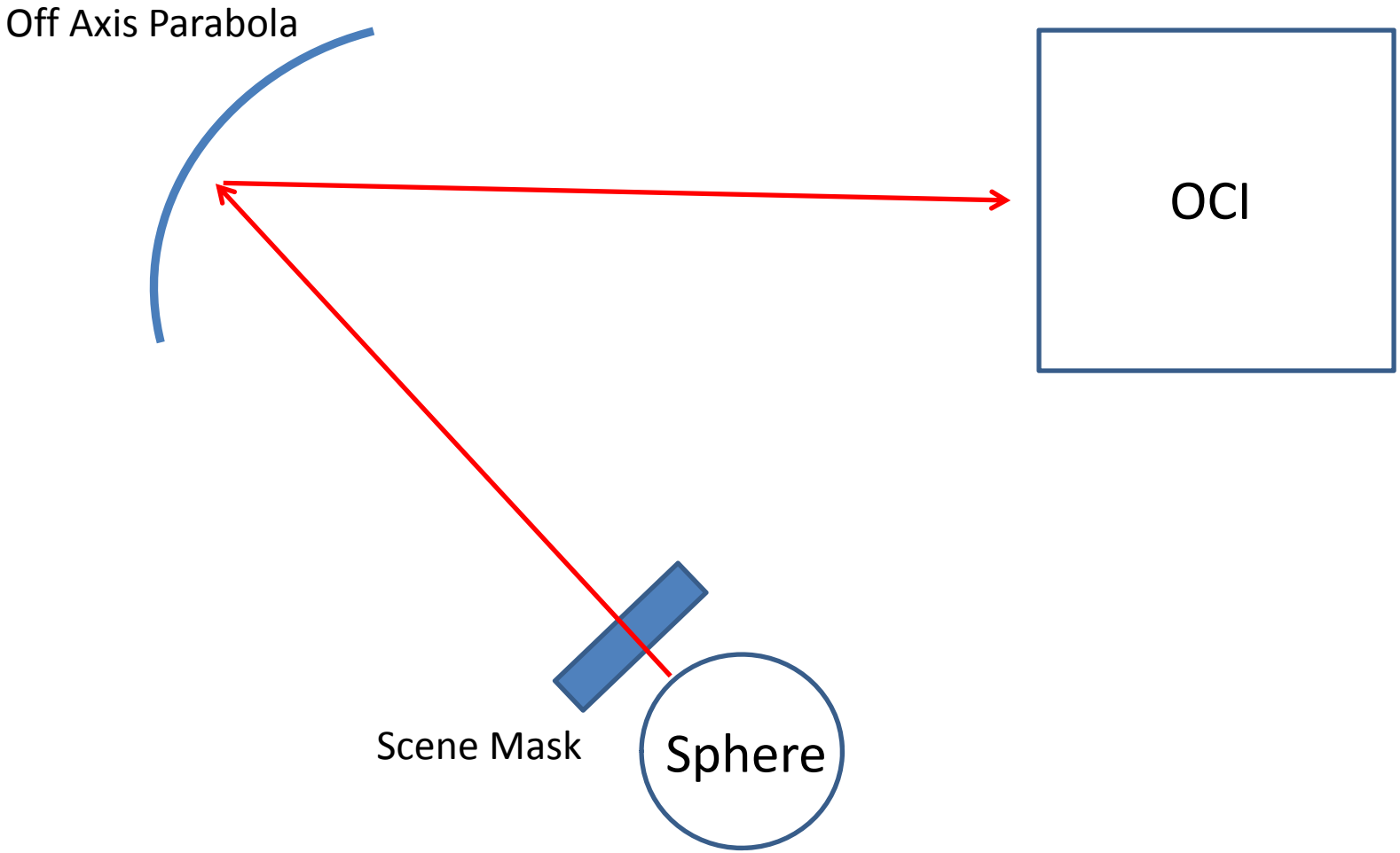
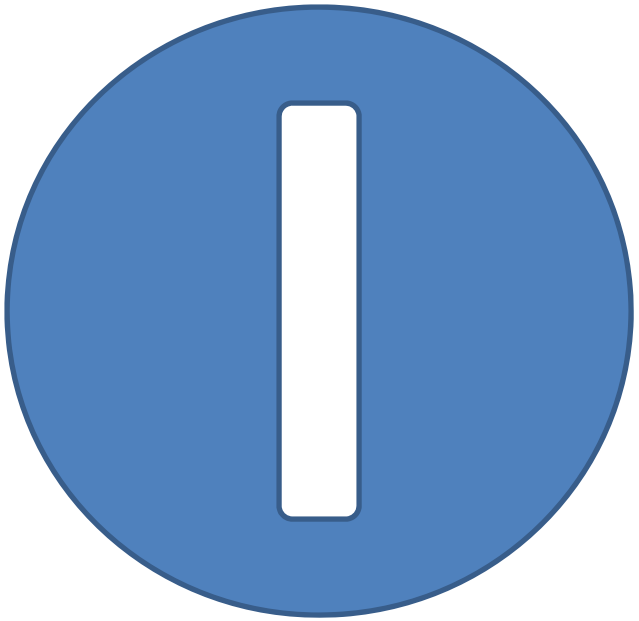
