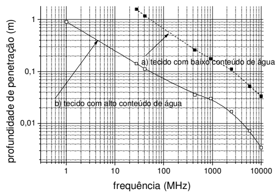
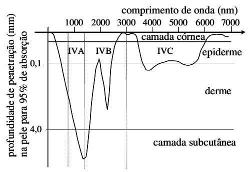
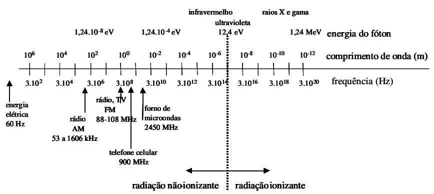
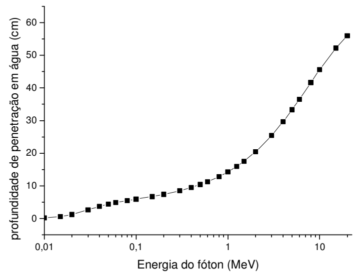
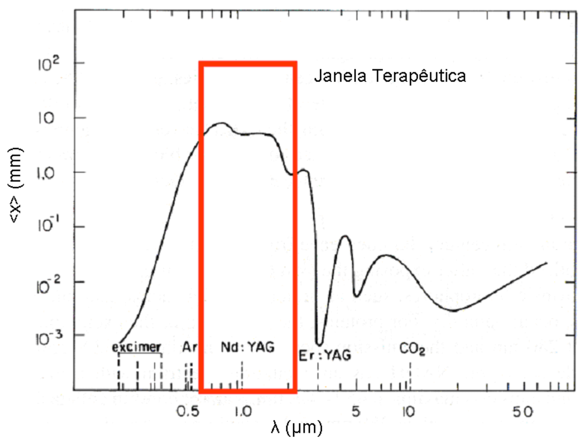


