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Dear Madam, Dear Sir,

We refer to the Federal Communications Commission's scheduled proceedings in 2018 to address human exposure to radiofrequency (RF) fields, the first public meeting of which will take place on March 22. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) will also be considering revision of the high-frequency part of its EMF Guidelines this year.

In this context, we wish to bring to your attention the recently released data from the French government National Frequencies Agency (ANFR) relating to human exposure of radiofrequencies emitted by mobile phones. The ANFR data provides extensive documentation that mobile phones on the market today expose the human body to radiation that far exceeds regulatory limits in both the U.S. and France. Current test systems and protocols that manufacturers use for mobile phone radiation testing are rigged, because phones are tested at a distance from the body and brain. The revelations of this data are at the origin of the international scandal referred to as "Phonegate."

In July 2016, the French National Agency for Food, Environmental and Occupational Health and Safety (ANSES) published an important report entitled, "Exposure to Radiofrequencies and Child Health". This report brought to light information hitherto unknown to the public, namely that ANFR had been testing hundreds of mobile phones for radiation emissions since 2012 and that most of these phones exceeded regulatory SAR limits—when tested in body-contact positions. For example, the European Union regulatory limit for cell phone SAR is 2 W/kg, however, 9 out of 10 mobile phones tested in 2015 (at 0 mm distance from the

body) showed a SAR level higher than 2 W/kg, and 1 out of 4 had a SAR level higher than 4 W/kg.

Manufacturers test mobile phones for radiation SAR values *with a distance* between the phone and the body, and manufacturers instruct consumers to keep at least this specific distance from their phones. However, these instructions to keep a distance between the phone and body are hidden deep in unread mobile phone manuals or embedded within the operating system. ANFR tested phones at the manufacturers' stipulated separation distances *and also at 0 mm distance* to replicate common consumer behavior of holding the phone close.

People use phones in positions of close body contact every day. They rest phones on their abdomens, tuck phones in their tight pants pockets and sleep with phones against their heads. However, the public was unaware of the ANFR testing until the 2016 ANSES Report was published.

In June 2017, after several legal actions brought by our organization, ANFR eventually released the first data set of partial results of the SAR tests that it conducted on 379 mobile phones selected from stores between 2012 and 2016. ANFR measurements show that the leading mobile phones sold in France, as well as in Europe, exceed the European regulatory thresholds for the SAR trunk and extremities. Regulations allowed mobile phones to be tested at a distance of 15 to 25 mm from the skin. In June 2016, at the initiative of France, the European Commission adopted a precautionary notice for manufacturers, asking them to test the SAR extremities at 0 mm and the SAR trunk at a few millimeters without any upper limit.

On March 8, 2018, ANFR published the second data set of the complete SAR measurement reports of 442 cell phones tested until 2017. The results of the tests can be viewed on ANFR's DATA site.

This issue was the subject of our presentation given at the scientific symposium organized by the Environmental Health Trust on July 31, 2017, in Jackson Hole, Wyoming, "Phonegate Cell Phone Radiation Tests of France Violate Safety Limits." For years, Environmental Health Trust scientists and advisors have published papers on how the current mobile phone test protocols are deeply flawed and allow consumers to be exposed to radiation that exceeds regulatory thresholds.

The French government ANFR test data provides clear documentation that many, if not all, mobile phones emit RF energy at a level that far exceeds not only European limits of 2.0 W/kg, but also exceeds the U.S. government SAR limit of 1.6 W/kg for the body. This is not merely a European issue as it applies to mobile phones sold worldwide (including the United States, Canada, Australia and China).

In January 2018, the Finnish deputy to the European Parliament raised the subject of the impact of cell phone radiation on the health of European citizens, referring to the ANFR test measurement results. On March 15, the European Commission replied, explaining the steps it had taken to date on this issue, which we find unsatisfactory.

The European standards are more lenient than the U.S. regulatory limits adopted by the FCC in 1996. The U.S. SAR limits for the general public are 1.6 W/kg SAR averaged over 1 g of

tissue for 6 minutes for the SAR head, trunk, arms and legs and 4.0 W/kg SAR averaged over 10 g of tissue for 30 minutes for SAR extremities, which are the ear, wrist, hands, ankles and feet. In contrast, the European limits not only allow a 2 W/kg SAR but also average that SAR over 10 grams rather than 1 gram of tissue. Thus, one needs to convert a SAR that uses the European 10 gram average protocol to the FCC 1 gram average in order to compare the numbers.

