Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Reassessment of Federal Communications	)	
Commission Radiofrequency Exposure	)	ET Docket No. 13-84
Limits and Policies	)	
	)	
FCC Seeks Comment on RF Exposure	)	
Issues Subject to D.C. Circuit Remand in	)	
Environmental Health Trust v. FCC	)	

COMMENTS OF THE CONNECTED HEALTH INITIATIVE

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SUMMARY

The Connected Health Initiative (CHI) represents device and software developers, healthcare providers, and others who build and use connected health technologies, nearly all of which depend on radiofrequency (RF) communication. CHI offers this comment to assist the Commission in explaining, on the remand record, why the weight of the scientific evidence continues to support the 2019 finding that no changes to the RF exposure limits are warranted.

The established evidence is that RF energy heats tissue at high intensity, but that the limits sit well below that point. The Food and Drug Administration's 2020 review, the systematic reviews commissioned by the World Health Organization, and other expert bodies have found no adverse health effects at or below current limits, including for children and with long-term use. Moreover, brain cancer incidence has stayed flat as mobile phone use has become nearly universal. Studies that report biological responses at low exposures have not been consistently replicated and do not by themselves show harm. The Commission should give little weight to compilations of studies of uneven rigor and to repetitive testimonials.

The Commission should retain its testing procedures for portable devices, which test at maximum power in the positions of highest exposure, and keep them consistent with current consensus measurement standards. New technologies should be assessed by their actual RF exposure characteristics, because labels such as 5G or 6G say little about exposure. The growing number of devices also does not mean a proportional increase in exposure. On environmental effects, good-quality studies show no adverse effects on plants and animals. Finally, the Commission should coordinate with the Department of Health and Human Services, which is reviewing similar evidence, so that both agencies build a single federal record within the existing national framework.

I. Introduction and Statement of Interest

The Connected Health Initiative (CHI) submits these comments in response to the Public Notice seeking to refresh the record on the three issues that the D.C. Circuit remanded in *Environmental Health Trust v. FCC*.[1] CHI is the leading multistakeholder policy and legal advocacy effort dedicated to improving health outcomes while reducing costs through digital health innovation. Its members include device and software developers, healthcare providers, and other organizations that build, deploy, and use connected health technologies, including patient groups. Many of those members design and test wireless devices that must comply with the Commission's radiofrequency (RF) radiation exposure rules and the requirements of the Food and Drug Administration (FDA).

The Commission has asked commenters to describe their qualifications and to ground their positions in rigorous evidence.[2] CHI's views on the science draw on the systematic reviews and assessments of FDA, the World Health Organization (WHO), and other national and international scientific bodies, on peer-reviewed research, and on the consensus standards that govern RF exposure and compliance testing. CHI is submitting comments on similar evidence in response to the request for information (RFI) that the Department of Health and Human Services (HHS) issued on RF exposure,[3] and these comments apply those views to the questions in the Public Notice.

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[1] *FCC Seeks Comment on RF Exposure Issues Subject to D.C. Circuit Remand in Environmental Health Trust v. FCC*, Public Notice, ET Docket No. 13-84, DA 26-997 (OET rel. Sept. 17, 2026), 91 Fed. Reg. 60128 (Sept. 22, 2026) (*Public Notice*); *Environmental Health Trust v. FCC*, 9 F.4th 893 (D.C. Cir. 2021) (*EHT*).

[2] *Public Notice* (describing the weight the Commission will give to submissions reflecting specialized experience and asking commenters to describe their qualifications).

[3] U.S. Department of Health and Human Services, *Request for Information on Electromagnetic Fields (EMFs), Radiofrequency (RF) Radiation, and Wireless Radiation Exposure*, 91 Fed. Reg.

II. The Weight of the Evidence Continues to Support the Commission's 2019 Findings

In 2019, the Commission found that the weight of scientific evidence had not linked cell phones with any health problems and that no changes to its exposure limits were warranted.[4] The D.C. Circuit left those conclusions and the rules in place, while asking the Commission to explain more fully why its limits protect against harms other than cancer.[5] The record now before the Commission supports that explanation, as the sections below describe.

