

CC Docket Nos. 96–262, 94–1, 98–157, and CCB/CPD File No. 98–63 are available for public inspection and copying during business hours at the FCC Reference Information Center, Portals II, 445 12th Street, SW., Room CY-A257, Washington, DC 20554. The documents may also be purchased from Qualex International, telephone (202) 863–2893, facsimile (202) 863–2898. This document may also be purchased from Qualex International and is available via the Internet at [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DA-03-3961A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-03-3961A1.pdf).

### Synopsis

1. The Commission on January 8, 2004, released a Public Notice that seeks to refresh the record in the 1999 Access Reform Docket. In this docket, the Commission on August 27, 1999 released the *Access Reform Fifth Report and Order*, published at 64 FR 60122 (November 4, 1999) in CC Docket Nos. 96–262, 94–1, 98–157, and CCB/CPD File No. 98–63, FCC 99–206. This order established a framework for granting greater pricing flexibility for price cap carriers as competition develops. Bell Atlantic, GTE, Access Solutions Corporation, and the United States Telephone Association subsequently filed petitions for reconsideration and clarification of that order.

2. Since then, the Commission has received and granted a number of petitions seeking pricing flexibility. In addition, AT&T recently asked the Commission to revisit pricing flexibility issues, and parties have responded by filing extensive comments.

3. Because the petitions for reconsideration and clarification were filed several years ago, the intervening developments and passage of time may have rendered the records developed by those petitions stale. Issues raised in the pending petitions may have become moot or irrelevant. As a result, it is not clear what issues arising out of the *Access Reform Fifth Report and Order*, if any, remain in dispute.

4. For these reasons, the Commission requests that parties that filed petitions for reconsideration and clarification of the *Access Reform Fifth Report and Order* now file a supplemental notice indicating those issues that they still wish to be reconsidered or clarified. These parties may refresh the record with any new information or arguments that they believe to be relevant to deciding only those issues that they previously raised in their petitions for reconsideration and clarification. To the extent that these parties do not indicate an intent to pursue these petitions, the

Commission will deem them withdrawn and will dismiss them.

Federal Communications Commission.

**Tamara Preiss,**

*Division Chief, Pricing Policy Division,  
Wireline Competition Bureau.*

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## FEDERAL COMMUNICATIONS COMMISSION

### 47 CFR Part 15

[ET Docket No. 03–327; FCC 03–289]

### Interference Temperature Operation

**AGENCY:** Federal Communications Commission.

**ACTION:** Proposed rule.

**SUMMARY:** This document proposes a new interference temperature model for quantifying and managing interference. This new concept could shift the current method for assessing interference, basing it on the actual radio frequency environment. The Notice of Inquiry requests comment, information and research on a number of issues relating to the development and use of the interference temperature metric and for managing a transition from the current transmitter-based approach to the new interference temperature paradigm. The Notice of Proposed Rule Making proposes technical rules that would establish interference temperature limits and procedures for assessing the interference temperature to permit expanded unlicensed operation in the 6525–6700 MHz and 12.75–13.25 GHz bands.

**DATES:** Comments must be filed on or before April 5, 2004, and reply comments must be filed on or before May 5, 2004.

**FOR FURTHER INFORMATION CONTACT:** Gary Thayer, (202) 418–2290, John Reed, (202) 418–2455, or Ahmed Lahjouji, (202) 418–2061, Office of Engineering and Technology.

**SUPPLEMENTARY INFORMATION:** This is a summary of the Commission's *Notice of Inquiry and Notice of Proposed Rule Making*, FCC 03–289, adopted November 13, 2003, and released November 28, 2003. The full text of this document is available for inspection and copying during regular 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, Natek, Inc., 236 Massachusetts Avenue, NE., Suite 110,

Washington, DC 20002. The full text may also be downloaded at: [www.fcc.gov](http://www.fcc.gov). Alternative formats are available to persons with disabilities by contacting Brian Millin at (202) 418–7426 or TTY (202) 418–7365.

Pursuant to §§ 1.415 or 1.419 of the Commission's rules, 47 CFR 1.415, 1.419, interested parties may file comments on or before April 5, 2004, and reply comments on or before May 5, 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 24,121 (1998).

Comments filed through the ECFS can be sent as an electronic file via the Internet at <http://www.fcc.gov/e-file/ecfs.html>. Generally, only one copy of an electronic submission must be filed. If multiple docket or rulemaking numbers appear in the caption of this proceeding, however, commenters must transmit one electronic copy of the comments to each docket or rulemaking number referenced in the caption. In completing the transmittal screen, commenters should include their full name, 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](mailto: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. If more than one docket or rulemaking number appears in the caption of this proceeding, commenters must submit two additional copies for each additional docket or rulemaking number.

All filings must be sent to the Commission's Secretary, Marlene H. Dortch, Office of the Secretary, Federal Communications Commission, The Portals, 445 Twelfth Street, SW., Washington, DC 20554. 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. All filings must be addressed to the Commission's Secretary, Marlene H. Dortch, Office of the Secretary, Federal Communications Commission.

