required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or EPA consults with State and local officials early in the process of developing the proposed regulation. EPA also may not issue a regulation that has federalism implications and that preempts State law unless the Agency consults with State and local officials early in the process of developing the proposed regulation.

This proposed rule will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132, because it merely proposes to approve a state rule implementing a federal standard, and does not alter the relationship or the distribution of power and responsibilities established in the Clean Air Act. Thus, the requirements of section 6 of the Executive Order do not apply to this rule.

F. Executive Order 13175, Coordination With Indian Tribal Governments

Executive Order 13175, entitled ''Consultation and Coordination with Indian Tribal Governments'' (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure ''meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.'' This proposed rule does not have tribal implications, as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments, 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. Thus, Executive Order 13175 does not apply to this proposed rule.

EPA specifically solicits additional comment on this proposed rule from tribal officials.

H. Executive Order 13045, Protection of Children From Environmental Health Risks and Safety Risks

Protection of Children from Environmental Health Risks and Safety Risks (62 FR 19885, April 23, 1997), applies to any rule that: (1) is determined to be ''economically significant'' as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

This proposed rule is not subject to Executive Order 13045 because it does not involve decisions intended to mitigate environmental health or safety risks.

I. Executive Order 13211, Actions That Significantly Affect Energy Supply, Distribution, or Use

This proposed rule is not subject to Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' (66 FR 28355, May 22, 2001) because it is not a significant regulatory action under Executive Order 12866.

J. National Technology Transfer and Advancement Act

Section 12 of the National Technology Transfer and Advancement Act (NTTAA) of 1995 requires Federal agencies to evaluate existing technical standards when developing a new regulation. To comply with NTTAA, EPA must consider and use ''voluntary consensus standards'' (VCS) if available and applicable when developing programs and policies unless doing so would be inconsistent with applicable law or otherwise impractical.

The EPA believes that VCS are inapplicable to this proposed action. Today's action does not require the public to perform activities conducive to the use of VCS.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Intergovernmental relations, Reporting and recordkeeping requirements, Sulfur oxides.

Authority: 42 U.S.C. 7401 *et seq.*

Dated: April 28, 2004.

Deborah Jordan,

Acting Regional Administrator, Region IX.

[FR Doc. 04–10940 Filed 5–13–04; 8:45 am]

BILLING CODE 6560–50–P

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 15

[ET Docket No. 04–151; ET Docket No. 02–380; and ET Docket No. 98–237; FCC 04–100]

Unlicensed Operation of the 3650–3700 Band

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: This document proposes to amend the Commission's rules to maximize the efficient use of the 3650–3700 MHz band. The proposal would allow unlicensed devices to operate in either all, or portions of, this radiofrequency (RF) band under flexible technical limitations with smart/cognitive features that should prevent interference to licensed satellite services. This proposal fosters the introduction of new and advanced services to the American public, especially in rural areas.

DATES: Comments must be filed on or before July 28, 2004, and reply comments must be filed on or before August 27, 2004.

FOR FURTHER INFORMATION CONTACT: Neal McNeil at (202) 418–2408, *Neal.McNeil@fcc.gov,* Gary Thayer at (202) 418–2290, *Gary.Thayer@fcc.gov,* or Ahmed Lahjouji, (202) 418–2061, *Ahmed.Lahjouji@fcc.gov*—Office of Engineering and Technology; or Eli Johnson at (202) 418–1395, *Eli.Johnson@fcc.gov,* or Marty Liebman at (202) 418–0633, *Martin.Liebman@fcc.gov*—Wireless Telecommunications Bureau, TTY (202) 418–2989.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Notice of Proposed Rule Making,* ET Docket No. 04–151, ET Docket No. 02–380 and ET Docket No. 98–237, FCC 04–100, adopted April 15, 2004, and released April 23, 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, Qualex International, 445 12th Street, SW., Room, CY–B402, Washington, DC 20554. The full text may also be downloaded at: *http://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 July 28, 2004, and reply comments on or before August 27, 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. 04–151, 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 Rulemaking

1. In the Notice of Proposed Rulemaking (NPRM), the Commission proposed to amend its rules to maximize the efficient use of the 3650–3700 MHz band (''3650 MHz band'') and foster the introduction of new and advanced services. In broad terms, the central proposal of this NPRM would allow unlicensed devices to operate in either all, or portions of, this radiofrequency (RF) band under flexible technical limitations with smart/cognitive features that should prevent interference to licensed satellite services. Specifically, we propose to allow these devices to operate with higher power than currently authorized under part 15 of the rules subject to cognitive technology safeguards. In order to foster the development of the unlicensed use that was proposed in the NPRM, we seek comment on whether to restore a uniform primary allocation for all Fixed Satellite Service (FSS) earth stations in the band regardless of the date the earth stations were authorized, and whether to delete the existing co-primary allocations for the Fixed Service (FS) and Mobile Service (MS) in this band. We also seek comment on other options that could also allow for the provision of licensed terrestrial service in this band. On a related matter, we defer action on the petitions for reconsideration of the *First Report and Order* (3650 MHz Allocation Report & Order) in ET Docket No. 98–237, 65 FR 69451, November 11, 2000, that challenge the Commission's previous allocation decisions in the 3650–3700 MHz band pending adoption of final rules regarding the allocation changes proposed in this proceeding.

2. We tentatively conclude that permitting unlicensed operation in the 3650 MHz band would foster the introduction of new and advanced services to the American public, especially in rural areas, and will result in a more efficient use of spectrum. This band appears particularly well suited to respond to the needs expressed by the growing number of entrepreneurial wireless internet service providers (WISPs) who are today bringing broadband services to consumers in rural areas of the United States who have many fewer choices for such services than consumers in more populated areas. WISPs have been asking the Commission for additional spectrum for unlicensed uses to provide both backhaul service and broadband service to their customers. Among the various alternatives we are considering, this spectrum is particularly promising in part because the incumbents—FSS earth stations that are limited to international intercontinental traffic—are concentrated primarily on the coasts, leaving available the rural areas targeted by these providers. In addition, unlicensed use in this band would complement existing unlicensed operations in the 2.4 GHz band and new operations in the 5 GHz band by enabling the proposals should provide substantial opportunities for future, high-power, unlicensed devices and achieve efficient use of this 50 megahertz block of spectrum. As a result, these proposals should facilitate the rapid deployment of advanced telecommunications services and technologies to all Americans, especially in rural areas of the United States, thus promoting the objectives of Section 706 of the Telecommunications Act of 1996.

3. In addition, in order to ensure that we can consider other possible approaches to achieve our goals for this 50 megahertz block of spectrum, we also are seeking comment here on alternative options that could potentially provide a combination of unlicensed and licensed terrestrial services in this band. For example, we could include both FSS and FS licensed operations sharing the band while still allowing for unlicensed devices in the band, or split the band to allow separate spectrum for unlicensed and terrestrial licensed use, all in conjunction with FSS operations. Ultimately, our goal is to maximize the efficient use of this band and foster the introduction of new and advanced services.

4. We believe that the 3650 MHz band is well-suited for the provision of new and advanced services to the American public, particularly in rural areas. Because incumbent FSS earth stations do not exist in much of the continental United States, this band appears particularly well suited to satisfy the demands of existing service providers using unlicensed devices for spectrum with which to enhance service to rural areas through high power unlicensed operation. Furthermore, as we observed in the *Unlicensed Spectrum NOI,* 68 FR 2730, January 21, 2003, the rules for unlicensed operation of RF devices have been very successful in providing consumers and businesses with a wide variety of additional choices to obtain and use information. Today, for example, a growing number of WISPs are emerging with the intention of providing an alternative to DSL and cable for high-speed connections into the home or office. The use of unlicensed RF devices appears to have proven to be ideally suited to bridge the gap, especially in rural areas, where cable or DSL services have been slow to arrive. Small entities with limited resources have stepped in to provide such service in areas that other service providers have not prioritized. In

numerous fora, these providers have expressed a desire for additional spectrum that could be used on an unlicensed basis, especially on a higher-power basis. These providers have stated that existing spectrum available for unlicensed operation is not adequate to accommodate Wireless Metropolitan Area Networks (MANs) or broadband access in all rural areas. In short, we see that there is a growing demand for higher-powered unlicensed devices operating at lower frequencies where the combination of propagation characteristics and higher power are more conducive to longer-range communications.

