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 TELECOMMUNICATIONS INDUSTRY ASSOCIATION

The Telecommunications Industry Association ("TIA") respectfully submits these comments in the above-referenced proceeding.[1]

I. Introduction

As both an advocacy organization and a standard-setting body, TIA represents hundreds of global manufacturers and vendors of information and communications technology ("ICT") equipment and services that are supplied to infrastructure owners and operators, enabling network operations across all segments of the economy.[2] TIA's members include ICT manufacturers and suppliers, network operators and service enablers, distributors, and system integrators. And the devices TIA's members design and manufacture, which incorporate 5G, Wi-Fi, and small cell technologies, *inter alia*, must meet the Commission's radiofrequency ("RF") emission exposure regulations.

[1] *Targeted Changes to the Commission's Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields*, ET Docket No. 19-226, Resolution of Notice of Inquiry, Second Report and Order, Notice of Proposed Rulemaking, and Memorandum Opinion and Order, 34 FCC Rcd 11687 (Dec. 4, 2019) ("NPRM").
[2] TIA is the leading trade association for the ICT industry, representing companies that manufacture or supply the products and services used in global communications across all leading technology platforms. TIA represents its members on the full range of policy issues affecting the ICT industry and forges consensus on voluntary, industry-based standards.

TIA applauds the Commission for taking steps to modernize its RF exposure rules with the Resolution of Notice of Inquiry, Second Report and Order, and Memorandum Opinion and Order in this docket. The Commission now has the opportunity to further modernize its rules and, importantly, harmonize its rules with updated international standards. These standards are based on current scientific knowledge, and ensuring the global harmonization of standards will yield widespread economic benefits – allowing companies worldwide to share the latest devices with U.S. consumers, and U.S. companies to design devices that meet the Commission's rules that can then be sold globally. In particular, the Commission should adopt RF exposure limits, area averaging, and time averaging that are consistent with recent standards from the Institute of Electrical and Electronics Engineers, Inc. ("IEEE") and International Council on Non-Ionizing Radiation Protection ("ICNIRP").

II. Now Is an Appropriate Time to Modernize the Commission's RF Exposure Rules, in Light of Newly Adopted International Standards.

TIA appreciates the Commission's efforts in this docket to formally solicit industry feedback on the existing RF exposure rules and potential proposals to update them. TIA has been a longstanding advocate for the modernization of the Commission's RF exposure rules.[3] The item adopted by the Commission in December was its first effort to address these rules in a comprehensive way since 2013.[4] TIA thanks the Commission for resolving many of the issues raised in the earlier Notice of Proposed Rulemaking in this proceeding and for enabling the

[3] *See* Comments of the Telecommunications Industry Association, ET Docket No. 03-137 (filed Dec. 8, 2003); Comments of the Telecommunications Industry Association, ET Docket Nos. 13-84 & 03-137 (filed Sept. 3, 2013) ("2013 TIA Comments"); Reply Comments of the Telecommunications Industry Association, ET Docket Nos. 13-84 & 03-137 (filed Nov. 18, 2013); Letter from Brian Scarpelli, Director, Government Affairs, TIA, to Marlene H. Dortch, Secretary, FCC, ET Docket Nos. 13-84 & 03-137 (filed Oct. 20, 2014); Letter from Charles Eger, MWF Consulting Staff, Colin Andrews, Director, Government Affairs, TIA, to Marlene H. Dortch, Secretary, FCC, ET Docket Nos. 13-84 & 03-137 (filed Mar. 25, 2018) ("TIA MWF 2018 Letter").

[4] *Proposed Changes in the Commission's Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields*, First Report and Order, Further Notice of Proposed Rulemaking, and Notice of Inquiry, 28 FCC Rcd 3498 (2013).

rollout of 5G technology by the ICT industry.[5] Indeed, as the number of 5G devices utilizing millimeter wave technology brought to market increases, it is imperative that the Commission adopts standards for RF exposure limits that are appropriate for the new ways 5G devices operate while maintaining appropriate protection of the general public.[6]

As discussed in the next section, international standards bodies have released updated standards based on the most up-to-date scientific research and expert consensus and consensus that has been developed since the Commission last comprehensively examined the agency's rules regarding the safety of RF device emissions.[7] That said, although an update to the Commission's regulations would be welcome, the Commission should continue to utilize the existing flexible Knowledge Database ("KDB") process for issuing guidance on technology advances that require rapid changes in the Commission's approval processes. Indeed, the NPRM correctly observes that "the KDB process consists of up-to-date expert guidance by [Commission] staff."[8]

III. The Commission Should Adopt RF Exposure Rules That Are Harmonious with Global Standards and Facilitate the Development of New Technologies.

