Answer on Question #54961, Physics / Astronomy | Astrophysics

Using equation:

$$N_T = \frac{\pi}{4} \times D^2 \Delta t \frac{\lambda}{hc} F_\lambda \Delta\lambda$$

We can calculate the best possible S/N ratio of a measurement:

$$N_T = \frac{3.14}{4} \times (2.2)^2 \times 30 \times \frac{360 \times 10^{-9}}{6.63 \times 10^{-14} \times 3 \times 10^8} \times 10^{-18} \times 100 = 7463$$

Answer: $N_T = 7463$