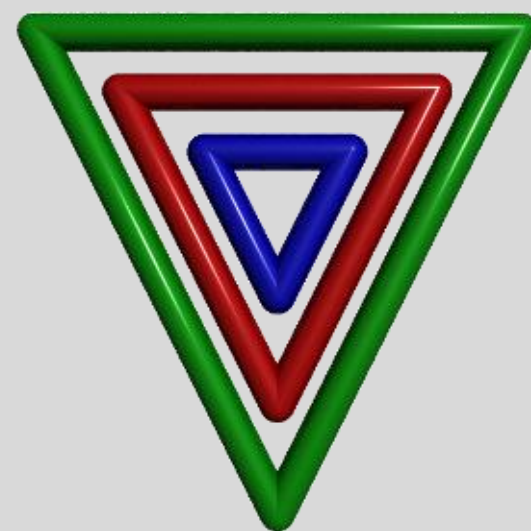


[www.viztronics.com](http://www.viztronics.com)



## Viztronics – Smart 3D Sensing

3D imaging solutions for industrial inspection & metrology

## Viztronics – Company Vision Statement

### ► Our Vision –

- ⊕ **Quality inspection & automation solutions using 3D imaging**

### ► Our Mission is to provide:

- ⊕ High resolution 3D imaging for more reliable quality inspection
- ⊕ End to end solutions for process automation & robotic guidance
- ⊕ Solutions for 3D imaging of challenging materials (glass and shiny objects)
- ⊕ Smart defect detection by combining 3D imaging with Deep Learning & AI

**Simple Solutions for Challenging 3D Inspection Problems**



## Our Products



### Micro<sup>2</sup>

#### MICRO SCALE 3D

- PCB Inspection
- Mobile Assembly Inspection
- Mobile Battery Compartment Inspection
- Automated Optical Inspection
- Solder Paste Inspection
- Medical Device Assembly
- SMT Packaging Inspection



### Macro<sup>2</sup>

#### MACRO SCALE 3D

- 3D Industrial Inspection
- Reverse Engineering
- 3D Printing Quality Control
- Face Scanning
- Full body scanning
- Orthopedics
- Dental Moulds



### Robo<sup>2</sup>

#### 3D BIN PICKING & ROBOTIC GUIDANCE

- 3D Bin Picking
- Vision guided robotics
- Closed loop process control

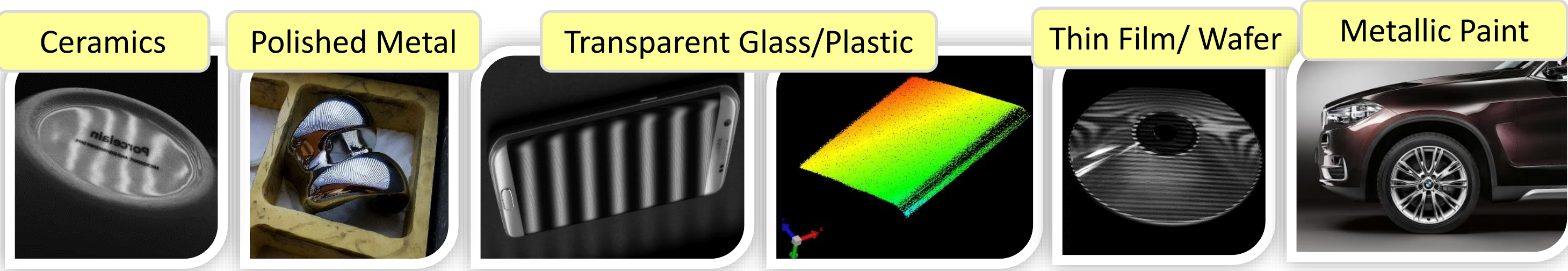


### Trans<sup>2</sup>

#### 3D FOR TRANSPARENT GLASS

- Mobile Glass Screen Inspection
- LCD Screen Inspection
- Automobile Windscreen inspection
- Metal sheet inspection
- Paint quality inspection