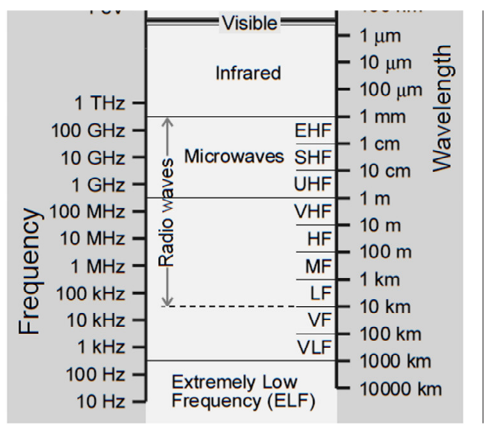


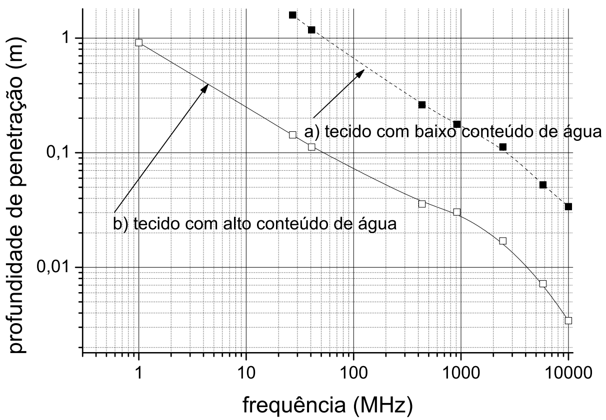


Raios X e gama





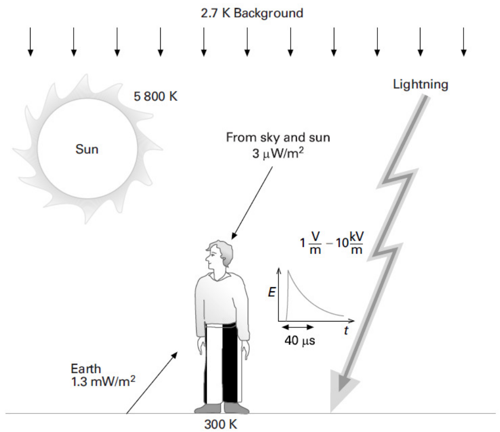




radiação eletromagnética	frequência	comprimento de onda	energia do fóton (eV)
raios X e gama	> 3 PHz	< 100 nm	> 12
Ultravioleta UVC UVB UVA	3 PHz - 1,07 PHz 1,07 PHz - 0,952 PHz 0,952 PHz - 0,75 PHz	100 nm - 280 nm 280 nm – 315 nm 315 nm – 400 nm	12,42 - 4,42 4,42 - 3,94 3,94 - 3,10
luz visível	0,75 PHz - 0,428 PHz	400 nm - 700 nm	3,10 - 1,77
Infravermelha IVA IVB IVC	385 THz - 214 THz 214 THz – 100 THz 100 THz – 300 GHz	780 nm - 1,4 mm 1,4 mm - 3,0 mm 3,0 mm - 1,0 mm	1,59 - 0,88 0,88 - 0,414 0,414 - $1{,}24\times10^{-3}$
radiofrequência micro-onda	300 GHz - 10 kHz 300 GHz - 300 MHz	1 mm - 30 km 1 mm – 1 m	muito pequena
frequência extremamente baixa	300 Hz - 0 Hz	10^6 m - $\rightarrow \infty$	extremamente pequena

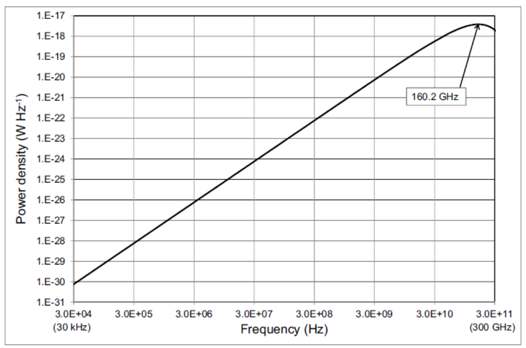
k (quilo) = 10^3; M (mega) = 10^6; G (giga) = 10^9; T (tera) = 10^{12}; P (peta) = 10^{15}

Fig. 1.3 Terrestrial and extraterrestrial sources of radiofrequency radiation



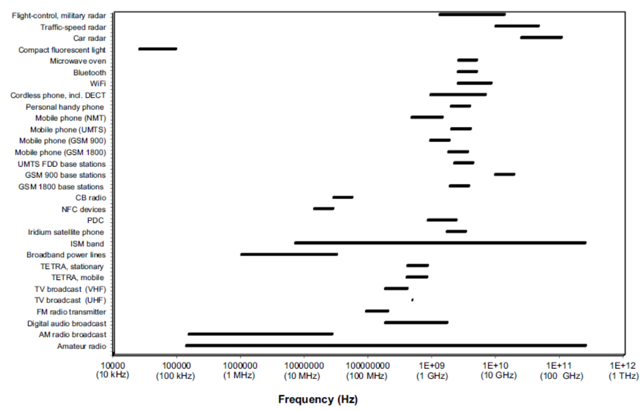
E, electric field strength; K, Kelvin; kV, kilovolt; m, metre; μs, microsecond; t, time; V, volt; W/m², watt per square metre.
The solar radiation spectrum is similar to that of a black body with a temperature of about 5800 °K. The sun emits radiation across most of the electromagnetic spectrum, i.e. X-rays, ultraviolet radiation, visible light, infrared radiation, and radio waves. The total amount of energy received by the Earth at ground level from the sun at the zenith is approximately 1000 W/m², which is composed of approximately 53% infrared, 44% visible light, 3% ultraviolet, and a tiny fraction of radio waves (3 μW/m²).
From ICNIRP (2009a) http://www.icnirp.de

