

NED-LMD Near-Eye Display Measurement System



NED-LMD W200 Wide Field of View (WFOV) System

The NED-LMD product range delivers zero distortion, high-accuracy and high-speed test and characterization solutions for near-eye displays. Specifically designed for high volume production environments, the NED-LMD is the world's first integrated wide field of view (WFOV) spectroradiometric image quality analysis solution. The custom designed motorized focus lens covers 120° by 80° FOV. The system delivers high spectral purity based quality measurements for Virtual Reality, Augmented Reality, Mixed Reality and Heads-Up Displays (VR, AR, MR and HUDs) conforming to the standards being developed by the ICDM committee of the SID and IEC.

Design Validation and Quality Assurance of AR/VR/MR and Heads-Up Displays

Unmatched Speed and Accuracy

- Wide-angle field of view objective lens with 158° diagonal FOV covers complete device FOV
- 6-2 mm entrance pupil to emulate the human eye
- 0 to 4 diopters motorized focus lens for AutoFocus control
- High sensitivity, high dynamic range integrated GS-1290 spectroradiometer
- Luminance and color data from integral camera image tied to the spectroradiometer with precision alignment
- Patented SLR viewing system with integrated LED measurement spot projector and autocollimator
- 2° field-of-view aperture selection for eye foveal region correlation measurement spot

Original system calibration is performed in Gamma Scientific's NVLAP accredited laboratory (NVLAP Lab Code 200823-0) using NIST-traceable standards.

Measurement Parameters

Center Color and Luminance
Luminance Uniformity
Color Uniformity
Field of View (FOV)
Slant Edge MTF
Checkerboard Contrast
FOFO Contrast
Geometric Distortion
Chromatic Aberration
Color Gamut Area
Ghost
Flicker

Critical Enabling Design Features



120° x 80° WFOV
Motorized Focus Lens
(0 to 4 Diopters focus range)



Emulates Human Eye
4mm entrance pupil; 1° and 2° foveal measurement spot



Spectral Precision
High sensitivity, dynamic range spectroradiometer



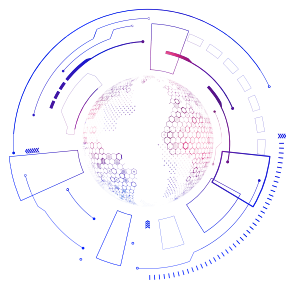
Complete Test Tool Device characterization in a single measurement sequence

Key Application Areas

Ensuring repeatable and reproducible photometric and colorimetric measurement results



Virtual Reality



Heads-Up Displays



Augmented and Mixed Reality

Leveraging more than 40 years of expertise in field-deployed HUD measurement systems for US military aircraft including the F-16, F-18, B1B, C-17 and F-35, Gamma Scientific has unmatched depth of expertise in virtual image display measurement.

System Specifications

Entrance Pupil Diameter	Fixed 6-2 mm
Field of View	120° (H) and 80° (V)
Object Distances	0 to 4 diopters
Lens Barrel Diameter	60mm
Instrument Resolution	50 pixels/degree
Lens Distortion	< ±1%
Image Sensor Resolution	24MP color, 6024 x 4024 pixels
Image Sensor Pixel Size	3.91 μm x 3.91 μm
Image Sensor Cooling	Two stage TEC
Product Dimensions	26.5" x 8.8" x 12.0"
Universal Input	100-240V AC, 3.0A

Specifications are subject to change without notice.