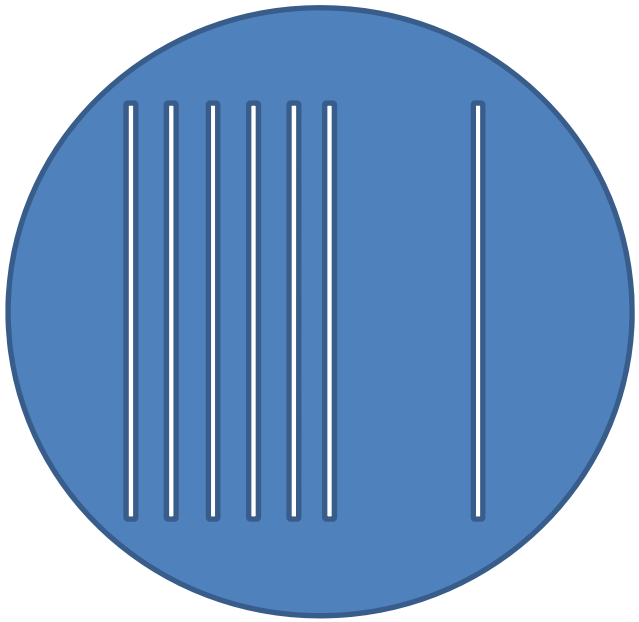
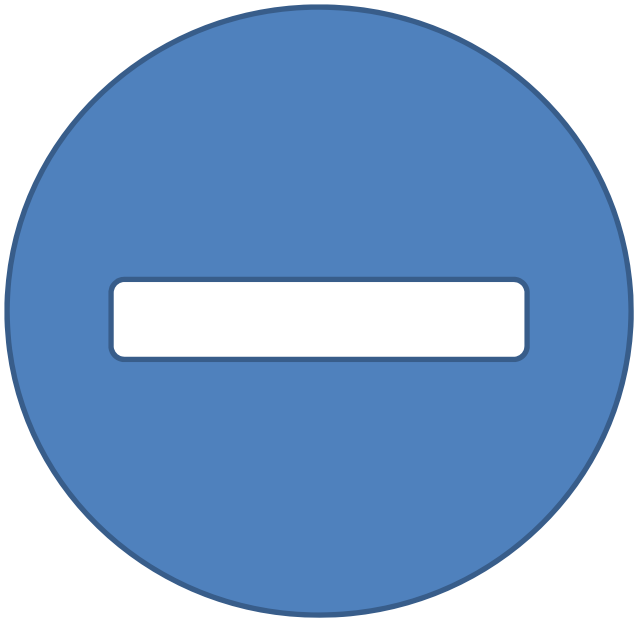

