



Portable Digital Readout Microwave Leakage Detector (เครื่องมือวัดการรั่วไหลของไมโครเวฟแบบดิจิทัลชนิดพกพา)



Gold Prize “Seoul International Invention Fair (SIIF) 2011”

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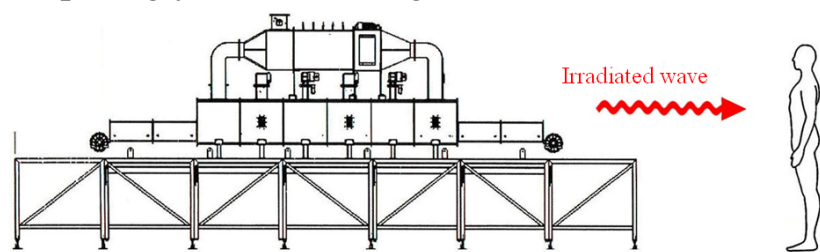
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What is Microwave ?

Whenever a microwave oven is turned on, radioactive energy is produced causing the water in food to vibrate rapidly. This rapid vibration produces heat, which in turn cooks the food. The energy produced by a microwave oven can also penetrate through living tissue which is why exposure is harmful to our health. Once you turn off the oven, the microwaves disappear but until then, you may be exposing yourself to dangerous levels of radiation leakage.



Wave leakage from an electromagnetic radiation device



What happens when microwave leak?

Generally, slamming the door, dirt or food particles caught in the door seals and hinges, or basic wear and tear all cause the oven door to slightly separate from the oven enclosure. Once this happens, invisible, but highly dangerous microwaves leak through the small space and cause irreversible damage and injury to the user.

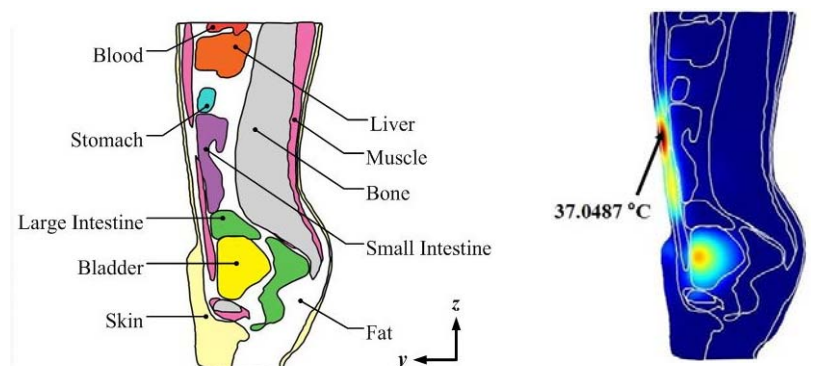
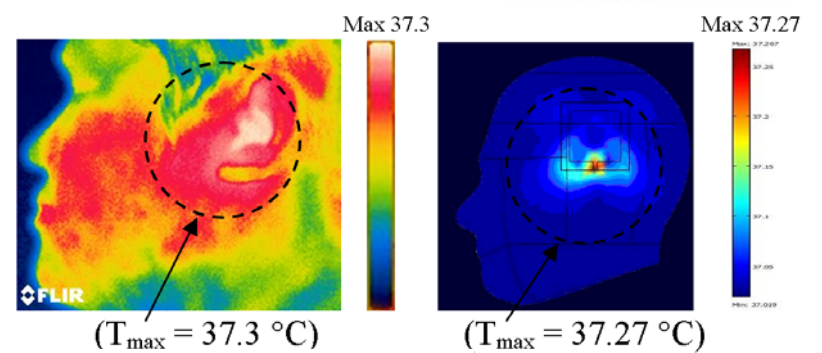
Every year millions of children, pregnant women, and people of all ages stand too close to an operating microwave oven, exposing themselves to dangerous levels of body penetrating microwave radiation. Microwave radiation is known to cause:

- ❖ Cataracts,
- ❖ Birth defects,
- ❖ Skin cancer,
- ❖ Temporary sterility in men and
- ❖ Other serious health problems

From our group surveying indicated that over 50% of microwave ovens two years or older leaked levels of radiation 10% higher than the safety standards set by the FDA.

Description of the Invention:

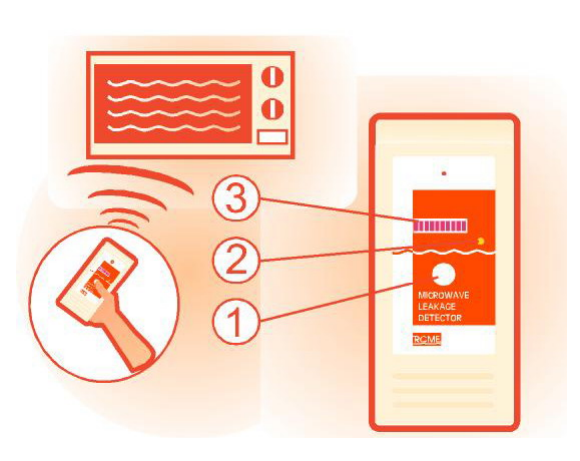
This invention is a digital microwave leakage detector which used to detect microwave leakage from domestic oven accurately. It is very easy to use: only press the ON button, then press and hold the auto range ZERO button to adjust to zero before each test run. It also provides voice alarm “beeping” and red flashing light when it senses microwaves over than the safety standards: 5 mW/cm^2 .



Temperature Distributions in Human Body Subjected to Leakage Microwave (Our research work published in ASME JOURNAL OF HEAT TRANSFER, Vol 133(5), pp.051101.1-13, 2011)



(a)



(b)

Portable Digital Readout Microwave Leakage Detector

Previously Awards:

1. Honorable Mention, Invention Award, Office of the National Research Council of Thailand, 2008 “Portable Microwave Leakage Detector”
2. Outstanding Inventor Award, Office of the National Research Council of Thailand, 2008

Publication and Patent:

Wessapan, T, Srisawatdhisukul, S., and Rattanadecho, P. "Numerical Analysis of Specific Absorption Rate and Heat Transfer in the Human Body Exposed to Leakage Microwave Power at 915 MHz and 2,450 MHz". ASME JOURNAL OF HEAT TRANSFER, Vol 133(5), pp.051101.1-13, 2011: Impact factor 1.200

Wessapan, T, Srisawatdhisukul, S., and Rattanadecho, P. " The effects of dielectric Shield on specific Absorption Rate and Heat Transfer in The Human Body Exposed to Leakage Microwave energy" International Communications in Heat and Mass Transfer, 38, pp.255-262, 2011 Impact Factor 1.189

-Patent: Registration No. 0901003125



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