Reflective



Deflectometry

5 to 20  $\mu\text{m}$  resolution

**Trans<sup>2</sup>**

**Smart Phaze**

50 to 200 mm FOV

5 to 20  $\mu\text{m}$  resolution

Small FOV

500 to 2000 mm FOV

50 to 200  $\mu\text{m}$  resolution

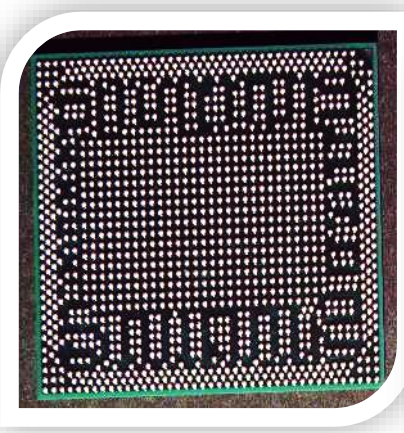
Bigger FOV



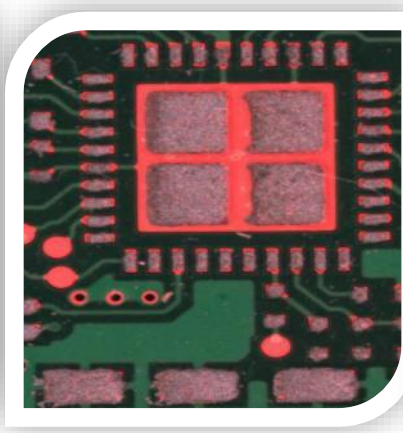
**Macro<sup>2</sup>**



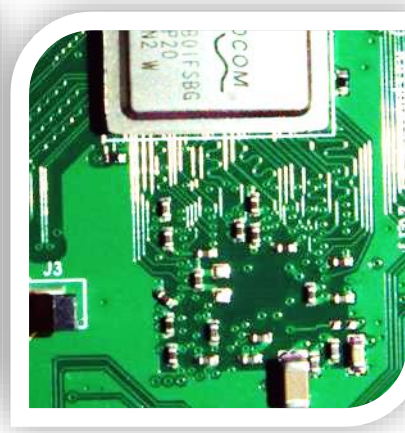
**Micro<sup>2</sup>**



BGA



S Paste



PCB/AOI



Bearing



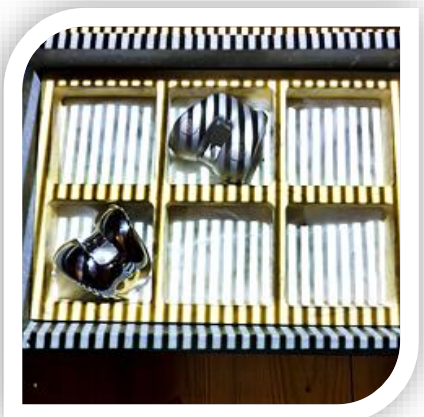
Mobile



Aerospace



Rev. Engg



Bin Picking



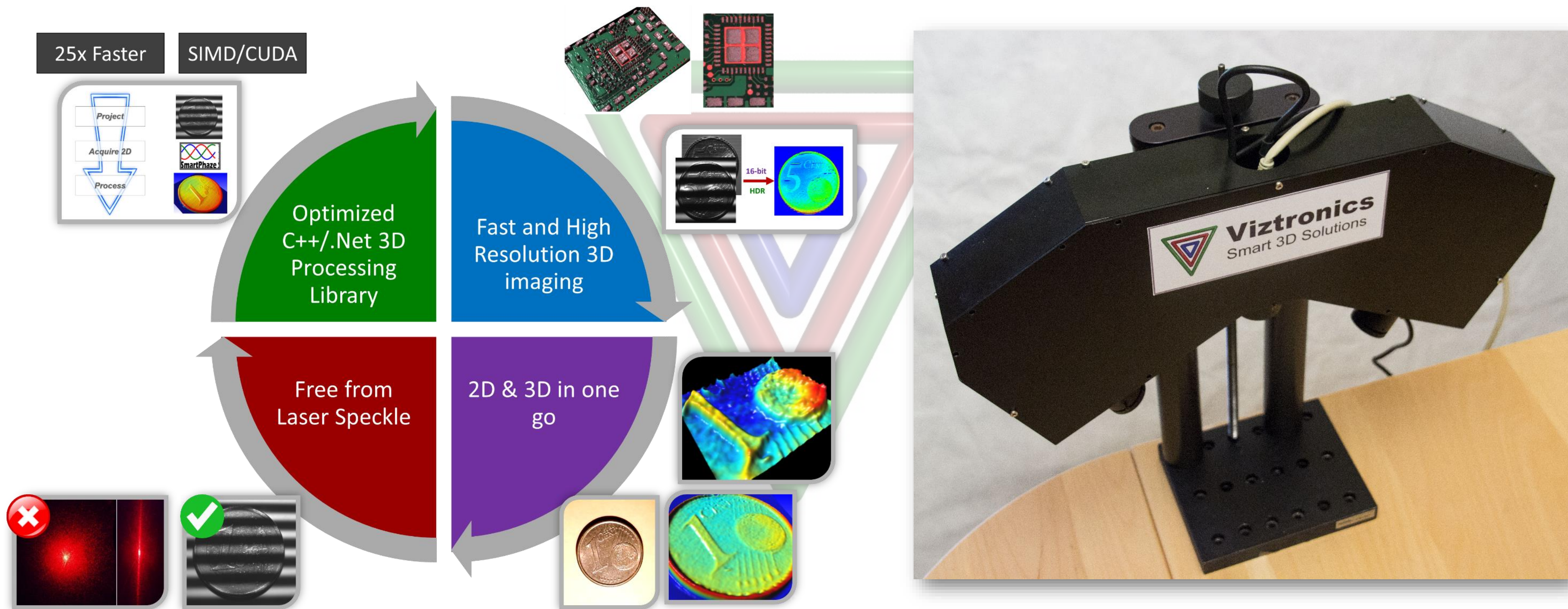


# Micro<sup>2</sup>

Micro Scale 3D Sensor

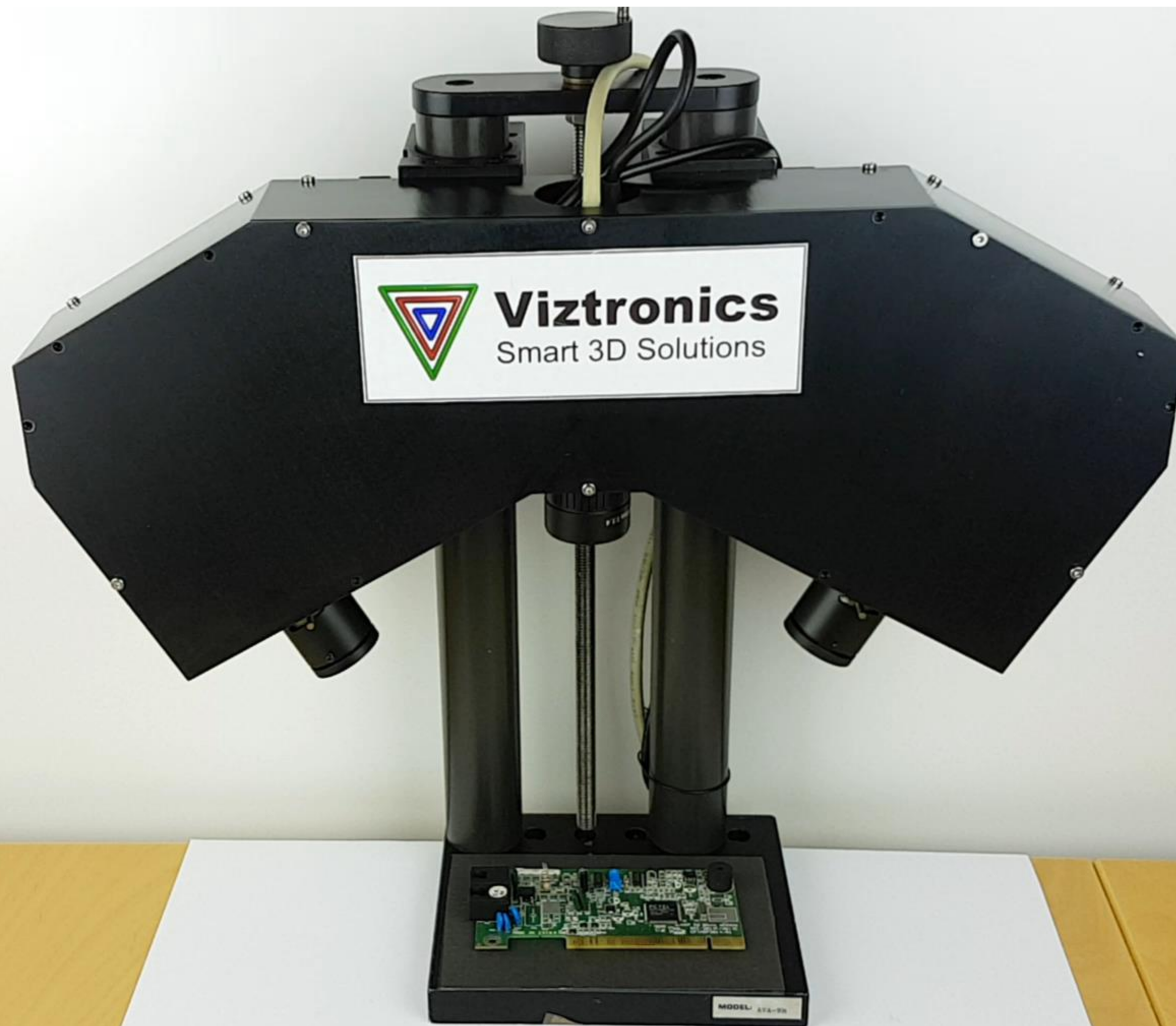


## Micro Scale Inspection for Mobile and PCB markets

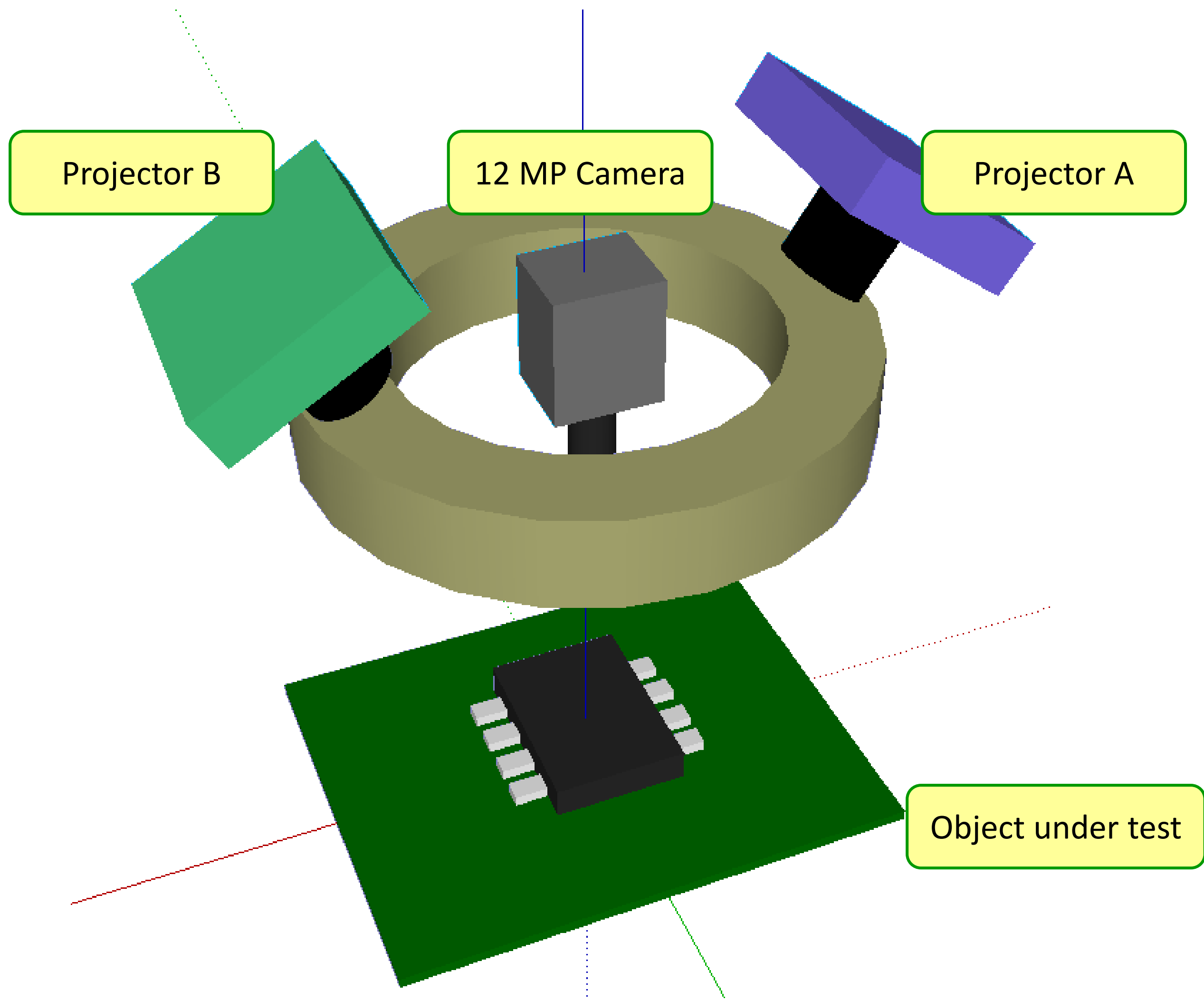




**MicroZ – Video of Operation**



# Sensor setup



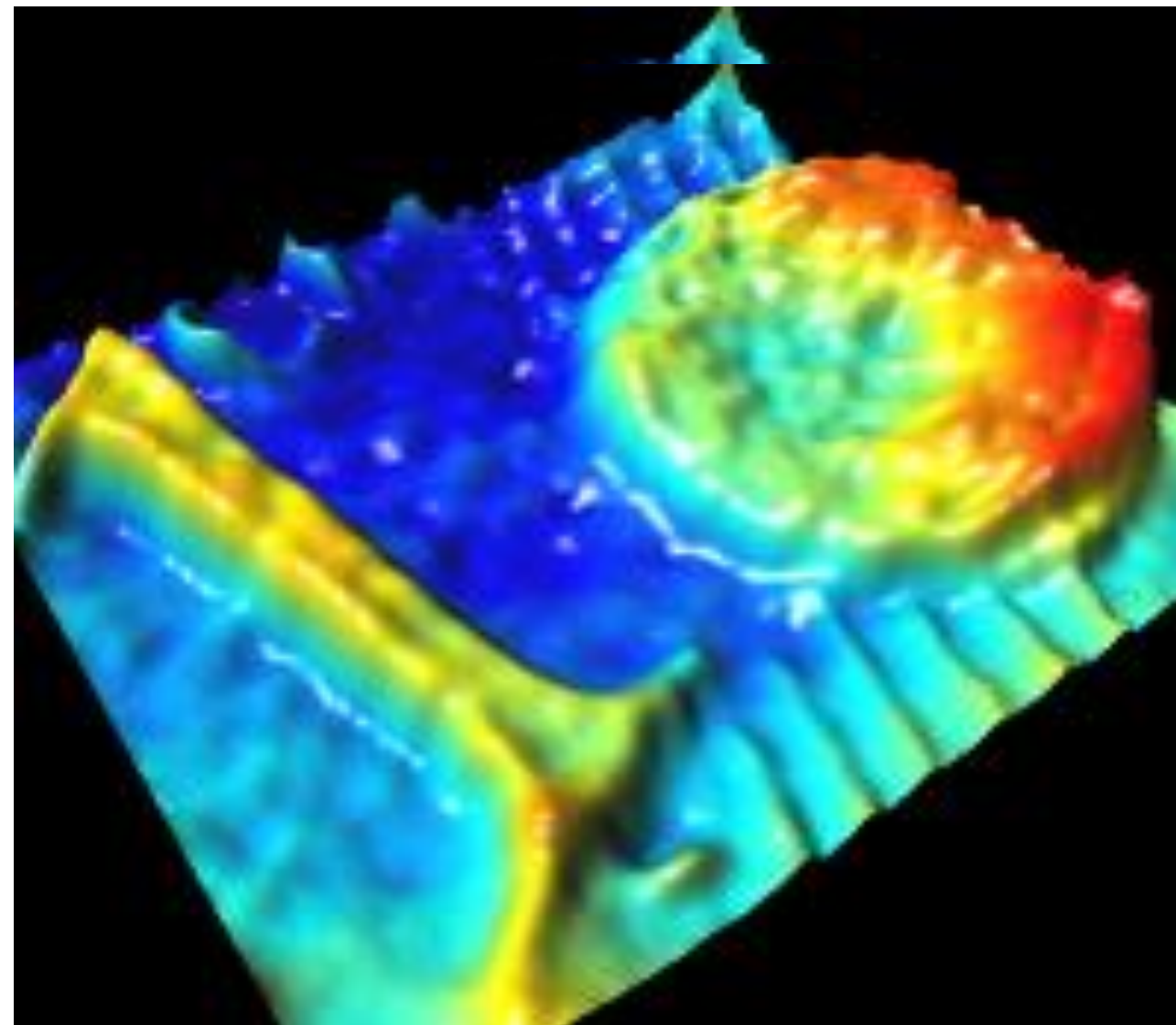
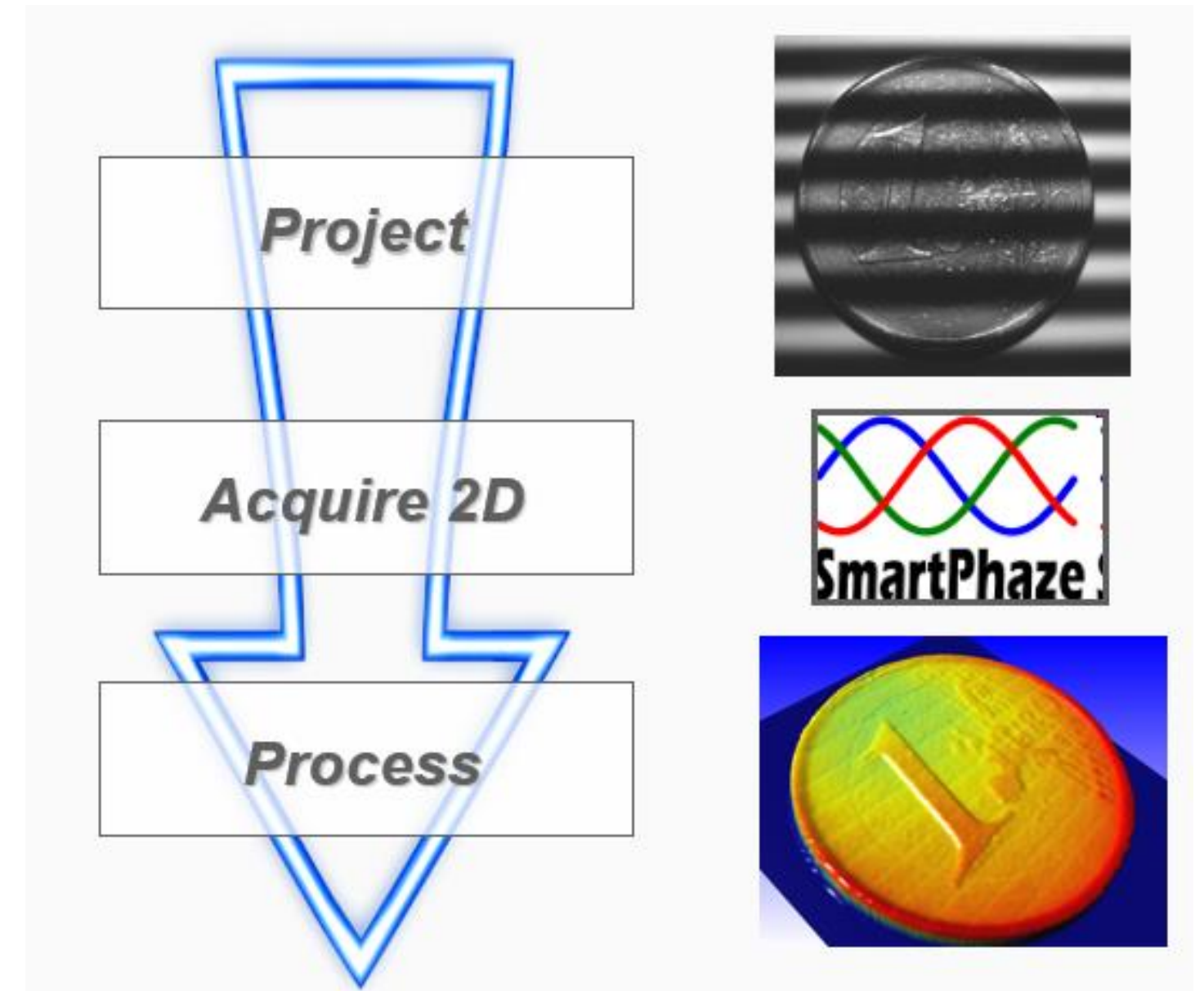


## MicroZ Specs

Attribute	Value
Sensor Field of view (FOV)	100mm x 75mm
Camera Resolution	12 Mega Pixel
Camera Connection to PC	Gigabit Ethernet
2D Pixel size (XY Resolution)	25 $\mu\text{m}$
3D Pixel size (Z Resolution)	20 $\mu\text{m}$
3D Range	20 mm
3D acquisition time	8 seconds
Operating System	Windows 10
PC Requirements	Intel i5 or better with 8GB+ RAM

