

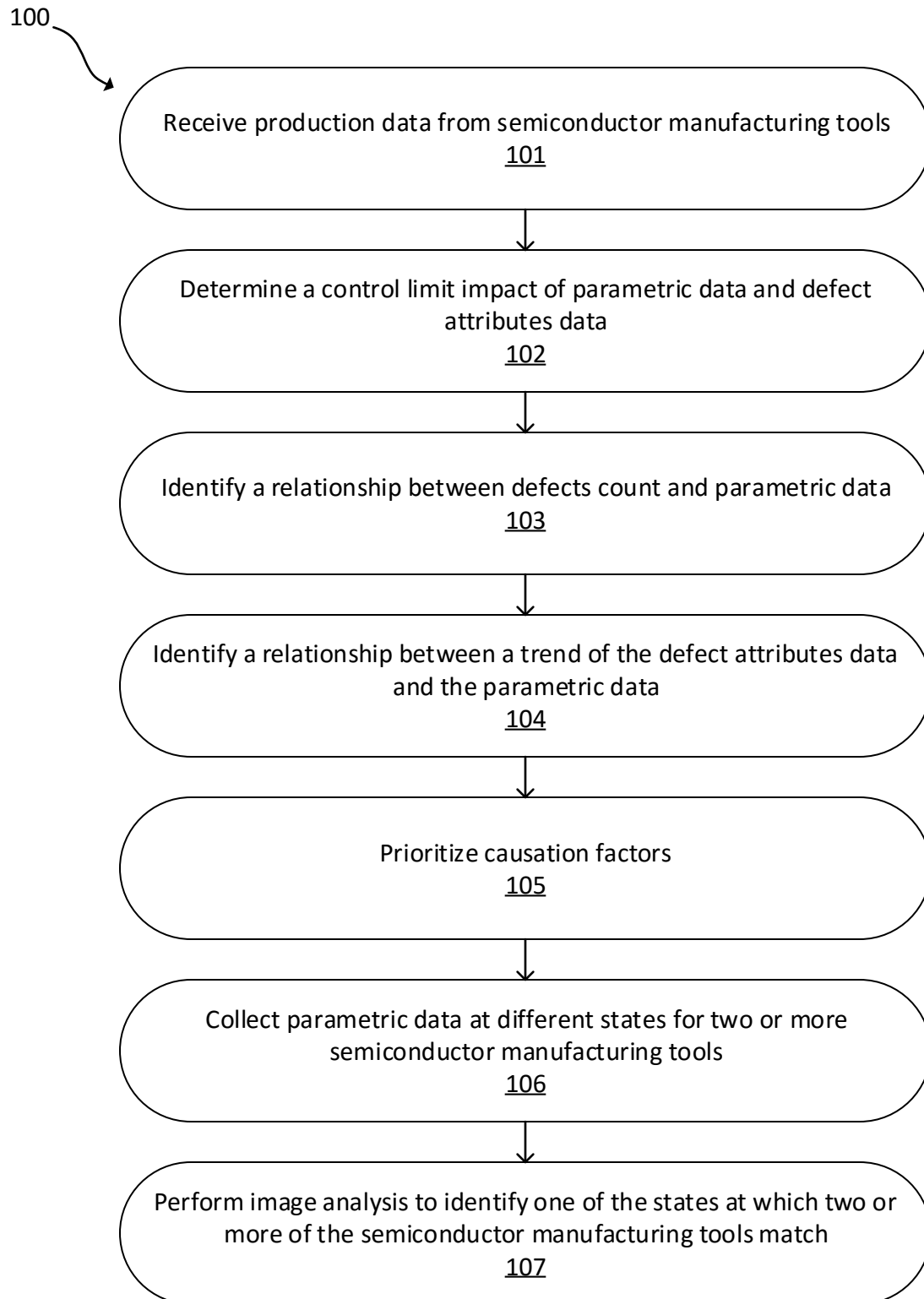


FIG. 1

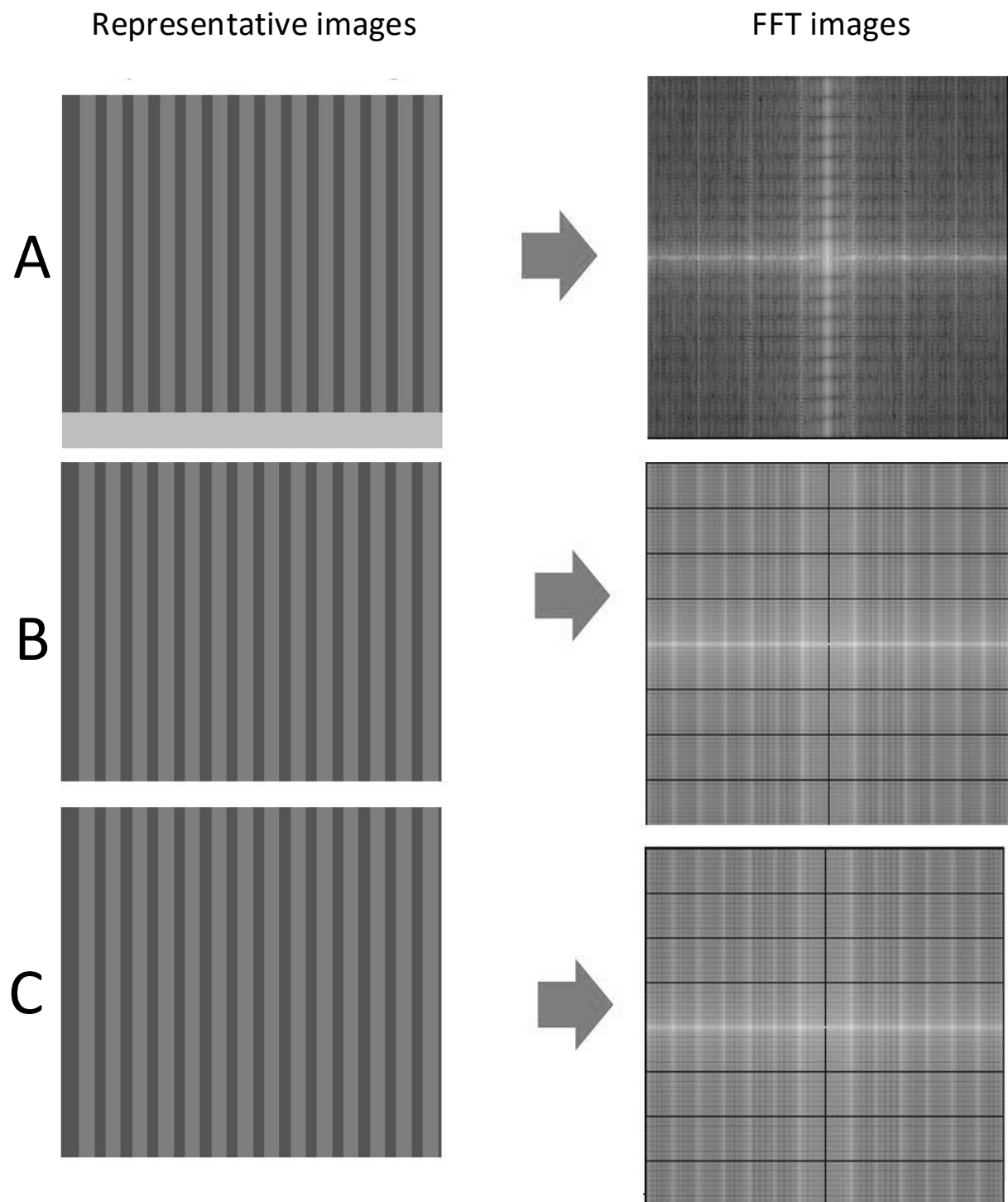


FIG. 2

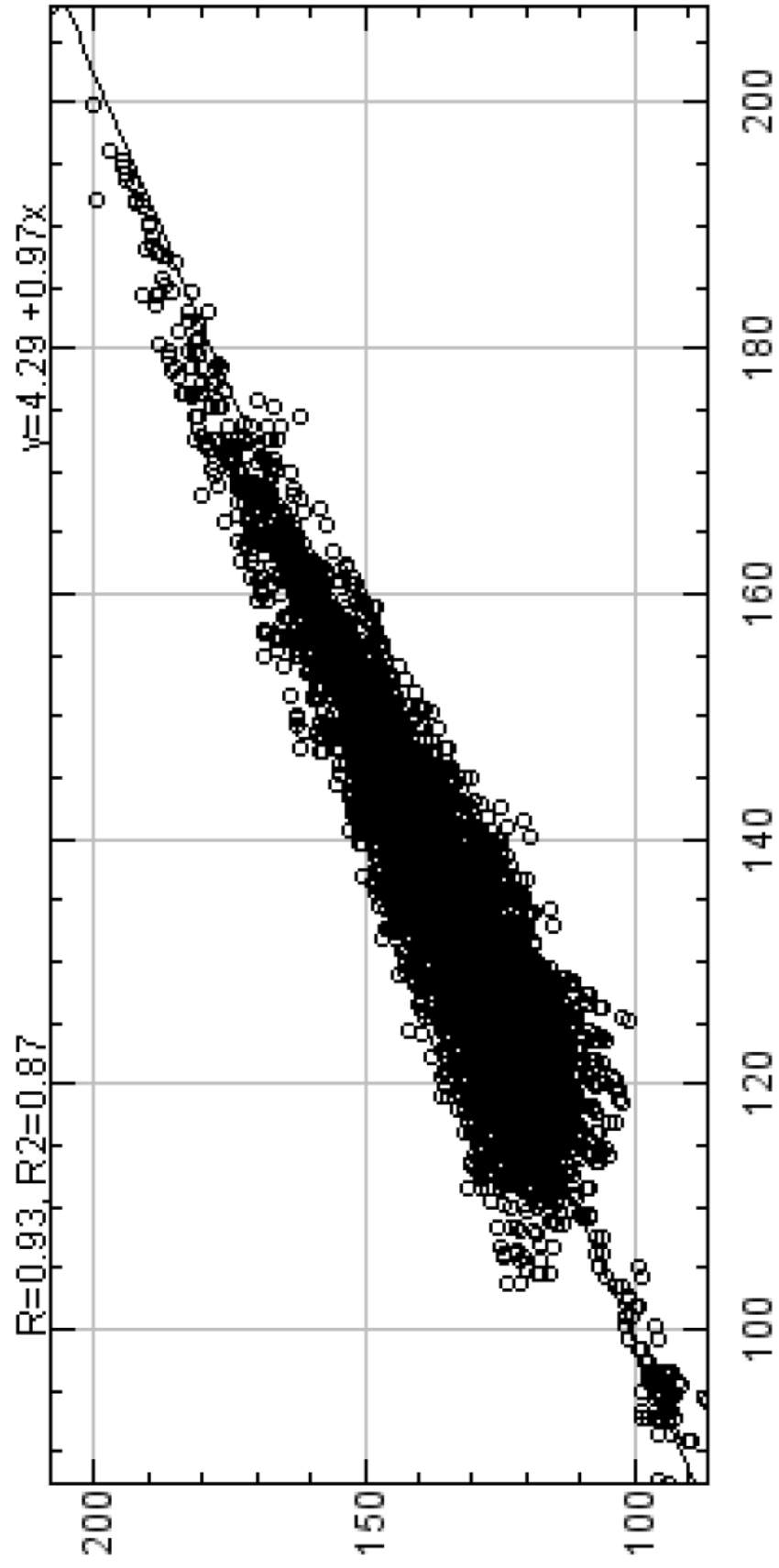


FIG. 3

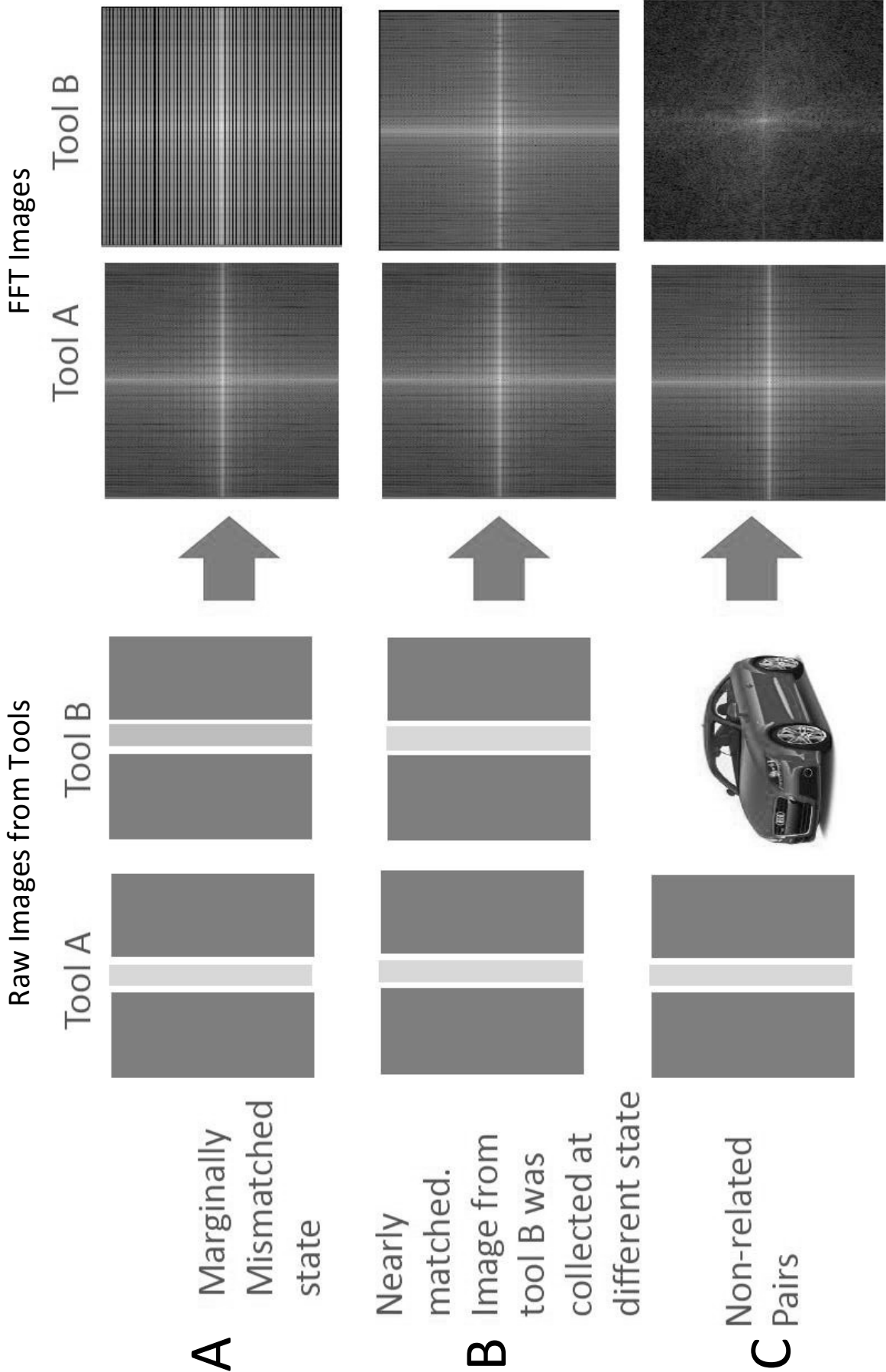


FIG. 4

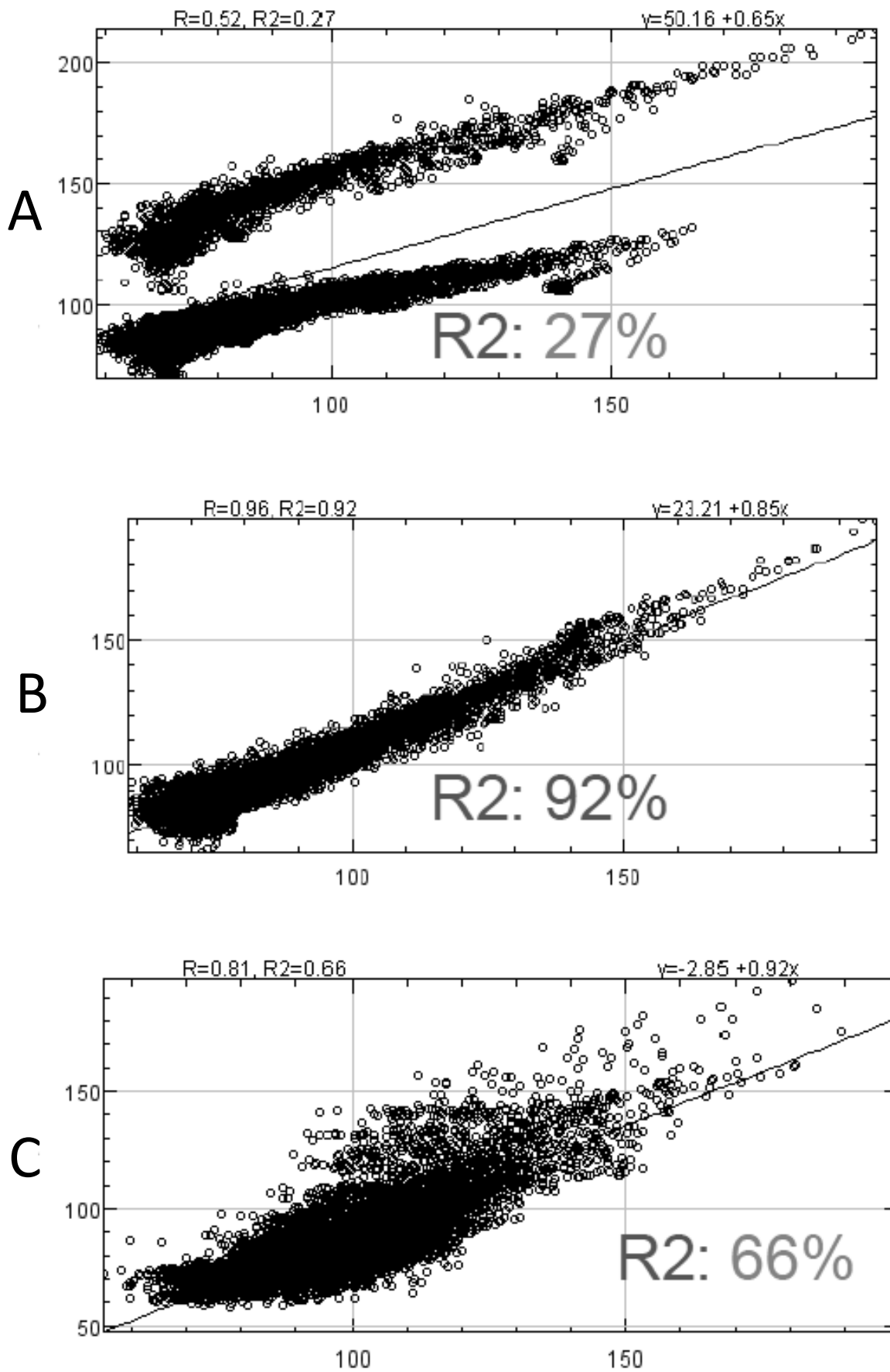


FIG. 5

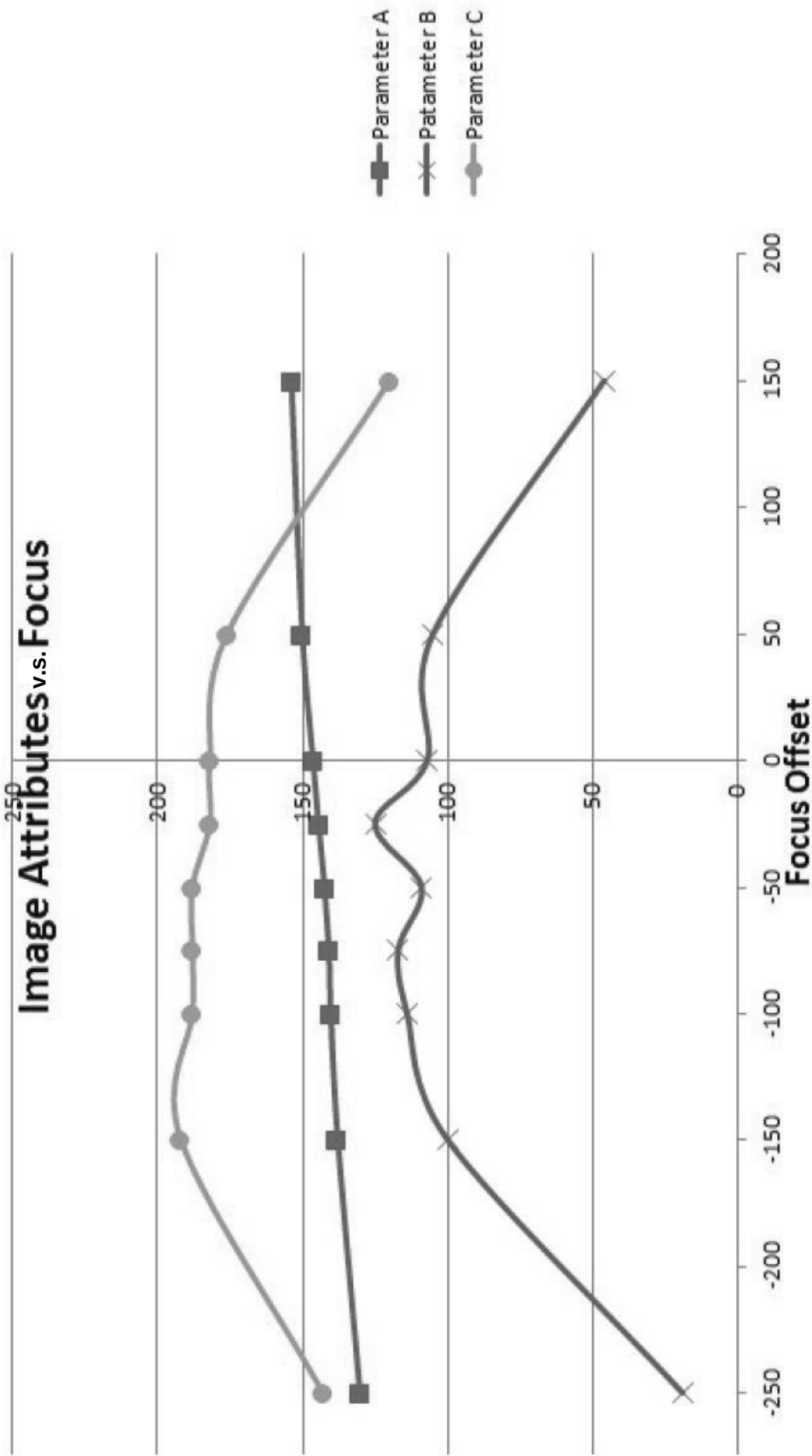
