



## Escape Prevention

The Optimal+ Escape Prevention solution is designed to deterministically address test process and operational issues that impact quality and could lead to a test escape. It works with Global Ops to support both online and offline decision making. Escape Prevention can be easily integrated into any manufacturing environment and configured to drive automatic bin switching of potential test escapes.

- *A complementary solution to the Optimal+ Semiconductor Operations Platform*
- *Requires Global Ops*

### Highlights

- Reduces product returns (RMAs) by as much as 50% by detecting marginal parts
- Increases quality and reliability by killing questionable dice during test
- Supports automatic bin switching for quality indexing
- Manages publication of validated “escape” rules to the test floor
- Manufactures intelligence to enhance quality results from multiple test processes, including: E-Test, Wafer Sort, Final Test, System-Level Test

## Escape Prevention, Quality Retention

In the emerging environment of wafer-level packaging (WLP), Final Test is no longer included as an operation in the product lifecycle. As such, Escape Prevention is a critical filter in keeping devices of questionable quality from reaching the customer.

Based on hundreds of post-mortem data analyses conducted on units returned by customers, Optimal+ designed and developed the Escape Prevention solution, enabling a paradigm shift in the semiconductor industry.

For the first time, passing devices are being challenged in a timely manner before shipping to further increase product quality. Employing Optimal+ Escape Prevention to drive up quality assurance efforts on the manufacturing operations floor, significantly improves the delivery of quality products to market.

# Escape Prevention Solution

## How It Works

1



### ANALYZE DATA

When RMAs are identified, users can extract the full “DNA” test history for that part based on ECIDs (electronic chip IDs) to perform cross-operational data mining and analysis

2



### CREATE RULES

When a “DNA-signature” is identified for a specific RMA, rules are defined to “catch” similar RMAs during manufacturing test

3



### SIMULATE SCENARIOS

Simulation is performed using the newly-created rule leveraging historical test data (saved and stored by Optimal+) to verify that the targeted RMA excursion was successfully prevented

4



### PUBLISH TO SUPPLY CHAIN

Once a rule is green-lighted for achieving its intended goal, it can be propagated to the entire tester fleet

5



### CONTINUAL MONITORING AND VALIDATION

As future devices are tested, engineering teams can track bad bin failures based on the published Escape Prevention rules to confirm that suspect devices are prevented from entering the supply chain



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