FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 1, 2, 18

[ET Docket No. 19–226; FCC 19–126; FRS 16618]

Human Exposure to Radiofrequency Electromagnetic Fields

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: In this document, the Federal Communications Commission (Commission) seeks comment on expanding the range of frequencies for which its radiofrequency (RF) exposure limits apply; on applying localized exposure limits above 6 GHz in parallel to the localized exposure limits already established below 6 GHz; on specifying the conditions and methods for averaging the RF exposure, in both time and area, during evaluation for compliance with the RF exposure limits in the rules; on addressing new RF exposure issues raised by wireless power transfer (WPT) devices; and on the definition of a WPT device.

DATES: Comments are due on or before May 6, 2020, and reply comments are due on or before May 21, 2020.

ADDRESSES: Interested parties may submit comments and replies, identified by ET Docket No. 19–226, by any of the following methods:

- *Federal Communications Commission's Website: http://fjallfoss.fcc.gov/ecfs2/.* Follow the instructions for submitting comments.
- *Mail:* Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.
- *People with Disabilities:* Contact the Commission to request reasonable accommodations (accessible format documents, sign language interpreters, CART, etc.) by email: *FCC504@fcc.gov* or phone: 202–418–0530 or TTY: 202–418–0432.

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

FOR FURTHER INFORMATION CONTACT: Martin Doczkat, email: *martin.doczkat@fcc.gov* of the Office of Engineering and Technology Electromagnetic Compatibility Division; the Commission's RF Safety Program, *rfsafety@fcc.gov;* or call the Office of Engineering and Technology at (202) 418–2470. For information regarding the Paperwork Reduction Act (PRA) information collection requirements contained in this document, contact Nicole Ongele, Office of Managing Director, at (202) 418–2991 or *Nicole.Ongele@fcc.gov.*

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Notice of Proposed Rulemaking (*NPRM*), ET Docket No. 19–226, FCC 19–126, adopted November 27, 2019 and released December 4, 2019. The complete text of the document is available for public inspection and copying from 8:00 a.m. to 4:30 p.m. Eastern Time (ET) Monday through Thursday or from 8:00 a.m. to 11:30 a.m. on Fridays in the FCC Reference Center, 445 12th Street SW, Room CY–A257, Washington, DC 20554. The complete text of the document is also available electronically on the Commission's website at *https://www.fcc.gov/engineering-technology* or by using the search function on the Commission's Electronic Comment Filing System (ECFS) web page at *https://fcc.gov/cgb/ecfs/* or on the FCC's Electronic Document System (EDOCS) web page at *https://apps.fcc.gov/edocs.* Alternative formats (Braille, large print, electronic files, audio format) are available to persons with disabilities by sending an email to *fcc504@fcc.gov* or by calling the Consumer & Governmental Affairs Bureau at (202) 418–0530 (voice), (202) 418–0432 (tty).

Comment Filing Procedures

Pursuant to §§ 1.415 and 1.419 of the Commission's rules, 47 CFR 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings,* 63 FR 24121 (1998).

- *Electronic Filers:* Comments may be filed electronically using the internet by accessing the ECFS: *http://fjallfoss.fcc.gov/ecfs2/.* Filers should follow the instructions provided on the website for submitting comments. In completing the transmittal screen, filers should include their full name, U.S. Postal Service mailing address, and the applicable docket number, ET Docket No. 19–226.
- *Paper Filers:* Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

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

- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Dr., Annapolis Junction, Annapolis, MD 20701.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street SW, Washington, DC 20554.

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

Ex Parte Rules—Permit-But-Disclose

Pursuant to § 1.1200(a) of the Commission's rules, this *NPRM* shall be treated as a ''permit-but-disclose'' proceeding in accordance with the Commission's *ex parte* rules. Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with § 1.1206(b). In proceedings governed by § 1.49(f) or for which the Commission

has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (*e.g.,* .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

Initial Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act of 1980 (''RFA''), the Commission has prepared this present Initial Regulatory Flexibility Analysis (''IRFA'') of the possible significant economic impact on a substantial number of small entities of the policies and rules proposed in the *NPRM.* The Commission requests written public comment on this IRFA. Comments must be filed in accordance with the same deadlines as comments filed in response to the *NRPM* and must have a separate and distinct heading designating them as responses to the IRFA. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of this *NPRM,* including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration, in accordance with the Regulatory Flexibility Act.

Paperwork Reduction Act of 1995

The *NPRM* contains proposed new or modified information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general Public, the Office of Management and Budget (OMB), and other federal agencies to comment on the proposed information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104–13. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107–198, see 44 U.S.C. 3506(c)(4), the Commission seeks specific comment on how it might further reduce the information collection burden for small business concerns with fewer than 25 employees.

Synopsis

I. Introduction

1. This *NPRM* focuses on developing a record encompassing RF exposure limits and compliance issues raised by recent developments in technology that have changed the way wireless devices are used, frequency bands of operation, how supporting wireless infrastructure is deployed, and how RF sources are assessed for compliance with the Commission's existing RF exposure limits. These recent developments include using millimeter-wave and submillimeter-wave frequencies for mobile applications, devices that can time-average their power output to increase transmission efficiency, adaptive array antennas used by fluctuating multi-beam sources, and devices that can transfer power wirelessly. These and other similar applications of RF energy being developed raise questions as to how to determine compliance with the RF exposure limits. This *NPRM* seeks comment on the Commission's proposals to apply RF exposure limits in additional frequency ranges beyond those currently specified in the Commission's RF exposure rules; on applying localized exposure limits above 6 GHz, in parallel with the existing localized exposure limits below 6 GHz; on specifying the conditions and methods for averaging RF exposure, in both time and area, during evaluation for compliance with the rules; and on addressing new issues raised by WPT devices.

2. This *NPRM* proposes methods and seeks comment on how to best incorporate new RF technologies, new methods and techniques for RF transmission, and new usages for a variety of spectrum bands into the Commission's preexisting exposure framework. In particular, on the topic of body-worn spacing during testing of cell phones, the Commission continues to strive to ensure that such spacing represents realistic values for present-day technology and common usage. As part of this effort, the Commission explores the issue of approval for equipment using new methods and technologies.