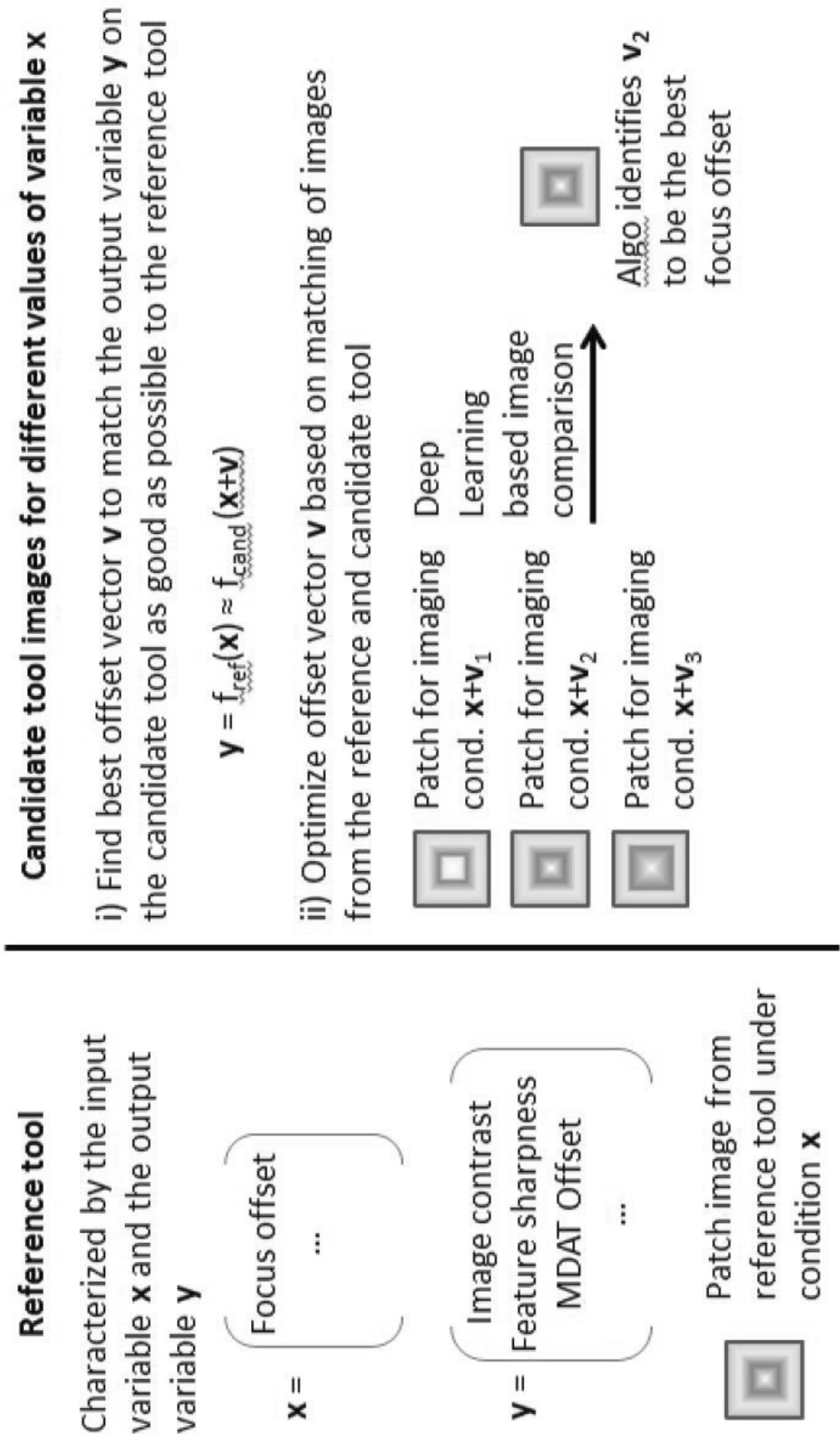


FIG. 6



CLI for layer prioritization

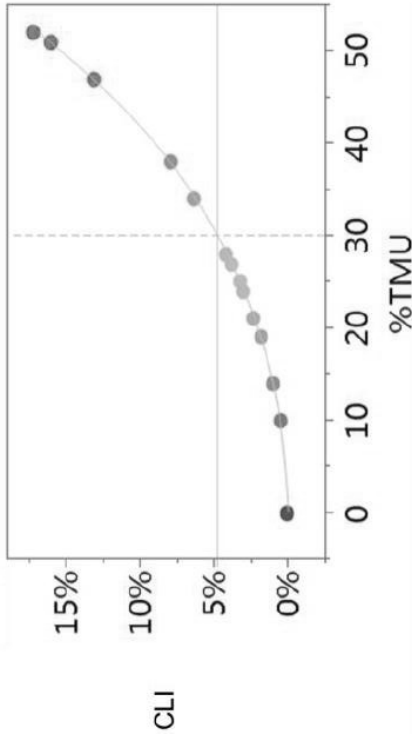


Fig 8A
(Indicator of Mismatch)

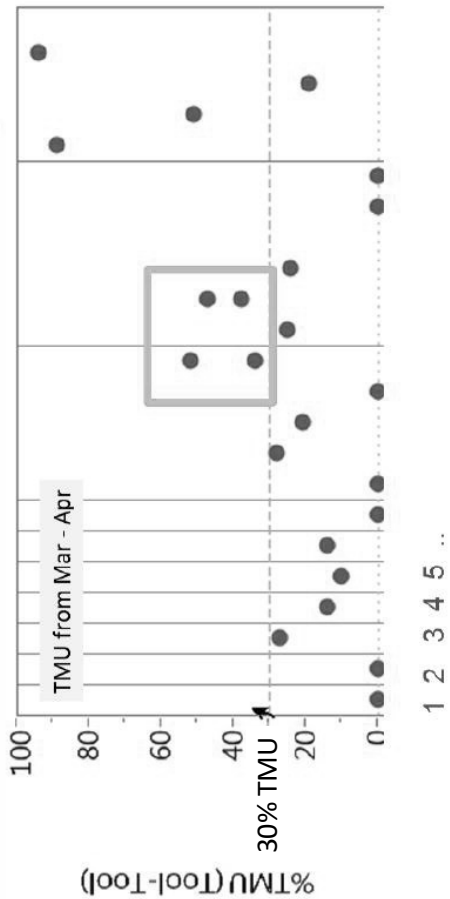
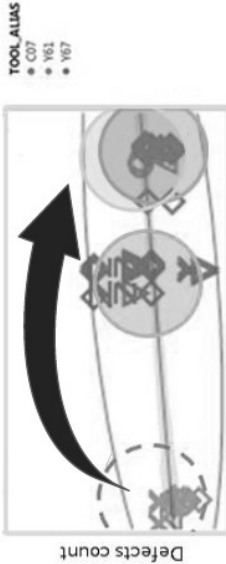


Fig 8B
Layer / Test / Device combination explored