5. Consequently, we tentatively conclude that allowing unlicensed operations in the 3650–3700 MHz band would hold great promise for addressing those needs. This contiguous 50 megahertz block of spectrum is sufficiently wide to permit wide bandwidth applications such as high-speed data transmissions which, for example, could serve to better encourage its use for Internet service or backhaul by WISPs due to the relatively low entry barriers posed by unlicensed operation as compared with licensed operations. Also, the 3650–3700 MHz band could be used to enhance the utility of existing unlicensed operations by creating the potential for additional synergies. This band is situated between the 2.4 GHz (2400–2483.5 MHz) and 5.8 GHz (5.15–5.825 GHz) bands which are commonly used on an unlicensed basis. In addition, our proposals here would appear to facilitate the development and deployment of devices and systems capable of identifying and using the optimal band at any given time, such as under the newly adopted IEEE 802.16a (''WiMax'') standard. We envision multi-band systems which can analyze the operating environment and automatically select from the 2.4 GHz, 3650 MHz, or 5.8 GHz bands. Systems of this type would be able to more effectively support applications such as broadband connectivity, distance learning, and telemedicine in many rural or underserved communities as well as on Native American Tribal lands.

6. While our central proposal is for the use of unlicensed devices with cognitive radio techniques, we also wish to ensure that we can consider other possible approaches to achieve our goals; and thus we are seeking comment on various options that involve the use of licensed terrestrial services, such as those that may operate with lower power levels than those normally associated with licensed use. Specifically, we seek comments on various technical and operational issues associated with such options, and seek comment on whether some portion of the 3650 MHz band should be designated for licensed terrestrial use.

Allocation Issues

7. In broad terms, we believe that widespread use of the unlicensed devices proposed in the NPRM could be more readily encouraged if such devices were to coexist with only FSS operations in the 3650 MHz band. We reach this tentative conclusion because, the current FSS allocation, which is limited to international intercontinental operations, results in earth stations being sited primarily on the east and west coasts, thus leaving much of the continental United States available for other uses. Moreover, we believe that even a moderate presence of potentially ubiquitous terrestrial services under a licensed allocation could hamper or preclude the operation of unlicensed devices in large geographic areas—including, especially, rural America where the need is greatest. Therefore, our initial proposal to allow unlicensed operation in either all, or portions of, the 3650 MHz band would also entail retention of an FSS allocation that is limited to international intercontinental use, and the deletion of the existing terrestrial FS/MS allocations in any portions of the band in which unlicensed operation would be allowed.

8. Of course, if we ultimately adopt an alternative approach that authorizes licensed terrestrial services in the 3650 MHz band, we would reflect that by adopting or maintaining a terrestrial allocation enabling that approach. In our discussion of licensed alternatives, we also discussed whether to modify the relative protection status of future FSS earth stations if we retain a FS and MS allocation. We seek comment on what allocation changes would maximize efficient use of this spectrum.

FSS Allocation

9. In the *3650 MHz Allocation Order,* the Commission determined to grandfather existing FSS earth station operations on a primary basis and to permit new FSS earth station operations on a secondary basis. The Commission reasoned that allowing new FSS earth station operations on an unrestrained co-primary basis would impede any potential widespread use of the band for terrestrial services. Due to the weak signals that are received in the FSS, it was determined that coordination with the high-powered terrestrial operations would result in potentially large geographic areas where terrestrial services could not operate to avoid interference to FSS. The Commission stated that the size and shape of these ''exclusion zones'' could be different for each FSS earth station site because of factors associated with shielding, antenna orientation and terrain elevation. The Commission found that these coordination requirements and the presence of exclusion zones would significantly increase transaction costs and create a disincentive for deployment of new terrestrial operations. Thus, the Commission found that unrestrained deployment of FSS earth stations could hinder or greatly inhibit the opportunities for terrestrial operations in the band.

10. Since the decision to allow new FSS earth station operations in the 3650 MHz band only on a secondary basis, significant strides have been made in the area of smart/cognitive radio technologies. By using these features, we seek comment on whether we should revise the 3650 MHz band's existing allocations to permit new FSS operations in the band on a co-primary basis with unlicensed devices. Note that the scope of this NPRM does not contemplate any changes to the FSS earth station operations grandfathered indefinitely on a primary basis in the band pursuant to the *3650 MHz Allocation Order.*

11. While we seek comment on the possibility of permitting new FSS operations in the band on a primary or co-primary basis, we propose to retain the application of footnote US245 to the Table of Frequency Allocations. This footnote restricts FSS use of the 3650 MHz band to international intercontinental operations. Although deletion of the footnote could provide more flexibility for FSS operations in the band, we also believe that more extensive FSS use could curtail the efficient use of this band by terrestrial operations, whether licensed or unlicensed; and, potentially, increase the costs associated with coordinating other co-primary users of the band, thus inhibiting opportunities for such operation. In contrast, retaining the application of footnote US245 would make this band particularly attractive for intensive use by a wide array of advanced wireless technologies including higher-powered unlicensed devices. We seek comment on our proposal to retain footnote US245. Alternatively, we seek comment on whether we should recast footnote U.S. 245 as a new footnote particularly for the 3650 MHz band (*e.g.*, as footnote NGxxx), without the requirement for case-by-case electromagnetic compatibility analysis.

12. Four parties representing FSS interests filed Petitions for Reconsideration of the decisions made in the *3650 MHz Allocation Order.* In addition, an Emergency Motion for Stay was filed. In broad terms, these petitioners request that we reverse the Commission's decision to make future FSS operations secondary in the 3650 MHz band. If we revise the 3650 MHz band's allocations to include primary or co-primary status for new FSS operations, this decision would substantially effect the disposition of those petitions. Accordingly, we defer further action on the Petitions for Reconsideration and the Emergency Motion for Stay of the *3650 MHz Allocation Order* pending our adoption of final rules concerning the allocation proposals in the NPRM.

Fixed Service and Mobile Service Allocations

13. The 3650 MHz band's current primary allocation provides for Fixed and Mobile (base station only) operations. While the range of licensed services that might be implemented under such an allocation could be limited, we believe that, with some modification to the allocation, the band could accommodate various new and advanced licensed services, including the services that could be provided by unlicensed devices.

14. If we adopt our proposal for unlicensed use in any portion of the 3650 MHz band, we propose to delete the FS and MS allocations for the portion designated for unlicensed use. We believe that the provision of ubiquitous licensed terrestrial services, in addition to FSS operations, would hinder the successful deployment of unlicensed devices in many areas. One alternative approach could involve segmenting the 3650 MHz band into one portion that would allow only unlicensed and FSS operations, and another portion that would allow only licensed and FSS operations.

15. We seek comment on whether the 3650 MHz band's current Fixed and Mobile (base station only) allocations should be maintained, modified or deleted. In particular, we seek comment on whether there is any need or interest for licensed terrestrial services.

Proposals for Part 15 Unlicensed Operations

16. The 3650–3700 MHz band can be used to enhance the utility of existing unlicensed operations. As we stated above and in the Unlicensed Spectrum NOI, the distribution of incumbent FSS earth stations—primarily along the east and west coasts—makes this band particularly suitable for high power unlicensed operation especially in rural areas. Furthermore, since this band is situated between the 2.4 GHz (2400–2483.5 MHz) and 5.8 GHz (5.15–5.135 GHz and 5.47–5.825 GHz) bands which are commonly used on an unlicensed basis, allowing unlicensed operation in some, or all, of the 3650 MHz band could add flexibility to current service offerings in all three bands.

17. We propose two general approaches for enabling both fixed and non-fixed unlicensed devices to operate while protecting FSS earth stations and Federal Government operations in the 3650 MHz band. The first approach, which would apply to fixed unlicensed devices, requires professional installation of each device to ensure that certain criteria are met so that operation at a particular location and power would not result in interference to any FSS earth station. The second approach, which would apply to non-fixed unlicensed devices, requires such devices to be capable of automatically adjusting the EIRP based upon detection of the presence and strength of RF transmissions from operating FSS earth stations. In practice, this latter approach would employ methods similar in nature to dynamic frequency selection (DFS) techniques used in other bands. In addition, we propose that both fixed and non-fixed unlicensed devices be required to transmit a device identification signal to facilitate determining the source of any interference that might be caused by the operation of these devices. Finally, part 15 of the Commission's rules governs the operation of unlicensed radiofrequency devices. Therefore, as a general condition of operation, the unlicensed devices proposed herein may not cause harmful interference to authorized radio services and must accept any interference that they receive.

18. We seek comment on whether both fixed and non-fixed unlicensed devices should be permitted to operate in either all, or portions of, this band. Commenters should discuss all the benefits and costs associated with using all, or portions of, the 3650 MHz band for such unlicensed use.

Fixed Unlicensed Operation

19. Because the location of an operating fixed unlicensed device does not change, the development of criteria for ensuring that FSS operations are protected from interference is greatly simplified. In particular, once an appropriate location and operating parameters are chosen for a fixed device (*i.e.*, those where its operation will not cause harmful interference to an FSS station), both the unlicensed device and the FSS should be able to operate without mutual adverse effect.

