Response to

Ofcom's proposed increase in radiation limits

for 3G masts and future 2 GHz MSS/CGC licences,

on behalf of Electrosenstivity UK

(ES-UK: registered charity number 1103018).

1. Direct answer:

Objection to increased limits on medical grounds

(a) A 4-times increase in transmission power from 3G masts and future 2 GHz licences from 62 to 68 dBm (each +3 increase doubles the power) would significantly increase the symptoms already experienced from existing transmission power levels by patients suffering from electrosensitivity. This would increase (i) ill health and (ii) disabling conditions for these patients.

(b) Based on dose-response evidence, a 4-times increase in transmission power would increase significantly the number of people likely to be sensitized to microwave radiation from mobile phone masts.

(c) A 4-times increase in transmission power would also significantly increase the number of illnesses, such as cancers, shown by studies to occur in a dose-response relationship close to existing masts.

(d) As people medically affected by existing 3G mobile phone mast radiation, electrosensitive sufferers have a direct and personal stakeholder interest in levels of radiation and reasonable grounds for objecting to any increase in power limits.

2. The reasons for these views that limits should not be increased.

(a) Electrosensitivity UK is a charity established in 2003 with the aim of helping people suffering from sensitivity to electromagnetic radiation and of spreading knowledge of the scientific evidence of the health effects produced by electromagnetic radiation. The charity is one of some 30 similar organizations across the world which have been established in the last few decades to help people sensitized to electromagnetic radiation. It is in contact with many hundreds of people and this number is steadily increasing as the levels of 'electrosmog' continue to increase.

(b) Recent studies show that for the general population typical exposure to this 'electrosmog' already comes mainly from mobile phone masts, along with mobile phones and DECT cordless phones. Most other sources of RF and MW exposure are comparatively small.

(c) Sensitivity to electromagnetic radiation from microwaves was first described in the scientific literature in the 1930s. It became an established occupational health hazard for those working with radar, radio and television transmission and electrical supplies during the next two decades, and was extensively studied, especially in eastern Europe, where is it still known as Microwave Sickness or the Asthenic Syndrome. This sensitivity to electromagnetic radiation began to spread from occupational workers to the general population as an environmental illness, from the 1970s for people using Visual Display Units, from the 1980s for those living near mobile phone masts or using mobile phones, and from 2000 with the introduction of WiFi.

(d) Sensitisation to electromagnetic radiation can occur from close proximity to mobile phone masts as well as from WiFi base stations and mobile or cordless phones themselves.

(e) The WHO in 2005 recognised electrosensitivity as a “disabling problem” and it was classified in 2000 by the Nordic Council of Ministers under R68.8 as “Electromagnetic Intolerance” or “el-allergy”.

(f) Research scientists in France, Germany, Russia and the USA have devised diagnostic and treatment protocols for electrosensitivity. No cure has been found at present, however, and the only proven way to ameliorate symptoms appears to be the removal of the environmental electromagnetic radiation causing them.

(g) Governments and others, therefore, have begun to establish “white zones” with reduced electromagnetic radiation in order to create areas within a political region where electrosensitive sufferers can escape phone mast and other radiation in order to improve their quality of life. It has been argued, however, that the UN Convention on the Rights of Persons with Disabilities, adopted worldwide in 2007, should preclude such procedures, since disabled people, whatever the cause of their disability, should be able to enjoy civic freedoms equal with other citizens. Judicial verdicts in litigation over enforced environmental radiation exposure in some EU countries is increasingly being based on international chronic and biological limits, not the current six-minute heating and shock limits.

(h) In 2009 the European Union parliament voted for a new biological approach to environmental pollution from electromagnetic radiation and deemed current six-minute heating and shock limits as obsolete.

(i) Afsset (the French Agency for Environmental and Occupational Health Safety) in 2009 stated that RF cellular effects were ‘indisputable’.

(j) The AUVA Insurance report of 2009 stated that nonthermal effects of EMR were confirmed.

(k) Some recent judicial judgments within other EU member countries and outside the EU have included damages awarded in favour of those suffering from electromagnetic radiation at mobile phone frequencies, on the grounds that the health dangers of such radiation are now well established scientifically.

(l) For further information on international biological guidelines, see Appendix 1.

3. The impact of Ofcom’s proposals on electrosensitive people.

(a) Electrosensitive people in housing close to a mobile phone mast from which they already suffer symptoms would experience more severe and more frequent symptoms. This includes children, who can be particularly susceptible to electromagnetic radiation.

(b) Many electrosensitive people already suffer symptoms from phone masts near motorways and roads when traveling. They often have to re-arrange their journeys to avoid radiation exposure from such masts. If radiation levels were increased, they would find it more difficult or perhaps impossible to plan routes to avoid suffering symptoms.

