

Open Letter to Mobile Phone Manufacturer
on removing the 3.5 mm headphone jack, with a focus on children and youth

Dear Manufacturer,

I write as a long-time smartphone user, a technically minded customer, and a professional software developer. My goal is not criticism for its own sake, but to understand the real technical and strategic reasons behind the widespread removal of the 3.5 mm headphone jack from modern smartphones, and to open a fact-based discussion about the consequences for energy efficiency, environmental impact, interoperability, and potential health considerations.

1) The real technical rationale

“Saving internal space” is often cited. Yet some manufacturers consistently deliver devices with a full 3.5 mm jack, large batteries, modern camera systems, and IP68 water resistance, within comparable size/thickness to jack-less phones. This raises a legitimate question:

If retaining a 3.5 mm jack is technically feasible without meaningful compromises for some, why is it framed as impossible or impractical by others?

Please provide a clear, technically specific explanation of the concrete limitations a 3.5 mm connector imposes in today’s smartphones.

2) Energy efficiency and sustainability

Wired headphones contain no batteries and require no charging, typically last longer, generate minimal e-waste at the end-of-life.

Wireless headphones rely on lithium batteries with limited lifespan, require frequent charging and include additional electronics (DAC/RF), often become non-repairable e-waste within a few years.

From an efficiency and waste-reduction perspective, analog wired audio remains simpler, more durable, and less resource-intensive.

3) A de facto forced migration to wireless

By removing the 3.5 mm jack, users are effectively pushed to Bluetooth or to USB-C dongles with added complexity (compatibility, latency, power draw). This does not expand user freedom, reduces interoperability, and increases dependency on accessories and closed ecosystems.

4) Health, children and adolescents — the precautionary principle

Bluetooth earbuds operate as two-way radio device in the radio-frequency (RF) spectrum. While these devices must comply with exposure limits (e.g., ICNIRP/FCC) and use non-ionizing radiation, the exposure is long-term, repetitive, and at very close proximity to the head. The WHO's IARC classifies RF fields as Group 2B - possibly carcinogenic ("*there could be a risk, harmfulness can't be ruled out*", warranting more research).

At the same time, use among children is rising: a 2024 U.S. National Parents' poll reports that two in three children aged 5-12 use headphones/earbuds, often one to two hours daily; pediatric guidance stresses risks from prolonged loud sound exposure and the vulnerability of developing auditory systems.

Regulatory bodies acknowledge that RF limits are designed to protect against established effects (primarily tissue heating), while long-term epidemiology under lifelong close-in exposure remains limited. The EU's precautionary principle (TFEU Art. 191; COM(2000)1) provides an appropriate policy lens for vulnerable populations (children/adolescents).

Given that children and youth are among the heaviest users of headphones, sustained close-proximity RF exposure from earbuds may pose elevated long-term risks; prudent policy should minimize forced exposure and preserve non-RF options (3.5 mm jack) (PP; IARC 2B; limits vs. long-term data).

5) Call for transparency and EU-level labeling

We ask for transparent, technically honest explanations of the motives for jack removal.

We ask you to consider energy, environmental, health, and user-choice impacts and to restore user choice (retain 3.5 mm in at least part of the lineup).

EU policy ask: Within today's Radio Equipment Directive (2014/53/EU — RED), safety/EMC/spectrum efficiency and (now) cybersecurity are addressed (delegated acts; EN 18031). However, there is no mandatory, on-device RF exposure advisory for head-worn wireless audio comparable to certain safety notices mandated for other products. We therefore call for clear, standardized warnings and exposure-reduction guidance (time, distance, volume), at least for products likely to be used by children and adolescents.

Technological progress should not lead to more waste, higher energy consumption, reduced user control, or unnecessary, non-essential RF exposure in daily use.

Sincerely,

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