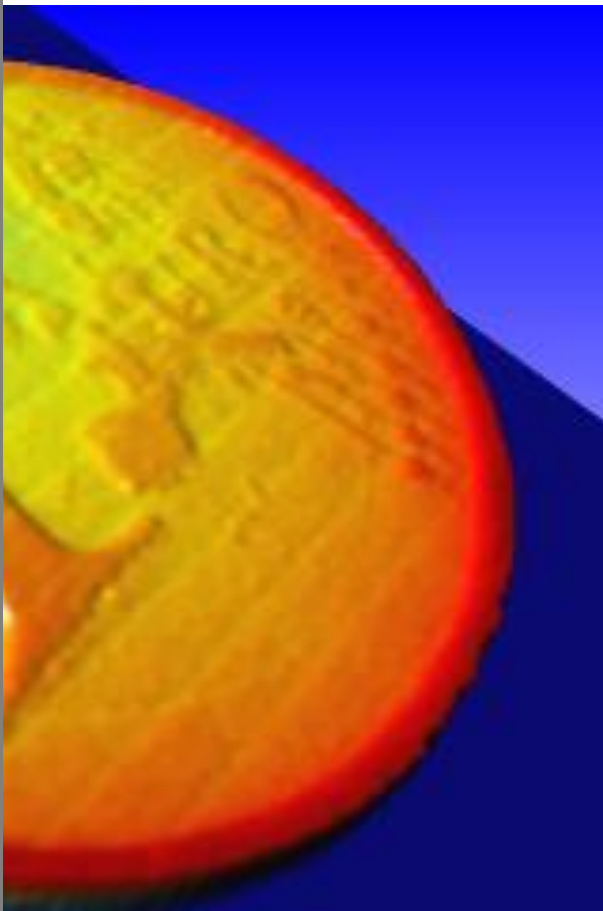
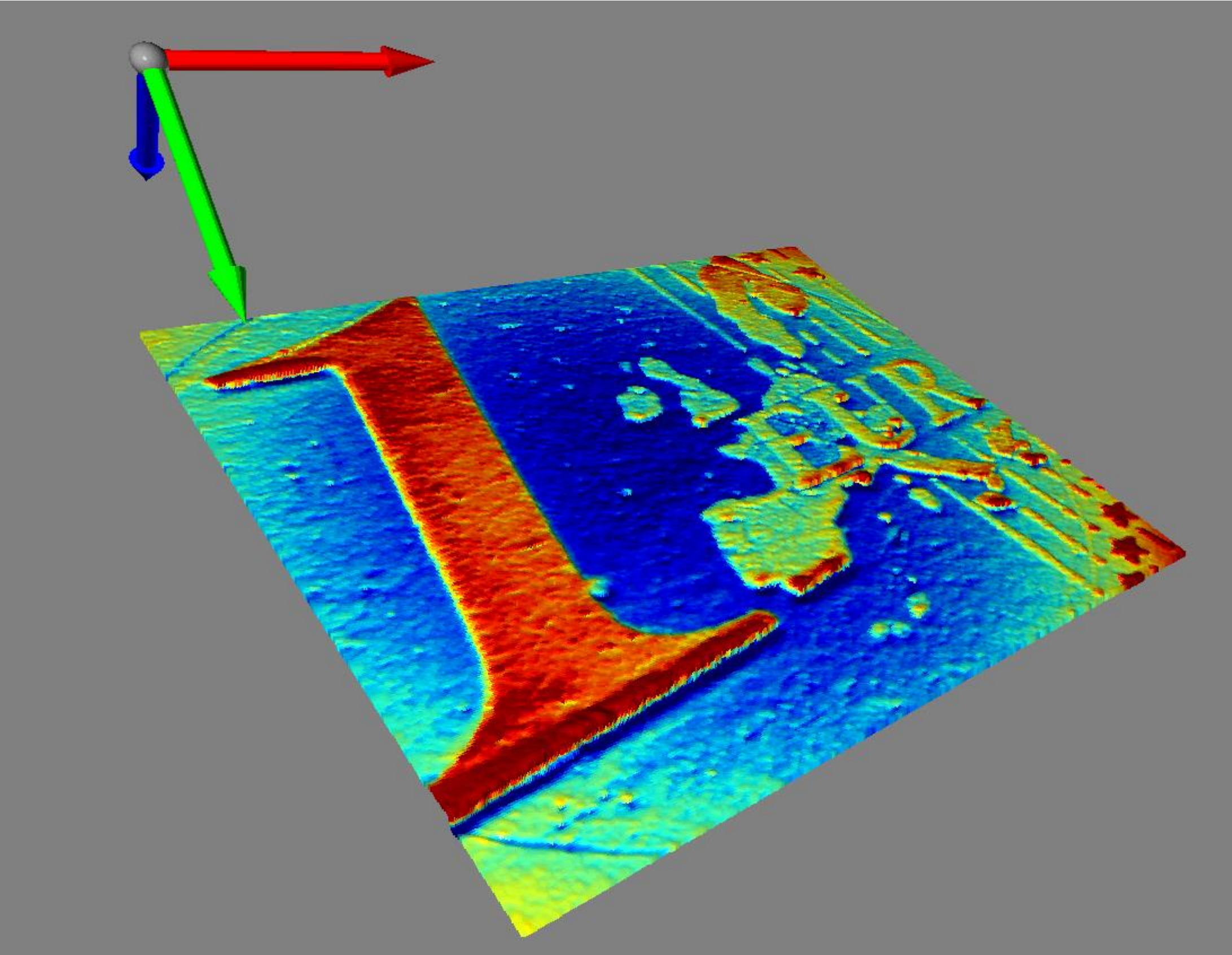


# 3D Image Acquisition Steps



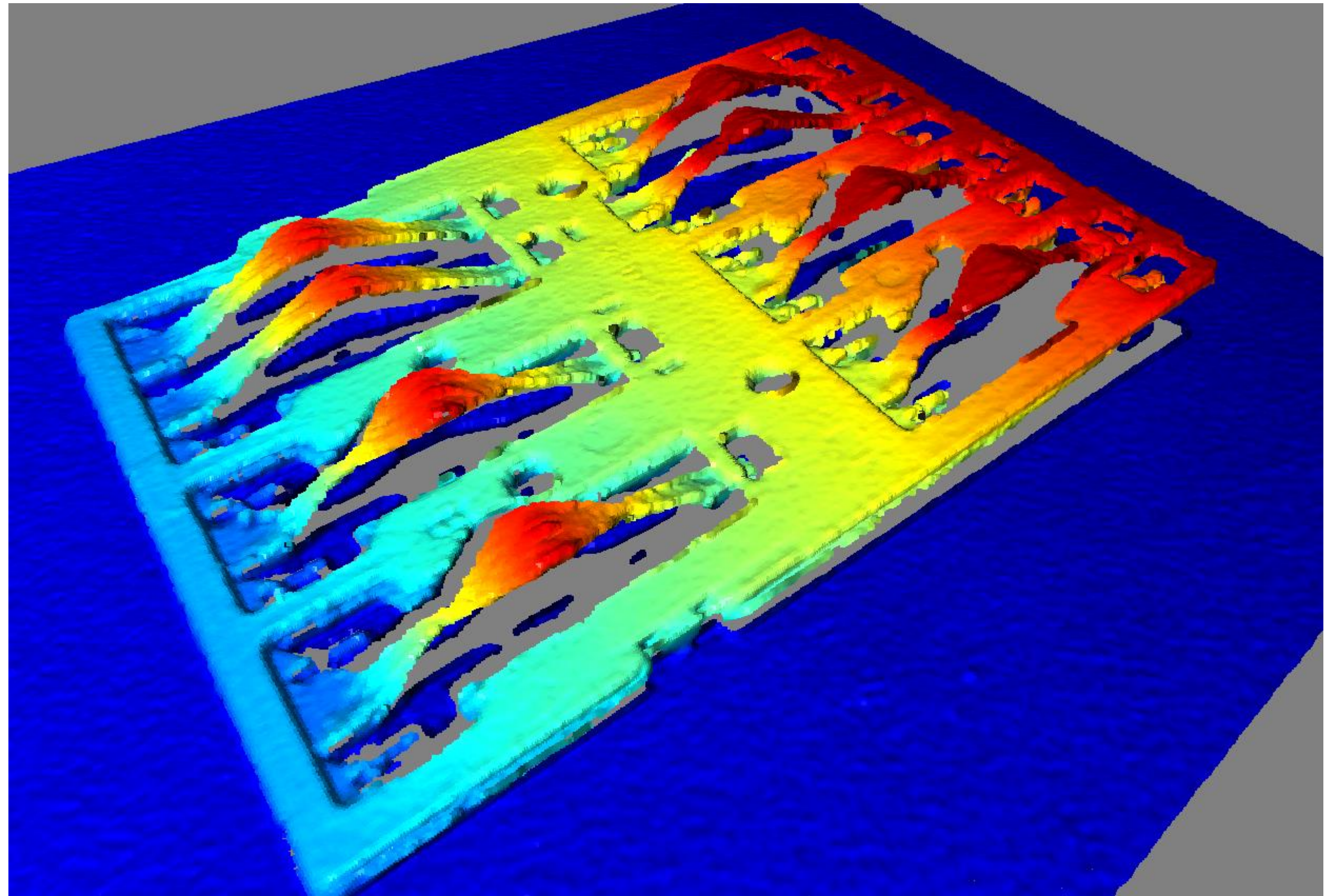
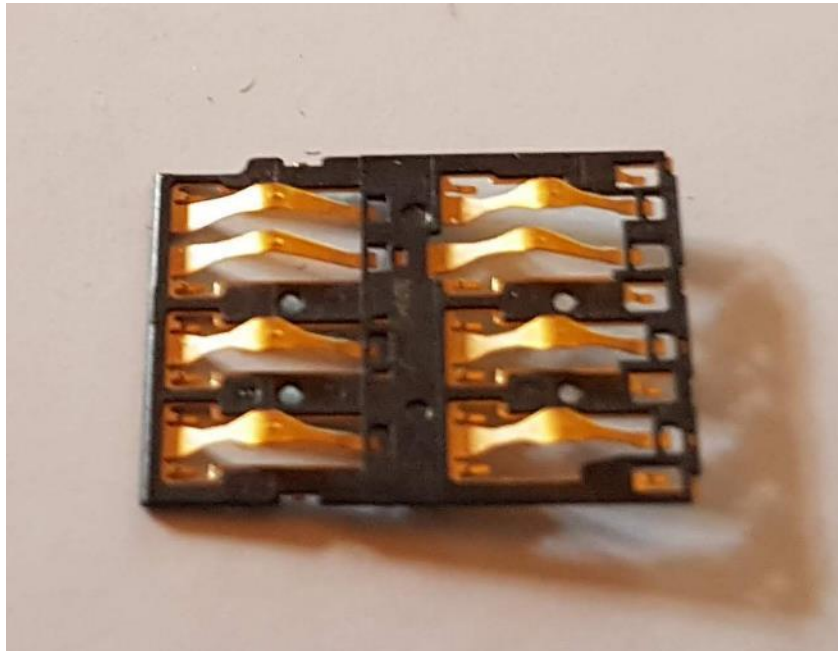


# Example images for Micro-scale inspection



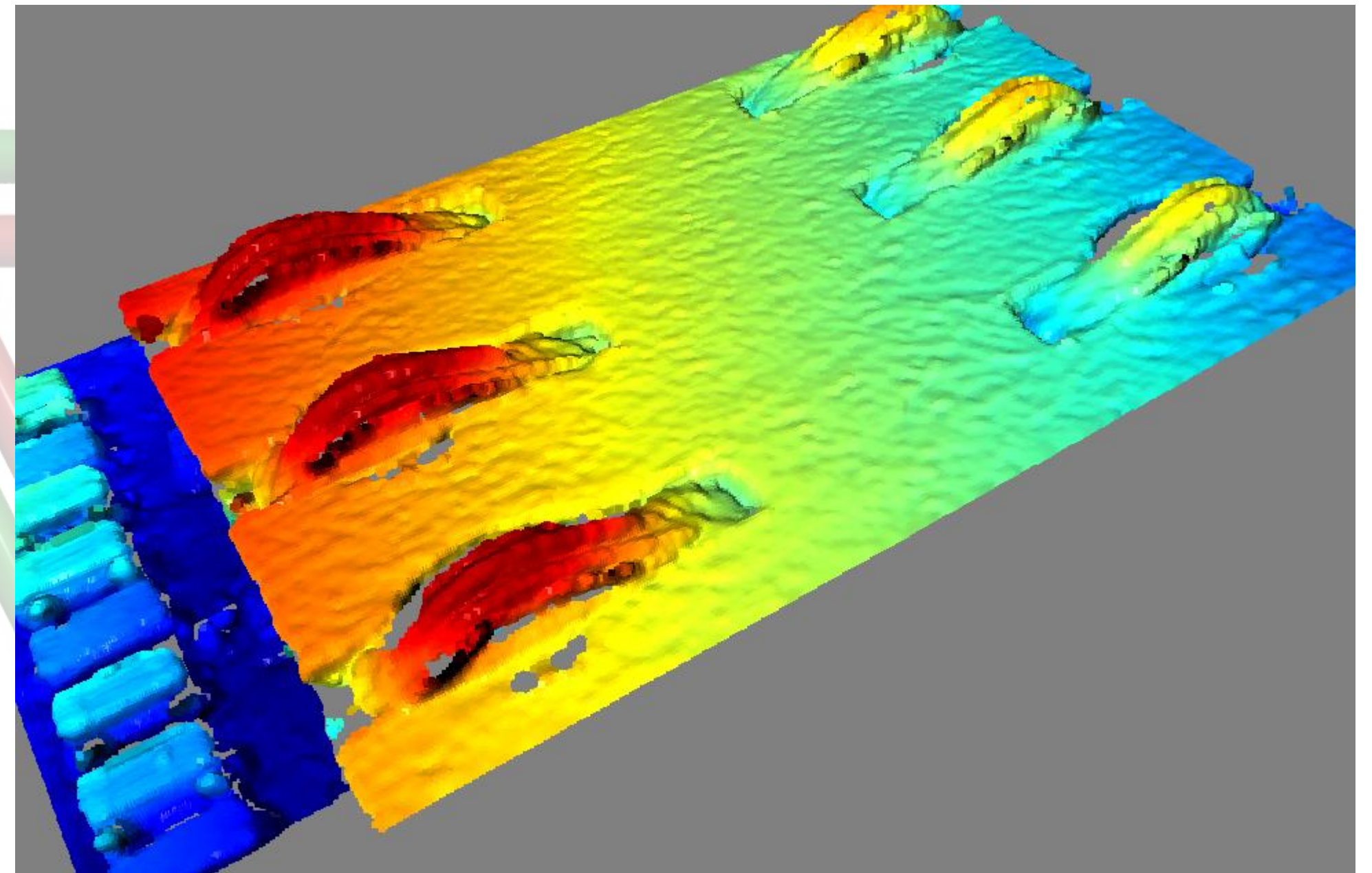
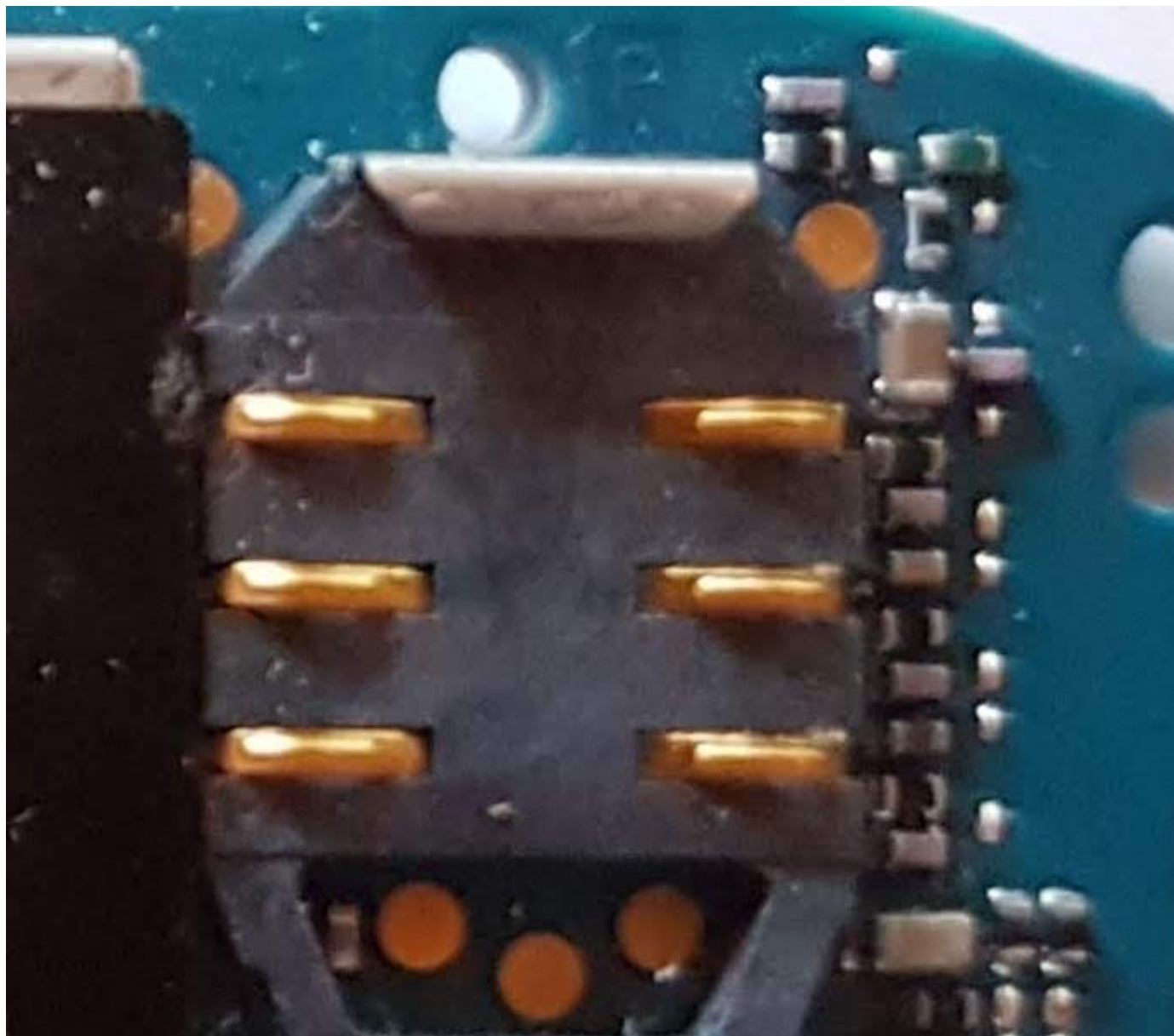


