

Color Uniformity Analysis Report

Report Generated: 2025-11-10 15:33:50

Generated By: Olufemi Balogun

Company: Photonics QC Lab

Measurement Information

Parameter	Value
Device Serial	WAVEGUIDE-DEFECT-001
Operator	Olufemi Balogun
Instrument	Minolta CS-2000
Instrument Serial	Cs2000-12345
Calibration Date	2025-10-15
Temperature	23.5 °C
Humidity	45.0 %
Ambient Light	0.3 lux

QC Test Results

Overall Result: FAIL

Uniformity Metrics

Metric	Value	Specification	Status
Mean ΔE*00	1.87	< 3.0	✓
Max ΔE*00	10.79	< 5.0	✗
Std Dev ΔE*00	2.09	< 2.0	✗
Median ΔE*00	1.30	-	-

Color Statistics (CIELAB)

Component	Mean	Std Dev	Min	Max
L* (Lightness)	100.9	2.6	89.2	104.2
a* (Red-Green)	-0.02	0.16	0.00	0.00
b* (Yellow-Blue)	-0.45	0.26	0.00	0.00

Chromaticity Uniformity (CIE 1931 xy)

Metric	Value	Specification	Status
Mean xy Deviation	0.0011	< 0.01	✓
Max xy Deviation	0.0024	< 0.01	✓

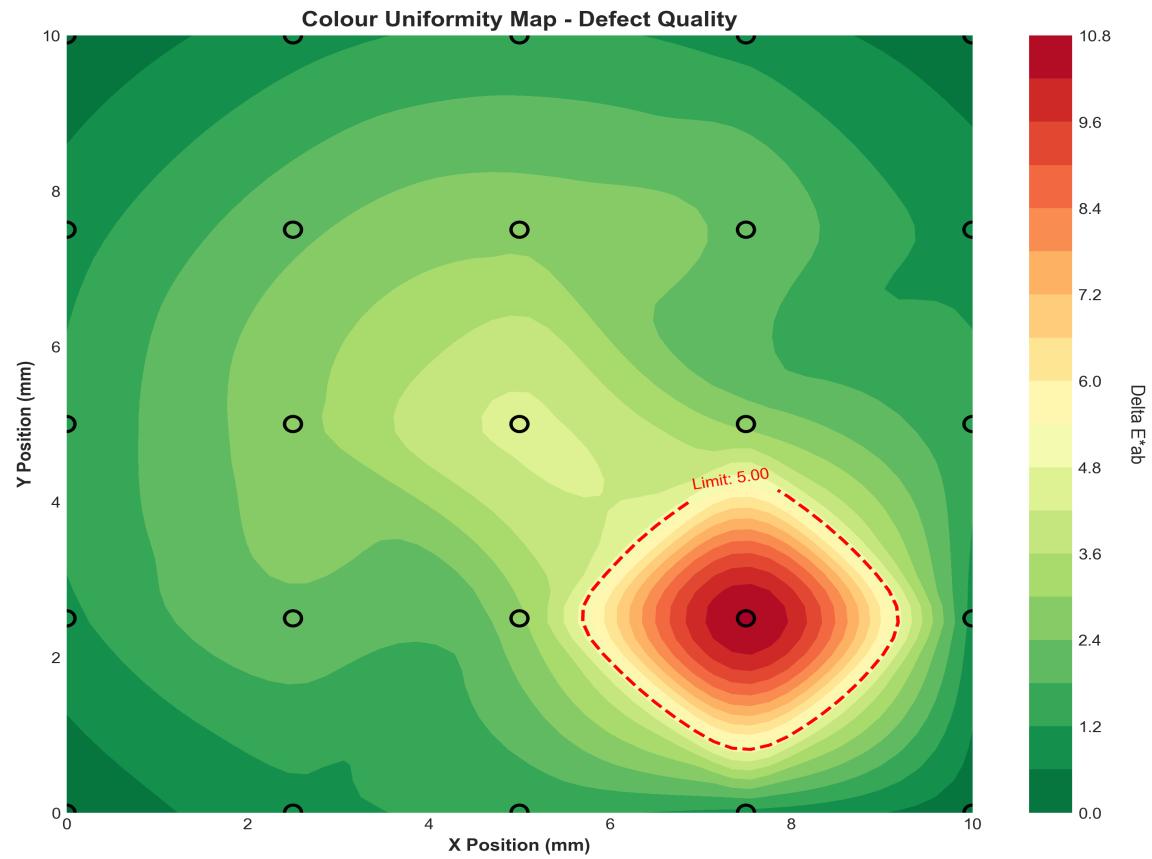
Worst Position: (7.5, 2.5) mm with $\Delta E = 10.79$

Failures

- Max deltaE (10.79) at position [7.5 2.5] exceeds limit (5.00)
- DeltaE std deviation (2.09) exceeds limit (2.00)