A. Extension of Exposure Limits to Additional Frequencies

3. The Commission's existing RF exposure rules provide for evaluation of the specific absorption rate (SAR) exposure level within the frequency range of 100 kHz to 6 GHz, and for evaluation of maximum permissible exposure (MPE) field strength and power density within the frequency range of 300 kHz to 100 GHz. The standards for localized SAR that are normally applied for testing compliance of consumer devices operating below 6 GHz were derived from the whole body limits; the Commission currently employs a similar derivation to apply localized limits where appropriate for testing consumer devices above 6 GHz. However, this approach is not formalized in the Commission's rules. Previously, the Commission sought comment on whether it should establish specific exposure limits and protocols outside the frequency ranges presently used for evaluation of SAR and/or MPE. Further, some inductive wireless chargers operate at frequencies below 100 kHz, and Commission staff have been approached by parties seeking guidance on how to determine compliance for wireless car chargers generally operating at similarly low frequencies.

4. The Commission is aware of three existing guidelines for RF exposure that extend to frequencies below 100 kHz: International Commission on Non-Ionizing Radiation Protection (ICNIRP) *Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields (1Hz—100 kHz)* (2010); Institute of Electrical and Electronic Engineers, Inc. (IEEE) *Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz* (IEEE Std C95.1–2005) and *Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz* (IEEE Std C95.1–2019); and Health Canada Safety Code 6—*Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3 kHz to 300 GHz* (2015). While these guidelines are aimed at prevention of electrostimulation due to electric fields induced internally within the human body in the presence of an external electromagnetic field outside the body and have similar values for limiting the internal electric field (E_i), they have different approaches to the dosimetry used to derive their respective MPE limits on external fields from those E_i values. The Commission seeks comment on the significance of the difference between these guidelines.

5. While each of the standards appears to provide appropriate E_i guidelines, the ICNIRP 2010 guidelines are the most widely accepted from an international perspective. The Commission proposes to adopt limits on E_i similar to the ICNIRP 2010 guidelines into its rules for frequencies between 3 kHz to 10 MHz. The Commission does not propose to apply these guidelines below 3 kHz. The Commission seeks comments on these proposals and other relevant and authoritative standards that commenters deem appropriate for consideration.

6. The Commission proposes to overlay ICNIRP 2010 electrostimulation limits for E_i on its existing SAR limits for frequencies between 100 kHz and 10

MHz. Because of the fast response time of neural stimulation relative to heating, it is appropriate to apply electrostimulation limits without time averaging (in addition to time-averaged SAR limits) to fields at frequencies well above 100 kHz. This proposal would place E_i alongside SAR as a co-primary limit between 100 kHz and 10 MHz (*i.e.,* both Ei and SAR limits must be met between 100 kHz and 10 MHz). The Commission does not propose to amend or extend its MPE limits on external fields. By not amending or extending MPE limits on external fields, the Commission's policy that MPE limits are secondary remains intact. Guidance on how to comply with both limits within this frequency range may be developed as necessary for particular applications. The Commission proposes that its policy on recommended best practices for evaluation techniques to comply with both E_i and SAR in the frequency range between 100 kHz and 10 MHz should be contained in its Bulletins and in other supplemental materials, such as the Commission's Office of Engineering and Technology Laboratory's Knowledge Database (KDB). The Commission seeks comment on these proposed numerical limits and on the guidance for demonstrating compliance with such limits.

7. Although the radio spectrum is managed up to 3,000 GHz (3 THz), the Commission's exposure limits are currently specified only up to 100 GHz. The Commission is unaware of any reason the limits should be different above 100 GHz. As frequency increases up to 3,000 GHz (3 THz), body penetration is reduced and ultimately approaches zero. Accordingly, there is no reason to expect that thermal effects will effectively change at the increasingly higher frequencies. Accordingly, the Commission proposes to extend the same constant exposure limits that presently apply from 6 GHz to 100 GHz up to an upper frequency of 3,000 GHz (3 THz), which is considered to be the upper bound of existing radiofrequency bands. Starting at 300 GHz or a wavelength of 1,000 micrometers (μm), standards have been developed for lasers primarily for application in industrial settings. In an effort by standards bodies to match the laser standards, RF limits have been increased at millimeter wave frequencies; however, the Commission does not feel it is appropriate to relax its limits at higher frequencies for exposure from consumer communication devices, considering the already minimal skin depth at 100 GHz. Accordingly, the Commission proposes to extend its existing exposure limits to 3,000 GHz (3 THz) to stay ahead of the possibility of technologies being introduced that are nascent or unknown today. The Commission notes that most of the services being contemplated in the Spectrum Horizons proceeding in ET Docket No. 18–21 operate within the 95–275 GHz frequency range, but there may be other potential applications or services being contemplated above this frequency range. The Commission seeks comment on this proposal. Specifically, it seeks comment on the frequency range over which these proposed limits would apply.

B. Localized Exposure Limits for Higher Frequencies

8. New technologies that employ techniques such as adaptive array antennas created by fluctuating multi-beam sources create complex energy fields that present challenges for current RF measurement methods. Because portable devices are being developed for operation at higher frequencies for future 5G services, the Commission proposes a localized exposure limit above 6 GHz of 4 mW/cm^2 averaged over 1 cm^2 for the general population, applicable up to the upper frequency boundary of 3 THz, and seeks comment on this proposal. The Commission notes that both the ICNIRP guidelines and the IEEE standards specify a spatial maximum power density of 20 times the whole-body MPE limit (*e.g.,* between 3 and 10 GHz), generally averaged over 1 cm^2. The Commission proposes a localized exposure limit above 6 GHz for occupational settings of 20 mW/cm^2 averaged over 1 cm^2, which is consistent with the typical ratio of 5:1 for the occupational limits relative to the general population limits. The Commission tentatively concludes not to adopt an extremity limit at this time.

9. The proposed general population localized power density value of 4 mW/cm^2 matches the exposure limit specified at 6 GHz in the IEEE Std C95.1–1991 standard referenced in the Commission's rules. Based on planar models, this standard suggests that a power density of 4 mW/cm^2 just above 6 GHz is consistent with the Commission's 1-gram SAR limit of 1.6 W/kg at 6 GHz. Also, the thermal perception threshold at frequencies approaching 100 GHz for large areas of exposure is indicated at about 4 mW/cm^2. Maintaining 4 mW/cm^2 across the entire frequency range of 6 GHz to 3 THz will avoid any potential discontinuity between SAR and power density limits at 6 GHz, while also preventing the possibility of perception of warmth at higher millimeter-wave frequencies. The Commission seeks comment on all elements of this proposal, and on whether its lower-power exemptions above 6 GHz should be changed for a localized power density limit in this frequency range.