Fig. 1.5 Power density spectrum of the cosmic microwave background in the radiofrequency range (30 kHz to 300 GHz)

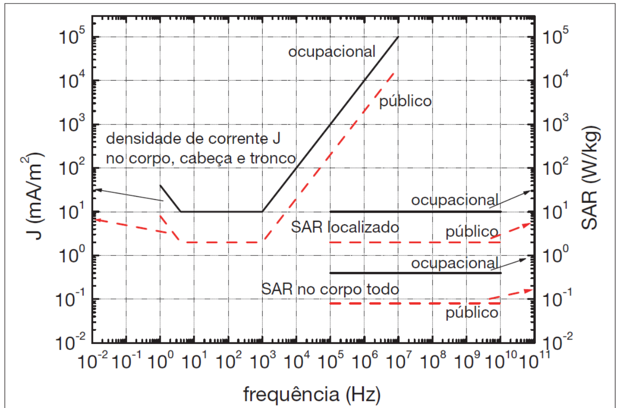


Prepared by the Working Group

Fig. 1.6 Man-made sources of radiation in the radiofrequency range (30 kHz to 300 GHz)



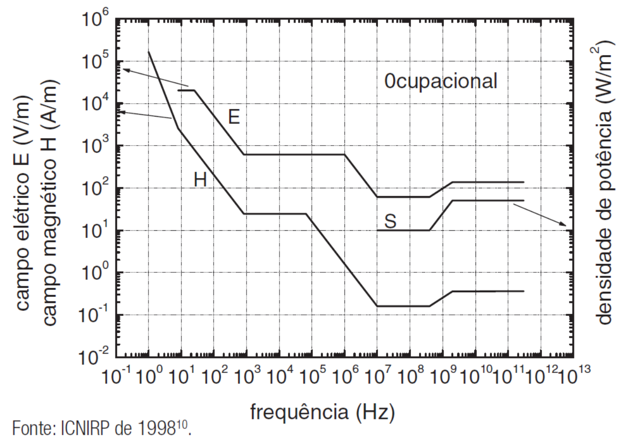
AM, amplitude-modulated; CB, citizen band; DECT, digital enhanced cordless telecommunications; FDD, frequency-division duplex; FM, frequency-modulated; GSM, Global System for Mobile communications; ISM, industrial, scientific and medical; NFC, near-field communication; NMT, Nordic Mobile Telephony; PDC, personal digital cellular; TETRA, Terrestrial Trunked Radio; TV, television; UHF, ultra-high frequency; UMTS, Universal Mobile Telecommunications System; VHF, very high frequency; WiFi, standard wireless local area network (WLAN) technology.
Prepared by the Working Group



Fonte: ICNIRP de 1998[10].

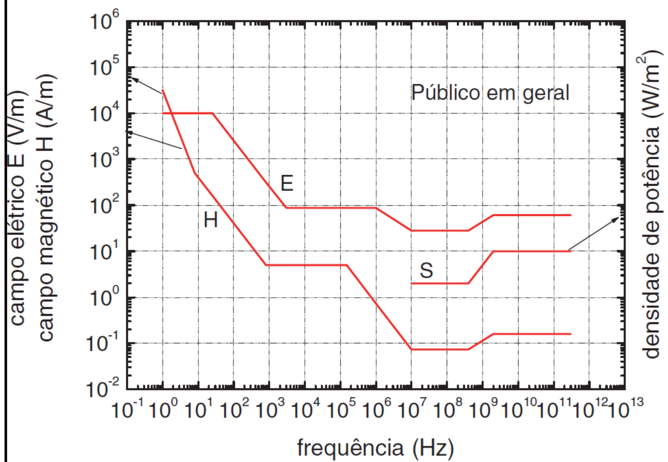
Figura 6. Restrições básicas em função da frequência para trabalhador e para público em geral.

OKUNO, 2009



Fonte: ICNIRP de 1998[10].

OKUNO, 2009



OKUNO, 2009