



Zac Elliott

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Supply Chain Quality Challenges

Cybord Ltd.

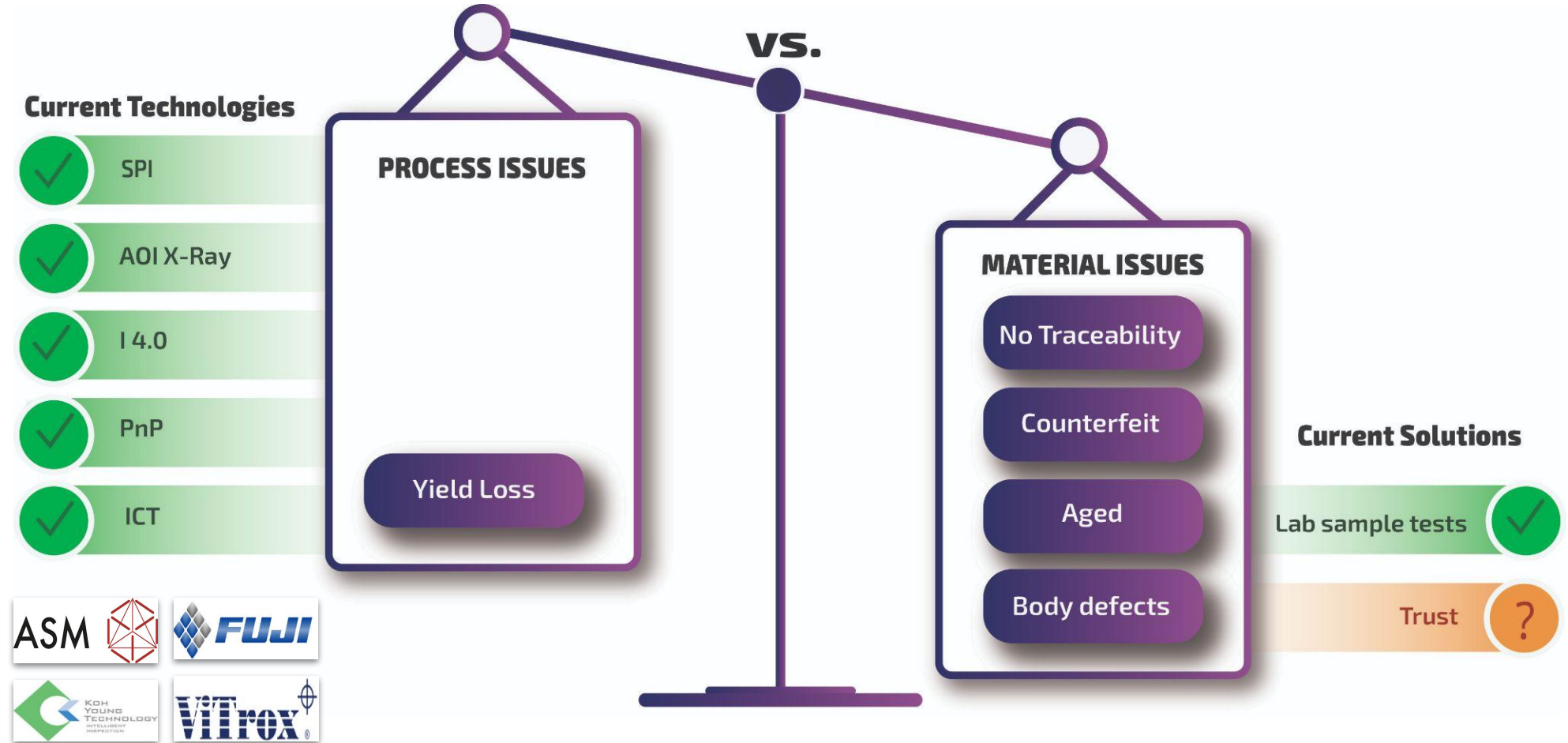
Contact: meir.a@cybord.ai • +972 545-498489 • 126 Yigal Alon St., Tel Aviv 6744332 Israel



Pain

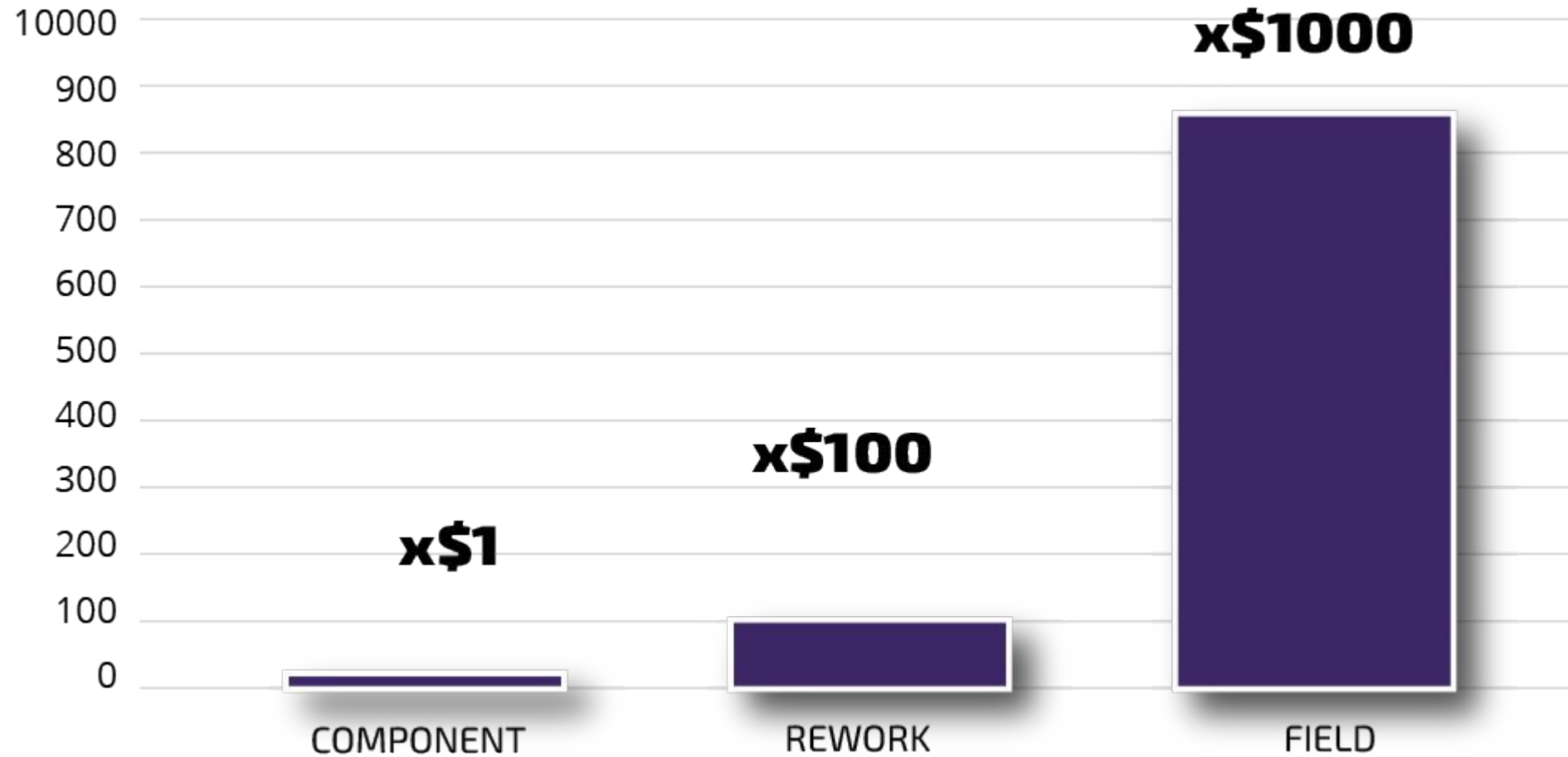
**Most failures in
electronic products are
caused by components,
and not by the process**

