```matlab
%Simulation with LightPipes for Matlab.
%March 2014. F.A. van Goor.
%roundhole.m
%Diffraction at a round hole.
clear all;

m=1;
nm=1e-9*m;
mm=1e-3*m;
cm=1e-2*m;

lambda=632.8*nm;
size=10*mm;
N=300;
a=1*mm;
dz=20*cm;
z0=20*cm;
F=LPBegin(size,lambda,N);
F=LPGaussHermite(0,0,1.0,size/2.0,F);
F=LPCircAperture(a,0,0,F);
figure('Position',[20 100 1492 462]);
for i=0:8
    z=z0+i*dz;
    FresnelNumber=a*a/z/lambda;
    if (FresnelNumber >= 10)
        F1=LPFresnel(z,F);
    else
        F1=LPForvard(z,F);
    end
    I=LPIntensity(1,F1);
    subplot(2,5,i+1);
    subimage(I);
    Str=sprintf('z=%4.1f cm    FN=%4.2f',z/cm,FresnelNumber)
    title(Str);
    axis off;
end
```
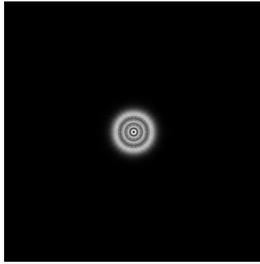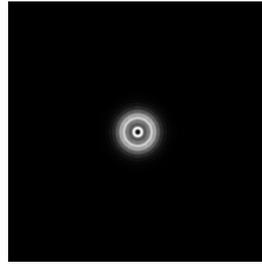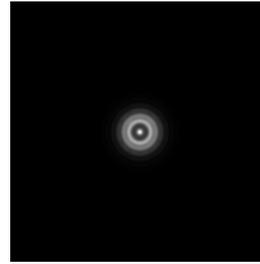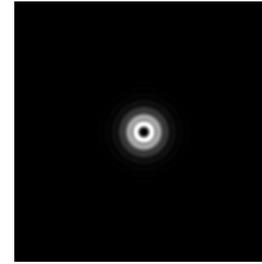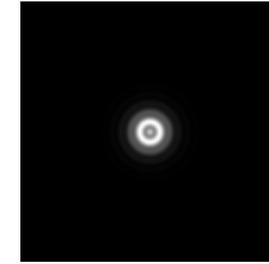
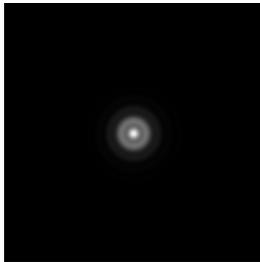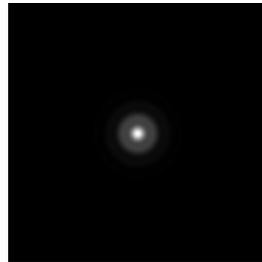z=20.0 cm FN=7.90   z=40.0 cm FN=3.95   z=60.0 cm FN=2.63   z=80.0 cm FN=1.98   z=100.0 cm FN=1.58
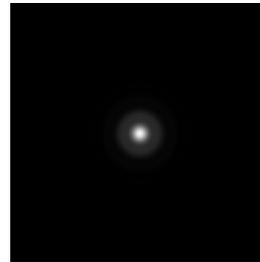
z=120.0 cm FN=1.32   z=140.0 cm FN=1.13   z=160.0 cm FN=0.99   z=180.0 cm FN=0.88