Batch Wafer Quality Summary Report

Report Generated: 2025-12-27 14:24:28
Simulation Date: All Dates
Report Type: Summary Only (Per-Wafer Details Excluded)

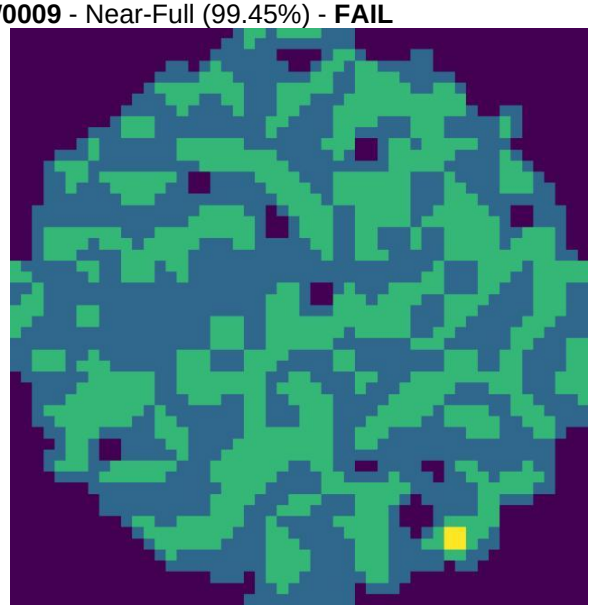
Batch Summary

Total wafers: 2073
Date Range: 2025-12-21 to 2025-12-28 (8 days)
PASS: 1467 | **FAIL:** 606
PASS rate: 70.77%

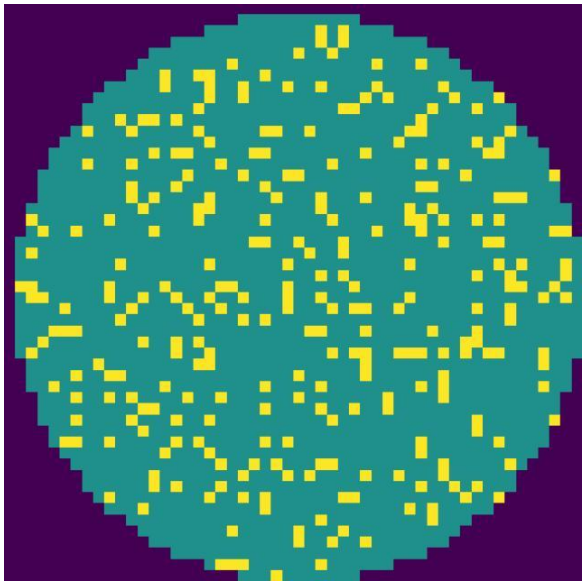
Sample Wafer Images

Showing representative samples: Top defects and good examples

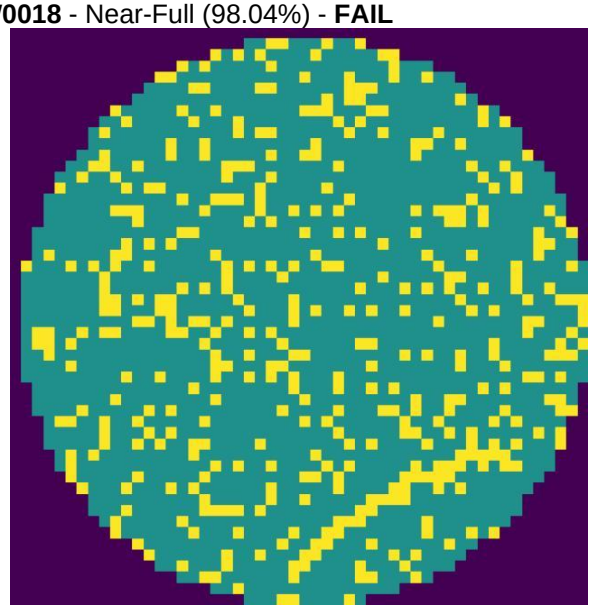
Electrical_ELEC_02_W0009 - Near-Full (99.45%) - **FAIL**



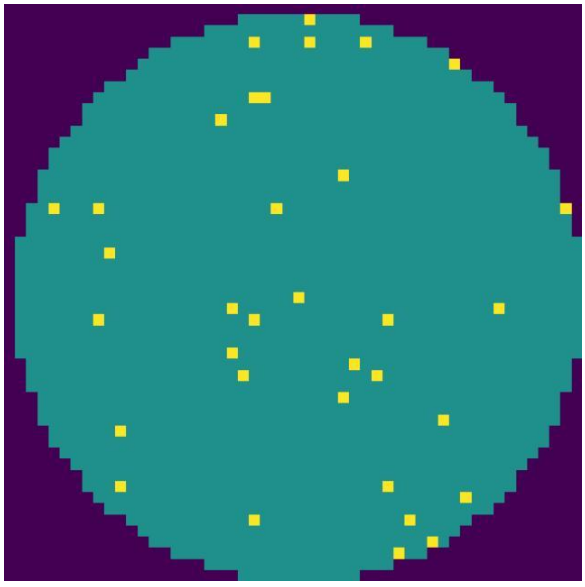
Electrical_ELEC_01_W0027 - Near-Full (98.09%) - **FAIL**