The established evidence is that RF energy at sufficiently high intensity heats body tissue, but that exposure limits in the United States and internationally are set well below the level at which that effect occurs. FDA's 2020 review of the literature published between 2008 and 2018 found insufficient evidence to support a causal association between RF exposure and tumor formation, citing the lack of (i) a clear dose-response relationship, (ii) consistent findings, and (iii) a plausible biological mechanism.[6] The systematic reviews that WHO has since commissioned reached similar conclusions on cancer and on self-reported symptoms. Other bodies that have reviewed the evidence, including the European Commission's Scientific Committee on Health, Environmental and Emerging Risks (SCHEER), have reached the same

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59792 (Sept. 21, 2026); *see* Comments of the Connected Health Initiative, Docket No. HHS-OASH-2026-0397 (filed Oct. 21, 2026).

[4] *Proposed Changes in the Commission's Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields*, *et al.*, ET Docket Nos. 19-226, 13-84, 03-137, Resolution of Notice of Inquiry, Second Report and Order, Notice of Proposed Rulemaking, and Memorandum Opinion and Order, 34 FCC Rcd 11687 (2019) (*2019 Order*).

[5] *EHT*, 9 F.4th 893.

[6] U.S. Food and Drug Administration, Center for Devices and Radiological Health, *Review of Published Literature between 2008 and 2018 of Relevance to Radiofrequency Radiation and Cancer* (Feb. 2020), https://www.fda.gov/media/135043/download.

conclusion.[7] While in 2011 the International Agency for Research on Cancer classified RF fields as possibly carcinogenic (Group 2B), that classification was based largely on limited evidence from case-control studies. The larger and more recent body of evidence reviewed since then has not shown the associations suggested by those studies.[8]

The existing body of evidence does not establish adverse health effects from exposure at or below current limits. FDA's 2020 review concluded that available epidemiological and cancer incidence data continue to support its determination that there are no quantifiable adverse health effects in humans caused by exposures at or under the current limits for cell phones. That conclusion, together with the reviews discussed below on children, long-term use, and self-reported symptoms, gives the Commission a well-documented basis for the reasoned explanation the court requested.

III. The Remanded Health Issues

A. Children

The Commission's limits are designed to protect all members of the public, including children, pregnant women, older adults, and people with health conditions, and the reduction factors built into them account for differences among individuals. The standards bodies have considered research on how children absorb RF energy, and the epidemiological studies of

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[7] Scientific Committee on Health, Environmental and Emerging Risks, *Final Opinion on the need of a revision of the annexes in Council Recommendation 1999/519/EC and Directive 2013/35/EU, in view of the latest scientific evidence available with regard to radiofrequency (100kHz - 300GHz)* (Apr. 18, 2023), https://health.ec.europa.eu/system/files/2023-06/scheer_o_044.pdf.

[8] *See* Ken Karipidis et al., *The effect of exposure to radiofrequency fields on cancer risk in the general and working population: A systematic review of human observational studies – Part I: Most researched outcomes*, 191 Environment International 108983 (2024), https://doi.org/10.1016/j.envint.2024.108983.

children have not shown increased cancer risk. The WHO-commissioned systematic review of human observational studies published in 2024 found moderate certainty evidence that RF exposure from mobile phone use likely does not increase the risk of brain cancer in adults or children, including with long-term use, and found no association between exposure from broadcast antennas or base stations and childhood leukemia or pediatric brain tumors.[9] The CEFALO study likewise found no association between mobile phone use and brain tumors in children and adolescents.[10]

Children and adolescents also benefit directly from wireless health technology, and the American Diabetes Association, for example, recommends that continuous glucose monitoring be offered to young people with type 1 diabetes.[11] Children and adolescents with type 1 diabetes rely on continuous glucose monitoring to manage their condition safely at school and overnight. In evaluating exposure for children within the existing framework, CHI urges the Commission to weigh these benefits in any action it takes on remand.