Defect count vs. hardware correlation on layers on CLI score



Hardware parameter-A
Hardware parameter with
high R-square

Fig 9A

Device-1 Layer-A

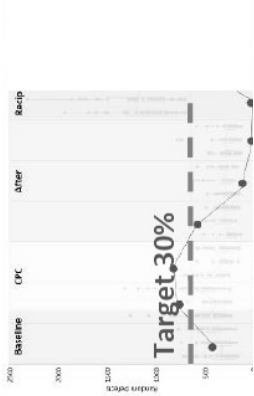


Fig 9B

Device-2 Layer-B

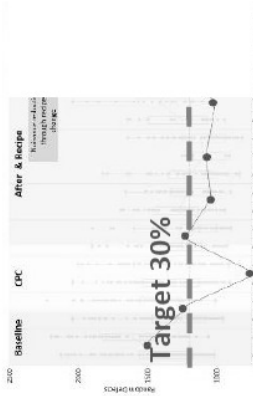
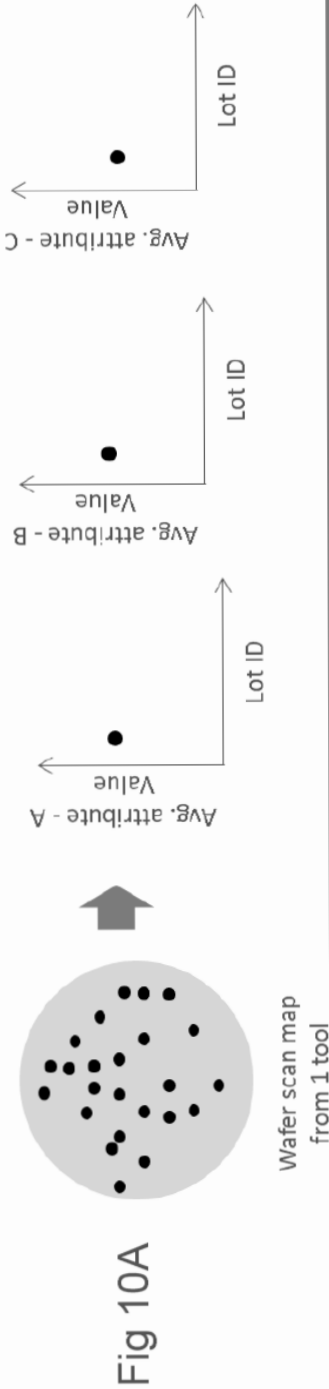


