

This new generation Beyond Mold Visual Contrast Sensitivity test represents an evolution in accuracy and reliability. A team of experts improved every aspect of the online test – including Drs. Shoemaker and Heyman – to ensure the most reliable results possible.

## General Characteristics

- ✓ Accounts for differences in devices to give a uniform experience
- ✓ Results include the number of positive symptoms and clusters
- ✓ Quicker to complete than the original and offers an excellent user experience
- ✓ Easy to understand explanations about the VCS and its use as a screening tool
- ✓ Can be paused and picked up at a later time (so you don't lose the credit if you get interrupted)

## Key Technical Improvements

- ✓ The newly generated gratings (circles) are **significantly higher quality** than the old version.
- ✓ The sinusoidal gratings are generated using the **official Shoemaker & Hudnell VCS methodology** for high clinical accuracy.
- ✓ The generator incorporates **multiple parameters**:
  - Spatial frequency (cycles per degree)
  - Contrast amplitude
  - Orientation (degrees)
  - Gamma correction
  - Pixels-per-inch
  - Viewing distance
  - Device pixel ratio
- ✓ We **removed any visible artifacts** from the original circles such as:
  - Compression grid patterns
  - Dust or lens imperfections
  - Distortions especially noticeable on high-sensitivity gratings
- ✓ Calibration features were added to **improve accuracy**:
  - **Size Calibration:** Ensures the on-screen gratings are exactly 1 inch by comparing to a credit card outline.
    - Browser zoom level
  - **Gamma Calibration:**
    - ensures more consistent results across different display devices.
    - Shows alternating black/white pixels beside mid-gray.
    - Users adjust gamma until the two gray areas visually match.
    - Helps standardize brightness/contrast across different monitors and HDR displays.
- ✓ Gratings are created in pure grayscale for accuracy.
- ✓ These updates should improve clinical accuracy, making results more consistent and reducing false positives and false negatives.
- ✓ Additional visual and usability enhancements were made to the test interface for a cleaner, more modern user experience.