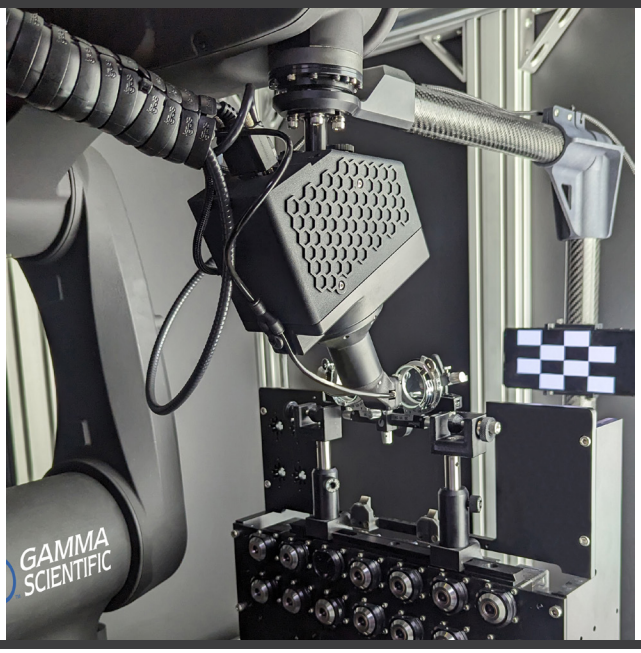
NED™ Rx-Series AR/VR Testing Solutions



Gamma Scientific now offers the world's first and only near-eye display measurement systems specifically designed to measure see-through image clarity and prescription for next generation AR smartglasses at high speed and at high production volumes. The fully integrated instrument includes a high resolution telescope which mimics the vision-corrected eye for optical prescriptions such as astigmatism, myopia (near-sightedness) and hypermetropia (far-sightedness). The 6-axis robot allows full characterization of the see-through smartglass in different gaze angles and eyebox locations, mapping the image quality as perceived by a human user.

High Resolution Testing for Quantifying Prescription AR Smartglasses

Key Features

- Robotic positioning for true eye motion representation and design eye point measurement.
- Lightweight and compact telescope assures precision spatial positioning with robotic arms.
- GS-1290 fiber-coupled spectroradiometer with fully automated (spherical and cylindrical) lens station, auto-alignment, autofocus and end-to-end testing.
- Exceptional color and spectral purity for high sensitivity, high dynamic range spectroradiometric measurements.
- Dedicated software enables for comprehensive analysis in real-time or later.
- NED (Patent No. 10,257,509, 10,972,721, and 3497423) uniquely emulates true human eye motion to provide quick, correlated and comprehensive measurements.
- Conforms to standards developed by the ICDM committee of SID and the IEC.

It is critical to quantify true user experience in vision-corrected AR and test in both virtual world and see-through real world conditions.

Reality X Verified®

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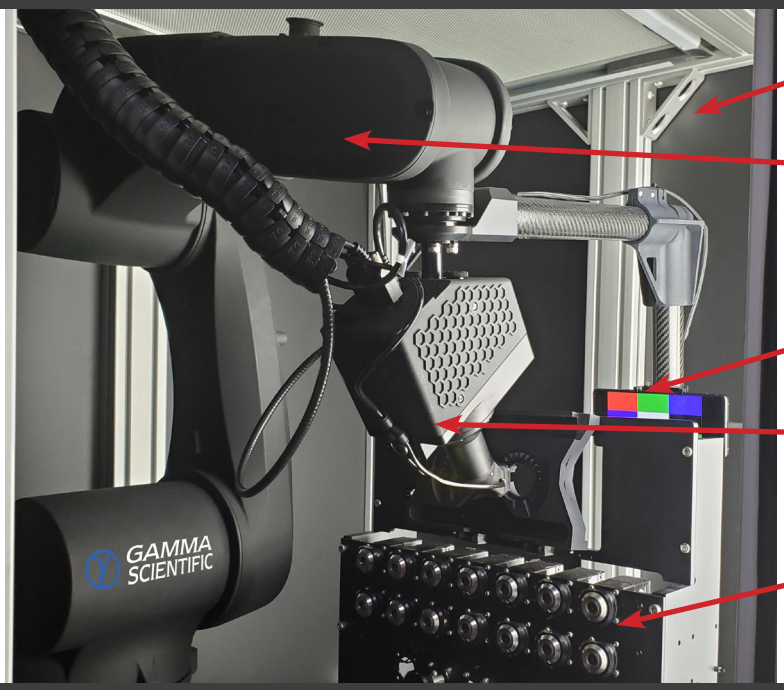


Fully integrated system with dark room enclosure
and robot safety interlocks - designed for production environments.

High precision, High Accuracy 6-axis industrial robot
allowing for full automation as different pointing directions, Eyebox positions, eye-relief distances, IPD settings, etc. Also automatic mounting of prescription correction lenses.

Test target
controlled by built-in pattern generator.

High Resolution Telescope
with a modified front end for automated magnetic mounting of prescription correction lenses. Includes auto-alignment and AutoFocus features. Integrated with fiber-coupled spectroradiometer.

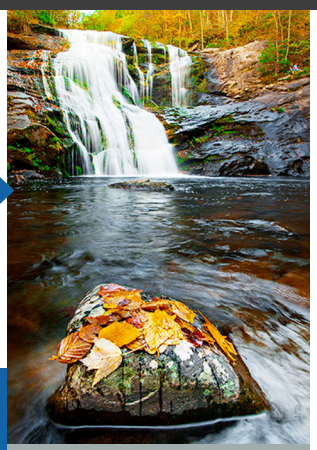
Lens Station
includes a set of prescription correction lenses for the DUT that are automatically placed in front of the measurement telescope during test sequence run.

Key See-Through Testing Requirements for Vision-Corrected AR Example

MYOPIC VISION

Optical system with opposite (canceling) power (P) to the AR smartglass prescription

AR smartglass with vision correction prescription (-P)



CORRECTED VISION

Emulating the human eye requiring prescription
This is critical to characterizing how the user will see through their vision-corrected AR smartglasses. The measurement head optics must present the un-corrected eye corresponding to the required prescription.

Measurement Capabilities		
Center Luminance and Color	Color Gamut Area	Checkerboard Contrast
Luminance Uniformity	Virtual Image Distance	MTF and Contrast Curve
Color/Chromaticity Uniformity	Left Eye/Right Eye Parallax	FOFO Contrast
Michelson Contrast Uniformity	Interpupillary Distance	Pixel Angular Density
Field of View (by Luminance)	Image Geometric Distortion	Spectral Transmittance*
Field of View (by Contrast)	Foveal Contrast Map	See-Through Contrast*
Design Eyebox (by Luminance)	Translational (9-point) Contrast Map	Flicker and Response Time*
Design Eyebox (by Contrast)	Slant Edge MTF (Effective Resolution)	Boresight Error*

*Additional purchase required

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