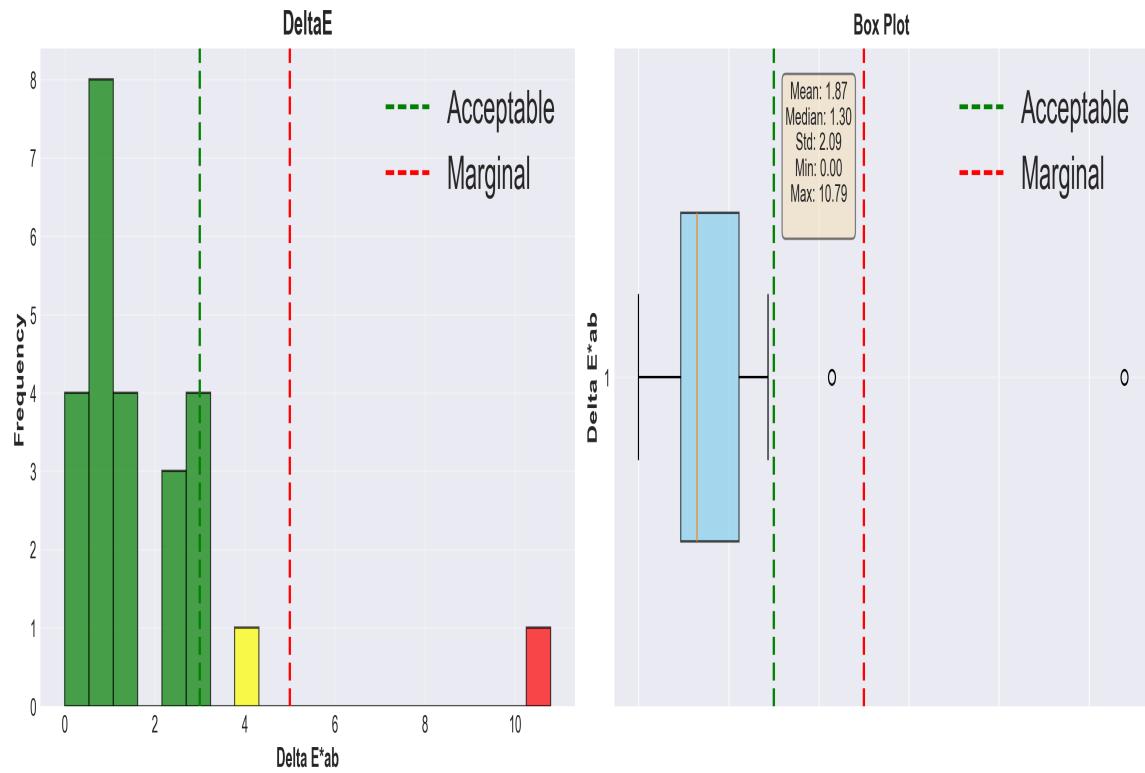
Uniformity Visualizations

Uniformity Heatmap

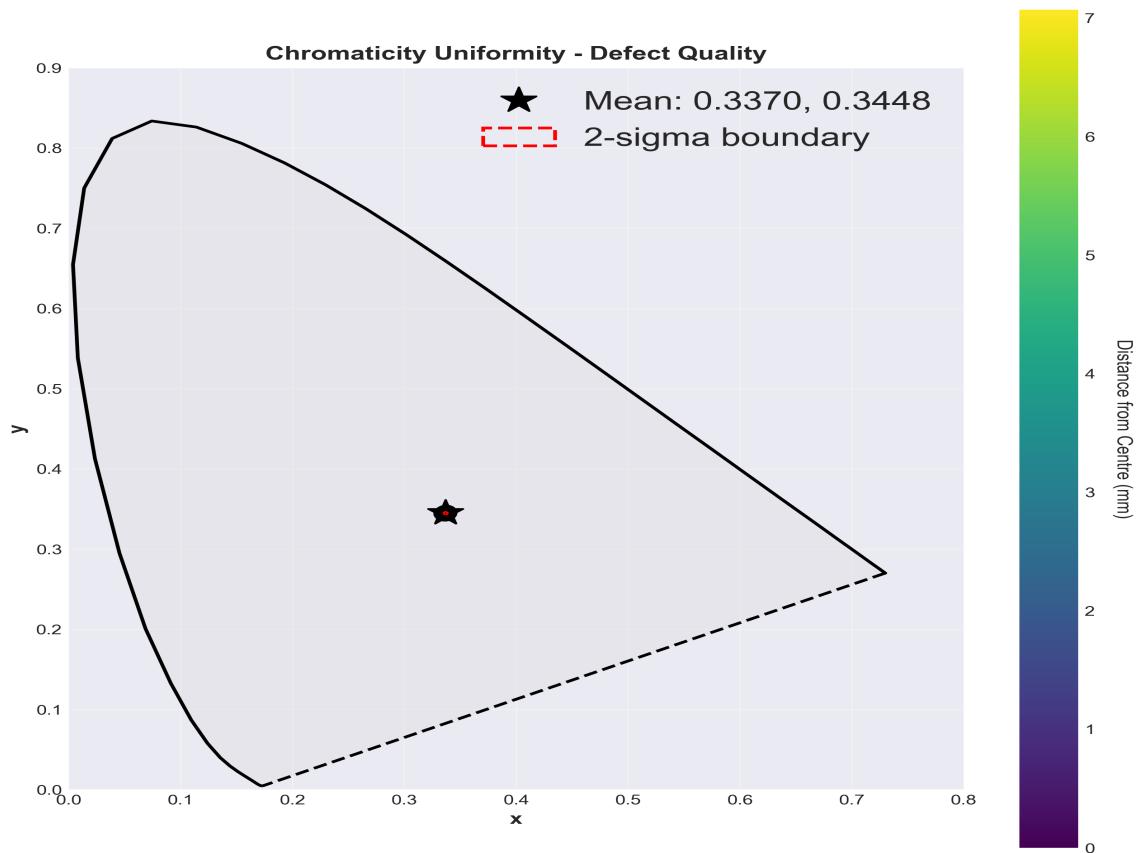


ΔE Distribution

DeltaE Distribution - Defect Quality



Chromaticity Diagram



Notes

Simulated defect quality waveguide for testing

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