Parties who choose to file by paper should also submit their comments on diskette. Such a submission should be on a 3.5-inch diskette formatted in an IBM compatible format using Microsoft Word or compatible software. The diskette should be accompanied by a cover letter and should be submitted in "read only" mode. The diskette should be clearly labeled with the commenter's name, proceeding (including the lead docket number, type of pleading (comment or reply comment), date of submission, and the name of the electronic file on the diskette). The label should also include the following phrase "Disk Copy—Not an Original." Each diskette should contain only party's pleading, preferably in a single electronic file. In addition, commenters must send diskette copies to the Commission's copy contractor, Qualex International, Portals II, 445 12th Street, SW., Room CY-B402, Washington, DC 20554.

### Summary of Notice of Inquiry and Notice of Proposed Rulemaking

1. The interference temperature concepts introduced in this proceeding were initially developed as part of the Commission's Spectrum Policy Task Force's (Task Force) work on means for improving the management of the radio spectrum to increase the public benefits derived from use of the spectrum resource. In its Report, the Task Force observed that interference management has become more difficult because of the greater density, mobility, and variability of RF transmitters and because users have been granted increased flexibility in using the spectrum. The Task Force presented several recommendations for improving interference management in this changed environment, one of which was for the Commission, as a long term strategy, to shift its paradigm for assessing interference towards an approach that uses real-time adaptation based on actual RF environments, and in particular to adopt a new "interference temperature" metric to quantify and manage interference. The

Commission's Technical Advisory Committee concluded that introduction of the interference temperature concept is a reasonable approach to defining harmful interference as a function of how the spectrum is actually being used and the designs and margins of particular receivers.

2. In the Notice of Inquiry (Inquiry) phase of this proceeding, the Commission requests comment, information, and research on a number of issues relating to the development and use of the interference temperature metric and for managing a possible transition from the current transmitter-based approach for interference management to the new interference temperature paradigm. In particular, it poses questions concerning the development of the interference temperature metric, including the determination of interference temperature limits for specific frequency bands, and an assessment of the cumulative noise and interference environment in radiofrequency bands, including standard methodologies for making assessments, to support the selection of those limits. It also requests responses on issues concerning the process that would be involved in possible transitioning to the new interference control methods in the various frequency bands.

3. A general implementation of the interference temperature approach would involve planning, study of existing RF noise and interference levels and other factors, and transition processes that would take a substantial amount of time to complete. The Commission seeks comment on several steps it could possibly take prior to a general implementation that would bring elements of this new paradigm into use in the near term and thereby provide a test bed for this model that can be studied and evaluated before any broader implementation is considered. Therefore, in the Notice of Proposed Rule Making (NPRM) phase, the Commission seeks comment on technical rules that would establish interference temperature limits and procedures for assessing the interference temperature in specific frequency bands used by fixed satellite uplinks and by terrestrial fixed point-to-point links. It seeks comment on whether the operating circumstances of these facilities will allow for simple and reliable measurement of the interference temperature at a variety of receive sites under diverse situations and circumstances and whether unlicensed devices should be allowed to operate at higher power levels than currently allowed by the rules, so long as they do

not cause the interference temperature to exceed the established limits.

4. *Notice of Inquiry.* For purposes of this new interference management paradigm, interference temperature is defined as a measure of the RF power generated by undesired emitters plus noise sources that are present in a receiver system (I+N) per unit of bandwidth. More specifically, it is the temperature equivalent of this power measured in units of "Kelvin" (K). In principle, interference temperature measurements would be taken at various receiver locations and these measurements would be combined to estimate the real-time condition of the RF environment. For an interference temperature limit to function effectively on an adaptive or real-time basis, a system would be needed to measure the interference temperature in the band and communicate that information to devices subject to the limit, and a response process would also be needed to restrict the operation of devices so as to maintain the interference temperature at or below the level of the limit. The process could take place within an individual device; at the receive sites of a licensed service where the temperature is measured and communicated to a central site, where the interference temperature profile for the region would be computed; or through a grid of monitoring stations that would continuously examine the RF energy levels in specified bands, process that data to derive interference temperatures, and then broadcast that data to subject transmitters on a dedicated frequency, again perhaps with instructions how to respond.

5. There are several actions that could be taken in the event that a device determines that its transmissions would cause the interference temperature limit to be exceeded. One approach would be to select a different transmitting frequency or, if none were available, to cease transmitting until the RF environment changed to a state in which a transmission would no longer cause an unacceptable temperature level. Another approach would be to reduce the transmitter power and/or change the direction or shape of the transmit antenna pattern. These capabilities could be implemented by equipping devices with technology such as automatic transmitter power control (ATPC) or with the ability to electrically re-shape antenna patterns. Combining these approaches, a single device could be designed to scan the range of potential operating frequencies before transmitting, compute an estimate of the amount that their operation would add to the interference temperature on each

frequency, and select among the frequencies that would allow compliant operation. The device would monitor the interference temperature and if the observed level began approaching or exceeded the limit, could lower its power, switch to another frequency, make an antenna adjustment, or cease transmitting as conditions might warrant.