The NPRM presents the opportunity to align the Commission's RF exposure limits with updated international standards that have received significant buy-in from the world's leading RF experts – namely, aspects of the limits and provisions set forth in the IEEE c95.1-2019 Exposure Standard ("IEEE 2019 Standard") and the 2020 ICNIRP EMF Exposure Guidelines ("ICNIRP

[5] As noted by the Commission, the FCC's decision in the Memorandum Opinion and Order to affirm its classification of the pinnae (outer ears) as extremities for purposes of testing compliance with the RF emission limits for human exposure is consistent with the petition TIA filed. *NPRM* n. 401 (citing Opposition to Petition for Reconsideration from Telecommunications Industry Association, ET Docket No. 03-137, at 2 (filed September 11, 2013)).

[6] *See* TIA and Mobile & Wireless Forum Joint Meeting with FCC Labs and OET, at 14 (Mar. 22, 2019) (noting that the "[a]ge of exposure limits causing a lack of consumer confidence"), *attached to* TIA MWF 2018 Letter.

[7] IEEE, *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 (Oct. 4, 2019), https://standards.ieee.org/standard/C95_1-2019.html ("IEEE 2019 Standard"); International Council on Non-Ionizing Radiation Protection, *ICNIRP Guidelines for Limiting Exposure to Electromagnetic Fields (100 kHz to 300 GHz)*, 118(5) Health Phys. 484-524 (2020).

[8] NPRM ¶ 76.

2020 Standard"). The IEEE 2019 Standard was released shortly before the NPRM, while the ICNIRP 2020 Standard was released after the NPRM was published. Both standards address the questions raised by the NPRM, and the Commission should utilize this opportunity to adopt rules that are consistent with these international standards.

As TIA explained in 2013, the benefits of globally-harmonized standards touch all stakeholders: industry, governments, and – most importantly – consumers.[9] This will facilitate the rapid deployment of 5G in the U.S. and incentivize ICT investment, as the ICT industry will incur reduced costs by virtue of not having to comply with multiple sets of rules in a global marketplace.[10]

TIA's members are major importers and exporters of RF-emitting equipment. Requiring manufacturers to comply with differing sets of standards around the world creates potential barriers to trade in the ICT equipment market, particularly for small businesses. Globally harmonized standards would remove unnecessary trade barriers and open up global markets, yielding a "build once, test once, sell everywhere" effect that will result in improved time-to-market and reduced costs to consumers. Both the IEEE 2019 Standard and the ICNIRP 2020 Standard are internationally recognized and unanimously acknowledged to address public health concerns. Now that these up-to-date standards are available, the Commission should embrace them rather than depart from these approaches.

[9] 2013 TIA Comments at 6-7.
[10] *See* Comments of the Telecommunications Industry Association, ET Docket No. 18-370, at 2 (filed Feb. 19, 2019) ("[T]he Commission's rules must be harmonious with other global standards in order for modern technologies and 5G devices to flourish in the United States.").

IV. Exposure Limits for Higher Frequencies Should Align with the Recent ICNIRP and IEEE Standards

Both the IEEE 2019 Standard and the ICNIRP 2020 Standard address exposure limits for higher frequencies, and the Commission should incorporate these standards when promulgating rules for localized exposure limits and averaging area.[11] Specifically, the Commission should adopt the IEEE 2019 Standard approach for localized exposure limits for devices operating on frequencies in the 6-300 GHz range.[12] The NPRM's proposals for localized exposure limits above 6 GHz are inconsistent with the most current international standards as well as the approaches taken abroad. The NPRM's proposed localized exposure limits of 4 mW/cm^2 averaged over 1 cm^2 for frequencies above 6 GHz represent a go-it-alone approach that departs from the most recent IEEE and ICNIRP standards and moves the Commission away from global harmonization.[13] Basing a rule on an IEEE standard that has now been superseded defeats one of the most important benefits of adopting international, consensus-standards: that they are regularly updated to reflect new scientific evidence and technology.[14] The Commission should adopt the internationally recognized localized exposure limits in these higher frequencies. Likewise, the final rules for spatial averaging area should be consistent with the recent ICNIRP and IEEE standards – i.e., 4 cm^2 with additional 1 cm^2 averaging requirements above 30 GHz.

V. The Commission Should Adopt Limits for Time Averaging as Proposed by International Standards.

Time averaging can provide flexible approaches to RF compliance and aid in the development of innovative products, applications, and services – while protecting human safety.

