```
function M = Plancks_Law(lambda, T, N)
%
% Plancks_Law - calculates the spectral radiance for a black
%               body based on Max Planck's law (W/m^2·μm).

%-------------------------------------------------------------------------%
%
%     M = Plancks_Law(LAMBDA, TEMPERATURE) computes the spectral
%     on radiance based on Planck's Law based given TEMPERATURE
%     in Kelvin and wavelength LAMBDA in micro meter [10^-6 m]).
%
%     M = Plancks_Law(LAMBDA, T, N) calculates spectral radiance
%     in the case the refractive index is something other than 1.
%
%     The function does not is not defined for lambda == 0.
%
%     Developed by Jaap de Vries 08/20/2012.  Adapted 12/31/12.
%
%-------------------------------------------------------------------------%

% Speed of light in a vacuum:
c0 = 2.99792458*10.^8; % (±1.2) m/s

% Planck's constant:
h = 6.626176*10.^-34; % (±0.000036·10^-34) W·s^2

% Boltzman constant:
k = 1.380662*10.^-23; % (±0.000044·10^-23) W·s/K

% Refractive index of the medium (default is 1):
if nargin < 3, N = 1; end

% Define new constants:

% c1 = 2·pi·h·c0^2 (first radiant constant)
c1 = 3.741832*10^-16; % (±0.000020·10^-16) W·m^2

% c2 = h·c0/k (second radiant constant)
c2 = 1.438786*10^-2;  % (±0.000045^-2) m·K

%-------------------------------------------------------------------------%
%
%   References:
%
%   W. Minkina, S. Dudzik. Infrared Thermography. John Wiley & Sons, 2009.
%
%-------------------------------------------------------------------------%

% Convert the wavelength to micrometers (μm, 10^-6 m):
lambda = lambda * 10^-6;

% Calculate the spectral radiance in (W/m^2·μm):
M = (10^-6 .* c1) ./ ((N.^2) .* lambda.^5 .* (exp(c2./(lambda * T))-1));
```