Batch Wafer Quality Summary Report

Report Generated: 2025-12-27 20:49:36
Simulation Date: All Dates
Report Type: Summary Only (Per-Wafer Details Excluded)

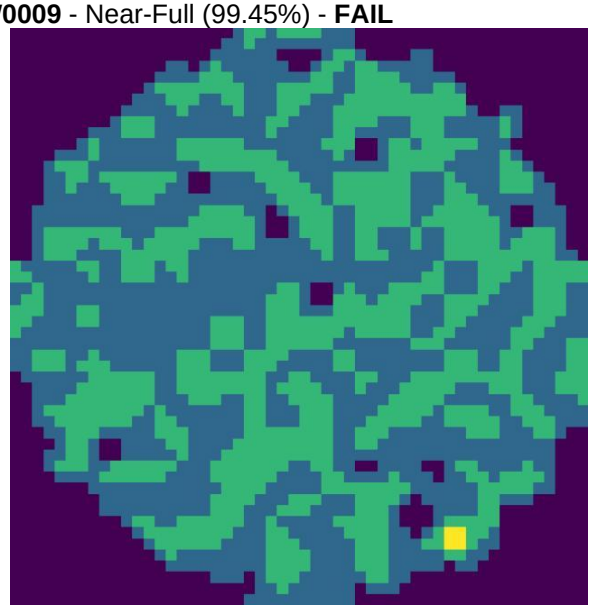
Batch Summary

Total wafers: 2086
Date Range: 2025-12-21 to 2025-12-28 (8 days)
PASS: 1474 | **FAIL:** 612
PASS rate: 70.66%

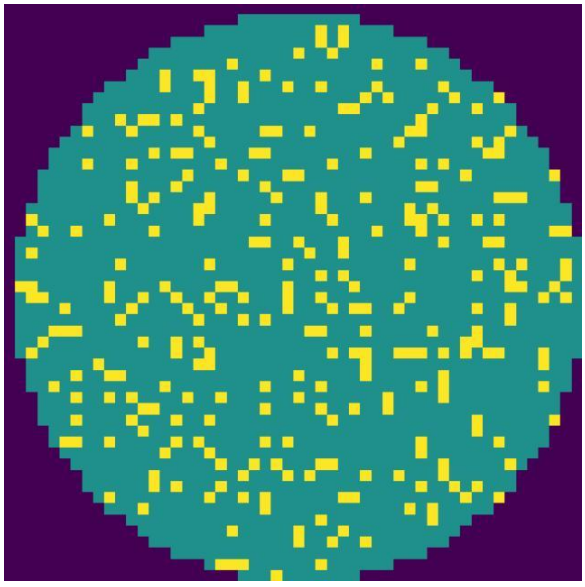
Sample Wafer Images

Showing representative samples: Top defects and good examples

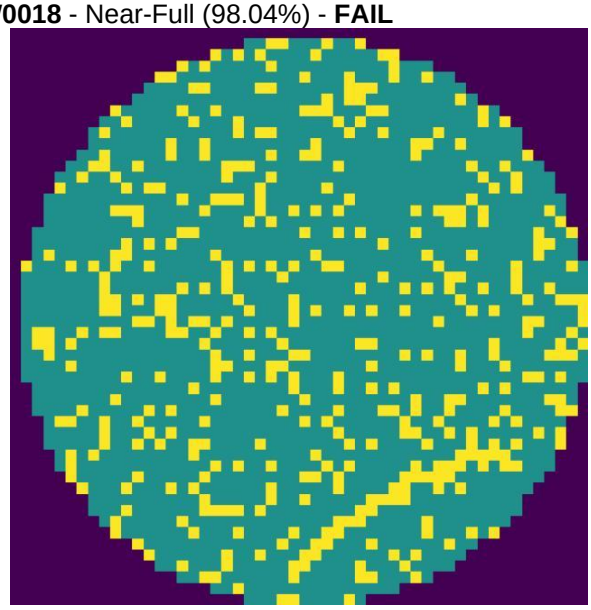
Electrical_ELEC_02_W0009 - Near-Full (99.45%) - **FAIL**