20. *Professional Installation.* To ensure that fixed unlicensed devices are established and operated in a manner that will avoid causing interference to FSS earth stations, we propose to require that such devices be installed by a professional. The professional installer would be held responsible to account for the presence of all FSS earth stations and Federal Government operations in the vicinity of the unlicensed device. Using appropriate knowledge of each earth station's location and other relevant technical characteristics, the professional installer would be required to ensure that the installation and operational characteristics of the fixed unlicensed device complies with the following criteria.

21. We expect that a primary use for fixed unlicensed devices in this band would be to provide wireless broadband connectivity by WISPs in rural areas. Therefore, we propose to allow fixed unlicensed devices to operate in the 3650–3700 MHz band with a maximum EIRP of 25 Watts (14 dBW) in order to increase effective range. This EIRP should be beneficial—particularly in rural areas—because, compared to current Part 15 limits, an EIRP of 25 Watts would more than double the signal range of an unlicensed device. We further believe that omnidirectional antennas would typically be employed for this purpose in order to achieve the most uniform coverage of a particular geographic area. To promote flexibility in system design, we propose to permit any combination of transmitter output power/antenna gain, so long as the 25 Watt EIRP limit is not exceeded. Because interference potential is directly related to a device's EIRP, specifying this parameter rather than separate output power and antenna gain limits would more directly reflect the potential for interference in the band. We seek comment on our proposal to set a maximum EIRP of 25 Watts (14 dBW) for unlicensed RF devices in the 3650–3700 MHz band. Commenters who believe that it would be beneficial to specify other limits, such as transmitter output power and antenna gain, should provide details regarding the benefits or costs of such an approach as compared to our proposal. We also seek comment on our proposed equipment authorization requirements, recognizing the fixed and non-fixed equipment would likely need to be authorized separately because of the different rule requirements.

22. *Antennas.* In ET Docket No. 03–201, 68 FR 68823, December 10, 2003, we noted that sectorized and phased array antennas could be used to create highly spectrum efficient networks by forming dynamic communication links with mobile or fixed devices in any direction around an antenna structure. This could enable an application like a broadband local area network to serve a number of spatially separated clients from a single fixed antenna site. Such antennas allow systems to use spectrum more efficiently by making it possible to re-use a given frequency to communicate with different devices along non-overlapping paths. We seek to encourage both new and novel antenna technologies that would foster more intensive spectrum use. Therefore, we do not believe that fixed unlicensed devices should be prohibited from using any particular type of antenna. However, we propose that devices using sectorized, scanning spot-beam, or other antenna types with multiple beam capability be required to limit the EIRP in any direction to no more that 25 Watts. We seek comment on how compliance with this requirement could be determined.

23. *FSS Protection Zones.* FSS earth stations in the 3650–3700 MHz band use high gain antennas that are very susceptible to interference from undesired signals directed toward the main beam. As a result, operation of a fixed unlicensed device located within the earth station's main beam, even with relatively low EIRP, could cause interference at large distances. Conversely, an unlicensed device located outside the earth station's main beam could operate with relatively higher power and at closer separation distances without causing interference.

24. It would be possible, using various propagation models, to develop a continuum of permissible EIRPs as a function of both the unlicensed device's azimuth with respect to the main beam of the FSS earth station, and the separation distance between the two. However, we believe that another approach could provide a greater safeguard for protecting FSS earth stations, while simultaneously reducing and simplifying the burden on professional installers to comply with the standards proposed herein. In short, we propose to define protection zones around each FSS earth station; within which, operation of a fixed unlicensed device would be prohibited. Specifically, we propose that installation of a fixed unlicensed device be prohibited within a plus-or-minus 15 degree arc of any earth station's main antenna beam if the separation distance between the fixed device and the earth station is within 180 km. At azimuths outside this main beam protection arc, a fixed unlicensed device would be prohibited if the separation distance from the earth station is within 25 km. At all other locations outside these zones, we propose that fixed unlicensed devices could be installed and be permitted to transmit with a total maximum EIRP of 25 Watts. Based upon standard propagation models, we tentatively conclude that these criteria should afford FSS earth stations more than adequate protection from interference. We seek comment on this conclusion and invite comment on whether other distance versus azimuth criteria would be more appropriate.

25. The separation distance proposed for unlicensed fixed operations, *i.e.*, 180 km within 15 degrees of the FSS antenna main-beam azimuth and 25 km otherwise, is a conservative approach derived from the coordination zone that the Commission previously proposed as appropriate for much higher powered licensed fixed operations to protect FSS earth stations in the 3650 MHz band. In the 3650 MHz Second NPRM, the Commission tentatively concluded that within 200 kilometers of a FSS site it would be necessary for a licensed fixed operation to coordinate with the FSS operation. Outside of this coordination zone, the licensed operation would not need to coordinate and could operate with up to 1640 Watts EIRP. The 200 kilometer licensed coordination zone was based on line of sight protection to FSS earth stations and took into account elevation angle, and terrain shielding and over the horizon distances from the FSS earth station sites. By way of comparison, the 180 kilometer separation distance, or exclusion zone, we are proposing herein is 20 kilometers less than the 200 kilometer coordination zone proposed for licensed fixed point-to-point stations in the *3650 MHz Service Rules Second NPRM*. However, the EIRP of the proposed unlicensed devices will be on the order of 18 dB lower than that proposed earlier for licensed fixed point-to-point facilities. Accordingly, we believe that the reduced separation distance of 180 kilometers within 15 degrees of the main beam is appropriate. Outside of the main beam, the required separation distance (or exclusion zone) of 25 kilometers assumes that a noise-to-interference ratio of 10 dB is acceptable to the FSS operators and that the ITU–R large FSS antenna roll-off gain pattern is appropriate. We believe that these separation distances within which unlicensed fixed devices will not be allowed to operate, in conjunction with the requirement for professional installation will ensure that these fixed devices will not interfere with FSS earth stations. We invite comment on whether the assumptions used are sufficient to provide appropriate protection to the FSS earth stations.

Non-Fixed Unlicensed Operation

26. With respect to non-fixed operation by unlicensed devices, the challenge of protecting FSS is more complex because a non-fixed device would not be limited to a single location, but may move around from one site to another. We believe that the FSS earth stations can be afforded adequate interference protection from non-fixed unlicensed devices.

27. *Power Limits.* As an initial matter, we propose lower power limits for non-fixed unlicensed devices than the limits proposed above for fixed unlicensed devices. We envision that non-fixed devices operating in the 3650 MHz band will be used in similar fashion to non-fixed unlicensed devices used in the 2.4 GHz and 5.8 GHz bands. Operations in the 2.4 GHz band are limited to a maximum power of 1 Watt. Power levels for devices operating in the 5.8 GHz band range from 50 milliwatts (1 Watt EIRP) for devices in the 5.15–5.25 GHz sub-band to 1 Watt (4 Watts EIRP) for devices in the 5.725–5.825 GHz sub-band. In order to protect the FSS and Federal Government operations in the 3650 MHz band, we propose that non-fixed unlicensed devices in the 3650—3700 MHz band be limited to a peak EIRP of 1 Watt. We note that handheld unlicensed devices in the 2.4 GHz and 5.8 GHz bands normally operate well below the maximum of 1 Watt due to battery power limitations and human exposure to RF radiation limitations. Therefore, we find that this proposed limit for the 3650 MHz band should allow for most types of unlicensed use while, along with the other limitations discussed in paragraphs 51 through 54 of the NPRM, protect FSS and Federal Government operations. We seek comment on this proposal.

28. *Listen-before-talk, Power Adjustment Capability.* In order to protect FSS earth stations from non-fixed unlicensed devices, we propose that non-fixed devices be required to employ a DFS-like, listen-before-talk mechanism. In operation, this mechanism would automatically adjust the EIRP of the device based upon the received strength of an FSS uplink signal which is transmitted (in another frequency band) by the same earth station antenna being protected. Detection of a stronger FSS signal by the

unlicensed device would indicate relatively closer proximity to an earth station, thus requiring the unlicensed device to operate with lower power; while a weaker received signal would, conversely, indicate that a higher device power could be used. We believe that this approach is desirable in its simplicity because it does not require an unlicensed device to independently determine any other information; such as, the separation from, or its azimuth with respect to the main beam of, an FSS earth station.