6. The Commission inquires as to the potential costs and benefits of a policy establishing an interference temperature. In particular, it seeks comment on the likely costs and benefits to licensees, equipment manufacturers and other potentially affected entities that could result from the use of the interference temperature approach or other interference management tools. How would the costs and benefits of an interference temperature approach compare to the costs and benefits under the Commission's current spectrum policy? In addition, it seeks comment on whether and how the interference temperature approach could change the current legal framework, regulatory process and general enforcement of rules designed to prevent harmful interference. The Commission recognizes that this new approach to interference management could also present issues of competing rights and interests. However, the Task Force Report suggested that clearly defined rights and responsibilities for all spectrum users, particularly with respect to interference and interference protection, should be considered and established to the extent possible and practical. Comment is sought as to how the Commission can accomplish this objective and avoid long, drawn out interference disputes without detrimentally affecting reasonable expectations of all interested parties, including expectations regarding the Commission's use of its authority to impose conditions, modify licenses and take other steps to promote greater access to, and more efficient use of, the spectrum.

7. Interested parties are invited to submit suggestions for enhancing or modifying the general plan presented above or for alternative approaches. Noting that the Spectrum Task Force indicated that this approach may not be feasible in all bands, commenters are also encouraged to present plans that would tailor interference temperature to specific services. Comment and suggestions also are requested on how to implement such a plan so as to maximize the benefits for all parties, that is, to protect licensees from interference, provide meaningful

benchmark information for equipment and system designers/manufacturers, and opportunities for new operations, including those of unlicensed devices. Commenting parties are also asked to submit information, to the extent it may be available, on the value of these benefits to the respective affected parties. Comment is requested on how this concept could be used to promote more efficient provision of service on a licensed basis and how this should be done. More specifically, how could this approach be used with licensing approaches that make spectrum available on (1) an exclusive basis and (2) a coordinated (shared) basis? Also, what approaches would best allow the Commission to transition to spectrum management by the interference concept in existing occupied spectrum bands? Is there a general metric that can be used to gauge the success of the introduction of the interference temperature devices into a new frequency band? Is there a simple metric that can be used to gauge the effect of these unlicensed devices upon the incumbent services? Should the introduction of interference temperature devices be done in stages to ensure that the incumbent services do not suffer undue interference? If the introduction were to be done in stages how should we limit the initial introduction of interference temperature devices to protect the incumbent systems?

8. Comment is requested on what technological factors should be considered in setting interference temperature limits. In general, the Commission expects that licensees would prefer to see the interference temperature limits in the bands they use set low, while manufacturers and users of unlicensed devices would prefer to see these limits set high. In this regard, comment is requested on the following questions:

- What elements should the Commission consider in setting temperature limits for different bands and locations? The Task Force suggested that some of the factors to be considered in setting temperature limits for a band include: (1) The extent of current use; (2) the types of services being offered; (3) the types of licensees (for example, public safety); (4) the criticality of services and their susceptibility to interference; (5) the state of development of technology; and (6) the propagation characteristics of the band. Comment is requested on whether these factors are appropriate as well as whether other criteria also should be addressed.

- In addition, commenters should address what, if any, technical factors

(*e.g.*, power, field strength at boundary areas, antenna requirements, etc.) should be considered in determining the interference temperature limits for a given service, frequency band and geographic area.

- What applications are expected to be filled by unlicensed devices operating under the interference temperature metric?

- Should factors not specified by the Commission's rules, such as typical modulation types for a given service, be considered? If so, commenters should identify these factors and the rationale for including them.

- How should the factors identified be used to determine interference temperature limits? That is, should each factor be considered equally or are some more important than others? Can an equation be developed that uses the identified factors to calculate a temperature?

- Should all the identified factors be used in all cases? Should some factors only be used in some cases?

Commenters should provide detailed explanations for including or excluding specific factors in various analyses.

- In bands where several services share the spectrum on a primary or secondary basis, should the interference temperature limit be based on all the licensed services or only on the service most susceptible to interference? How would this be determined? Is the I+N of a primary service meaningful to a secondary service?

- Are there minimum receiver performance criteria that should be considered as a reference in setting interference temperature limits? If so, how should the specifications for such a reference receiver be developed? Or should the Commission use the worst receiver available for a service, or an average receiver, in determining temperature limits? How would such a receiver be identified?

- To what extent should noise and emissions from existing licensed and unlicensed transmitters be a factor in setting interference temperature limits? Should the highest current level of I+N be used as a minimum meaningful level for the interference temperature limit or some other statistical representation of measured values?

- What entities should be parties to the process of setting interference temperature limits? What process should these entities follow in determining the temperature limit for a specific band (*e.g.*, each entity gets an equal vote, some entities' votes have more weight than others, etc.)?

- Should the Commission allow private agreements between licensed

and unlicensed users to set interference temperature limits for specific bands and frequencies? If so, are there incentives the Commission could/should provide to licensees to increase the temperature limit over that set by the Commission?

- How often should interference temperature limits be reviewed?

- What processes should the Commission establish for modifying interference temperature limits? In such cases, what criteria should the Commission consider, how should it weigh those criteria, and who should be parties to modification processes?

- Are there some services or bands for which the Commission should continue to use the current interference protection procedures?

9. Comment also is requested on the approaches to be used for measuring interference temperature on a real-time basis and, in the case of temperatures derived from measurements at multiple sites, communicating that information to devices that are required to protect the limit. In this regard, commenting parties are asked to address these questions and issues:

- How should the Commission decide on the type of interference temperature monitoring to be required to provide real-time interference control?

