

Source of flooding and location	# Depth in feet above ground. * Elevation in feet (NGVD)	Source of flooding and location	# Depth in feet above ground. * Elevation in feet (NGVD)	Source of flooding and location	# Depth in feet above ground. * Elevation in feet (NGVD)
Robeson (township), Berks County (FEMA Docket No. 7122)		Washington (township), Berks County (FEMA Docket No. 7172)		At downstream county boundary	* 1,666
<i>Allegheny Creek:</i>		<i>West Branch Perkiomen Creek:</i>		Approximately 6.8 miles upstream of confluence of Sloan Branch	* 1,868
At the confluence with Schuylkill River	*175	At a point approximately 0.7 mile downstream of Airport Road	*589	<i>Little River:</i>	
At downstream side of Schuylkill Canal	*175	At a point approximately 0.5 mile downstream of Airport Road	*592	At confluence with New River	* 1,759
<i>Seidel Creek:</i>		Maps available for inspection at the Washington Township Municipal Building, 128 Barto Road, Barto, Pennsylvania.		At upstream county boundary	* 1,836
At confluence with Schuylkill River	*173			<i>Peak Creek:</i>	* 1,836
Approximately 80 feet downstream of State Route 724	*173	West Reading (borough), Berks County (FEMA Docket No. 7172)		Approximately 0.6 mile downstream of the confluence of Thorne Springs Branch	* 1,865
<i>Schuylkill River:</i>		<i>Schuylkill River:</i>		At Town of Pulaski upstream corporate limit	* 1,887
Approximately 3,300 feet upstream of State Route 82 ..	*166	Approximately 1,550 feet downstream of Penn Avenue	*209	Maps available for inspection at the Pulaski County Administration Building, 143 Third Street NW, Suite 1, Pulaski, Virginia.	
Approximately 1,200 feet upstream of confluence of Trout Run	*177	Approximately 1,200 feet upstream of Buttonwood Street	*212		
Maps available for inspection at the Robeson Township Municipal Building, Route 724, Birdsboro, Pennsylvania.		<i>Wyomissing Creek:</i>		(Catalog of Federal Domestic Assistance No. 83.100, "Flood Insurance.")	
		Approximately 150 feet upstream of CONRAIL	*208	Dated: September 4, 1997.	
Spring (township), Berks County (FEMA Docket No. 7172)		Approximately 1,500 feet upstream of Museum Road ...	*223	Michael J. Armstrong,	
<i>Tributary No. 2 to Lauers Run:</i>		Maps available for inspection at the West Reading Borough Hall, 500 Chestnut Street, West Reading, Pennsylvania.		<i>Associate Director for Mitigation.</i>	
Approximately 1,550 feet upstream of Logan Avenue ...	*291			[FR Doc. 97-24208 Filed 9-11-97; 8:45 am]	
Approximately 1,650 feet upstream of Logan Avenue ...	*292	Windsor (township), Berks County (FEMA Docket No. 7172)		BILLING CODE 6718-04-P	
Maps available for inspection at the Spring Township Municipal Building, 2800 Shillington Road, Sinking Spring, Pennsylvania.		<i>Schuylkill River:</i>		FEDERAL COMMUNICATIONS COMMISSION	
		Approximately 3,900 feet downstream of confluence of Kaercher Creek	* 338	47 CFR Parts 1, 2, 26 and 97	
Tilden (township), Berks County (FEMA Docket No. 7172)		Approximately 3,550 feet upstream of Kernsville Dam ..	* 392	[ET Docket No. 93-62; FCC 97-303]	
<i>Schuylkill River:</i>		<i>Maiden Creek:</i>		Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation	
Approximately 1,000 feet downstream of confluence of Mill Creek No. 4	*326	Approximately 1 mile upstream of State Route 143	* 334	AGENCY: Federal Communications Commission.	
At upstream county boundary	*433	At Township Route 745	* 345	ACTION: Final rule.	
Maps available for inspection at the Tilden Township Office, 772 Hex Highway, Hamburg, Pennsylvania.		Maps available for inspection at the Windsor Township Building, 862 Haas Road, Hamburg, Pennsylvania.		SUMMARY: This <i>Second Memorandum Opinion and Order</i> amends the Commission's rules to refine and clarify the decisions adopted in the Report and Order, regarding the use of new guidelines and methods in the evaluation of the environmental effects of RF electromagnetic fields or emissions produced by FCC-regulated transmitters. The Commission believes its decisions provide a proper balance between the need to protect the public and workers from exposure to potentially harmful RF electromagnetic fields and the requirement that industry be allowed to provide telecommunications services to the public in the most efficient and practical manner possible.	
Berks (township), Berks County (FEMA Docket No. 7172)		Womelsdorf (borough), Berks County (FEMA Docket No. 7195)		EFFECTIVE DATE: October 15, 1997.	
<i>Sixpenny Creek:</i>		<i>Tulpehocken Creek:</i>		FOR FURTHER INFORMATION CONTACT: Robert F. Cleveland, Office of Engineering and Technology, Federal	
At confluence with Schuylkill River	*157	Approximately 150 feet downstream of U.S. 422 bridge	* 359		
Approximately 400 feet upstream of CONRAIL	*159	Approximately 1,500 feet upstream of U.S. 422 bridge	* 361		
<i>Schuylkill River:</i>		Maps available for inspection at the Womelsdorf Borough Hall, 101 West High Street, Womelsdorf, Pennsylvania.			
At downstream county boundary	*148				
Approximately 1,200 feet downstream of confluence of Hay Creek	*161	VIRGINIA			
Maps available for inspection at the Union Township Municipal Building, 177 Center Road, Douglassville, Pennsylvania.		Pulaski County (unincorporated Areas) (FEMA Docket No. 7211)			
		<i>Claytor Lake/New River:</i>			

Communications Commission, (202) 418-2464.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Second Memorandum Opinion and Order*, ET Docket 93-62, FCC 97-303, adopted August 25, 1997, and released August 25, 1997. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Reference Center (Room 239), 1919 M Street, N.W., Washington, D.C., and also may be purchased from the Commission's duplication contractor, International Transcription Service, (202) 857-3800, 2100 M Street, N.W., Suite 140, Washington, D.C. 20037.