Converting the European 10 gram SAR to a U.S. FCC 1 gram SAR

Scientific documentation indicates that because European test protocols use 10 grams and U.S. test protocols use 1 gram, the computation to convert the French test results to U.S. FCC testing methods involves roughly doubling to tripling the European SAR value.

"A mobile phone compliant with the ICNIRP standard of 2.0 W/kg SAR in 10 g of tissue may lead to a 2.5 to 3 times excess above the FCC standard of 1.6 W/kg in 1 g of tissue (i.e., 4-5 W/kg in a cube of 1g of tissue)." (Gandhi 2011)

For scientific documentation we refer you to these studies:

1. Some present problems and a proposed experimental phantom for SAR compliance testing of cellular telephones at 835 and 1900 MHz
2. Inaccuracies of a Plastic "Pinna" SAM for SAR Testing of Cellular Telephones Against IEEE and ICNIRP Safety Guidelines
3. SARs for pocket-mounted mobile telephones at 835 and 1900 MHz.

Thus, a mobile phone tested at 7 W/kg by ANFR would have a SAR 2 to 3 times higher, i.e. 14 W/kg to 20 W/kg for 1 g of tissue, and up to nearly 15 times the legal threshold allowed in the U.S., as indicated in the table of ANFR test results at manufacture set distance and minimum FCC equivalent.

Furthermore, the current SAR test system protocols do not take into account the unique physiology of children, who have smaller heads and thinner skulls than adults. This allows RF energy to penetrate more deeply into their brains due to the shorter distance from their skull to their brain center.

In addition, it has been documented that when it comes to SAR testing there can be a margin of error 30% plus or minus in regards to the psSAR. Read the Inquiry letter to the FCC. This means the SAR could be far higher than tests document.

SAR tests in the laboratory are under controlled conditions that do not represent real-life environments, especially in regards to metal implants or metal near the body. Published research shows that eyeglasses with metal frames and metal jewelry can affect the SAR levels. For example, a study found the SAR measured in the eye closest to the phone increased up to almost 30% when metal glasses were a part of the calculation. Similarly, publications have reported that the peak SAR can be up to 25% higher when a 900 MHz phone is pressed up to an ear pierced with a metallic object such as an earring. Another study looked at the SARs into the leg and reproductive organs when a cell phone was placed in a pocket alongside a keychain with a metal ring and found that the presence of a metallic ring significantly increases the averaged 10 g SAR inside the testicle by more than 20% at 1.8

GHz. Additionally, many persons have a variety of metal implants in their body, such as dental implants, skull plates, the pins used for broken bones, hip replacements and brain implants. Metallic implants inside the body have been found to increase the SAR levels in several studies. Increased SAR levels in the brain and body tissue from implanted metal is a serious concern that mobile phone SAR test protocols and regulatory agencies have not addressed.

During the Peer Review meeting on 26-28 March, we are delivering our comments on the NTP studies in person, including our reaction to John Bucher's presentation at the February 2 telephone press conference.

The Food and Drug Administration is aware of the French tests and studies. The subject was officially raised by the Environmental Health Trust (EHTrust.org), our partner in the U.S. In June and September 2017, the Executive Director of Environmental Health Trust, Theodora Scarato, wrote to the FDA to inform them of the results of the ANFR tests and of the ANSES scientific report. Scarato also informed the FDA that cell phones exceeded FCC limits when tested in body-contact positions and provided documentation.

However, the FDA simply wrote back October 18, 2017 that "the information is interesting and we would like to see the experimentation in its entirety." Note: The reports are now posted in their entirety and the FDA has been informed of this.

When asked if the FDA was OK with regulatory limits being violated, they responded. "FDA is not saying that it is OK to exceed a regulatory limit. We stated that there is a large safety factor built into these regulatory limits. Please contact FCC regarding their compliance testing and enforcement policies regarding their regulatory limits."

When asked "What is the SAR limit violation of which the public will be informed by the FDA that cell phones violate US regulatory SAR limits?" The FDA did not respond. Will the FDA act if a phone exceeds the regulatory limit by 5 times or 10 times or 20 times? How high does the radiation SAR value need to go to trigger an FDA response? However, instead of responding to the question asked on October 18, 2017, a Radiation Safety Engineer, wrote on behalf of the FDA, "At this time the FDA has no concerns about the regulatory safety limit set by the FCC."

