

The following chart was published in 2001 and has been updated to comport with current technology.

SOME BIOLOGICAL EFFECTS OF RADIO WAVES

Power density ($\mu\text{W}/\text{cm}^2$)	Reported Biological Effects	References
0.00000000000001	Altered genetic structure in E. Coli	Belyaev 1996
0.0000000001	Threshold of human sensitivity	Kositsky 2001
0.000000001	Altered EEG in human subjects	Bise 1978
0.0000000027	Growth stimulation in Vicius fabus (beans)	Brauer 1950
0.00000001	Effects on immune system in mice	Bundyuk 1994
0.00000002	Stimulation of ovulation in chickens	Kondra 1970
0.000005	Effect on cell growth in yeast	Grundler 1992
0.00001	Conditioned “avoidance” reflex in rats	Kositsky 2001
0.000024	Premature aging of pine needles	Selga 1996
0.000024	Smaller tree growth rings	Balodis 1996
0.0004	100 yards from a home WiFi router	
0.0017	Decreased seed germination in pine trees	Selga 1996
0.002	Sleep disorders, abnormal blood pressure, nervousness, weakness, fatigue, limb pain, joint pain, digestive problems, fewer schoolchildren promoted—controlled study near a shortwave transmitter	Altpeter 1995, 1997
0.0027	Growth inhibition in Vicius fabus (beans)	Brauer 1950
0.004	100 yards from a 2G, 3G or 4G cell phone at peak power	
0.01	100 yards from a commercial or outdoor WiFi router	
0.01 to 0.1	1 mile from a 2G, 3G or 4G cell tower	
0.06	Altered EEG, disturbed carbohydrate metabolism, enlarged adrenals, altered adrenal hormone levels, structural changes in liver, spleen, testes, and brain—in white rats and rabbits	Dumanskij 1974
0.06	Slowing of the heart, change in EEG in rabbits	Serkyuk, reported in McRee 1980
0.1	Increase in melatonin in cows	Stark 1997
0.1 to 1.8	Decreased life span, impaired reproduction, structural and developmental abnormalities in duckweed plants	Magone 1996
0.13	Decreased cell growth (human epithelial amnion cells)	Kwee 1997
0.168	Irreversible sterility in mice	Magras 1997
0.2	Childhood leukemia up to 12 km from TV tower	Hocking 1996
0.3	Impaired motor function, reaction time, memory and attention of schoolchildren, and altered sex ratio of children (fewer boys)	Kolodynski 1996

0.4	Breakdown of blood-brain barrier by cell phones	Eberhardt 2008
0.6	Change in calcium ion efflux from brain tissue	Dutta 1986
0.6	Cardiac arrhythmias and sometimes cardiac arrest (frogs)	Frey 1968
0–4	Altered white blood cell activity in schoolchildren	Chiang 1989
1	Headache, dizziness, irritability, fatigue, weakness, insomnia, chest pain, difficulty breathing, indigestion (humans—occupational exposure)	Simonenko 1998
1	Stimulation of white cells in guinea pigs	Shandala 1978
2 (lower threshold not known)	Auditory effects—clicking, buzzing, chirping, hissing, or high-pitched tones	Frey 1963, 1969, 1971, 1973, 1988, Justeson 1979, Olsen 1980, Wieske 1963, Lin 1978
2	Memory loss in rats exposed to cell phones	Nittby 2009
5	Leukemia, skin melanoma and bladder cancer near TV and FM transmitter	Dolk 1997
5	Biochemical and histological changes in liver, heart, kidney, and brain tissue	Belokrinitskiy 1982
8	Exposure to Head & Chest from Wireless Laptop on Table	
10	Damaged mitochondria, nucleus of cells in hippocampus of brain	Belokrinitskiy 1982a
10	Impaired memory and visual reaction time in people living near transmitters	Chiang 1989
10	Decreased size of litter, increased number of stillborns in mice	Il'Chevich (reported in McRee 1980)
10	Redistribution of metals in the lungs, brain, heart, liver, kidney, muscles, spleen, bones, skin, blood	Shutenko 1981
150	Exposure to Head & Chest from any Cell Phone on Table	
1,000	FCC's Whole Body Exposure Limit	
17,000	Exposure to Genitals from Wireless Laptop on a Lap	FCC 2018, Racini 2015
20,000	Exposure to Brain from any Cell Phone Against Head	