Ladder from Taiwan
Test & Inspection

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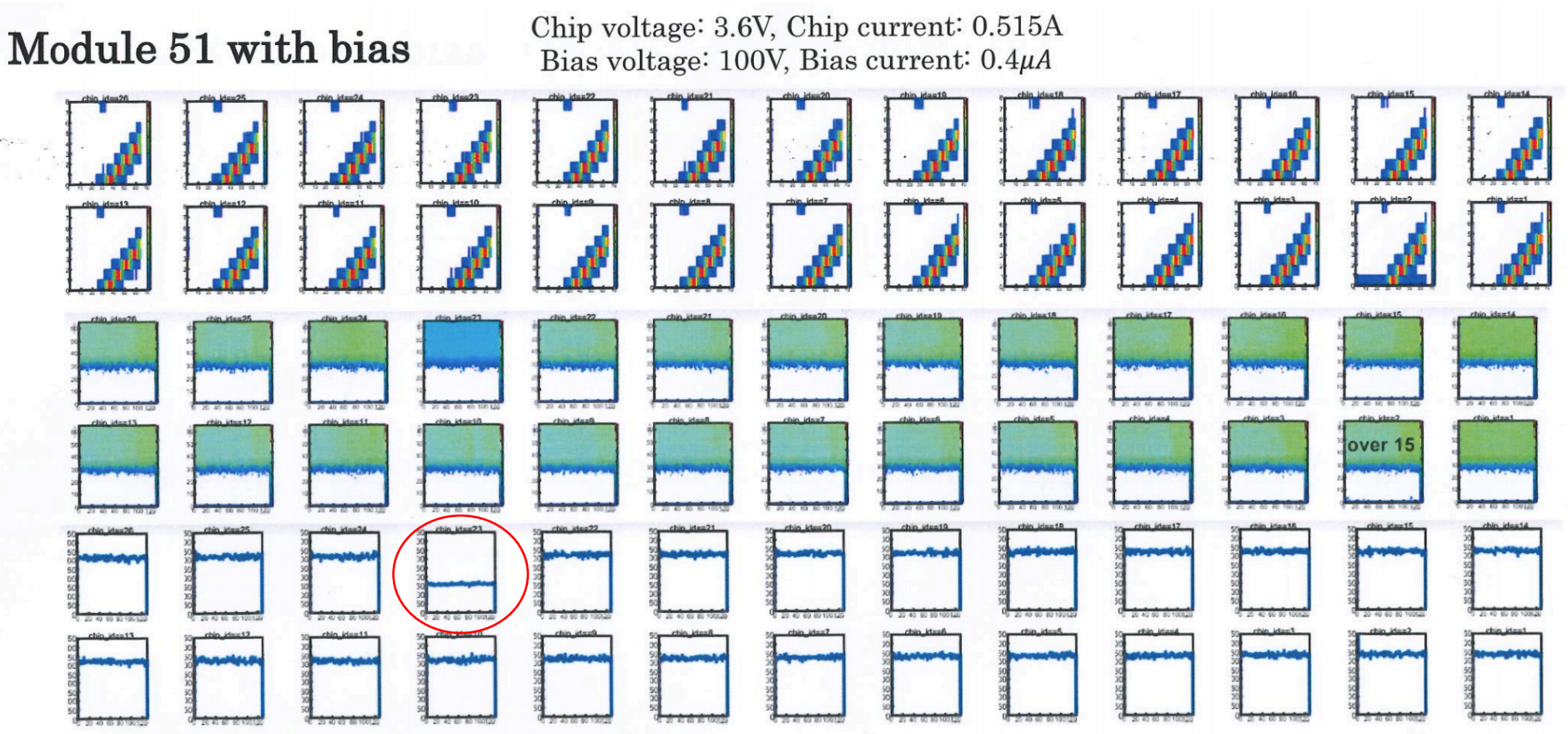
Bench Test South Side

