Public comment and references

Request for Information on Electromagnetic Fields (EMFs), Radiofrequency (RF) Radiation, and Wireless Radiation Exposure, 91 FR 59792, Docket HHS-OASH-2026-0397. Submitted October 21, 2026.

Part A. Comment text (as entered in the comment box)

Docket HHS-OASH-2026-0397. Q2 perspective: individual consumer. Answers Q5(o), 5(p), 6, 8, 11(a), 12, 13, 16.

Labels: [GR] government report, [PR] peer-reviewed; status ESTABLISHED, EMERGING or UNCERTAIN.

SUMMARY. U.S. limits (FCC, last updated 1996) guard against heating: a 4 W/kg animal threshold cut about 50-fold [GR, ESTABLISHED]. Federal bodies have questioned whether they cover chronic, body-contact or childhood exposure (FDA 1999, GAO 2012, D.C. Cir. 2021). FDA told NTP in 1999 there was "insufficient scientific basis for concluding either that wireless communication technologies are safe or that they pose a risk" [GR]. We believe that remains the honest state of knowledge, and it calls for research and prudence.

1. CELLULAR EFFECTS AT OR BELOW LIMITS (Q6, Q12) [EMERGING]

- NCRP Report 86 (1986): athermal interactions "have been demonstrated for fields both strong and weak" [GR].
- Swiss BERENIS (2021): "the majority of the animal and more than half of the cell studies provided evidence of increased oxidative stress" (RF and ELF studies pooled), some "below the regulatory limits"; harm is likelier when redox balance is disturbed "over a long period of time." It notes study weaknesses [GR].
- Volkow, JAMA 2011: 50 min of phone exposure raised brain glucose metabolism near the antenna (P=.004), "of unknown clinical significance" [PR].
- Schmid, J Sleep Res 2012: "both pulse-modulated radio frequency and pulsed magnetic fields affect brain physiology" (sleep EEG) [PR]. Signal pattern, not only power, matters (Q5(p)).
- Lerchl, BBRC 2015: in carcinogen-treated mice, liver tumors rose at 0.04 W/kg (half the 0.08 W/kg whole-body limit) and lung tumors at 0.4 W/kg, replicating Tillmann 2010; no dose-response [PR].
- NTP TR-595 (2018): "clear evidence" of heart schwannomas in male rats [GR]; NIEHS cautions the findings "should not be directly extrapolated to human cell phone usage."

These are biological signals; whether they cause disease in people is UNCERTAIN.

2. LONG-TERM EXPOSURE IS UNTESTED (Q6, Q16) [ESTABLISHED gap]

- FDA 1999: limits "may not be protective against any non-thermal effects of chronic exposures" [GR].
- UK AGNIR 2012: human data "essentially restricted to periods of less than 15 years from first exposure" [GR].
- COSMOS 2024 (264,574 adults) found no glioma link, but median follow-up was 7.12 years [PR]. INTERPHONE's heaviest users: OR 1.40 (1.03-1.89); authors: "biases and error prevent a causal interpretation" [PR].
- D.C. Circuit (EHT v. FCC, 2021) held the FCC's non-cancer reasoning "arbitrary and capricious" and remanded on children and long-term exposure.

- NIEHS has "no further plans to conduct additional RFR exposure studies." IARC (2024) made RF re-evaluation a high priority, advised for the latter half of 2025-2029.

3. THE LEVELS WE NOW HAVE (Q8, Q11(a), Q13)

- Ambient levels are low: European homes and outdoors average 0.16-0.76 V/m, "substantially below regulatory limits" (Sagar 2018) [PR, ESTABLISHED].
- The highest doses come from devices on the body. France's ANSES (2019): of 272 phones tested touching the body, "206 telephones (76%) had trunk SAR values above 2 W/kg," maximum 7.42 W/kg (European test basis) [GR, ESTABLISHED].
- GAO-12-771: U.S. test practice "could result in RF energy exposure higher than the FCC limit"; its recommendations remain "Closed - Not Implemented" [GR].
- Children: modelled local fields ">3 dB" higher in brain subregions and ">10 dB" in bone marrow (Christ 2010) [PR, modelling].
- Exposures from separate devices are not summed (FCC 19-126, para 23), and limits stop at 100 GHz (85 FR 19117).