Problem Description



Materials Issues Implications

COST OF ELIMINATING DEFECTS AT DIFFERENT STAGES



Examples For Unsafe Components

Counterfeit



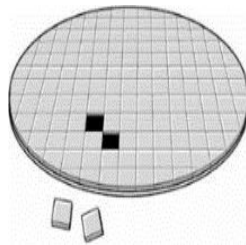
RECYCLED



FAKE

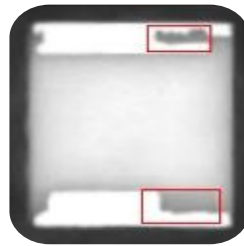


FORGED AGE

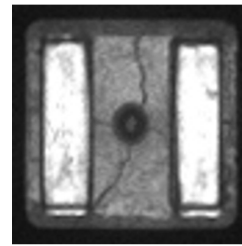


CLONED

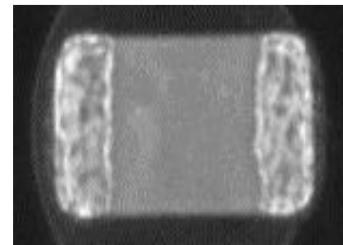
Quality



DEFECTS



DAMAGED



OXIDIZED LEADS

Marking / Documentation Errors

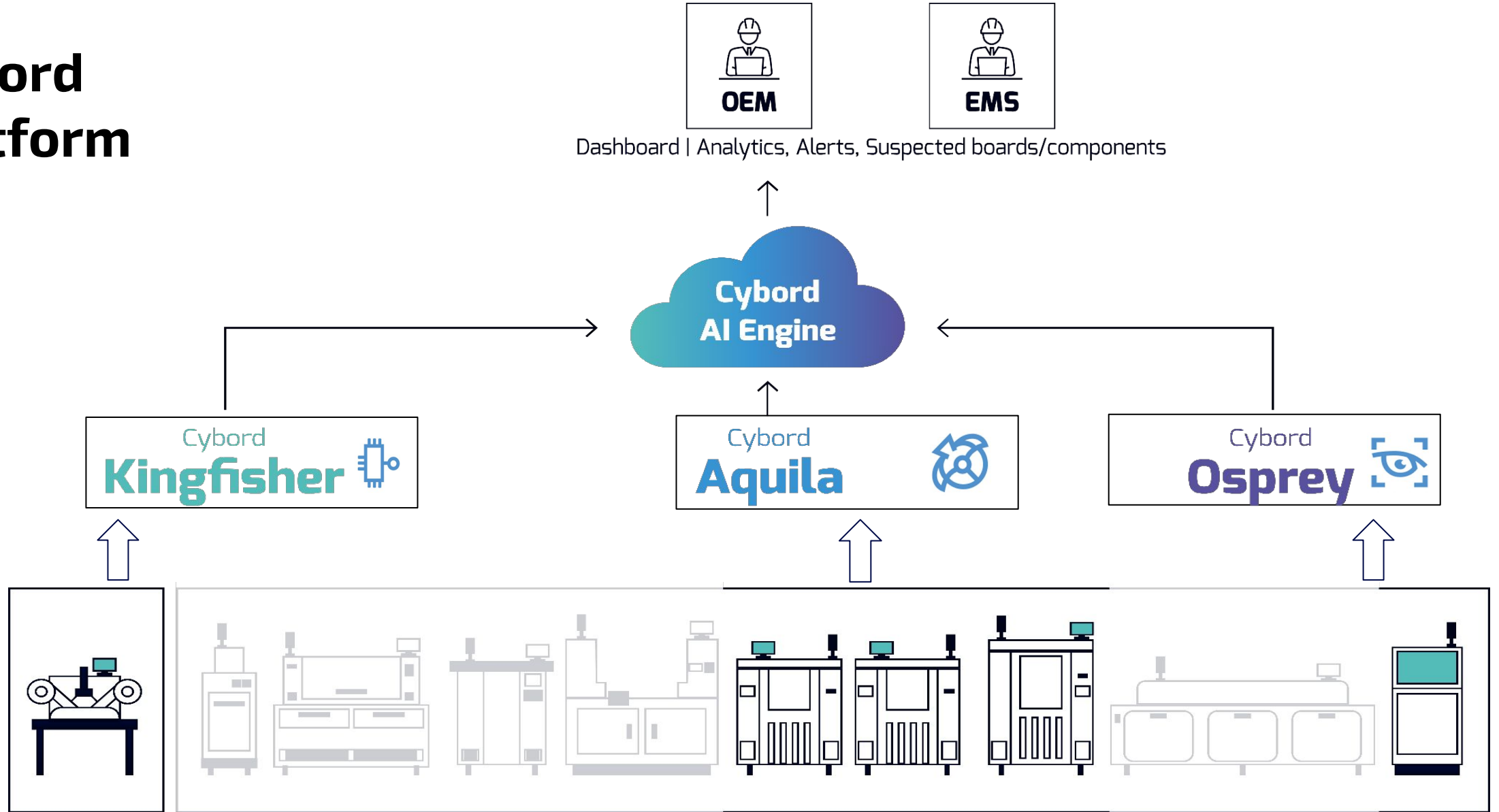


UNDOCUMENTED LOTS



PARTIAL DATA

Cybord Platform

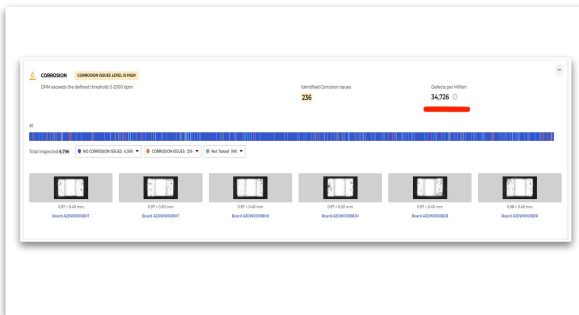


EMS Actionable Outcomes

Remove / block contaminated Reels

Recognize

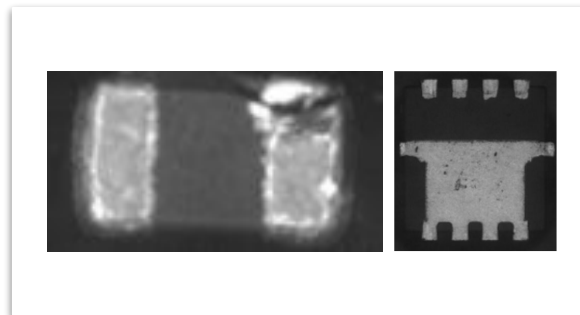
when a specific reel should be taken off the SMT line after analyzing a few components.



