FCC 12-152

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 __Donald R Maisch_____

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I, Donald R. Maisch, 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 Donald R. Maisch and my address is 143 Gordons Hill Road, Lindisfarne, Tasmania, Australia, 7015. I am a citizen of both Australia and the United States.

2. I am an environmental consultant advising on both power frequency and telecommunications frequency issues and science writer for the Australasian College of Nutritional & Environmental Medicine. I have been directly involved in telecommunications standard setting since 1996. From 1998 to 2001, I was a member of the Standards Australia TE/7 Committee: Human Exposure to Electromagnetic Fields. (Radiofrequency standards) which concluded in 2001. From 2004 to 2009 I was enrolled in a PhD research program at the University of Wollongong, New South Wales, Australia. My area of research was examining the health risk assessment process as it applies to the development of Western telecommunications standard setting. In 2010 my thesis, *The Procrustean Approach: setting Exposure Standards for Telecommunications Frequency Electromagnetic Radiation*, passed external review and was accepted by the university. I have included that document as an essential part of my submission to the FCC.

3. I have focused my PhD research on the controversy over the level of health protection that is provided by the internationally recognized radiofrequency exposure standards / guidelines. These are the RF standard developed under the auspices of the Institute of Electrical and Electronic Engineers (IEEE C95.1) and the RF guidelines promoted by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). In my examination of the established literature base used to set thermally based RF standards such as IEEE C95.1, and ICNIRP's RF guidelines, it is seen that consideration of other possible biological effects not related to heating have not been taken into account in the setting of the exposure limits in these standards/guidelines. It is my opinion that there is now sufficient scientific data in the peer reviewed and published RF literature base to justify a re-examination of possible non-thermal biological effects from human exposure to radiofrequency and microwave (RF/MW) exposure with the aim of including these effects in setting human exposure limits.

4. This idea is not new, and was a concern of the U.S. Radiofrequency Interagency Work Group (RFIAWG) a governmental interagency committee

working under the House of Representatives' Committee on Commerce. Working group membership included the Food and Drug Administration (FDA), the Center for Device and Radiological Health (CDRH), the National Institute for Occupational Safety and Health (NIOSH), the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the National Telecommunications and Information Administration (NTIA) and the Federal Communications Commission (FCC)[1] (Appendix B). With this work group membership, a significant difference of opinion was expressed over the adequacy of the thermally based proposed IEEE C95.1 standard revisions, compared to that of the industry make up of the IEEE standard setting committee, SCC-28 subcommittee IV. These differing expert opinions illustrated that differing scientific interpretations of the same scientific literature base was very much according to one's affiliations.

In June 1999 Gregory Lotz, representing NIOSH on the RFIAWG, presented the Chairman of the SCC-28 subcommittee IV a list of issues that RFIAWG considered needed to be addressed in the IEEE RF standard. The list was in response to previous requests from the work group for greater participation in SCC-28 discussions on RF standards.[2] In particular, RFIAWG criticised the biological rationale of the standard on a number of fronts. A fundamental issue was the standard's failure to address chronic (low intensity/prolonged) as opposed to acute (high intensity/short term) exposures. This was seen in the standard's limiting the definition of an "adverse effect level" to only acute exposure situations and the use of time-averaged calculations that were not suitable for prolonged exposure situations and therefore may not adequately protect the public. RFIAWG recommended that a clear rationale needed to be developed to also include chronic exposures. [3]Another concern was the standard's incorrect assumption that all tissues are equally sensitive (other than the eyes and testicles) to RF. This failed to take into consideration the differing sensitivity of human tissue when calculating SAR limits.[4] There was also a concern expressed about failure to include consideration of the body of research on the biological effects of exposure to ELF-modulated and pulse modulated RF that was relevant to public exposures. In addition, the SAR time- averaging calculations as used in the standard hid any biological effects resulting from modulated RF exposures.[5] RFIAWG also questioned the biological validity of the IEEE's two-tier exposure classification, "controlled" vs. "uncontrolled". Besides not being adequately explained, a rationale needed to be given as to why people in uncontrolled environments needed to be protected to a greater extent than persons in controlled environments, when such situations historically were based on biological considerations.[6] Another issue for RFIAWG was the rationale

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[1] E. Jacobson, Deputy Director, Center for Devices and Radiological Health, FDA Letter Regarding Cellular Phones, May 5, 1997

[2] G. Lotz, RFIAWG, RF Guideline Issues: Identified by members of the Federal RF Interagency Work Group, June 1999, letter from Gregory Lotz to Richard Tell, Chair of IEEE SCC28 IV

[3] Lotz, op. cit., p. 1-2.

[4] ibid.

[5] Lotz, op. cit., p. 5

[6] Lotz, op. cit., pp. 3-4

for the relaxation of the exposure limits above 1.5 Ghz that "caused concern that the standard is not restrictive enough for continuous exposures at lower microwave frequencies where new wireless applications for consumers could make this an issue in the future".[7] To address these concerns the working group recommended a comprehensive review of long-term, low- level exposure studies that had relevance to environmental chronic occupational RF exposures and neurological-behavioural effects to better define the adverse effect level for RF, and micronucleus assay studies with relevance to carcinogenesis.[8]

5. Despite the concerns raised by the RFIAWG these were simply ignored in subsequent IEEE C95.1 standard revisions, as seem in relation to the IEEE's 12 guiding principles for RF standard setting. These 12 "Guiding principles" for setting RF exposure standards were published in 2003 by the IEEE's International Committee on Electromagnetic Safety's (ICES) Subcommittee 4 (SC4). These 'principles' were referred to as "a valuable reference on the subject for many years to come"[9] They state in part that standard exposure limits should be based on established adverse effects, that the thermal effect is the only established adverse effect and that non-thermal effects are not established. These so-called principles could only be set by ignoring the very valid concerns of the RFIAWG. Setting such a firm principle on scientific inquiry for years to come, based on a very selective assessment of the science, is ill advised as it can limit the scope of future scientific research to what is already "established". I would urge the FCC not to go down this path.

6. Two alternative reviews of the RF literature base, the "Bioinitiative Report"[10] and the ICEMS review,"Non-Thermal Effects and Mechanisms of Interaction Between Electromagnetic Fields and Living Matter"[11] are in general agreement with the RFIAWG concerns over limiting public health protection in RF standard setting to thermal considerations only. What the RFIAWG concerns, and these two reviews indicate, is that there is substantial peer reviewed and published research in existence that found scientific evidence of adverse biological effects at exposure levels far below the official standard limits/ guidelines that are based on thermoregulatory considerations.

7. It is my opinion that this extensive data base should no longer be ignored in setting human exposure standards which should be based on biologically relevant end points and not just thermal considerations.

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[7] Lotz, op. cit., p. 6

[8] Lotz, op. cit., p.7

[9] C-K. Chou, J. D'Andrea, 'Reviews of the Effects of RF Fields on Various Aspects of Human Health: Introduction', *Bioelectromagnetics, Supplement 6*, 2003, pp. S5-S6.

[10] Blackman, C. et al., "BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields (ELF and RF)", Updated Jan. 2013

[11] Giuliani, L. and M. Soffritti (eds), "Non-Thermal Effects and Mechanisms of Interaction Between Electromagnetic Fields and Living Matter", ICEMS Monograph for the European Journal of Oncology, vol. 5, 2010

Respectfully submitted by

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