## Example images for Micro-scale inspection – SIM Connector



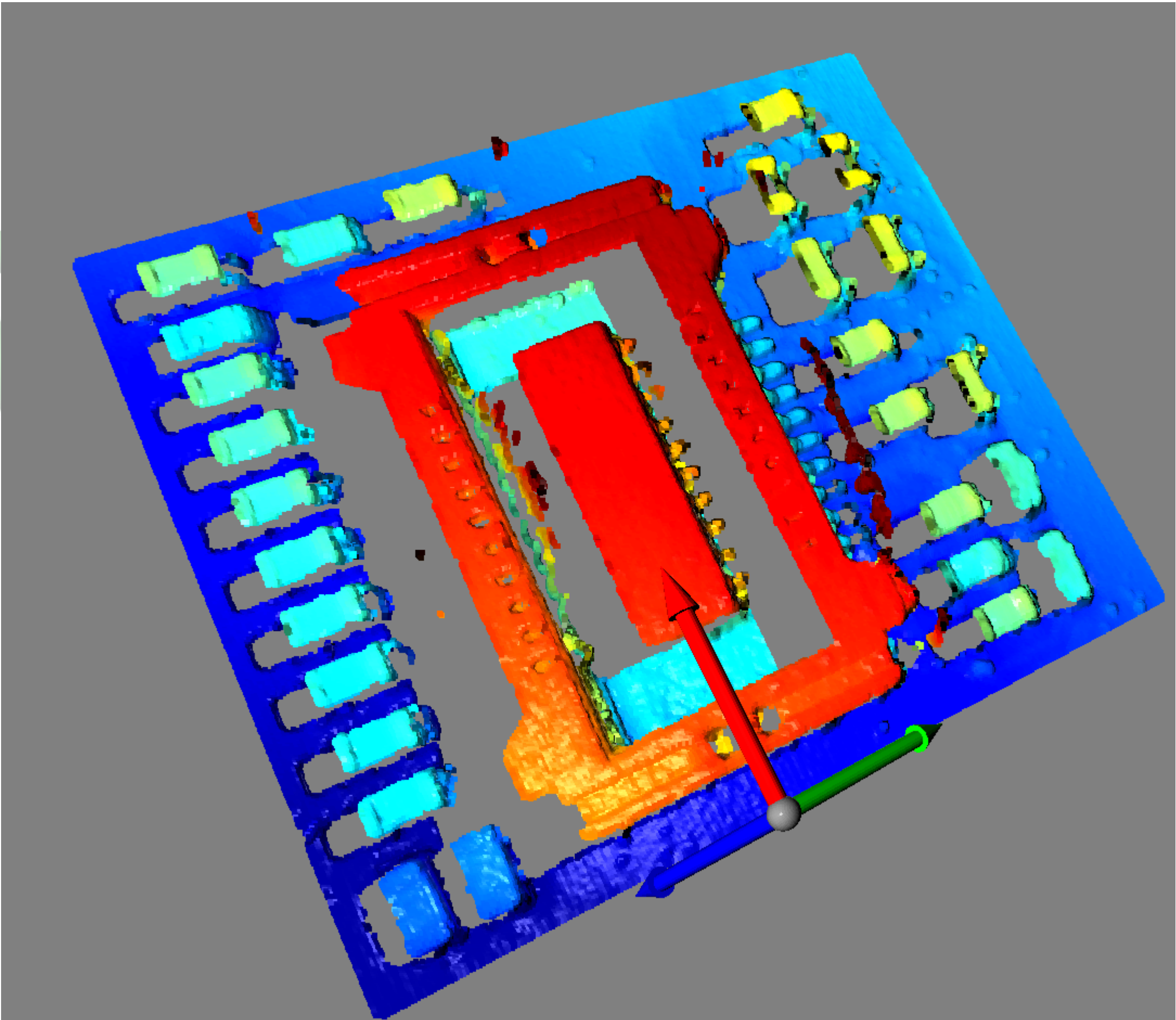
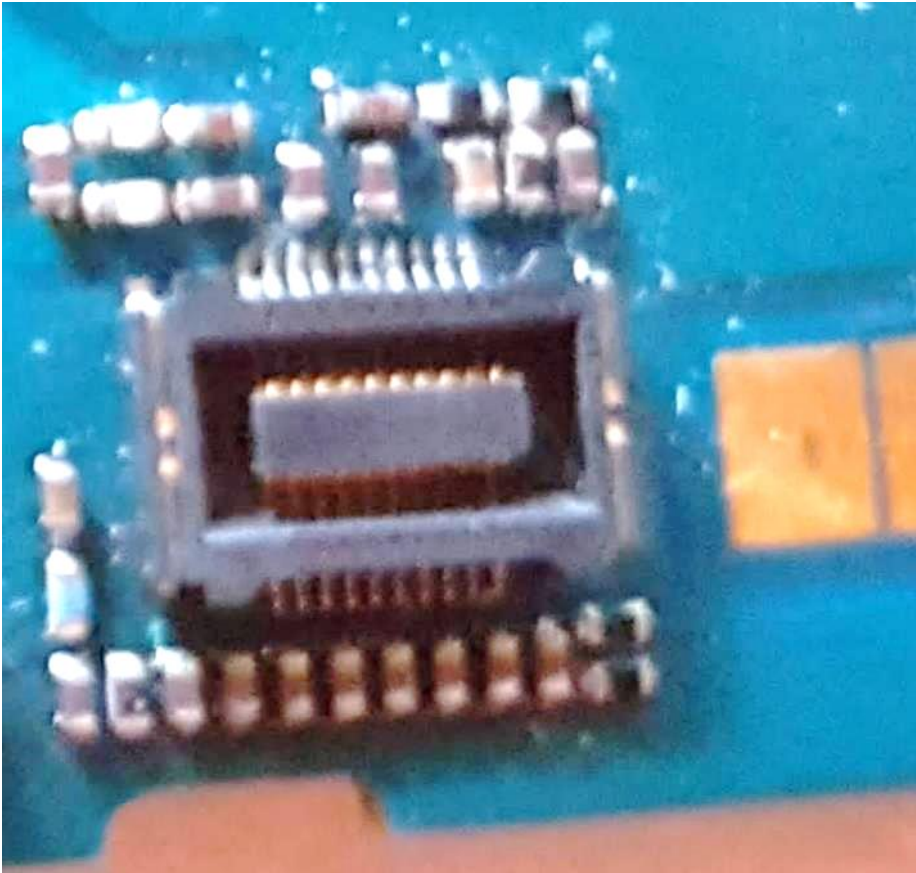
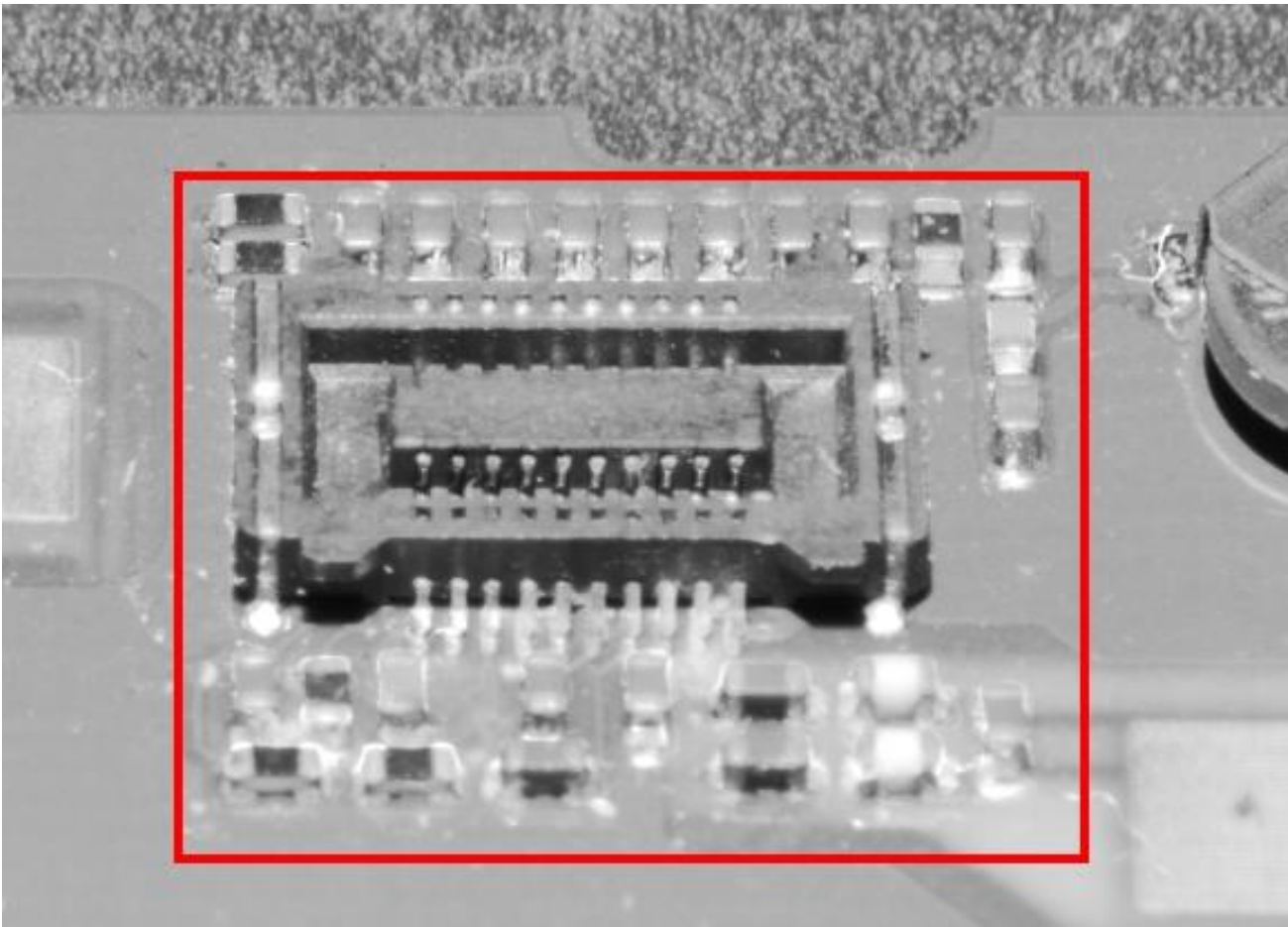