4. REQUESTS (Q5(o), Q16), under HHS's duty to minimize "unnecessary" exposure (21 U.S.C. 360ii(a)(2), (a)(5)):

a) Fund lifetime and multigeneration animal studies at sub-limit SARs using current 4G/5G signals, replicating NTP and Lerchl, with oxidative-stress and DNA endpoints.

b) Fund a prospective child cohort with personal dosimeters and 20+ years of follow-up.

c) Ask FDA and FCC to require SAR tests at 0 mm, with child models and summed multi-device exposure.

d) Meanwhile, publish plain distance-and-use guidance, especially for children and pregnancy.

CONCEDED: Japanese and Korean 2026 rat studies were null, COSMOS was null, ANSES (2025) found it "not possible to conclude" on cancer, and a 2024 systematic review found male-fertility evidence "very uncertain" (Kenny). That uncertainty argues for research and prudence, not complacency.

Full references with active links: attached PDF.

Part B. References with active links

Submitted by an individual consumer (RFI question 2). Each source is labelled by type: [GR] government or official report, [PR] peer-reviewed study, [LAW] statute, regulation or court decision.

1. Cellular and biological effects at or below limits (Q6, Q12)

1. National Council on Radiation Protection and Measurements. *Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields*, NCRP Report No. 86 (1986), §2.1, p. 7. [GR] https://cdc.gov/radiation-health/media/pdfs/2026/07/NCRP-Report-86.pdf
2. BERENIS (Swiss Federal Office for the Environment advisory group). "Is there evidence for oxidative stress caused by electromagnetic fields?" Newsletter Special Issue, January 2021 (Mevissen and Schürmann). RF and ELF studies are pooled in the proportion quoted. [GR] https://www.bafu.admin.ch/dam/bafu/en/dokumente/elektrosmog/fachinfo-daten/newsletter_berenis_sonderausgabe_januar_2021.pdf
3. Volkow ND, Tomasi D, Wang GJ, et al. Effects of cell phone radiofrequency signal exposure on brain glucose metabolism. *JAMA* 2011;305(8):808–813. [PR] https://doi.org/10.1001/jama.2011.186

4. Schmid MR, Murbach M, Lustenberger C, Maire M, Kuster N, Achermann P, Loughran SP. Sleep EEG alterations: effects of pulsed magnetic fields versus pulse-modulated radio frequency electromagnetic fields. *J Sleep Res* 2012. [PR] https://doi.org/10.1111/j.1365-2869.2012.01025.x

5. Lerchl A, et al. Tumor promotion by exposure to radiofrequency electromagnetic fields below exposure limits for humans. *Biochem Biophys Res Commun* 2015;459(4):585–590. [PR] Summary of tumor sites and the absence of a dose-response: BERENIS Newsletter No. 3, September 2015. https://www.bafu.admin.ch/dam/bafu/en/dokumente/elektrosmog/fachinfo-daten/newsletter_berenisnr3-september2015.pdf.download.pdf/newsletter_berenisnr3-september2015.pdf

6. National Toxicology Program. Technical Report 595 (2018), conclusions; NIEHS cell phone page (follow-up studies and FAQ). [GR] https://ntp.niehs.nih.gov/publications/reports/tr/500s/tr595 and https://ntp.niehs.nih.gov/research/topics/cellphones

2. Long-term exposure (Q6, Q16)

7. U.S. Food and Drug Administration, CDRH. Nomination of radiofrequency radiation to the National Toxicology Program, May 19, 1999, Executive Summary. [GR] https://ntp.niehs.nih.gov/sites/default/files/2024-10/wireless051999_508.pdf

8. Advisory Group on Non-ionising Radiation (UK). *Health Effects from Radiofrequency Electromagnetic Fields*, RCE-20 (2012), Executive Summary, p. 4. [GR] https://assets.publishing.service.gov.uk/media/5a7e0ebded915d74e6223d46/RCE-20_Health_Effects_RF_Electromagnetic_fields.pdf