10. Recognizing the ongoing work in standards bodies to establish an in-tissue power density in lieu of free-space power density—analogous to SAR below 6 GHz—the Commission also seeks comment on whether it should instead adopt such a limit, and if so what that limit should be, or if it should withhold consideration of an in-tissue power density limit until after the standards have been published at a later date. Commenters may also propose other approaches for determining appropriate exposure limits at higher frequencies, with an analysis and justification for using any such protocol.

C. Averaging Area for Higher Frequencies

11. In the *2016 Spectrum Frontiers R&O and FNPRM,* the Commission acknowledged as reasonable a spatial averaging area of 20 cm^2 for power density above 10 GHz—as provided by ICNIRP for a whole-body exposure limit. However, as the Commission continues to consider this issue, it finds little support in the technical literature for specifying a large averaging area with respect to the whole-body limit when an averaging area for a spatial maximum limit for localized exposure is stipulated. Moreover, ICNIRP maintains an averaging area of 1 cm^2 for spatial maximum power densities over the frequency range of 10 GHz to 300 GHz. There is growing consensus that a range of from one to a few square centimeters would be a more appropriate averaging area for localized spatial maximum power density limits rather than the much larger values (20 cm^2 or 100 cm^2) that are provided for the whole-body limits in recent published versions of technical standards, *e.g.,* ICNIRP and IEEE.

12. For the reasons noted, the Commission proposes a 1 cm^2 averaging area to be applicable to localized exposure conditions where the averaged power density would not exceed 4 mW/cm^2 for the general population (20 mW/cm^2 for occupational settings). The 1 cm^2 area is approximately the same size as any of the surfaces of a 1-g cube used for portable device SAR evaluation below 6 GHz in the Commission's rules, and the Commission notes that this is the guidance that the FCC Laboratory currently offers for pertinent equipment authorizations. The Commission invites comment on this proposal. It also seeks comment on whether it may also be

appropriate to specify a spatial peak limit coupled with this 1 cm^2 averaging area to avoid significant excursions under actual non-uniform exposure conditions on a millimeter scale. The Commission is aware that this 1 cm^2 averaging area is generally smaller than the actual size of antenna arrays being contemplated for use by millimeter-wave portable devices, and it seeks comment on whether this factor presents insuperable or significant difficulties, and on other technically valid and practical alternatives.

D. Transmitter-Based and Device-Based Time-Averaging

13. Recent technology has been developed to allow for the optimization of the time-averaged transmit power of a device over a predefined time window, using past transmit power levels as a reference to determine the maximum time-averaged SAR over that period. Based on the device's own management of time-averaged SAR, a maximum allowable transmit power for a future fixed time interval would be determined. The device would then operate at a power equal to or less than the maximum allowable transmit power, depending on factors such as the amount of data to be transmitted and network conditions. The device would either back off from a higher transmit power to a lower power when the calculated time-averaged SAR approaches the SAR limit, or the device could transmit at a higher power when the device gains an additional margin between the calculated time-averaged SAR and the SAR limit. The recent generation of wireless devices (*e.g.,* 4G LTE) transmit in short bursts that are variable depending on operational network and user demands. The Commission's current rules for source-based time-averaging do not account for the variable nature of such transmissions. The technology being developed utilizes both the power level and the time-averaging duration in a dynamic manner, depending on the operating conditions of the device, to determine SAR compliance in real time. For example, a device could temporarily increase power to accommodate a high upload rate and/or poor propagation conditions, and then reduce power during less demanding periods based on the available SAR margin for the designated time-averaging period.

14. The Commission proposes that such active accounting and control of the instantaneous output power of the device be defined as *device-based time averaging* in its rules, because the Commission expects, especially for portable devices with multiple transmitters, that the cumulative transmissions from all RF sources in the device be accounted for in the SAR margin calculations. The Commission recognizes that a device may have a plurality of RF sources, some of which might be power-controlled by the device and others which might not, and so it seeks comment on how to reliably and predictably distinguish any such device from a conventional device intending to be certified under its existing source-based time-averaging rules.

15. The Commission seeks comment on whether to permit this device-based time averaging where the instantaneous transmit power and duration of each transmission burst can be managed by the device over some time period in a way that will ensure compliance with the RF exposure rules. It also seeks input as to what specifications it should adopt that will confirm compliance and be applied clearly and consistently to devices coming on the market. The Commission proposes to allow a practical extension of its existing ''source-based'' definition in its rules to include ''device-based'' time averaging. The Commission proposes to add this definition to distinguish such a device from those devices already being authorized, and recognizes its responsiveness and applicability to an individual RF source while compliance is ultimately controlled by the device itself, based on the device tracking transmission bursts and power levels over time.

16. It is unclear how SAR measurement results based on static conditions at certain power levels may be applied to support device compliance for dynamic conditions where both operational and user exposure conditions are continuously changing. It will be necessary to select the various parameters for applying source-based time-averaging to non-periodic transmissions that are random and dynamic, which can be influenced by device operating configurations, network and propagation conditions, and user operating conditions to ensure that the final measured exposure values still provide sufficient margins for various use configurations. The Commission seeks comment on the range and type of parameters that should be considered to apply the proposed time-averaging principles. For example, is it possible to develop one or more standard transmission sequences that would reasonably replicate typical operating conditions? Alternatively, would the averaging be demonstrated through modeling of the device's software or firmware, and how would this modeling be implemented? How will the Commission determine that the device software and/or firmware achieve compliance? The Commission seeks comment on the above and any other factors as they may relate to consideration of device-based time-averaging in the equipment authorization process.