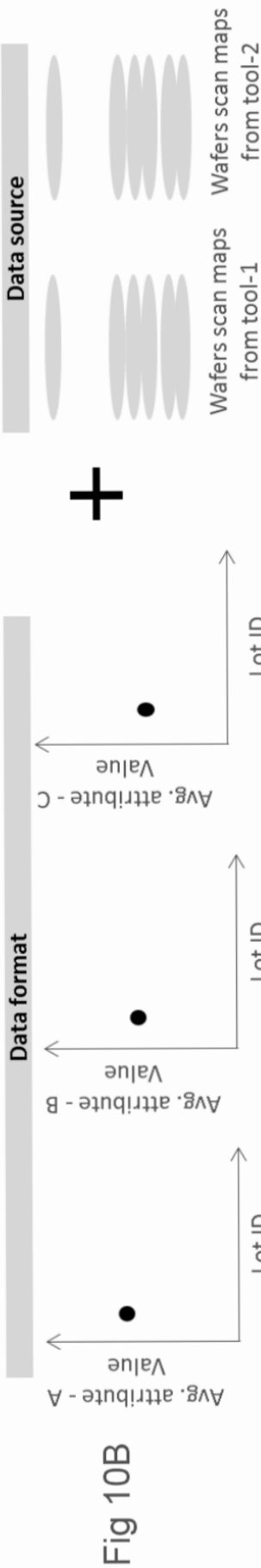
Fig 9C

Impact of corrective action on matching

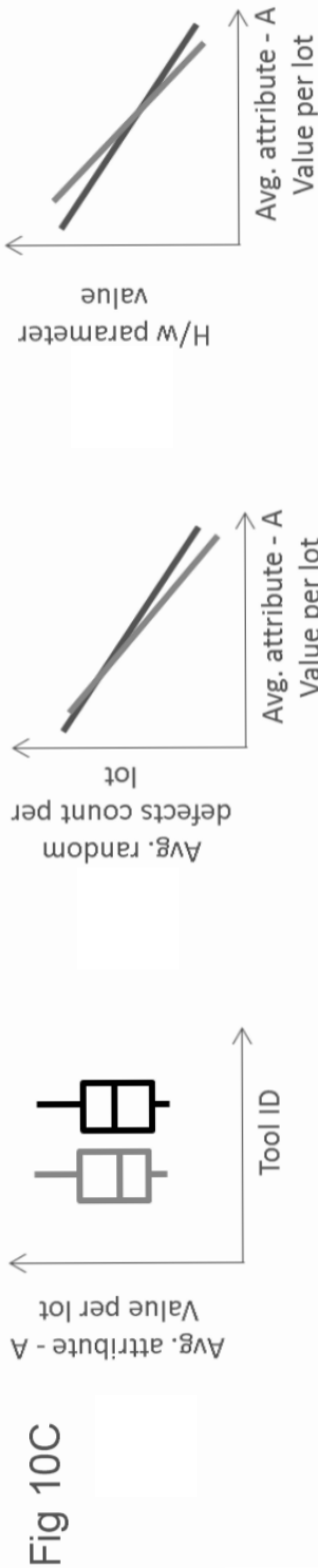
Data Preparation Stage-1



Data Preparation Stage-2



Assessment / Correlation Technique



