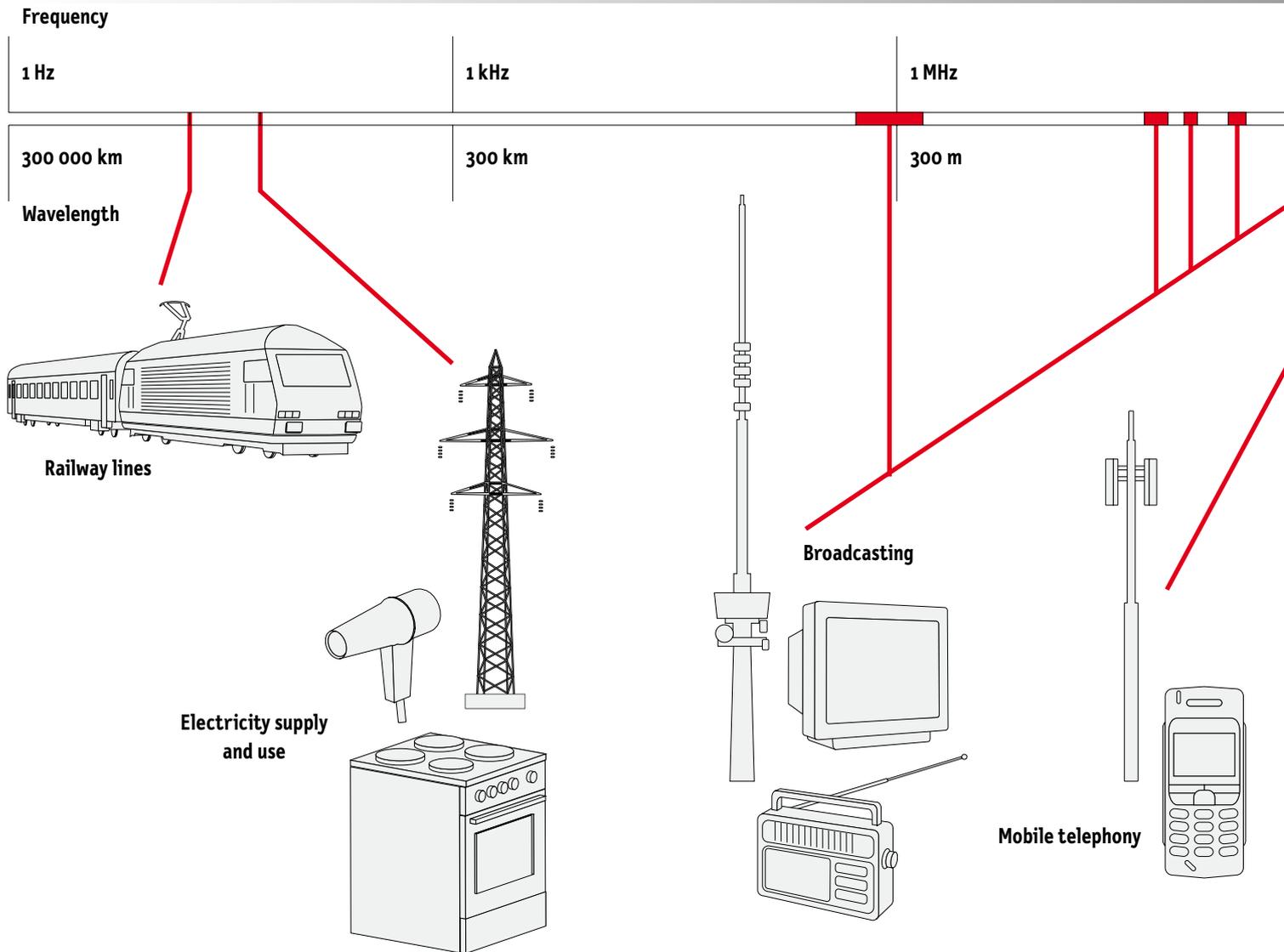


Electromagnetic spectrum

Low-frequency fields



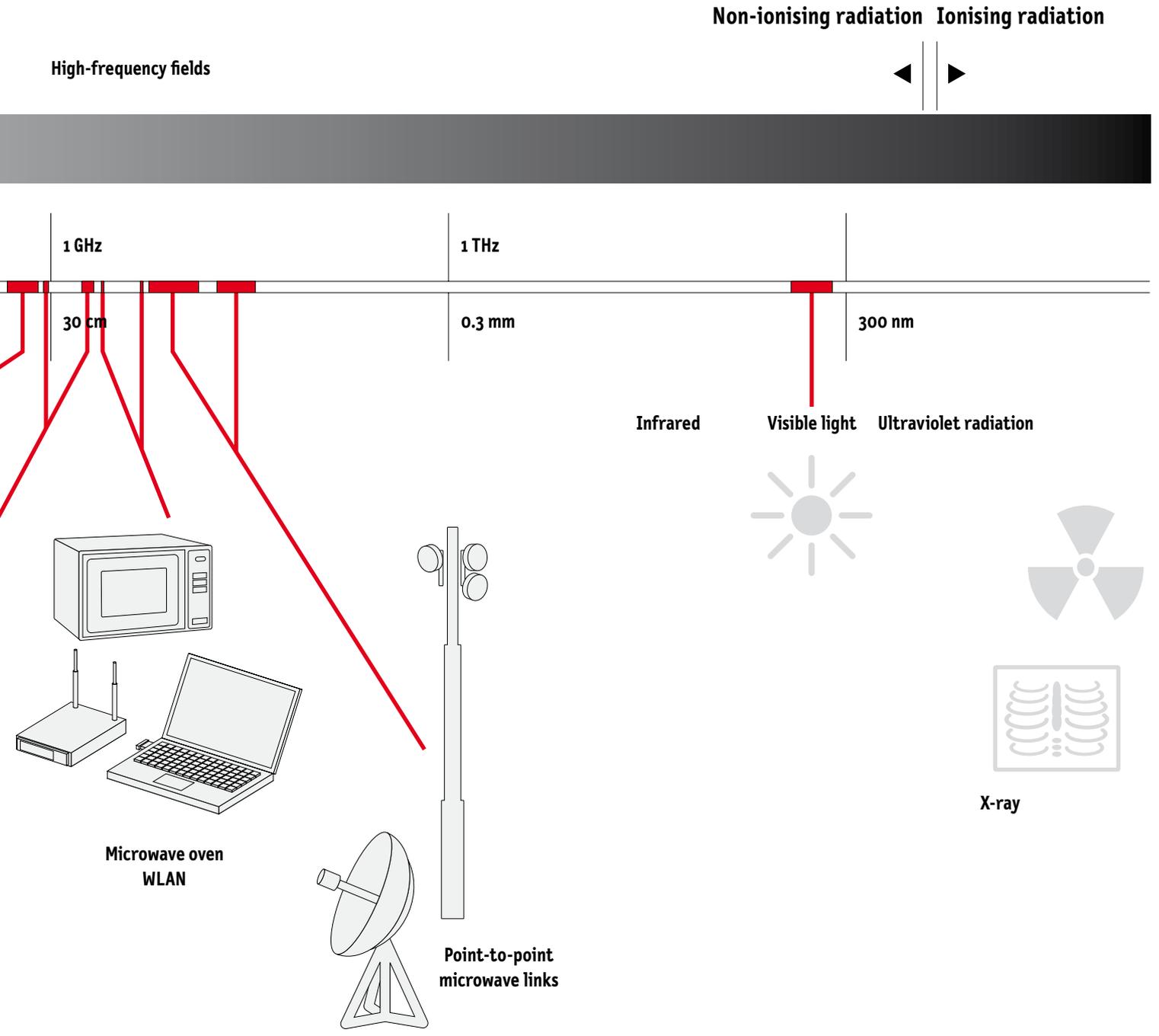
The diagram here shows an overview of the entire electromagnetic spectrum. Electromagnetic radiation occurs in our natural environment and is also generated artificially in a variety of forms, e.g. electric and magnetic fields from high-voltage power lines, radiation from mobile phone base stations and radio transmitters, visible light, x-rays. In physical terms, these types of radiation are distinguished by their frequency, i.e. the number of oscillations per second. Depending on their frequency they have different radiation properties and different effects on human beings.

Division of frequency spectrum

The frequency spectrum of electromagnetic radiation is broadly divided into non-ionising and ionising radiation. Non-ionising radiation is divided into low-frequency and high-frequency radiation, infrared radiation, visible light and ultraviolet radiation. Artificially produced low-frequency and high-frequency radiation are also referred to as “electrosmog”.

Low-frequency fields

The low-frequency range includes electric and magnetic fields from railway contact lines, high-voltage power lines and electrical household appliances. Since the railway power supply has a frequency of 16.7 oscillations per second, the fields it produces also have a frequency of 16.7 hertz (Hz). By comparison, the public power supply has a frequency of 50 Hz.



High-frequency radiation

We speak of high-frequency radiation when oscillations are 30,000 per second or more. Here, electric and magnetic fields are coupled and can propagate in the form of a wave. This is used for the wireless transmission of information. Specific examples include transmitters and receivers for radio and television, mobile telephony, point-to-point microwave links and radar. Such equipment uses frequencies ranging from several hundred kilohertz for medium-wave radio to several billion hertz (gigahertz) for point-to-point transmission, while heat radiation (infrared) and

visible light have even higher frequencies. Although these are no longer described as “electrosmog”, they nonetheless belong to the category of non-ionising radiation.

Ionising radiation

The transition to ionising radiation occurs in the ultraviolet radiation range. Ionising radiation includes x-rays and gamma radiation. By contrast with non-ionising radiation, ionising radiation possesses sufficient energy to directly alter the basic constituents of living organisms (atoms and molecules).