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[REDACTED]

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**Participation of Association "Alerte Phonegate" in the Peer Review of the NTP  
Study represented by Dr. Marc Arazi (France), President and Co-Founder**

**1/ Presentation**

Our association, "Alerte Phonegate", has been created as a public educational institution dedicated to disseminating information so that people will have the right to know how to buy and use mobile phones as safely as possible. We also expect the industry to respond by promoting design changes in hardware and software for phones as well as other devices that will reduce exposures and the regulatory agencies (FCC, ANFR,...) to soon revise their standards for a better protection of human health.

I am writing as a physician who has spent the past years studying the consequences of electromagnetic fields on health. I was one of the contributors to the French "Grenelle des ondes"<sup>1</sup> and I have co-founded a leading commercial company for services to health professionals. I am now the president and co-founder of "Alerte Phonegate".

**2/ Introduction**

First of all, we would like to thank the scientific team for the quality and interest of the work carried out for ten years on the exposure of rats and mice to the waves of two mobile telephony frequencies. Your choice to use high SAR levels is particularly interesting because in the scientific literature, few studies have been done in this regard. We find your results concerning the effects on many organs (heart, liver, pancreas, thyroid, etc...) particularly important in understanding the risks related to radiofrequency waves on the whole body, not only on the brain. **It is, however, very regrettable that this work has been completely overshadowed by statements whose scientific content is, to say the least, questionable.**

Our comments today will be restricted to the question of exposures that were used in the NTP study and how they relate to recently released data from the French government national frequencies testing agency. The revelations of this data are at the origin of the international sanitary and industrial scandal called "Phonegate"<sup>2</sup>.

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<sup>1</sup> ["Grenelle des ondes " on French Wikipédia](#)

<sup>2</sup> [Term used by Pierre Le Hir journalist at "Le Monde" in his article of 23 December 2016](#)

Despite the limitations, the NTP is to be commended for its efforts to model real world exposures from phones based on what was known at the time the study was set up. This relied on a validated system from the Swiss institution IT'IS. We want to bring to your attention today some newly released information from the French government that indicates that the exposures that were used in the study of the NTP, while valid, underestimate exposures that take place in the real world by a factor of 2 to 10 fold.

### **3/ Author John Bucher's commentary**

During the conference held February 2, 2018, John Bucher, one of the authors of the study, commented, "*The levels and duration of exposure to RFR [radiofrequency radiation] were much greater than what people experience with even the highest level of cell phone use, and exposed the rodents' whole bodies. So, these findings should not be directly extrapolated to human cell phone usage.*" Bucher added, as CNN reported<sup>3</sup>, "***The lowest energy level of the radio-frequency radiation we studied was similar to the highest level currently permitted for cell phone emissions.***"

Journalists listening to the conference considered this information to be particularly important and duplicated it in many American and global media<sup>4</sup>. The interpretation that was made was, to say the least, to minimize the risk to human health, and for some, to exclude it completely and permanently.

Further clarification of this statement by John Bucher does not appear in either of the two studies.

### **4/ Revelation of SAR tests on 442 cell phones of the French National Frequencies Agency (ANFR)**

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 9 out of 10 mobile phones tested in 2015 by the French National Frequencies Agency (ANFR) in contact with the body showed a SAR level higher than 2W/kg and one out of 4, a SAR level higher than 4 W/kg.

In addition, for phones tested with a SAR higher than 2 W/kg, ANSES noted a differential between the UMTS 1950 MHz and LTE 2600 MHz bands compared to the GSM 900 band which are more represented than the others:

- UMTS in 30% of cases
- LTE in 30% of cases
- GSM in 13% of cases

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<sup>3</sup> CNN article "[Cell phone radiation study finds more questions than answer](#)" February, 7, 2018

<sup>4</sup> [Google actuality](#)

A chart<sup>5</sup> shows that some mobile phones have SAR body values exceeding 7 W/kg on contact (0mm).

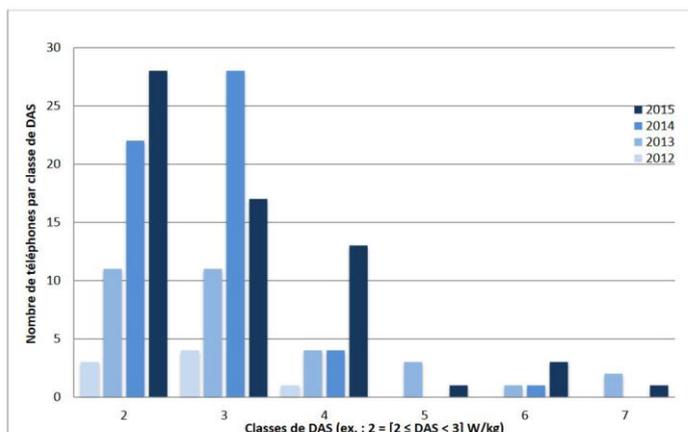


Figure 12 : nombre de mesures au contact supérieures à 2 W/kg par classe de DAS (2012 - 2015).