Flag faulty components on board

Identify

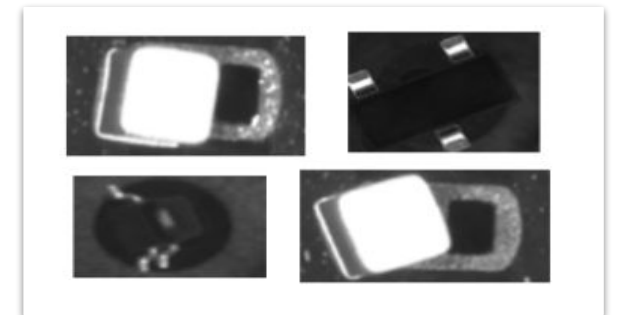
board issues in near real-time (1 minute) and raise alerts through the dashboard.



Improve process by feedback to EMS

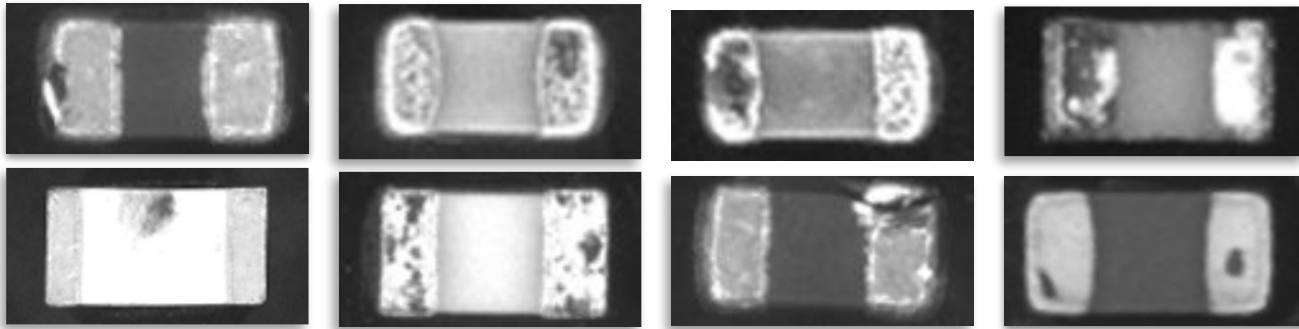
Detect

bad pickups, overexposed and blurry images, and tombstone, helping operators to quickly address root cause.

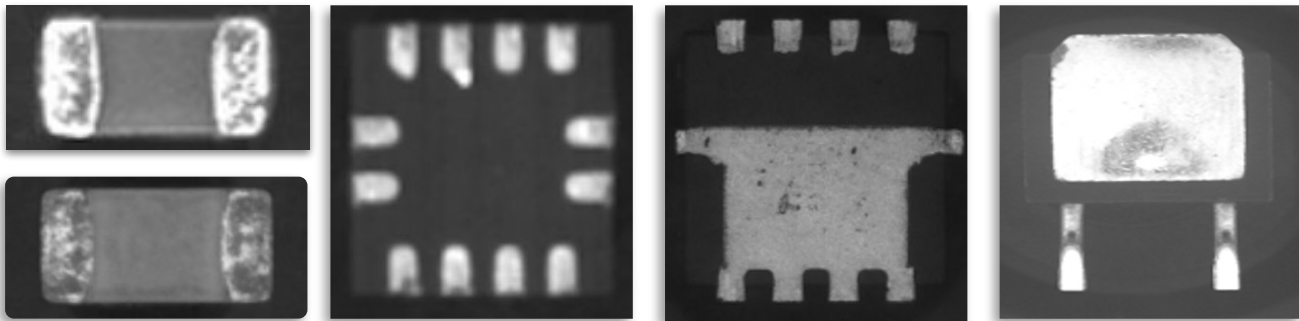


Material Failures

Material Issues

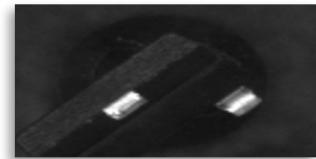
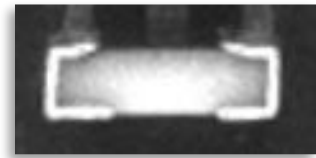
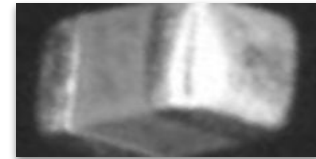


Body Defects



Corrosion/Mold

Process Issues



Case Study - Aluminum Oxide Contamination

A large OEM was alerted by the Cybord platform, indicating solderability risk on specific components. The OEM decided to verify the alert by performing SEM-EDX analysis using authorised lab. The results showed that aluminium oxide contaminant had been found.

