3D Occupancy Grid with ibeo Lux Laser Scanner -Shilpan

1) What are the computational advantages of using logodds when generating our occupancy grid?

The computational advantage of using logodds when generating occupancy grid is that it is numerically stable due to the log addition property, $\log(a*b) = \log(a) + \log(b)$. As well, in multiplicative combination of probabilities, it does not run into issues with truncation. Therefore, the probability values are updated with less operations and allow sensor data to be used faster in map.

2) Is the angle phi in our Spherical to Cartesian calculation the same as the polar angle in standard Spherical coordinates? Why?

No, the angle phi in Spherical to Cartesian calculation is not the same as polar angle in standard Spherical coordinate. This is because the angle phi in our calculations is measured from ground plane to current layer. However, the polar angel in standard spherical coordinates is angle between zenith direction and the current layer. Hence, they are not the same.