17. With respect to the appropriate time-averaging period, the Commission notes two references for specifying time-averaging limits: (1) The ICNIRP standard that provides for averaging over 6 minutes at 10 GHz, and reduces to 10 seconds at 300 GHz on a complex basis; and (2) the IEEE standard that provides for an averaging time of 25 minutes at 6 GHz, dropping to 10 seconds at 300 GHz. However, since the Commission does not limit temporal-peak SAR or power density, all of the energy available in a time-averaging period could be deposited in an instant, resulting in a well-defined temperature rise, yet still be compliant with the rules. Thus, using the extended time-averaging periods of 6 or 30 minutes as set forth in the Commission's rules in other contexts, or either of the alternative time windows specified by ICNIRP and IEEE, could allow for inappropriate temperature rises in extreme cases when intense exposure occurs for only a brief period. By reducing the time-averaging period, the maximum possible temperature rise can be limited to a reasonable magnitude. The potential temperature rise (ΔT) due to an impulse exposure is proportional to the product of the allowed continuous-spatial-peak SAR (SAR_{csp}) and the time-averaging period (Δt), so that a maximum time-averaging period (Δt) can be calculated from a specified temperature rise (ΔT) from $\Delta t = c \cdot \Delta T / SAR_{csp}$ where c is the specific heat of tissue. SAR_{csp} at higher frequencies occurs at the skin surface, and it is dependent on the SAR or power density limit (for this calculation 1.6 mW/g or 4.0 mW/cm^2), as well as the depth of energy absorption into tissue. In turn, the depth of absorption is frequency-dependent. Determination of SAR_{csp} was approached with standard calculations using a planar model of uniform dry skin. Based on this approach, 100 seconds is a supportable averaging time up to about 3 GHz, with smaller averaging times down to one second at higher frequencies. This would permit a device to actively track its RF emissions while limiting potential temperature rise in tissue due to an impulse to a value of about 0.1°C, less than would be perceptible by the general population. Therefore, the Commission proposes and seeks comment on the following

maximum time windows to be allowed for any frequency for devices seeking to implement device-based time averaging techniques:

PROPOSED MAXIMUM AVERAGING TIMES FOR DEVICE-BASED TIME-AVERAGING

Frequency (GHz)	< 2.9	2.9–7.125	7.125–10.5	10.5–15.4	15.4–24	24–37	37–53	53–95	>95
Time (seconds)	100	49	27	14	7	4	3	2	1

In deriving this table, as a matter of simplicity and practicality, the Commission considered the bands and bandwidths it expects will be utilized for various types of devices and services, and developed distinct parameters for each frequency range. The Commission seeks comment on this approach and whether it has best delineated these frequency ranges for the purpose of time-averaging limits. Any comment should include a rigorous technical analysis in support of the position that is advocated.

E. Wireless Power Transfer Devices

18. *Definition.* WPT devices have been authorized for several years under the Commission's Part 15 rules or Part 18 rules, depending on whether any communication functionality is provided between the transmitting unit (TU) and the receiving unit (RU). These new and enhanced WPT products will seek an ubiquitous position in modern households and workplaces, and will require unique considerations in the equipment authorization process. Accordingly, the Commission proposes to define WPT devices under Part 18 of its rules as follows: A wireless power transfer (WPT) device is a category of Industrial, Scientific, and Medical (ISM) equipment which generates and emits RF energy for local use by inductive, capacitive, or radiative coupling, for transfer of electromagnetic energy between a power transfer unit (TU) and receiving unit(s) (RU) of a WPT system.

19. The Commission seeks comment on the proposed definition. Is there an alternative definition that would better reflect the technological developments in this area? It also seeks to allow non-communications feedback—for example, the RU modulates its resistance to create a ''feedback'' to the TU to indicate its charge level—as being compliant with Part 18 rules. Based on the distinction between locally-operated wireless power transfer equipment and wireless power transfer equipment that operates at a distance, should the Commission also consider a separate definition for wireless power transfer equipment that provides for the charging of receiving units located at a distance from the transfer unit, as this type of equipment may not meet the above proposed definition for ''local'' operation? The Commission invites comments and input on these issues.

20. *Locally operated wireless power transfer systems.* Part 18 allows the use of potentially unlimited power if a device operates within a designated Industrial, Scientific and Medical (ISM) frequency band, so long as the device operates ''locally.'' Because the Commission's rules do not define what would constitute ''local'' usage, measurement and compliance challenges arise in assessing wireless power transfer devices that provide charging of receiving units located at a distance from the wireless power transfer transmitting unit. The Commission seeks comment on whether the term ''local'' should be defined in terms of distance between the transmitting and receiving units. If the Commission defines ''local'' based on this distance, what is the maximum distance between the transmitting and receiving units that should be considered as ''local'' operation?

21. The Commission notes that the International Special Committee on Radio Interference (CISPR) is considering a definition for the primary device of a wireless power transfer system that states that the term ''local'' is used differently in the context of wireless power transfer from other ISM devices: ''for the case of WPT systems that operate inductively, 'local' may imply that the separation distance between the primary (TU) and secondary (RU) WPT devices should not be greater than 50 centimeters (cm).'' Based on CISPR's proposal, should the Commission use 50 cm as the maximum distance for wireless power transfer devices that operate ''locally'' (excluding wireless power transfer at-a-distance devices, as discussed below) under Part 18?

22. *Wireless power transfer at-a-distance.* The Commission seeks comment on a suitable definition and operating parameters for wireless power transfer devices that provide charging of receiving units located at a distance from the power transfer unit (*i.e.,* 50 cm or greater), with future developments intended at distances suitable for room-size operation, and while the RU is in motion. This would cover wireless power transfer devices that do not meet the definition of a locally operated wireless power transfer device, *i.e.,* within a proposed maximum distance between the transmitting and receiving unit(s) as discussed above. Should the Commission consider the size and coherence of the electromagnetic field created, rather than its distance from the transmitting unit? The challenge with these types of wireless power transfer devices is that charging at a distance can create an RF field distribution in three dimensions with an undefined or varying beam shape depending on the design. Moreover, the location of maximum RF exposure will be an area where various beams intersect, and the direction/location and intensity of the beams can change with the location of the target receiving unit(s). Instead—or in addition—should the size and/or shape of the maximum field determine whether the energy is used in reference to the distance between the transmitting unit and any receiving unit(s)? What parameters should be used for such a consideration?

