

HW4-1 Soln)

$$N = \int_{f_1}^{f_2} \frac{8\pi L^3}{c^3} f^2 df = \frac{8\pi L^3}{c^3} \frac{f^3}{3} \Big|_{4.3 \times 10^{14}}^{7.5 \times 10^{14}} = \frac{8\pi L^3}{3c^3} [(7.5 \times 10^{14})^3 - (4.3 \times 10^{14})^3]$$
$$= 1.06 \times 10^{20}$$