South Side (Module 51) / Bias = 100V at Taiwan

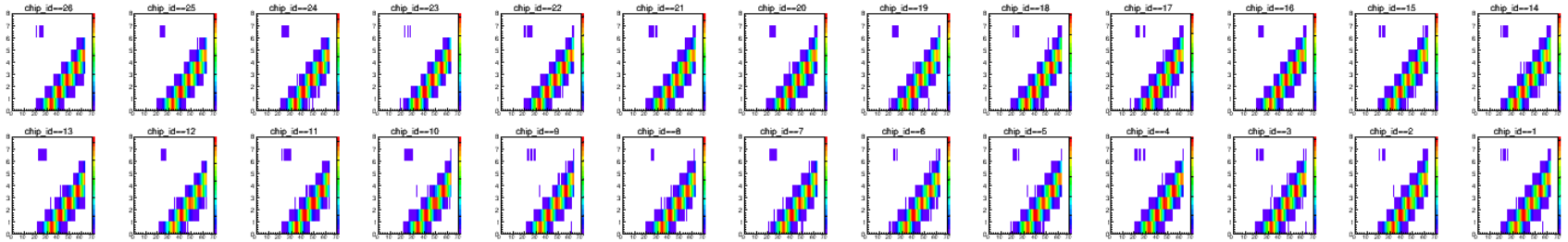


We observed one chip with half entries, U23

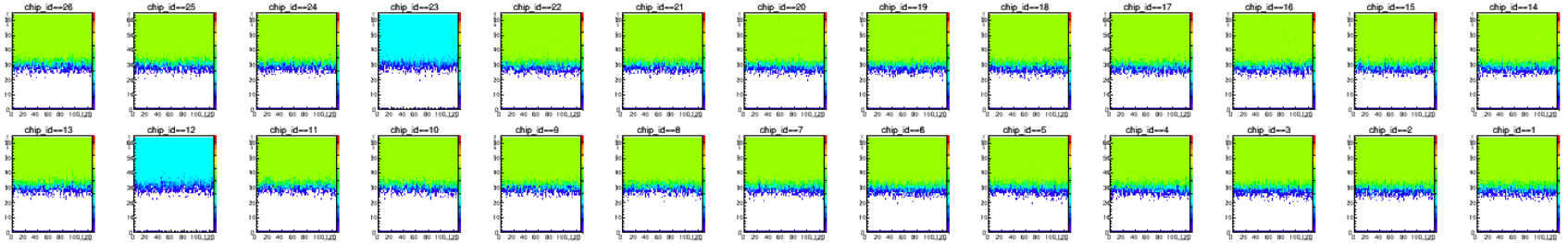
South Side (Module 51) / Bias = 100V at BNL

