



MONASH
University

MALAYSIA

INTELLIGENT LIGHTING LABORATORY

Monash University Malaysia's Intelligent Lighting Laboratory (MMILL) was established to promote and provide the necessary infrastructure to develop lighting and sensor systems with the ability to enhance the productivity of humans, plants and a range of engineering systems.

MMILL is a multidisciplinary research laboratory with ISO 9001 certification and is focused on providing infrastructure related to lighting research. Our instruments enable us to provide a set of specialist services and training workshops for internal and external researchers.

EXPERTISE

- Human Centric Lighting
- Light Spectral Sensor Development
- Light-Based Vision Systems
- Horticultural Lighting
- Visible Light Communications

KEY INSTRUMENTATION

- Arbitrary Waveform Generator (ARB Rider AWG 4022)
- CL500A Illuminance Spectrophotometer (Konica Minolta)
- CS2000 Spectroradiometer (Konica Minolta)
- Telelum Light Replicator
- WaveRunner 8254 Oscilloscope 2.5 GHz
- ISP500 Integrating Sphere

WORKING WITH US

- Fee for service
- Collaborative research
- Training
- Consultancies
- Design & Development

Specialist Service #1: Photometric And Radiometric Characterisation Of LED And Luminaires

The integrating sphere, spectrophotometer, programmable light sources, light booths and darkroom are used in combination for measuring and analysing a luminaire's light output properties such as flux (lm), luminous intensity (Cd), correlated color temperature (CCT), color quality (CRI/TM-30) and non-visual metrics of light, Photosynthetic Photon Flux Density (PPFD) and Spectral power density (SPD).

Specialist Service #2: VLC Test Bench With GHz Capability

The test bench is equipped with a GHz waveform generator and digital oscilloscope together with optical components of a visible light communication (VLC) link to test the performance characteristics of VLC systems, identify challenges, and work towards enhancing the efficiency and reliability of VLC technology.

Specialist Service #3: Spectral Characterisation Of Materials Using A Programmable Light Source

Using a spectroradiometer, a light booth and a programmable light source, desired spectral characteristics can be measured using the response of the material sample by incorporating it into an optical setup such as a transmission or reflection configuration.

Specialist Service #4: Profiling Of Light In A Built Environment

Using a suite of software and hardware to study and analyse light distribution, characteristics, visual and non-visual metrics of light, daylight predictions and interactions of light within indoor or outdoor spaces.

Specialist Service #5: Measurement Of Ambulatory Light Exposure

Utilize IoT-integrated wearable sensors, designed for high accuracy, good spectral sensitivity, comfort, battery life, and data storage and a web portal, to measure personal light exposure indoors and outdoors.

Specialist Service #6: Mock Living Room To Conduct Studies On Lighting Control And Effects Of Lights On Humans

We offer a spectrally tunable setting with sensor-based control to evaluate various lighting scenarios and their impact on humans in a living room setting.

Specialist Service #7: Light Sensor Characterisation

Spectrophotometer, light booth, darkrooms, laser source, programmable light source and standard lights are used to determine the accuracy, sensitivity, directional response, linearity, dynamic range, response time, spectral responsivity and other relevant parameters.

Intelligent Lighting Lab

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