29. The Commission tentatively conclude that existing uplink transmissions from FSS earth stations in other bands could be used for this purpose. We reach this conclusion because the FSS stations that we seek to protect—whose operations in the 3650–3700 MHz band are used for downlink purposes—are also used for uplink (earth-to-space transmit) communications in the 5.85–5.925 GHz and 6.425–6.723 GHz bands. Therefore, we propose to require that unlicensed devices be designed with the ability to listen for an FSS uplink signal in these other bands in order to enable automatic EIRP adjustment. We further propose that, if the non-fixed device detects an uplink signal above a minimum power-switching detection threshold of −76 dBm referenced to a 1-megahertz bandwidth (thus indicating close proximity to an earth station), then the non-fixed device would be prohibited from transmitting. For received uplink signals from −76 dBm to −79 dBm, the device would be limited to a maximum EIRP of 250 mW. For received uplink signals between −79 dBm and −82 dBm, the non-fixed device could operate at an EIRP of up to 500 mW. Finally, for received uplink signals at levels of −82 dBm or less, the non-fixed unlicensed devices would be permitted to operate at 1 Watt, provided such operation complies with applicable human exposure limits. We propose to define the power-switching detection threshold as the received signal strength (RSS) in dBm (or some other metric of received signal format), referenced to the output of a 0 dBi receive antenna. These power limits are captured in proposed § 215.252(c)(2) in Appendix A.

30. The received power levels are based upon a number of technical assumptions including that the maximum allowed EIRP of the unlicensed device would be uniformly spread over a 50 megahertz bandwidth. All of our assumptions are delineated in Appendix C of the NPRM. We seek comment on this approach and invite comment on whether the assumptions used in developing these power levels are appropriate to for providing protection to the FSS earth stations. For example, if the maximum allowed EIRP was assumed to be spread over less than a 50 megahertz bandwidth, how would such an assumption affect the tentative results we have obtained? We invite comment on the appropriateness and practicality of implementing this approach for non-fixed unlicensed devices.

31. With respect to the receive bandwidth of the unlicensed device, we believe that no bandwidth correction factor would be required if the receive bandwidth of the non-fixed device is greater than 1 MHz. However, if the RSS is to be measured correctly by a non-fixed device having a receive bandwidth less than 1 MHz, then we propose that a bandwidth correction factor be taken into account. We seek comment on whether 10*Log (BW/1MHz) (where BW is the non-fixed device's bandwidth) should be used as the appropriate correction factor for non-fixed devices that have a bandwidth less than 1 MHz. Finally, we seek comment on what equipment authorization procedures should be required to verify compliance with these proposals. This proposal is most easily implemented if satellite uplinks in readily identified bands are operational at times where the FSS earth station is also in receive mode. We recognize that there may be no correlation between the transmit and receive frequencies of the earth stations and that some earth stations may be operating in a receive-only mode. We seek comment on the extent to which this scenario may exist, and possible approaches to apply in those cases.

32. For systems, where multiple devices operate under a central controller, we propose that only the central controller be required to have the capability just described to detect the power-switching threshold and to convey appropriate commands to all devices under its control. We recognize that there may be devices or architectures developed, whereby remote devices are not under the control of a master device. We seek comment on requiring such devices to have power-switching threshold detection capability. We also invite comment on how to identify remote units that operate only under the control of a central controller. If a device is to operate under the control of a central controller we invite comment on the maximum distance the unlicensed device should be allowed to be separated from the central controller and how to ensure that the remote device ceases transmissions when it exceed this maximum distance.

Issues Applicable to Fixed and Non-Fixed Operations

33. *Federal Government Facilities.* We seek comment on whether the methods described for both fixed and non-fixed unlicensed devices would provide an effective means of protecting the three Federal Government radiolocation stations that operate in the 3650–3700 MHz on a primary basis. These stations, located at St. Inigoes, MD, Pascagoula, MS, and Pensacola, FL, were grandfathered as a condition of the transfer of the 3650 MHz band to a mixed-use status. The rules require that FS and FSS stations located within 80 kilometers of each site coordinate with the Federal Government, but there is no coordination requirement for unlicensed devices. We observe that an unlicensed device could be designed to listen for transmissions from these facilities and to activate the capabilities of the device to modify its operations.

34. *Operation in Proximity to U.S. Borders.* To provide sufficient protection to Canadian and Mexican stations operating in the 3650–3700 MHz band that are located near the U.S. borders, we propose to require that fixed devices be located at least 8 kilometers from the U.S./Canada or U.S./Mexico border if the antenna of the device looks within the 160° sector away from the border and be located at least 56 kilometers from each border if the device looks within the 200° sector towards the border. This proposal is consistent with the treatment of licensed fixed stations in bands above 470 MHz along the U.S./Canada border. In addition, we point out that, even under these guidelines, operators of unlicensed devices may need to further reduce their power to protect FSS earth stations in Canada or Mexico. We believe that treating devices along the border in this manner would strike a balance between providing sufficient flexibility for unlicensed operations and the need to protect foreign stations. We seek comment on this proposal. We also invite suggestions for alternative approaches for treating unlicensed devices in the 3650–3700 MHz band along the U.S. borders.

35. We tentatively conclude that no additional requirements are needed for non-fixed unlicensed devices to protect FSS earth stations that may be located in Mexico or Canada. The listen-before-talk, automatic power adjustment mechanism we have proposed for these devices should be sufficient to ensure that no Canadian or Mexican FSS earth stations licensed pursuant to the current

regulations will encounter interference. However, we seek comment on whether any special circumstances exist that might require non-fixed devices to incorporate other mechanisms to protect foreign FSS installations.

36. *Removal of Restriction on Unlicensed Operation in the 3650–3700 MHz band.* Unlicensed devices are currently restricted from operating in the 3650–3700 MHz band. Consequently, unlicensed devices are limited to only spurious emissions in this band. Historically, restricted bands were established to protect sensitive Federal Government and Non-Federal Government operations, such as radio-astronomy, which rely on reception of extremely weak signals. However, as noted, the change in the allocation status of the 3650 MHz band from shared to mixed use provides an opportunity to reexamine that prohibition in this band. Because the proposed allocation changes set forth in the NPRM would limit licensed use of the 3650–3700 MHz band to relatively few FSS and Federal Government users and because no new Federal Government operations will be assigned in this band, we no longer believe that this band needs to remain restricted. In its comments, SIA states that it is opposed to permitting unlicensed devices to operate in the 3650–3700 MHz band regardless of power level. It takes this position for several reasons, including lack of technical parameters for unlicensed devices and lack of knowledge of the potential number of unlicensed devices and their geographic orientation to FSS earth stations. We are not persuaded by SIA's argument because, as explained, it is feasible to develop operating rules for unlicensed devices in a manner that should address the in-band interference concerns raised by SIA. Accordingly, in order to accommodate new unlicensed use, we propose to revise § 15.205(a) by removing the restricted designation from the 3650–3700 MHz portion of the currently restricted 3600–4400 MHz band.

37. *Adjacent Band Emissions.* In proposing to remove the restricted status of the 3650–3700 MHz band, we also recognize that it would be adjacent to frequency bands that will continue to be restricted. Therefore, in order to maintain the same degree of protection for adjacent band licensed operations that currently exist under the rules, we propose to require that new unlicensed operations in the 3650 MHz band limit emissions into the adjacent 3600–3650 MHz and 3700–4400 MHz bands to spurious emissions only (*i.e.*, emissions with a maximum field strength of 500 microvolts/meter measured at 3 meters). A similar situation currently exists in the 2400–2483.5 MHz band which lies between the restricted bands 2310–2390 MHz below and 2483.5–2500 MHz above. Using spectrum-efficient system design and filtering, however, unlicensed devices are nevertheless capable of operating in this band at higher power levels than all other unlicensed devices. In a similar fashion, we believe that transmitters can be designed for the 3650–3700 MHz band with sufficient filtering at the band edges to satisfy the emission limits in our rules. We seek comment on this proposal to limit emissions in the adjacent restricted bands.

38. *Device Identification Signaling.* While we believe that the technical requirements proposed above for fixed and non-fixed unlicensed devices should be more than adequate to avoid interference to FSS earth stations in the first instance, we must also guard against any unforeseen instances when interference might nevertheless occur (*e.g.*, when a new FSS earth station is installed, or when an existing earth station relocates). As an initial matter, we again emphasize that, pursuant to § 15.5 of the rules, unlicensed devices are required to cease operation if found to be causing interference to any licensed service. In the event that interference might be caused, it could be difficult for the operator of a licensed station to identify and locate an unlicensed device that may be causing interference. Therefore, as a means of facilitating this identification, we propose to require all unlicensed devices to broadcast identification information at regular intervals.

39. At a minimum, the transmitted data should consist of the contact information of the owner/operator of the device. In addition, information about the location of a fixed device could be included. Will this information be useful to FSS licensees? Commenters advocating an identification requirement should also provide detail regarding how often the identification signaling should be done and what other information would be useful. Would information such as the FCC ID number and transmitter serial number be helpful? We also seek comment on the need for, and effective methods to update the contact information when an unlicensed non-fixed device is sold or otherwise transferred to a new owner/operator after the initial sale of the device.