Off Axis Parabola
OCI
Scene Mask
Sphere



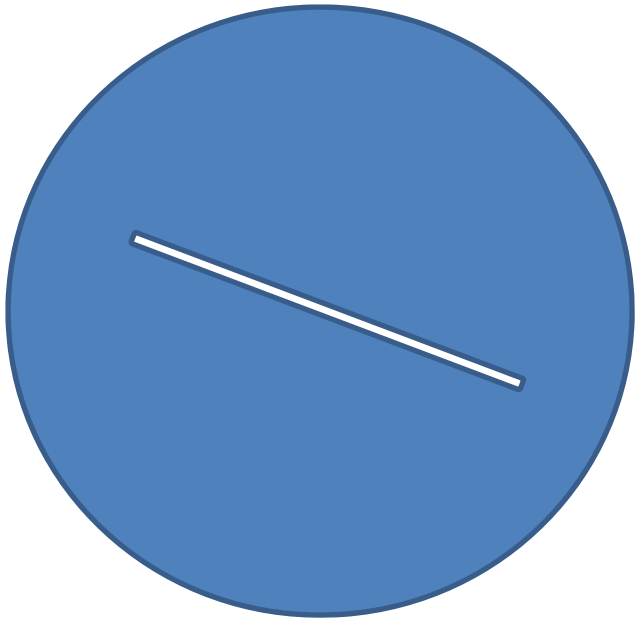
Scan



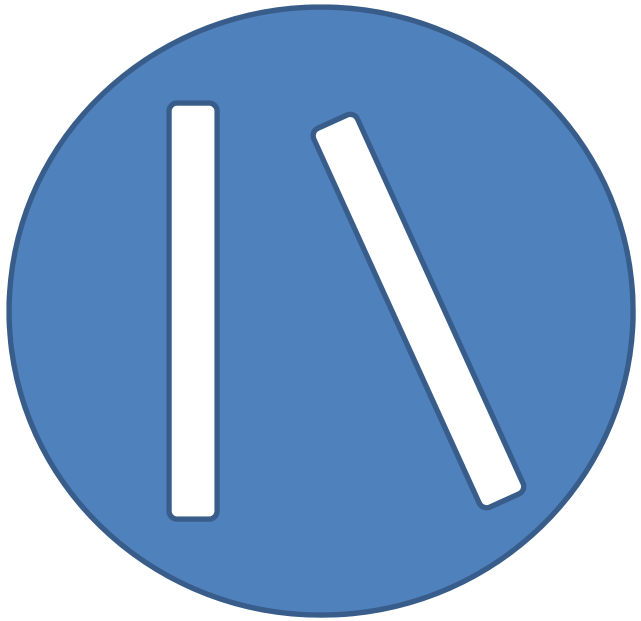
Scan

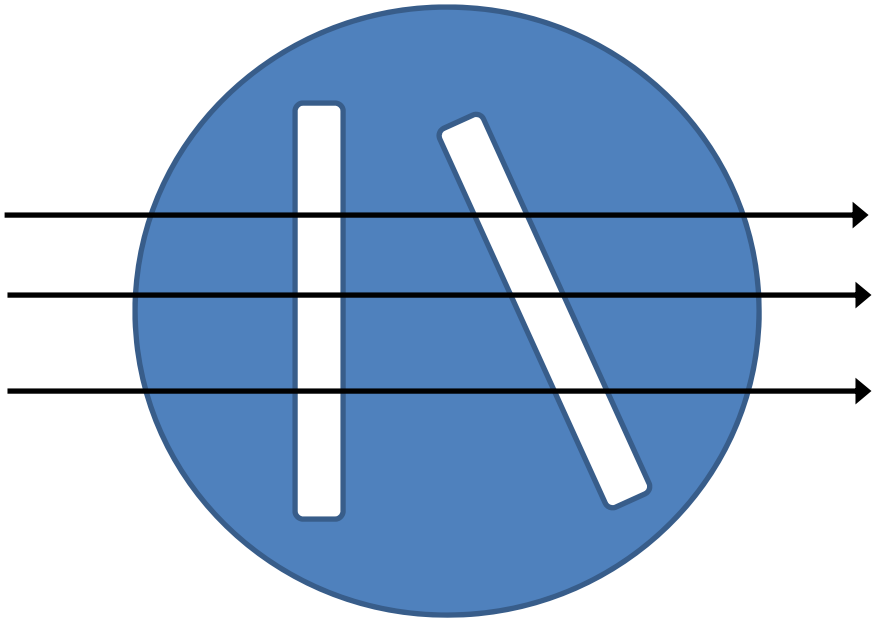


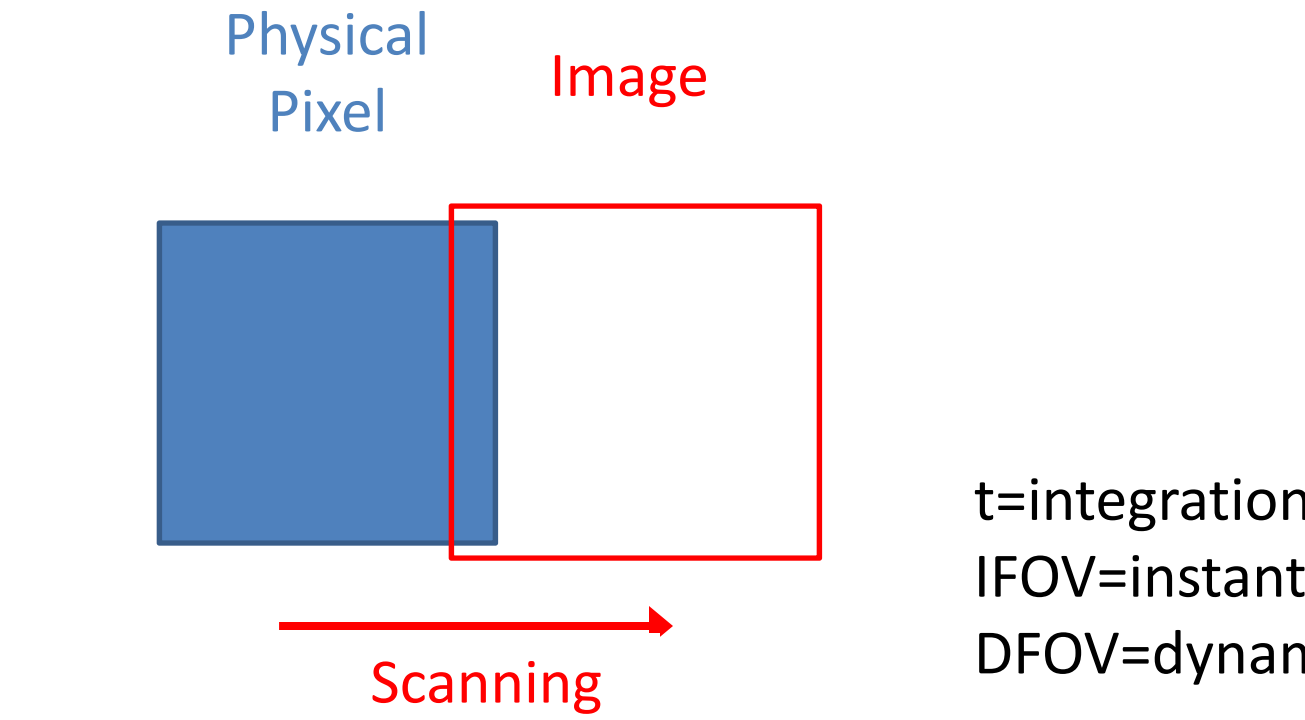