(c) If limits were raised, those children already suffering electrosensitivity symptoms from phone masts near their school would have a worse environment in which to learn and spend a significant proportion of their time. They typically experience headaches, nosebleeds, short-term memory loss or the other established cognitive reactions typical of microwave radiation symptoms.

(d) Increasing the radiation power of 3G masts on the roofs of flats or offices where electrosensitive people live or work in the floors below will also be likely to have a deleterious effect on their lives, with more severe and more frequent symptoms.

(e) Since the health effects of microwave radiation, such as those from G3 phone masts, are cumulative and dose-dependent, according to medical studies, increasing the radiation limit will increase the range as well as the severity and frequency of sensitivity symptoms. This will mean that more people will find that their sensitization will be transferred to other sources of electromagnetic radiation, such as those from ELF-EMF from overhead power lines and household wiring, making life yet more difficult and unpleasant.

(f) Of particular concern is section 7.2 of the Ofcom proposal, where “Vodafone states that using an increased transmission power … provides deeper in-building penetration of networks.” All the medical centres across the world researching into electrosensitivity are increasingly concerned particularly about the ambient levels of radiation in sleeping areas within buildings. To this end they typically recommend shielding the sleeping areas from microwave radiation above the threshold of about 0.05 V/m, in addition to removing, if possible, power cable electromagnetic radiation, regarded by IARC since 2001 as possibly carcinogenic to humans. Under the new limits outdoor exposure near masts could apparently reach 4 V/m and indoor levels would be far above the sensitivity threshold. If much greater in-building penetration is achieved by the proposed increase in 3G limits, only the wealthy will be able to afford to protect themselves fully, since much effective shielding material is relatively expensive, although it is widely used by the military for protection from the electromagnetic radiation employed in warfare. It seems inappropriate to introduce such a financial division between those who can and those who cannot afford to buy health protection from increased electromagnetic radiation. Many electrosensitive sufferers are without significant income since they have often lost their employment and/or been forced to move house in an attempt to escape radiation from existing masts.

4. Conclusion

The established medical evidence strongly presents reasonable grounds that electrosensitive people along with a significant percentage of the general population should not be exposed to increased levels of 3G radiation. In contrast, scientific evidence on biological and chronic health effects suggest that such radiation should be substantially reduced below the present six-minute heating and shock limits for long-term health.

Michael Bevington
Chair, Trustees, Electrosensitivity UK

Appendix 1.

INTERNATIONAL GUIDELINES

The Building Biology Evaluation Guidelines for sleeping areas (Baubiologie Maes for the Institut für Baubiologie+Ökologie Neubeuern IBN, 1987-92, revised by 10 experts) have 4 categories of concern:

- **Nil Concern** - the highest degree of precaution;
- **Slight Concern** - precautionary, especially with regard to sensitive and ill people;
- **Severe Concern** - unacceptable; remediation necessary soon; numerous case histories and scientific studies indicate biological effects and health problems;
- **Extreme Concern** - immediate and rigorous action.

International Guidelines: - biological (chronic): BioInitiative (2007), RCNIRP
- heating and shock (6 min. average): ICNIRP (1998)

FREQU-ENCY	***FIELD***	***LEVEL OF CONCERN (Building Biology)***				***NATURE***	***GUIDELINES***		
		NIL	***SLIGHT***	***SEVERE***	***EXTREME***		***EHS***	***BIOLOGICAL*** *(non-EHS) (chronic)*	***HEATING & SHOCK*** *(6 mins)*
Radio Frequency 300 kHz-300 MHz **Microwave 0.3-300 GHz**	**Electric Fields** *(Volts/ metre: peak)*	*V/m*	*V/m*	*V/m*	*V/m*	*V/m*	*V/m*	*V/m*	*V/m*
		<0.006	0.006-0.06	0.06-0.6	>0.6	< 0.00002	0-0.05	BioInitiative: outdoor 0.6 indoor 0.2; Salzburg: outdoor 0.06 indoor 0.02	ICNIRP,HPA: 41 (900 MHz), 61 (2.45 GHz)
	Power density *(micro-watt/ square metre: average)*	*µW/m²*	*µW/m²*	*µW/m²*	*µMw/m²*	*µW/m²*	*µW/m²*	*µW/m²*	*µW/m²*
		< 0.1	0.1-10	10-1,000	>1,000	< 0.000001	0-0.1	BioInitiative: outdoor 1,000 indoor 100; Salzburg: outdoor 10, indoor 1	ICNIRP,HPA: up to 10,000,000

(Extracted from *Electrosensitivity and Electro-Hypersensitivity: A Summary* (2010), page 16.)