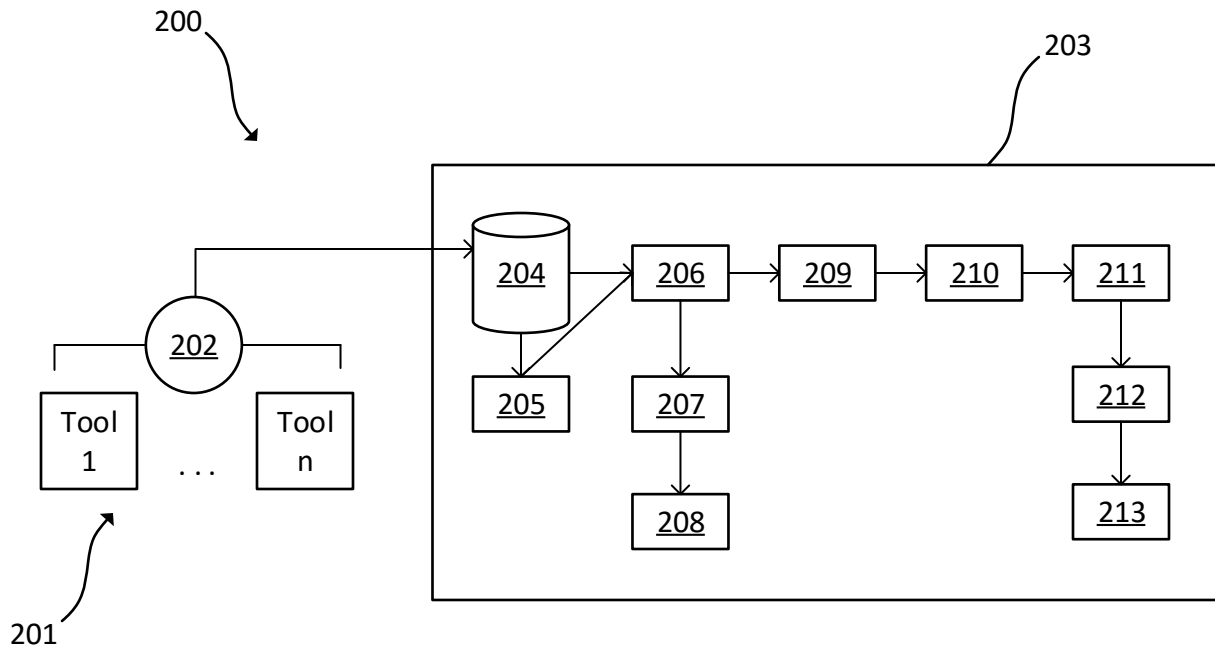


FIG. 11

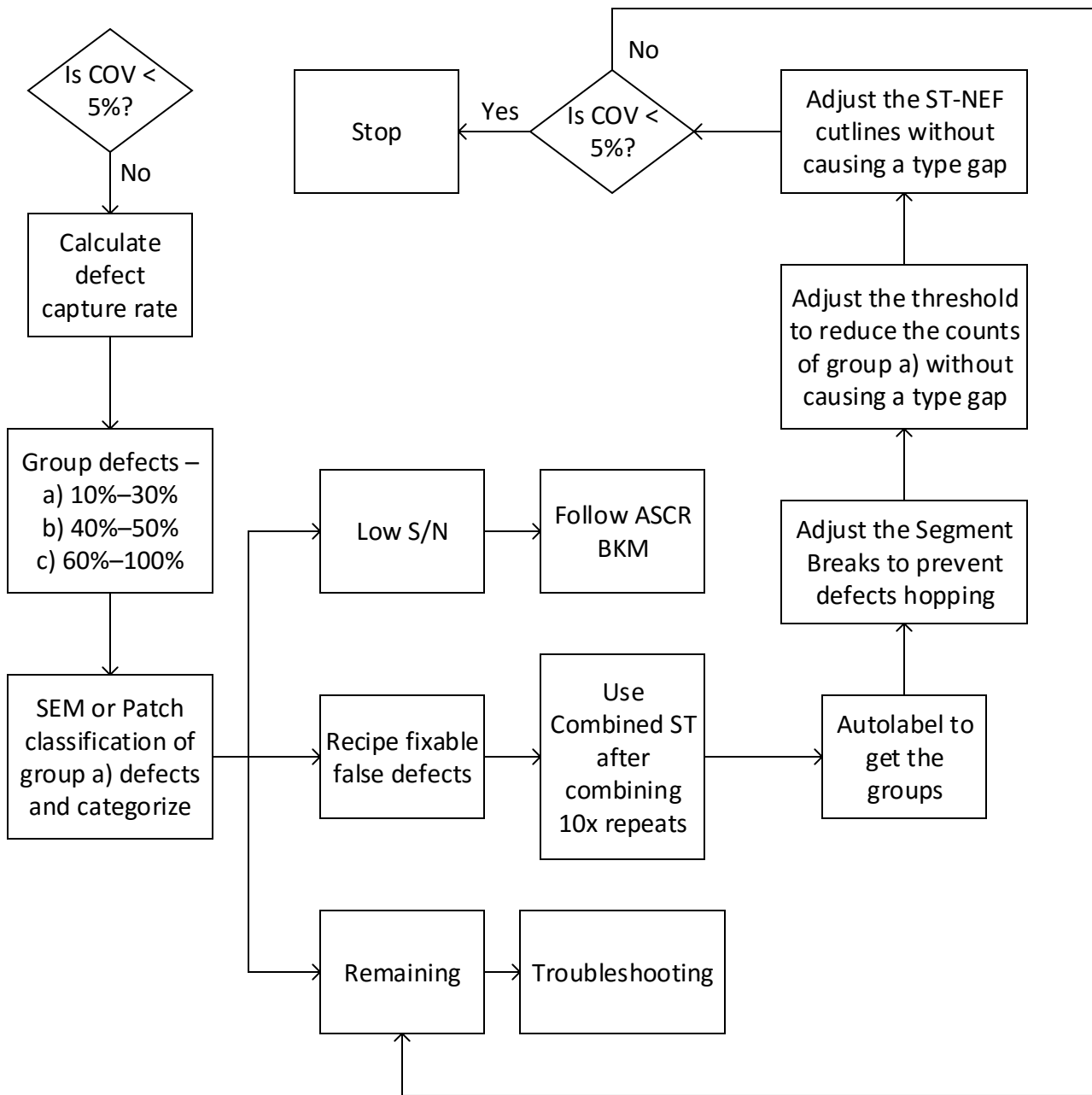


FIG. 12

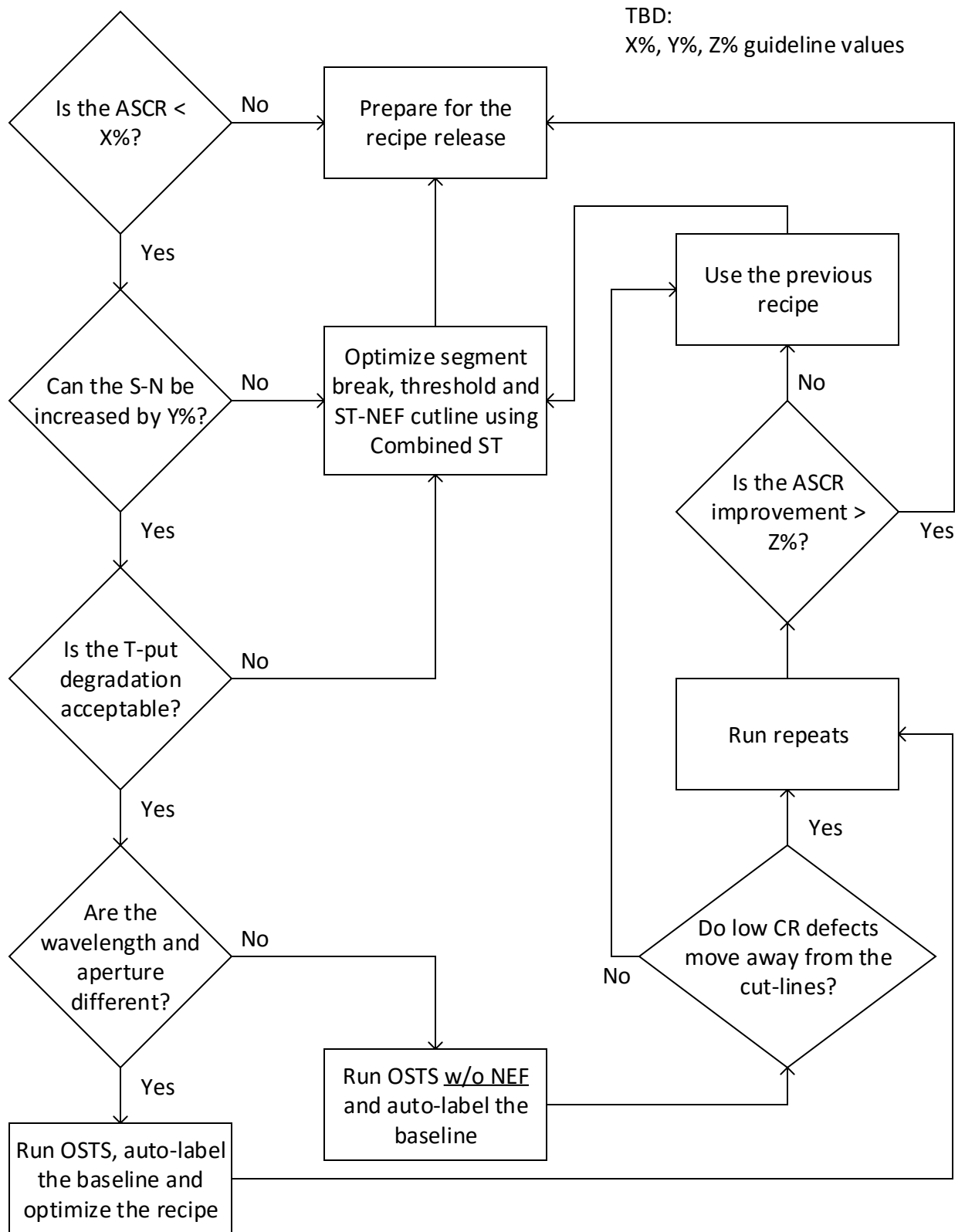
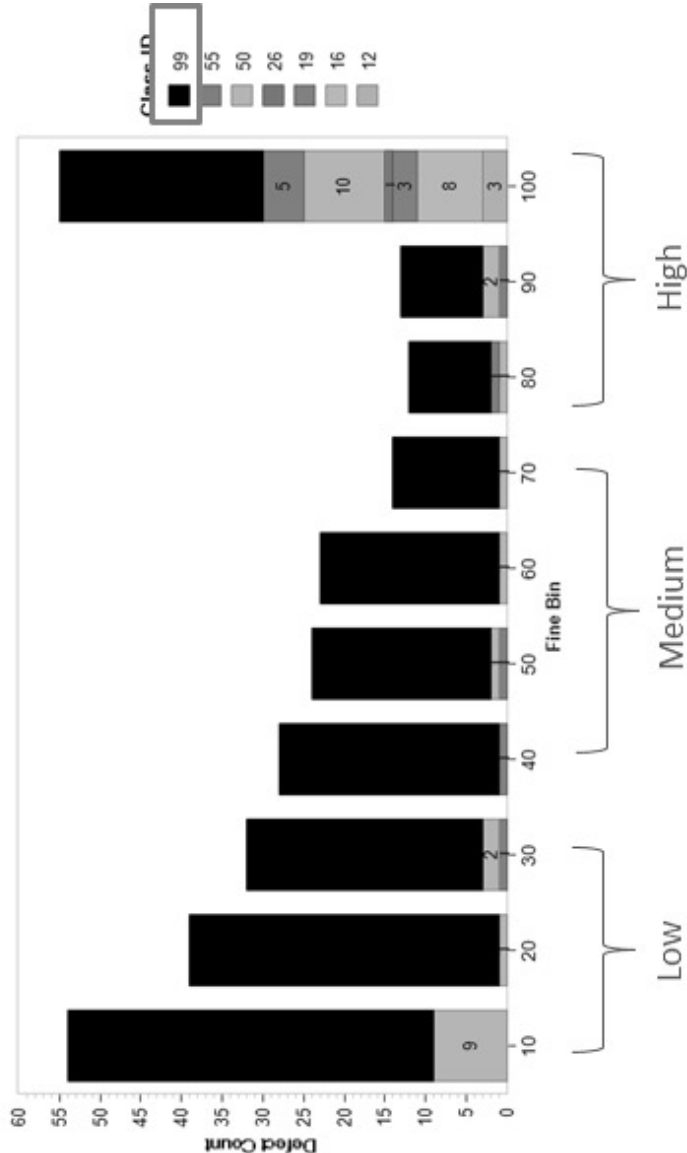
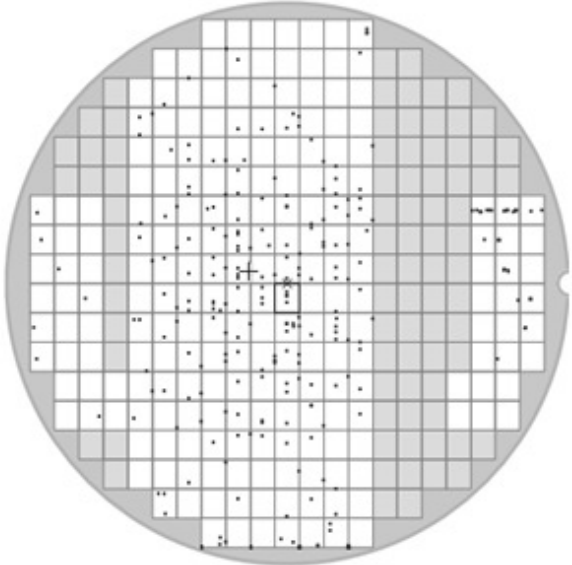