Current A = 140 nA **Current B = 110 nA**

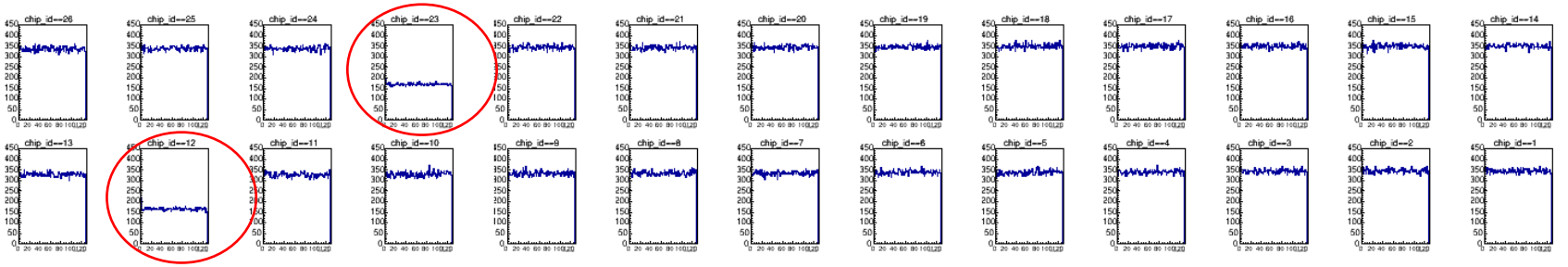
Calibration



Amplitude vs Channel



Number o entries



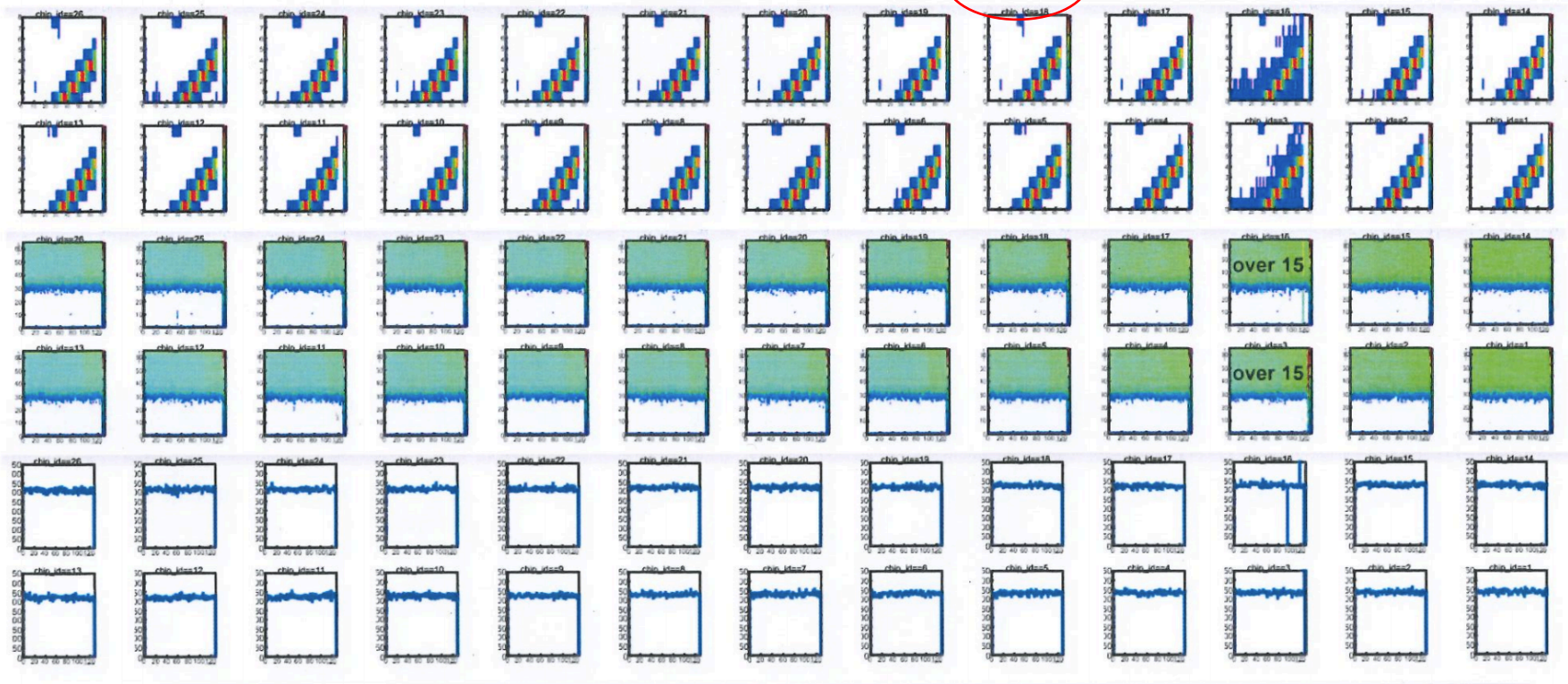
We observed two chips with half entries, U23 & U12

