Appendix 9: Electromagnetic Spectrum

	Frequency range	Wavelength range
Radio waves		
LF		
AM radio	530 KHz -1680 KHz	566 meter – 179 meter
HF		
Cordless phones	28 MHz	10.7 m
	68 MHz – 88 MHz	4.4 m – 3.4 m
FM radio	88.1 MHz – 107.9 MHz	3.4 m – 2.8 m
UHF	138 MHz – 512 MHz	2.2 m – 60 cm
Analog cell phones	850 MHz – 960 MHz	35 cm – 31 cm
Digital cell phones	1800 MHz	17 cm
Spread spectrum	2400 MHz	13 cm
Satellite telephone	5 MHz	6 cm
Microwave		
L-band	1.00 GHz – 2.60 GHz	299.7 mm – 115.3 mm
S-band	2.60 GHz – 3.95 GHz	115.3 mm – 75.9 mm
G-band	3.95 GHz – 5.85 GHz	75.9 mm – 51.2 mm
C-band	4.90 GHz – 7.05 GHz	61.2 mm – 42.5 mm
J-band	5.30 GHz – 8.20 GHz	56.5 mm – 36.5 mm
H-band	7.05 GHz – 10.00 GHz	42.5 mm – 30.0 mm
X-band	8.20 GHz – 12.40 GHz	36.5 mm – 24.2 mm
M-band	10.00 GHz – 15.00 GHz	30.0 mm – 20.0 mm
P-band	12.40 GHz – 18.00 GHz	24.2 mm – 16.7 mm

N-band	15.00 GHz – 22.00 GHz	20.0 mm – 13.6 mm
Ku-band	15.30 GHz – 18.00 GHz	19.6 mm – 16.7 mm
K-band	18.00 GHz – 26.50 GHz	16.7 mm – 11.3 mm
R-band	26.5 GHz – 40.00 GHz	11.3 mm – 7.5 mm
Millimeter waves	30.00 GHz – 300 GHz	10.0 mm – 1.0 mm
Sub-millimeter	> 300.00 GHz	< 1.0 mm
Infrared light		
Extreme infrared	0.3 THz – 7.5 THz	1000 μm – 40 μm
Far infrared	7.5 THz – 50 THz	40 μm – 6 μm
Medium Infrared	50 THz – 200 THz	6 μm – 1.5 μm
Near Infrared	200 THz – 389 THz	1.5 μm – 0.77 μm
Visible light		
Red	389 THz – 482 THz	770 nm – 622 nm
Orange	482 THz – 502 THz	622 nm – 597 nm
Yellow	502 THz – 519 THz	597 nm – 577 nm
Green	519 THz – 609 THz	577 nm – 492 nm
Blue	609 THz – 659 THz	492 nm – 455 nm
Violet	659 THz – 768 THz	455 nm – 390 nm
Ultra-violet light		
Near ultra-violet	768 THz – 999 THz	390 nm – 300 nm
Far ultra-violet	1 PHz – 1.5 PHz	300 nm – 200 nm
Extreme ultra-violet	1.5 PHz – 30 PHz	200 nm – 10 nm
X-rays	6 PHz – 600 XHz	50 nm – 0.5 pm

Gamma rays	1.5 XHz – 30,000 XHz	0.2 nm - 0.001 pm
Cosmic rays	> 6,000 XHz	< 0.05 pm