Commenters should identify the costs and benefits of the three monitoring approaches discussed above and how they relate to different services. Commenters are also encouraged to identify other monitoring approaches.

- Should certain monitoring schemes be specified for certain services? Or should this be solely up to the incumbent licensees?

- How would monitoring systems be funded and who would be responsible for their establishment, operation, and maintenance? Commenters should consider vendors or operators of unlicensed devices and network services, users of such equipment and services, and perhaps licensees.

- What principles/criteria would be used to choose the location of monitoring sites?

- How often should the spectrum be monitored? How large a band should be monitored? How should monitoring differ with the type of incumbent services present in a band? What bandwidth should be used for monitoring (e.g., should measurements be taken with a resolution bandwidth of 1 megahertz)?

- What detection functions, e.g., root mean squared (RMS), peak or average, should be applied in performing noise measurements? What integration or averaging time should be employed

with these measurements? What measurement bandwidths are appropriate?

- How would the information from monitoring sites be used to determine real-time interference temperature values for a specific band in a given geographic area and whether established limits were exceeded?

- What spectrum resources should be used to convey monitored temperature information to devices subject to temperature limits? Should dedicated frequencies be used for this purpose?

10. Comment is requested on the actions that devices subject to compliance with interference temperature limits should take if the applicable interference temperature limit is exceeded. In particular, the Commission seeks comment on the state of development of sensory and control equipment that could appropriately govern the action of emitters in response to real-time interference temperature data, e.g., automatic transmitter power control systems. In addressing the following questions, commenters should seek to balance the requirement that the temperature limits are not exceeded against the need for devices to maintain communications.

- What response should a device take if it determines that exceeding an established interference noise temperature limit, e.g., change frequency, reduce power or place itself in a stand-by mode? Should this response be different if the offending device is a stand-alone device or a device designed to respond to a monitoring system?

- Should a graduated response system be used (i.e., should a device iteratively take measures to bring the interference temperature back into the compliant range or should the strongest measures be taken first)?

- If many devices are operating, is it possible to assign responsibility to specific devices if the temperature limit is exceeded and have those devices take measures to ensure that the temperature is brought back to a compliant level?

- Once an offending device takes measures to bring the temperature back to a compliant level, what protocols should be used to determine when that device may resume operating?

- How should noise temperature limits be enforced? Has technology progressed to the level that the limits could be self-enforced by the radio emitters?

#### 11. *Noise floor measurements.*

Comment is requested on how to define the noise floor and whether there are considerations that would justify using slightly different definitions for

different bands and/or services.

Comment, information, and research also are requested on the levels of the noise floor in the various frequency bands and how those levels vary over time and across geographic regions. While noise floor information is useful in administering our interference temperature limits, the Commission also recognizes that measuring and monitoring the noise floor is a substantial, time-consuming, and, in most cases, resource intensive undertaking. It therefore requests comment and suggestions for methods to collect this information on a timely, cost effective basis or to develop acceptable estimates of this information from methods other than continuous direct measurement and monitoring. It further requests comment and suggestions for standard methodologies for collecting and estimating reliable noise floor data that would be consistent with obtaining this data on a timely and cost effective basis. Commenters should be specific regarding the techniques used to measure the noise floor (e.g., providing information regarding spectrum analyzer settings, amount of time monitored, location, etc.)

#### 12. *Determining Harmful Interference.*

More generally, interference can be characterized as an emission from a transmitter that impedes reception of a desired signal to a given recipient. However, as noted above, interference is only considered harmful if it rises to a certain level. In this context, the Commission asks commenters to address the following questions:

- For a given service in a given frequency band, how much interference can be tolerated before it is considered harmful? If the determination of harmful interference would be based on specific quality of service levels, the Commission requests comment on the rationale used to justify the recommended constraints. The commenting parties should note the specific frequency bands and services to which their comments apply.

- When performing interference studies, what assumptions should be made regarding operating scenarios? For example, commenters should address the duty cycle to be assumed for the desired and undesired transmitters. What assumptions should be made about whether and/or what percentage of antennas might be aligned under typical operating conditions such that there is main beam coupling between undesired transmitters and desired receivers?

- Can interference from a transmitter be distinguished from naturally occurring noise?

- Can a statistical approach to developing temperature limits be developed? If so, what parameters need to be developed? How would such an approach be applied?

- Should the interference temperature limit be set at level that quantifies “harmful interference” or some other benchmark, or “safe-harbor” level that would constitute less than harmful interference?

13. *Notice of Proposed Rule Making.* The Commission also seeks comment on whether it may be feasible and desirable to begin the process of introducing the interference temperature approach on a limited basis now in selected bands, even as it begins the study and development activities that will support the more general implementation of this new paradigm. In this regard, it seeks comment on if it is possible to first introduce the interference temperature concept on a limited basis without full implementation of real-time monitoring of the interference temperature or feedback control of transmitters and prior to completion of our studies of the noise floor. The approach used in this first step would establish an “interference temperature” or equivalent metric based upon the communications margins needed by the existing licensed operations and apply restrictions on unlicensed devices that would minimize the likelihood that their operation would result in an increase in interference temperature that could exceed the necessary operating margin of the licensed services. The proposed restrictions on unlicensed devices would include limiting the transmitter output power and requirements to use transmit power control (TPC) and dynamic frequency selection (DFS). In addition, other requirements that might prove beneficial could include limits on the number of unlicensed devices, as well as duty cycle restrictions that would insure that these initial interference temperature experiments do not cause harmful interference to licensed services. As noted, the Commission seeks comment on how these first steps could provide additional opportunities for operation of unlicensed devices and, perhaps more importantly, provide valuable information and experience to guide our formulation of approaches in the next phases of this effort.

