

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Notice of Proposed Rulemaking)	
18 FCC Rcd 13187, 13188 ¶1 (2003))	ET Docket No. 03-137
)	
And)	
)	
Service Rules for the Advanced Wireless Services)	WT Docket No. 12-357
H Block---Implementing Section 6401 of the)	
Middle Class Tax Relief and Job Creation Act of)	
2012 Related to the 1915-1920 MHz and)	
1995-2000 MHz Bands ¶53 footnote 95)	

To: Office of the Secretary
Federal Communications Commission
Washington, DC 20554

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February 6, 2013

AFFIDAVIT OF KIT T. WEAVER

I, Kit T. Weaver, attest that my statements are true to the best of my knowledge.

Comment round for ET Docket No. 03-137 and WT Docket No. 12-357.

1. My name is Kit T. Weaver. My address is 558 Roxbury Drive, Naperville, Illinois.
2. I am currently retired, and have in excess of 25 years of professional health physics experience. I am a plenary member of the Health Physics Society.
3. These comments are targeted specifically for footnote 95 of paragraph 53 of WT Docket No. 12-357, where it states, in part, that, “a few commenters stated that the Commission’s RF safety rules are inadequate because the rules are based on physics rather than biological studies. . . . To the extent that commenters desire to change the RF standards, commenters can file in this proceeding...” Although my comments are generally applicable for all wireless devices, my specific area of knowledge and greatest concern is for wireless electrical usage meters installed on private property by electric utilities.
4. Over the past several years, electric utilities have been installing advanced metering infrastructure systems across their distribution territories. This deployment has accelerated over the past couple of years as funding became available from the American Recover and Reinvestment Act of 2009. Most of these new metering systems employ the use of the wireless technologies although non-wireless technologies do exist.
5. At issue primarily are “wireless smart meters” that typically operate both in the 900 Mhz and 2.4 Ghz frequency ranges. These wireless electrical usage meters are installed on private property by utilities without owner consent and expose property owners to radiofrequency radiation in an involuntary manner.
6. When residents raise concerns over smart meter RF radiation emissions, the utility typically responds with statements like, “These devices adhere to all Federal Communications Commission (FCC) guidelines.”

7. It is my understanding that wireless smart meter devices receive “equipment authorizations” under 47 CFR 27.51 provided that they meet FCC exposure guidelines. These FCC guidelines are believed to protect against injury caused by acute exposure that result in tissue heating or electric shock or burn. The current guidelines do not address chronic, non-thermal exposure situations and thus are irrelevant and meaningless when it comes to protecting members of the public through that exposure mechanism.
8. Moreover, it is not just that the numerical values of FCC exposure guidelines are not applicable to non-thermal exposure mechanisms but also that the current FCC field strength limits are time-averaged. For non-thermal effects, there is no basis for using time-averaged based guidelines, and thus FCC guidelines do not account for the burst nature of wireless smart meter RF transmissions.
9. There is sufficient evidence for FCC safety guidelines to be amended to address the issue of involuntary exposure to wireless smart meter radiation. Examples of this evidence are given below:
 - In May 2011, the International Agency for Research on Cancer (IARC) classified radiofrequency (RF) electromagnetic fields as possibly carcinogenic to humans.
 - The United States Environmental Protection Agency has stated that "Federal health and safety agencies have not yet developed policies concerning possible risk from long-term, non-thermal exposures." ... and that "... it is correct to say that there is uncertainty about whether or not current guidelines adequately treat nonthermal, prolonged exposures (exposures that may continue on an intermittent basis for many years.)" Furthermore, the EPA has stated that FCC guidelines were endorsed "with certain reservations" and that current FCC guidelines "do not apply to chronic, non-thermal exposure situations." Reference: USEPA letter dated July 16, 2002, from Norbert Hankin, Center for Science and Risk Assessment, Radiation Protection Division.
 - On the US EPA website, radiofrequency radiation is listed as a “Potential Carcinogens, Link Suspected but Unconfirmed.” The EPA website further states that: “Exposure to radio frequency (RF) radiation has climbed rapidly with the