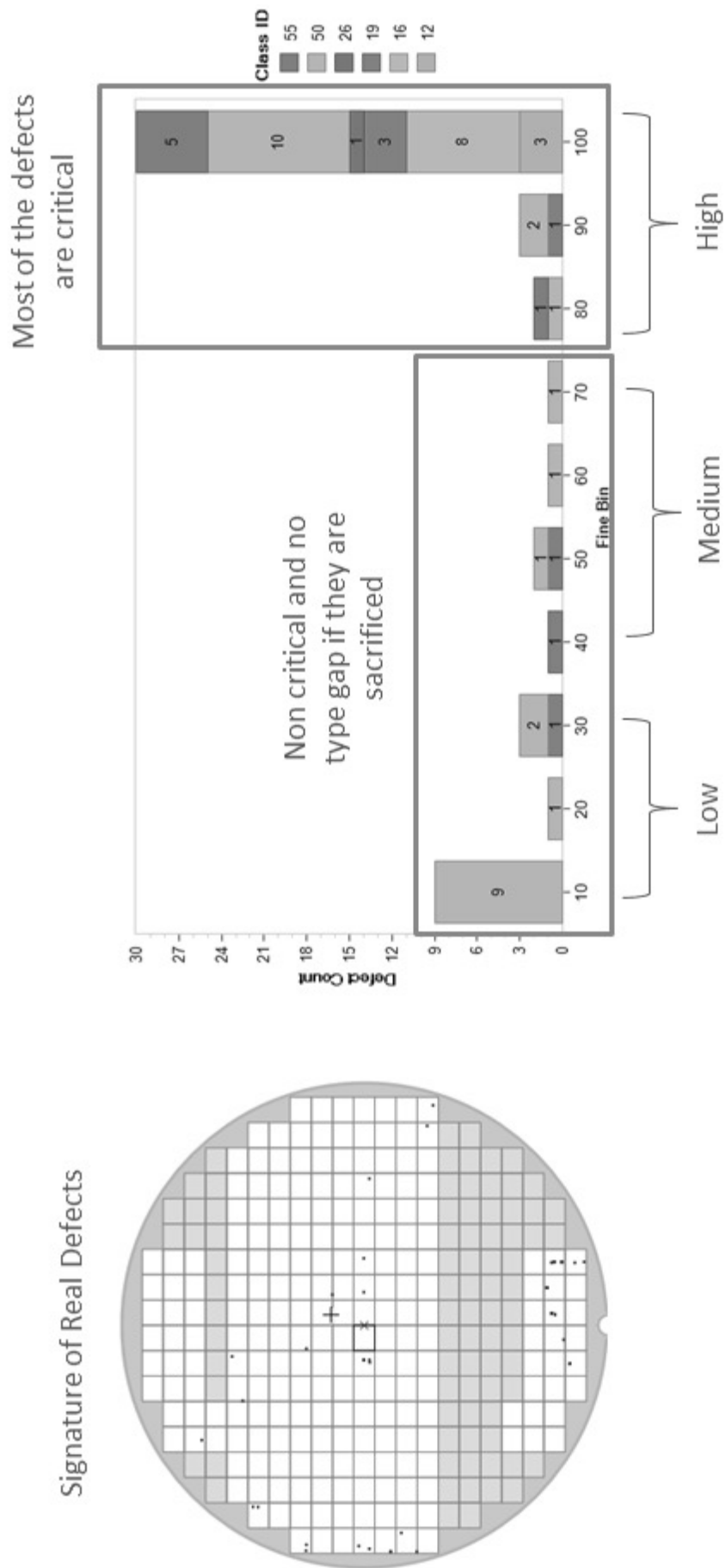
FIG. 13

SEM Review Plan



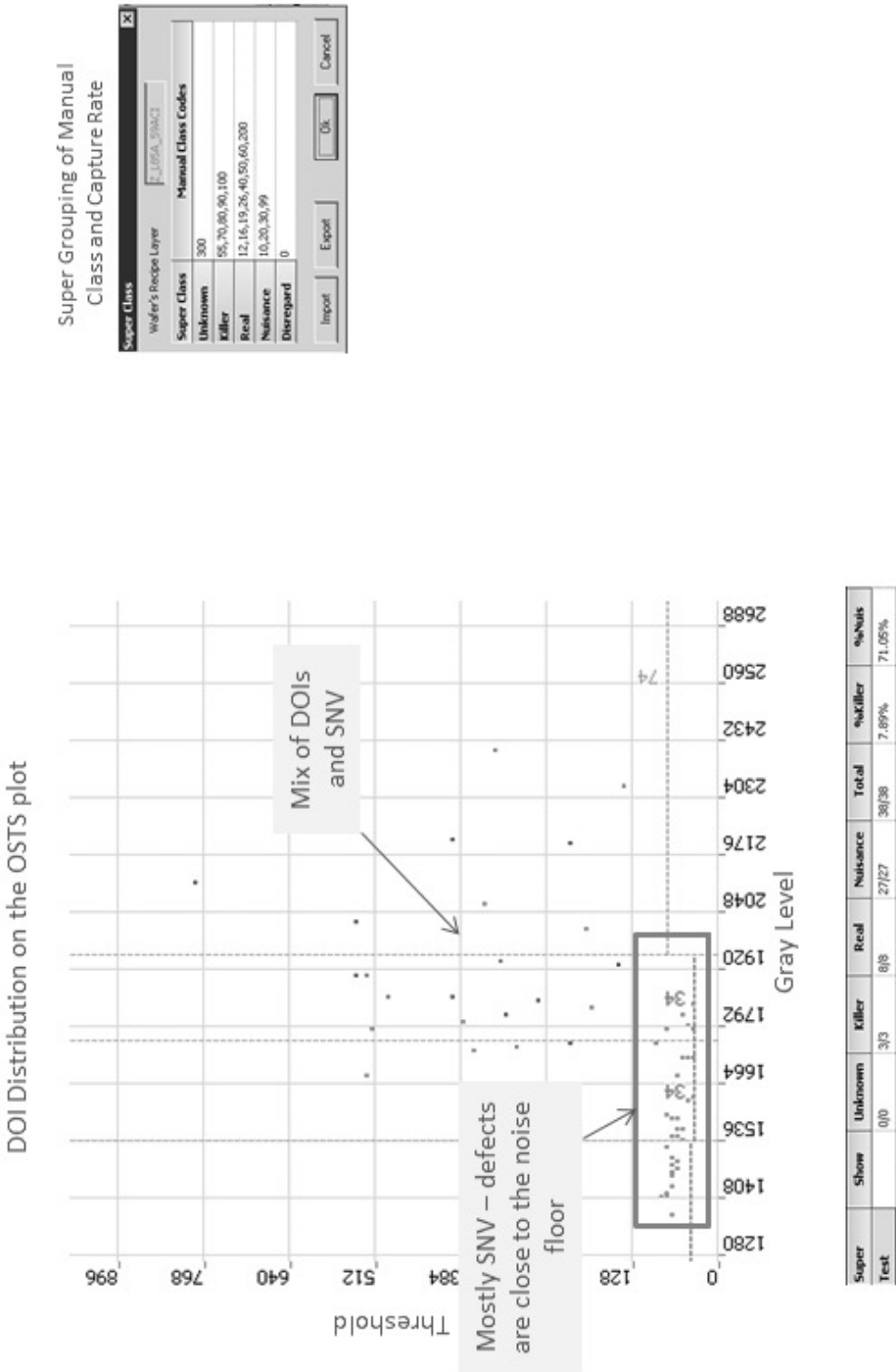
Most of the defects are SNV

FIG. 14



Sacrificing Low CR Defects Will Not Cause A Type Gap

FIG. 15



Super Grouping of Manual Class and Capture Rate

Super Class

Wafer's Recipe Layer:

Super Class: 300

Manual Class Codes

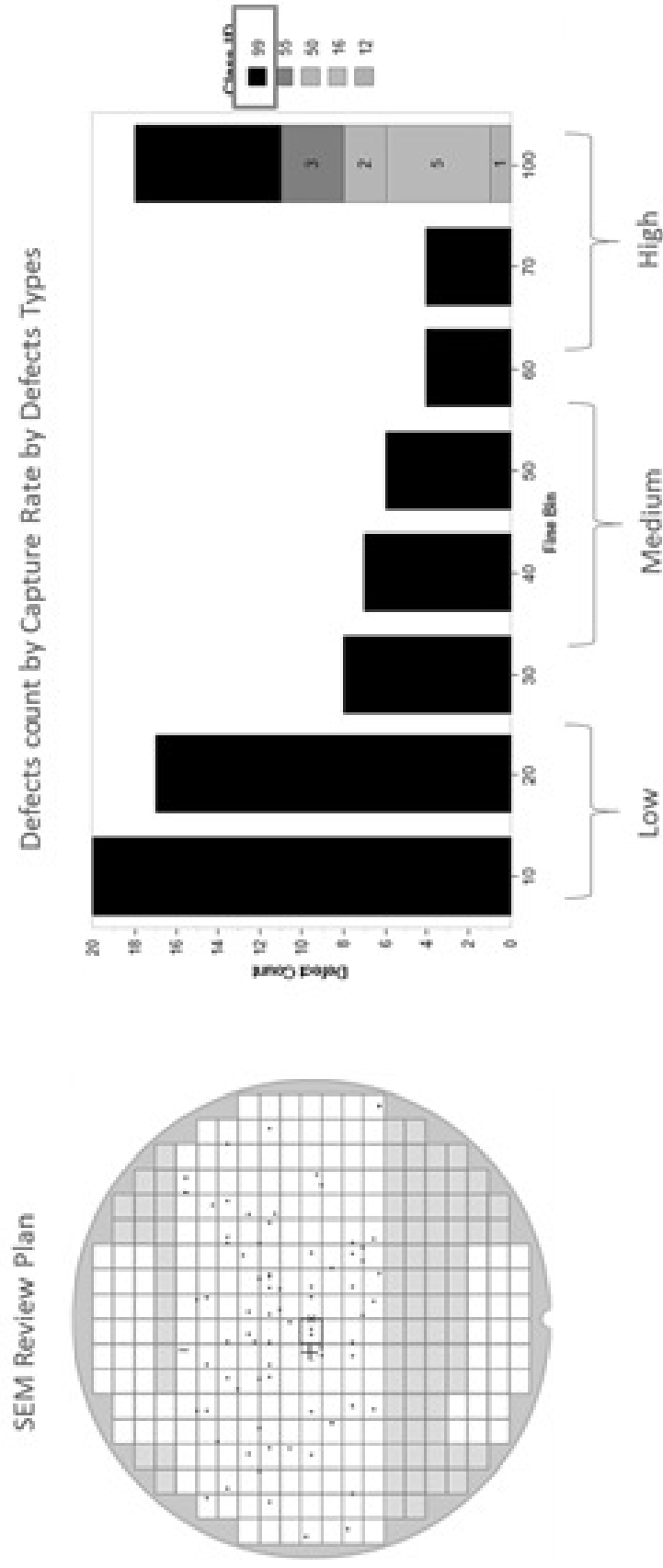
Super Class	Manual Class Codes
Unknown	55, 70, 80, 90, 100
Killer	12, 16, 19, 26, 40, 50, 60, 200
Real	10, 20, 30, 99
Nuisance	0
Disregard	