Bench Test North Side

North Side (Module 264) / Bias = 100V at Taiwan

Module 264 with bias

Chip voltage: 3.6V, Chip current: 0.519A
Bias voltage: 100V, Bias current: 2.4μA



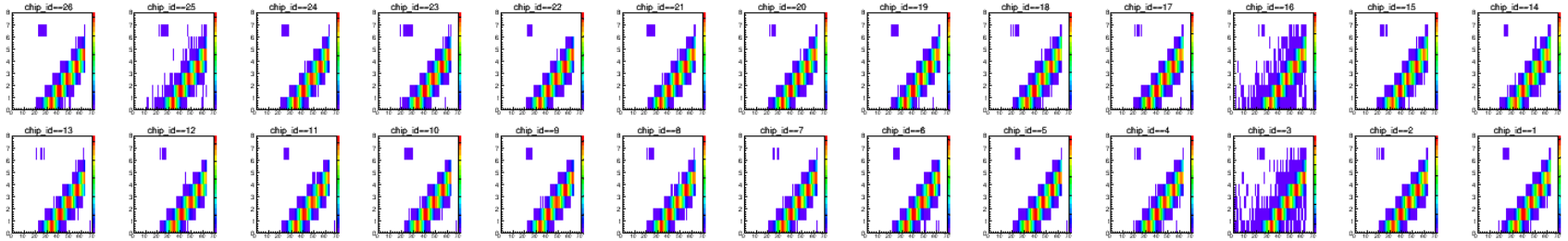
Sensor B has a high current

North Side (Module 264) / Bias = 100V at BNL

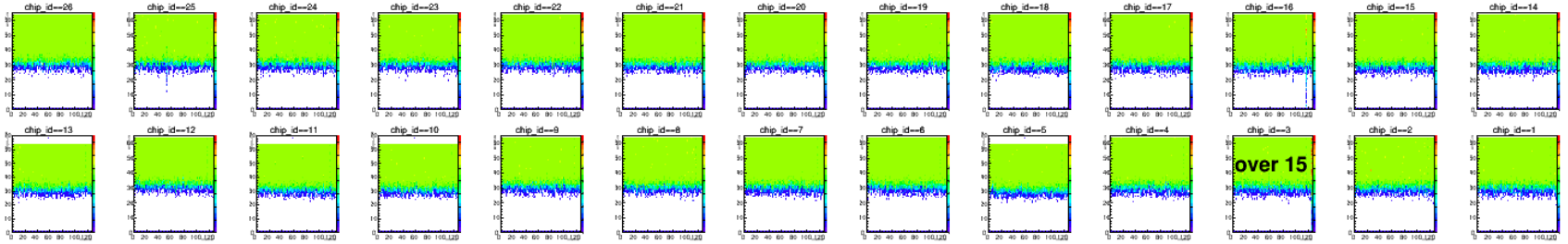
Current A = 220 nA

Current B = 2.3 µA

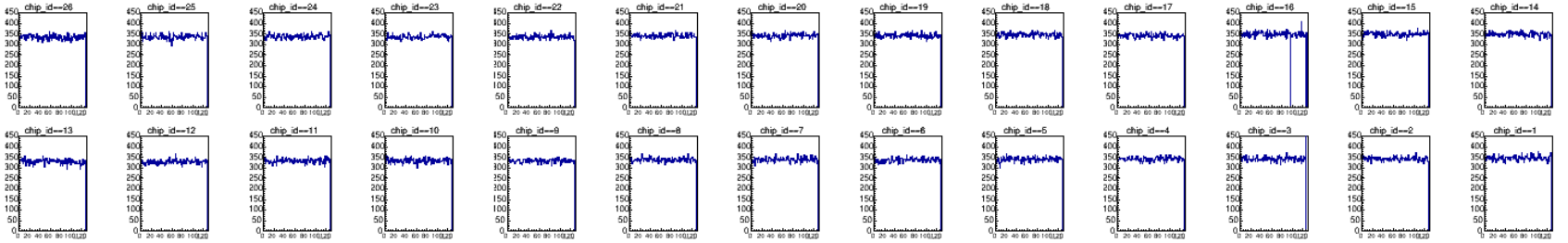