14. The Commission proposes to apply the new interference temperature approach described herein to unlicensed operation within the fixed (FS) and fixed satellite service (FSS) uplink band at 6525–6700 MHz and the FS, FSS, and BAS/CARS band at 12.75–13.25 GHz (excluding 13.15–13.2125

GHz). These bands were chosen because the Commission believes they offer the possibility to implement in a simplified way the interference temperature concept and approach. Comment is sought on the appropriateness of these bands and whether additional frequency bands could be suitable for testing the concept of interference temperature.

15. The Commission believes that it is beneficial to look at frequencies where FSS satellite uplinks are the predominant use. In those instances, the licensed receiver being protected is located on the satellite in space. Consequently, the receiver would not be located in close proximity to any potentially interfering unlicensed device. Given the significant distances involved and the typical satellite antenna characteristics, the satellite receiver would “see” the cumulative effect of the RF signals from all unlicensed devices on the ground. Therefore, it is possible to develop a simplified interference temperature approach for the satellite receiver and FSS uplink operations by aggregating the interference contributions of a large number of unlicensed devices over a wide geographic area. Interference temperature is a measure of the RF power generated by undesired emitters plus noise sources that are present at the input of a receiver system (I+N) per unit of bandwidth. Since a satellite-based receiver will generally “see” large geographic areas of the CONUS, it is possible to analytically aggregate the impact of a large number of unlicensed devices on the  $\Delta T/T$  criterion. The Commission’s preliminary analysis indicates that a large number of unlicensed devices, over 53 million in the 6525–6700 MHz band and over 369 million in the 12.75–13.25 GHz band, operating with EIRP emission levels possibly as high as 30 dBm to 36 dBm (1 W to 4 W) could be accommodated without exceeding a reasonable  $\Delta T/T$  “interference temperature” threshold that might be established for FSS systems. Comment is sought on an appropriate interference temperature threshold that will afford sufficient protection to licensed satellite operations, and in particular on whether the 5% value used in the calculations, or another value of  $\Delta T/T$ , for example 3% or 1%, would be more appropriate as well as on the various assumptions made in the link budget analyses, particularly concerning the power emission distributions and other technical characteristics of hypothetical unlicensed operations in the band. If commenters believe that the analysis is flawed or should be conducted

differently or by using different assumptions, detailed technical explanations and accompanying analysis should be submitted to support these claims.

16. The Commission also believes that bands used for certain terrestrial fixed operations would be suitable for our first-step implementation of the interference temperature concept. The key simplifying benefit of dealing with fixed operations is the fact that such operations are generally static and well-defined such that reasonable assumptions can be made about their locations and technical characteristics. In these bands, fluctuations in the interference temperature can be compared to fluctuations in  $C/(I+N)$  or  $(S/I)$ . Once a value for the interference threshold of a typical licensed receiver is established through consideration of the required signal margins, it is possible to utilize a measurement of the ambient fixed signal levels to determine whether operation of an unlicensed device of known characteristics would exceed the “interference temperature” signal threshold for a licensed receiver. This transmit/not transmit decision could be made in real-time by unlicensed devices that incorporate DFS. As implemented here, the DFS threshold of an unlicensed device would be adjusted so that the device would not transmit if the detected fixed signal level exceeds an established threshold. In this manner, the DFS threshold is functionally equivalent to the interference temperature limit. Consequently, the transmit/not transmit decision made by the DFS feature ensures that the  $S/I$  or other chosen metric for licensed receivers is not adversely impacted. Based on conservative assumptions, the Commission calculates that an unlicensed emitter 100 meters away from a 6525–6700 MHz FS receiver should be able to transmit at a power level of as much as 91 dB to 71 dB higher than the level it receives from an FS transmitter without causing harmful interference to the associated FS receiver. Similarly, an unlicensed emitter 100 meters away from a 12.75–13.25 GHz FS receiver should be able to transmit with a power level of as much as 95 dB to 75 dB higher than that received from the FS transmitter without causing harmful interference to the associated FS receiver. These values could be useful in determining the sensitivity of the DFS used with the unlicensed system and seek comment in that regard. Comment is requested on the parameters used in these calculations and whether other

approaches could be used to derive appropriate values for an interference temperature limit in these bands.