Summary of the Memorandum Opinion and Order

1. In this *Second Memorandum Opinion and Order*, we are amending our rules to refine and clarify the decisions adopted August 1, 1996, in the *Report and Order*, 61 FR 41006, August 7, 1996, regarding the use of new guidelines and methods in the evaluation of the environmental effects of RF electromagnetic fields or emissions produced by FCC-regulated transmitters. This *Second Memorandum Opinion and Order* responds to petitions for reconsideration and/or clarification filed in this proceeding. In reaching our decisions, we have considered carefully the petitions and comments that were received in this proceeding. We believe our decisions provide a proper balance between the need to protect the public and workers from exposure to potentially harmful RF electromagnetic fields and the requirement that industry be allowed to provide telecommunications services to the public in the most efficient and practical manner possible. Specifically, we are: (1) Affirming the RF exposure limits that were previously adopted; (2) modifying in a few areas our policy that categorically excludes certain transmitters from routine environmental evaluation; and (3) revising and clarifying our guidelines regarding RF emissions involving multiple transmitter facilities. We are also adopting a number of minor changes and clarifications.

2. In the *Report and Order*, the Commission adopted limits for Maximum Permissible Exposure (MPE) and localized, partial-body exposure of humans based on criteria published by the National Council on Radiation Protection and Measurements (NCRP) and by the American National Standards Institute/Institute of Electrical and Electronics Engineers,

Inc. (ANSI/IEEE). The *Report and Order* also modified the Commission's policy on categorical exclusions that exempts many radio services and transmitters from routine environmental evaluation for RF exposure. In accordance with Section 704 of the Telecommunications Act of 1996, the *Report and Order* followed Congressional direction with respect to completion of the docket in this proceeding. The new rules became effective immediately; however, a transition period (originally to January 1, 1997) was provided for implementation of the new requirements for transmitters other than portable and mobile devices.

3. A *First Memorandum Opinion and Order*, adopted on December 23, 1996, 62 FR 3232, January 22, 1997, addressed comments in those petitions requesting extension of the transition provisions of the *Report and Order* and extended the transition period to September 1, 1997 (January 1, 1998 for amateur stations). This *Second Memorandum Opinion and Order* addresses the other issues raised in the petitions, including whether we should: (1) Reconsider the RF exposure limits originally adopted; (2) reconsider our policy on categorical exclusion of certain transmitters from routine evaluation for compliance with our guidelines; (3) modify our policy with respect to evaluation of RF exposure at multiple transmitter sites; (4) revise our policy with respect to routine evaluation for SMR transmitters; and (5) broaden our authority to preempt state and local regulations concerning RF exposure.

4. Some petitioners ask that we reconsider our previous decision not to adopt ANSI/IEEE C95.1-1992 in its entirety. Several other petitioners claim that the limits we adopted were not protective enough. The staff believes that no new and compelling justifications have been provided that would warrant a modification of the limits adopted in the *Report and Order*. Those limits were crafted to address concerns about ANSI/IEEE C95.1-1992 that had been raised by several agencies of the Federal Government with responsibility for health and safety. Furthermore, all of these agencies have written letters to the Commission supporting our new guidelines. We believe that the limits adopted in the *Report and Order* provide a proper balance between the need to protect the public and workers from exposure to excessive RF electromagnetic fields and the need to allow communications services to readily address growing marketplace demands.

5. The Commission's environmental rules identify particular categories of

existing or proposed transmitters or facilities for which licensees and applicants are required to conduct routine environmental evaluations to determine whether these transmitters or facilities comply with our RF guidelines. Other transmitting facilities are categorically excluded from these rules because we have judged them to offer little potential for causing exposures in excess of the applicable guidelines. In the *Report and Order*, we revised our rules related to this policy of categorical exclusion based on our own calculations and analyses of the implications of the new limits, along with information and data acquired during the proceeding. Whereas previously we had categorically excluded entire service categories, such as paging and cellular transmitters, the *Report and Order* concluded that some transmitting facilities, regardless of service, may offer the potential for causing exposures in excess of MPE limits.

6. Several petitioners ask that we return to our earlier policy of categorical exclusion for entire services. However, these petitioners present no new evidence that would lead us to change our basic premise for categorical exclusion. We continue to believe that it is desirable and appropriate to categorically exclude from routine environmental evaluation only those transmitting facilities that offer little or no potential for exposure in excess of our limits. However, some transmitting facilities, regardless of service, offer the potential for causing exposures in excess of MPE limits because of such factors as their relatively high operating power, location or relative accessibility, and these facilities should not be categorically excluded from routine evaluation.