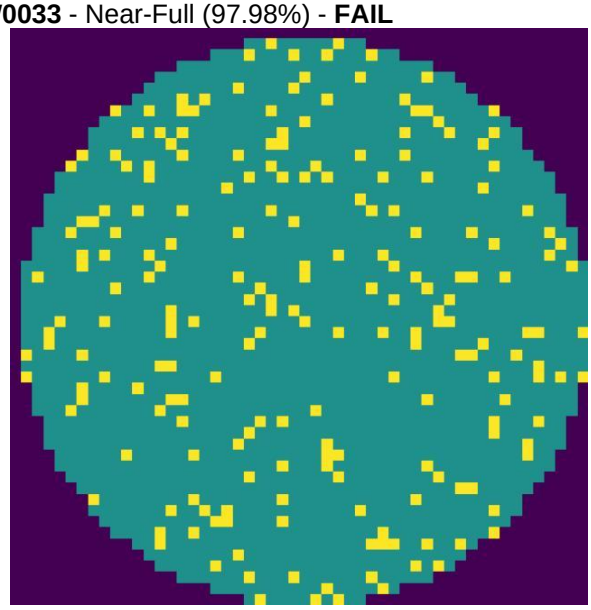
Electrical_ELEC_02_W0018 - Near-Full (98.04%) - **FAIL**



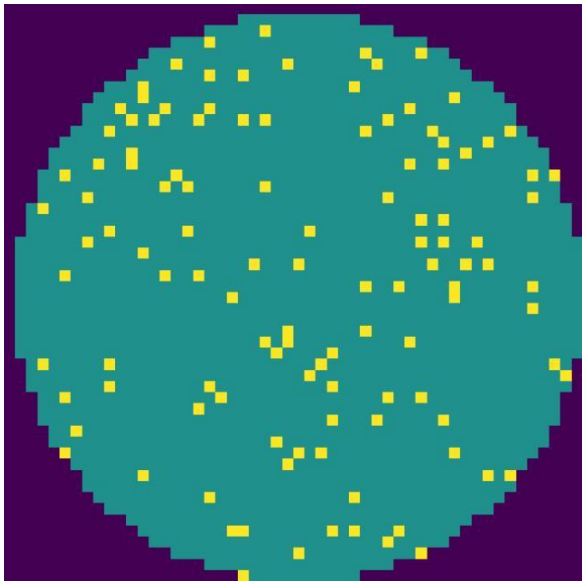
Electrical_ELEC_02_W0035 - Near-Full (98.03%) - **FAIL**



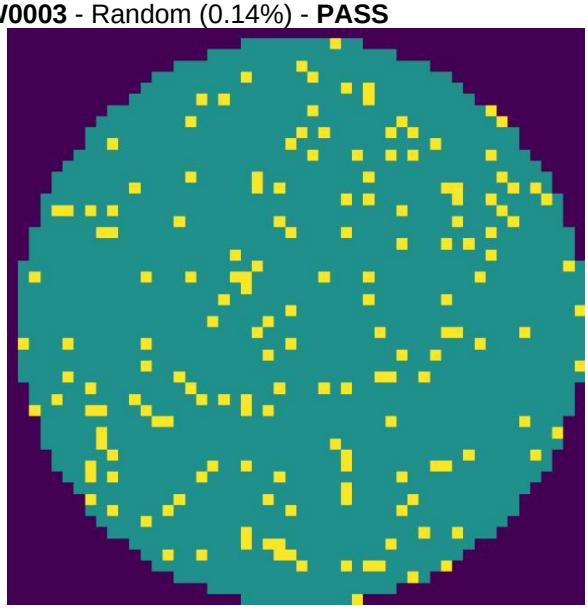
Electrical_ELEC_02_W0033 - Near-Full (97.98%) - **FAIL**



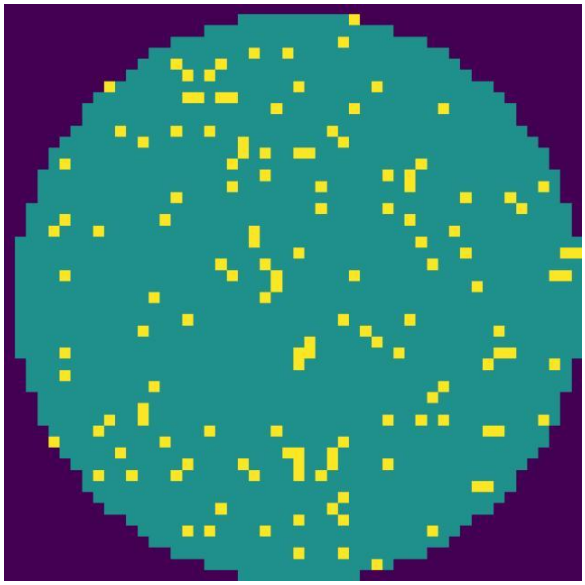
Thermal_THERM_01_W0028 - Near-Full (97.90%) - **FAIL**



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: 829 wafers
• Mechanical: 708 wafers
• Thermal: 536 wafers

Distribution by Defect Class

• Normal: 1459 wafers
• Scratch: 84 wafers
• Edge-Loc: 83 wafers
• Donut: 81 wafers
• Edge-Ring: 76 wafers
• Random: 75 wafers
• Near-Full: 73 wafers
• Local: 73 wafers
• Center: 69 wafers

AI-Enhanced Engineering Summary

The batch yield is currently at 70.77%, with a total of 606 wafers failing out of 2073. The majority of defects are concentrated in Electrical machines, particularly with Near-Full defect class wafers showing extremely high defect percentages near 98-99%. This indicates a significant issue localized to the Electrical processing step. Other defect classes and machine types show lower defect counts and less impact on yield.

Estimated batch yield impact: High

Key Risks

• Severe yield loss due to Near-Full defects in Electrical machines
• Potential systemic issues in Electrical processing equipment or process
• Risk of continued high failure rate if root cause not addressed

Recommended Actions

• Perform detailed root cause analysis on Electrical machine processes
• Inspect and recalibrate Electrical processing equipment
• Implement additional inline monitoring for Near-Full defect detection
• Review process parameters and materials used in Electrical step