Diffuse Reflectance Measurements with the DRS100

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DRS100, 1 meter diffuse reflectance sphere

- Diffuse reflectance properties of mobile displays
- Tablet size and smaller test objects
Key requirements

- Robust measurement
  - Measurements must be reproducible
    - with this apparatus, or
    - by other labs using similar apparatuses

- Hemispherical illumination is the most uniform and reproducible method
Key requirements

• Cover all measurement geometries
• Reconfigurable
  • Many test articles
  • Other experiments

✓ Angles from 5 to >80 degrees at 1 degree resolution
✓ Adjust sample stage using standard optical posts and mounts
✓ Measure flux
Key requirements

- Specular included or excluded
  - IDMS 11.2 and 11.3
  - Different sizes of traps

- Trap rotates on an arm in the plane of the measurement
- Traps from 20 to 80 mm Ø included
  - 1% diffuse reflectance trap
  - Custom options
15°, specular included
15°, specular excluded
8°, specular excluded, large display

Removeable aperture on right hemisphere allows measurement of large panels at 8° to optical axis
Display at 40 degrees

- <1.7 to ~600 cd/m²
- Bipartite field
  - Right = black
  - Left = white
- Specular image of trap
- Smudges
- PTFE Plaques
Luminance vs. Angle

![Graph showing luminance vs. angle for different materials (white and black) with and without specular components.](image)
Contrast vs. Angle
Imaging photometry advantages

• measure both black and white states simultaneously
• measure a reference reflector(s) to monitor the illumination of the display
• provide a visual record superimposed with the photometric, colorimetric or hyperspectral information
Thank you

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