices that are generally operated from

[1] *See* 5 U.S.C. 603. The RFA, *see* 5 U.S.C. 601–612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Public Law 104–121, Title II, 110 Stat. 857 (1996).

[2] *See* 5 U.S.C. 603(a).

[3] *See* 5 U.S.C. 603(a).

a fixed location and may be used to provide a commercial service such as wireless broadband internet access.

34. These proposals, if adopted, will prove beneficial to manufacturers and users of unlicensed technology, including those who provide services to rural communities. Specifically, we note that a growing number of wireless internet service providers (WISPs) are using unlicensed devices within wireless networks to serve the needs of consumers. WISPs around the country are providing an alternative high-speed connection in areas where cable or DSL services have been slow to arrive. The additional frequency bands where operation is proposed will help to foster a viable last mile solution for delivering Internet services, other data applications, or even video and voice services to underserved, rural, or isolated communities. In addition, TV frequencies, which are below 900 MHz, have less signal attenuation through foliage and walls than frequencies above 900 MHz currently used by WISPs, thus affording improved signal coverage.

B. Legal Basis

35. 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. 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

36. 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.[4] The RFA defines the term ''small entity'' as having the same meaning as the terms ''small business,'' ''small organization,'' and ''small business concern'' under Section 3 of the Small Business Act.[5] 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 operations; and (3) meets many additional criteria established by the Small Business Administration (SBA).[6]

Radio and Television Broadcasting and Wireless Communications Equipment Manufacturers

37. 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.

Wireless Service Providers

38. The SBA has developed a small business size standard for wireless firms within the two broad economic census categories of ''Paging''[9] and ''Cellular and Other Wireless Telecommunications.''[10] Under both SBA categories, a wireless business is small if it has 1,500 or fewer employees. For the census category of Paging, Census Bureau data for 1997 show that there were 1,320 firms in this category, total, that operated for the entire year.[11] Of this total, 1,303 firms had employment of 999 or fewer employees, and an additional 17 firms had employment of 1,000 employees or more.[12] Thus, under this category and associated small business size standard, the majority of firms can be considered small. For the census category Cellular and Other Wireless Telecommunications, Census Bureau data for 1997 show that there were 977 firms in this category, total, that operated for the entire year.[13] Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more.[14] Thus, under this second category and size standard, the majority of firms can, again, be considered small.

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

39. Unlicensed transmitters are already required to be authorized under the Commission's certification procedure as a prerequisite to marketing and importation, and the proposals in this proceeding would not change that requirement. There would, however, be several changes to the compliance requirements.[15]

40. Unlicensed transmitters capable of operating in the TV bands would have to incorporate features to ensure that they operate on only vacant channels. A transmitter used for fixed operation would have to incorporate a GPS receiver to determine its location and would have to access a database and computational software to determine which TV channels are vacant at its location. Alternatively, an unlicensed transmitter would not have to incorporate these features if it is professionally installed and the installer determines the geographic coordinates of the transmitter, determines which TV channels are vacant at that location, and adjusts the transmitter to operate on only those vacant channels. Portable unlicensed devices would have to be capable of receiving a signal from a fixed unlicensed transmitter, or a local FM or TV station indicating which TV

[4] *See* 5 U.S.C. 603(b)(3).

[5] *Id.* 601(3).

[6] 15 U.S.C. 632.

[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 513321 (changed to 517211 in October 2002).

[10] 13 CFR 121.201, NAICS code 513322 (changed to 517212 in October 2002).

[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 513321 (issued October 2000).

[12] U.S. Census Bureau, 1997 Economic Census, Subject Series: ''Information,'' Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513321 (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.''

[13] 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).

[14] 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.''

[15] *See* text of NPRM at paragraphs 21, 22, 25, 26, 30, 31, 32, 34, 35, 36, 39, 40, 41, 42, 45, and 46.

channels are vacant in that area. If the unlicensed device did not detect a signal with this channel availability information, or if no vacant channels were available at its location, the unlicensed device would not be allowed to operate. In addition, any unlicensed transmitter used in the TV bands would have to incorporate features to prevent unauthorized modifications that could cause it to operate on occupied frequencies and therefore cause harmful interference. The applicant for certification would have to demonstrate in the application that the equipment meets these requirements.

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

41. 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.'' [16]

42. 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 GPS receiver and database access capabilities into an unlicensed device to determine its location and which TV channels are vacant in an area, or incorporating an FM or TV receiver to detect the presence of channel availability data being transmitted in its area. However, the burdens for complying with the proposed rules would be the same for both large and small entities. Further, the proposals in this NPRM are ultimately beneficial for both large and small entities. We cannot find electrical engineering alternatives 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.

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

43. None.

Ordering Clauses

44. 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. 154(i), 302, 303(e), 303(f), 303(r) and 307, this Notice of Proposed Rule Making is hereby adopted.

45. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, shall send a copy of this notice, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

List of Subjects in 47 CFR Part 15

Communications equipment, Reporting and recordkeeping requirements.

Federal Communications Commission.

Marlene H. Dortch,

Secretary.

Rule Changes

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

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

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

2. Section § 15.244 is added to read as follows:

§ 15.244 Operation within the bands 76–88 MHz, 174–216 MHz, 470–608 MHz and 614–698 MHz.

(a) The fundamental emissions from intentional radiators operated under this section shall be confined to one or more contiguous television broadcast channels as defined in part 73 of this chapter.

(b) The maximum conducted output power for fixed devices is 1 watt peak. The maximum conducted output power for portable devices is 100 milliwatts peak.