B. Long-Term Exposure, Ubiquity, and Technological Developments

The Public Notice asks whether the record contains epidemiologic evidence that considers the saturation of cell phones in the American population over time.[12] The record

[9] Karipidis et al., *supra* note 8.

[10] Denis Aydin et al., *Mobile phone use and brain tumors in children and adolescents: a multicenter case-control study*, 103 Journal of the National Cancer Institute 1264 (2011), https://doi.org/10.1093/jnci/djr244.

[11] American Diabetes Association Professional Practice Committee, *14. Children and Adolescents: Standards of Care in Diabetes—2026*, 49 Diabetes Care S297 (Supp. 1 2026), https://doi.org/10.2337/dc26-S014.

[12] *Public Notice* (listing methodological questions for studies that cast doubt on the Commission's rules).

contains such evidence, including the COSMOS prospective cohort study, which found no association between cumulative call time and brain tumors,[13] and the 2024 WHO-commissioned review, which found no increase in brain cancer risk including with long-term use. Brain cancer incidence has not risen in the decades during which mobile phone use has become nearly universal, which is consistent with those findings.[14]

The growing number of wireless devices does not mean a proportional increase in exposure. For most people, the largest share of RF exposure comes from a device held or worn close to the body, which is why near-field and localized measurement methods such as IEC/IEEE 62209-1528 are used for phones and wearables. Exposure from distant infrastructure and satellites is much lower. Newer technologies often lower the power at which each device must transmit, because devices transmit at the lowest power needed to maintain a connection, and denser networks of small cells allow devices and base stations to transmit at lower power.

New and evolving technologies should be evaluated against applicable regulatory limits using established measurement methods. Technologies should be assessed according to their actual RF exposure characteristics rather than by technology-generation labels such as 5G or 6G. Each of these technologies spans diverse frequencies, power levels, antenna configurations, beamforming, operating modes, network loading, timing, and use cases, and internet of things (IoT) and smart home devices use protocols ranging from Bluetooth to Wi-Fi to cellular.

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[13] Maria Feychting et al., *Mobile phone use and brain tumour risk – COSMOS, a prospective cohort study*, 185 Environment International 108552 (2024), https://doi.org/10.1016/j.envint.2024.108552.

[14] National Cancer Institute, *Cell Phones and Cancer Risk Fact Sheet* (reviewed Apr. 4, 2024), https://www.cancer.gov/about-cancer/causes-prevention/risk/radiation/cell-phones-fact-sheet (describing stable U.S. brain tumor incidence and the results of the COSMOS and CEFALO studies).

Moreover, each device and transmitter using a specific spectrum technology must comply with the exposure limits on its own, and sites with multiple transmitters are evaluated for their combined exposure. 5G networks, including those that use millimeter-wave frequencies, are expressly covered by ICNIRP's 2020 guidelines and subject to the same limits, and any new frequencies or waveforms used in future networks such as 6G can be evaluated by the Commission and the consensus standards bodies through their existing processes as those technologies are developed and deployed.

Wi-Fi equipment, smart meters, IoT devices, smart home products, and wearables use low power and often transmit intermittently.[15] Their exposure is best measured over time based on how each device actually operates, including its distance from the user, duty cycle, and frequency band, because Wi-Fi equipment and many other devices can operate across several bands. Wireless medical devices are subject to the Commission's exposure rules and FDA review, and those using bands set aside for medical use operate at low power by design.

C. Non-Cancer Effects and the Rigor of Contrary Studies

The methodological questions in the Public Notice track the structured and transparent methods called for by the Information Quality Act and Executive Order 14303 on Restoring Gold Standard Science.[16] Those methods give weight to studies according to their quality, including the accuracy of the exposure assessment, dosimetry, blinding, replication, dose-

[15] *See* Centers for Disease Control and Prevention, *Facts About Wearable Technology* (describing wearables as using low-powered RF transmitters that expose users to RF levels below applicable exposure limits), https://www.cdc.gov/radiation-health/data-research/facts-stats/wearable-technology.html.

