

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
)	
Targeted Changes to the Commission’s Rules)	ET Docket No. 19-226
Regarding Human Exposure to Radiofrequency)	
Electromagnetic Fields)	

**COMMENTS OF
THE COMPUTING TECHNOLOGY INDUSTRY ASSOCIATION
(CompTIA)**

The Computing Technology Industry Association (“CompTIA”),¹ the leading association for the global information technology (“IT”) industry, respectfully submits these comments in response to the Notice of Proposed Rulemaking (“NPRM”) in the above-captioned proceeding.²

I. THE COMMISSION SHOULD HARMONIZE ITS POLICIES ABOVE 6 GHz WITH INTERNATIONAL STANDARDS.

In the Resolution of Notice of Inquiry that accompanied the NPRM, the Commission generally declined to harmonize its policies on radio frequency (“RF”) exposure limits with international standards, essentially opting to neither tighten nor loosen its existing approach.³ As the Commission now considers additional topics in the NPRM related to exposure limits above 6 GHz, it should seize the opportunity to adopt rules that are harmonized with those international

¹ CompTIA supports policies that enable the information technology industry to thrive in the global marketplace. We work to promote investment and innovation, market access, robust cybersecurity solutions, commonsense privacy policies, streamlined procurement, and a skilled IT workforce. Visit www.comptia.org/advocacy to learn more.

² Resolution of Notice of Inquiry, Second Report and Order, Notice of Proposed Rulemaking, and Memorandum Opinion and Order, *Targeted Changes to the Commission’s Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields*, ET Docket No. 19-226, [FCC 19-126](https://www.fcc.gov/et-docket/19-226), *et al.*, rel. Dec. 4, 2019 (“NPRM” or “Resolution of Notice of Inquiry”).

³ Resolution of Notice of Inquiry ¶¶ 2, 13.

standards. Specifically, the Commission should align its rules with those from international standards bodies like IEEE and ICNIRP regarding the Maximum Permissible Exposure (“MPE”) whole body and local exposure limits. The international standards have been universally acknowledged to protect the public from RF exposure health risks, and the Commission should follow that approach in resolving MPE and all other issues presented by the NPRM.

A. The Commission Should Adopt a Spatial Averaging Area of Four Square Centimeters Above 6 GHz.

Regarding the spatial averaging area, the Commission notes the “growing consensus” that “a range of from one to a few square centimeters” would be more appropriate than the much larger values of 20 cm² or 100 cm² found in older technical standards.⁴ Specifically, the Commission cites draft ICNIRP guidelines from 2018 as well as IEEE Standard C95.1-2019, each of which specify an averaging area of 4 cm² for frequencies between 6 GHz and 30 GHz.⁵ As the draft ICNIRP guidelines note, this is based on recent thermal modeling and analytical suggestions, with an “important advantage” of the 4 cm² area being “the consistency at 6 GHz between local SAR and transmitted power density.”⁶

The Commission nevertheless proposes to use 1 cm² because it is “approximately the same size as any of the surfaces of a 1 g cube used for portable device SAR evaluation below 6

⁴ NPRM ¶ 129.

⁵ *Id.* at n. 355. Specifically, the NPRM cites Draft ICNIRP Guidelines, *Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic and Electromagnetic Fields (100 kHz TO 300 GHz)*, Appx. A: Review of Studies on Dosimetry, section 3.3.2 (“Spatial averaging considerations”), p. 10, available at: https://www.icnirp.org/cms/upload/consultation_upload/ICNIRP_RF_Guidelines_PCD_Appendix_A_2018_07_11.pdf (July 11, 2018), as well as IEEE Standard C95.1-2019 which specifies an averaging area of 4 cm² below 30 GHz and 1 cm² above 30 GHz.

⁶ Draft ICNIRP Appx. A at 10.

GHz.”⁷ Instead, the Commission should use this opportunity to harmonize its rules with the emerging international standards and adopt 4 cm² instead. This change will promote greater harmonization in testing procedures for devices operating in the millimeter-wave bands.

II. THE COMMISSION SHOULD PERMIT DEVICE-BASED TIME-AVERAGING USING FLEXIBLE TESTING METHODOLOGIES.

In the NPRM, the Commission recognizes that new technology now permits devices to optimize and manage their own time-averaged SAR, using past transmit power levels as a reference.⁸ The Commission is therefore correct to permit device-based time-averaging, since it will indeed allow manufacturers to offer increased data capacity while remaining SAR-compliant. In addition to device-based time-averaging, the Commission should also permit modem-based or chipset-based time averaging by modifying its rules simply to permit averaging using any algorithm that keeps exposure at or below the exposure limit within the allowable time period, so long as the manufacturer can provide a satisfactory testing methodology that validates its chosen approach.

A. The Commission Should Adopt International Standards for the Time Averaging Period.

In addressing the permitted time-averaging period, the Commission departs from both the IEEE 2019 and ICNIRP 2020 approaches, instead proposing its own time-averaging table.⁹ However, the shortened times the Commission proposes would require additional testing and algorithms to be produced by manufacturers and further create undue misalignment. The Commission should instead adhere to the recent IEEE and ICNIRP time-averaging limits.

⁷ NPRM ¶ 130.

⁸ *Id.* ¶ 132.

⁹ *Id.* ¶ 136 (Table 3).

The Commission expresses concern that the ICNIRP and IEEE limits “could allow for inappropriate temperature rises in extreme cases when intense exposure occurs only for a brief period.”¹⁰ The simplest means of rectifying this issue would be: (1) to follow the IEEE 2019 or ICNIRP 2020 approaches while limiting the fluence for brief, high-fluence pulses; and (2) to apply a six- or thirty-minute averaging time to wireless waveforms for which the thermal response of tissue is essentially the same as for a continuous wave signal of the same time-averaged power density. The Commission’s concurrent enforcement of fluence and power density limits would then align with the approach in IEEE 2019 or ICNIRP 2020, thereby promoting greater harmonization in testing procedures.

III. THE COMMISSION SHOULD TAKE A FUNCTIONAL APPROACH TO DEFINING “LOCAL” UNDER THE PART 18 RULES.

The Commission is correct to recognize the increasing importance of wireless power transfer (“WPT”) devices, including under the Part 18 industrial, scientific, and medical (“ISM”) equipment rules. It is also correct to allow limited non-communications feedback under Part 18, such as a receiving unit modulating its resistance to indicate its charge level.¹¹

As the Commission notes, the current Part 18 rules define ISM equipment as “[e]quipment or appliances designed to generate and use locally RF energy for industrial, scientific, medical, domestic, or similar purposes, excluding applications in the field of telecommunication.”¹² However, the term “local” is not defined, although CISPR is considering a definition of 50 cm for “local” WPT and up to 10 meters for WPT at-a-distance.¹³ Rather than

¹⁰ *Id.*

¹¹ NPRM ¶ 140.

¹² NPRM n. 379 (quoting 47 CFR § 18.107(c)).

¹³ *Id.* n. 381.

specifying a distance, the Commission should instead allow “local” energy use, for purposes of Part 18, to be extended as long as it can be shown that some form of signal – *i.e.*, non-communications feedback – is maintained between the source and receiver, and that other users of the frequency band are not interfered with.

CONCLUSION

CompTIA appreciates the Commission’s work in this proceeding and requests adoption of policies consistent with the comments above.

Sincerely,

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