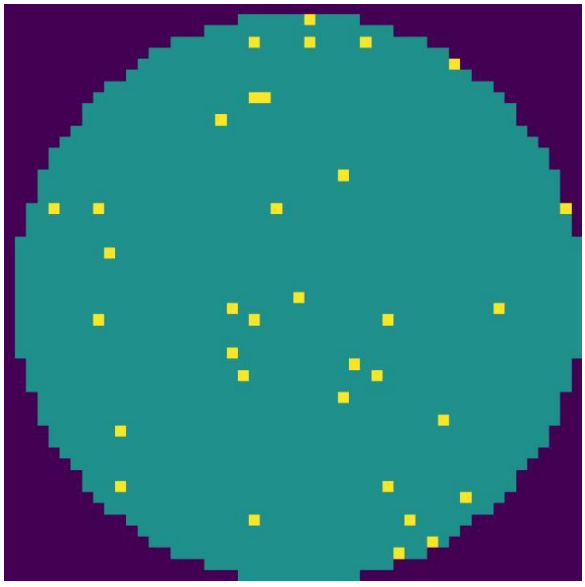
Electrical_ELEC_01_W0027 - Near-Full (98.09%) - **FAIL**



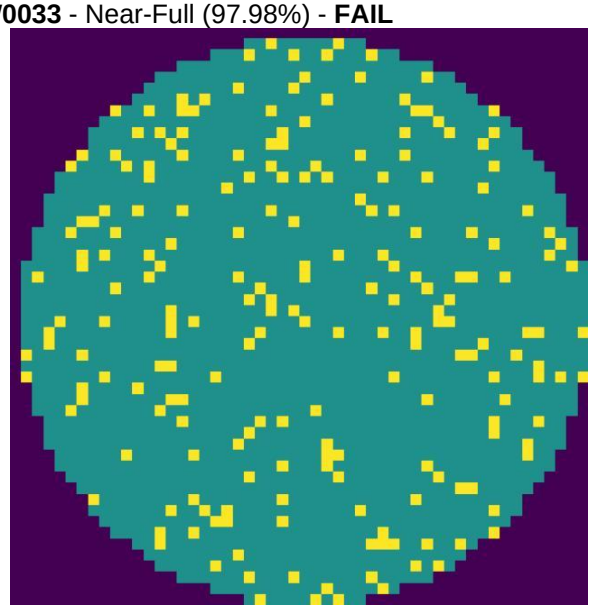
Electrical_ELEC_02_W0018 - Near-Full (98.04%) - **FAIL**



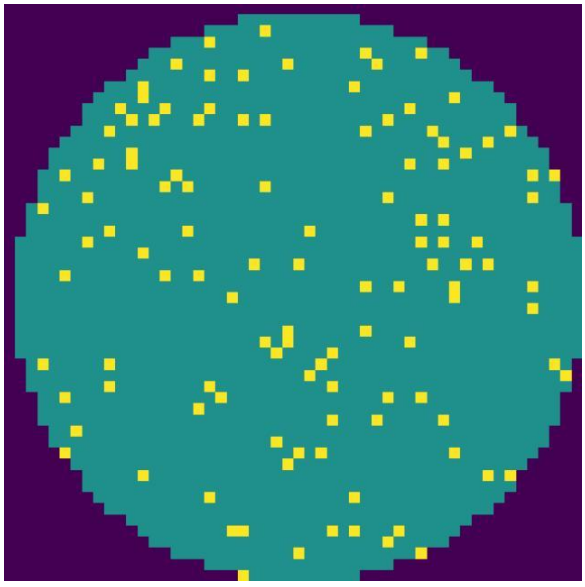
Electrical_ELEC_02_W0035 - Near-Full (98.03%) - **FAIL**