## Example images for Micro-scale inspection – SIM Connector



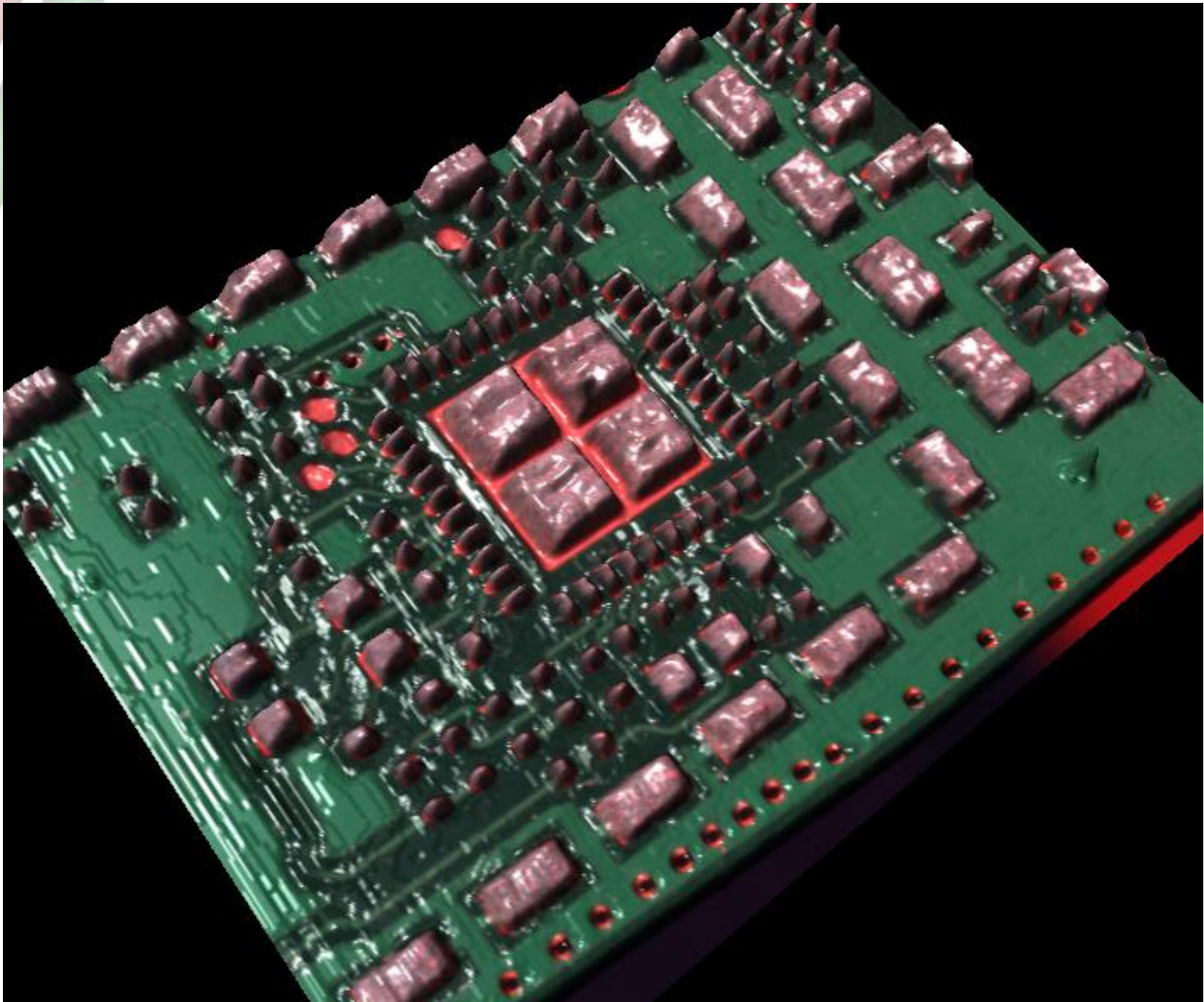
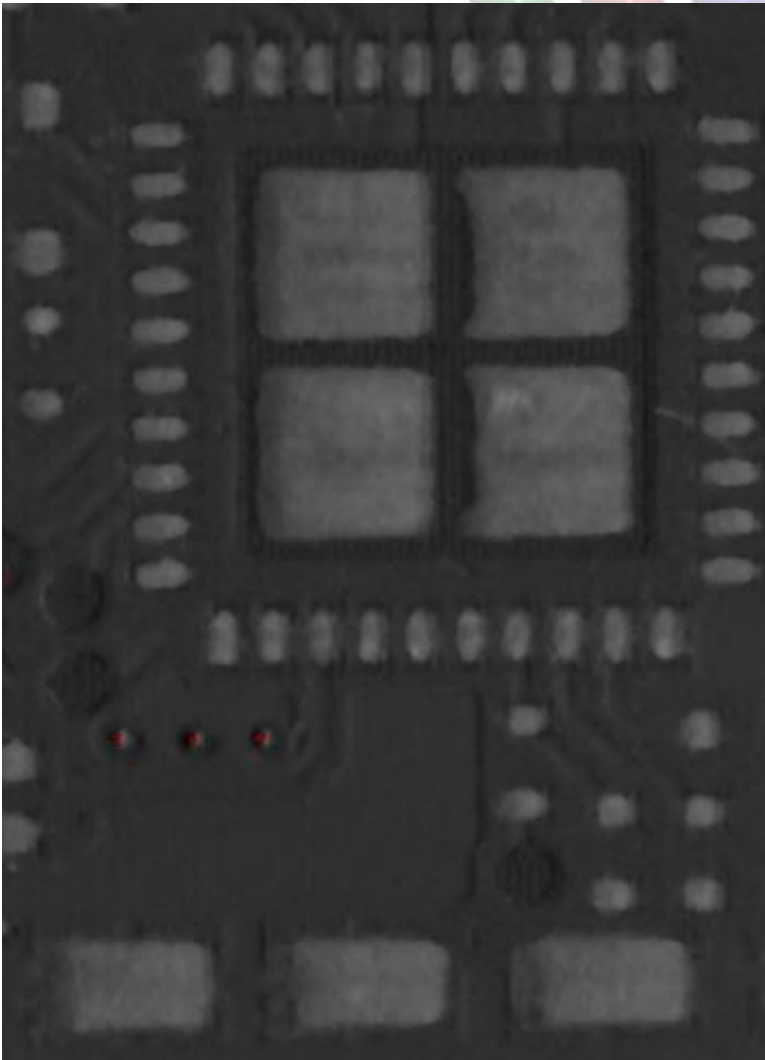
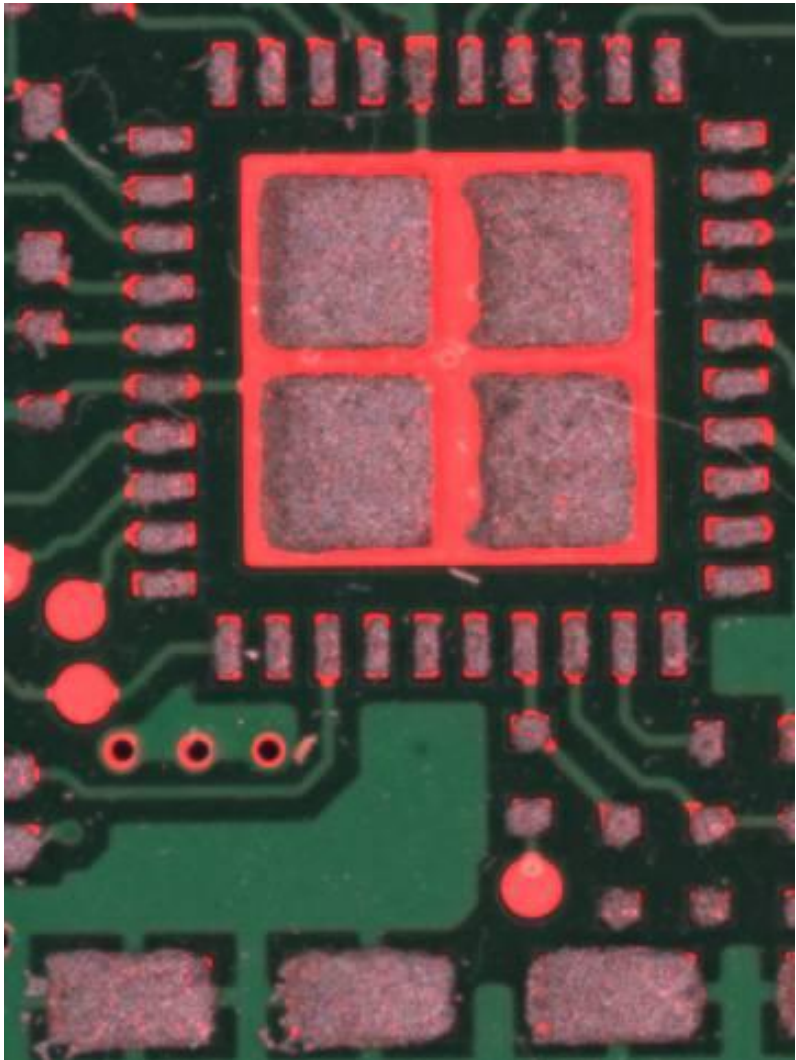
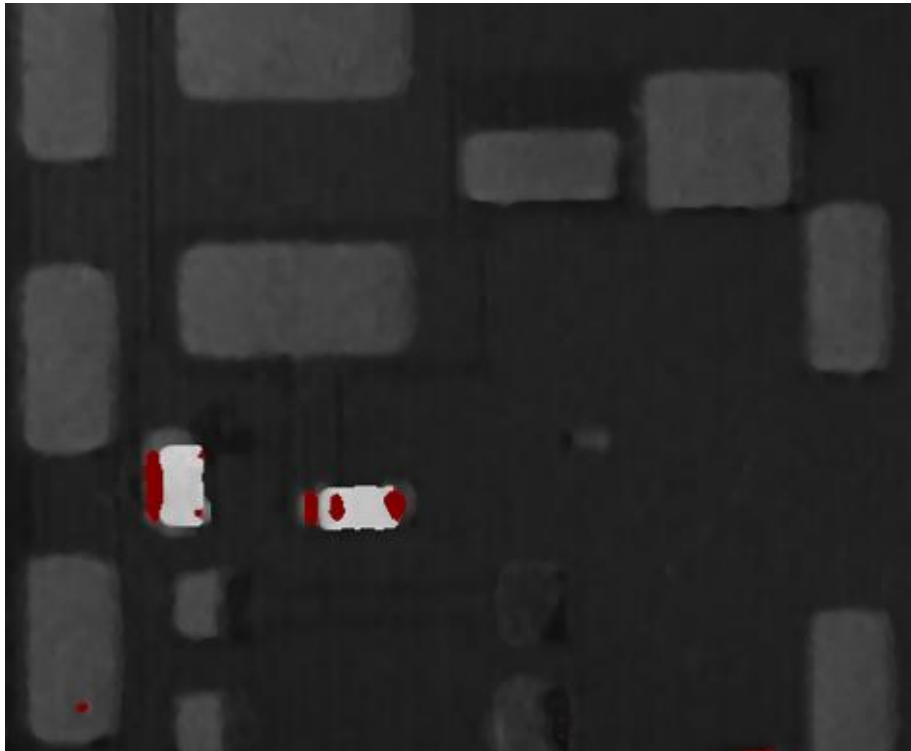
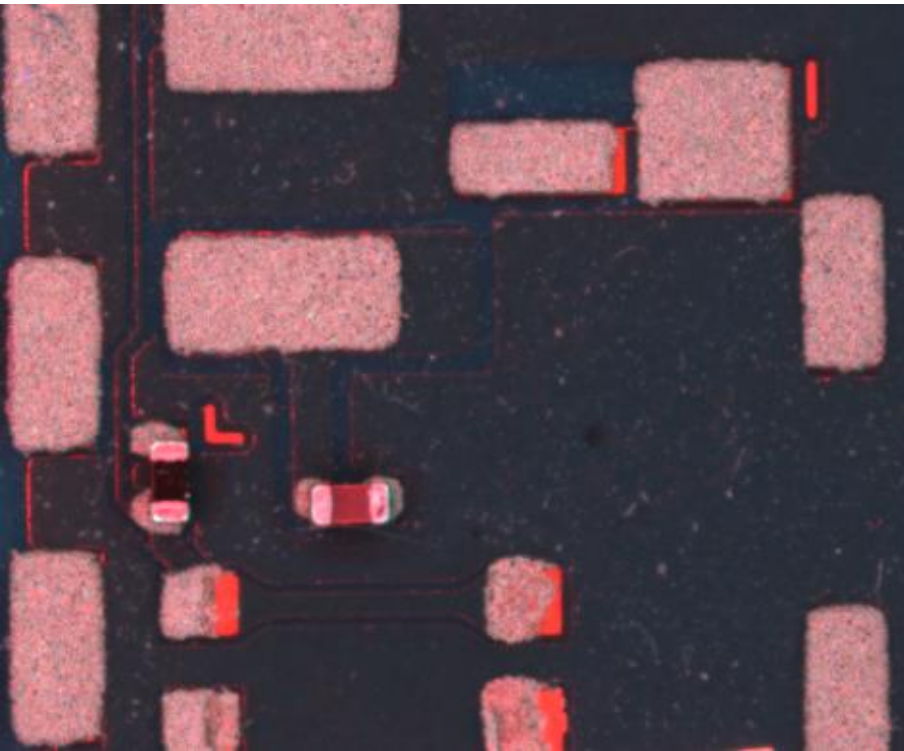