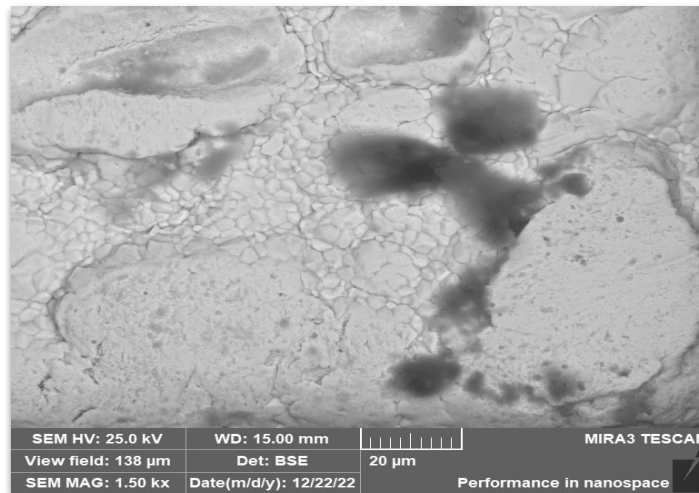
Cybord Alert



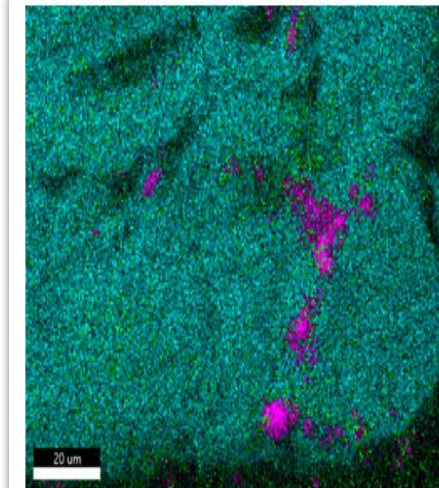
0.95 × 0.48 mm

Board A2DY000035K

SEM result



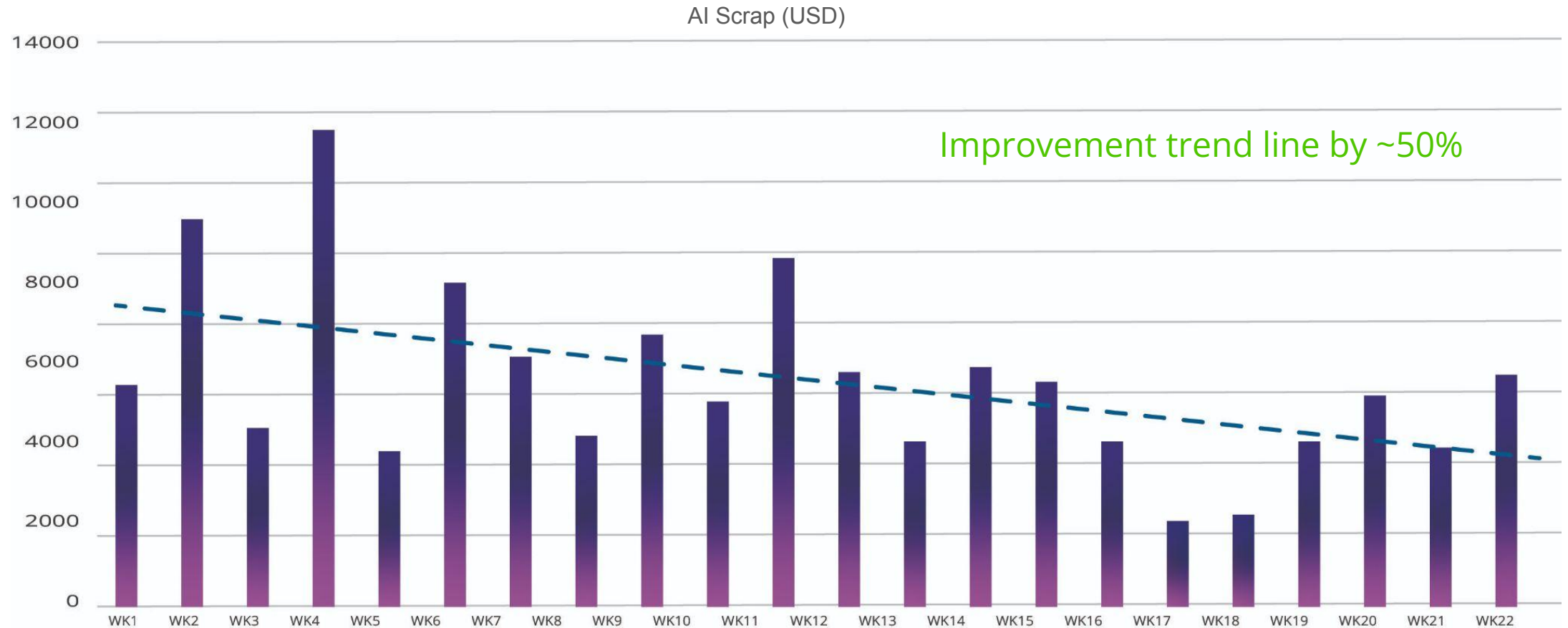
EDX result



 Conclusion: **OEM decided to disqualify all reels from the same batch.**

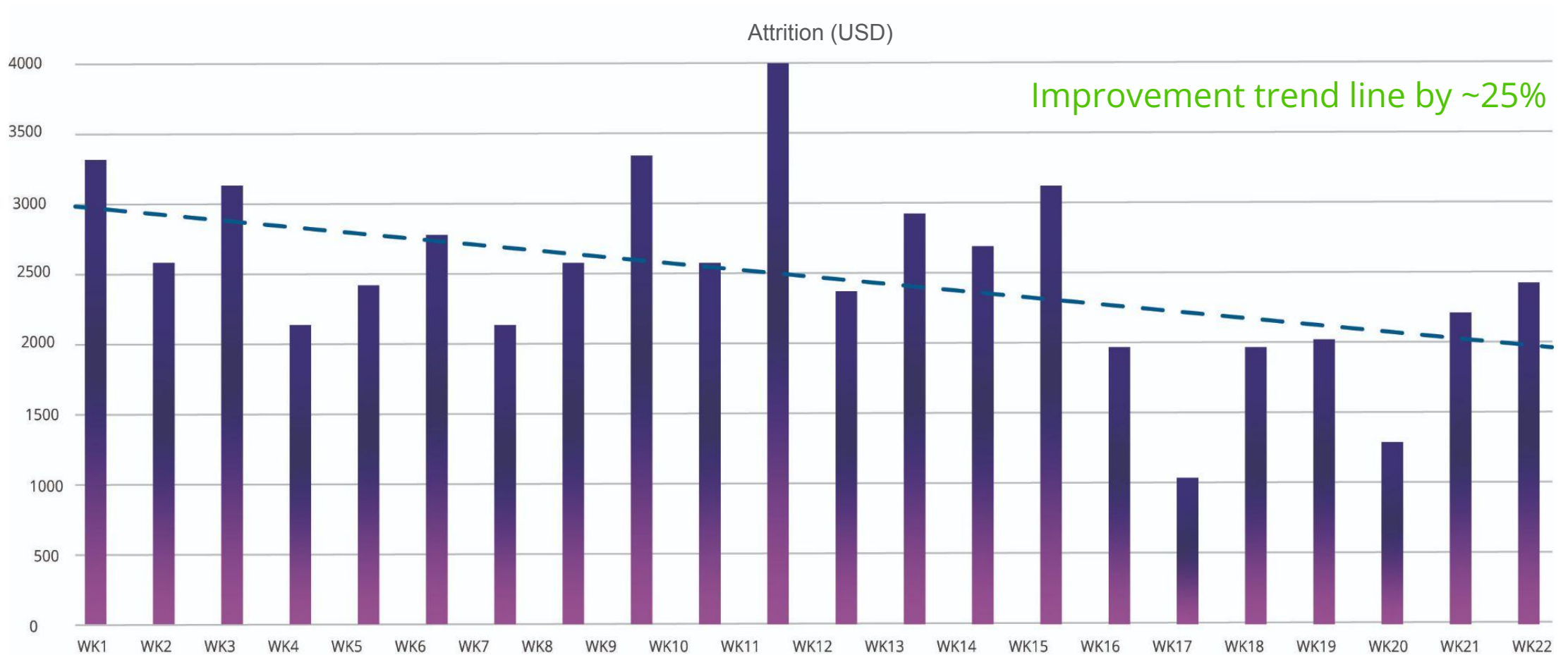
Case Study - Scrap Rate Reduction

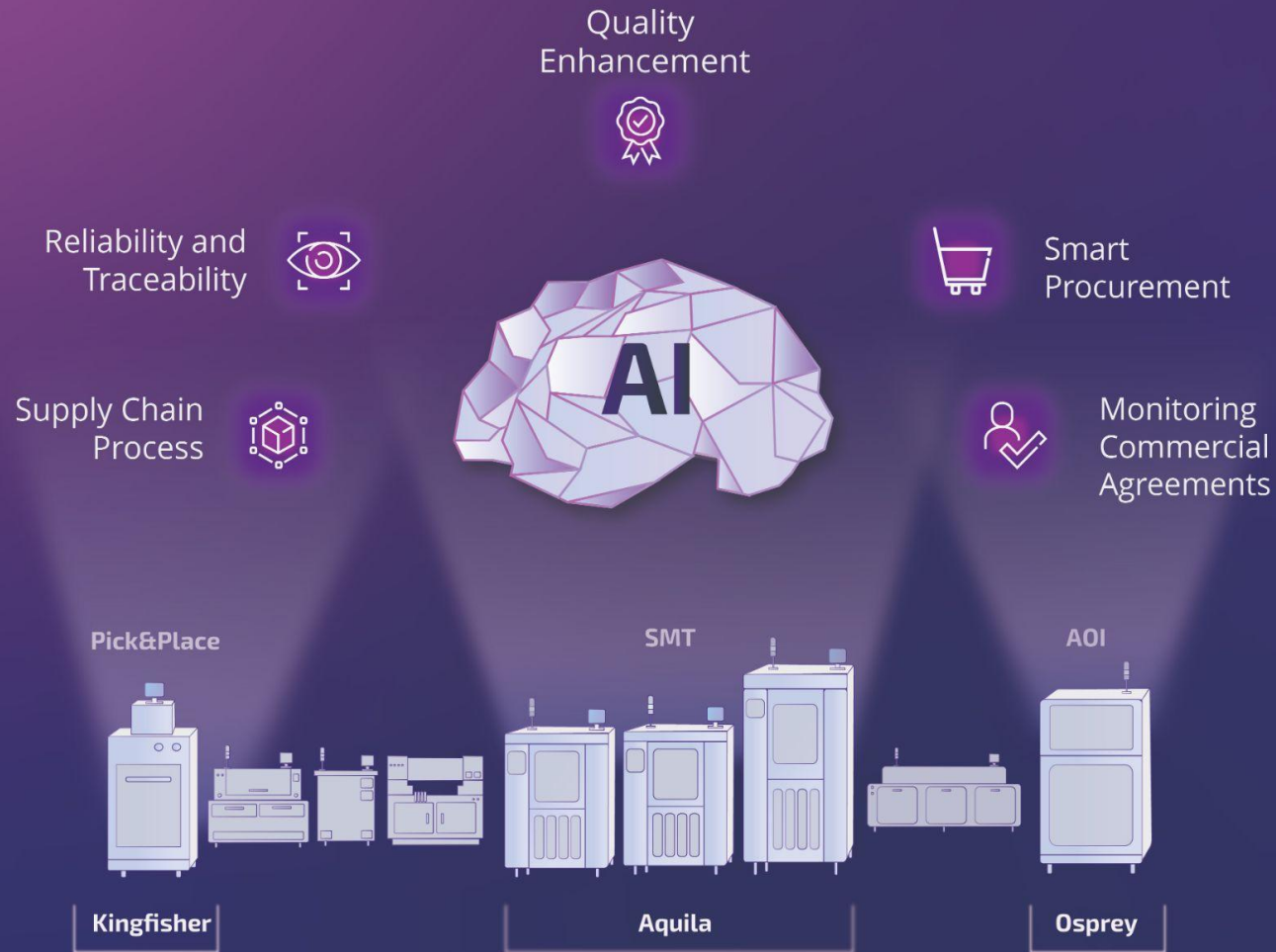
A large EMS followed **Cybord set up alerts** for a period of 22 weeks. The following shows the improvement in product scrap rate over this period:



Case Study - Attrition Rate Reduction

A large EMS followed **Cybord vision issue alerts** for a period of 22 weeks. The following shows the improvement in product attrition rate over this period:





Cybord's platform allows its customers to join the new standard of analyzing electronic components based on images to enhance the quality and traceability of the electronics industry.

By using the Cybord platform, each component is inspected during the assembly process, and within less than a minute, the customer receives the whole story behind the component. Cybord platform provides surgical traceability by knowing the location of each component on every board.

THANK YOU

Cybord



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Backup Slides

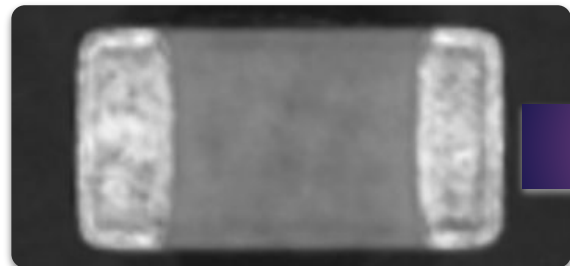
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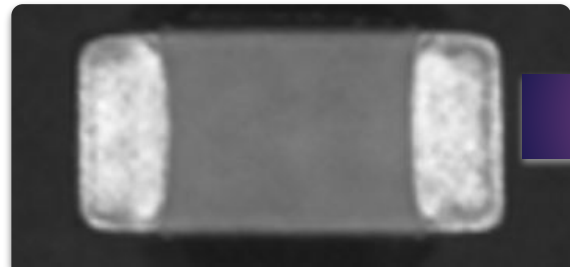
Homogeneity

Two Non-Homogenous groups in one reel

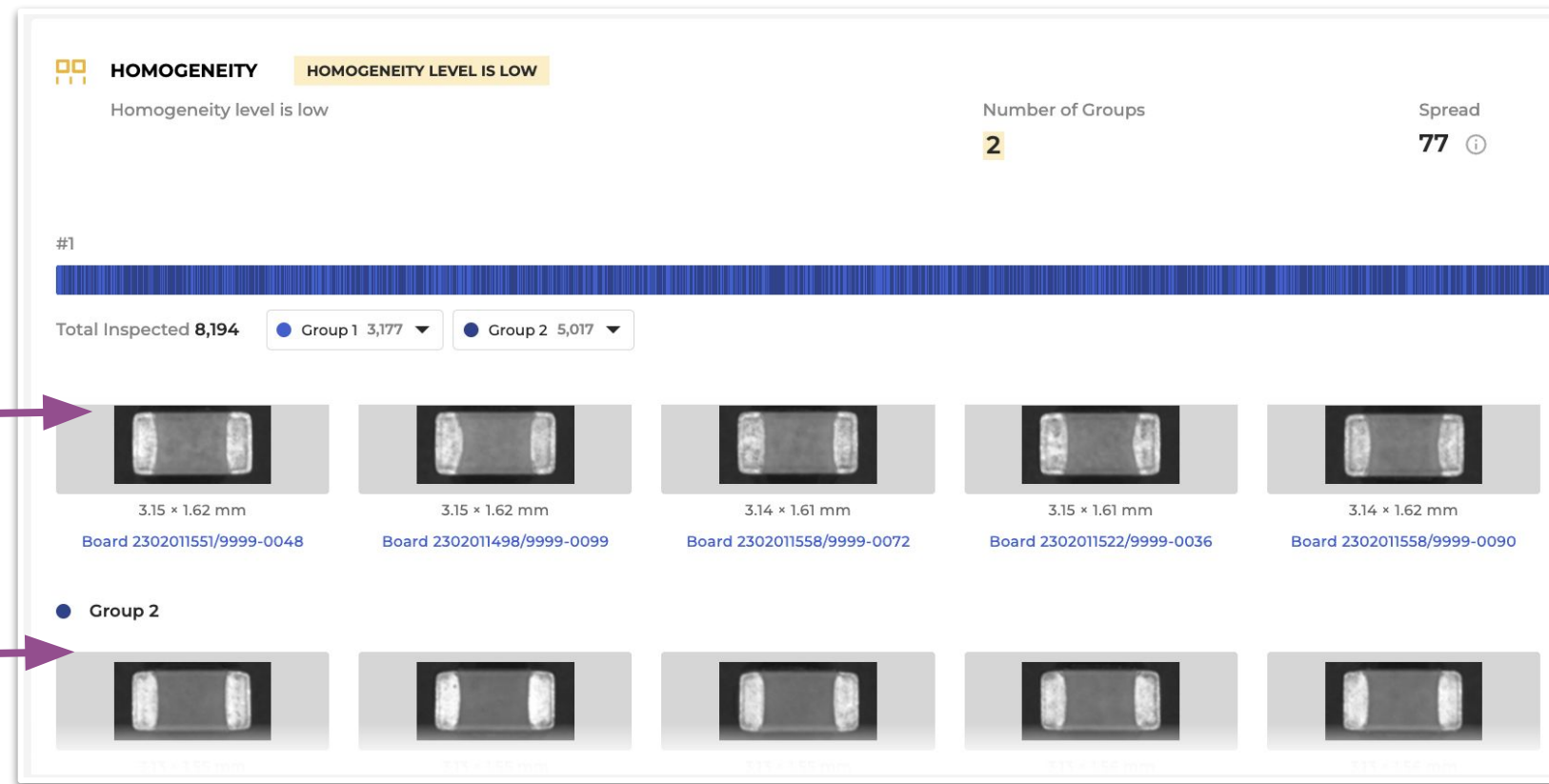
The platform raised an alert for two mixed groups in one reel during production.