After several legal actions brought by Dr. Arazi, ANFR had to publish in June 2017 the first partial results of the tests that it conducted on 379 mobile phones selected from stores between 2012 and 2016. These results can be viewed on [ANFR's DATA site](#). On March 8, 2018, the Agency revealed on the same DATA site the complete reports (but not the original ones) of 442 cell phones tested until 2017.

Afficher 10 éléments

Marque	Modèle	DAS tronc (au contact du corps)	DAS tronc (à 5 mm)	DAS tête	DAS tronc
POLAROID	PRO 881A	7,42	3,63	null	1,05
HUAWEI	Honor 4X Che2-L11	7,39	null	null	1,22
HTC	ONE SV	7,18	2,26	null	0,366
BLACKBERRY	Z 10	6,80	3,18	null	0,934
NOKIA	LUMIA 530	6,57	null	null	0,86
WIKO	RIDGE	6,51	null	null	0,734
WIKO	HIGHWAY PURE	6,33	null	null	0,906
HISENSE	SMART 5 (Carrefour CMB501)	6,14	1,48	0,25	0,493
QILIVE	Q6 (M5088)	5,99	null	null	0,594
MOTOROLA	MOTOLUXE	5,86	2,96	0,61	0,254

Affichage de l'élément 1 à 10 sur 379 éléments

Précédent Suivant

Source: ANFR - Get the data - Embed



These results show that the leading mobile phones sold in France as well as Europe exceed the regulatory thresholds for the SAR trunk and extremities valid within Europe.

All this was made possible by inappropriate regulation that 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 cautionary notice for manufacturers, asking them to

<sup>5</sup> [Page 73/247 of July 8 ANSES report](#)

test the SAR extremities at 0 mm and the SAR trunk at a few millimeters without any upper limit.

## **5/ Comparison between European and American regulations**

### **a) Limits**

Moreover, as you know, the European standards are less strict than the American standards adopted by the FCC in 1996. Thus, the maximum threshold in the United States is 1.6 W/kg for 1 g of tissue for an exposure time of 6 minutes<sup>6</sup> for the SAR head and trunk, and 4 W/kg for 10 g of tissue and 30 minutes exposure for SAR extremities.

### **b) 1 or 10 g of tissu**

If we take into account only the differences between 1 g and 10 g to calculate the SAR and consider the work of Prof. Om Gandhi<sup>7</sup> and Dr. Devra Davis<sup>8</sup> ("Exposure limits: the underestimation of absorbed cell phone radiation, especially in children"), a mobile phone tested at 7 W/kg by ANFR would have a SAR almost three times higher, i.e. 20 W/kg for 1 g of tissue, and nearly 15 times the legal threshold allowed in the U.S.

"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 and Kang 2002)

### **c) Exposure time**

There is also the question of exposure time both in the calculation of the SAR and in the choice for this study of alternating 10 minutes of exposure and 10 minutes without exposure. Indeed, if the objective of the study is to investigate whether the waves of the mobile phone pose a risk to human health, it seems necessary to focus on realistic uses made by users. In this regard, many studies exist and I will quote that of Redmayne et al (2013) made on Australian teenagers which show that 20% of the participants of the study keep their active phone in their pocket more than 10 consecutive hours a day and 12.4% say they also keep it under the pillow at night.

## **6/ Thermal health effect**

This is all the more important as you raise this subject and I quote: "***Because RF-energy absorption and any induced effects are dependent on the frequency of incident-field parameters and the composition of exposed tissues, it has been suggested that quantifying SARs in small averaging regions is more relevant for evaluations of human health effects***"<sup>9</sup>.

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<sup>6</sup> [Page 28 of NTP reports on rats](#)

<sup>7</sup> [Professor Emeritus, Elect & Computer Engineering Utah University](#)

<sup>8</sup> [Professeur Devra Davis on American Wikipedia](#)

<sup>9</sup> [Page 29 of NTP report on rats](#)

And you add with regard to the thermal effects that SARs measure: "*The most well-established and biologically plausible mechanism for cell phone RFR-induced effects in biological systems is through tissue heating resulting in damage. It has been well established that excessive heating causes significant damage to cells, tissues, and organs*" and a little further on: "*Because human exposures to cell phone RFR occur at intensities that are not expected to cause thermal effects, the nonthermal effects are more appropriate to the evaluation of effects in humans.*" Lastly: "***Additionally, low levels of exposure to cell phone RFR may result in small temperature changes in localized areas of exposed tissues that cause conformational changes in temperature-sensitive proteins and induce the expression of heat-shock proteins***"<sup>10</sup>.

## **7/ Non-thermal health effect**

The study of the non-thermal effects on the biology of rats and mice has been left out on the pretext that they only come into play if the body temperature does not exceed 1 ° C. Yet there is a controversial international scientific debate on this point that deserves greater attention in our view. Concerning low frequency waves you cite several studies (Adair, 2003, Prohofsky, 2004, Sheppard et al, 2008) but without indicating that they were also classified in 2002 by the World Health Organization (WHO) as a possible carcinogen, class 2B.

