

Response to Ofcom consultation
(15th August – 10th October 2013)

Earth Stations on Mobile Platforms

by
Electro-Sensitivity UK

Question 1:

Do you agree that Ofcom should authorise the use of ESOMPs in the UK in the frequency bands 27.5 – 27.8185 GHz, 28.4545 – 28.8265 GHz and 29.4625 – 30 GHz?

Answer:

No.

Explanation: WiFi and mobile phone signals should not be allowed in trains, buses or aircraft for reasons of health and safety, as shown below.

There are dangers for at least three groups of users:

- (i) Occupational exposure: a percentage of bus drivers, for instance, will have their attention limited by being irradiated by WiFi etc throughout their shift, adding to the risk of accident.
- (ii) Regular users: commuters and regular travellers will suffer chronic exposure, compromising their long-term health.
- (iii) Occasional users: a disabling problem for those with electro-sensitivity.

1. High levels of exposure to electro-magnetic radiation in enclosed metal compartments.

- (a) The metal framework often used for railway, bus and aircraft passenger cabins increases the internal reflection of any electro-magnetic radiation propagated within the enclosed compartment.
- (b) The simultaneous use by numerous passengers in close proximity to each other of mobile phones and WiFi significantly increases levels of electro-magnetic radiation. Most smart phones and electronic notebooks now use both phone and WiFi radiation and many create their own local radiation networks.
- (c) Passive or secondary exposure to electro-magnetic radiation is a recognized health problem, where the use by passengers of mobile phones and WiFi significantly increases levels of electro-magnetic radiation for all other passengers too, in addition to the direct exposure from hand-held devices by the person/persons using them. These fellow passengers may not wish to be exposed to this toxin, or may suffer health consequences if they are. Some scientists note that the health risks to the general population from electro-magnetic exposure is greater than that from smoking and passive smoking.

2. High levels of radiation exposure contravene biological non-thermal safety levels, especially for vulnerable sub-groups.

- (a) These high levels of exposure to electro-magnetic radiation, while below the 6-minute averaged heating limit used by the ICNIRP, PHE and the UK government, are above, often by significant amounts, the biological safety limits of BioInitiative (2012) and other international expert groups, such as Seletun (2010). The European Parliament in 2009 voted that heating limits were obsolete and that

member states should adopt biological limits instead. See the Appendix for details of typical power density values.

- (b) In 2002 the ICNIRP warned individual governments to make provision for safety limits below its 6-minute average heating limits designed for healthy adult males. This is because it is recognized that some sub-groups of the population are more vulnerable to electro-magnetic radiation effects. These groups include pregnant women, children, the elderly, people with compromised immune systems, and people especially sensitive to electro-magnetic radiation.

3. Equality, disability and health issues from involuntary electro-magnetic exposure.

- (a) Studies show that about 30% of the general population can be slightly adversely affected by exposure to electro-magnetic radiation and fields, with 3-5% moderately affected, and under 1% severely (electro-magnetic hyper-sensitivity, EHS). It is, therefore, likely that airlines, as well as train and bus operators, will find that some employees such as cabin crew react adversely to a working environment which is polluted with this environmental toxin.
- (b) People with the condition of electro-sensitivity, recognized as a physical reaction to an environmental toxin by international groups like the Nordic Council of Ministers as ICD-10, R68.8, can be functionally disabled by high electro-magnetic exposure. Such rights may relate to Equality and Disability rights in the UK and under international law, and they are formally recognized in some countries such as Canada, Sweden and the USA. When the toxin is eliminated from their environment, their functional disability is also eliminated.
- (c) Some countries provide transport or sections of transport free from electro-magnetic radiation, such as from mobile phones and WiFi, for people sensitive to electro-magnetic radiation and other vulnerable groups. The Council of Europe in 2011 required member states to provide 'white zones' free of electro-magnetic exposure for people who are sensitive to it.
- (d) Some police are willing to consider deliberate use of electro-magnetic radiation near a known electro-sensitive person as an assault.
- (e) In November 2011 the UK government recognised that some people suffer adverse reactions to non-thermal exposure to electro-magnetic radiation by making the deployment of wireless smart meters voluntary.
- (f) The UK government since 2000 has advised that children under 16 should not use mobile phones except in emergencies. Since July 2013 it has issued advice through PHE on ways of reducing exposure to electro-magnetic radiation.
- (g) Countries like France, Germany, Israel and Italy ban, limit or advise against WiFi and/or mobiles in schools because of known health effects. Transport systems allowing more use of mobiles and WiFi would expose children to more prolonged irradiation from these same sources.

4. Employment issues regarding involuntary exposure to a 2B cancer agent.

- (a) The World Health Organisation's International Agency for Research on Cancer (IARC) classifies electro-magnetic exposure at non-thermal levels as a 2B possible cancer agent at both extremely low frequency (ELF) and radio frequency (RF). Some scientists say that it should now be classified as a class 1 certain or class 2A probable carcinogen.
- (b) Most unions and other worker organisations expect employers not to use class 1, 2A or 2B carcinogens in the work place when replacements which are not carcinogenic are available. This is true of electro-magnetic exposure, where safe wired connections, rather than carcinogenic wireless exposure, can be provided in an enclosed environment like a train carriage, bus interior or aircraft passenger cabin. Cabin flight crew and train employees are particularly in danger from these carcinogens and neurological agents.

5. Legal responsibility for irradiation with environmental toxins.

- (a) Recent court cases and tribunal findings from around the world suggest that an employer requiring an employee to be exposed to electro-magnetic radiation, or a business irradiating a customer, is responsible for any harm attributed to the irradiation.
- (b) Compensation for harm from electro-magnetic exposure has increasingly been assessed in monetary terms as a percentage related to the amount of the exposure and the damage inflicted.

6. Adverse health effects from the use of high Gigahertz frequencies.

- (a) Research suggests that high frequencies in the Ka band, 18-30 GHz, are associated with DNA damage and epigenetic effects, with results including cancers and genetic changes.
- (b) Rain attenuation is greater at these GHz frequencies than mobile phone or TV frequencies. Where this attenuation is compensated by increased signal strength, there is also increased likelihood of greater environmental damage in areas of greater precipitation.
- (c) Since the satellites are 36,000 Km (22 miles) above the Earth, the latency of 0.24 seconds for a return signal may require lengthening the total duration of radiation emitted by mobile phone and WiFi units, especially for internet access.

Appendix

*Table showing
Non-thermal Biological Limits and Heating Limits
for EM radiation exposure.*

Power density (microWatts / metre squared)					
nature	Non-thermal Biological Limit <i>(long-term, for all groups of people)</i>		typical ambient exposure <i>(e.g. airport terminal indoors)</i>	typical proximate exposure <i>(e.g. mobile phones, iPads, laptops)</i>	Heating Limit <i>(6-minute average, for healthy adult males)</i>
	BioInitiative (2012)				PHE (UK government) (1998)
	<i>vulnerable sub-groups (children, sensitives, etc.)</i>	<i>general population</i>			
0.000001	3	6	6 - 20	2,000 -- 87,000 - 700,000 - 1,800,000	58,000,000