Group 1



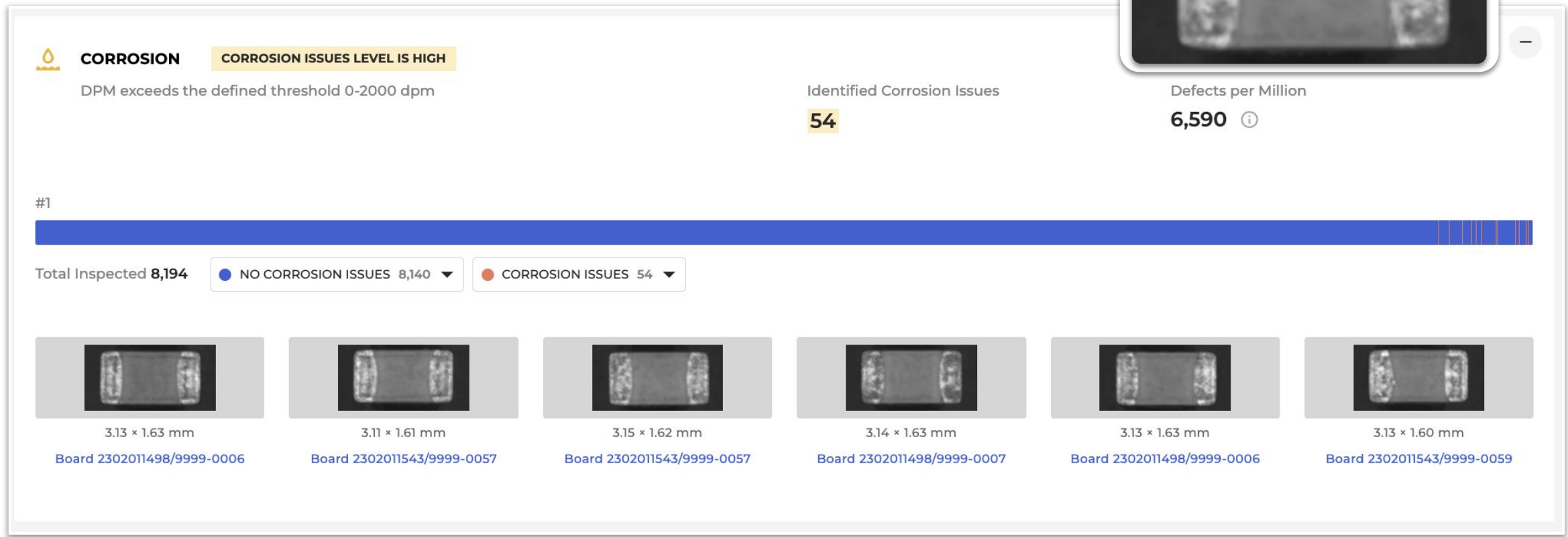
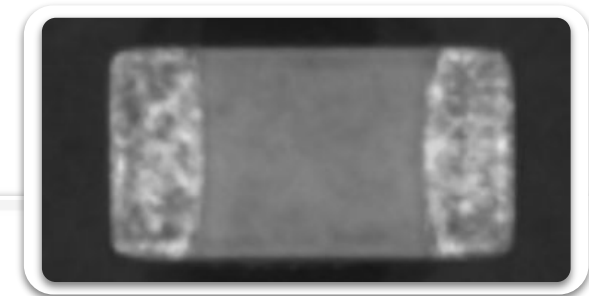
Group 2



Corrosion

Corrosion contamination on pads

54 components at the end of the reel found with corrosion contaminations which will be implemented in product with low reliability



Body Defects

Body defects on boards

This specific component assembled on board.
In case it passed functional tests, it is in a live product, shipped to a customer

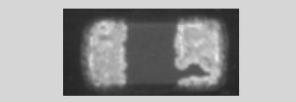
BODY DEFECTS
Body defects are within the normal 500 dpm range

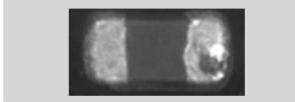
Defective Components **3**

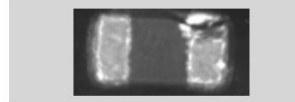
#1

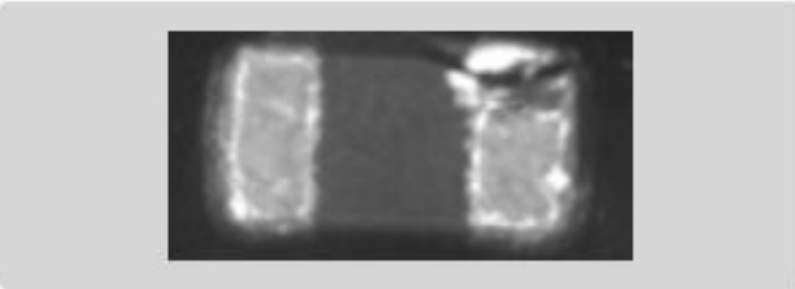
Total Inspected **27,475**

NO BODY DEFECTS 27,472 BODY DEFECTS 3 Not Tested 24,987


0.90 × 0.44 mm


0.89 × 0.43 mm
Board 8303102070080668001106
0


0.89 × 0.48 mm
Board 8303105640080668001106
0


0.89 × 0.48 mm
Board 8303105640080668001106
0

Board ID

Authenticity

Component authenticity

Based on AI technology, the platform recognize if the component is authentic or not and raise an alert in case it is not match to the label details