## **8/ GSM and CDMA frequency bands**

And what about the choice made for the study to expose rats and mice to waves of GSM and CDMA frequency bands? As recalled in the introduction, the presentation by ANSES of the results of ANFR shows that globally it is the UMTS and LTE frequency bands that are mostly involved in the increase of the SAR, 30% compared to less than half (13%) for GSM. There is, therefore, possibly another level of decrease in exposure between that of rats and mice and humans.

Moreover, the ANSES report notes<sup>11</sup> : « the studies, having evaluated the 'whole body' SAR, report higher levels of exposure in children than in adults, particularly in the two frequency bands: towards 100 MHz and around from 1 to 4 GHz. The SAR can therefore exceed the basic restrictions by 40% when exposure is equal to the maximum level authorized for adults (reference level). This means that for any person whose height is less than 1.30 m, the regulatory limit values of exposure are less suitable," and that children can be more exposed than adults, particularly at the level of the parts of the brain closest to the skull.

Also, recently, on March 8, 2018, Gilles Brégant, the Director-General of ANFR, commented about the whole body SAR to a French journalist<sup>12</sup>: "*not so suitable for mobile devices*", explains ANFR: "*it is the estimation of exposure for a source that is relatively far away and that will flood the whole body, for example an antenna.*"

What appears obvious is the total lack of transparency of both regulators and manufacturers with regard to the modalities and parameters of calculation of the SAR which is nevertheless the basis of respect for the safety and health of users. This is particularly clear for the whole

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<sup>10</sup> [Pages 30 and 31 of NTP report on rats](#)

<sup>11</sup> [Page 6/17 ANSES report of July 2016](#)

<sup>12</sup> Nextinpact 8 March 2018 "[Ondes émises par les smartphones : Phonegate, risques sanitaires et mesures de DAS](#)"

body SAR, which does not include the calculation method for humans. This point remains to be clarified in your report<sup>13</sup>.

Moreover, under pressure from the manufacturers, governments around the world are preparing to develop the 5G frequency band in mobile phones. These frequencies penetrate more deeply into human and animal tissues. No test has been conducted to verify the health risks induced. In view of the results of the NTP studies, it seems evident that studies should be conducted before the implementation of 5G.

So if indeed, it is difficult to compare the whole body SAR levels of your study and those of the SAR body and extremities, you will readily agree from the revelations of ANFR's test measurements which are at the origin of the sanitary and industrial scandal of Phonegate, that it's no more possible to say that humans are less exposed than rats and mice in your study.

### **9/ Food and Drug Administration (FDA) aware of the French tests and studies**

The subject has been officially raised with the Food and Drug Administration by the Environmental Health Trust (EHTrust), our partner in the US. In June and September 2017, the Executive Director, Theodora Scarato, wrote to the FDA to inform them of the results of the ANFR tests and the ANSES scientific report. On October 18, 2017, the FDA replied to the EHTrust by email from Daniel Kassiday<sup>14</sup>, Radiation Safety Engineer. The latter announced having written to the French agency to ask for their work and a discussion on the results of their studies and conclusions. In addition, the FDA specified that it had not yet formulated an opinion on the differences in test protocols between France (Europe) and the United States. As a reminder, the U.S. continues to measure at 10 mm, while Apple decided to test its iPhone at 5 mm for more than two years.

### **10/ Recommendations of the scientific expert committee of ANSES**

Robert Genet, as Director-General of ANSES, had recommended to the French public authorities in his July 2016 report to:

- "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."
- "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.)"
- "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)."

### **11/ Conclusion**

We now know that human exposure to mobile phones is currently occurring in the context of overexposure to much higher SAR body levels than those allowed by flawed regulations. And this is taking place under conditions of exposure quite similar to that of the rats and mice,

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<sup>13</sup> [Page 28 of the NTP report on rats](#)

<sup>14</sup> [Email from Daniel Kassiday, FDA Radiation Safety Engineer](#)

and even greater because human exposure (head and body) is continuous. An added concern in this context is that the studies on children's exposure to waves have shown both greater penetration and whole body SAR thresholds being exceeded by 40% in relation to adults.

**It therefore seems essential that the statements of John Bucher should be clarified, when he added that he would not change anything for himself or for his children regarding their habits of mobile phone use.** The reason is that his comments could undoubtedly have serious consequences in terms of public health, especially in delaying simple measures of protection for billions of users.

Also, such remarks seem ethically questionable because they are unfounded, given the results of this study, and even more so, in the context of a massive overexposure to SAR body levels that can exceed more than 15 times the regulatory thresholds in terms of actual use of mobile phones.

A final methodological point: it would be useful to understand why blood samples were taken (clinical chemistry) from the rats but not the mice in the two-year study. And that one notes, for example, that the creatine kinase is significantly elevated in males and females exposed to both GSM and CDMA, and particularly at the threshold of 6 W/kg.

GSM Control (277+-83) 1,5W/kg (467 +- 161) 3W/kg (284+-68) 6W/kg (664+-266)

It would have been important at least to be able to have an identical comparison. Why was it not done? Could that have skewed the results on mice?

Dr Marc Arazi

President

Association Alerte Phonegate