23. The Commission further seeks comment on what factors it should consider to ensure that the RF beam from the transmitting unit is closely concentrated at the receiving unit, such that RF energy along the path(s) does not exceed the applicable RF exposure limit for any human that may be situated along the path(s), or create the potential for harmful interference to other services. How should the Commission evaluate compliance of wireless power transfer at-a-distance devices with potential movements of humans in the RF field and the potential for very close proximity of the receiving unit to humans? The Commission believes that these devices should comply with its rules under all operating conditions, including movements of people around and in the field. Should the Commission propose to establish frequency bands and power limits specifically for wireless power transfer at-a-distance devices either under Part 15 or Part 18 of its rules, including operation in designated ISM frequency bands (instead of allowing unlimited power in these bands, as Part 18 currently permits)? If the Commission establishes power limits, what should be the basis for such limits, and should any consideration be given

to potential harmful interference to other non-part 18 devices, given the popularity of these ISM frequency bands for consumer devices? With respect to the potential for harmful interference from wireless power transfer devices to active medical devices that may be worn or implanted (*e.g.,* body worn insulin pumps, implantable cardiac pacemakers, implantable deep brain stimulators (DBS), spinal cord stimulators, and the like), what mitigation techniques should be required?

24. Finally, the Commission seeks input on the following issues: Under what category of spectrum use should the Commission consider wireless power transfer, *e.g.,* either ISM under Part 18, Part 15, or new rule part? What radio frequency bands are most suitable for wireless power transfer? What steps are required to ensure that radiocommunication services, including the radio astronomy service, as well as active medical devices, as indicated above, are protected from wireless power transfer operations?

25. *Certification.* Under Part 18, wireless power transfer equipment is currently authorized pursuant to the Supplier's Declaration of Conformity (SDoC) rules (formerly the Declaration of Conformity rules), with the option to use the Certification rules.

26. Because of the continuing evolution of wireless power transfer technology, and the potential use at higher power and in closer proximity to humans, the Commission proposes to require wireless power transfer equipment for both consumer and non-consumer applications to be subject to its Certification rules. Certification will allow the Commission to ensure that a wireless power transfer device complies with its RF exposure rules which may be achieved by determining whether the device qualifies for an RF exposure exemption, or whether a routine RF exposure evaluation is required. The FCC Laboratory presently provides guidance that requires applicants for authorization of wireless power transfer devices to consult with the FCC Laboratory on measurement procedures prior to equipment authorization, but exempts certain low-power wireless power transfer devices from this requirement (KDB Publication 680106). These low-power wireless power transfer devices include those that operate on frequencies below 1 MHz, at power levels less than 15 watts, only in mobile device exposure condition (>20 cm from the body), and only use single primary and secondary coils in close proximity. The Commission seeks comment on whether it should adopt a rule to exempt such low-power wireless power transfer devices from requiring certification and instead allow them to continue to be authorized using its SDoC procedure. In addition, are there other criteria the Commission should consider when exempting wireless power transfer devices from the certification requirement and, if so, what are they, and why?

II. Initial Regulatory Flexibility Analysis

27. As required by the Regulatory Flexibility Act of 1980 (RFA), the Commission prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in the *NPRM.* The Commission requests written public comment on the IRFA, which is contained in Appendix C to the *NPRM.* Comments must be identified as responses to the IRFA and must be filed by the deadline for comments provided in this *NPRM.*

28. In the IRFA, the Commission noted that the National Environmental Policy Act of 1969 (NEPA) 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 requirements for evaluating the environmental impact of its actions. One of several environmental factors addressed by these requirements is human exposure to radiofrequency (RF) energy emitted by FCC-regulated transmitters, facilities, and devices.

29. The *NPRM* proposes to amend Parts 1, 2, and 18 of its rules relating to the compliance of FCC-regulated transmitters, facilities, and devices with the guidelines for human exposure to radiofrequency (RF) energy. Specifically, the Commission is proposing to make certain revisions in its rules that it believes will result in more efficient, practical and consistent application of its RF exposure compliance procedures. The *NPRM* seeks to develop a record that will enable the Commission to meet the challenges presented by evolving technological advances not resolved in the previous RF exposure proceedings. The *NPRM* seeks comment on expanding the range of frequencies for which the RF exposure limits apply; on applying localized exposure limits above 6 GHz in parallel with the localized exposure limits already established below 6 GHz; on specifying the conditions under which and the methods by which the limits are averaged, in both time and area, during evaluation for compliance with the rules; and on addressing new issues raised by Wireless Power Transfer devices.The proposed action is authorized under Sections 1, 4(i), 4(j), 301, 203, 303(r), 307, 308, 309, 332(a)(1), 332(c)(7)(B)(iv), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154(i), 154(j), 301, 302a, 303(r), 307, 308, 309, 332(a)(1), 332(c)(7)(B)(iv), 403; the National Environmental Policy Act of 1969, 42 U.S.C. 4321 *et seq.;* and Section 704(b) of the Telecommunications Act of 1996, Public Law 104–104.

30. The Commission identified the small entities to which the proposed rules would apply as being made up of entities from the following categories: International Broadcast Stations; Satellite Telecommunications Providers; All Other Telecommunications; Fixed Satellite Small Transmit/Receive Earth Stations; Fixed Satellite Very Small Aperture Terminal (VSAT) Systems; Mobile Satellite Earth Stations; Wireless Telecommunications Carriers (except satellite); Licenses Assigned by Auction; Paging Services; 2.3 GHz Wireless Communications Services; 1670–1675 MHz Services; Wireless Telephony; Broadband Personal Communications Service; Advanced Wireless Services; Narrowband Personal Communications Services; Lower 700 MHz Band Licensees; Upper 700 MHz Band Licensees; 700 MHz Guard Band Licensees; Specialized Mobile Radio, 220 MHz Radio Service—Phase I Licensees; 220 MHz Radio Service—Phase II Licensees; Private Land Mobile Radio; Fixed Microwave Services; 39 GHz Service; Local Multipoint Distribution Service; 218–219 MHz Service; Location and Monitoring Service; Rural Radiotelephone Service; Air-Ground Radiotelephone Service; Aviation and Marine Radio Services; Offshore Radiotelephone Service; Multiple Address Systems; 1.4 GHz Band Licensees; Incumbent 24 GHz Licensees; Future 24 GHz Licensees; Broadband Radio Service and Educational Broadband Service; Television Broadcasting; Radio Broadcasting; Auxiliary, Special Broadcast, and Other Program Distribution Services; Multichannel Video Distribution and Data Service; Amateur Radio Service; Personal Radio Services; Public Safety Radio Services; IMTS Resale Carriers; and Wireless Carriers and Service Providers.