Platform

Label

AUTHENTICITY
High fitness to documented manufacturer







Manufacturers Found **1**

Visual Similarity **100** ⓘ

#1

Total Inspected **2,679** ● Global Mixed-Mode Technology 2,679

● Global Mixed-Mode Technology

 2.06 × 2.12 mm Board 2229011059/9999-0003	 2.04 × 2.09 mm Board 2229011059/9999-0004	 2.06 × 2.08 mm Board 2229011059/9999-0005	 2.06 × 2.06 mm Board 2229011059/9999-0002	 2.06 × 2.14 mm Board 2229011059/9999-0002	 2.06 × 2.12 mm Board 2229011059/9999-0011
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Labels Marking

Date Code
2239

Lot Code
ITENTK5L.Q

MPN
G5409BASIU ⓘ

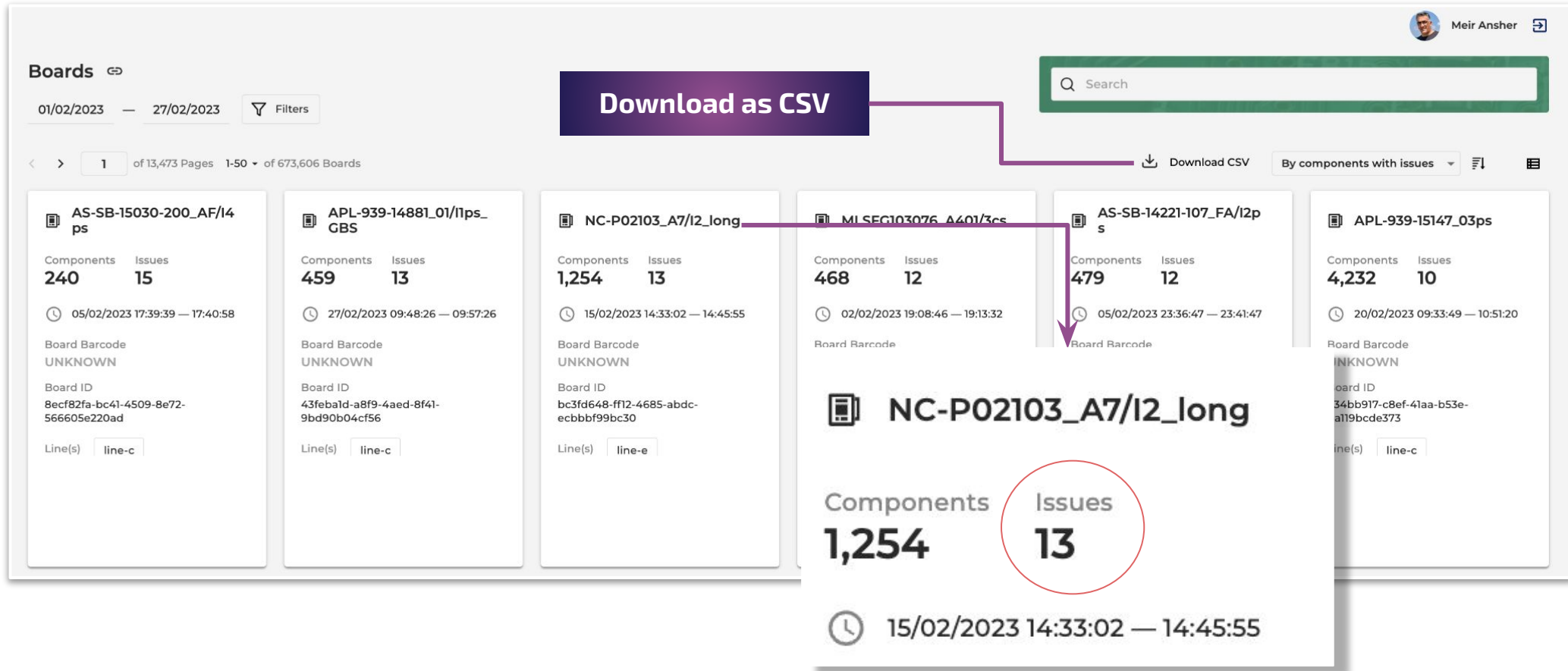
Manufacturer
Global Mixed-Mode Technology


COO
Unknown


Boards View

Real-time boards view


During production the platform alert for boards with faulty component issues



Boards 

01/02/2023 — 27/02/2023  Filters

1 of 13,473 Pages 1-50 of 673,606 Boards

Download as CSV  Download CSV By components with issues

Board Name	Components	Issues	Time
AS-SB-15030-200_AF/I4ps	240	15	05/02/2023 17:39:39 — 17:40:58
APL-939-14881_01/I1ps_GBS	459	13	27/02/2023 09:48:26 — 09:57:26
NC-P02103_A7/I2_long	1,254	13	15/02/2023 14:33:02 — 14:45:55
MLSEG103076_A401/3cs	468	12	02/02/2023 19:08:46 — 19:13:32
AS-SB-14221-107_FA/I2ps	479	12	05/02/2023 23:36:47 — 23:41:47
APL-939-15147_03ps	4,232	10	20/02/2023 09:33:49 — 10:51:20