7. Except in a few limited areas, we do not believe it is appropriate to modify the categorical exclusion policies adopted in the *Report and Order*. We are modifying our policy related to unlicensed millimeter-wave devices that do not meet the definition of a portable device and unlicensed and licensed PCS and other mobile devices operating above 1.5 GHz. Secondly, we are revising the 50-watt threshold for routine evaluation of amateur radio stations so that it reflects the manner in which the RF exposure limits change in the different amateur frequency bands. We are also revising categorical exclusions currently based on the height of the antenna radiation center above ground so that they are based on the height of the lowest portion of the antenna above ground. In addition to these areas, we are revising our policy

on categorical exclusions for SMR transmitters so that all SMR operations are covered, and we are changing our definition of "rooftop" so that antennas that are mounted on the sides of buildings or otherwise don't fit the previous definition will be considered, if appropriate.

8. Several petitioners argue that our policy regarding evaluation at sites with multiple FCC-regulated transmitters is overly burdensome. Our rules state that when the RF exposure limits are exceeded in an accessible area due to the RF fields of multiple fixed transmitters, actions necessary to bring the area into compliance are the shared responsibility of all licensees whose transmitters produce power densities in excess of 1% of the exposure limit applicable to their transmitter. After considering the various arguments, we conclude that the 1% level should be changed. We concur that a 1% level is difficult to measure or calculate. We believe that a 5% threshold represents a more reasonable and supportable compromise, by offering relief to relatively low-powered site occupants who do not contribute significantly to areas of non-compliance and, at the same time, by providing for the appropriate allocation of responsibility among major site emitters.

9. Some petitioners request that the Commission broaden its preemptive authority beyond the category of "personal wireless services" authorized in the Telecommunications Act of 1996. Based upon the current record in this proceeding, we find that there is insufficient evidence at this time to warrant our preempting state and local actions that are based on concerns over RF emissions for services other than those defined by Congress as "personal wireless services." However, additional issues concerning preemption of state and local regulations involving advanced television facilities have been raised in a Petition for Further Rulemaking filed by the National Association of Broadcasters which will be considered in a separate proceeding.

10. Several additional petitions were received in response to our earlier *First Memorandum Opinion and Order* extending the transition period for fixed stations and transmitters. Some petitioners request that we end the transition period immediately because of the potential for large scale exposure of the public to harmful RF emissions. Others argue that additional time is needed to consider the Commission's response to earlier petitions relating to OET Bulletin 65 on RF compliance. This bulletin will be released simultaneously with this Order. In order to provide

applicants and licensees with sufficient time to review the final version of the bulletin, we will extend the initial transition period to October 15, 1997. The transition period for the Amateur Radio Service, only, will remain the same, and will end on January 1, 1998.

11. Finally, we are revising our rules to require that existing sites and transmitters come into compliance with the new guidelines as of a date certain. Accordingly, we will require all existing facilities, operations and devices to comply with the new FCC RF guidelines no later than September 1, 2000.

Revised Final Regulatory Flexibility Analysis

Second Memorandum Opinion and Order

12. As required by section 603 of the Regulatory Flexibility Act, 5 U.S.C. § 603 (RFA), an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the Notice of Proposed Rule Making (NPRM) in ET Docket 93-62. The Commission sought written public comments on the proposals in the NPRM, including on the IRFA. In the *Report and Order* in this proceeding, the Commission adopted a Final Regulatory Flexibility Analysis (FRFA). Petitions for reconsideration were filed in response to the *Report and Order* by seventeen parties. Several technical and legal issues have been raised in the petitions and subsequent comments. In addition, several petitions have raised questions about the original FRFA. The *First Memorandum Opinion and Order* in this proceeding, and the associated FRFA, addressed those petitions and comments requesting extension of the transition period specified in the *Report and Order* as well as the comments that were made on the original FRFA contained in the *Report and Order*. This *Second Memorandum Opinion and Order*, including this FRFA, addresses the other issues raised in the petitions. The FRFA conforms to the RFA, as amended by the Contract With America Advancement Act of 1996 (CWAAA), Public Law 104-121, 110 Stat. 847 (1996).

I. Need for and Purpose of This Action

13. The National Environmental Policy Act (NEPA) of 1969 requires agencies of the Federal Government to evaluate the effects of their actions on the quality of the human environment. To meet its responsibilities under NEPA, the Commission has adopted revised radiofrequency (RF) exposure guidelines for purposes of evaluating potential environmental effects of RF electromagnetic fields produced by

FCC-regulated facilities. The new guidelines reflect more recent scientific studies of the biological effects of RF electromagnetic fields. Use of these new guidelines will ensure that the public and workers receive adequate protection from exposure to potentially harmful RF electromagnetic fields. This *Second Memorandum Opinion and Order* addresses a number of concerns that were raised in petitions and comments received in response to the *Report and Order*.

II. Summary of Issues Raised by the Public Comments in Response to the Initial Regulatory Flexibility Analysis (IRFA)

14. No comments were filed in direct response to the IRFA. In general comments on the NPRM, however, some commenters raised issues that might affect small entities. These issues were discussed in the FRFA contained in the *Report and Order* in this proceeding.

III. Summary of Issues Raised Regarding the Final Regulatory Flexibility Analysis (FRFA) by the Petitions, Motions, and Comments in Response to the Report and Order

15. The American Radio Relay League, Inc., Paging Network, Inc., and the Personal Communications Industry Association raised concerns in their petitions, motions and comments regarding the FRFA that was associated with the *Report and Order*. Those concerns were addressed in the revised FRFA contained in the *First Memorandum Opinion and Order* in this proceeding.