The FDA has been fully informed that regulatory limits can be violated by common consumer behavior and has failed in its duty to protect public health.

Furthermore, the FDA has stated that the National Toxicology Program findings of increased tumors in rats is not applicable to health risks to people—discounting the association with cancer—allegedly because the NTP used higher exposures than those to which people are exposed. However, the French tests show that, in fact, people can receive exposures that are higher than those used in the 2-year NTP bioassay—between 3 to 12 times higher than the recommended limits—to the areas of their bodies where they hold the phone in contact with their body. Thus, contrary to what FDA replied in their letter of 2017, the NTP study findings are directly relevant to human health, especially when you consider that children will have a lifetime of exposure and they and many adults sleep with their phones, unaware of the radiation exposure.

Considering that the French documentation on test results has found SARs higher than 6 W/kg, the NTP studies are quite relevant. We wish to share the important recommendations to the French public provided of Roget Genet, Director-General of ANSES, in the July 2016 report:

- "Ensure in all circumstances the respect of regulatory limit values of exposure, no matter what type of emitting devices are used and their conditions of use (positioning in contact with the body)"
- "Re-evaluate the pertinence of the specific absorption rate (SAR) used in the establishment of limit values of exposure of people for means of protection against known and proven health effects (thermal effects) of radiofrequencies."
- "And develop a measurement representative of the actual exposure of users of mobile phones, no matter what the conditions of use: signal used, good or bad reception, type of use (calls, loading of data, etc.)

These recommendations echo the ones made recently by the California Department of Public Health in December 2017. In order to better protect mobile phone users, the Department recommends, for example:

- Keep your mobile phone away from your body, using the speakerphone and avoid keeping it in the pocket or in a bra;
- Use the hands-free kit only for short phone conversations.

These recommendations were also kept secret by the California Department of Public Health since 2009 and were obtained through Dr. Joel Moskowitz's fight for transparency.

In revising these two-decade old standards, we would ask you to consider the documentation from France and Europe, in the revision of the SAR standards regarding human exposure to radiofrequency fields emitted by mobile phones, and recommend measures to better protect the people of the United States and the other countries to which these standards apply. It is also imperative to note the radical change in uses and users of these and and related devices. As the American Academy of Pediatrics has noted, children are not little adults. They advise, and we concur, that the fast-growing brains and bodies of the young can absorb proportionally more RF and that many uses by children should be curtailed.

We sincerely hope that you will review in detail and in depth these SAR measurements from a French national agency and consider the vulnerability of children and infants (who are handed phones and other wireless devices as toys or learning devices, despite the lack of validation of their value for these purposes). There are no validated models for evaluating RF exposures into the young body and brain.

To reflect realistic uses of phones and other mobile wireless devices today, it is also important that the FCC require manufacturers to test all body SARs on contact at 0 mm distance instead of 10 mm for devices to be sold in the U.S. As a reminder, the new European standard EN 50566/2003 requires manufacturers to test the SAR extremities at 0 mm and the SAR trunk at a few mm (without more precision). Other policies that should be undertaken include:

- Actively champion making the SAR test protocol average of 1 g of tissue used in the U.S. the reference at the international level. This will impact the health of hundreds of millions of people.

- Set a maximum time for testing exposure that is more in line with the reality of use—6 minutes and even 30 minutes do not reflect current uses and underestimate the reality of thresholds of human exposure.
- Ensure that no devices and no algorithms allowing further reduction of the actual exposure values are used by the manufacturers during the tests.
- Require manufacturers to incorporate various common scenarios into the SAR testing so they consider metal glasses and jewelry inside, on or near the body.
- Work with the Environmental Protection Agency, American Academy of Pediatrics and other health professional organizations and federal health agencies to provide lower regulatory thresholds that account for mobile phone use by children, infants and pregnant women by developing a proper safety standard developed by scientists, health agencies, public health experts and medical experts.
- Make the display of all SAR values mandatory—both at point of sales and in advertisements—along with public educational programs to promote safer technology.
- As France and other nations have done, it is critically important that the FCC develop and implement public health campaigns and recommendations to reduce exposure directed primarily at parents, children, pregnant women and medically sensitive populations.

We remain at your disposal for any additional exchange that you or your team wish to have with our association on this subject. We are counting on you to ensure better protection for the public. Implementing these public health and safety measures is critical to ensuring regulatory compliance.

Respectfully yours,

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