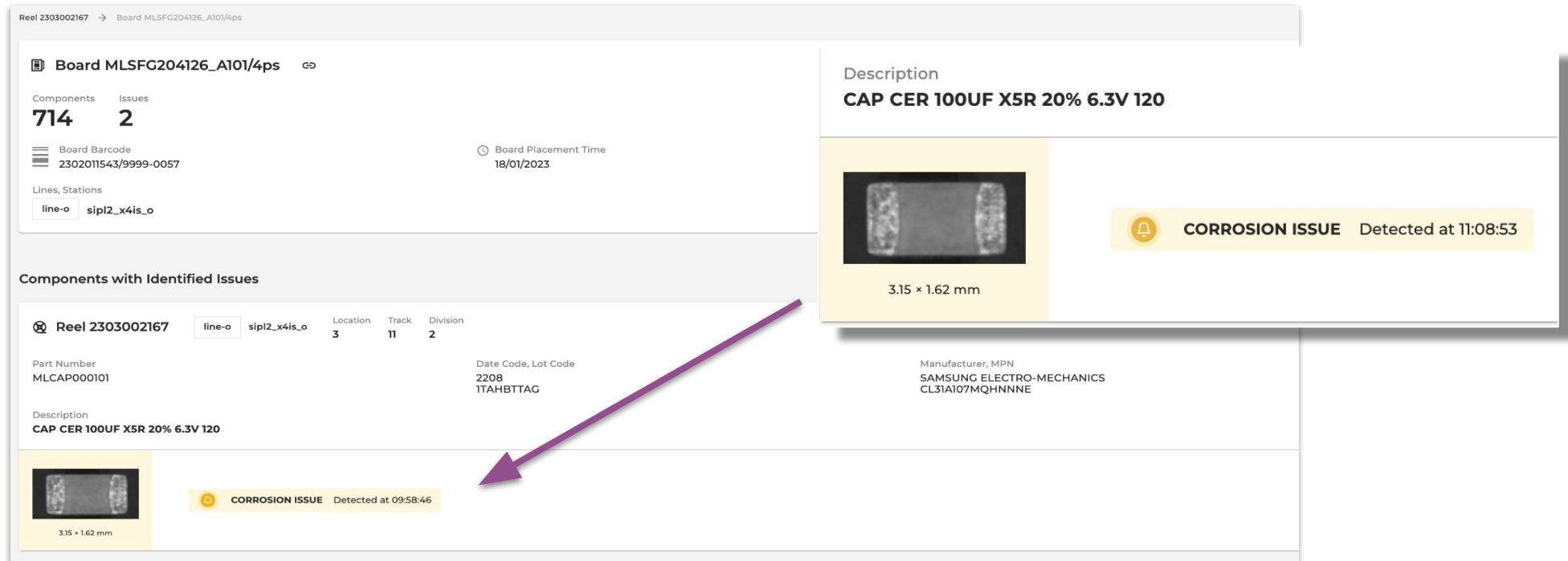
NC-P02103_A7/I2_long

Components: 1,254 **Issues: 13**

15/02/2023 14:33:02 — 14:45:55

Board View

Each board analyzed including all components
During production the platform alert for boards with component issues



The screenshot displays the 'Board View' interface for a specific board. At the top, it shows the board ID 'Board MLSFG204126_A101/4ps' and a summary of 714 components and 2 issues. A 'Board Placement Time' of 18/01/2023 is also noted. The interface is divided into several sections:

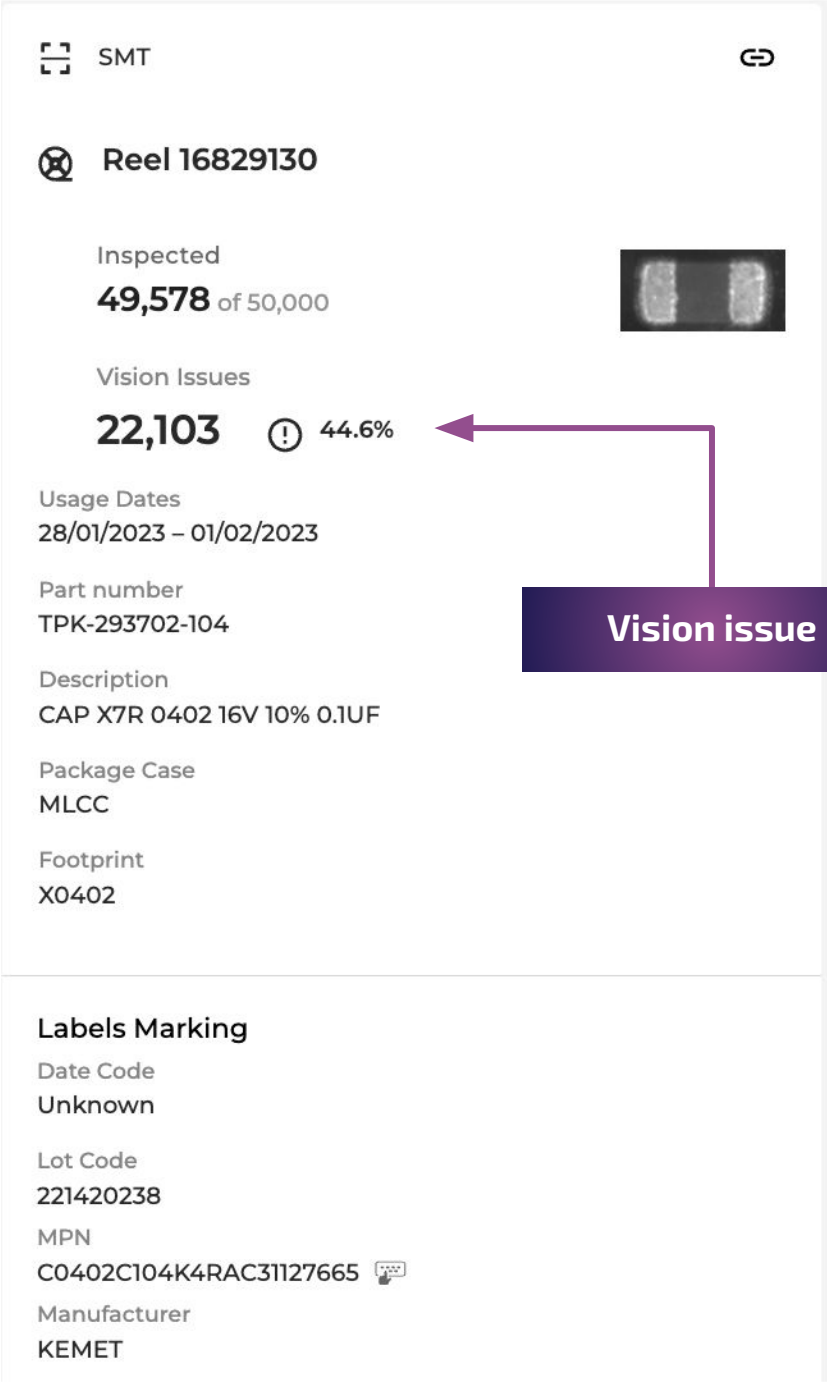
- Board Information:** Includes 'Board Barcode' (2302011543/9999-0057) and 'Lines, Stations' (line-o: sip12_x4is_o).
- Component Details:** A large panel for a specific component with the description 'CAP CER 100UF X5R 20% 6.3V 120'. It features a microscopic image of the component, its dimensions (3.15 x 1.62 mm), and a yellow alert box indicating a 'CORROSION ISSUE' detected at 11:08:53. The manufacturer is listed as SAMSUNG ELECTRO-MECHANICS (MPN: CL31A107MQHNNNE).
- Components with Identified Issues:** A table listing components with issues. A purple arrow points from this table to the detailed view of the component above.

Reel	line-o	sip12_x4is_o	Location	Track	Division	Date Code, Lot Code	Manufacturer, MPN
Reel 2303002167	line-o	sip12_x4is_o	3	11	2	2208 ITAHBTAG	SAMSUNG ELECTRO-MECHANICS CL31A107MQHNNNE


Machine Setup Issues

During production the platform alert on setup issues

Setup alerts includes vision issues, blurry images and bad pickups which allow the CM to fix issues in real time.



The screenshot displays a machine interface with the following information:

- SMT** (top right)
- Reel 16829130** (top left)
- Inspected 49,578 of 50,000** (middle left)
- Vision Issues 22,103 44.6%** (middle left, with a warning icon and a purple arrow pointing to a 'Vision issue' callout box)
- Usage Dates 28/01/2023 – 01/02/2023** (middle left)
- Part number TPK-293702-104** (middle left)
- Description CAP X7R 0402 16V 10% 0.1UF** (middle left)
- Package Case MLCC** (middle left)
- Footprint X0402** (middle left)
- Labels Marking** (bottom section)
 - Date Code: Unknown
 - Lot Code: 221420238
 - MPN: C0402C104K4RAC31127665 
 - Manufacturer: KEMET