17. If unlicensed devices were designed to first monitor (*e.g.*, listen-before-talk, or “sniff”) the authorized spectrum to determine the levels of existing RF emissions, they could employ DFS to adjust their frequency of operation to ensure that operation occurs on unoccupied channels. The detection threshold employed within the DFS could be adjusted to accommodate the overhead margins for unlicensed operations calculated above to ensure that the emissions from the unlicensed emitter do not exceed the interference threshold at the fixed receiver. Comment is sought on requiring a minimum DFS detection threshold of  $-64$  dBm for unlicensed devices operating at output levels equal to or exceeding 23 dBm and  $-62$  dBm for unlicensed devices operating at output levels below 23 dBm. It is proposed that the detection threshold is the received power averaged over 1 millisecond referenced to a 0 dBi antenna. Comment is sought on the merits of and potential problems that might arise from using this real-time monitoring approach. Comments are also sought on alternative methods that could be employed to monitor the RF spectrum signal levels and to control the interference temperature. Should the threshold be referenced to the received power averaged over one millisecond referenced to a 0 dBi antenna? Or should some other reference be used? Detailed technical comments should be submitted to support commenters' positions. Comments also are requested on the bandwidth and time period over which the spectrum should be monitored prior to operation. Also, commenters should provide details regarding how often the spectrum should be monitored after transmission begins. The Commission also requests comment on whether the TPC capability should be required to reduce power by more than 6 dB below the maximum power? If so, to what level? What are the limits of current technology for TPC?

18. The Commission envisions the maximum unlicensed EIRPs in the range of 30 dBm to 36 dBm and believes that sharing between unlicensed devices and these incumbent systems is feasible. It observes that these systems have been able to share in the past by conducting frequency coordination prior to operation. The use of TPC and DFS can automatically mimic this function, but in real time as opposed to manual human coordination activities. The Commission also proposes that unlicensed operations in these bands

comply with an undesirable emission limit such as that set forth in § 15.407(b)(1) of the rules which requires that out-of-band emissions not exceed an EIRP of  $-27$  dBm/MHz. Based on its experience with this emission level for UNII operation, the Commission seeks comment on whether a similar requirement will be beneficial when applied to the out-of-band emissions of unlicensed operations in the 6525–6700 MHz and 12.75–13.25 GHz bands. Comment is requested on whether the nature and value of the emission limit we propose herein would be appropriate. Commenters should discuss whether other out-of-band emission limits should be considered as well and whether additional limits should be specified immediately outside of the operating channel. For example, commenters might wish to address whether another single value limit, or alternatively, multiple value limits graduated by frequency offset would be more appropriate.

19. *Satellite Monitoring of Spectrum Occupancy.* It could be possible for satellites to monitor and make available real-time measured data such as  $\Delta T/T$ ,  $I/N$ ,  $C/I$ ,  $C/(I+N)$  and  $I$  that could then be used by individual devices to adjust their operation to ensure that they do not interfere with other licensed operations. This capability would appear to be feasible since satellites are already being used for real-time, remote monitoring of geophysical, meteorological and environmental conditions on the surface of the earth. Comment is requested on the utility and potential benefits of such a real-time monitoring approach in the two bands discussed, as well as in any other bands where the interference temperature concept could be applied. Comment is requested on how the monitored information could be acquired by unlicensed devices. For example, the information might be provided via broadcast signals (possibly through a subscription service) or other means. One possibility could be that unlicensed equipment operating in this manner would consist of systems controlled by centralized transmitting stations that relay this information. More generally, commenters should indicate whether they believe there is interest in such a system and specify how they envision such a system might work. Comment also is requested on the state of current technology and whether such a system is technically feasible today. If such a system were to exist, what data should be provided to unlicensed devices? Who should operate such a system?

### Initial Regulatory Flexibility Analysis

20. *Initial Regulatory Flexibility Analysis:* As required by the Regulatory Flexibility Act,<sup>1</sup> the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities by the policies and rules proposed in this Notice of Proposed Rule Making (“NPRM”). Written public comments are requested on the 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 54 of the NOI/NPRM. The Commission shall send a copy of this NOI/NPRM, including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.<sup>2</sup>

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

21. This rulemaking proposal is initiated to obtain comments regarding proposed changes to the regulations for radio frequency devices that do not require a license to operate. The Commission seeks to determine if its standards should be amended to permit the expanded operation of unlicensed devices in the 6525–6700 MHz and 12.75–13.25 GHz bands. We believe that it may be necessary to shift our current paradigm for assessing interference from approaches based primarily on transmitter operations towards new approaches that focus on the actual RF environment and interaction between transmitters and receivers, such as the interference temperature metric. In order to begin our exploration of the process that would be involved in a transition to an interference temperature regime, we seek comment on specific technical guidelines in the NPRM portion of our discussion that we believe can be implemented in the near future for selected frequency bands prior to any general implementation of interference temperature limits and real-time adaptation of transmitters to the interference temperature environment.

#### B. Legal Basis

22. The proposed action is taken pursuant to sections 4(i), 301, 302, 303(e), 303(f), 303(r), and 307 of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 301, 302, 303(e), 303(f), 303(r), and 307.

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

23. The RFA directs agencies to provide a description of, and where

<sup>1</sup> See 5 U.S.C. 603.

<sup>2</sup> 5 U.S.C. 603(a).

feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.<sup>3</sup> The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."<sup>4</sup> In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.<sup>5</sup> A "small business concern" is one which: (1) Is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).<sup>6</sup> Nationwide, there are approximately 22.4 million small businesses, total, according to the SBA data.<sup>7</sup>

24. A small organization is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."<sup>8</sup> Nationwide, as of 1992, there were approximately 275,801 small organizations.<sup>9</sup> The term "small governmental jurisdiction" is defined as "governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."<sup>10</sup> As of 1997, there were about 87,453 governmental jurisdictions in the United States.<sup>11</sup> This number includes 39,044 county governments, municipalities, and townships, of which 37,546 (approximately 96.2%) have populations of fewer than 50,000, and of which 1,498 have populations of 50,000 or more. Thus, we estimate the number of small governmental jurisdictions overall to be 84,098 or fewer.