- advent of cell phones and other wireless technologies. Studies of the link between exposure to RF and to electric and magnetic frequency (EMF) radiation have found RF and EMF to be ‘potential carcinogens,’ but the data linking RF and EMF to cancer is not conclusive. World wide, health physicists (scientists who study the biological effects of radiation) continue to study the issue.”
- The Radiofrequency Interagency Work Group (RFAIWG) has identified several issues that still need to be addressed “to provide strong and credible rationale to support RF exposure guidelines,” including one issue particularly applicable to smart meters. This issue relates to pulsed RF radiation exposures where current exposure guidelines “may not adequately protect the public.” Reference: Letter dated June 17, 1999, from the RFAIWG, signed by W. Gregory Lotz, and addressed to Richard Tell of the IEEE SCC28 (SC4) Risk Assessment Group.
 - The Parliamentary Assembly of the Council of Europe has stated that, "Governments should reconsider the scientific basis for the present electromagnetic fields exposure standards set by the International Commission on Non-Ionizing Radiation Protection, which have serious limitations and apply as low as reasonably achievable (ALARA) principles. The adopted resolution underlines the fact that the precautionary principle should be applicable when scientific evaluation does not allow the risk to be determined with sufficient certainty.” Reference: Council of Europe Parliamentary Assembly press release of May 27, 2011.
 - The United States Access Board, an independent Federal agency devoted to accessibility for people with disabilities, has stated, “The Board recognizes that multiple chemical sensitivities and electromagnetic sensitivities may be considered disabilities under the ADA if they so severely impair the neurological, respiratory or other functions of an individual that it substantially limits one or more of the individual's major life activities.” Reference: Federal Register, Vol. 67, No. 170, Tuesday, September 3, 2002, page 56353, “Architectural and Transportation Barriers Compliance Board.”
 - The United States Access Board sponsored the IEQ Indoor Environmental Quality Project, and the final project report includes the following statement, “For people

who are electromagnetically sensitive, the presence of cell phones and towers, portable telephones, computers, fluorescent lighting, unshielded transformers and wiring, battery re-chargers, wireless devices, security and scanning equipment, microwave ovens, electric ranges and numerous other electrical appliances can make a building inaccessible.” Reference: “IEQ Indoor Environmental Quality,” NIBS IEQ Final Report, 7/14/05. Note: “NIBS” is an acronym for National Institute of Building Sciences.

- The Board of the American Academy of Environmental Medicine (AAEM) has stated the following: (1) “Chronic exposure to wireless radiofrequency radiation is a preventable environmental hazard that is sufficiently well documented to warrant immediate preventative public health action.” (2) “... we have an obligation to urge precaution when sufficient scientific and medical evidence suggests health risks which can potentially affect large populations.” (3) “the Board of the American Academy of Environmental Medicine finds it unacceptable from a public health standpoint to implement this technology until these serious medical concerns are resolved.” (4) “We consider a moratorium on installation of wireless ‘smart meters’ to be an issue of the highest importance.” (5) “Provide immediate relief to those requesting it and restore the analog meters.” Reference: January 19, 2012, letter from the AAEM to the Public Utilities Commission of the State of California.

10. Many individuals and organizations, faced with the uncertainty regarding long-term exposure to RF radiation and the associated non-thermal biological effects on living tissue, recommend the use of a precautionary principle in order to limit RF radiation when scientific evaluation does not allow risks to be determined with sufficient certainty.

11. It is apparent, however, that the FCC’s rationale for exposure guidelines does not incorporate the concept of the “precautionary principle.” This was probably best revealed in a previous court ruling where it was demonstrated the FCC elected *not* to employ a precautionary approach when adopting its most current RF exposure guidelines. The FCC evaluated issues such as non-thermal effects and whether certain individuals might be “hypersensitive” or “electrosensitive,” and then the FCC

proceeded to develop a rationale to *not* address those issues in the final rules as a practical matter. As stated by the court, “The FCC concluded that requiring exposure to be kept as low as reasonably achievable in the face of scientific uncertainty would be inconsistent with its mandate to 'balance between the need to protect the public and workers from exposure to potentially harmful RF electromagnetic fields and the requirement that industry be allowed to provide telecommunications services to the public in the most efficient and practical manner possible.’” Reference: United States Court of Appeals for the Second Circuit, August Term 1998, (Argued April 5, 1999 Decided: February 18, 2000), Docket Nos. 97-4328(L); 98-4003(Con); 98-4005(Con); 98-4025(Con); 98-4122(Con).