Buttons: Import, Export, Ok, Cancel

High False Rate Can Be Reduced by Increasing Threshold Offset

FIG. 16

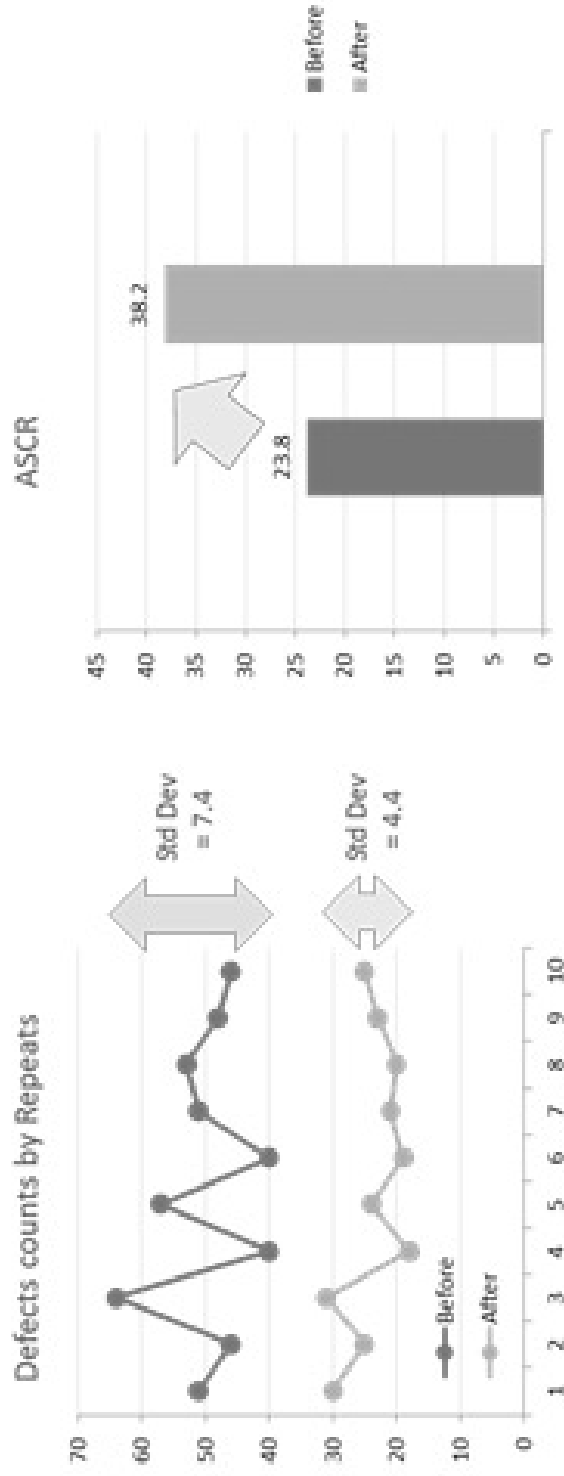
Problem formulation by categorization



High Population of Low Capture Rate Defects

FIG. 17A

Results



40% Reduction in Standard Deviation and 14% Increase in ASCR

FIG. 17C

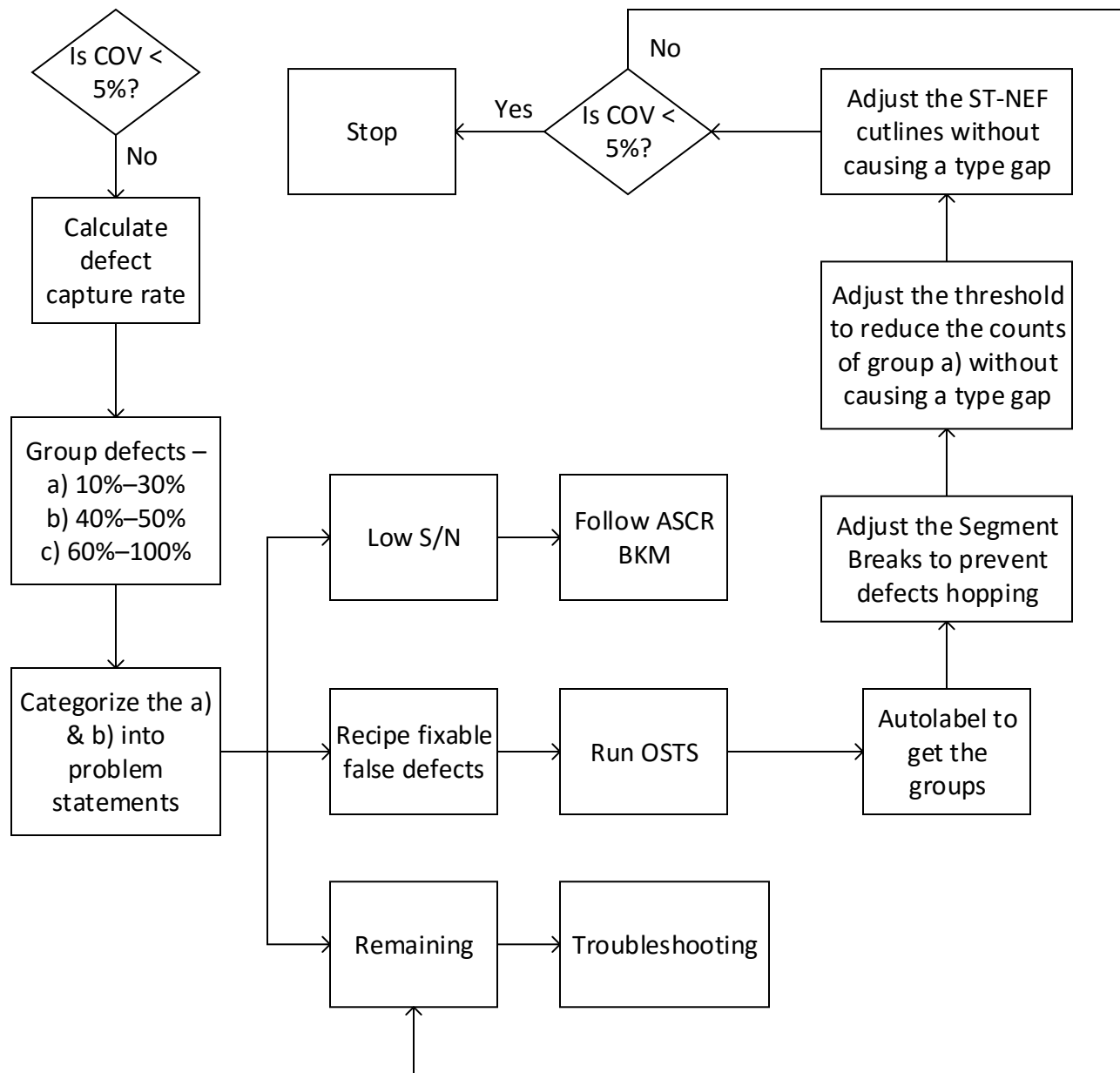


FIG. 18

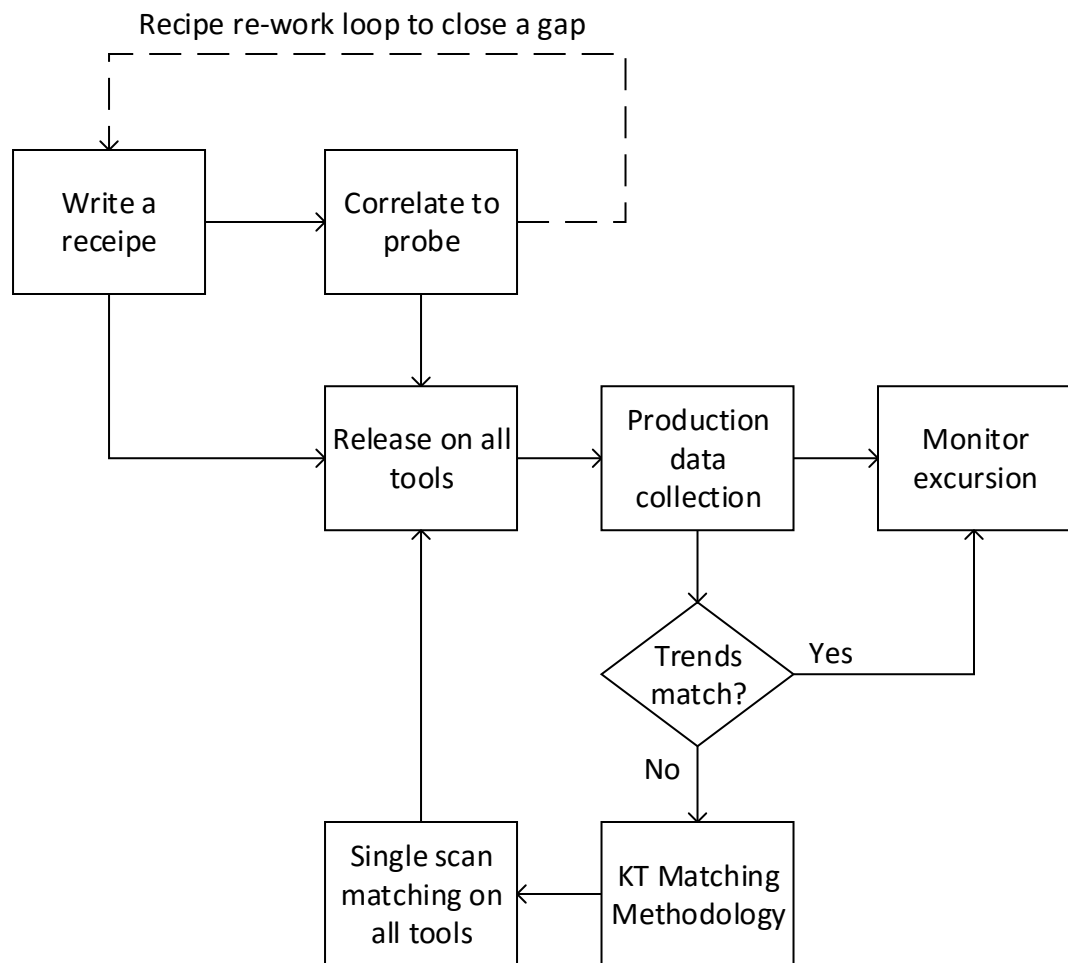


FIG. 19

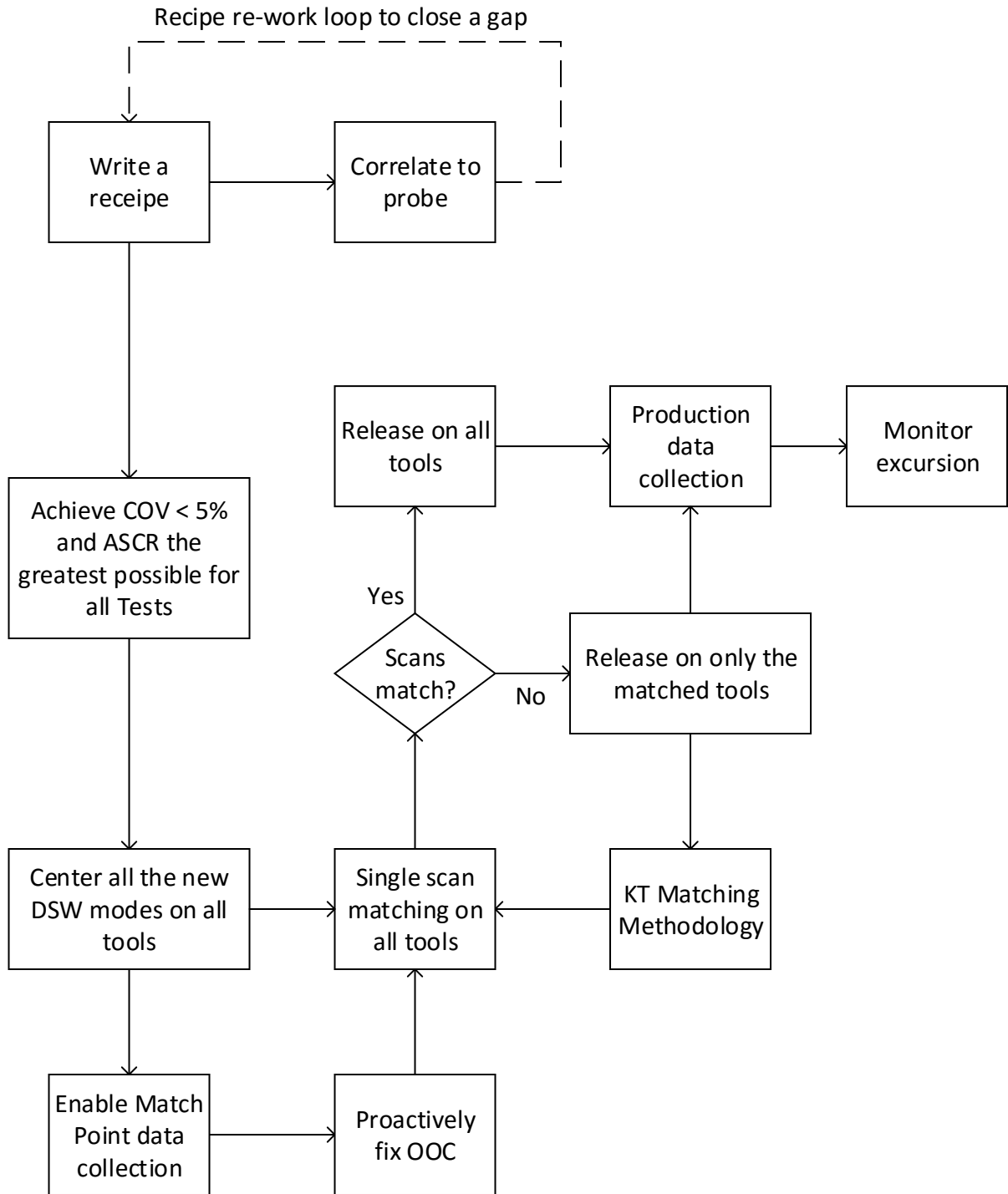
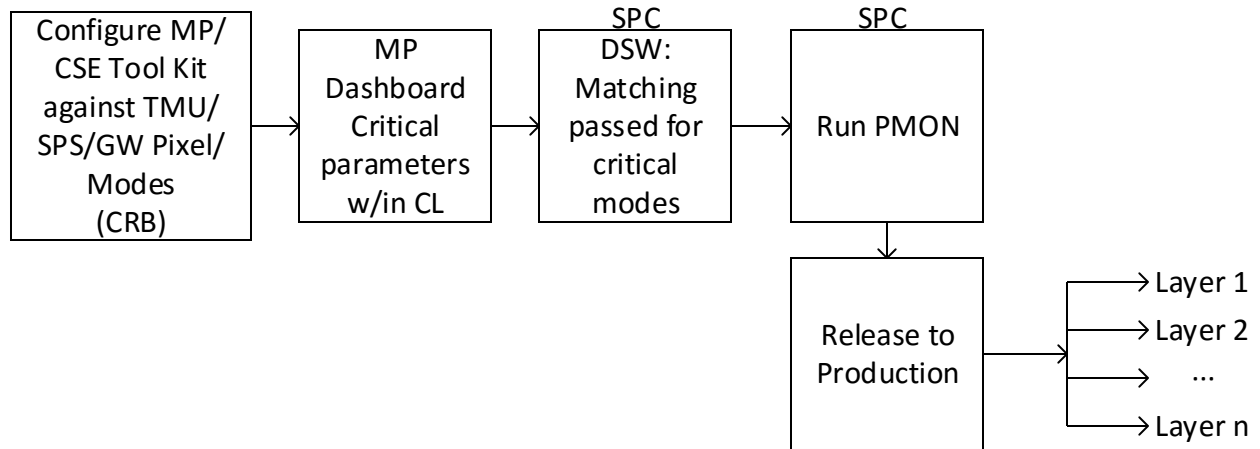