[16] 44 U.S.C. § 3516 note (Information Quality Act); Exec. Order No. 14303, *Restoring Gold Standard Science*, 90 Fed. Reg. 22601 (May 29, 2025).

response, and consistency across study types, as in the systematic review approach developed by the National Toxicology Program's (NTP) Office of Health Assessment and Translation.[17]

Applied to the studies the Public Notice describes, these criteria explain why the record does not justify a rule change. A measurable biological response, such as an oxidative effect, is not by itself evidence of an adverse health effect, and individual studies reporting biological effects at low exposures have not been consistently replicated. Studies with mixed results, studies of exposures at the higher ICNIRP limit, and studies that themselves acknowledge inconsistent findings do not show harm below the Commission's limits. The Commission should assess any such study under the structured methods described above, which give weight to blinding, dosimetry, independent replication, and dose-response, and it should not treat a single study as evidence of harm.

Self-reported symptoms deserve clinical attention and research into their causes, but self-reported accounts gathered without blinding cannot establish what caused a symptom. Double-blind provocation studies have repeatedly found that people who report sensitivity to electromagnetic fields cannot detect real exposure better than chance, and a 2024 WHO-commissioned systematic review of 41 human experimental studies found (i) no effect of RF exposure on self-reported symptoms and (ii) that symptoms were associated with the perception of exposure and not with exposure itself.[18] CHI therefore agrees that the Commission should not

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[17] National Toxicology Program, Office of Health Assessment and Translation, *Handbook for Conducting a Literature-Based Health Assessment Using OHAT Approach for Systematic Review and Evidence Integration* (Mar. 2019).

[18] Xavier Bosch-Capblanch et al., *The effects of radiofrequency electromagnetic fields exposure on human self-reported symptoms: A systematic review of human experimental studies*, 187 Environment International 108612 (2024), https://doi.org/10.1016/j.envint.2024.108612; *see also* G. James Rubin et al., *Idiopathic environmental intolerance attributed to electromagnetic fields*

give scientific weight to unverifiable or repetitive testimonials, and the number of similar submissions, many of which may be prepared from shared templates, should not be treated as a measure of scientific weight.[19] Where a reported problem involves a medical device, including electromagnetic interference with a device's operation, the existing MedWatch and Medical Device Reporting systems provide a channel for clinicians, patients, and manufacturers to engage in reporting.

Animal studies call for the same scrutiny, and the NTP's 2018 rat studies exposed animals over their whole bodies for about nine hours a day at specific absorption rate (SAR) levels of up to 6 watts per kilogram, many times greater than the whole-body limit for the public. FDA evaluated these studies in its 2020 review without changing its conclusions for humans.[20] Parallel two-year studies in the Republic of Korea and Japan designed to test the main NTP findings did not reproduce them, and Germany's Federal Office for Radiation Protection has noted that thermal stress from the high exposures may explain the NTP results.[21]

(formerly "electromagnetic hypersensitivity"): An updated systematic review of provocation studies, 31 Bioelectromagnetics 1 (2010).

[19] *See Public Notice* (stating that the Commission does not anticipate giving scientific weight to meta-analyses that compile studies of widely varying rigor or to unverifiable or repetitive testimonial submissions).

[20] National Toxicology Program, *Toxicology and Carcinogenesis Studies in Hsd:Sprague Dawley SD Rats Exposed to Whole-Body Radio Frequency Radiation at a Frequency (900 MHz) and Modulations (GSM and CDMA) Used by Cell Phones*, NTP TR 595 (Nov. 2018); *see* FDA, *Review of Published Literature between 2008 and 2018*, *supra* note 6.

