Daylighting x radiation

In physics, radiation is the emission or transmission of energy in the form of waves or particles through space or through a material medium.(wiki)

What are the waves in sunlight?

Daylighting x Heat

How can sunlight heat up the rooms?

The transmission of heat contains three ways: radiation, circulation of air and thermal conduction.

The nuclear fusion inside of sun radiates light and heat to the surrounding.

Sunlight provides heat, which drives up the temperature inside the house.

Daylighting x color temperature

The color temperature of a light source is the temperature of an ideal black-body radiator that radiates light of comparable hue to that of the light source.
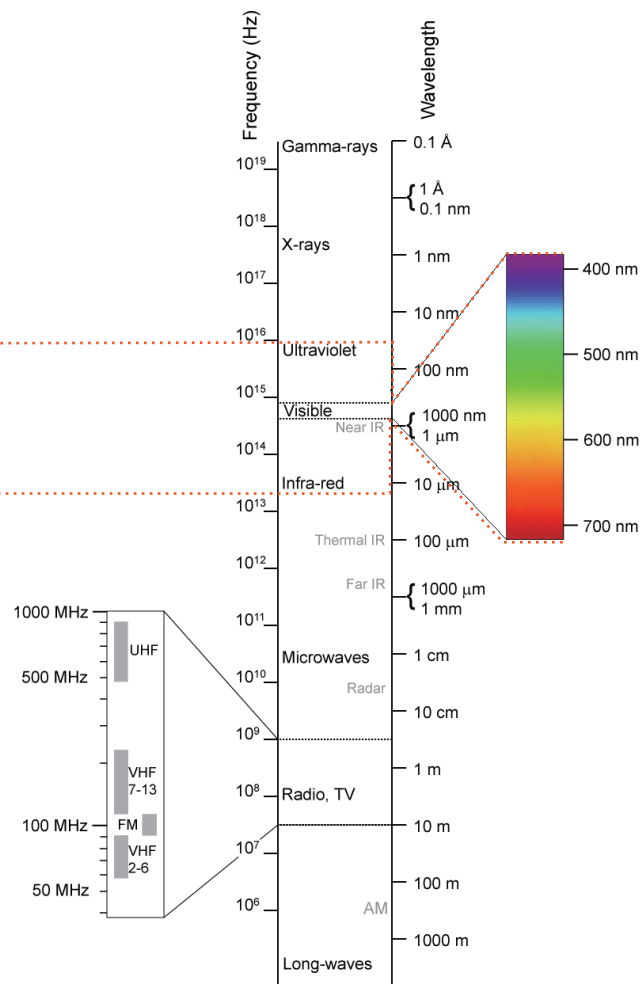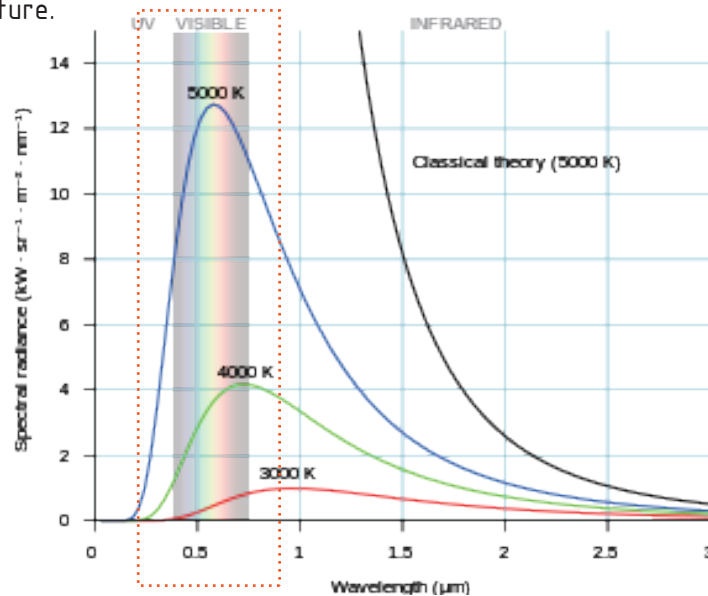

Planck's law:
describes the electromagnetic radiation emitted by a black body in thermal equilibrium at a definite temperature.

Color Temperatures in the Kelvin Scale

JuliusNgPhotography.com

(1nm=10^9)
(1μm =10^6m)

$$B_\nu(\nu, T) = \frac{2h\nu^3}{c^2} \frac{1}{e^{\frac{h\nu}{k_B T}} - 1}$$

$$B_\lambda(\lambda, T) = \frac{2hc^2}{\lambda^5} \frac{1}{e^{\frac{hc}{\lambda k_B T}} - 1}$$

1kw=1 kJ/s
1kwh=3.6*10^6 J

1 Btu/s.ft^2
= 11.356539 kW/m2

measurement of light:
Ev(Illuminance)
=F/A(lux)=(lm/m^2)
ex 1 lux = 1 cd / m2
F(Luminous flux)
=lm= cd·sr
Iv(Luminous intensity)
=cd= lm/sr
1 lux = 1 cd / m2