Calibration



Amplitude vs Channel



Number o entries

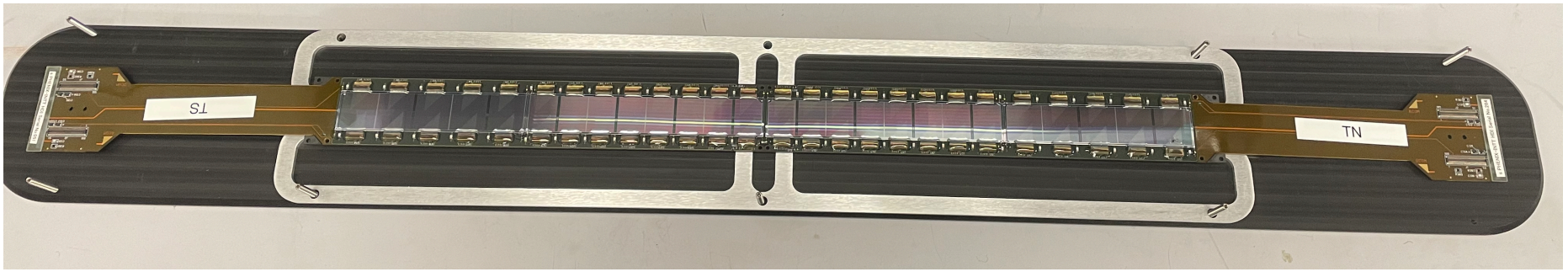


Similar high current has been observed at BNL for sensor B

Visual Inspection at BNL

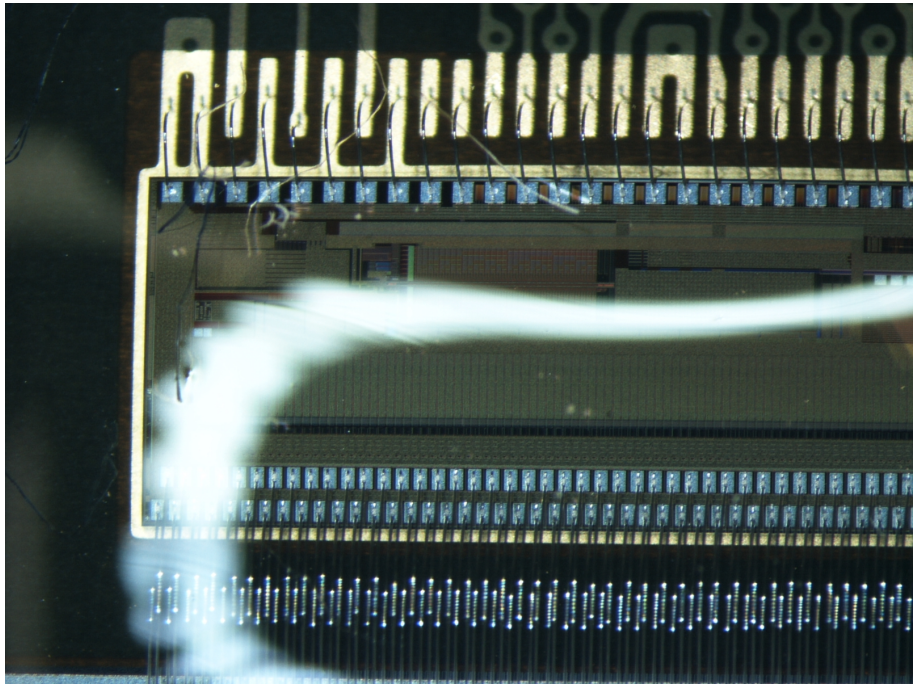
Visual Inspection

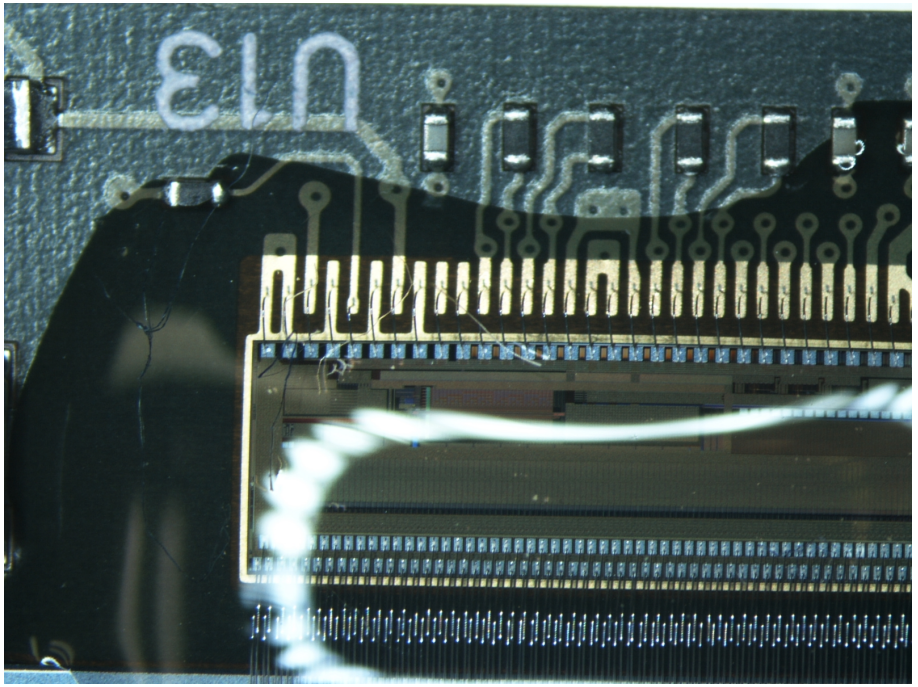
- The ladder safely arrived at BNL
- One new chip has half entries, possibly because of the transportation damage