[21] Australian Radiation Protection and Nuclear Safety Agency, *Korean and Japanese studies agree that radiofrequency exposure does not cause cancer in rats* (Jan. 2026), https://www.arpansa.gov.au/korean-and-japanese-studies-agree-radiofrequency-exposure-does-not-cause-cancer-rats; Federal Office for Radiation Protection (Germany), *Technical Statement of the Federal Office for Radiation Protection on the Results of the NTP Study*, https://www.bfs.de/EN/bfs/science-research/emf/statements/ntp-study/ntp-statement.html.

IV. The Commission Should Retain Its Testing Procedures and Keep Them Current

The Commission's testing procedures for portable devices are conservative by design. Devices are tested for compliance at their maximum power in the positions that produce the highest exposure, even though phones and other devices adjust their power continuously and in ordinary use operate well below maximum permissible levels.[22] The underlying limits are set by identifying the lowest exposure at which an established adverse effect occurs and then setting the limit well below that level. The whole-body SAR limit for the general public is 0.08 watts per kilogram, one-fiftieth of the 4 watts per kilogram threshold associated with adverse effects from heating.

The dosimetric framework already accounts for the characteristics that affect exposure. Limits are expressed as SAR for frequencies up to 6 GHz and as power density at higher frequencies, because the body absorbs energy differently at different frequencies. Averaging times account for duty cycle and duration of exposure, compliance testing takes into account distance from the source and proximity to the body, and the Commission's procedures require evaluation of simultaneous transmission from multiple radios in one device and of combined exposure at sites with multiple transmitters. The IEEE and ICNIRP standards also include specific provisions for brief and pulsed exposures, and the evidence does not show that pulsed or modulated signals pose different risks from continuous signals of the same time-averaged power.[23] Because these standards already account for such characteristics, the Commission has

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[22] Federal Communications Commission, *Wireless Devices and Health Concerns*, https://www.fcc.gov/consumers/guides/wireless-devices-and-health-concerns.

[23] IEEE Std C95.1-2019, *IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz* (2019); International Commission on Non-Ionizing Radiation Protection, *Guidelines for Limiting Exposure to*

no need for a separate classification system of the kind HHS raised in its RFI, which would duplicate the standards and could confuse the public, regulators, and regulated entities.

CHI recommends that the Commission retain its testing procedures and keep its Knowledge Database guidance consistent with the consensus measurement standards, including IEC/IEEE 62209-1528:2020 for measuring SAR from devices used near the body, IEC/IEEE 63195-1:2022 and IEC/IEEE 63195-2:2022 for measuring absorbed power density above 6 GHz, and IEC 62232:2025 for assessing exposure near base stations.[24] For medical devices, these standards work alongside FDA's guidance on wireless technology and EMC and ISO 14117 on the EMC of active implantable cardiac devices.[25] The Commission's localized limit of 1.6 watts per kilogram averaged over 1 gram of tissue is carried forward from a 1992 consensus standard and differs from the 2.0 watts per kilogram averaged over 10 grams of tissue that IEEE C95.1-2019 and the ICNIRP guidelines specify. CHI supports conforming that limit to the international standards over time through notice-and-comment rulemaking informed by the federal health agencies, because harmonized limits and testing methods would allow manufacturers, including medical device manufacturers whose products must satisfy both FDA and Commission requirements, to design one product for the national and global markets.

Electromagnetic Fields (100 kHz to 300 GHz), 118 Health Physics 483 (2020), https://www.icnirp.org/en/publications/article/rf-guidelines-2020.html.

[24] *See Public Notice* (inviting comment on testing procedures and noting that measurement guidance for portable devices is in the Office of Engineering and Technology Laboratory Division Knowledge Database).

[25] U.S. Food and Drug Administration, *Radio Frequency Wireless Technology in Medical Devices, Guidance for Industry and Food and Drug Administration Staff* (Aug. 2013); U.S. Food and Drug Administration, *Electromagnetic Compatibility (EMC) of Medical Devices, Guidance for Industry and Food and Drug Administration Staff* (June 2022).