31. The proposed rules in the *NPRM* do not duplicate, overlap, or conflict with other Federal rules. The proposals being made in the *NPRM* may require

additional analysis and mitigation activities regarding compliance with the Commission's RF exposure limits for certain facilities, operations, and transmitters, such as some wireless base stations, particularly those on rooftops, and some antennas at multiple transmitter sites. In other cases, current analytical requirements are being relaxed. The Commission also sought comments on potential alternatives.

Statement of Authority for the Actions Proposed

32. Sections 1, 4(i), 4(j), 301, 303(r), 307, 308, 309, 332(a)(1), 332(c)(7)(B)(iv), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154(i), 154(j), 301, 303(r), 307, 308, 309, 332(a)(1), 332(c)(7)(B)(iv), 403; the National Environmental Policy Act of 1969, 42 U.S.C. 4321, *et seq.;* and section 704(b) of the Telecommunications Act of 1996, Public Law 104–104.

List of Subjects in 47 CFR Parts 1, 2, and 18

Communications equipment, Radio. Federal Communications Commission.

Cecilia Sigmund,
Federal Register Liaison Officer.

Proposed Rules

For the reasons discussed in the preamble, the Federal Communications Commission proposed to amend 47 CFR parts 1, 2, and 18 as follows:

PART 1—PRACTICE AND PROCEDURE

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

Authority: 47 U.S. C chs. 2, 5, 9, 13; 28 U.S.C. 2461 note, unless otherwise noted.

■ 2. Section 1.1307 is amended by adding in alphabetical order the definition of ''*Device-based time averaging*'' to paragraph (b)(2) to read as follows:

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

* * * * *

(b) * * *

(2) * * *

Device-based time averaging is where the instantaneous transmit power and duration of each transmission burst is managed by the device over some specified *time-averaging period* to ensure compliance with the RF exposure limits.

* * * * *

■ 3. Section 1.1310 is revised to read as follows:

§ 1.1310 Radiofrequency radiation exposure limits.

(a) Between 3 kHz and 10 MHz (inclusive), internal electric field limits as set forth in paragraph (f) of this section shall be used to evaluate the environmental impact of human exposure to RF radiation as specified in § 1.1307(b). Specific absorption rate (SAR) shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in § 1.1307(b) within the frequency range of 100 kHz to 6 GHz (inclusive). Power density (PD) shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in § 1.1307(b) for the frequency range above 6 GHz.

(b) The SAR limits for occupational/controlled exposure are 0.4 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 8 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit for occupational/controlled exposure is 20 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). The PD limits for occupational/controlled exposure are 5 mW/cm^2, as averaged over the whole body, and a peak spatial-average PD of 20 mW/cm^2, averaged over any 1 cm^2. Exposure may be averaged over a time period not to exceed 6 minutes to determine compliance with occupational/controlled SAR limits.

(c) The SAR limits for general population/uncontrolled exposure are 0.08 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 1.6 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit is 4 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). The PD limits for general population/uncontrolled exposure are 1 mW/cm^2, as averaged over the whole body, and a peak spatial-average PD of 4 mW/cm^2, averaged over any 1 cm^2. Exposure may be averaged over a time period not to exceed 30 minutes to determine compliance with general population/uncontrolled SAR limits.

(d)(1) Evaluation with respect to the SAR and/or PD limits in this section must demonstrate compliance with both the whole-body and peak spatial-average limits. Evaluation with respect to both the SAR and PD limits in this section and in § 2.1093 of this chapter, as well as the internal electric field limits in this section where applicable, shall be done using technically supported measurement or computational methods and exposure conditions in advance of authorization (licensing or equipment certification) and in a manner that facilitates independent assessment and, if appropriate, enforcement. Numerical computation of SAR must be supported by adequate documentation showing that the numerical method as implemented in the computational software has been fully validated; in addition, the equipment under test and exposure conditions must be modeled according to protocols established by FCC-accepted numerical computation standards or available FCC procedures for the specific computational method.

(2) The limits for maximum permissible exposure (MPE) listed in Table 1 to paragraph (e)(1) of this section, which have been derived from whole-body SAR limits, may be used instead of whole-body SAR and/or PD limits as set forth in paragraphs (a) through (c) of this section to evaluate the environmental impact of human exposure to RF radiation as specified in § 1.1307(b), except for portable devices as defined in 47 CFR 2.1093 as these evaluations shall be performed according to the SAR and/or PD provisions, and internal electric field provisions where applicable, in § 2.1093 of this chapter.

(3) The MPE limits listed in Table 1 to paragraph (e)(1) of this section, the SAR and/or PD limits as set forth in paragraph (a) through (c) of this section and in § 2.1093 of this chapter, and the internal electric field limits listed in Table 2 to paragraph (f) of this section are for continuous exposure, that is, for indefinite time periods. Except for internal electric field, as described in (f) of this section, exposure levels higher than the limits are permitted for shorter exposure times, as long as the average exposure over a period not to exceed the specified averaging time in Table 1 to paragraph (e)(1) of this section or source-based time averaging requirement of §§ 2.1091(d)(2) and 2.1093(d)(5) for general population exposure is less than the limits. Detailed information on our policies regarding procedures for evaluating compliance with all of these exposure limits can be found in the FCC's *OET Bulletin 65,* ''Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields,'' and in supplements to *Bulletin*

65, all available at the FCC's internet website: *http://www.fcc.gov/rfsafety* and in the Office of Engineering and Technology (OET) Laboratory Division Knowledge Database (KDB) (*https://www.fcc.gov/kdb*).

Note 1 to Paragraph (d): SAR is a measure of the rate of energy absorption due to exposure to RF electromagnetic energy. These SAR limits to be used for evaluation in paragraphs (a) through (d) of this section are based generally on criteria published by the American National Standards Institute (ANSI) for localized SAR in Section 4.2 of ANSI/IEEE Std C95.1–1992 These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in NCRP Report No. 86, Section 17.4.5. Limits for whole body SAR and peak spatial-average SAR are based on recommendations made in both of these documents.

(e)(1) Table 1 to paragraph (e)(1) sets forth limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields.

TABLE 1 TO PARAGRAPH (E)(1)—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3–3.0	614	1.63	*100	6
3.0–30	1842/f	4.89/f	*900/f^2	6
30–300	61.4	0.163	1.0	6
300–1,500			f/300	6
1,500–3,000,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*100	30
1.34–30	824/f	2.19/f	*180/f^2	30
30–300	27.5	0.073	0.2	30
300–1,500			f/1500	30
1,500–3,000,000			1.0	30

f = frequency in MHz. * = Plane-wave equivalent power density, electric and magnetic field strengths are root-mean-square (rms).

