

How much electromagnetic radiation am I exposed to?

May 4 2016



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A team of researchers from Center for Biomedical Technology (CTB) at Universidad Politécnica de Madrid (UPM) has developed a pocket instrument capable of perceiving radio signals from 50 MHz to 6 GHz and storing this information in a non-volatile memory. After collecting and storing the information, the system assesses the daily exposure of a person to electromagnetic radiation.

Society demands continuous implementation of new transmission systems due to ongoing development of communication technologies. These systems work by emitting [electromagnetic waves](#). As a result,

population is exposed to a significant increase of environmental radiation levels.

The increasing number of transmitters along with the unawareness of the characteristics and the exact location of the radio transmitters are an extra impediment that makes hard a real knowledge of the variations in electromagnetic field levels in urban environments.

The concern about the possible effects of the electromagnetic fields on human beings is a fact. The need of the authorities to control radio emissions has meant the development of specific regulation on exposure to electromagnetic fields.

In spite of the regulations, there exists a perception of risk among citizens due to the unawareness about the amount of radiation received. To carry out a real and non-theoretical measure is required to assess the radiation of each person at any place either inside buildings or outdoors. Only in this way could we really know the radiation levels of each person in his environment. Thus, a personal and [portable device](#) as the one developed by the Bioelectromagnetism Laboratory from CTB at UPM is essential to assess the mentioned levels of radiation.

This new device is a pocket system, comfortable and capable of perceiving radio signals between a frequency band from 50 MHz to 6 GHz. The operating frequency range is divided into channels of bandwidth of 10 MHz each. In this way, the field strength received of each channel is measured, and such information is stored in a [non-volatile memory](#). The [electromagnetic radiation](#) levels received by a person who wears the device are stored to later assess his exposure for extended periods of time.

The maximum radiosensitivity designed for this device would be 110dB, thus the device could indirectly support radiated powers up to 300W at a

distance of one meter from the source without damaging the electronic system.

The digital system also includes visual and auditory indicators that are used to report [radio signals](#). These alert signals are programmable, interesting for those users who wish to control that their exposure to levels of radiation in their environment obey the specific limitations.

All the characteristics mentioned before turn this device into an instrument of [electromagnetic fields](#) measurements for any person who wish to control the [radiation levels](#). The device has been protected through patent.

Provided by Universidad Politécnica de Madrid

Citation: How much electromagnetic radiation am I exposed to? (2016, May 4) retrieved 24 April 2024 from <https://phys.org/news/2016-05-electromagnetic-exposed.html>

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