40. We seek to ensure that any identification information embedded within the transmission of an unlicensed device can be easily extracted. Therefore, we seek comment on whether it is necessary to define an identification channel in which to place the data. Initially we propose to require the identification information to be confined to the 1 MHz portion of the band between 3650 MHz—3651 MHz segment of the band. We note that the proposed band segment for the identification lies adjacent to the newly re-designated 3600–3650 MHz restricted band. We reiterate that only spurious emissions are permitted in the restricted bands. Will unlicensed devices be able to effectively use the 3650–3651 MHz segment for identification purposes without transmitting unauthorized energy into the restricted band? Alternatively, the identification information can be transmitted as data packets interspersed among the unlicensed device communication data. Will FSS licensees be able to make use of such information and how often should it be transmitted? Finally, regardless of the method used to embed the identification data, we seek comment on whether there is a need to specify a modulation scheme and standardized data format so that the information may be successfully decoded.

Other Methodologies for Protecting FSS Earth Stations

41. Finally, although we believe that the technical approach could be an effective approach for fostering efficient use of the 3650–3700 MHz band by unlicensed devices, we seek comment on two other specific approaches, as well as on other approaches commenters may propose. Either of these approaches could be required, if we ultimately decide that our proposed approach is not practical, or potentially could be alternatives available to manufacturers of unlicensed devices for protecting FSS earth stations.

42. *Geo-location Option.* A first alternative approach for protecting FSS earth stations in the 3650–3700 MHz band would be to use cognitive/smart unlicensed devices that know their current location and the location of nearby earth stations. We sought comment on that approach in the *Unlicensed NOI*, and a number of parties supported that approach. This approach would be based on a determination of reasonable distance separation standards for the operation of low-power non-fixed unlicensed devices in this band. For example, using known protection criteria for an FSS earth station, an unlicensed device could adjust its power based on its location relative to nearby FSS earth stations.

43. This technical approach appears to be feasible. For example, IEEE 802.18 states that embedding GPS in unlicensed devices is technically feasible and could be used to limit the device so that it does not transmit when located in an area where interference to a satellite receive earth station is likely. We also recently noted that one of the benefits of cognitive radio would be the ability to determine its location and the location of other transmitters, and then select the appropriate operating parameters such as the power and frequency allowed at its location.

44. One of the requirements of this approach is that we specify distance separations for protecting FSS earth stations. In its comments on the *Unlicensed NOI,* SIA submits a technical annex proposing calculated exclusion zones where unlicensed devices would not be able to operate. It argues that its analysis indicates a worst case exclusion zone of 416 km is needed for a 1 Watt EIRP unlicensed device to protect a satellite earth station. We find that SIA's methodology, while clearly deriving distances that would protect FSS earth stations, is overly conservative for the 1-Watt devices we are considering here. We also believe that the current guidelines in our rules for identifying when coordination is necessary are overly conservative for purposes of the *NPRM.* For instance, in comments filed in the *3650 MHz Service Rules Second NPRM,* Comsearch stated that it has been able to coordinate stations at distances much less than otherwise thought necessary, and that in certain cases, earth stations have actually been located near the base of fixed service sites in the same band.

45. We therefore seek comment on alternative methods for determining more accurate minimum separation distances for these low EIRP levels. Under the simplest approach, an unlicensed device need only estimate its distance from the earth station. While overprotecting the earth station when a device is behind the station's main lobe, it still would appear to allow operation over significant geographic areas of the United States. If a device could also estimate its orientation relative to the main lobe of the FSS antenna, we might reasonably determine lower distance separation requirements when a device is offset from the main lobe, thus granting additional operational flexibility in terms of geographic areas, but at the cost of added complexity. Ultimately, if there are no better methodologies for determining distance separation than those currently in the record, we could permit those approaches even though, compared with our preferred technical method, we believe that they overprotect FSS earth stations and thus needlessly limit the operational flexibility of unlicensed devices in this band.

46. Unlicensed devices would need to protect not only existing FSS earth stations, but also any future earth stations in the 3650–3700 MHz band. Thus, devices relying on geo-location must have a means to identify new FSS earth station locations, which should not occur very frequently. We seek comment regarding methods by which an unlicensed device would access a database of earth station sites and by which an updated database would be maintained. In addition, we seek comment on how often devices would need to update their databases in order to continue to be able to operate, as well as on the type of information that could or should be made available.

47. We also note that it could be possible for an unlicensed device to lose contact with its geo-location reference signals under various circumstances. We seek comment on the protocols that should be followed when an unlicensed device using the geo-location option loses its location detecting capability, such as the period of time that the device could continue to operate before ceasing to transmit. It would appear to make sense to treat an unlicensed device 500 km away from the nearest earth when it lost its geo-location differently from one, for example, only 75 km away.

48. Finally, we seek comment on whether a geo-location approach would be an effective means of protecting the three Federal Government radiolocation stations that operate in the 3659–3700 MHz band on a primary basis, as well as earth stations located in Canada and Mexico. As previously noted, the rules require that FS and FSS stations located within 80 kilometers of each site coordinate with the Federal Government. The locations of Canadian and Mexican earth stations presumably can be made readily available for use with a geo-location approach. Using the techniques described above, it would appear to be possible for unlicensed devices to maintain appropriate separation distances.

49. *Dedicated RF beacon signal.* We also seek comment, although we see various difficulties spelled out, on whether an unlicensed device could make use of dedicated RF beacon signals emanating either directly from an FSS earth station or from another transmitter located in close proximity to an FSS earth station. Under this approach, unlicensed devices would be designed with cognitive capabilities to detect the absence, presence, or relative strength of the FSS pilot beacon at the location of the unlicensed device and make decisions about whether to transmit or what power levels would be appropriate to protect licensed FSS earth stations. In its simplest form, transmission by the unlicensed device would be enabled at permitted power levels only if no pilot beacon were detected. With a more sophisticated capability, an unlicensed device could detect not only the presence of a pilot beacon, but also the relative strength of the received pilot beacon or information in the data stream of the signal about the earth station's receive antenna type and/or orientation. A relatively weak, or absent, beacon signal would indicate that a higher EIRP could be used by the unlicensed device while, conversely, a relatively higher pilot beacon strength would require a corresponding reduction in EIRP.

50. This approach would appear to require adoption of various standardized technical requirements to ensure that unlicensed devices could readily detect a beacon signal. Our analysis does indicate that a separate pilot beacon EIRP of between 1.5 Watts and 26.5 Watts would be sufficient to ensure that non-fixed unlicensed devices would be able to receive the beacon under any foreseeable circumstances where interference to FSS earth station could be a concern. We also think that a standard beacon EIRP might have to be specified, perhaps as well as standard format or information content, so that every earth station would present the same reference beacon signal strength at a given distance. We seek comment on any necessary technical parameters.

51. We also seek comment on the important issue of a standardized frequency or frequencies for such beacon signals. Using a frequency within the 3650–3700 MHz band for a transmission emanating from a location at or close to an FSS earth station raises very significant technical questions about interference to FSS earth stations—especially because this band is in the middle of a broader satellite receive band. If not a frequency within this band, what other frequencies might potentially be available that could provide the needed functionality without causing interference to existing licensees? If no such frequencies are available, it is not clear how this approach could be implemented.

52. Also, especially compared with the previous two approaches, namely, professional installation of fixed devices and automatic EIRP adjustment for non-fixed unlicensed devices, this

methodology also raises questions about the costs and responsibilities for implementation. For example, with respect to responsibility for the operation of a beacon signal, it is not clear how the safeguard could be implemented by unlicensed device operators, so the burden would appear to fall on the FSS earth station licensee. The potentially significant costs raise questions about the equities of imposing them on existing licensees. There are also significant issues regarding whether and how those costs might be paid by unlicensed device operations.

53. To allow FSS earth stations operating in this band, or other entities, to implement a separate beacon, we might need to modify footnote US348 of the Table of Allocations to include a secondary radiolocation allocation for this purpose. We also seek comment on such modification as well as on any necessary modifications to part 25 of the Commission's rules if we take this approach. Finally, we seek comment on how, under this approach, we should protect the three Federal Government radiolocation stations that operate in the 3650–3700 MHz on a primary basis, as well as earth stations located in Canada or Mexico.

Options for Licensed Operations

54. In order to ensure that we can consider all possible approaches for achieving our goals of maximizing efficient use of the 3650 MHz band and the provision of new and advanced service, we are also seeking comment on whether spectrum in this band should be designated for licensed use. If we decide to permit licensed use of the band, we will have to adopt appropriate allocation, technical and operational rules to govern such operations. Initially, however, we seek comment on the types of licensed services that might be implemented in the band, what kinds of technologies could be utilized to develop these services, how quickly these services could be developed, and where in the country these services might be implemented. Commenters should also discuss any technical, legal or economic advantages and costs associated with these service options.