# Example images for Micro-scale inspection – SIM Connector



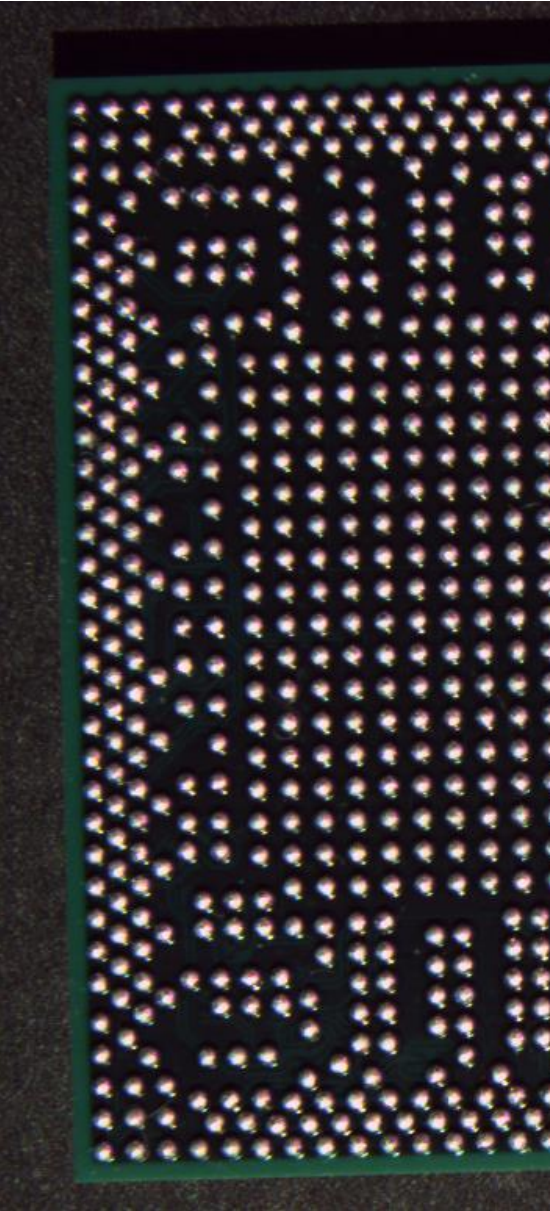


# Solder Paste Inspection

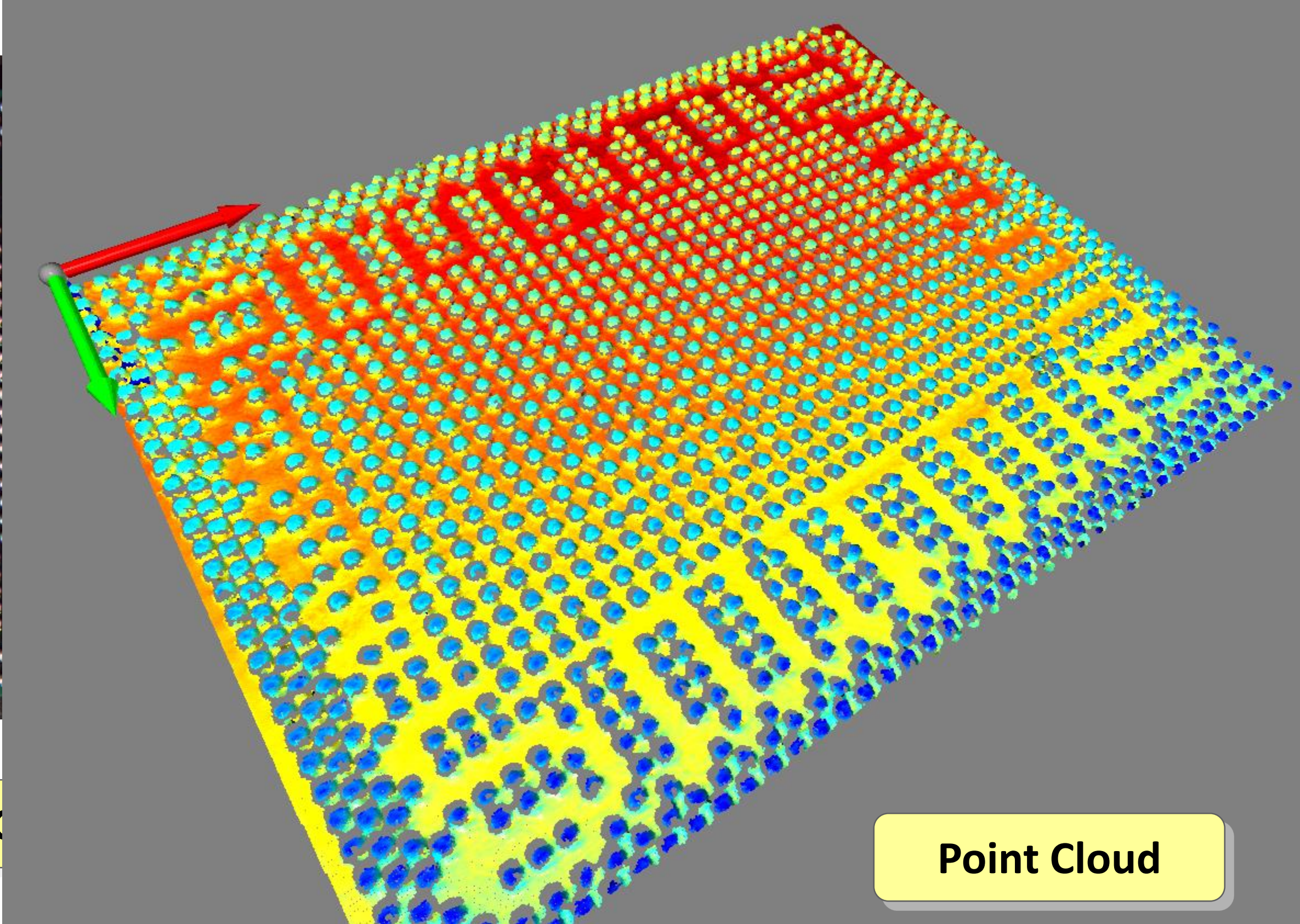




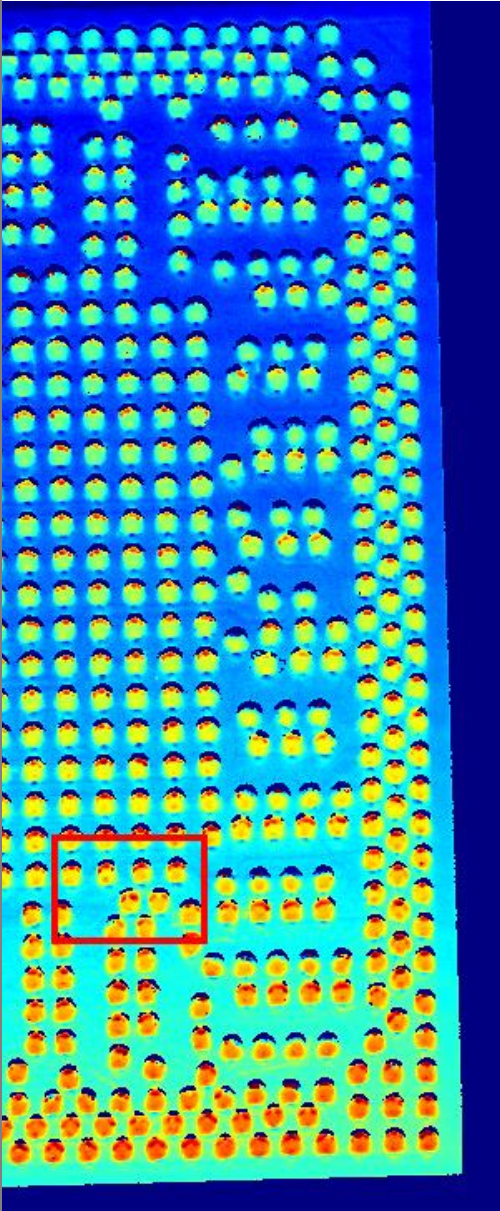
# BGA Inspection



RO

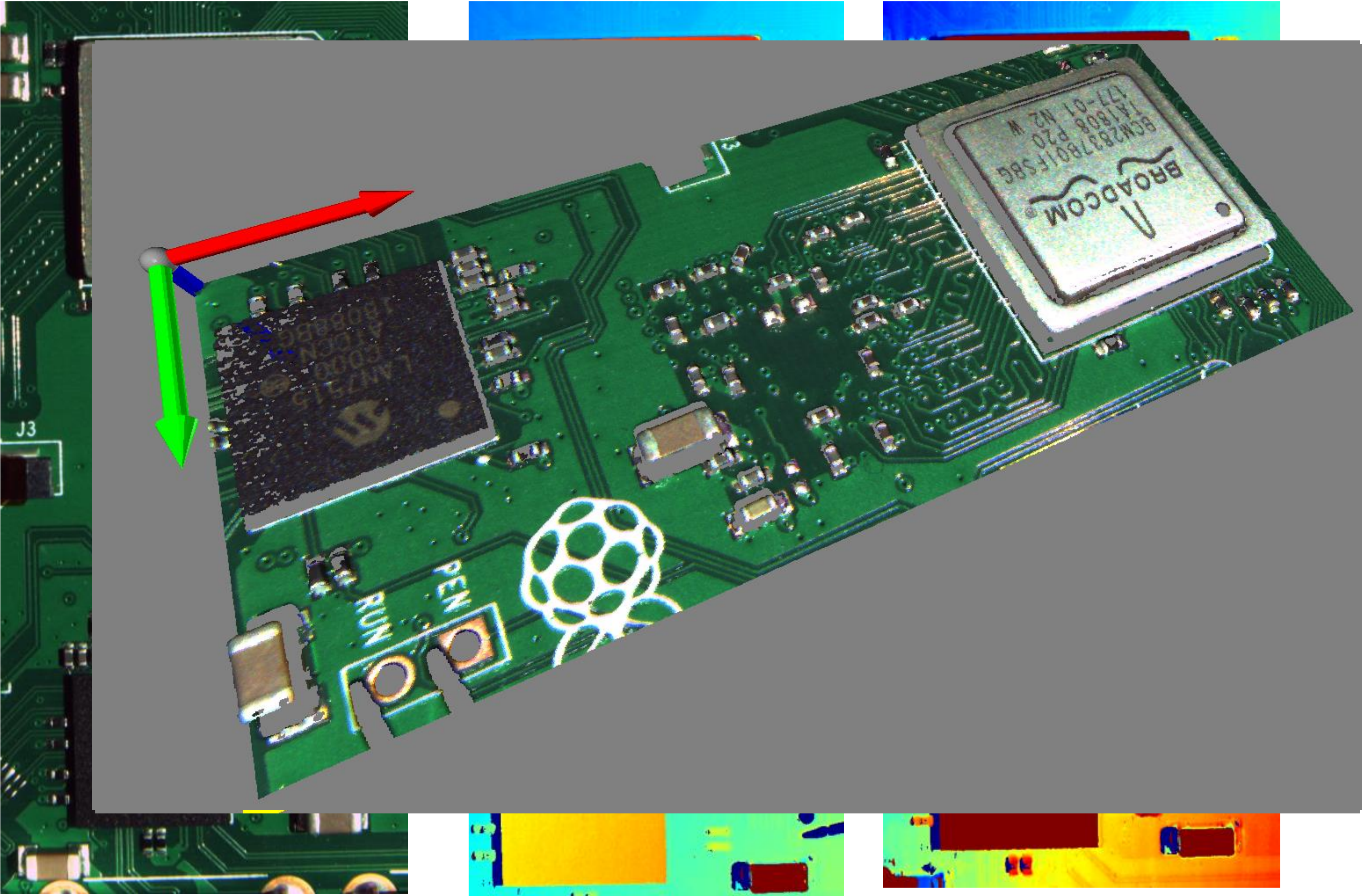


Point Cloud





# PCB Assembly

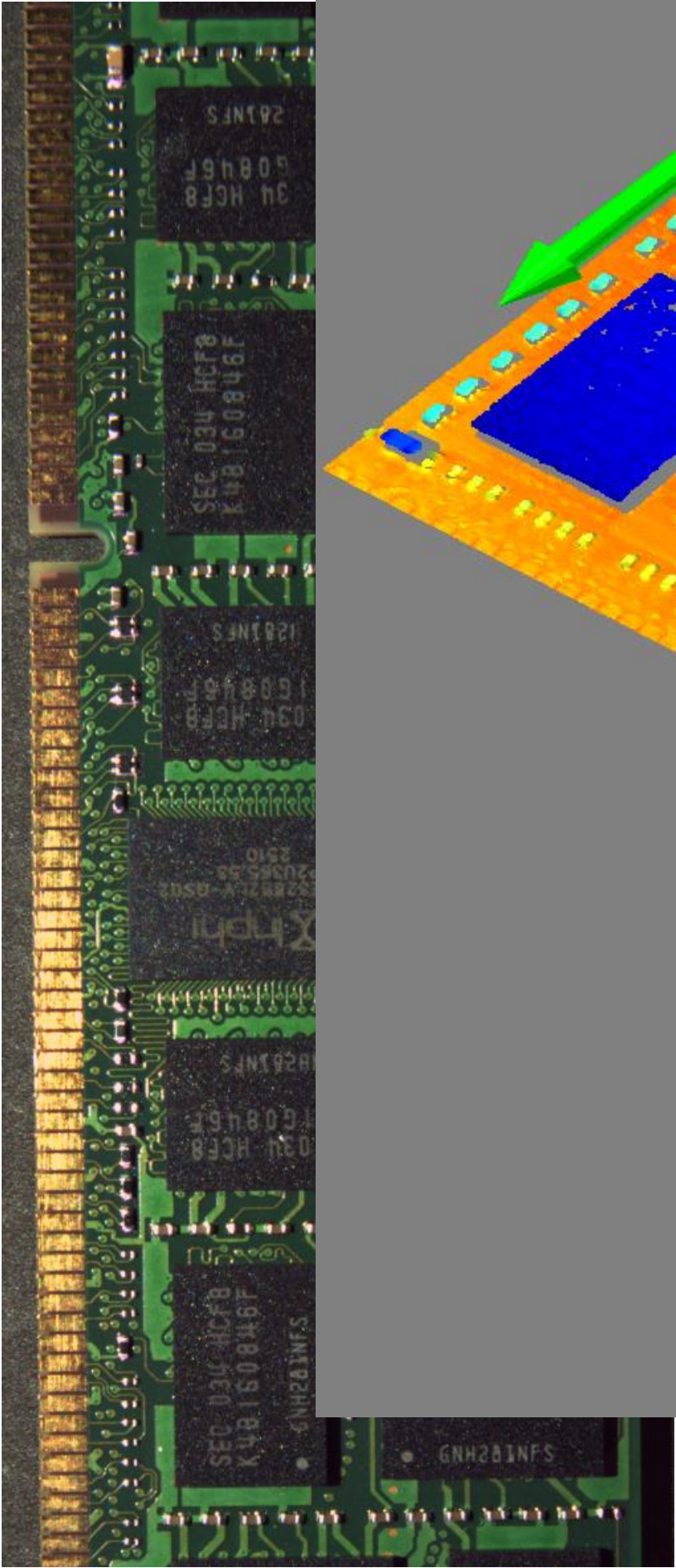