25. The SBA has developed a small business size standard for wireless firms within the two broad economic census

categories of Paging<sup>12</sup> and Cellular and Other Wireless Telecommunications.<sup>13</sup> Under both SBA categories, a wireless business is small if it has 1,500 or fewer employees. For the census category of Paging, Census Bureau data for 1997 show that there were 1320 firms in this category, total, that operated for the entire year.<sup>14</sup> Of this total, 1303 firms had employment of 999 or fewer employees, and an additional 17 firms had employment of 1,000 employees or more.<sup>15</sup> Thus, under this category and associated small business size standard, the majority of firms can be considered small. For the census category Cellular and Other Wireless Telecommunications firms, Census Bureau data for 1997 show that there were 977 firms in this category, total, that operated for the entire year.<sup>16</sup> Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more.<sup>17</sup> Thus, under this second category and size standard, the majority of firms can, again, be considered small.

26. The SBA has established a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing. Under this standard, firms are considered small if they 750 or fewer employees.<sup>18</sup> Census Bureau data for 1997 indicate that, for that year, there were a total of 1,215 establishments in this category.<sup>19</sup> Of those, there were 1,150 that had employment under 500, and an additional 37 that had employment of 500 to 999. Thus, under this size standard, the majority of establishments can be considered small.

27. *Satellite Telecommunications.* The SBA has developed a small business size standard for Satellite Telecommunications Carriers, which consists of all such companies having \$12.5 million or less in annual receipts.<sup>20</sup> In addition, a second SBA size standard for Other Telecommunications includes "facilities operationally connected with one or more terrestrial communications systems and capable of transmitting telecommunications to or receiving telecommunications from satellite systems,"<sup>21</sup> and also has a size standard of annual receipts of \$12.5 million or less. According to Census Bureau data for 1997, there were 324 firms in the category Satellite Telecommunications, total, that operated for the entire year.<sup>22</sup> Of this total, 273 firms had annual receipts of \$5 million to \$9,999,999 and an additional 24 firms had annual receipts of \$10 million to \$24,999,990.<sup>23</sup> Thus, under this size standard, the majority of firms can be considered small. In addition, according to Census Bureau data for 1997, there were 439 firms in the category Satellite Telecommunications, total, that operated for the entire year.<sup>24</sup> Of this total, 424 firms had annual receipts of \$5 million to \$9,999,999 and an additional 6 firms had annual receipts of \$10 million to \$24,999,990.<sup>25</sup> Thus, under this second size standard, the majority of firms can be considered small.

28. As no party currently is permitted to market or operate equipment under the proposed standards, there will be no immediate impact on any small entities. The Commission does not have an estimated number for the small entities that may currently be capable of producing such products but believes that there are only a few in existence.

#### *D. Description of Projected Reporting, Recordkeeping and Other Compliance Requirements for Small Entities*

29. Part 15 transmitters are already required to be authorized under the Commission's certification procedure as a prerequisite to marketing and importation. The reporting and

<sup>12</sup> 13 CFR 121.201, NAICS code 513321 (changed to 517211 in October 2002).

<sup>13</sup> 13 CFR 121.201, NAICS code 513322 (changed to 517212 in October 2002).

<sup>14</sup> U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Employment Size of Firms Subject to Federal Income Tax: 1997," Table 5, NAICS code 513321 (issued Oct. 2000).

<sup>15</sup> *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1,000 employees or more."

<sup>16</sup> U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Employment Size of Firms Subject to Federal Income Tax: 1997," Table 5, NAICS code 513322 (issued Oct. 2000).

<sup>17</sup> *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1,000 employees or more."

<sup>18</sup> 13 CFR 121.201, NAICS code 334220.

<sup>19</sup> U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Industry Statistics by Employment Size," Table 4, NAICS code 334220 (issued August 1999).

<sup>20</sup> 13 CFR 121.201, North American Industry Classification System (NAICS) code 517410 (formerly 513340).

<sup>21</sup> *Id.* NAICS code 517910 (formerly 513390).

<sup>22</sup> U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Receipt Size of Firms Subject to Federal Income Tax: 1997," Table 4, NAICS code 517410 (issued Oct. 2000).

<sup>23</sup> *Id.*

<sup>24</sup> U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Receipt Size of Firms Subject to Federal Income Tax: 1997," Table 4, NAICS code 517910 (issued Oct. 2000).

<sup>25</sup> *Id.*

<sup>3</sup> 5 U.S.C. 603(b)(3).

<sup>4</sup> 5 U.S.C. 601(6).

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

<sup>6</sup> 5 U.S.C. 632.

<sup>7</sup> See SBA, *Programs and Services*, SBA Pamphlet No. CO-0028, at pg. 40 (July 2002).

<sup>8</sup> 5 U.S.C. 601(4).

<sup>9</sup> U.S. Department of Commerce, Bureau of the Census, 1992 Economic Census, Table 6 (special tabulation of data under contract to the Office of Advocacy of the U.S. Small Business Administration).