55. *Fixed Service and Mobile Service Allocations.* In addition to seeking comment on whether to maintain the band's current primary Fixed and Mobile allocations, we seek comment on whether to remove the mobile station restriction in the current Mobile allocation in this band. Since the Commission adopted the *3650 MHz Allocation Report & Order,* great strides have been made in the development of smart/cognitive radio features that potentially could be used with licensed mobile handset operations to prevent interference with FSS operations. As a result, we seek comment on whether, if we adopt technical rules requiring use of smart/cognitive features, we should revise the existing Fixed and Mobile allocations to permit mobile stations to operate in the 3650 MHz band.

56. We also seek comment on whether we should modify the FSS allocation if we retain the FS and MS allocations in the band. In the *3650 MHz Allocation Report & Order,* the Commission found that spectrum sharing between licensed terrestrial services and FSS operations on an unrestrained co-primary basis would not be feasible. As a result, the Commission decided to grandfather existing FSS earth station operations on a primary basis and to allow new FSS earth station operations only on a secondary basis to any FS/MS terrestrial stations. We seek comment on whether the use of smart/cognitive technologies by licensed services would make it technically feasible for new FSS operations to coexist with FS/MS services. Assuming such uses of the spectrum are found to be technically feasible, we request comment on whether FSS could be co-primary with FS/MS and, if so, how this might be accomplished.

57. *Band Segmentation Between Licensed and Unlicensed Use and Band Pairing.* If we adopt an option that permits terrestrial licensed operations, one way of allowing licensed fixed and mobile services, higher-powered unlicensed devices, and FSS earth stations to each have access to the 3650 MHz band would be to segment the band. For example, one segmentation option could be to divide the band into two 15-megahertz segments and a 20-megahertz segment. The two 15-megahertz segments could be located at the bottom and the top of the band (*i.e.*, 3650–3665 MHz and 3685–3700 MHz), with the 20-megahertz segment situated in the middle of the band (*i.e.*, 3665–3685 MHz). Under this option, higher-powered unlicensed operations would be restricted to the two 15-megahertz segments and fixed and mobile licensed operations to the 20-megahertz segment, and FSS earth station operations would have access to the entire band on a co-primary or secondary basis with licensed fixed and mobile operations. Licensed fixed and mobile operations would only have to coordinate with FSS earth stations operating on co-channel spectrum, and, because unlicensed devices operate on a non-interference basis, any FSS earth station would be protected from interference potentially caused by unlicensed devices.

58. We seek comment on this segmentation option, as well as splits between unlicensed and licensed terrestrial users in other proportions. Another option, for instance, would be to establish a paired 20 megahertz allocation of 3650–3660 MHz and 3690–3700 MHz for licensed terrestrial services while retaining 30 megahertz in the 3660–3690 MHz portion of the band for unlicensed operation. In addressing different band segmentation scenarios, commenters should discuss whether such scenarios would provide sufficient bandwidth to enable broadband voice or data services—on both the licensed and unlicensed segments. Commenters should also discuss the types of licensed services that might be provided if the licensed spectrum in the band is unpaired, *e.g.*, TDD operations, and the amount of spectrum needed for such services.

59. Alternatively, we seek comment on whether spectrum at 3650–3700 MHz that is made available for licensed terrestrial operations could be paired with spectrum in other frequency bands, *e.g.*, in the 2 GHz to 4 GHz range, and if so, what kinds of services could be provided under this type of licensing scenario. We invite commenters to suggest possible band pairing options. Commenters should address whether, if the frequency bands suggested are relatively far from the 3650–3700 MHz band, it would be technically feasible to produce equipment (*e.g.*, handsets) that could operate on both spectrum bands.

60. *Power Limits.* If, under a licensing approach, we remove the current allocation restriction on the use of licensed mobile devices in the 3650 MHz band (*i.e.*, base station only), licensed and unlicensed operations in the band could take on similar operational characteristics. We thus could require that licensed devices operating in the 3650 MHz band employ the same power limits as proposed above for unlicensed devices. Specifically, we could require that licensed non-fixed devices operate at a maximum power level of 1 watt EIRP, and that licensed fixed devices operate at a maximum power level of 25 watts EIRP. By adopting the same power limit for licensed devices as proposed for unlicensed devices, we should not introduce any interference conditions, with respect to FSS operations, that would not be caused by unlicensed devices alone.

61. We also seek comment on allowing higher power limits for licensed fixed stations operating in 3650 MHz band to enable greater coverage areas and transmission distances for such stations. Along with greater power

levels, of course, comes the concern about increased potential interference to FSS earth stations operating both within and above the 3650–3700 MHz band. However, as discussed in the *3650 MHz Service Rules Second NPRM,* we could adopt coordination zones surrounding co-channel FSS stations, within which any terrestrial station operator would have to coordinate with the FSS licensee. Because the size of a coordination zone would be a function of the power level of the fixed station, protection of co-channel FSS stations by high-powered licensed fixed stations would be accomplished simply by requiring larger coordination zones for such stations. In the *3650 MHz Service Rules Second NPRM,* the Commission proposed a 1000-Watt EIRP limit for base and fixed stations. Such a power limit would create relatively large coordination zones, but would provide greater flexibility for licensees operating in the band. We therefore seek comment on the appropriate EIRP limit—*e.g.*, 25 Watts, 1000 Watts—for licensed base and fixed stations operating in the 3650–3700 MHz band.

62. *Adjacent Band Emissions.* If we decide to permit licensed systems to operate in the 3650 MHz band, we would also have to decide how such systems would protect services operating in adjacent bands. In the *3650 MHz Service Rules Second NPRM,* we proposed that, in order to protect FSS operations in the 3700–4200 MHz band from interference, terrestrial stations operating in the 3650–3700 MHz band would have to comply with the part 101 emission limits already in place to protect such FSS systems from licensed fixed stations operating in the 3700–4200 MHz band. With our proposal to provide for unlicensed use of the 3650 MHz band, we seek updated comment on what interference criteria might be used to protect adjacent band services from licensed systems operating in the 3650 MHz band. For example, should we require that licensed non-fixed devices comply with the field strength limit described above for unlicensed devices; should we require that licensed fixed stations comply with a particular field strength limit or satisfy the adjacent band protection criteria proposed in the *3650 MHz Service Rules Second NPRM?*

63. *Protection of FSS Operations.* If we ultimately adopt a regulatory approach that permits licensed operations in this band, we believe that it would be appropriate to require that licensed devices employ the same measures to protect FSS operations as proposed above for unlicensed devices. We seek comment on whether these measures (or any of the additional measures proposed above to enable unlicensed devices to protect FSS stations—*e.g.*, the geo-location method, the RF beacon method) could or should be applied to licensed devices as a means of protecting Government radiolocation stations, non-Government FSS stations, and Canadian and Mexican stations operating near U.S. borders, or whether, for any reason, other measures (such as applying our present interservice coordination rules) might be more appropriate.

64. *Geographic Area Licensing.* If we ultimately decide to permit licensed operations in this band, we would need to adopt a licensing approach for such operations. In the *3650 MHz Service Rules Second NPRM,* the Commission tentatively concluded to license the 3650 MHz band using geographic area licensing and sought comment on what sized licensing area or areas should be utilized to license this spectrum and whether nationwide licensing would be appropriate. Similarly, the Commission sought comment on spectrum block size or sizes and whether the band should be licensed using a 50-megahertz license. The Commission also sought comment on a range of issues concerning possible competitive bidding procedures. We seek updated comment from interested parties in all these areas.

65. We thus ask interested parties to refresh the record on whether we should license this band using geographic licensing, as well as on particular geographic licensing approaches. As opposed to site-by-site licensing, geographic licensing may permit licensees more flexibility to respond to market demand and may result in significant improvements in spectrum utilization. In particular, geographic licensing allows licensees to coordinate usage across an entire geographic area to maximize the use of spectrum in areas of highest demand. Geographic licenses also provide the flexibility to dynamically adjust spectrum usage depending upon market demands. We note that one option for this band would be one nationwide license. Under this approach, there would only be one fixed and mobile services license available for this band which would give the terrestrial licensee greater flexibility in building-out its services. We seek comment on whether it would be appropriate to have one nationwide fixed and mobile services license for this band. We also seek comment on the competitive bidding procedures that should be used in the event that mutually exclusive applications are accepted, and whether the procedures proposed in the *3650 Service Rules Second NPRM* would be appropriate for the services that are contemplated to be introduced in this band.