RGB Image

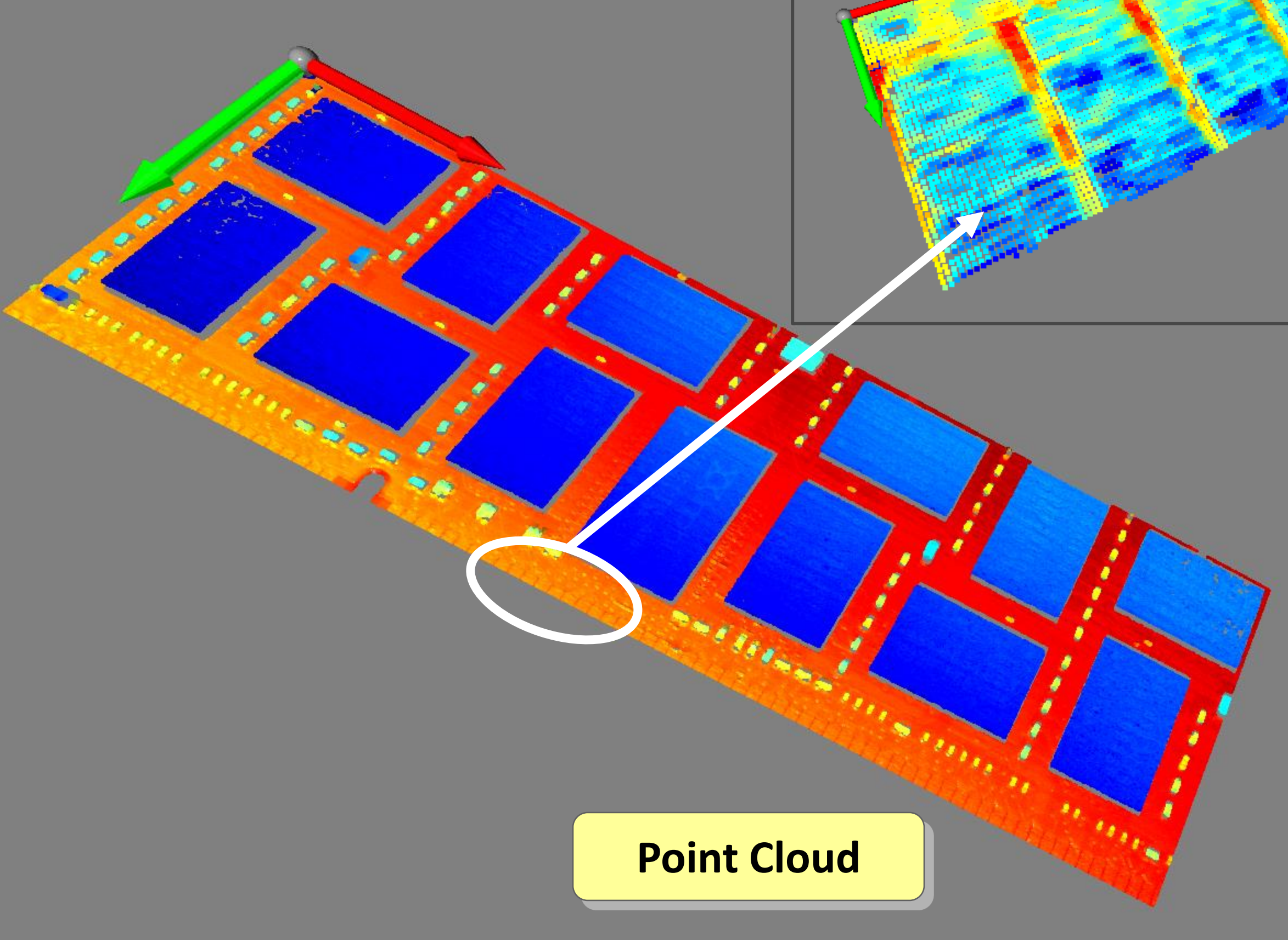
Range Image



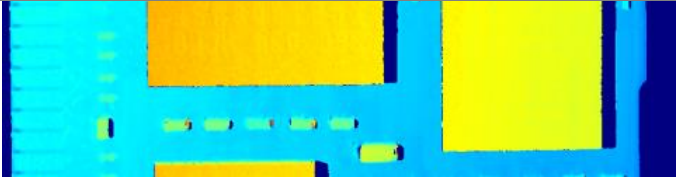
# PCB Assembly



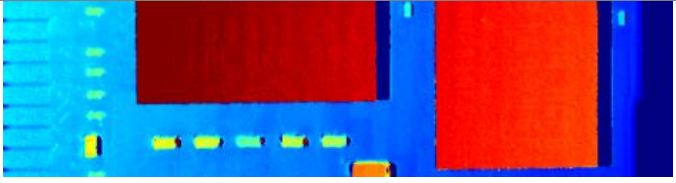
RGB Image



Point Cloud



Range Image

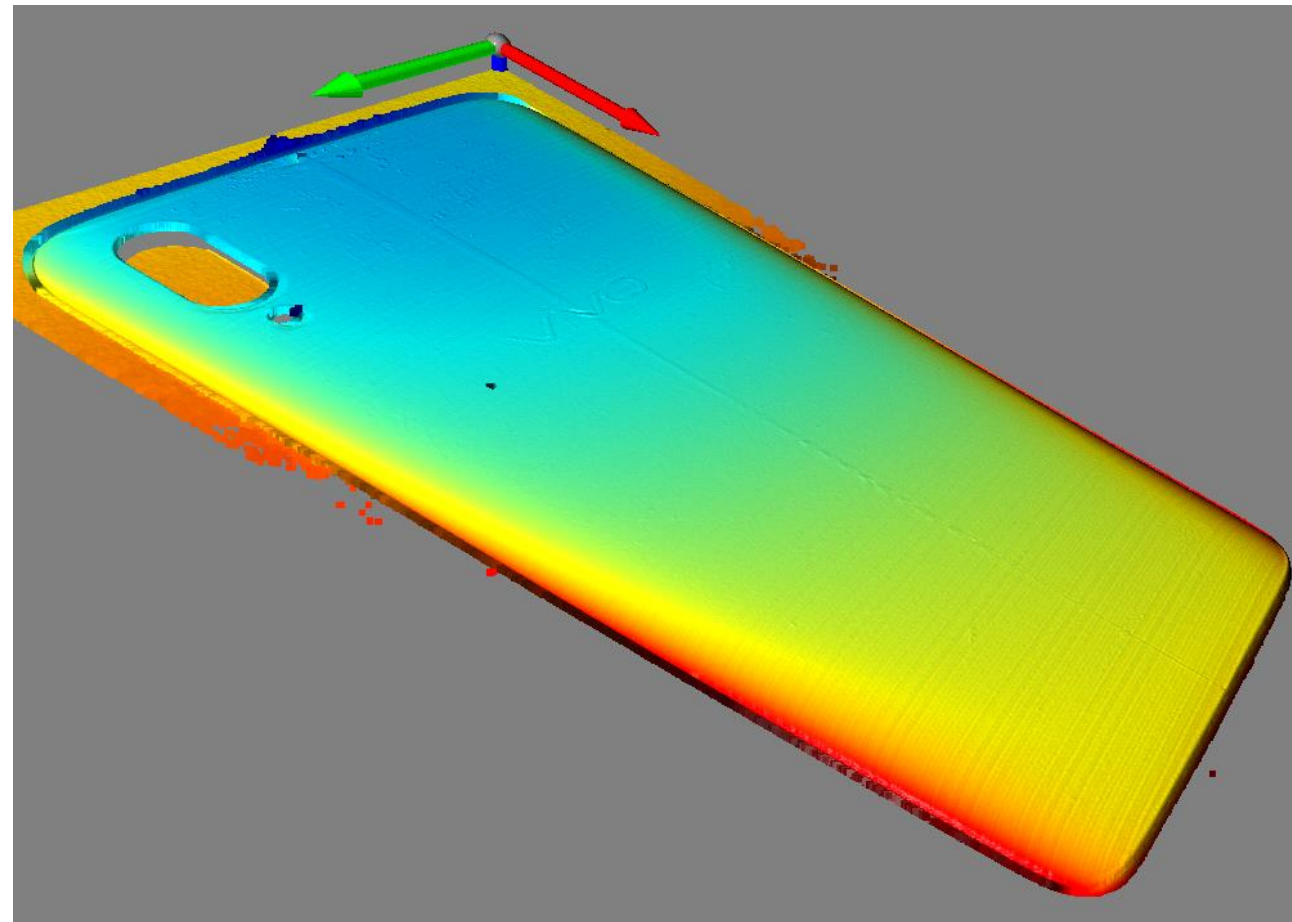




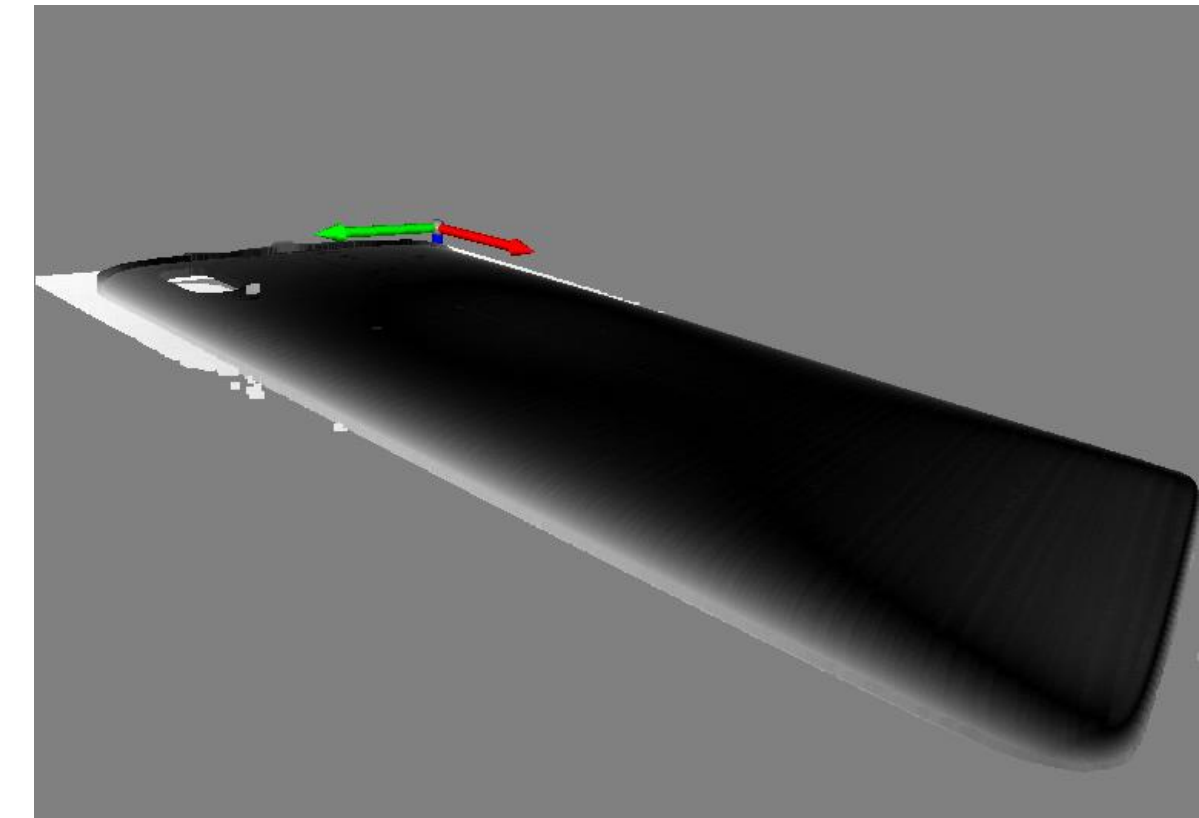