Note 2 to Paragraph (E)(1): The MPE limits in Table 1 to paragraph (e)(1) of this section are based generally on criteria published by the NCRP in NCRP Report No. 86, Sections 17.4.1, 17.4.1.1, 17.4.2 and 17.4.3 In the frequency range from 100 MHz to 1500 MHz, these MPE exposure limits for field strength and power density are also generally based on criteria recommended by the ANSI in Section 4.1 of ''ANSI/IEEE Std C95.1–1992. Peak spatial-average PD limits of 4 mW/cm^2 for general population/uncontrolled exposure and 20 mW/cm^2 for occupational/controlled exposure in the frequency range from 6 GHz to 300 GHz are generally based on criteria recommended at 6 GHz by the ANSI in Section 4.4 of ANSI/IEEE Std C95.1–1992, and on thermal perception thresholds at frequencies above 6 GHz.

* * * * *

Note 3 to paragraph (F): Internal electric field shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in § 1.1307(b) within the frequency range of 3 kHz to 10 MHz (inclusive). Internal electric fields shall be determined as a vector average in a contiguous tissue volume of $2 \times 2 \times 2$ cubic millimeters. Internal electric fields induced by electric or magnetic fields including transient or very short-term peak fields shall be regarded as instantaneous values not to be time-averaged.

TABLE 2 TO PARAGRAPH (F)—LIMITS FOR INTERNAL ELECTRIC FIELD

Frequency range (MHz)	Internal electric field strength (rms) (V/m)
(A) Limits for Occupational/Controlled Exposure	
0.003–10	270f
(B) Limits for General Population/ Uncontrolled Exposure	
0.003–10	135f

f = frequency in MHz.

Note 3 to paragraph (f): Internal electric field limits in Table 2 to paragraph (f) of this section are generally based on guidelines recommended by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) in ''ICNIRP Guidelines for Limiting Human Exposure to Time-Varying Electric and Magnetic Fields (1 Hz to 100 kHz).''

Note 4 to § 1.1310: *Sources cited in this section.* 1. ANSI/IEEE Std C95.1–1992 . ''IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,'', copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc. (IEEE), New York, New York 10017. 2. ''ICNIRP Guidelines for Limiting Human Exposure to Time-Varying Electric and Magnetic Fields (1 Hz to 100 kHz),'' Published in Volume 99, Issue 6, Pages 818–836, copyright 2010 by the Health Physics Society and available at *http://www.icnirp.org.* 3. NCRP Report No. 86 ''Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,'' copyright 1986 by NCRP, Bethesda, Maryland 20814.

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

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

Authority: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

■ 5. Section 2.1091 is amended by revising paragraph (d) to read as follows:

§ 2.1091 Radiofrequency radiation exposure evaluation: mobile devices.

* * * * *

(d)(1) Applications for equipment authorization of mobile RF sources subject to routine environmental evaluation must contain a statement confirming compliance with the limits specified in § 1.1310 of this chapter as part of their application. Technical information showing the basis for this statement must be submitted to the Commission upon request. In general, maximum time-averaged power levels must be used for evaluation. All unlicensed personal communications service (PCS) devices and unlicensed

NII devices shall be subject to the limits for general population/uncontrolled exposure.

(2) For purposes of analyzing mobile transmitting devices under the occupational/controlled criteria specified in § 1.1310 of this chapter, time averaging provisions of the limits may be used in conjunction with maximum duty factor to determine maximum time-averaged exposure levels under normal operating conditions.

(3) Such time averaging provisions based on maximum duty factor may not be used in determining exposure levels for devices intended for use by consumers in general population/uncontrolled environments as defined in § 1.1310 of this chapter. However, either ''source-based'' time averaging, based on an inherent property of the RF source, or ''device-based'' time averaging based on an inherent capability of the device in direct control of the RF source, is allowed.

* * * * *

■ 6. Section 2.1093 is amended by revising paragraph (d) to read as follows:

§ 2.1093 Radiofrequency radiation exposure evaluation: portable devices.

* * * * *

(d)(1) Applications for equipment authorization of portable RF sources subject to routine environmental evaluation must contain a statement confirming compliance with the limits specified in § 1.1310 of this chapter as part of their application. Technical information showing the basis for this statement must be submitted to the Commission upon request. In general, maximum time-averaged power levels must be used for evaluation. All unlicensed personal communications service (PCS) devices and unlicensed NII devices shall be subject to the limits for general population/uncontrolled exposure.

(2) Evaluation of compliance with the SAR limits can be demonstrated by either laboratory measurement techniques or by computational modeling. The latter must be supported by adequate documentation showing that the numerical method as implemented in the computational software has been fully validated; in addition, the equipment under test and exposure conditions must be modeled according to protocols established by FCC-accepted numerical computation standards or available FCC procedures for the specific computational method. Guidance regarding SAR, PD, internal electric field, and MPE measurement techniques, where applicable, can be found in the Office of Engineering and Technology (OET) Laboratory Division Knowledge Database (KDB). The staff guidance provided in the KDB does not necessarily represent the only acceptable methods for measuring RF exposure or RF emissions, and is not binding on the Commission or any interested party.

(3) For purposes of analyzing portable RF sources under the occupational/controlled SAR criteria specified in § 1.1310 of this chapter, the time averaging provisions of these SAR criteria may be used to determine maximum time-averaged exposure levels under normal operating conditions.

(4) The time averaging provisions for occupational/controlled SAR/PD criteria, based on maximum duty factor, may not be used in determining typical exposure levels for portable devices intended for use by consumers, such as cellular telephones, that are considered to operate in general population/uncontrolled environments as defined in § 1.1310 of this chapter. However, either ''source-based'' time averaging, based on an inherent property of the RF source, or ''device-based'' time averaging based on an inherent capability of the device in direct control of the RF source, is allowed, as described in paragraph (d)(6) of this section.