66. *Spectrum Leasing.* Additionally, we seek comment on whether fixed and mobile service licensees in the 3650 MHz band should be able to lease their spectrum through the policies established in the *Secondary Markets Report and Order and Further Notice of Proposed Rulemaking (Secondary Markets Report and Order* and *Secondary Markets Further NPRM,* respectively). In the *Secondary Markets Report and Order,* we took action to remove unnecessary regulatory barriers to the development of secondary markets to permit third parties to access spectrum through spectrum leasing arrangements. We adopted new policies and procedures that enable most wireless licensees to lease some or all of their spectrum usage rights to third-party spectrum lessees. Under these rules, the Commission is notified of the spectrum leasing arrangements (either through a spectrum manager lease notification or a *de facto* transfer lease application). We tentatively conclude that if we adopt licensing rules for this band, our spectrum leasing adopted in the *Secondary Markets Order* would apply. In addition, the *Secondary Market Further NPRM* proposed additional ways to facilitate third party access to spectrum through spectrum leasing arrangements, including further streamlining of the notification requirements, and creating leasing mechanisms to facilitate access by opportunistic devices with cognitive radio capability. We seek comment on whether adoption of some of the proposals in the *Secondary Markets Further NPRM,* or other revisions in the spectrum leasing policies would help optimize the use of the 3650 MHz band.

67. *Third-Party Access to Licensed Spectrum Under A ''Band Manager'' Approach.* We also wish parties to update the record on whether, if we adopt licensing rules for this band, we should allow third parties access to spectrum in the 3650 MHz band through a ''band manager'' licensing model, either as a complement or alternative to the spectrum leasing approach adopted under the *Secondary Markets Report and Order.* In the *3650 MHz Service Rules Second NPRM,* the Commission sought comment on whether the use of band manager licensing would be appropriate for the 3650 MHz band. As envisioned by that Commission, the band manager would be a Commission licensee that could engage in the business of making spectrum available to third-party spectrum users through private, written contracts. The

Commission specifically sought comment on whether the fixed and mobile services licensee should have the option of electing to operate as a band manager, a traditional licensee (with the right to enter into spectrum leasing arrangements), or both to the extent they serve to complement each other.

68. Under this band manager approach, the fixed and mobile services licensee would essentially act as a ''spectrum broker'' and as spectrum use coordinator. As a spectrum broker, the licensee would have the ability to lease discrete spectrum usage rights to different third party spectrum users through private, contractual agreements, without having to secure prior approval by the Commission and without having to notify the Commission of every lease. As a spectrum use coordinator, the licensee would have the flexibility to lease and coordinate different spectrum rights, including different power levels and other technical parameters, to various spectrum users. We seek comment on whether a licensing framework utilizing the concept of band manager would optimize use of the 3650 MHz band by providing continued protection for incumbents as well as maximum flexibility for the potential fixed and mobile services licensee and for the creation of new and advanced services. Under this approach, the licensee, subject to the technical rules that we adopt, would decide how to maximize efficient use of the spectrum and coordination issues would be managed by the licensee through private contracts. In addition, the licensee would be directly responsible to the Commission for preventing harmful interference among the different users in the band, including the FSS licensees, as well as licensees in other bands. We also seek comment on any potential disadvantages of this type of a band manager approach, especially related to the interference risks of any particular features of the spectrum in question.

69. If we choose to allow the fixed and mobile services licensee to act as a band manager, the licensee would be subject to any band manager service rules that we adopt. We seek comment on whether our spectrum management policies would be enhanced by permitting the licensee the flexibility to use its spectrum internally or provide telecommunications services, in addition to leasing it. If we were to permit such flexibility, should we also implement safeguards to ensure that a band manager's core function remains focused on leasing to other, third party spectrum users; and if so, how? Also, if the fixed and mobile services licensee choices to be a band manager, should the licensee have the ability to use the spectrum directly and construct its own facilities? In other words, should we limit the concept of a band manager to non-facilities-based operations so the licensee would only be engaged in the business of leasing spectrum? We also seek comment on whether it is necessary to provide additional safeguards to prevent a band manager from discriminating among spectrum users.

70. We also request comment on the type of information to be included in agreements between a band manager and spectrum users if we adopt band manager licensing. We seek comment on whether the requirements the Commission established for agreements between Guard Band Managers and spectrum users in part 27 of our rules would be appropriate. For example, under part 27 of our rules, agreements between the Guard Band Manager and spectrum user(s) in the 700 MHz band must specify in detail the operating parameters of the proposed systems including power, antenna height, frequency(s) of operation, base station locations and area of operations.

71. We also seek comment on whether we should require the fixed and mobile services licensee if it choose to be a band manager to file annual reports on its spectrum usage with the Commission. We seek comment on whether such agreements should ensure that the licensee is responsible for violations of rules by users of the spectrum assigned to them, and whether the licensee must provide the Commission with information on users to allow the Commission to limit interference and enforce our rules.

72. *Site-By-Site Licensing.* If we license fixed and mobile services in the 3650 MHz band, another licensing approach would be to use site-by-site licensing. One advantage to a site-by-site licensing option, might be that this licensing scheme allows access to the spectrum and entry into the market at a relatively low upfront cost. Under this licensing scheme, we could employ several methods. One method would be an exclusive use approach. Under this approach the first licensee to acquire a license is guaranteed to have its operations protected from interference from other later in time licensees. However, if the licensee wished to add more sites, it would have to acquire a new license for each additional site. We could also use frequency coordinators similar to those for certain microwave services. Under this approach, a frequency coordinator would decide whether interference will be caused by another entity's facilities being located near an existing licensee's facilities. If the frequency coordinator determines that the second entity's facilities will not cause interference to an existing licensee's operations, then the second entity would be able to acquire a license for its facilities.

73. Another method would be a coordinated shared use approach. This approach would utilize a frequency coordinator similar to those for the shared private land mobile radio (PLMR) frequencies to determine where licensees can locate their facilities. These coordinators do not seek to achieve interference-free operations. By definition, with a coordinated shared use approach, we can have multiple licensees operating on the same frequencies in the same geographic areas without having exclusive spectrum usage rights and interference protections. Coordinators could perform the function, for an applicant, of choosing the best frequency(s) available in the service for which the applicant is applying at a particular site. They can do this by trying to match compatible operations, both in terms of the nature of the operations and the number of base stations and associated mobiles already on frequencies in the area, as well as proposed.

74. *Other Issues.* Finally, we seek comment on any other issues that might arise in the event that fixed and mobile services are allowed in the 3650–3700 MHz band along with unlicensed devices and FSS operations.

75. In sum, we seek comment on our proposal to allow unlicensed operations in the 3650–3700 MHz band as well as comment on the specific technical options described above. We request that commenters provide detailed information regarding the potential benefits and problems that might result from the use of these technical options—either alone, in tandem, or in combination with the other approaches on which we are seeking comment.

Initial Regulatory Flexibility Analysis

76. 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

[1] *See* 5 U.S.C. 603. The RFA, *See* 5 U.S.C. 601 has been amended by the Contract With America Advancement Act of 1996,), Public Law 104–112, 110 Stat. 847 (1996)(CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

(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 62 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 NPRM and IRFA (or summaries thereof) will be published in the **Federal Register**.[3]

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

77. The 3650–3700 MHz band is a ''transfer'' band that the National Telecommunications and Information Administration (NTIA) reallocated from Government/non-Government shared use status to mixed use status effective 1993.[4] Prior to the transfer, the non-government use of the band was limited to international, intercontinental Fixed Satellite Service (FSS) receive stations.[5] A condition of the transfer allows Government radiolocation stations to continue to operate indefinitely in the 3650—3700 MHz band at three locations with a ''radius of operation'' of 80 kilometers (49.7 miles).[6] In reallocating this spectrum, we sought to maximize the use of the band, and particularly to facilitate the provision of a broad range of traditional voice and broadband high-speed services, and to foster the introduction of such service to rural areas of the country.[7] We expected this allocation to encourage new and more effective competition to existing wireline local exchange carriers by providing for an economical means to offer competitive ''local loop'' or ''last mile'' facilities.

78. On December 20, 2002, the Commission released a *Notice of Inquiry* (NOI) in ET Docket No. 02–380 seeking comment from the public on the possibility of permitting unlicensed devices to operate in additional frequency bands.[8] Specifically, the *NOI* sought comment with regard to the feasibility of allowing unlicensed devices to operate in TV broadcast spectrum and the technical requirements that would permit unlicensed devices to operate in that spectrum such that the devices do not cause interference to authorized services. Additionally, the *NOI* sought comment on the feasibility of permitting unlicensed devices to operate in the 3650–3700 MHz band at power levels higher than those permitted for unlicensed devices in other bands. Seventy-five parties filed comments and twenty-six parties filed reply comments in response to the *NOI*.

79. 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 service providers are using unlicensed devices within wireless networks to serve the varied needs of industry, government, and general consumers alike. One of the more interesting developments is the emergence of wireless Internet service providers or ''WISPs.'' Using unlicensed devices, WISPs around the country are providing an alternative high-speed connection in areas where cable or DSL services have been slow to arrive. We believe that the increased flexibility proposed herein 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.

