
Brief abstract: Overview of the current regulatory framework on protection from non-ionizing radiation and developments anticipated with the entry into force of a comprehensive new law on January 1, 2007.

The need for a regulatory framework

In response to the massive growth of sources and devices for industrial and private usage that emit or might emit non-ionizing radiation and as more knowledge was gained over the years on the impact of such radiation, a new Israeli law was enacted to regulate this field. The law entitled The Non-Ionizing Radiation Law, 2006 came into force on January 1, 2007 (hereinafter the "new law").

The sources of non-ionizing radiation are both natural and non-natural. The energy spreads in space, in low frequency electromagnetic movement, compared to ionizing radiation, and is insufficient to cause ionization. Typical sources of radiation are: electrical devices, boards and cables, cell phones, in the form of radio frequency, UV and laser radiation. The International Commission on Non-Ionizing Radiation Protection (the INCIRP), had concluded in its study on hazards from exposure to non-ionizing radiation published in 1998 that exposure above a certain level can cause damage to human health. The study indicates that exposure to low frequency electromagnetic fields normally results in negligible energy absorption and no measurable temperature rise in the body. However, it was pointed out that exposure to certain levels of electromagnetic fields at frequencies above 100 kHz can lead to significant absorption of energy and temperature increase, and thus children living near power lines appear to have an increased risk for leukemia.

The new law aims at protecting human health and the environment from hazards due to exposure to radiation, by regulating the issues of handling and installing radiation sources and measuring radiation emissions. The new law incorporates the Precautionary Principle as set out in the European Commission Communication from February 2, 2000. According to the Precautionary Principle,
reasonable steps to reduce risks have to be taken even if the current scientific evidence is not unequivocal enough to determine that specific damage is attributed to a specific source. The fact that research in a given field is not complete and does not allow for conclusions to be drawn with full scientific certainty should not delay the taking of measures.

The legislation currently in force

In order to understand the importance and the impact of the new law we need to shed light on the current legislative framework in this field. Until the new law comes into effect, activities related to handling and installing radiation sources and measuring radiation are regulated by several laws imposing criminal or civil liability listed in the below paragraphs. Some of these laws are specific to the issue at hand while others are laws of general application.

- General laws

  **The Israeli Criminal Law 1977:**
  Under the Israeli Criminal Law the criminal offence of assault takes place when force is generated unlawfully, directly or indirectly, on a human being. Force is defined as including heat, light, electricity, gas or **anything else** that is generated in quantities that cause real injury or discomfort. Presumably the latter can be interpreted as including exposure to non-ionizing radiation. The new law is expected to draw a line between “lawful” and “unlawful” exposure which in turn will determine the criminal aspects emanating from the use/handling etc of radiation sources.

- Specific legislation:

  **The Pharmacists regulations (Radioactive Elements and their Products) 1980:**
  The Pharmacists regulations deal with handling, installing, and repairing radiation sources as well as measuring and collecting data on radiation emissions from radioactive ionizing and non-ionizing energy. The regulations provide for a penalty of 6 months imprisonment for violation of the relevant criminal provisions contained therein. They also set out the obligations of the administrative authorities. The competent officer is empowered to grant licenses for handling, founding, repairing and performing measurements and data collection from all radiation sources, and to supervise their performance. It is interesting to note, however, that the regulation does not indicate what parameters or conditions should be
taken into account when considering an application for a license. The new law will clarify the licensing procedure as it defines the conditions under which a license may be granted.

The Consumer Protection regulations (information regarding non-ionizing radiation from mobile phones) 2002

These regulations contain specific provisions regarding mobile phones, which should be accompanied by a leaflet containing information on the level of non-ionizing radiation they emit. The new law will affect the way radiation is measured both in terms of methodology and allocation of responsibilities.

The new law

In the following paragraphs we list the features to be introduced by the new law:

1. Criminal aspects
   - A very interesting novelty relates to the fact that a violation of the new law will give rise to strict liability. In other words, the one who is accused of breaching the law bears the burden of proof that he took all reasonable steps to carry out his duties in a lawful manner. The strict liability provision was introduced for two reasons:
     - (a) The difficulty of proving a direct link between damage and action and (b) the severity of harm in case of violation.
     - According to the new law, the manager is obliged to exercise general supervision and to do all that is possible to prevent offences committed by the corporation or one of its employees.

2. Administrative aspects:
   The new law regulates mainly the following:
   - Licensing
     The competent officer in charge of granting licenses for handling, installing and monitoring of non-ionizing sources will now be guided by the following set of conditions when examining applications:
     - The license will be granted for specific duration.
     - The license may contain terms according to specific parameters and considerations:
       (a) Regarding the granting of an installation license or a handling license, it may for instance be conditional on the evaluation of maximum exposure levels predicted for
humans and the environment, (b) regarding a license for measuring radiation it may stipulate for carrying out professional tests, etc.

- Interrelation with other licenses
A building or a production unit may require several licenses such as a construction license and/or a business license. However where such a place has sources emitting non-ionizing radiation it is required to get as a first step the license under the Non-Ionizing Radiation law. This is a prerequisite to applying for any additional licenses.

- The new law authorizes a properly trained supervisor to perform specific precautionary and avoidance activities:
  - To enter at a reasonable hour places where a radiation source is located and its operation might cause hazards to humans or damage to the environment.
  - To give instructions on safety matters and to perform immediate measurements and investigations if needed.
  - To take possession of objects, under a court warrant.
  - To instruct on radiation source removal.

- The new law conforms with the policy on public access to information:
  - The law imposes a duty on those who handle non-ionizing radiation sources to collect data and to report to the competent officer on the technical details of the radiation sources, the measurement of radiation and on all safety tests that were done to ensure safe functioning.
  - The competent officer will enable the public to have access to the information that has come to his knowledge according to article 6(a) of the Freedom of Information Act 1998, even if the information is a professional or trade secret or has economic value. Thus the new law is expected to have a significant impact on the collection and dissemination of information on non-ionizing radiation.

Conclusion

Exposure of humans and the environment to non-ionizing radiation has increased dramatically during the last decade due to the rising number of emission sources. The scientific knowledge on the effect of such radiation on human health and the environment is not yet conclusive, but it is acknowledged in studies undertaken that exposure to non-ionizing radiation can cause damage to
the environment and human health, especially to the vulnerable sections of the population such as children and elderly people.

The non-ionizing radiation law incorporates the precautionary principle and sets the norms for handling and mounting radiation sources and measuring radiation emissions. It defines the measures to be taken in order to reduce the risks generated from the emission of non-ionizing radiation. By facilitating access to relevant information it gives the public the opportunity to act as guardians of its implementation. In order to ensure efficiency in enforcement it imposes strict liability. The new law reflects a modern approach to environmental legislation and promotes in several ways the control of population exposure to non-ionizing radiation. It remains to be seen how the law will be enforced by the executive and how wide a scope will be given to its provisions by the judiciary.

1 http://www.icnirp.net/documents/emfgdl.pdf