Visual Inspection

- Lot of fibers observed on the chips





Visual Inspection

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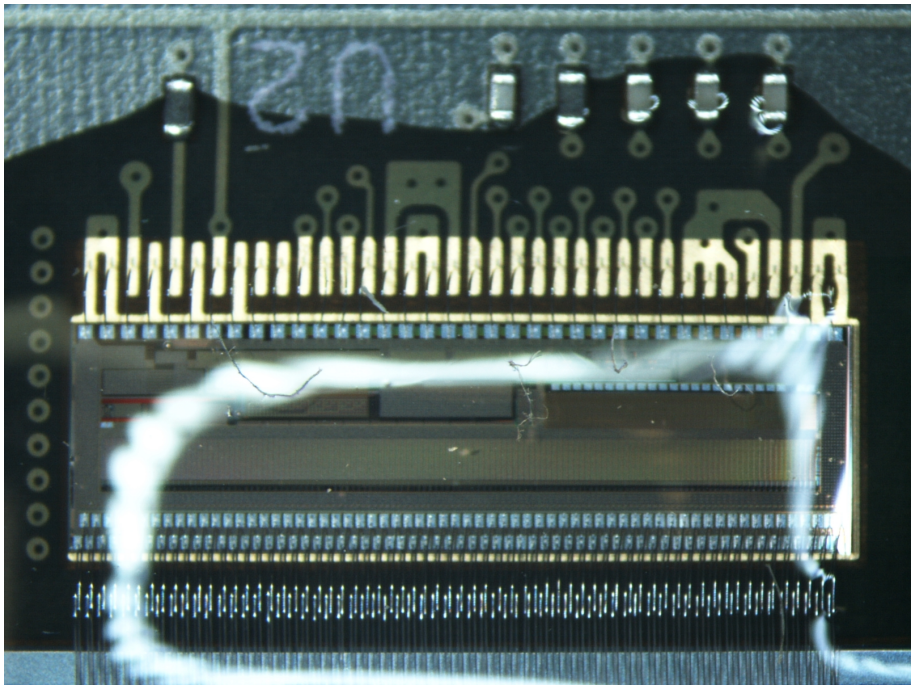
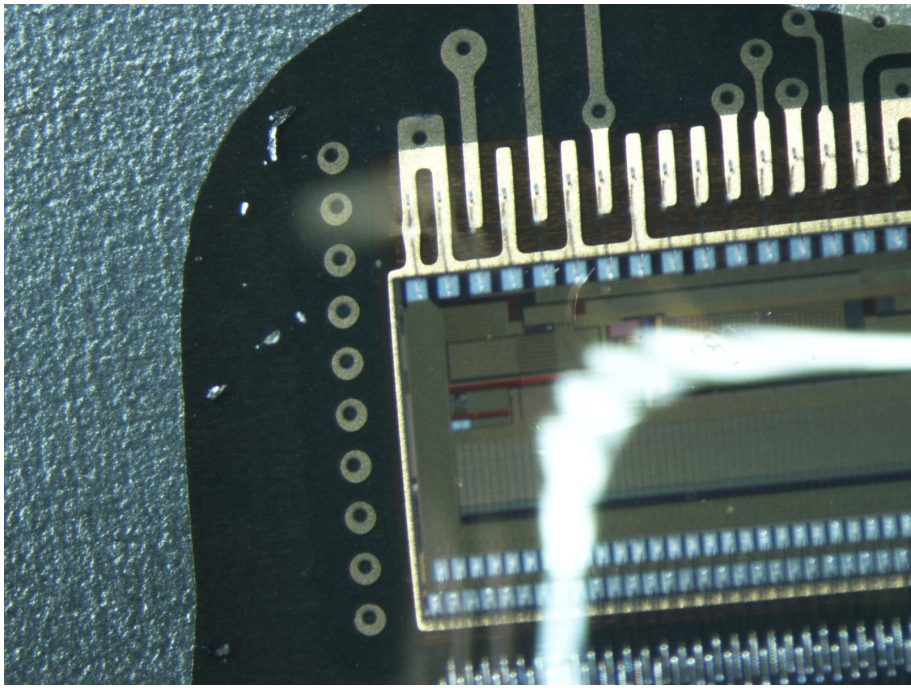
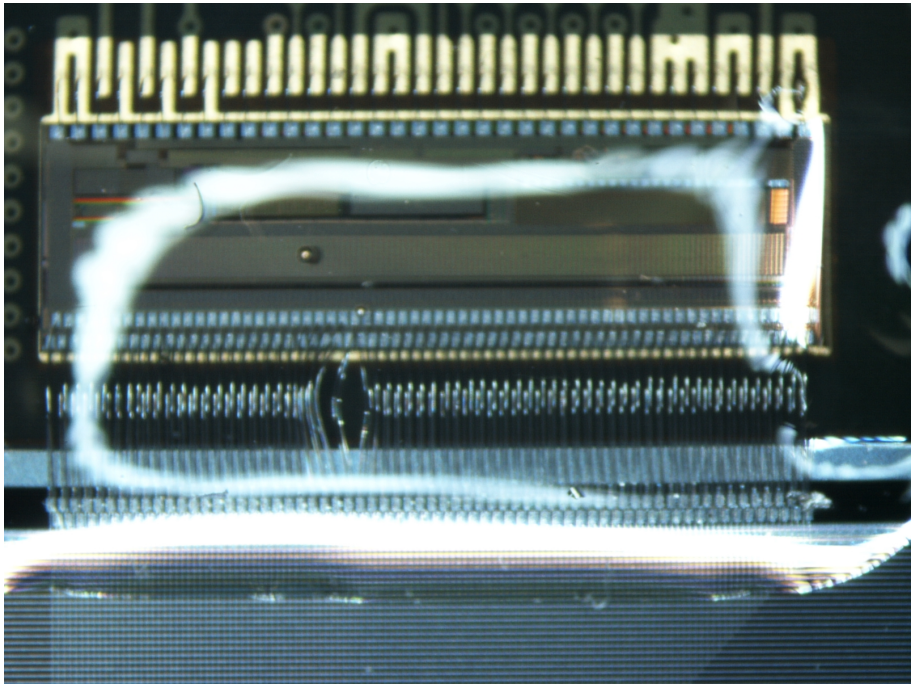
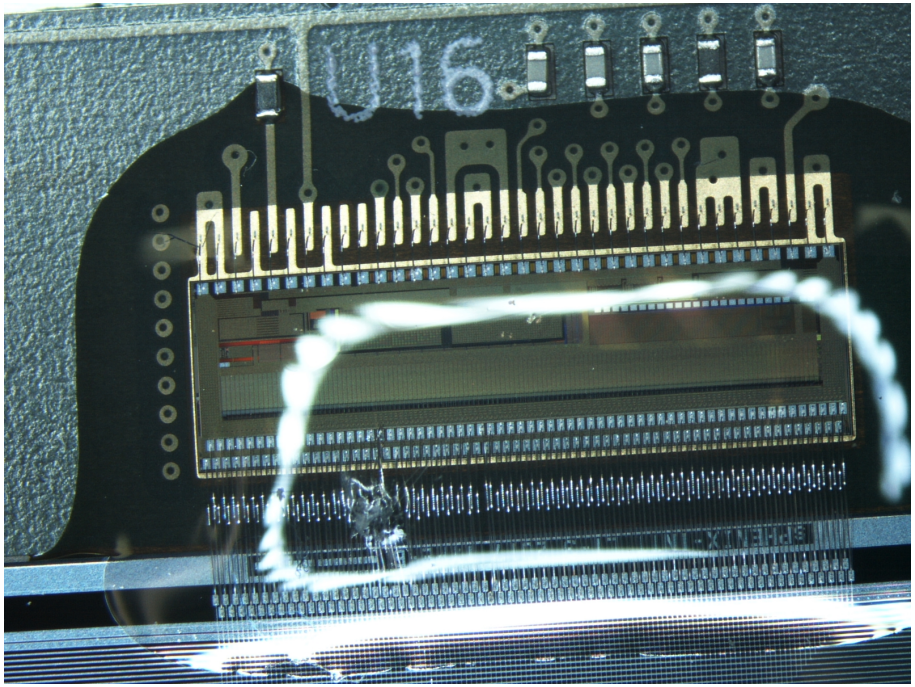