12. From the viewpoint of many individuals, FCC exposure guidelines do not provide adequate protection from RF radiation exposure. Although the FCC has elected not to utilize guidelines that incorporate the precautionary principle, individual members of the public should not be compelled to adhere to that same policy.
13. Some individuals and organizations recognize that adverse effects from RF radiation occur at levels of $0.1 \mu\text{Watt}/\text{cm}^2$ or lower. One such organization is “The BioInitiative Working Group 2012,” which has an exhaustive compilation of scientific study information and recommendations regarding exposure to RF radiation. See website at <http://www.bioinitiative.org/>. The Working Group contends that guidelines and actions should be taken based upon “good public health principles rather than demanding scientific certainty.” For purposes of my own comments, I have elected not to recommend any specific new FCC exposure guideline framework. The FCC should definitely undertake that process to review and appropriately revise its exposure guidelines. Unfortunately, that interagency endeavor would likely take years. My short-term recommendation is for the FCC to promptly implement common sense precautionary measures aimed at preventing the potentially serious harm that may occur if the exponential increase in wireless technologies is allowed to continue at its current rate.
14. For most wireless devices, informed members of the public can adopt a precautionary approach with regard to exposing themselves to RF radiation. They can limit or

eliminate the use of cellular or cordless phones, utilize wired routers in the home, etc. There is an implied concept of “voluntary use” of wireless technologies in the home. However, this voluntary use concept is not available in the case of the forced installation of a wireless smart meter on one’s home by an electric utility. The fact that the FCC (as a matter of policy) has elected to approve such a device for use without addressing possible chronic non-thermal radiation effects should not in turn give unlimited liberty to an electric utility to forcibly install such a device on one’s home, thereby ignoring the types of precautionary warnings presented earlier in this document.

15. To further elucidate my point with regard to use of the precautionary principle, I would like to address some statements in a document called, “Health Impacts of Radiofrequency from Smart Meters,” dated January 2011, published by the California Council on Science and Technology (CCST). It has been previously used by proponents of wireless smart meters. In many respects the document does a thorough treatment of the subject matter. Here is one excerpt that puts RF radiation health effects in perspective:

“Household electronic devices, such as cellular and cordless telephones, microwave ovens, wireless routers, and wireless smart meters produce RF emissions. Exposure to RF emissions may lead to thermal and non-thermal effects. Thermal effects on humans have been extensively studied and appear to be well understood. The Federal Communications Commission (FCC) has established guidelines to protect public health from known hazards associated with the thermal impacts of RF: tissue heating from absorbing energy associated with radiofrequency emissions. Non-thermal effects, however, including cumulative or prolonged exposure to lower levels of RF emissions, are not well understood. Some studies have suggested non-thermal effects may include fatigue, headache, irritability, or even cancer. *But these findings have not been scientifically established, and the mechanisms that might lead to non-thermal effects remain uncertain.* Additional research and monitoring is needed to better identify and understand potential non-thermal effects.”

16. The above paragraph makes factual statements that FCC guidelines only protect against thermal effects and there is some evidence of chronic non-thermal effects for which FCC guidelines do not address. Additional research is needed. The CCST report was published in January 2011, so I believe the authors would now have difficulty making the statement that non-thermal effects have not been “scientifically established” in light of the fact that in May 2011, the International Agency for Research on Cancer (IARC) classified RF radiation as a Group 2B carcinogen. It is still true that mechanisms leading to non-thermal effects remain relatively uncertain.
17. One of the key CCST report findings is as follows: “Not enough is currently known about potential non-thermal impacts of radio frequency emissions to identify or recommend additional standards for such impacts.” Most experts in the field of non-ionizing radiation would likely agree with this statement, but I must focus on the word “standards.” We may not yet have enough information to develop a scientifically based numerical standard for non-thermal effects, but, in the face of uncertainty, we do have enough information to develop a precautionary approach to complement or supplement the current FCC guidelines. In other words, the CCST report effectively says “do nothing” in the face of limited evidence; I say it is prudent to implement a precautionary approach.
18. A precautionary approach for RF radiation exposure control could be implemented in a number of ways. One practical approach would be to implement the current exposure guidelines as a baseline and then implement a number of measures aimed at raising awareness to the issue and implementing specific measures to help reduce needless or involuntary exposure to RF radiation. Examples valid for all types of wireless devices could include the following:
- Implement awareness campaigns on the potential risks of RF radiation, targeting children, teenagers, and young people who may at greatest risk for non-thermal effects;
 - Evaluate current labeling practices for wireless devices and improve language and nature of warnings for possible health hazards;
 - Particularly for schools and classrooms, indicate preference for wired Internet connections;

