**Table S2 Zernike Simulation Parameters.**

|  |  |
| --- | --- |
| **Parameter** | **Value** |
| Path length | L = 7km |
| Aperture Diameter | D = 0.2034m |
| Focal Length | d = 1.2m |
| Wavelength | λ= 525nm |
| Zernike Phase Size | 16 × 16 pixels |
| Nyquist spacing (object plane) | $δ\_{o}$ = 9:0344mm |
| Nyquist spacing (focal plane) | $δ\_{f}$ = 1:5488\_m |