IV. Description and Estimate of the Small Entities Subject to the Rules

16. The rules being adopted in this *Second Memorandum Opinion and Order* apply to twelve industry categories and services. All but one of these industry categories and services was described in the FRFA accompanying the *First Memorandum Opinion and Order* in this proceeding. The RFA generally defines the term "small business" as having the same meaning as the term "small business concern" under the Small Business Act, 15 U.S.C. § 632. Based on that statutory provision, we will consider a small business concern 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). The RFA SBREFA provisions also apply to nonprofit organizations and to governmental organizations. Since the Regulatory Flexibility Act amendments

were not in effect until the record in this proceeding was closed, the Commission was unable to request information regarding the number of small businesses within each of these services or the number of small businesses that would be affected by this action. We have, however, made estimates based on our knowledge about applications that have been submitted in the past. To the extent that a government entity may be a licensee or an applicant, the impact on those entities is included in the estimates for small businesses below.

17. Under the new rules adopted in the *Report and Order* and in this *Second Memorandum Opinion and Order*, many radio services are categorically excluded from having to determine compliance with the new RF exposure limits. This exclusion is based on a determination that there is little potential for these services causing exposures in excess of the limits. Within the following services that are not categorically excluded in their entirety, many transmitting facilities are categorically excluded based on antenna location and power. These categorical exclusions significantly reduce the burden associated with these rules, and may reduce the impact of these rules on small businesses. Furthermore, the extension of the transition periods contained in the *First Memorandum Opinion and Order* will reduce the impact on applicants, particularly small businesses, by allowing them adequate time to understand the new requirements and ensure that their facilities are in compliance with them in a orderly and reasonable manner.

18. As noted above, descriptions and estimates of all of the categories and services for small entities subject to our rules, except one, were previously given in the FRFRA that accompanied the *First Memorandum Opinion and Order*. Therefore, that document should be consulted for this information. Information on the one additional category not included in the earlier FRFRA, radiofrequency devices, is given below. Minor edits were also made in the section of the previous FRFA for satellite communications services, and the revised section is also given below.

A. Satellite Communications Services

19. The Commission has not developed a definition of small entities applicable to satellite communications licensees. Therefore, the applicable definition of small entity is the definition under the Small Business Administration (SBA) rules applicable to Communications Services, Not Elsewhere Classified. This definition provides that a small entity is expressed

as one with \$11.0 million or less in annual receipts.

20. Because the Regulatory Flexibility Act amendments were not in effect until the comment period for this proceeding was closed, the Commission was unable to request information regarding the number of licensees in the international services discussed below that meet this definition of a small business. Thus, we are providing an estimate of licensees that constitute a small business.

21. Fixed Satellite Earth Stations. Fixed satellite earth stations include international and domestic earth stations operating in the 4/6 GHz, 11/12/14 GHz and 20/30 GHz bands. There are approximately 4200 earth station authorizations, a portion of which are Fixed Satellite Earth Stations. Although we were unable to request the revenue information, we estimate that some of the licensees of these earth stations would constitute a small business under the SBA definition.

22. Fixed Satellite Small Earth Stations. Small transmit/receive earth stations operate in the 4/6 GHz frequency bands with antennas that are two meters or less in diameter. There are 4200 earth station authorizations, a portion of which are Fixed Satellite Small Earth Stations. Although we were unable to request the revenue information, we estimate that some of the fixed satellite small earth stations would constitute a small business under the SBA definition.

23. Fixed Satellite Very Small Aperture Terminal (VSAT) Systems. VSAT systems operate in the 12/14 GHz frequency bands. Although various size small aperture antenna earth-stations may be used, all stations of a particular size must be technically identical. Because these stations operate on a primary basis, frequency coordination with terrestrial microwave systems is not required. Thus, a single "blanket" application may be filed for a specified number of small antennas and one or more hub stations. The Commission has processed 377 applications for fixed satellite VSAT systems. At this time, we are unable to make a precise estimate of the number of small businesses that are VSAT system licensees and could be impacted by this action.

24. Mobile Satellite Earth Stations. Mobile satellite earth stations are intended to be used while in motion or during halts at unspecified points. These stations operate as part of a network that includes a fixed hub station or stations. The network may provide a variety of land, maritime and aeronautical voice and data services. There are 8 mobile satellite licensees. At this time, we are unable to make a

precise estimate of the number of small businesses that are mobile satellite earth station licensees and could be impacted by this action.

25. Radio Determination Satellite Earth Stations. A radio determination satellite earth station is used in conjunction with a radio determination satellite service (rdss) system for the purpose of providing position location information. These stations operate as part of a network that includes a fixed hub station or stations and operate in the frequency bands (1610–1626.5 MHz and 2483.5–2500 MHz) allocated to rdss. At this time, we are unable to make a precise estimate of the number of small businesses that are radio determination satellite earth station licensees and could be impacted by the forfeiture guidelines.

26. It should be noted that in most of the satellite areas discussed above, the Commission issues one license to an entity but generally issues blanket license authority for thousands or even hundreds of thousands of earth stations or hand held transceivers. Overall, the Commission receives about 600 applications for satellite facilities per year. All applicants for satellite earth stations (except for receive-only stations) must make a determination of compliance with the RF exposure limits, based on calculations or measurements.

B. Radiofrequency Devices

27. The radiofrequency devices affected by this rulemaking are low power, unlicensed transmitters that will be used to provide, on millimeter wave frequencies, a variety of services, including vehicle collision avoidance and high data rate/short range wireless data communications. Unlicensed personal communications service (PCS) transmitters are also radiofrequency devices. Radiofrequency devices are subject to compliance with the new RF radiation requirements at the time of equipment authorization. Therefore, it will be the equipment manufacturers and importers who will be affected by this action.