(c) If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power specified in paragraph (b) of this section shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(d) In any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power, based on either an RF conducted or radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required. Radiated emissions that fall outside the TV broadcast channel(s) where the device operates must comply with the radiated emission limits specified in § 15.209(a).

(e) An intentional radiator used for fixed operation must comply with one of the following paragraphs (e)(1) or (e)(2):

(1) The intentional radiator shall incorporate a GPS receiver to determine the geographic coordinates at its location with an accuracy of ±10 meters. The intentional radiator shall have the capability of accessing a database and computational software to determine the TV channels that are vacant at its location. The device must have the capability to limit its transmissions to only those channels that are identified as unused.

(2) The intentional radiator must be professionally installed by a party that will determine the device's geographic location and the available unused TV channels at that location. The installing party will configure the device to operate on only unused channels. The unlicensed device or its operator must periodically access a channel availability database and computational software to ensure that the channels on which the device operates remain unused.

(f) An intentional radiator used for portable operation must be capable of receiving a control signal from an unlicensed transmitter, or a TV or FM broadcast station indicating the TV channel(s) that are vacant within the service area of the unlicensed transmitter, TV or FM station. The intentional radiator must transmit only on channels(s) that are designated as vacant. The intentional radiator shall not operate if no unoccupied frequency band is available within its frequency range of operation or if it does not detect any unlicensed transmitters, FM or TV broadcast stations transmitting channel availability information.

(g)(1) An intentional radiator must protect TV stations from harmful interference within the following service contours.

[16] 5 U.S.C. 603(c)(1)–(c)(4).

Type of station	Protected contour		
	Channel	Contour (dBu)	Propagation curve
Analog TV	Low VHF (2–6)	47	F(50,50)
	High VHF (7–13)	56	F(50,50)
	UHF (14–69)	64	F(50,50)
Analog Class A, LPTV, translator and booster	Low VHF (2–6)	62	F(50,50)
	High VHF (7–13)	68	F(50,50)
	UHF (14–69)	74	F(50,50)
Digital TV	Low VHF (2–6)	28	F(50,90)
	High VHF (7–13)	36	F(50,90)
	UHF (14–51)	41	F(50,90)
Digital Class A	Low VHF (2–6)	43	F(50,90)
	High VHF (7–13)	48	F(50,90)
	UHF (14–51)	51	F(50,90)

(2) A TV channel will be considered vacant for use by an intentional radiator operating under the provisions of this section if the following desired-to-undesired (D/U) signal ratios between co-channel and adjacent channel TV stations and the intentional radiator are met at all points within the service area of the unlicensed transmitter, TV or FM broadcast station that transmits channel availability information.

Type of station	Protection ratios		
	Channel separation	D/U ratio (dB)	Propagation curve
Analog TV, Class A, LPTV, translator and booster	Co-channel	34	F(50,10)
	Upper adjacent	−17	F(50,50)
	Lower adjacent	−14	F(50,50)
Digital TV and Class A	Co-channel	23	F(50,10)
	Upper adjacent	−26	F(50,50)
	Lower adjacent	−28	F(50,50)

(h) Operation is not permitted within the service contours of co-channel stations. Portable devices are not required to comply with the D/U ratios for TV stations operating on adjacent channels. Fixed devices are not required to comply with the adjacent channel D/U ratios between channels 4 and 5, channels 6 and 7, and channels 13 and 14 because of the frequency separations that exist between those channels. For adjacent channel operation within the protected service contour of a television station, calculation of desired signal levels shall be based on FCC F(90,90) curves or the protected contour field strength value, whichever is higher. For unlicensed operation outside the protected contour of a television station, calculations of television (desired) signal levels would be based on the FCC F(50,50) curves. Calculations of unlicensed (undesired) signal levels would be based on the FCC F(50,50) curves or other appropriate models.

(i) Operation on a TV channel shared with the PLMRS or CMRS is permitted only if every point in the reception area of an unlicensed transmitter, or a TV or FM station that transmits channel availability information is separated by the following distances from the of the center coordinates of the metropolitan areas where shared operation is permitted: 134 kilometers for co-channel operation and 131 kilometers for adjacent channel operation.

(j) Operation of fixed devices under the provisions of this section is not permitted on VHF channels within 32 kilometers of the border with Mexico, on UHF channels within 40 kilometers of the border with Mexico, or on either VHF or UHF channels within 60 kilometers of the border with Canada.

(k) Devices operating under the provisions of this section shall be equipped with a means to automatically and periodically transmit a unique identification signal. Devices must not be equipped with any controls accessible to any party, other than a professional installer, that allow selection of the transmit channel or output power. Devices must include features to ensure that only the software that was approved with a device can be loaded into a device, and the software may not allow the user to operate the device with parameters outside those that were approved. ''Software'' in this context includes the software that selects a device's operating frequency, software used in determining a device's geographic location or identifying TV channels that are vacant, and to the information in the database accessed by a device. Devices must incorporate a means to detect whether tampering with the hardware or software has occurred and must not operate if tampering is detected. The application for certification must describe how the device complies with these requirements.

[FR Doc. 04–13573 Filed 6–17–04; 8:45 am]
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FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 73

[DA 04–1407, MB Docket No. 04–192, RM–10966]

Digital Television Broadcast Service; Honolulu, HI

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: The Commission requests comments on a petition filed by Pacifica Broadcasting Company proposing the substitution of DTV channel *10 for station KALO assigned DTV channel *39c at Honolulu, Hawaii. DTV Channel *10 can be allotted to Honolulu with a ''c'' designation at reference coordinates 21–23–45 N. and 158–05–58 W. with a