

Work **Safe!** Bulletin

RADIOFREQUENCY & MICROWAVE RADIATION

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Radiofrequency and Microwave radiation have similar characteristics and are usually discussed together. RF radiation is produced by devices such as **radio and TV transmitters, induction heaters, and dielectric heaters (RF sealers)**. MW radiation is produced by **microwave ovens, parabolic (dish) antennas, cellular telephones, radar devices, and diathermy applicators**.

Health Hazard

The main effect of exposure to RF/MW radiation is the heating of body tissues, as the energy of the radiation is absorbed by the body. Prolonged exposure increases the amount of heating and could lead to an excessive increase in body temperature. Localized heating or "hot spots" can cause burns to internal tissues, and those organs with poor heat control will be at greatest risk (e.g. eyes and testes).

Some laboratory studies have reported biological effects from RF/MW radiation at levels which are too low to cause tissue heating. The effect of these levels of radiation on humans is not clear at this time.

No health risks have been identified from the constant exposure to RF radiation from radio and TV broadcasting.

Recent reports suggesting a relationship between human health and cellular phones or traffic radar have not been substantiated.

Controlling RF/MW Radiation

- Sources of RF/MW radiation should be properly shielded to minimize stray radiation.
- Devices which can produce acute thermal injury (e.g. MW ovens), should have interlocked doors.
- Devices which produce high levels of stray radiation (e.g. induction and dielectric heaters) should be operated remotely whenever possible. Worker exposure to these devices should be monitored to confirm the exposure levels are safe, (for more information contact the Manitoba Cancer Treatment and Research Foundation at 204-787-2197).
- Needless exposure to RF/MW radiation should be avoided.
- Potentially hazardous RF/MW devices should be appropriately labelled.
- Metallic structures producing contact shocks should be electrically grounded and/or insulated.

Electric and Magnetic Fields

There have been many questions asked about the possible health effects from the electric and magnetic fields produced by RF and MW radiation. Studies to investigate the health effects of electric and magnetic fields have been taking place around the world for over 20 years. Most studies to date have not established a clear link between exposure to normal levels of electric and magnetic fields and ill-health effects. While some of the epidemiological studies suggest a weak association between increased risk of certain cancers (e.g. leukemia, brain cancer) and exposure to magnetic and/or electric fields, further research is needed to establish whether or not exposure to these fields pose any threat to public or worker health.

For more information about Electric and Magnetic fields contact:

Public Affairs,
Manitoba Hydro,
P.O. Box 815,
Winnipeg, Manitoba.
R3C 2P4.
Ph. (204) 474-3233.

The Workplace Safety and Health Division of the Manitoba Department of Labour has prepared WorkSafe bulletins to clarify the known risks to health and safety from various forms of radiation energy.

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