28. We expect most of the firms that would be interested in producing millimeter wave and unlicensed PCS devices will be large businesses. We note that Ford Motor and Hewlett Packard have expressed interest in millimeter wave devices and filed comments in this proceeding. In addition, Motorola and Ericsson, both large equipment manufacturers, have expressed interest in manufacturing unlicensed PCS devices. Nevertheless, it is conceivable that small businesses will also want to manufacture these devices.

29. The Commission has not developed a definition of small entities applicable to radiofrequency devices. Therefore, the applicable definition of small entity is the definition under the SBA applicable to the "Communications Services, Not Elsewhere" category. A small millimeter wave device or unlicensed PCS entity under this definition is one with less than \$11.0 million in annual receipts.

30. The Commission has not yet authorized any millimeter wave devices, and has authorized fewer than fifteen unlicensed PCS devices. Both these services are new, so we really don't know how many applications for equipment authorization we may receive, nor how many small manufacturers may be interested in producing these products. Since the Regulatory Flexibility Act amendments were not in effect until the record in this proceeding was closed, the Commission was unable to request information regarding the number of small businesses in this category. The Census Bureau estimates indicate that of the 848 firms in the "Communications Services, Not Elsewhere" category, 775 are small businesses. Based on this information, as well as our past experience in granting equipment authorization for other types of radiofrequency devices, we estimate that 50 percent of the applications for millimeter wave and unlicensed PCS devices will be from small businesses.

31. The Commission anticipates that approximately 30 applications will be filed annually for devices that operate in the millimeter band and unlicensed PCS spectrum. An initial determination of compliance with our new RF guidelines will be required for: (1) Applications for unlicensed PCS devices that do not meet our definition for a portable device contained in 47 CFR § 2.1093(b) and that operate with 1.5 watts effective radiated power (ERP) or more; (2) applications for portable unlicensed PCS devices; (3) applications for unlicensed millimeter wave devices that do not meet our definition for a portable device and that operate with 3 watts ERP or more; and (4) applications for portable unlicensed millimeter wave devices. We anticipate that 20 of the 30 applications filed will meet these requirements and need to undergo an initial determination of compliance. Of these devices, ten will require specific absorption rate (SAR) modeling or measurement, which adds cost to the authorization process.

V. Summary of Projected Reporting, Recordkeeping and Other Compliance Requirements

32. No new reporting, recordkeeping, or other compliance requirements are contained in this *Second Memorandum Opinion and Order*.

VI. Steps Taken to Minimize the Economic Impact on Small Entities

33. We have made every effort to devise ways to minimize the impact of the new RF exposure requirements on small entities, while protecting the health and safety of the public. We have incorporated substantial flexibility in the procedures to make compliance as minimally burdensome as possible.

In particular, we took the following steps in the *Report and Order* to ease the impact on small businesses:

a. We created categorical exclusions that require only those transmitters that appear to have the highest potential to create a significant environmental effect to perform an environmental evaluation.

b. We indicated that we would revise OST Bulletin No. 65 in the near future to provide guidance for determining compliance with FCC-specified RF limits. This should be of particular assistance to small businesses since it will provide straightforward information that should allow a quick understanding of the requirements and a quick assessment of the potential for compliance problems without the need for an expensive consultant or measurement.

c. We allowed various methods for ensuring compliance with RF limits such as fencing, warning signs, labels, and markings, locked doors in roof-top areas, and the use of personal monitors and RF protective clothing in an occupational environment.

d. We rejected our initial proposal to adopt induced and contact currents limits due to the lack of reliable equipment available.

e. We specified a variety of acceptable testing methods and procedures that may be used to determine compliance. This will allow each small business to choose a procedure that best meets its needs in the manner that is least burdensome to it.

f. We have always allowed multiple transmitter sites, i.e., antenna farms, to pool their resources and have only one study done for the entire site. This is very common at sites that have multiple entities such as TV, FM, paging, cellular, etc. In most circumstances, rather than each licensee hiring a separate consultant and submitting a study showing their compliance with the guidelines, one consulting radio

technician or radio engineer can be hired by the group of licensees. The consultant surveys the entire site for compliance and gives his recommendations and findings to each of the licensees at the site. The licensees can then use the findings to show their compliance with the guidelines. In this way the cost of compliance is minimized as no one licensee has to pay the entire consulting fee, rather just a portion of it.

34. In this *First Memorandum Opinion and Order*, we took the following additional steps to reduce the burden on small businesses and organizations:

a. We extended the transition period for station applicants to come into compliance with the new requirements. This will give licensees, and applicants for new stations many of which may be small businesses, more time to learn the nature of the new requirements, make studies to determine whether they comply, and take steps to come into compliance if necessary.

b. We decided to permit the required changes in the ARS examinations to be made as the examinations are being routinely revised. This ensures that a minimal burden is put on the small organizations acting as VECs.

