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**SUBCHAPTER 42. RADIO FREQUENCY RADIATION**

7:28-42.1 Scope

- (a) This subchapter governs exposure to radio frequency radiation from fixed radio frequency devices.
- (b) This subchapter shall not apply to the intentional exposure of patients to radiation for the purpose of diagnosis, treatment or investigation for the prevention or control of disease.

7:28-42.2 Purpose

The purpose of this subchapter is to define safety requirements for the use of radio frequency devices that radiate in the frequency range 300 kHz to 100 GHz in order to prevent possible harmful effects in human beings from exposure to such radiation.

7:28-42.3 Radio Frequency Protection Guides (RFPG)

- (a) Radio frequency devices, excluding microwave ovens, shall be maintained as follows:
  - 1. No person shall cause, suffer, allow or permit the use of a radio frequency device which exposes or may expose any worker or member of the public to radio frequency radiation which is in excess of the applicable Radio Frequency Protection Guide in N.J.A.C. 7:28-42.4.
  - 2. At frequencies between 300 kHz and 100 GHz, the RFPG in N.J.A.C. 7:28-42.4 may be exceeded if the exposure conditions can be shown by laboratory procedures to produce specific absorption rates (SARs) below 0.4 W/kg as averaged over any one gram of tissue.

(b) Microwave ovens shall be maintained as follows:

- 1. No person shall cause, suffer, allow or permit the use of a microwave oven manufactured after October 6, 1971 that radiates in excess of 5mW/cm<sup>2</sup> at any point 5 cm or greater from any external surface of the oven.
- 2. No person shall cause, suffer, allow or permit the use of a microwave oven manufactured before October 6, 1971 that radiates in excess of 10 mW/cm<sup>2</sup> at any point 5 cm or greater from any external surface of the oven.
- 3. Measurements shall be made with the microwave oven operating at its maximum output and with a container of 275+/- 15 ml of tap water at an initial temperature of 20 ± 5° C placed on the carrying surface provided by the manufacturer.
  - i. The container shall be a low form 600 ml beaker having an inside diameter of approximately 8.5 cm and made of electrically non-conductive material such as glass or plastic.

7:28-42.4 Radio Frequency Protection Guides (RFPG) for whole body exposure

Frequency Range	Maximum Allowed Mean Squared Electric Field Strength (V/m) <sup>2</sup>	Maximum Allowed Mean Squared Magnetic Field Strength (A/m) <sup>2</sup>	Equivalent Plane Wave Power Density (mW/cm <sup>2</sup> )
300 kHz - 3 MHz	400,000	2.5	100

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3 MHz - 30 MHz	4,000 (900/f <sup>2</sup> )	0.025 (900/f <sup>2</sup> )	900/f <sup>2</sup>
30 MHz - 300 MHz	4,000	0.025	1.0
300 MHz - 1.5 GHz	4,000 (f/300)	0.025 (f/300)	f/300
1.5 GHz - 100 GHz	20,000	0.125	5.0

Notes:

1. f-frequency (MHz)
2. For near field exposure, both the mean squared electric and magnetic field strengths shall be determined.
3. For frequencies below 300 MHz, both the mean squared electric and magnetic field strengths shall be determined.
4. At frequencies above 300 MHz, either the mean squared electric or magnetic field strengths shall be determined.
5. The applicable RFG shall be averaged over any 0.1 hour interval.
6. Measurement to determine adherence to the RFG shall be made at distances 5 cm or greater from any object.
7. Where electromagnetic fields are present at more than one frequency or for broadband fields, the fraction of the RFG incurred within each frequency interval shall be determined and the sum of all such fractions shall not exceed unity.