Track



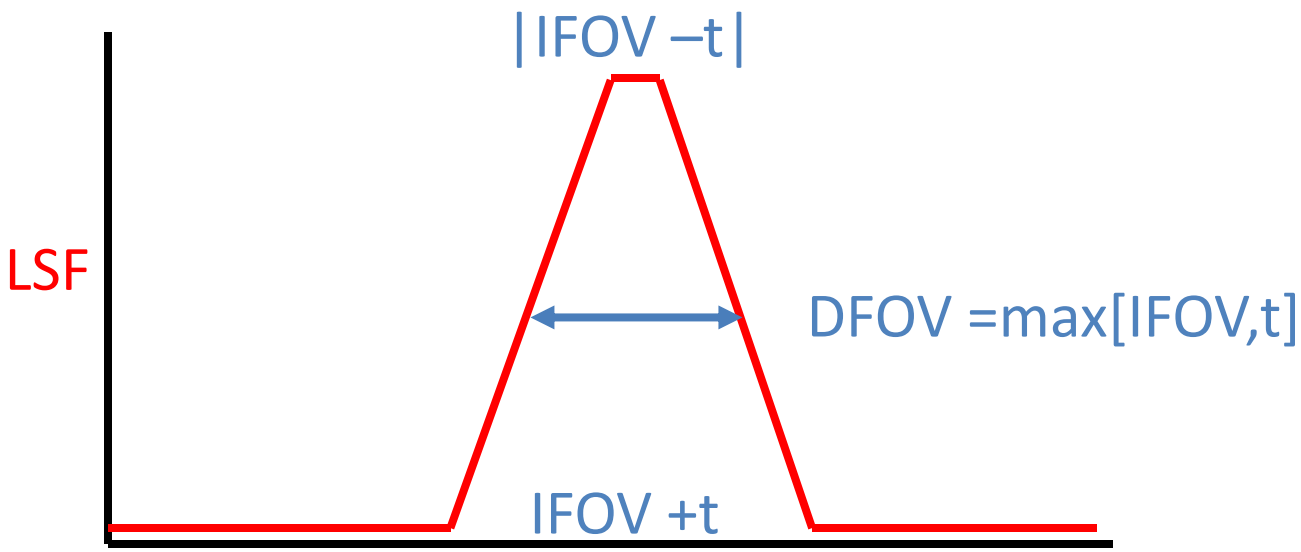
Track

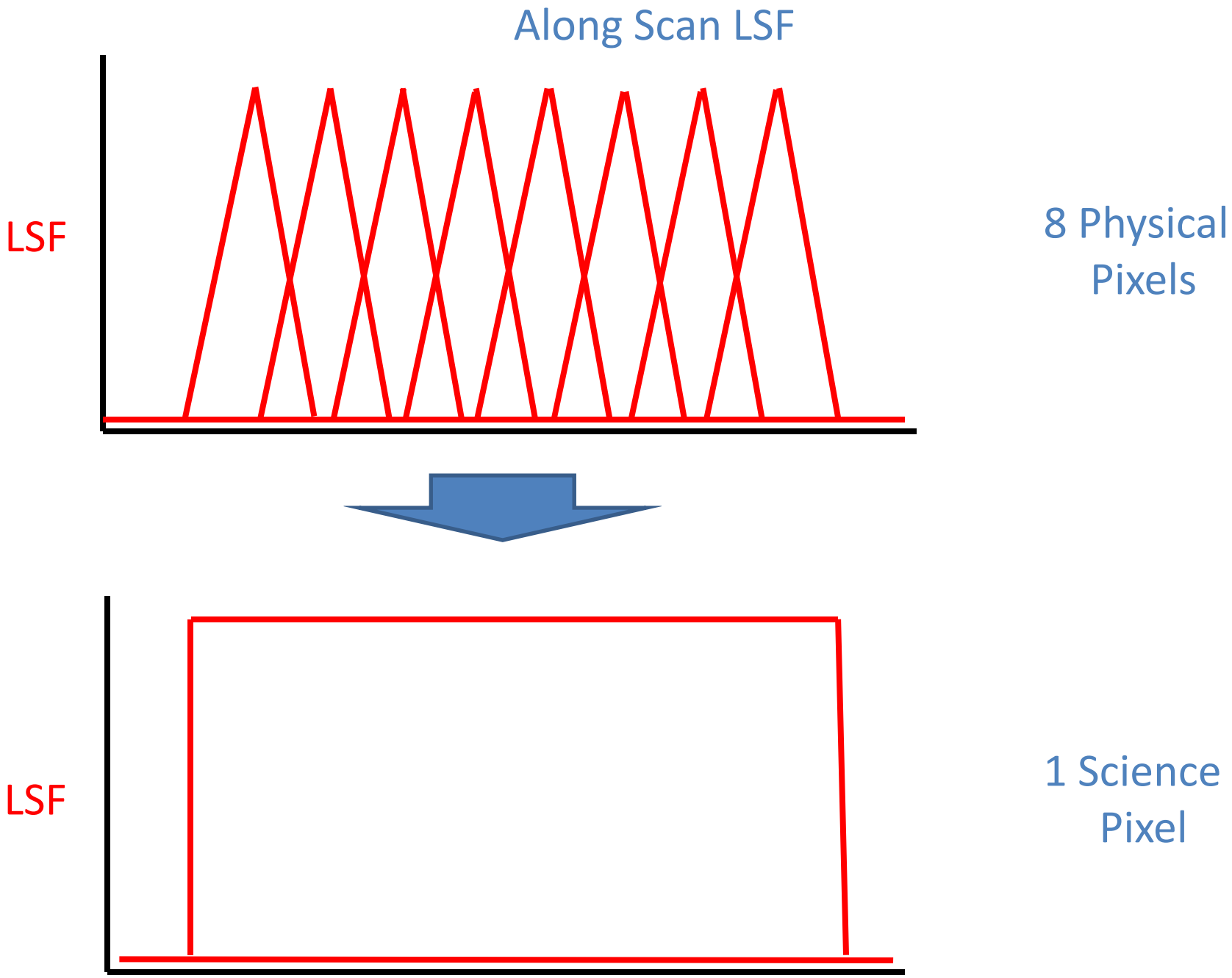


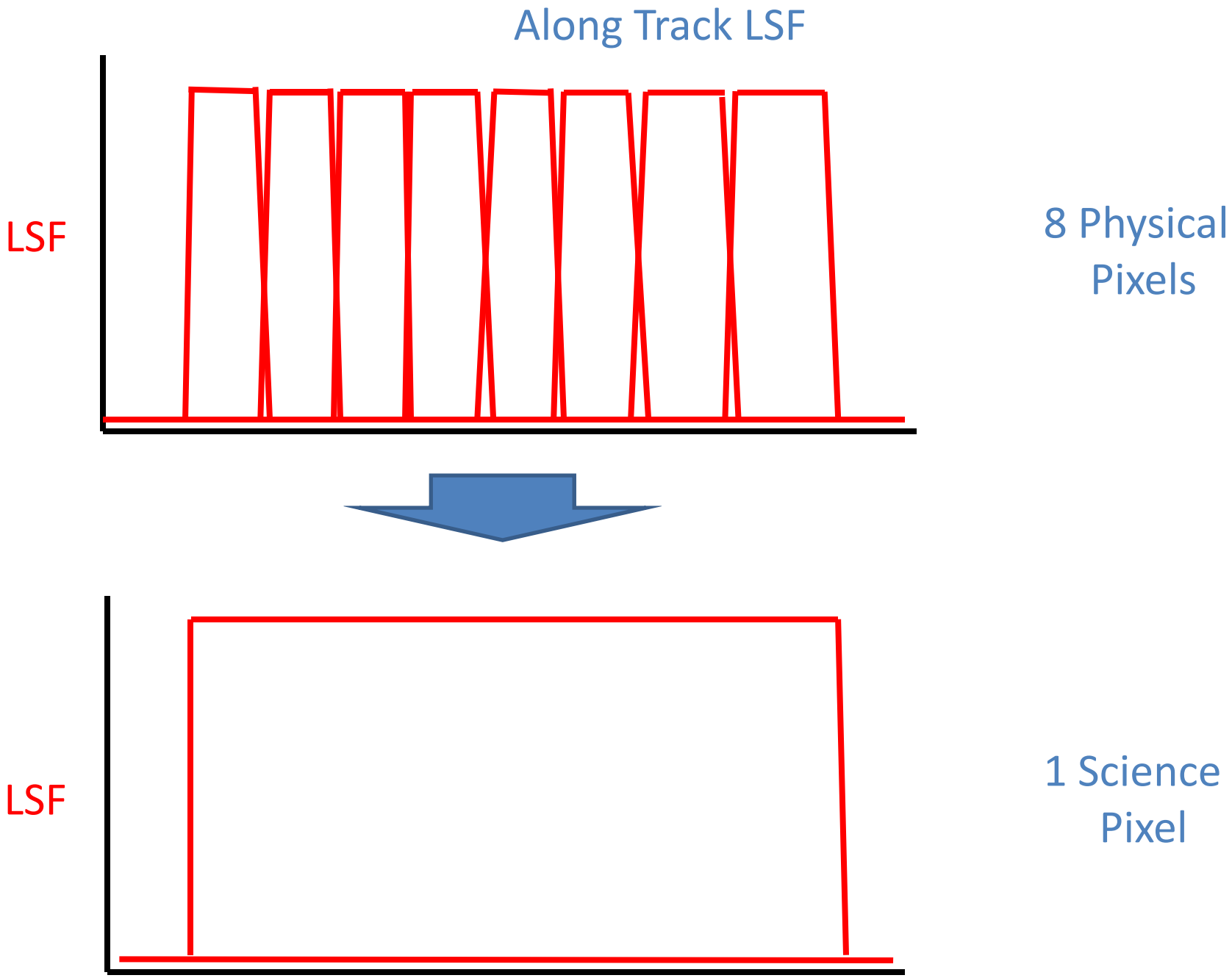




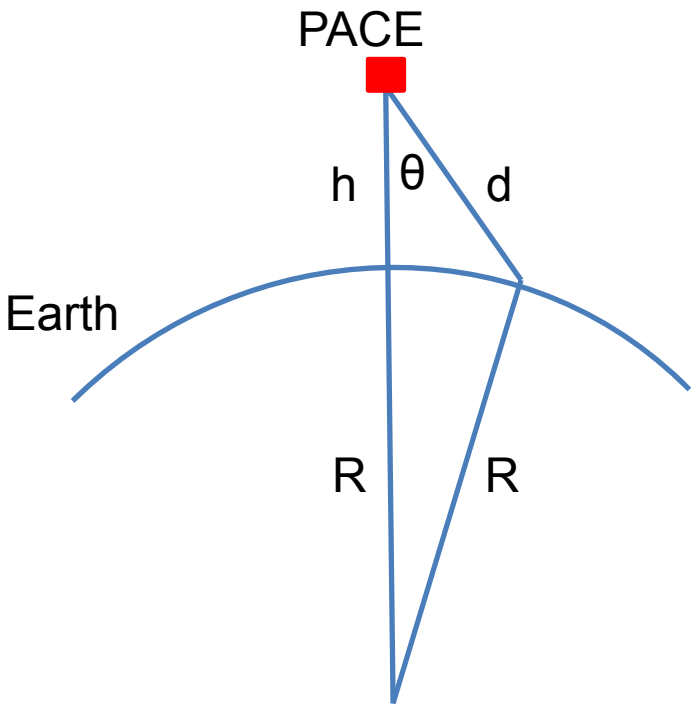
t=integration time