35. In this *Second Memorandum Opinion and Order*, we have taken these additional steps to reduce the burden on small businesses and organizations:

a. We categorically excluded from routine environmental evaluation certain non-portable, unlicensed millimeter wave and PCS devices. This eliminates the need for these devices to undergo detailed evaluation before the devices undergo equipment authorization.

b. We increased the responsibility threshold, above which licensees at multiple transmitter locations must share responsibility for addressing RF exposure non-compliance problems, from 1% to 5%. We believe that a 5% responsibility threshold will offer relief to relatively low-powered site occupants who do not contribute significantly to the non-compliance and, at the same time, provide for the appropriate allocation of responsibility among major site emitters. Similarly, we are raising the filing thresholds, above which applicants must file an EA if emissions from the applicant's transmitter or facility would result in a field strength or power density in excess of our limits, from 1% to 5%. Report to Congress: The Commission shall send a copy of this Final Regulatory Flexibility Analysis, along with this *Report and Order*, in a report to Congress pursuant to the Small Business Regulatory Enforcement

Fairness Act of 1996, 5 U.S.C. § 801(a)(1)(A). A copy of this FRFA will also be published in the **Federal Register**.

(c) Before causing or allowing an amateur station to transmit from any place where the operation of the station could cause human exposure to RF electromagnetic field levels in excess of those allowed under § 1.1310 of this chapter, the licensee is required to take certain actions.

(1) The licensee must perform the routine RF environmental evaluation prescribed by § 1.1307(b) of this chapter, if the transmitter PEP exceeds the following limits:

List of Subjects

47 CFR Part 1

Radio, Reporting and recordkeeping requirements.

47 CFR Part 2

Radio, Reporting and recordkeeping requirements.

47 CFR Part 26

Radio.

47 CFR Part 97

Radio, Reporting and recordkeeping requirements.

Rule Changes

Title 47 of the Code of Federal Regulations, parts 1, 2, 26 and 97, are amended as follows:

PART 1—PRACTICE AND PROCEDURE

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

Authority: 47 U.S.C. 151, 154, 303 and 309(j), unless otherwise noted, and Section 704 of the Telecommunications Act of 1996.

2. Section 1.1307 is amended by revising paragraphs (b)(1), (b)(2), (b)(3) and (b)(4) introductory text and by adding paragraph (b)(5) to read as follows:

§ 1.1307 Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.

* * * * *

(b) * * *

(1) The appropriate exposure limits in § 1.1310 and § 2.1093 of this chapter are generally applicable to all facilities, operations and transmitters regulated by the Commission. However, a determination of compliance with the exposure limits in § 1.1310 or § 2.1093 of this chapter (routine environmental evaluation), and preparation of an EA if the limits are exceeded, is necessary only for facilities, operations and transmitters that fall into the categories listed in table 1, or those specified in paragraph (b)(2) of this section. All other facilities, operations and transmitters are categorically excluded from making such studies or preparing an EA, except as indicated in

paragraphs (c) and (d) of this section. For purposes of table 1, "building-mounted antennas" means antennas mounted in or on a building structure that is occupied as a workplace or residence. The term "power" in column 2 of table 1 refers to total operating power of the transmitting operation in question in terms of effective radiated power (ERP), equivalent isotropically radiated power (EIRP), or peak envelope power (PEP), as defined in § 2.1 of this chapter. For the case of the Cellular Radiotelephone Service, subpart H of part 22 of this chapter; the Personal Communications Service, part 24 of this chapter and the Specialized Mobile Radio Service, part 90 of this chapter, the phrase "total power of all channels" in column 2 of table 1 means the sum of the ERP or EIRP of all co-located simultaneously operating transmitters owned and operated by a single licensee. When applying the criteria of table 1, radiation in all directions should be considered. For the case of transmitting facilities using sectorized transmitting antennas, applicants and licensees should apply the criteria to all transmitting channels in a given sector, noting that for a highly directional antenna there is relatively little contribution to ERP or EIRP summation for other directions.

TABLE 1.—TRANSMITTERS, FACILITIES AND OPERATIONS SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

Service (title 47 CFR rule part)	Evaluation required if
Experimental Radio Services (part 5)	Power > 100 W ERP (164 W EIRP).
Multipoint Distribution Service (subpart K of part 21).	<i>Non-building-mounted antennas:</i> height above ground level to lowest point of antenna < 10 m and power > 1640 W EIRP. <i>Building-mounted antennas:</i> power > 1640 W EIRP.
Paging and Radiotelephone Service (subpart E of part 22).	<i>Non-building-mounted antennas:</i> height above ground level to lowest point of antenna < 10 m and power > 1000 W ERP (1640 W EIRP). <i>Building-mounted antennas:</i> power > 1000 W ERP (1640 W EIRP).
Cellular Radiotelephone Service (subpart H of part 22).	<i>Non-building-mounted antennas:</i> height above ground level to lowest point of antenna < 10 m and total power of all channels > 1000 W ERP (1640 W EIRP). <i>Building-mounted antennas:</i> total power of all channels > 1000 W ERP (1640 W EIRP).
Personal Communications Services (part 24)	(1) Narrowband PCS (subpart D): <i>non-building-mounted antennas:</i> height above ground level to lowest point of antenna < 10 m and total power of all channels > 1000 W ERP (1640 W EIRP). <i>Building-mounted antennas:</i> total power of all channels > 1000 W ERP (1640 W EIRP). (2) Broadband PCS (subpart E): <i>non-building-mounted antennas:</i> height above ground level to lowest point of antenna < 10 m and total power of all channels > 2000 W ERP (3280 W EIRP). <i>Building-mounted antennas:</i> total power of all channels > 2000 W ERP (3280 W EIRP).
Satellite Communications (part 25)	All included.
General Wireless Communications Service (part 26).	Total power of all channels > 1640 W EIRP.
Wireless Communications Service (part 27)	Total power of all channels > 1640 W EIRP.
Radio Broadcast Services (part 73)	All included.
Experimental, auxiliary, and special broadcast and other program distributional services (part 74).	Subparts A, G, L: power > 100 W ERP. Subpart I: <i>non-building-mounted antennas:</i> height above ground level to lowest point of antenna < 10 m and power > 1640 W EIRP. <i>Building-mounted antennas:</i> power > 1640 W EIRP.
Stations in the Maritime Services (part 80)	Ship earth stations only.