9. Feychting M, Schüz J, Toledano MB, et al. Mobile phone use and brain tumour risk – COSMOS, a prospective cohort study. *Environ Int* 2024;185:108552. [PR] https://doi.org/10.1016/j.envint.2024.108552

10. INTERPHONE Study Group. *Int J Epidemiol* 2010, glioma results (Table 2; Abstract). [PR] Final report: https://interphone.iarc.who.int/main-results/uicc-report-final-03102011.pdf

11. *Environmental Health Trust v. FCC*, No. 20-1025 (D.C. Cir. Aug. 13, 2021), slip op. 10, 31–32. [LAW] https://media.cadc.uscourts.gov/opinions/docs/2021/08/20-1025-1910111.pdf

12. IARC Monographs Advisory Group. Recommendations on priorities for 2025–2029 (meeting March 2024), Table 1. [GR] https://monographs.iarc.who.int/wp-content/uploads/2024/11/AGP_Report_2025-2029.pdf

3. The exposure levels we now have (Q8, Q11(a), Q13)

13. Sagar S, Dongus S, Schoeni A, et al. Radiofrequency electromagnetic field exposure in everyday microenvironments in Europe: a systematic literature review. *J Expo Sci Environ Epidemiol* 2018;28(2):147–160. [PR] https://www.nature.com/articles/jes201713

14. ANSES (France). Opinion on the possible health effects associated with high specific absorption rate values from mobile telephones carried close to the body, Request No. 2017-SA-0229, July 10, 2019. [GR] https://www.anses.fr/en/system/files/AP2017SA0229EN.pdf

15. U.S. Government Accountability Office. GAO-12-771 (2012), report on mobile phone RF exposure limits and testing, with recommendation status. [GR] https://www.gao.gov/products/gao-12-771

16. Christ A, Gosselin M-C, Christopoulou M, Kühn S, Kuster N. Age-dependent tissue-specific exposure of cell phone users. *Phys Med Biol* 2010;55(7):1767–1783. [PR] https://doi.org/10.1088/0031-9155/55/7/001

17. FCC 19-126 (2019 order), 85 FR 18131 (April 1, 2020), ¶23. [LAW] https://www.govinfo.gov/content/pkg/FR-2020-04-01/html/2020-02745.htm

18. FCC 2020 proposal, ET Docket 19-226, 85 FR 19117 (April 6, 2020), ¶7. [LAW] https://www.govinfo.gov/content/pkg/FR-2020-04-06/html/2020-06966.htm

4. Basis of the limits and HHS's authority (Summary, Q5(o))

19. FCC 96-326 (1996 order), ET Docket 93-62, 61 FR 41006 (August 7, 1996). [LAW] https://www.govinfo.gov/content/pkg/FR-1996-08-07/html/96-20082.htm

20. FCC 13-39 (2013 inquiry), 78 FR 33654, ¶63. [LAW] https://www.federalregister.gov/d/2013-12713

21. 21 U.S.C. 360ii(a)(2), (a)(5). [LAW] https://www.law.cornell.edu/uscode/text/21/360ii

5. Contrary evidence conceded

22. Imaida K, et al. *Toxicol Sci* 2026 (Japanese study, null), and the Korean companion study, as summarized by Germany's Federal Office for Radiation Protection (BfS), June 2026. [PR, GR] https://doi.org/10.1093/toxsci/kfag002 and https://doris.bfs.de/jspui/bitstream/urn:nbn:de:0221-2026061660652/4/SL_Imaida_Kim_2026_Japanese_Korean_Studies_Eng.pdf

23. ANSES. Opinion 2016-SA-0176 on radiofrequency exposure and cancer, October 24, 2025. [GR] https://www.anses.fr/system/files/AP2016-SA-0176-RA.pdf

24. Kenny et al. Systematic review of human studies of RF-EMF exposure and male fertility. *Environ Int* 2024;190:108817, §5.6. [PR] Hosted copy: https://sfrp.asso.fr/wp-content/uploads/2024/11/Kenny-2024.pdf