- As some organizations have already recommended, emphasize hands-free operation of cellular phones and texting when possible to reduce exposure to the head area;
- Emphasize the voluntary nature of wireless devices used in the home and stipulate that no utility, government, or other entity can require installation of a RF emitting device upon one's property without one's consent.

Note: A number of recommended actions are outlined in a document issued by the Parliamentary Assembly of the Council of Europe, Resolution 1815 (2011), some of which I have summarized above.

19. It is interesting and somewhat ironic to note that the FCC website at <http://transition.fcc.gov/cgb/consumerfacts/mobilephone.pdf> currently mentions some practical precautionary measures similar to those mentioned above and then states that “**The FCC does not endorse the need for these practices,**” apparently because the same webpage states that “no scientific evidence currently establishes a definite link [emphasis added] between wireless device use and cancer or other illnesses.” Similar to the CCST study discussed earlier, the FCC appears reluctant to endorse a precautionary approach without scientific certainty that people are being harmed. At the same time, the FCC apparently recognizes that many reputable organizations and individuals are issuing warnings for action.
20. In summary, and based upon the foregoing comments, the FCC should undertake the process of reviewing and updating its safety guidelines to ensure that the public is appropriately protected from potentially adverse non-thermal radiation effects. On an interim basis, the FCC should promptly implement, and fully “endorse,” common sense precautionary measures to slow the exponential growth of wireless technologies in our society.
21. At a minimum, and specifically for wireless smart meters, the FCC should promptly revise/ issue equipment authorizations for wireless smart meters to clearly stipulate that installation of such devices on individual homes requires the property owner's consent. This will give homeowners the opportunity to use the precautionary principle in an effort to limit exposure. For wireless smart meters, the action probably just needs to be a clarification ruling by the FCC, because I have difficulty

believing that the Federal government ever intended members of the public to be forcibly exposed to RF radiation as a condition of receiving electrical service. Such a ruling would actually be totally consistent with the actual wording and intent of Section 1252 of the Energy Policy Act of 2005. As written by the Edison Electric Institute in 2006:

The Public Utility Regulatory Policies Act "PURPA Section 111(d), as amended by The Energy Policy Act of 2005, contains language that requires state utility commissions to consider whether it is appropriate for utilities to offer [emphasis added] customers time-dependent rates, and to provide and meter those rates for customers that request them." [emphasis added]

"Separately, PURPA also requires state regulatory commissions and unregulated utilities to consider whether it is appropriate to offer [emphasis added] smart metering and, if it is, to set a smart metering standard for utilities.

Reference: "Deciding on 'Smart' Meters: The Technology Implications of Section 1252 of the Energy Policy Act of 2005," published by the Edison Electric Institute, September 2006.

22. As written in the Energy Policy Act of 2005, smart metering was to be "offered" to customers, and in any case, smart meters do not have to be wireless in nature. Non-wireless smart metering technology is available which would be less hazardous to the members of the public for those who desire that technology.

Respectfully submitted by:

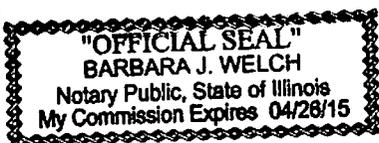


Kit T. Weaver

State of Illinois, County of Rock } ss

Subscribed and sworn to (or affirmed) before me this 6 day of February, 2013 by Kit T. Weaver, personally known to me or proved to me on the basis of satisfactory evidence to be the person who appeared before me.

(Seal)





Notary Public