CYBORD AQUILA CASE STUDY

This case study draws upon data from diverse customer lines, showcasing the effectiveness of Cybord Aquila in identifying potential failures. Standard root cause analysis were conducted alongside Cybord Aquila's findings to validate its accuracy. Recall and rework calculations were performed in collaboration with the customer, considering the associated costs. Rework saving considers all expenses incurred throughout the process for suspected boards, while recall saving accounts for the costs of recalling and replacing defective boards, along with any associated logistics and engineering expenses.
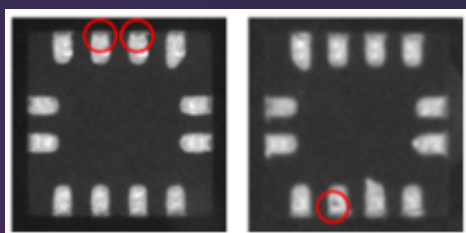
CASE STUDY #1

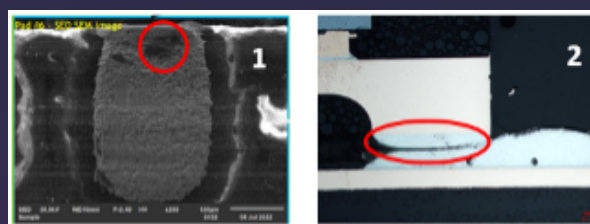☼ Item type: **Current limiter**   Manufacturer: **MPS**   Mfr. PN: **MP5087AGG-Z**

CYBORD INDICATION

Contaminated leads on multiple components.

LAB REPORT

1. **EDS test:** Contaminated leads including Silica and Carbon residuals.
2. **Cross section test:** Non-soldered terminals due to contamination.

ACTION TAKEN

Cybord instructed to remove the contaminated lots from the SMT assembly line to avoid any contaminated components reaching good boards.

EVENT MAGNITUDE

3 reels (5K each) -total 15K contaminated components.

SAVIGNG FROM THE EVENT
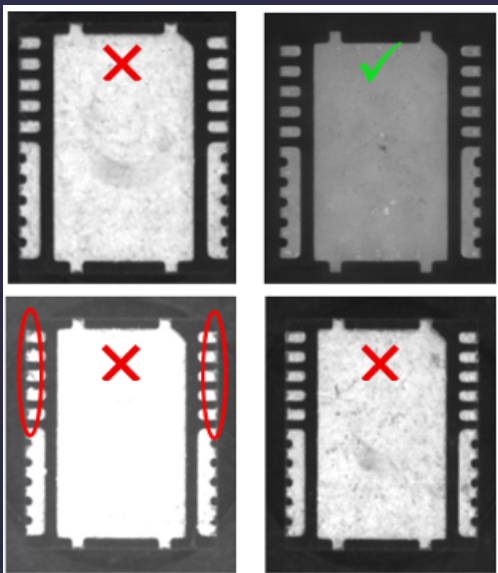
Avoided rework cost:
$300K

Avoided recall costs:
$1.2M

Item type: **DC-DC power** Manufacturer: **Texas instruments** Mfr. PN: **CSD96497Q5MC**

CYBORD INDICATION

Contaminated leads and heat dissipation pads on multiple components (Ref. of Good component is on right upper corner).

LAB REPORT

1. **3D OM test:** Partial wetting due to contaminated heat dissipation pad.
2. **SAT test:** Die delamination due to extreme heat applied on the component.
3. **High res. Microscope test:** Micro-cracks due to extreme heat applied on the component.
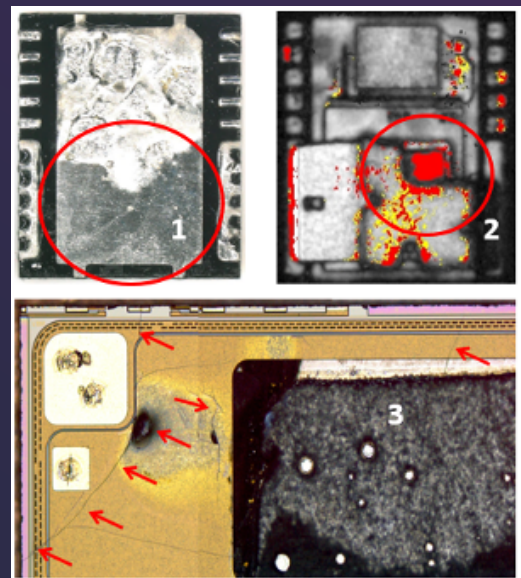
ACTION TAKEN

Cybord instructed to rework all the boards containing the contaminated components before those will proceed to its next production stages.

EVENT MAGNITUDE

7 reels (2.5K each) -total 17.5K contaminated components.
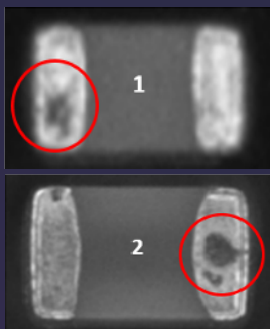
SAVIGNG FROM THE EVENT

Avoided rework cost:
$385K

Rework was done immediately after SMT stage and not after completing all the rest of the integration stages.

Avoided recall costs:
$2.13M

CASE STUDY #3

	Item type:	Manufacturer:	Mfr. PN:
COMPONENT 1	Ceramic CAP 0402	Kemet	C0402C104K4RAC7411
COMPONENT 2	Ceramic CAP 0805	AVX	08051C391K4Z2A

CYBORD INDICATION

Defected leads on both components (1 & 2)

LAB REPORT

1. **Microscope liquid test:** left terminal is partially pilled off due to mechanical damage.

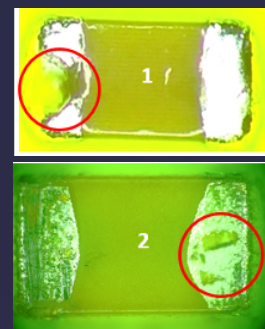2. **Microscope liquid test:** right terminal is contaminated in two areas.

ACTION TAKEN

Cybord sorted out the suspected boards from the production flow so the customer can rework the defected discrete components over the boards.

EVENT MAGNITUDE

12K boards were assembled in this lot, out of it 324 boards were sorted out due to bad components assembled in it.

SAVIGNG FROM THE EVENT

Avoided rework cost:
$7.2K

Avoided recall costs:
$967K

Rework was done immediately after SMT stage and not after completing all the rest of the integration stages.

CONCLUSION

Cybord Aquila is a transparent AI software tool that reviews and analyzes 100% of the components assembled over boards during the standard assembly process. It can identify bad component lots or single bad component events, helping to protect production lines and minimize exposure to potential warranty claims or recall events. With no capital investment required and a seamless charge per board, Cybord Aquila is a cost-effective solution for manufacturers of all sizes.

KEY BENEFITS

- 100% component inspection
- Identification of bad component lots or single bad component events
- Minimization of exposure to potential warranty claims or recall events
- No capital investment required
- Seamless charge per board