Visual Inspection

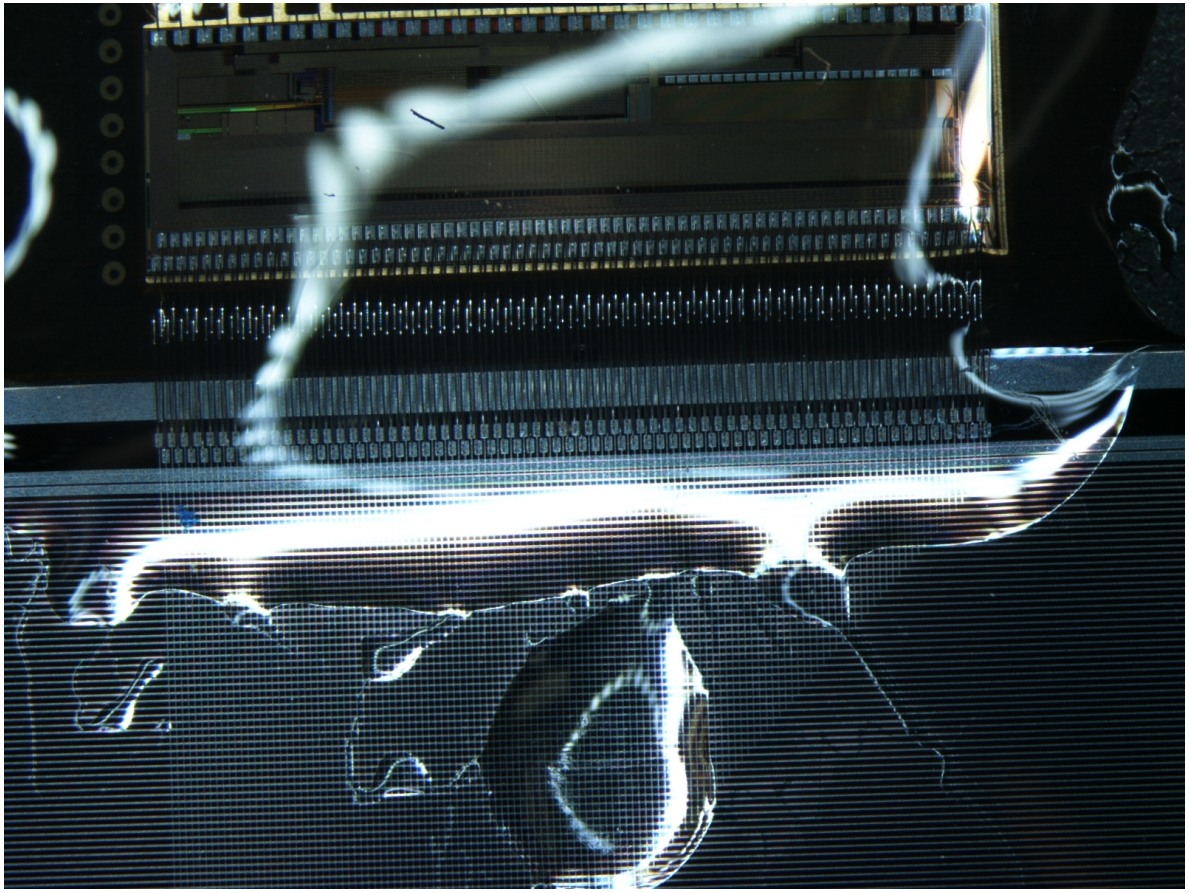
- Wire bonding can be improved





Visual Inspection

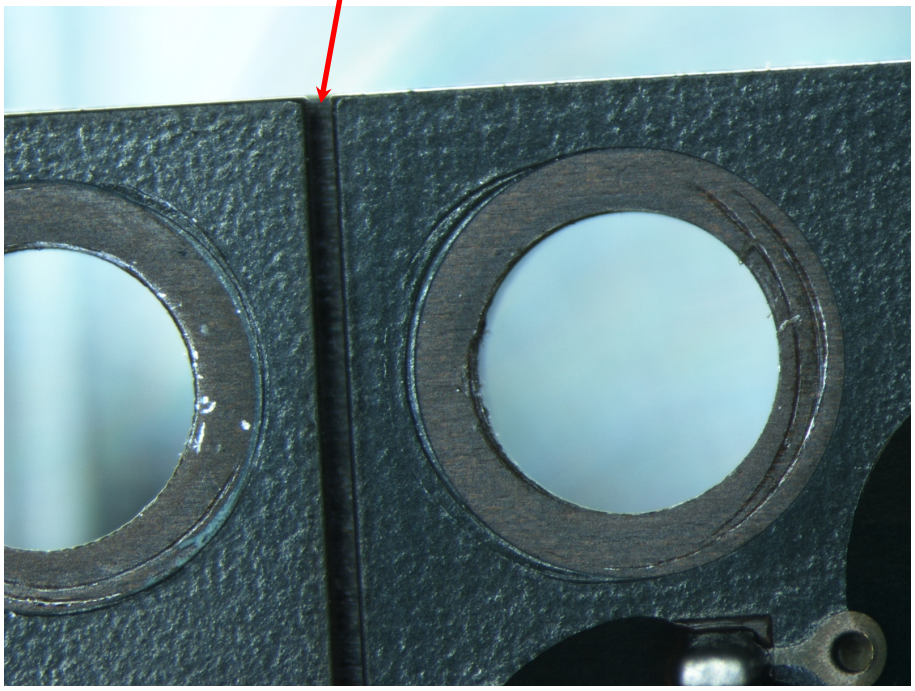
- Encapsulation on the sensor → needs improvement,
- concern: it seems that height of encapsulation is bigger than 1.2 mm



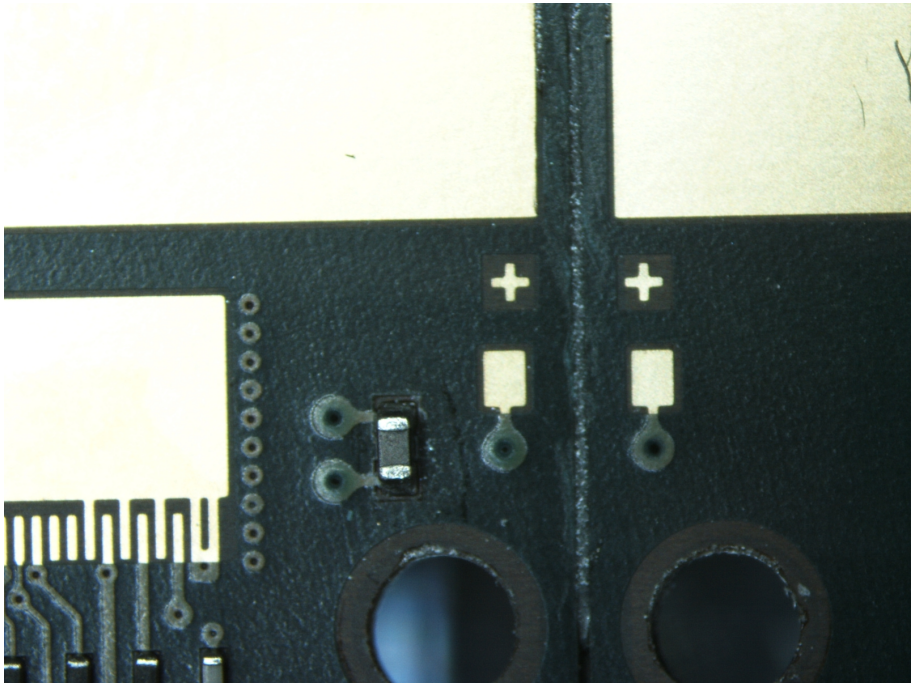
Visual Inspection

- Gluing issue: Big concern!
  - We didn't observe the glue between the two adjacent HDIs nor between the HDIs and the stave
    - → This implies the ladder will run hotter than BNL ladder

Taiwan Ladder



BNL Ladder



Taiwan Ladder Box

- The box is READY to be shipped back to Taiwan