Formulas used:

Lateral ($res^o_{x,y}$) and axial (res^o_z) theoretical resolution values used for single point scanning confocal microscopes (assuming pinhole and NA values ≥1 & >0.5 respectively) are calculated as defined in Wilhelm, S. Confocal Laser Scanning Microscopy (2011) & Amos, B. et al, Confocal Microscopy in Comprehensive Biophysics 3–23 (Elsevier, 2012):

$$res^o_{x,y} = \frac{0.51*\lambda_{ex}}{NA} \qquad res^o_z = \frac{0.88*\lambda_{ex}}{n-\sqrt{n^2-NA^2}}$$

NA: numerical aperture, λ_{ex}: excitation wavelength, n: refractive index of the lens immersion & mounting media.

Axis profiles are fitted using ImageJ Gaussian Curve Fitter and the following formula $y = a + (b-a) * e^{\frac{-(x-c)^2}{2d^2}}$ (Gaussian fitting).

Measured lateral and axial resolution (Full Width at Half Maximum, FWHM) values are derived using $\mathrm{FWHM} = 2d\sqrt{2ln(2)}$

Compliance with the Shannon-Nyquist criterion uses the following formulas for Shannon-Nyquist distances calculation:

$$\alpha = \arcsin(\frac{\mathrm{NA}}{\mathrm{n}})$$

$$\Delta_{x,y} = \frac{\lambda_{ex}}{8.NA} \qquad \Delta_z = \frac{\lambda_{ex}}{4.n.(1-cos(\alpha))}$$