TABLE 1.—TRANSMITTERS, FACILITIES AND OPERATIONS SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION—Continued

Service (title 47 CFR rule part)	Evaluation required if
Private Land Mobile Radio Services Paging Operations (part 90).	<i>Non-building-mounted antennas:</i> height above ground level to lowest point of antenna < 10 m and power > 1000 W ERP (1640 W EIRP). <i>Building-mounted antennas:</i> power > 1000 W ERP (1640 W EIRP).
Private Land Mobile Radio Services Specialized Mobile Radio (part 90).	<i>Non-building-mounted antennas:</i> height above ground level to lowest point of antenna < 10 m and total power of all channels > 1000 W ERP (1640 W EIRP). <i>Building-mounted antennas:</i> Total power of all channels > 1000 W ERP (1640 W EIRP).
Amateur Radio Service (part 97)	Transmitter output power > levels specified in §97.13(c)(1) of this chapter.
Local Multipoint Distribution Service (subpart L of part 101).	<i>Non-building-mounted antennas:</i> height above ground level to lowest point of antenna < 10 m and power > 1640 W EIRP. <i>Building-mounted antennas:</i> power > 1640 W EIRP. LMDS licensees are required to attach a label to subscriber transceiver antennas that: (1) provides adequate notice regarding potential radiofrequency safety hazards, e.g., information regarding the safe minimum separation distance required between users and transceiver antennas; and (2) references the applicable FCC-adopted limits for radiofrequency exposure specified in §1.1310 of this chapter.

(2) Mobile and portable transmitting devices that operate in the Cellular Radiotelephone Service, the Personal Communications Services (PCS), the Satellite Communications Services, the General Wireless Communications Service, the Wireless Communications Service, the Maritime Services (ship earth stations only) and the Specialized Mobile Radio Service authorized under subpart H of parts 22, 24, 25, 26, 27, 80, and 90 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use, as specified in §§2.1091 and 2.1093 of this chapter. Unlicensed PCS, unlicensed NII and millimeter wave devices are also subject to routine environmental evaluation for RF exposure prior to equipment authorization or use, as specified in §§15.253(f), 15.255(g), and 15.319(i) and 15.407(f) of this chapter. All other mobile, portable, and unlicensed transmitting devices are categorically excluded from routine environmental evaluation for RF exposure under §§2.1091 and 2.1093 of this chapter except as specified in paragraphs (c) and (d) of this section.

(3) In general, when the guidelines specified in §1.1310 are exceeded in an accessible area due to the emissions from multiple fixed transmitters, actions necessary to bring the area into compliance are the shared responsibility of all licensees whose transmitters produce, at the area in question, power density levels that exceed 5% of the power density exposure limit applicable to their particular transmitter or field strength levels that, when squared, exceed 5% of the square of the electric or magnetic field strength limit applicable to their particular transmitter. Owners of transmitter sites are expected to allow applicants and

licensees to take reasonable steps to comply with the requirements contained in §1.1307(b) and, where feasible, should encourage co-location of transmitters and common solutions for controlling access to areas where the RF exposure limits contained in §1.1310 might be exceeded.

(i) Applicants for proposed (not otherwise excluded) transmitters, facilities or modifications that would cause non-compliance with the limits specified in §1.1310 at an accessible area previously in compliance must submit an EA if emissions from the applicant's transmitter or facility would result, at the area in question, in a power density that exceeds 5% of the power density exposure limit applicable to that transmitter or facility or in a field strength that, when squared, exceeds 5% of the square of the electric or magnetic field strength limit applicable to that transmitter or facility.

(ii) Renewal applicants whose (not otherwise excluded) transmitters or facilities contribute to the field strength or power density at an accessible area not in compliance with the limits specified in §1.1310 must submit an EA if emissions from the applicant's transmitter or facility results, at the area in question, in a power density that exceeds 5% of the power density exposure limit applicable to that transmitter or facility or in a field strength that, when squared, exceeds 5% of the square of the electric or magnetic field strength limit applicable to that transmitter of facility.

(4) *Transition Provisions.* For applications filed with the Commission prior to October 15, 1997, (or January 1, 1998, for the Amateur Radio Service only), Commission actions granting construction permits, licenses to transmit or renewals thereof, equipment

authorizations, or modifications in existing facilities require the preparation of an Environmental Assessment if the particular facility, operation or transmitter would cause human exposure to levels of radiofrequency radiation that are in excess of the requirements contained in paragraphs (b)(4)(i) through (b)(4)(iii) of this section. These transition provisions do not apply to applications for equipment authorization or use of mobile, portable and unlicensed devices specified in paragraph (b)(2) of this section.

* * * * *

(5) *Existing transmitting facilities, devices and operations:* All existing transmitting facilities, operations and devices regulated by the Commission must be in compliance with the requirements of paragraphs (b)(1) through (b)(3) of this section by September 1, 2000, or, if not in compliance, file an Environmental Assessment as specified in §1.1311.

* * * * *

**PART 2—FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS
GENERAL RULES AND REGULATIONS**

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

Authority: Sec. 4, 302, 303 and 307 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154, 302, 303 and 307, unless otherwise noted.