IFOV=instantaneous field of view
DFOV=dynamic field of view




Along Scan LSF
LSF
8 Physical Pixels
LSF
1 Science Pixel


Along Track LSF
LSF
8 Physical Pixels
LSF
1 Science Pixel

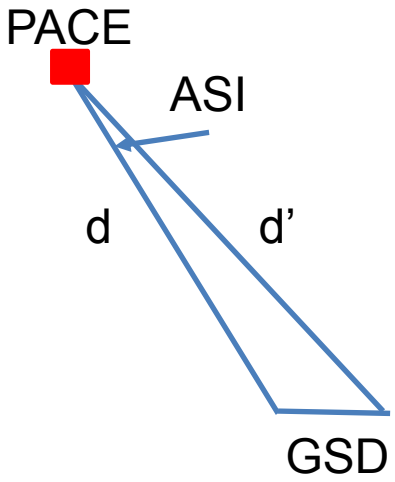
Ground Sample Distance (GSD)



Using the Law of Cosines

$$d(\theta) = \left[(R+h)\cos\theta - \sqrt{R^2 - (R+h)^2(\sin\theta)^2}\right]$$

R=radius of the Earth
h=PACE altitude
d=distance from PACE to ground target
θ=OCI scan angle
ASI=angular sampling interval – the angle between two pixels



Using the Law of Cosines

$$GSD(\theta) = \sqrt{[d(\theta)]^2 + [d(\theta + ASI)]^2 - 2d(\theta)d(\theta + ASI)\cos ASI}$$