FIG. 20

Tool Monitoring Method Using MP/CSE Tool Kit

Tool Release Flow



Troubleshooting Flow

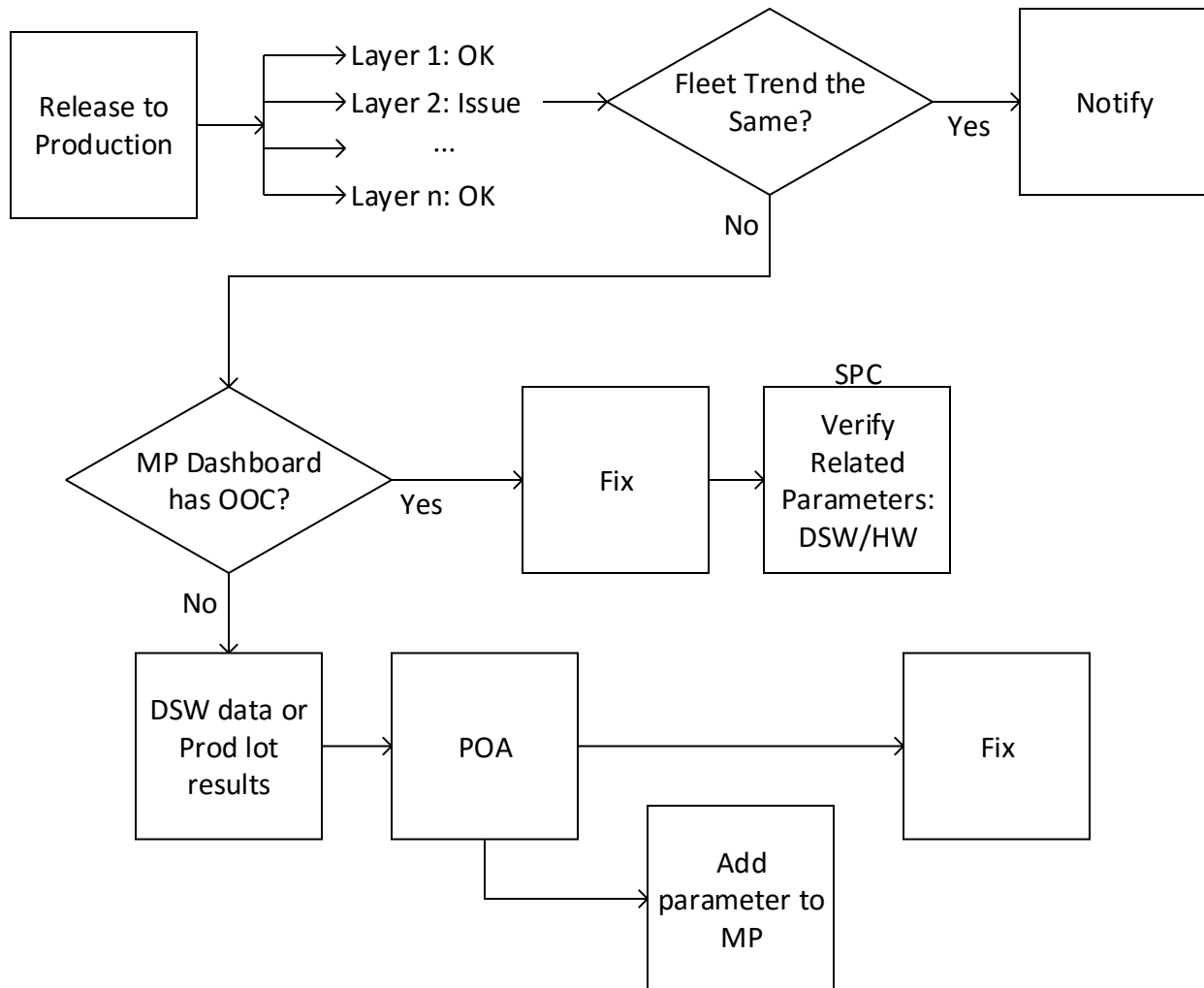


FIG. 21

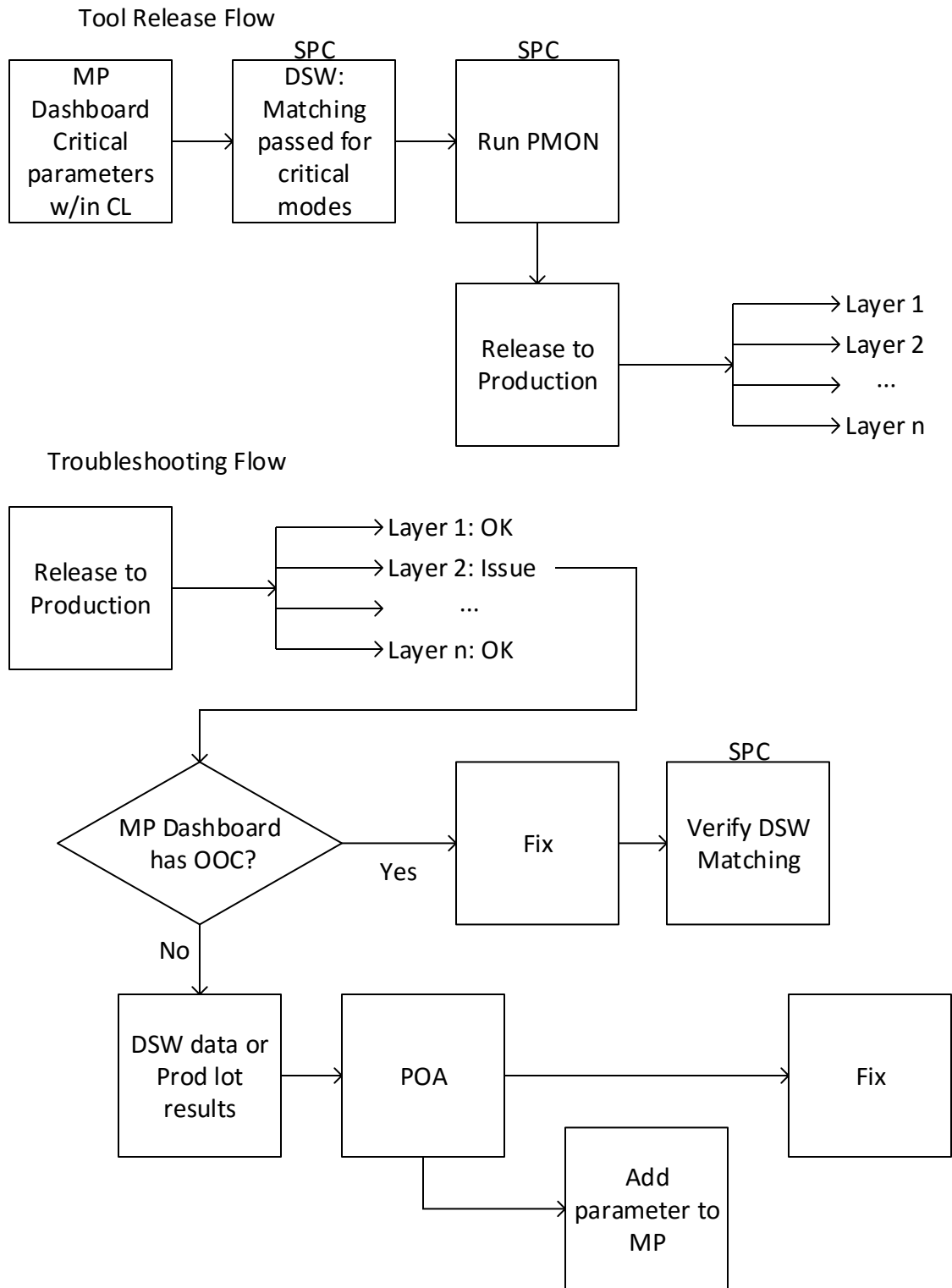
Tool Monitoring Method Using MP

FIG. 22

Process for Decoupling the Sources of Match

Control incoming
material quality and
manufacturing
processes



Control the recipe
quality using COV
and ASCR metrics



Release recipes on
all the tools, only if
the results are
matched



Perform real time
tool monitoring



Establish tool
matching in real
time and prioritize
corrective actions

FIG. 23