(5) Visual advisories (such as labeling, embossing, or on an equivalent electronic display) on portable devices designed only for occupational use can be used as part of an applicant's evidence of the device user's awareness of occupational/controlled exposure limits. Such visual advisories shall be legible and clearly visible to the user from the exterior of the device. Visual advisories must indicate that the device is for occupational use only, refer the user to specific information on RF exposure, such as that provided in a user manual and note that the advisory and its information is required for FCC RF exposure compliance. Such instructional material must provide the user with information on how to use the device in order to ensure compliance with the occupational/controlled exposure limits. A sample of the visual advisory, illustrating its location on the device, and any instructional material intended to accompany the device when marketed, shall be filed with the Commission along with the application for equipment authorization. Details of any special training requirements pertinent to limiting RF exposure should also be submitted. Holders of grants for portable devices to be used in occupational settings are encouraged, but not required, to coordinate with end-user organizations to ensure appropriate RF safety training.

(6) General population/uncontrolled exposure limits defined in § 1.1310 of this chapter apply to portable devices intended for use by consumers or persons who are exposed as a consequence of their employment and may not be fully aware of the potential for exposure or cannot exercise control over their exposure. No communication with the consumer including either visual advisories or manual instructions will be considered sufficient to allow consumer portable devices to be evaluated subject to limits for occupational/controlled exposure specified in § 1.1310 of this chapter.

(7) ''Device-based'' time averaging, based on an inherent capability of the device in direct control of the RF source(s) within a device, is permitted if the protocols established to track the instantaneous transmit power over a time averaging period not to exceed the values listed in Table 1 for the specific operating frequencies of each transmitter have been validated against available FCC procedures for the ''device-based'' time averaging method to be used by the device.

TABLE 1 TO PARAGRAPH (d)—MAXIMUM AVERAGING TIMES FOR DEVICE-BASED TIME AVERAGING

Frequency (GHz):	<2.9	2.9–7.125	7.125–10.5	10.5–15.4	15.4–24	24–37	37–53	53–95	>95
Time (seconds):	100	49	27	14	7	4	3	2	1

* * * * *

PART 18—INDUSTRIAL, SCIENTIFIC, AND MEDICAL EQUIPMENT

■ 7. The authority citation for part 18 continues to read as follows:

Authority: 47 U.S.C. 4, 301, 302, 303, 304, 307.

■ 8. Amend § 18.107 by adding paragraph (k) to read as follows:

§ 18.107 Definitions.

* * * * *

(k) *Wireless power transfer (WPT) equipment.* A category of ISM equipment which generates and emits RF energy for local use by inductive, capacitive or radiative coupling, for transfer of electromagnetic energy between a power transfer unit (TU) and receiving unit(s) (RU) of a WPT system.

* * * * *

■ 9. Add § 18.123 to read as follows:

§ 18.123 Transition Provisions for Wireless Power Transfer Equipment.

All wireless power transfer equipment that are manufactured, imported, marketed or installed on or after [DATE 6 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE] shall comply with all the provisions for wireless power transfer devices of this part.

■ 10. Amend § 18.203 by adding paragraph (d) to read as follows:

§ 18.203 Equipment authorization.

* * * * *

(d) Wireless power transfer equipment shall be authorized under the Certification procedure prior to use or marketing, in accordance with the relevant sections of part 2, subpart J of this chapter.

■ 11. Amend § 18.207 by adding paragraph (e)(6) to read as follows:

§ 18.207 Technical report.

* * * * *

(e) * * *

(6) For wireless power transfer equipment, a statement confirming compliance for radio frequency radiation exposure in accordance with the requirements in 47 CFR 1.1307(b), 1.1310, 2.1091, and 2.1093, as appropriate. Applications for equipment authorization of RF sources operating under this section must contain a statement confirming compliance with these requirements. Technical information showing the basis for this statement must be submitted to the Commission upon request.

* * * * *

[FR Doc. 2020–06966 Filed 4–3–20; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 648

[Docket No. 200331–0095]

RIN 0648–BJ66

Fisheries of the Northeastern United States; Recreational Management Measures for the Summer Flounder Fishery; Fishing Year 2020

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

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS proposes management measures for the 2020 summer flounder recreational fishery. The implementing regulations for this fishery require NMFS to publish recreational measures for the fishing year and to provide an opportunity for public comment. The intent of this action is to constrain recreational catch to the summer flounder recreational harvest limit and thereby, prevent overfishing on the summer flounder stock.

DATES: Comments must be received by April 21, 2020.

ADDRESSES: You may submit comments on this document, identified by NOAA–NMFS–2020–0033, by either of the following methods:

Electronic submission: Submit all electronic public comments via the Federal e-Rulemaking Portal.

- Go to *www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2020-0033,*
- Click the ''Comment Now!'' icon, complete the required fields, and
- Enter or attach your comments.

—OR—

Mail: Submit written comments to Michael Pentony, Regional Administrator, Greater Atlantic Region, 55 Great Republic Drive, Gloucester, MA 01930.

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are a part of the public record and will generally be posted for public viewing on *www.regulations.gov* without change. All personal identifying information (*e.g.,* name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter ''N/A'' in the required fields if you wish to remain anonymous).

FOR FURTHER INFORMATION CONTACT: Emily Keiley, Fishery Policy Analyst, (978) 281–9116.

SUPPLEMENTARY INFORMATION:

Background

Summer flounder is cooperatively managed by the Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission (Commission). The Council and the Commission's Summer Flounder Management Board (Board) meet jointly each year to recommend recreational management measures for summer flounder. NMFS must implement coastwide measures or approve conservation equivalent measures per 50 CFR 648.102(d) as soon as possible following the Council and Commission's recommendation. This action proposes maintaining conservation equivalency for 2020, as jointly recommended by the Council and Board.

Recreational Management Measures Process

The Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP) established a Monitoring Committee for summer flounder consisting of representatives from the Commission, the Council, state marine fishery agencies from Massachusetts to North Carolina, and NMFS. The FMP's implementing regulations require the Monitoring Committee to review scientific and other relevant information annually. The objective of this review is to recommend management measures to the Council that will constrain landings within the recreational harvest limit (RHL) for the upcoming fishing year. The FMP limits the choices for the types of measures to minimum and/or maximum fish size, per angler possession limit, and fishing season.

The Council and the Board then consider the Monitoring Committee's recommendations and any public comment in making their recommendations. The Council forwards its recommendations to NMFS for review. The Commission similarly adopts recommendations for the states. NMFS is required to review the Council's recommendations to ensure that they are consistent with the target specified for summer flounder in the FMP and all applicable laws and Executive Orders before ultimately implementing measures for Federal waters. Commission measures are final at the time they are adopted.