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[11] NPRM ¶¶ 127-30 (proposing rules for localized exposure limits for higher frequencies and averaging area for located exposure conditions).
[12] IEEE 2019 Standard at Table 11.
[13] Should the FCC decline to harmonize their standards with IEEE and ICNIRP, TIA would support the adoption of the NPRM's proposed localized exposure limits as opposed to receding to prior limits of 1 mW/cm^2.
[14] *See* NPRM ¶ 128 (noting that the proposed general population localized power density value of 4 mW/cm2 matches the exposure limit specified at 6 GHz in the IEEE Std C95.1-1991 standard).

As TIA previously explained, "many applications for smartphones and tablets utilize short bursts of data transmission to support activities such as web browsing, sending emails, and downloading files. … In many instances, smartphone/tablet user experience and network performance is needlessly sacrificed because power is lowered for SAR compliance where average SAR would remain within compliant levels."[15] Indeed, both user experience and product performance can be substantially improved by implementing time-averaging techniques.

Accordingly, TIA supports the 360-second time averaging guidance from the IEEE and ICNIRP standards that are accepted worldwide.[16]

VI. Should the Commission Adopt Proposed Device-Based Time Averaging, It Should Provide a Two-Year Transition Period to Avoid Significant Product Delays.

Should the Commission decide against adopting the recent IEEE and ICNIRP standards as requested above, it should allow industry to follow its current guidance for device-based time averaging for a transition period.[17] Industry has been adhering to this important guidance to develop, test, and manufacture ICT devices for the U.S. market and the Commission should consider adopting this interim guidance in lieu of the device-based averaging laid out in the NPRM, or alternatively provide sufficient time for industry to transition to the proposed guidance.

The current guidance for device-based time averaging has important differences from the proposal in Table 3 of the NPRM. Namely, the current guidance provides a four-second

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[15] 2013 TIA Comments at 9-10; *see also* NPRM ¶ 133 ("Many wireless devices (*e.g.*, 4G LTE) transmit in short bursts that are variable depending on operational network and user demands. The present rules for source-based time-averaging do not account for the variable nature of such transmissions.").

[16] *See* NPRM ¶ 136 (observing that the ICNIRP standard provides for averaging over 6 minutes at 10 GHz and reduces to 10 seconds at 300 GHz on a complex basis); Comments of the IEEE International Committee on Electromagnetic Safety, ET Docket No. 19-226, at 15-16 (dated May 29, 2020), https://ecfsapi.fcc.gov/file/10601011253087/FCC%20-%20letter%20-%201%20June%202020.pdf ("IEEE Comments").

[17] *See* FCC Presentation at October 2018 TCB Workshop, Slide 16, available at https://transition.fcc.gov/oet/ea/presentations/files/oct18/5.1-TCB-RF-Exposure-OrderNPRM-Issues-MD.PDF.

averaging time for the 24 to 42 GHz range while the NPRM reduces the averaging time period above 37 GHz to three seconds.[18] Many current devices support the 39 GHz bands as well as the 28 GHz band and the interim guidance time period is already being used by devices in the marketplace. Thus, if the Commission adopts the approach in the NPRM, operations using the 39 GHz band would be required to implement a truncated averaging time-period that may not only degrade already established performance but also would differ from operations using the 28 GHz band. TIA submits that such a change is unnecessary particularly given that the Commission's time-period parameters were delineated somewhat subjectively as the agency notes in the NPRM;[19] therefore, an adjustment of the proposed time periods to be consistent with the current guidance seems reasonable. Accordingly, TIA respectfully requests that the Commission revise its proposed time periods to conform to the current guidance.

If the Commission nonetheless decides to adopt the approach to device-based time averaging that is proposed in the NPRM – which, as noted by the IEEE International Committee on Electromagnetic Safety, has been refined by the parties that originally proposed the approach[20] – the agency should allow for a 24-month transition period during which it accepts for compliance purposes either the current guidance or the new approach. The Commission adopted a similar transition period for the rules adopted in the Second Report and Order section of December's RF item.[21]

[18] *Id.*
[19] NPRM ¶ 136
[20] IEEE Comments at 13.
[21] NPRM ¶ 116.

VII. **Conclusion**

TIA urges the Commission to implement the requested changes detailed above and modernize its RF exposure rules consistent with the IEEE 2019 Standard and the ICNIRP 2020 Standard. Doing so will continue to ensure that ICT devices are safe, innovative, and competitive throughout the global marketplace.

Respectfully submitted,

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