1. The relationship between speed, c, wavelength, λ, and frequency, f, for an electromagnetic wave traveling at a speed $c = 3 \times 10^8$ m / s is

$$c = f\lambda$$

so we can calculate the wavelength by dividing both sides of the equation by f to get

$$\lambda = (3 \times 10^8 \text{ m / s}) / (640 \times 10^3 \text{ Hz})$$

$$\lambda = 469 \text{ m}$$