

The human ear is extraordinarily sensitive to sound. At the threshold of hearing, air molecules are displaced an average of only 10 picometers (10^{-11} m), a distance 10,000 times smaller than the wavelength of visible light. The intensity of such a sound is about one-trillionth of a watt per square meter! This means a listener on an otherwise noiseless planet could hear a 1-watt, 3-kHz sound source located over 300 miles away (consider that very dim lightbulbs consume more than 1 watt of power). Even dangerously high sound pressure levels exert power on the eardrum only in the milliwatt range