B. Legal Basis

80. 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

81. 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.[9] 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.[10] 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 any additional criteria established by the Small Business Administration (SBA).[11]

82. A small organization is generally ''any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.''[12] Nationwide, as of 1992, there were approximately 275,801 small organizations.[13] The term ''small governmental jurisdiction'' is defined as ''governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.''[14] As of 1997, there were approximately 87,453 governmental jurisdictions in the United States.[15] This number includes 39,044 counties, municipal governments, and townships, of which 27,546 have populations of fewer than 50,000 and 11,498 counties, municipal governments, and townships have populations of 50,000 or more. Thus, we estimate that the number of small governmental jurisdictions is approximately 75,955 or fewer.

83. 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.[16] Census Bureau data indicates that there are 1,215 U.S. establishments that manufacture radio and television broadcasting and wireless communications equipment, and that

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

[3] *See id.*

[4] *See* Spectrum Reallocation Final Report, Response to Title VI—Omnibus Budget Reconciliation Act of 1993, NTIA Special Publication 95–312, released February 1995. Shared use means that a band of frequencies is generally available for both government and non-government use. *See* 47 CFR 2.105(b). Mixed use means that government use is limited by geographic area, by time or by other means so as to guarantee that the potential use by government stations is substantially less than the potential use to be made by non-government stations. *See* 113(b)(2)(B) of OBRA–93. *See* 47 U.S.C. 923(b)(2)(B).

[5] *See Second Report and Order* in Gen. Docket No. 80–739 (Amendment of Part 2 of the Commission's Rules Regarding Implementation of the Final Acts of the World Administrative Radio Conference, Geneva, 1979), 49 FR 2357 (January 19, 1984).

[6] The three locations are Pascagoula, Mississippi; Pensacola, Florida; and Saint Inigoes, Maryland. Any unlicensed operations in the 3650–3700 MHz band would be required to protect Federal Government operations at these locations.

[7] We also noted and here reiterate our statutory mandate to provide for the deployment of advanced telecommunications services and technologies to all Americans. See Public Law 104–104, Title VII, 706, Feb. 8, 1996, 110 Stat. 153 (Section 706); 47 U.S.C. 157.

[8] *See Notice of Inquiry* in ET Docket No. 03–280, 17 FCC Rcd 25632 (2003).

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

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

[11] *Id.* 632.

[12] *See* 5 U.S.C. 601(4).

[13] *See* 1992 Economic Census, U.S. Bureau of the Census, Table 6 (special tabulation of data under contract to Office of Advocacy of the U.S. Small Business Administration).

[14] *See* 5 U.S.C. 601(5).

[15] *See* 1995 Census of Governments, U.S. Census Bureau, United States Department of Commerce, Statistical Abstract of the United States (2000).

[16] *See* 13 CFR 121.201, NAICS code 334220.

1,150 of these establishments have fewer than 500 employees and would be classified as small entities.[17] 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 no more than 1,150 small manufacturers of radio and television broadcasting and wireless communications equipment.

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

84. Part 15 transmitters are already required to be authorized under the Commission's certification procedure as a prerequisite to marketing and importation. *See* 47 CFR 15.101, 15.201, 15.305, and 15.405. The changes proposed in this proceeding would not change any of the current reporting or recordkeeping requirements. Further, the proposed regulations add permissible operating frequencies. The proposals would not require the modification of any existing procedures.

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

85. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives: (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 or reporting requirements under the rule for 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.

86. At this time, the Commission does not believe the proposals contained in this NPRM will have a significant economic impact on small entities. The NPRM does not propose new device design standards. Instead, it relaxes the rules with respect to the types of devices which are allowed to operate pursuant to the Commission's regulations. There is no burden of compliance with the proposed changes. Manufacturers may continue to produce devices which comply with the former rules and, if desired, design devices to comply with the new regulations. The proposed rules will apply equally to large and small entities. Therefore, there is no inequitable impact on small entities. Finally, this NPRM does not recommend a deadline for implementation. We believe that the proposals are relatively simple and do not require a transition period to implement. An entity desiring to take advantage of the relaxed regulations may do so at any time.

87. Unless our views are altered by comments, we find that the proposed rule changes contained in this Notice will not present a significant economic burden to small entities. Therefore it is not necessary at this time to propose alternative rules. Notwithstanding our finding, we request comment on alternatives that might minimize the amount of adverse economic impact, if any, on small entities.

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

88. None.

Ordering Clauses

89. Pursuant to the authority contained in sections 4(i), 302, 303(c), 303(f), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. sections 154(i), 302, 303(c), 303(f), and 303(r) this Notice of Proposed Rule Making *is adopted.*

90. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, shall send a copy of this NPRM, 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, Radio.

Federal Communications Commission.

Marlene H. Dortch,

Secretary.

Proposed Rule Changes

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

PART 15—RADIO FREQUENCY DEVICES

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 15.205 is amended by revising the table in paragraph (a) to read as follows:

§ 15.205 Restricted bands of operation.

(a) * * *

MHz	MHz	MHz	GHz
0.090–0.110	16.42–16.423	399.9–410	4.5–5.15
[1] 0.495–0.505	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225	123–138	2200–2300	14.47–14.5
8.291–8.294	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366	156.52475–	2483.5–2500	17.7–21.4
8.37625–8.38675	156.52525	2655–2900	22.01–23.12
8.41425–8.41475	156.7–156.9	3260–3267	23.6–24.0
12.29–12.293	162.0125–167.17	3332–3339	31.2–31.8
12.51975–12.52025	167.72–173.2	3345.8–3358	36.43–36.5
12.57675–12.57725	240–285	3600–3650	([2])

[17] *See* 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.

MHz	MHz	MHz	GHz
13.36–13.41	322–335.4	3700–4400	

[1] Until February 1, 1999, this restricted band shall be 0.490–0.510 MHz.
[2] Above 38.6.

* * * * *

3. Section 15.252 is added to read as follows:

§ 15.252 Operation within the band 3.65–3.70 GHz.

(a) Fixed and non-fixed unlicensed devices in this band must be operated in a manner so as not to cause harmful interference to licensed fixed satellite service (FSS) earth stations authorized to receive signals in the 3650–3700 MHz band.

(b) *Fixed devices.* Fixed devices must be installed by a recognized professional installer. The installer shall ensure that the operation of the fixed device complies with the following requirements.

(1) The maximum peak effective isotropic radiated power (EIRP) shall not exceed 25 Watts. The fixed device may employ an advanced antenna system capable of dynamically modifying the system radiation pattern. The EIRP of the fixed device must be reduced to levels which will not cause interference to existing licensed FSS earth stations.

(2) No fixed unlicensed device shall operate within the sector of a circle around a licensed FSS earth station defined by an arc ± 15° on either side of the FSS earth station antenna boresight and a 180 km radius. Outside of this sector, no fixed device shall operate within 25 km of a licensed FSS earth station.

(c) *Non-fixed devices.* The maximum peak EIRP of non-fixed devices shall not exceed 1 Watt.

(1) The non-fixed device shall employ active interference avoidance mechanisms to detect FSS earth station uplink signals in the bands 5.85–5.925 GHz and 6.425–6.723 GHz.

(2) The non-fixed device shall reduce peak EIRP below 1 Watt in accordance with the receive signal level (RSS) as shown below:

Unlicensed device receive signal strength (R_{SS})	Maximum allowed EIRP
$R_{SS} > -76$ dBm	(not allowed)
-76 dBm $\geq R_{SS} > -79$ dBm	250 mW
-79 dBm $\geq R_{SS} > -82$ dBm	500 mW
-82 dBm $\geq R_{SS}$	1 Watt

(3) For systems having multiple devices operating under a central controller, only the central controller is required to detect FSS earth station uplink signals. The central controller must instruct all devices under its control to reduce transmit EIRP in accordance with the R_{SS} and paragraph (c)(2) of this section.

(d) No device in this band shall be operated within 80 kilometers of the three authorized Government radiolocation stations. See § 2.106, Footnote US348, of this chapter.

(e) *Operation in Border areas.* Fixed devices must be located at least 8 kilometers from the U.S./Canada or U.S./Mexico border if the antenna of that device looks within the 160° sector away for the border. The devices must be located at least 56 kilometers from each border if the antenna looks within the 200° sector towards the border.

(f) Within any one second interval of signal transmission, each unlicensed device must transmit a transmitter identification at least once. The identification must be confined to the 3650–3651 MHz portion of the band. Each application for equipment authorization must declare that the equipment contains the required transmitter identification feature and must specify a method whereby interested parties can obtain sufficient information, at no cost, to enable them to fully detect and decode this transmitter identification information. Upon the completion of decoding, the transmitter identification data block must provide the following fields.

(1) User/owner contact information.

(2) Current physical location of the unlicensed device.

The grantee must implement a method that makes it possible for users to specify and update this data.

[FR Doc. 04–11007 Filed 5–13–04; 8:45 am]
BILLING CODE 6712–01–P