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U Michigan - Optokinetic Measurements of Visual Acuity and Contrast Sensitivity

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Protocol status: Working

We use this protocol and it's working

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Abstract

Summary:

A virtual optometry system is used to quantify the spatial vision of laboratory animal.

Troubleshooting

- 1 Animal is placed inside a square box displaying a rotating cylinder comprised of a vertical sine wave grating is calculated and drawn in virtual three-dimensional coordinate space on four computer monitors facing the animal to form a square.
- 2 Animal stands unrestrained on a platform in the center of the square
- 3 The animal's head movement is tracked for reflexive head and neck movements in response to the grating rotating around the animal
- 4 The spatial frequency of the grating is clamped at the viewing position by repeatedly re-centering the cylinder on the head in real time
- 5 Visual acuity is quantified by increasing the spatial frequency of the grating until an optomotor response could not be elicited
- 6 Contrast sensitivity is measured by identifying the minimum contrast that generates tracking over a range of spatial frequencies