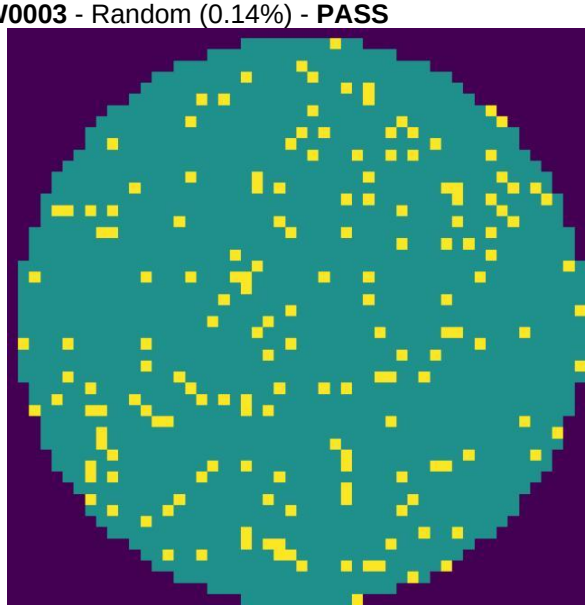
Electrical_ELEC_02_W0033 - Near-Full (97.98%) - **FAIL**



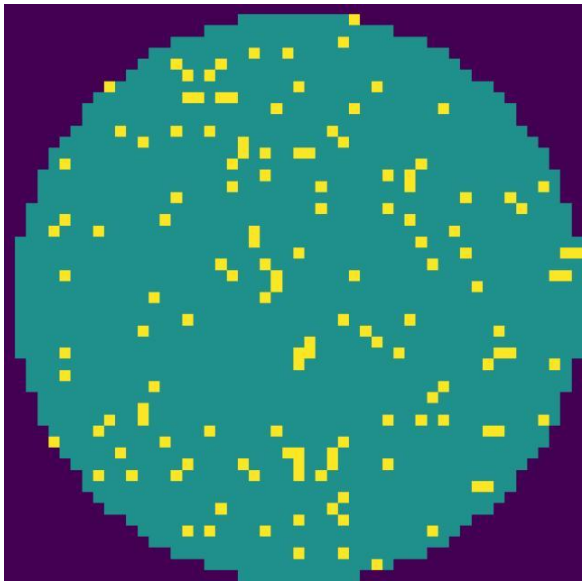
Thermal_THERM_01_W0028 - Near-Full (97.90%) - **FAIL**



Thermal_THERM_01_W0003 - Random (0.14%) - **PASS**



Electrical_ELEC_02_W0027 - Random (0.14%) - **PASS**



Top 5 Highest Defect Percentages

• Electrical_ELEC_02_W0009 (Electrical): 99.45% [Near-Full]
• Electrical_ELEC_01_W0027 (Electrical): 98.09% [Near-Full]
• Electrical_ELEC_02_W0018 (Electrical): 98.04% [Near-Full]
• Electrical_ELEC_02_W0035 (Electrical): 98.03% [Near-Full]
• Electrical_ELEC_02_W0033 (Electrical): 97.98% [Near-Full]

Distribution by Machine Type

• Electrical: 833 wafers
• Mechanical: 714 wafers
• Thermal: 539 wafers

Distribution by Defect Class

• Normal: 1466 wafers
• Edge-Loc: 84 wafers
• Scratch: 84 wafers
• Donut: 82 wafers
• Random: 78 wafers
• Edge-Ring: 76 wafers
• Local: 74 wafers
• Near-Full: 73 wafers
• Center: 69 wafers

AI-Enhanced Engineering Summary

The batch yield is at 70.66%, with a total of 2086 wafers processed and 612 failing. The Electrical machine type shows a significant issue, contributing the highest number of wafers and dominating the worst defect percentages, all classified as Near-Full defects. Other defect classes are present but less impactful. Immediate attention is required on the Electrical machines to address the Near-Full defect trend.

Estimated batch yield impact: High

Key Risks

• High failure rate on Electrical machines
• Predominance of Near-Full defects indicating severe wafer contamination or process issues
• Potential systemic issues causing widespread defects in the batch

Recommended Actions

• Conduct root cause analysis on Electrical machines focusing on Near-Full defects
• Review and tighten process controls and contamination prevention measures
• Implement targeted maintenance or recalibration of Electrical equipment
• Increase monitoring and inspection frequency for wafers processed on Electrical machines