2. Section 2.1091 is amended by revising the section heading, paragraphs (b), (c) and (d)(3) and adding new paragraph (d)(4) to read as follows:

§2.1091 Radiofrequency radiation exposure evaluation: mobile devices.

* * * * *

(b) For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

(c) Mobile devices that operate in the Cellular Radiotelephone Service, the Personal Communications Services, the Satellite Communications Services, the General Wireless Communications Service, the Wireless Communications Service, the Maritime Services and the Specialized Mobile Radio Service authorized under subpart H of part 22 of this chapter, part 24 of this chapter, part 25 of this chapter, part 26 of this chapter, part 27 of this chapter, part 80 of this chapter (ship earth stations devices only) and part 90 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if they operate at frequencies of 1.5 GHz or below and their effective radiated power (ERP) is 1.5 watts or more, or if they operate at frequencies above 1.5 GHz and their ERP is 3 watts or more. Unlicensed personal communications service devices, unlicensed millimeter wave devices and unlicensed NII devices authorized under § 15.253, § 15.255, and subparts D and E of part 15 of this chapter are also subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if their ERP is 3 watts or more or if they meet the definition of a portable device as specified in § 2.1093 (b) requiring evaluation under the provisions of that section. All other mobile and unlicensed transmitting devices are categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, except as specified in §§ 1.1307(c) and 1.1307(d) of this chapter. Applications for equipment authorization of mobile and unlicensed transmitting devices subject to routine environmental evaluation must contain a statement confirming compliance with the limits specified in paragraph (d) of

this section as part of their application. Technical information showing the basis for this statement must be submitted to the Commission upon request.

(d) * * *

(3) If appropriate, compliance with exposure guidelines for devices in this section can be accomplished by the use of warning labels and by providing users with information concerning minimum separation distances from transmitting structures and proper installation of antennas.

(4) In some cases, e.g., modular or desktop transmitters, the potential conditions of use of a device may not allow easy classification of that device as either mobile or portable (also see § 2.1093). In such cases, applicants are responsible for determining minimum distances for compliance for the intended use and installation of the device based on evaluation of either specific absorption rate (SAR), field strength or power density, whichever is most appropriate.

3. Section 2.1093 is amended by revising paragraphs (b), (c) and (d) introductory text to read as follows:

§ 2.1093 Radiofrequency radiation exposure evaluation: portable devices.

* * * * *

(b) For purposes of this section, a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

(c) Portable devices that operate in the Cellular Radiotelephone Service, the Personal Communications Services, the Satellite Communications services, the General Wireless Communications Service, the Wireless Communications Service, the Maritime Services and the Specialized Mobile Radio Service authorized under subpart H of part 22 of this chapter, part 24 of this chapter, part 25 of this chapter, part 26 of this chapter, part 27 of this chapter, part 80 of this chapter (ship earth station devices only), part 90 of this chapter, and portable unlicensed personal communication service, unlicensed NII devices and millimeter wave devices authorized under § 15.253, § 15.255 or subparts D and E of part 15 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use. All other portable transmitting devices are categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, except as specified in §§ 1.1307(c) and 1.1307(d) of this chapter. Applications

for equipment authorization of portable transmitting devices subject to routine environmental evaluation must contain a statement confirming compliance with the limits specified in paragraph (d) of this section as part of their application. Technical information showing the basis for this statement must be submitted to the Commission upon request.

(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate ("SAR") in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE C95.1-1992, Copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter. Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

* * * * *

PART 26—GENERAL WIRELESS COMMUNICATIONS SERVICE

1. The authority citation for part 26 continues to read as follows:

Authority: 48 Stat. 1066, 1082, as amended; 47 U.S.C. §§ 154, 303. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. §§ 151-155, 301-609, unless otherwise noted.

2. Section 26.51 is amended by removing paragraph (d).

3. Section 26.52 is revised to read as follows:

§ 26.52 RF safety.

Licensees and manufacturers are subject to the radiofrequency radiation exposure requirements specified in § 1.1307(b), § 2.1091 and § 2.1093 of this chapter, as appropriate. Applications for equipment authorization of mobile or portable devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

PART 97—AMATEUR RADIO SERVICE

1. The authority citation for part 97 continues to read as follows:

Authority: 48 Stat. 1066, 1082, as amended; 47 U.S.C. §§ 154, 303. Interpret or apply 48 Stat. 1064–1068, 1081–1105, as amended; 47 U.S.C. §§ 151–155, 301–609, unless otherwise noted.

2. Section 97.13 is amended by revising paragraph (c) to read as follows:

§ 97.13 Restrictions on station location.

* * * * *	
Wavelength band	Transmitter power (watts)
MF	
160 m	500
HF	
80 m	500
75 m	500
40 m	500
30 m	425
20 m	225
17 m	125
15 m	100
12 m	75
10 m	50
VHF (all bands)	50
UHF	
70 cm	70
33 cm	150
23 cm	200
13 cm	250

Wavelength band	Transmitter power (watts)
SHF (all bands)	250
EHF (all bands)	250

(2) If the routine environmental evaluation indicates that the RF electromagnetic fields could exceed the limits contained in § 1.1310 of this chapter in accessible areas, the licensee must take action to prevent human exposure to such RF electromagnetic fields. Further information on evaluating compliance with these limits can be found in the FCC's OET Bulletin 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields."

Federal Communications Commission.

William F. Caton,

Acting Secretary.

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