Hubbule parameter:

$$\begin{aligned}H^2 &= H_0^2[\frac{\Omega_r}{a^4}+\frac{\Omega_m}{a^3}-\frac{Kc^2}{a^2H_0^2}+\Omega_\Lambda] \\ &= H_0^2[\frac{\Omega_r}{a^4}+\frac{\Omega_m}{a^3}+\frac{1-\Omega_0}{a^2}+\Omega_\Lambda]\end{aligned}$$

Comving distance:

$$dt=\frac{da}{\dot{a}} \Rightarrow -dw=\frac{cdt}{a}=\frac{cda}{a\dot{a}}=\frac{cda}{a^2H}$$

$$\begin{aligned}w(z_1,z_2) &= \frac{c}{H_0}\int_{a(z_2)}^{a(z_1)}\frac{da}{\sqrt{a\Omega_m+a^2(1-\Omega_m-\Omega_\Lambda)+a^4\Omega_\Lambda}}, z_1<z_2 \\ &= \frac{c}{H_0}\int_{z_1}^{z_2}\frac{dz}{\sqrt{(1+z)^3\Omega_m+(1+z)^2(1-\Omega_m-\Omega_\Lambda)+\Omega_\Lambda}}, z_1<z_2 \\ &= \frac{c}{H_0}\alpha(z_1,z_2)\end{aligned}$$

The search radius is $Rh^{-1}Mpc$. Then, the search radius in arcmin is

$$\begin{aligned}w\theta=\frac{c}{H_0}\theta\alpha(z_1,z_2)=\frac{c\times 10^5Km\cdot s^{-1}}{100hKm\cdot s^{-1}Mpc^{-1}}\theta\alpha(z_1,z_2)=Rh^{-1}Mpc \\ \Rightarrow\theta=\frac{R}{1000c\alpha(z_1,z_2)}\frac{180\times 60}{\pi}=\frac{10.8R}{c\pi\alpha(z_1,z_2)}\end{aligned}$$

The $\alpha(z_1,z_2)$