Lab Work: Illumination Characterisation for Imaging Applications

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Objective

To characterise and evaluate the quality of an illumination system used in imaging applications by assessing:

- Spectral Power Distribution (SPD)
- Illuminance (lux)

Apparatus and Materials

- Spectroradiometer (e.g., Ocean Optics, Thorlabs CCS200)
- Calibrated reflective target (e.g., Spectralon)
- Diffuse whiteboard or matte surface
- Adjustable light source (LED panel or halogen lamp)
- Tripod or fixed mounting arm

Procedure

A. Spectral Power Distribution

1. Position the light source 50 cm above the target surface.
2. Aim the spectroradiometer at the center of the surface.
3. Record the SPD from 380–780 nm.
4. Repeat at 0°, 30°, and 60° angles.

Conclusion

Summarise the lighting performance and its suitability for imaging or inspection. Recommend improvements or adjustments if uniformity or stability is insufficient.

Safety Notes

- Avoid direct eye exposure to strong light sources.
- Handle calibrated devices with care.
- Record ambient temperature and light conditions.