



**Roinn Cumarsáide, Gníomhaithe
ar son na hAeráide & Comhshaoil**
Department of Communications,
Climate Action & Environment

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Mr Tom Lonergan
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Dear Mr. Lonergan,

I refer to your phonecall of 30 November regarding concerns raised about exposure to electromagnetic fields from WiFi systems.

- In March 2007, to address public concern at potential harmful effects of EMFs, the Government, through the Department of Communications, Marine and Natural Resources published the Report of the Expert Group on the Health Effects of Electromagnetic Fields..
- The Expert Group examined in detail the scientific evidence relating to the potential health effects of electromagnetic fields. The report concluded that the weight of scientific evidence currently available shows no adverse short or long-term health effects from exposure to the radiofrequency signals produced by base station transmitters. The conclusions of this report were accepted by the then Government. Accordingly, this Department's advice, based on the conclusions of the Expert Group Report, is that there is no scientific basis for, or evidence of, adverse health effects in children or adults as a result of exposure to electromagnetic fields.
- Given the resurgence in interest in electromagnetic fields, the Department of Environment, Community and Local Government, in collaboration with the Department of Communications, Energy and Natural Resources, commissioned the **National Institute for Public Health and the Environment of the Netherlands** (RIVM) to prepare a report on the current scientific knowledge on the possible health effects of exposure to electromagnetic fields and to examine how a sample of five other countries deal with the policy issue and how these policies were implemented in practice. The Report reaffirms the overall recommendations and conclusions of the 2007 Expert Group Report on the Health Effects of Electromagnetic Fields that there is insufficient evidence to establish a causal relationship between exposure to low frequency electromagnetic fields and cancers.

- The International Commission for Non Ionising Radiation Protection (ICNIRP) has established limits for general exposure to non-ionising radiation. There is no scientific evidence to date that exposure up to these limits is damaging to health. The ICNIRP reference limits find widespread international acceptance such as by the World Health Organization and the European Union. They are science-based and have been agreed by the majority of the best international scientific minds with knowledge of the latest research. There is a minority view held by some scientists as expressed in the report Safe Schools 2012 that the limits are not adequate and that exposure to very low level electromagnetic fields is injurious to health. There has been ample opportunity for this view to be reconsidered by scientific meetings and committees but the fact remains that the ICNIRP limits have near universal acceptance.
- This Department is fully aware of the announcement by the WHO's International Agency for Research on Cancer (IARC) on 31 May 2011 of a possible link between mobile phones and certain types of cancer. It is important to note that the new research has not established a direct link between mobile phone use and cancer. The IARC statement concluded that:

“the evidence, while still accumulating is strong enough to support a conclusion for a 2b classification. This conclusion means that there could be some risk, and therefore we need to keep a close watch for a link between cell phones and cancer risk”
- A substantial volume of further research on these issues is being carried out internationally by regulatory bodies with responsibilities for monitoring the health effects of electromagnetic fields. The findings of this research are being monitored by the World Health Organisation's (WHO) EMF Project. In this case, WiFi systems have not been shown to produce adverse human health effects. However, much scientific research continues to be carried out worldwide on the possible harmful effects of electromagnetic fields.
- WiFi systems transmit at low power levels and are in widespread use. All modern short range radio systems such as WiFi, Bluetooth or Ultra-wide Band are assessed for safety by the strength and frequency of their radio emissions. These emissions are then compared with the limits allowed by the International Commission of Non-Ionising Radiation Protection. If the radio system emits fields less than these limits, they are considered safe. Thus the advantage of having adopted international exposure limits is that they provide information on safe levels of electromagnetic field exposure from any existing device or any device produced in the future, but also provides manufacturers with the exposure limits within which they must manufacture their devices. Within the European Union, devices having the “CE” mark are considered to be safe for their intended purpose.
- It should be remembered that exposure from WiFi systems is considerably less than that from using a mobile phone. In the report Health Effects from Electromagnetic Fields (April 2012), the UK Health Protection Agency (HPA) has included the results of studies of WiFi in schools. These have found for example that with 15 laptops and 12 access points operating at 2.4 GHz, the maximum power density values for the laptops and access points at 0.5 metre distance were 22 and 87 milliwatts per square metre. At 1 metre distance these figures dropped to 4 and 18 milliwatts per square metre. These power densities are considerably lower than the ICNIRP reference level of 10 watts per square metre. In addition, an estimate of the Specific Absorption Rate of power by a sitting child was modelled and this found the level of SAR for the head to be less than 1% of the calculated

SAR for typical mobile phone exposure. Another scenario involving 30 laptops and an access point transmitting maximal power indicated personal exposure to a power density of 16.6 milliwatts per square metre, a very small fraction of the ICNIRP level. These values were measured and estimated under the assumption of continuous transmission. However the nature of real WiFi usage as measured in a sample classrooms (primary and second level) by the HPA means that laptops and access points are usually receiving far more frequently than they are transmitting and time-averaged exposure is likely to be even lower in practice.

The Department sees no reason at this time, based on existing scientific research, why WiFi should not continue to be used in schools. This view is widely shared by, among others, the HPA (UK) and Health Canada.

Yours sincerely,

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