V. Environmental Effects

CHI's expertise is in human health and the delivery of care, and it asks the Commission to apply to environmental evidence the same standards of study quality, dosimetry, and replication that it applies to human health evidence. A recent systematic map of the environmental literature by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), which the Public Notice cites, found that the studies reporting adverse effects on plants and animals were of poor quality, while the good-quality studies found no adverse effects.[26] The Commission should also take account of the statement on environmental effects that the ICNIRP Project Group on Environmental EMF Protection is preparing on the basis of reliable scientific papers. As the Public Notice observes, the Department of the Interior's 2014 letter on migratory birds stated that no independent third-party field studies on that question had been conducted in North America, so it does not supply evidence that warrants a rule change.[27]

VI. The Commission Should Build a Single Federal Record With HHS and Preserve the National Framework

The United States has long relied on a single federal framework for RF exposure, under which the Commission sets exposure limits for devices and transmitters, relying on the scientific expertise of federal health agencies and consensus standards bodies, and FDA carries out its responsibilities for electronic product radiation under the Radiation Control for Health and Safety Act and its device authorities.[28] Congress reinforced the national character of this

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[26] Australian Radiation Protection and Nuclear Safety Agency, *Good quality research shows no environmental effects from radio waves* (Aug. 22, 2024), https://www.arpansa.gov.au/good-quality-research-shows-no-environmental-effects-radio-waves.

[27] *Public Notice* (discussing the 2014 Department of the Interior letter, ARPANSA's findings, and the ICNIRP Project Group on Environmental EMF Protection).

[28] 47 CFR §§ 1.1307, 1.1310, 2.1091, 2.1093; 21 U.S.C. §§ 360hh–360ss.

framework when it provided that state and local governments may not regulate the placement of wireless facilities on the basis of RF emissions where those facilities comply with the Commission's rules.[29]

HHS is now reviewing similar evidence through its RFI. CHI encourages the Commission to coordinate closely with HHS so that both agencies' scientific findings contribute to a single federal record, and the agencies do not reach inconsistent conclusions on the same evidence. Because the court found that the Commission had not adequately explained its reliance on the conclusions of expert agencies,[30] the Commission should set out on this record how the systematic reviews and agency assessments described above support each of its conclusions, and it should invite FDA's Center for Devices and Radiological Health, which oversees electronic product radiation control and reviews the EMC of medical devices, to explain its scientific views in the docket. Public communication should also stay consistent across agencies and grounded in the weight of the evidence, because recommendations to reduce exposure or new warnings would suggest a hazard at exposures within current limits unsupported by the evidence. This could, for example, lead patients to forgo medically indicated technology.

Important elements of patient care now depend on connected technologies. Blood pressure cuffs, pulse oximeters, and weight scales send readings to care teams over Bluetooth, Wi-Fi, and/or cellular networks. Implanted pacemakers and defibrillators report device status and heart rhythm data. Hospital patient monitoring often relies on spectrum that the Commission set aside in the Wireless Medical Telemetry Service and for Medical Body Area Networks. Telehealth visits over wireless networks have become a routine part of care for issues ranging

[29] 47 U.S.C. § 332(c)(7)(B)(iv).

[30] *See EHT*, 9 F.4th 893.

from mental health to minor illnesses and prescription refills and are especially important for rural patients and those with limited mobility. The leading heart rhythm societies also recommend remote monitoring as the standard of care for patients with implanted cardiac devices.[31] Any government actions on RF should consider the important public interest benefits from these and similar health-related use cases.

VII. Conclusion

CHI believes that these comments will help the Commission to explain, on the refreshed record, why the weight of the evidence continues to support its RF exposure limits and testing procedures, to assess contrary studies under rigorous and transparent methods, and to coordinate with HHS so that federal conclusions on RF exposure and health are consistent. CHI would welcome the opportunity to assist the Commission further as it develops the record on remand.

Respectfully submitted,

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[31] Amy M. Ferrick et al., *2023 HRS/EHRA/APHRS/LAHRS Expert Consensus Statement on Practical Management of the Remote Device Clinic*, 20 Heart Rhythm e92 (2023).