<sup>10</sup> 5 U.S.C. 601(5).

<sup>11</sup> U.S. Census Bureau, Statistical Abstract of the United States: 2000, Section 9, pgs. 299-300, Tables 490 and 492.

recordkeeping requirements associated with these equipment authorizations would not be changed by the proposals contained in this NPRM. These changes to the regulations would permit the introduction of an entirely new category of radio transmitters.

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

30. The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): “(1) The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities.”<sup>26</sup>

31. As noted, in order to begin our exploration of the process that would be involved in a transition to an interference temperature regime, we seek comment on specific technical guidelines in the NPRM portion of our discussion that we believe can be implemented in the near future for selected frequency bands prior to any general implementation of interference temperature limits and real-time adaptation of transmitters to the interference temperature environment. Currently, no party is permitted to market or operate equipment under the proposed standards, so there will be no immediate impact on any small entities. One alternative to our proposal is reflected in our request for comments on whether it is necessary to preclude expanded unlicensed operation in the 650–6675.2 MHz band to protect radio astronomy operations or whether suitable technical standards can be developed to ensure that interference is not caused. We invite small entities to comment on this alternative.

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

32. None.

33. The proposed action is authorized under sections 4(i), 301, 302a, 303(e), 303(f), 303(r) and 307 of the Communications Act of 1934, as

amended, 47 U.S.C. 154(i), 301, 302, 303(e), 303(f), 303(r) and 307.

Federal Communications Commission.

**Marlene H. Dortch,**

*Secretary.*

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**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**50 CFR Part 648**

[Docket No. 040109009–4009–01; I.D. 121803D]

**RIN 0648–AR79**

**Fisheries of the Northeastern United States; Recordkeeping and Reporting Requirements; Regulatory Amendment to Modify Seafood Dealer Reporting Requirements**

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

**ACTION:** Proposed rule; request for comments.

**SUMMARY:** NMFS proposes measures contained in a regulatory amendment to modify the existing reporting and recordkeeping regulations for federally permitted seafood dealers participating in the summer flounder, scup, black sea bass, Atlantic sea scallop, Northeast (NE) multispecies, monkfish, Atlantic mackerel, squid, butterfish, Atlantic surfclam, ocean quahog, Atlantic herring, Atlantic deep-sea red crab, tilefish, Atlantic bluefish, skates, and/or spiny dogfish fisheries in the NE Region. The purpose of this action is to improve monitoring of commercial landings by collecting more timely and accurate data, enhance enforceability of the existing regulations, promote compliance with existing regulations, and ensure consistency in reporting requirements among fisheries. This action would require daily electronic reporting of all fish purchases by federally permitted dealers; eliminate dealer reporting via the Interactive Voice Response (IVR) system; implement a trip identifier requirement for dealers; require dealers to report the disposition of fish purchased; and modify the dealer reporting requirements for the surfclam and ocean quahog fisheries to make them consistent with the requirements of other fisheries.

**DATES:** Comments on this proposed rule must be received on or before February 20, 2004.

**ADDRESSES:** Copies of the regulatory amendment, its Regulatory Impact Review (RIR), the Initial Regulatory Flexibility Analysis (IRFA), and other supporting materials are available from Patricia A. Kurkul, Regional Administrator, Northeast Region, NMFS, One Blackburn Drive, Gloucester, MA 01930. The regulatory amendment/RIR/IRFA is also accessible via the Internet at

<http://www.nero.nmfs.gov>. Written comments on the proposed rule should be sent to the address above. Mark the outside of the envelope, “Comments on Proposed Rule for Dealer Electronic Reporting.” Comments may also be sent via facsimile (fax) to (978) 281–9135. Comments will not be accepted if submitted via e-mail or the Internet.

Written comments regarding the burden-hour estimates or other aspects of the collection-of-information requirements contained in this proposed rule may be submitted to Patricia A. Kurkul at the above address and by e-mail to [David\\_Rostker@omb.eop.gov](mailto:David_Rostker@omb.eop.gov), or by fax to (202) 395–7285.

**FOR FURTHER INFORMATION CONTACT:** Michael Pentony, Senior Fishery Policy Analyst, (978)281–9283, fax (978)281–9135, email [Michael.Pentony@noaa.gov](mailto:Michael.Pentony@noaa.gov).

**SUPPLEMENTARY INFORMATION:**

**Background**

Regulations implementing the fishery management plans (FMPs) for the summer flounder, scup, black sea bass, Atlantic sea scallop, NE multispecies, monkfish, Atlantic mackerel, squid, butterfish, Atlantic surfclam, ocean quahog, Atlantic herring, Atlantic deep-sea red crab, tilefish, Atlantic bluefish, skates, and spiny dogfish fisheries are found at 50 CFR part 648. These FMPs were prepared under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). All dealers and vessels issued a Federal permit in the aforementioned fisheries must comply with the reporting requirements outlined at § 648.7. Lobster dealers issued a Federal lobster permit, but not issued any of the permits with mandatory reporting requirements, are not required to comply with these reporting regulations, although other reporting requirements may apply. NMFS is proposing to modify several components of these reporting regulations to simplify reporting requirements, improve data quality and data access, maximize compliance, and improve the information available for

<sup>26</sup> 5 U.S.C. 603(c)(1)–(c)(4).