L2BBLS

1. Black body Radiation. Graph of f(x) =dL/dλ, and x =λ
2. Integration over the wavelength range from 3*10^-6 to 3*10^-5 meters to obtain the Radiance.
3. Multiplication with area times solid angle to obtain the Radiant energy.

1. Black body Radiation. Graph of dL/dλ

Constants for wavelength dependence

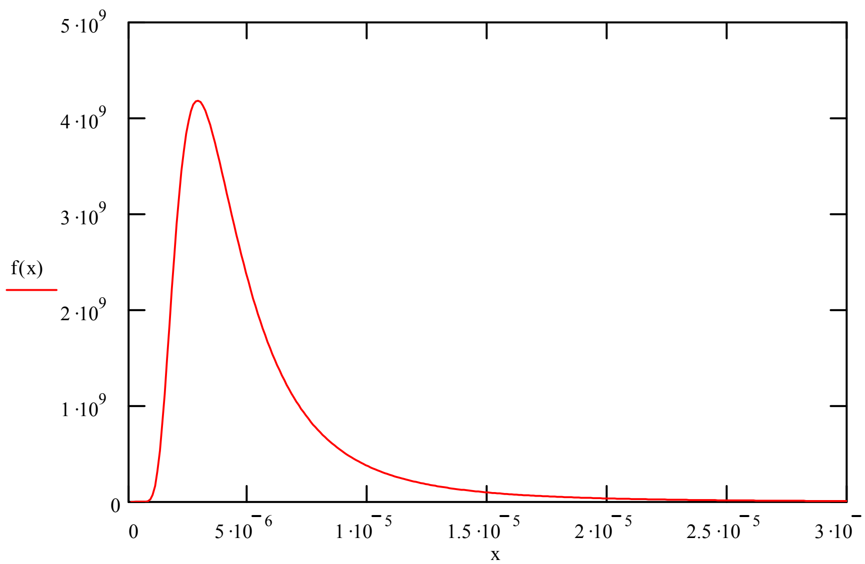
$c2 := 1.43 \cdot 10^{-2}$ $c1 := 1.18 \cdot 10^{-16}$ $T := 1000$

Planck's Law depending on wavelength

$x := 3 \cdot 10^{-5}, 2.99 \cdot 10^{-5} .. 10^{-7}$

x in meters

$$f(x) := \frac{c1}{x^5 \cdot \left[e^{\left(\frac{c2}{x \cdot T}\right)} - 1 \right]}$$



2. Integration over the wavelength range from 3*10^-6 to 3*10^-5 meters to obtain the Radiance.

Radiance

$$R := \int_{3 \cdot 10^{-6}}^{3 \cdot 10^{-5}} f(x)\, dx$$

$$R = 1.316 \times 10^4$$

3. Multiplication with area times solid angle to obtain the Radiant energy.

Area A, Solid angle SA

$A := .1 \qquad SA := 4$

Radiant energy RR

$RR := A \cdot SA \cdot R$

$RR = 5.263 \times 10^{3}$ Watts

RR has the same value as the corresponding value when integrating over frequency.