# VIVO Cover Front



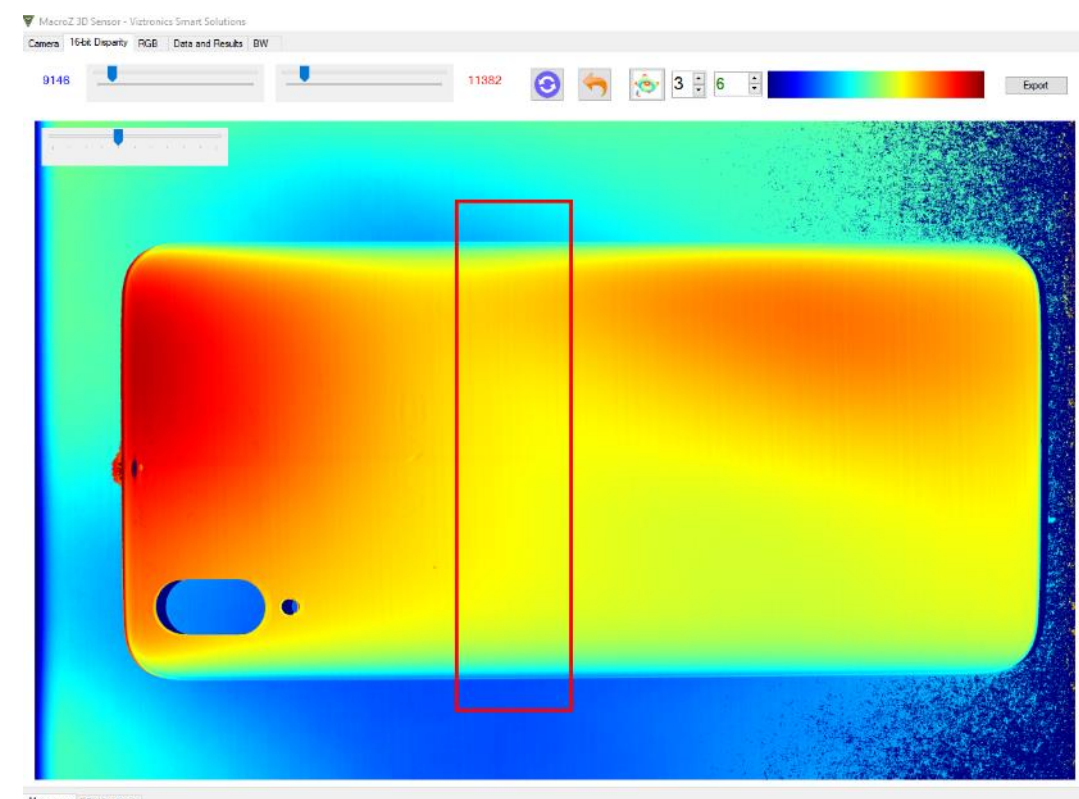
2D Image



3D Point Cloud



Absolute distance from central plane



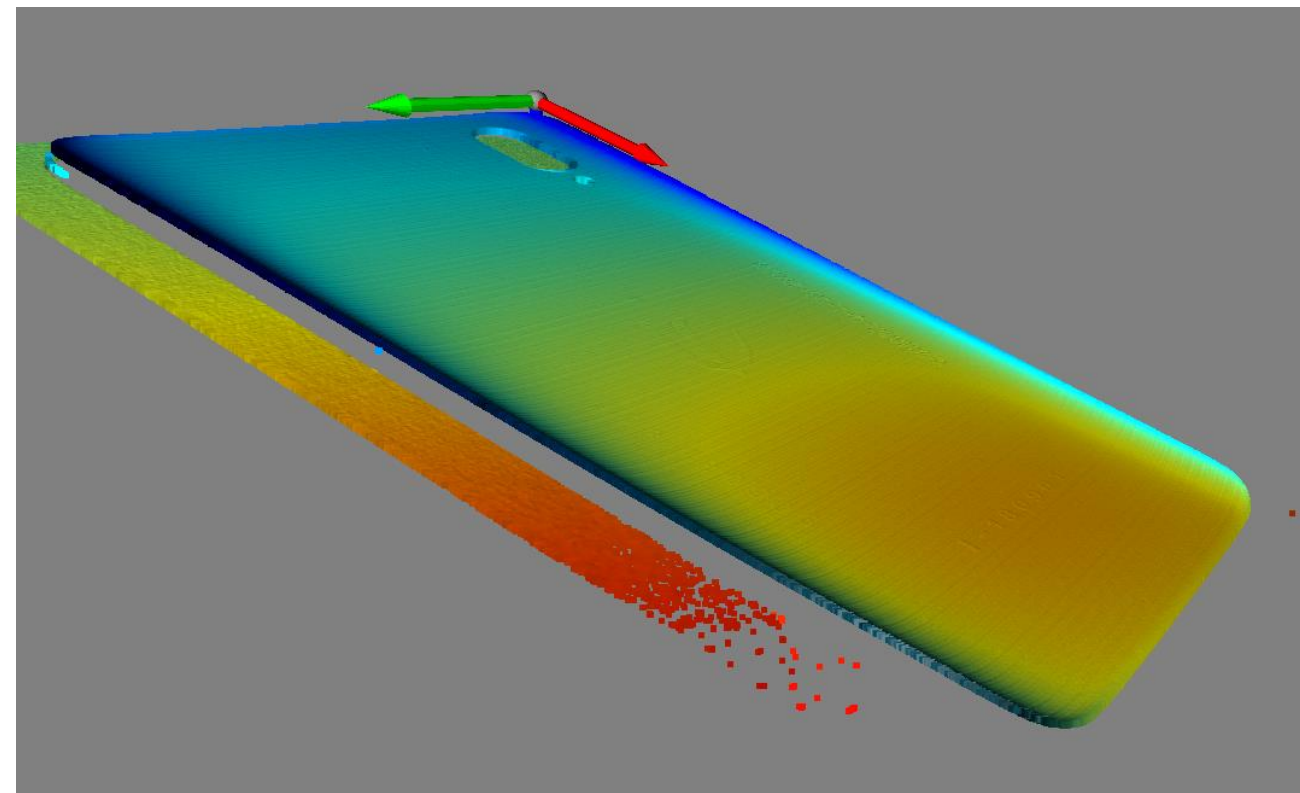
16 bit Range Map



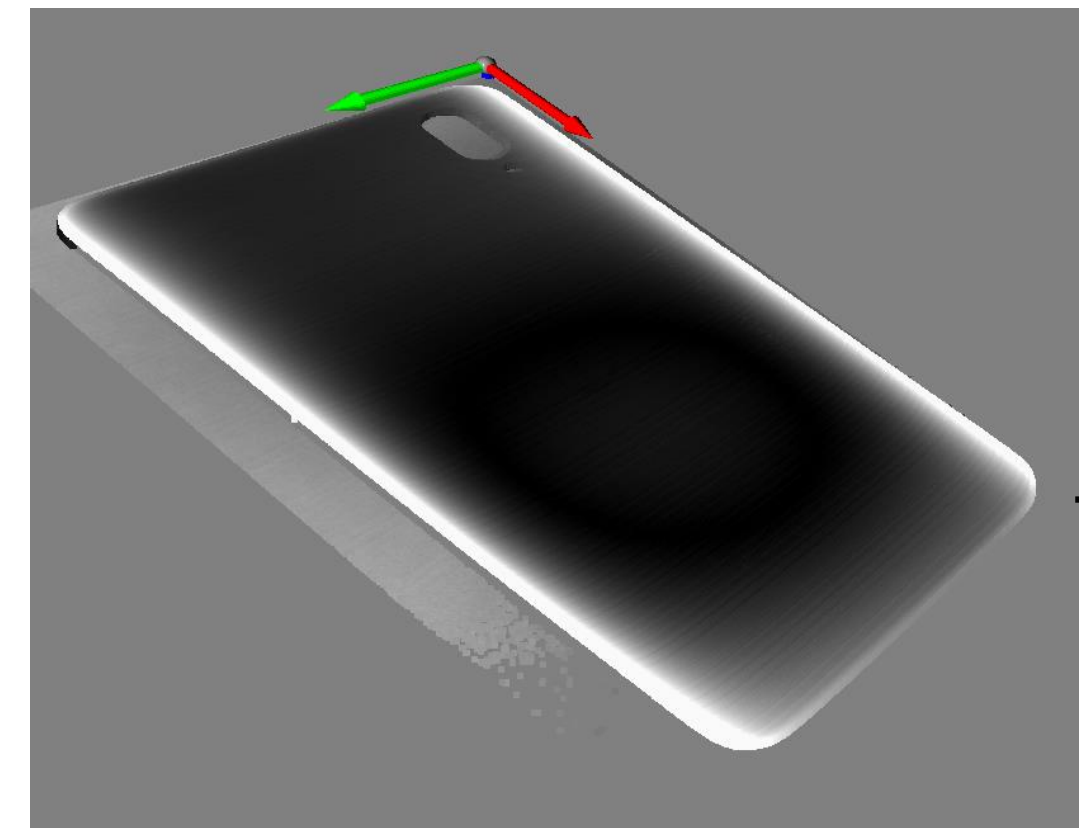
# VIVO Cover Back Side



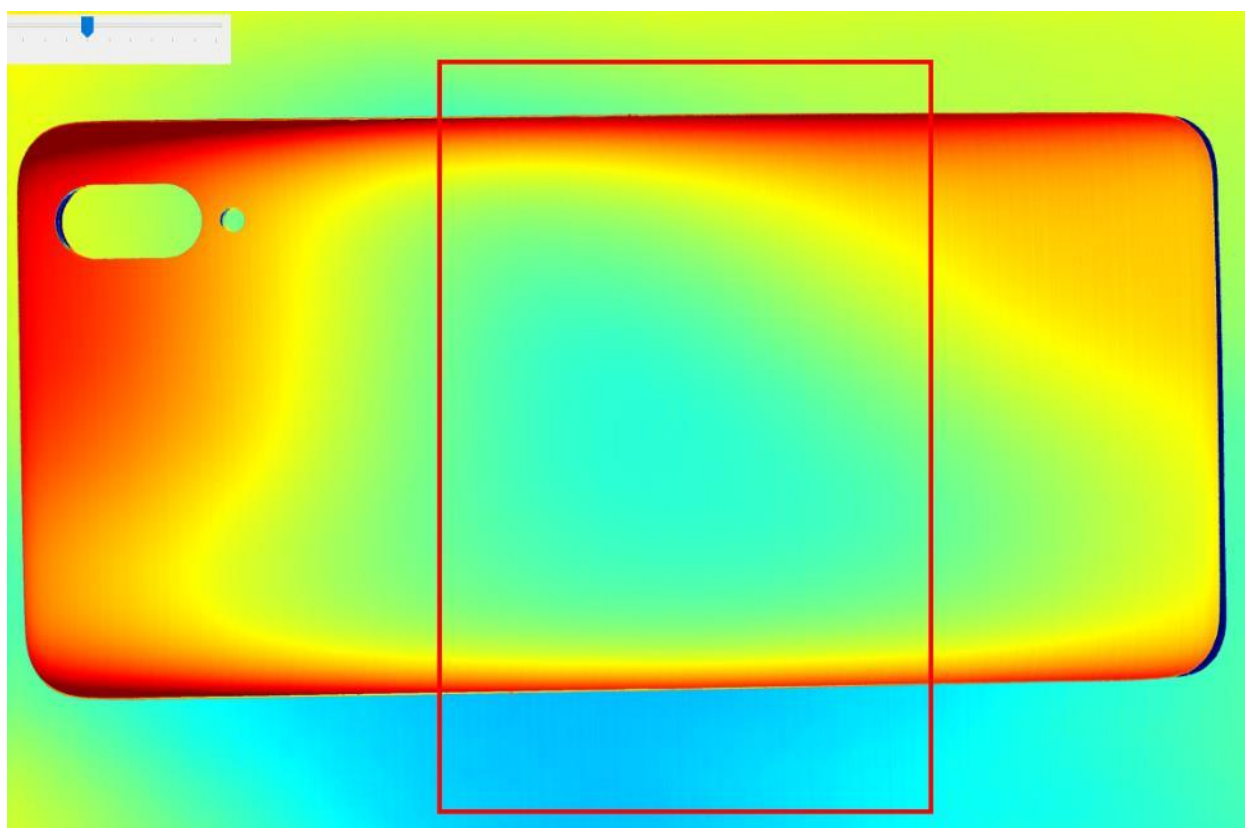
2D Image



3D Point Cloud



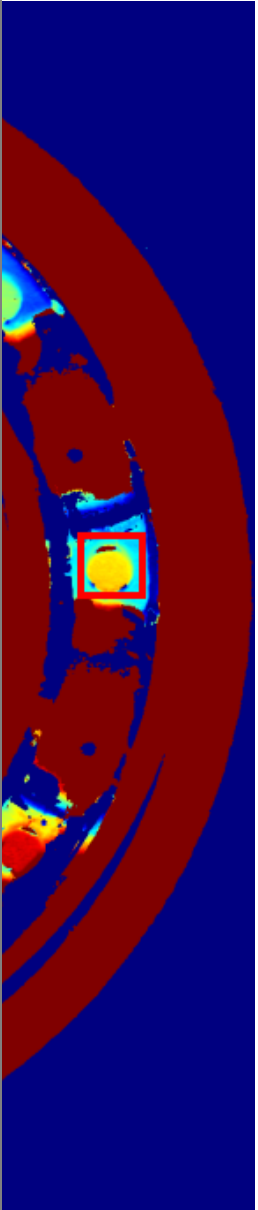
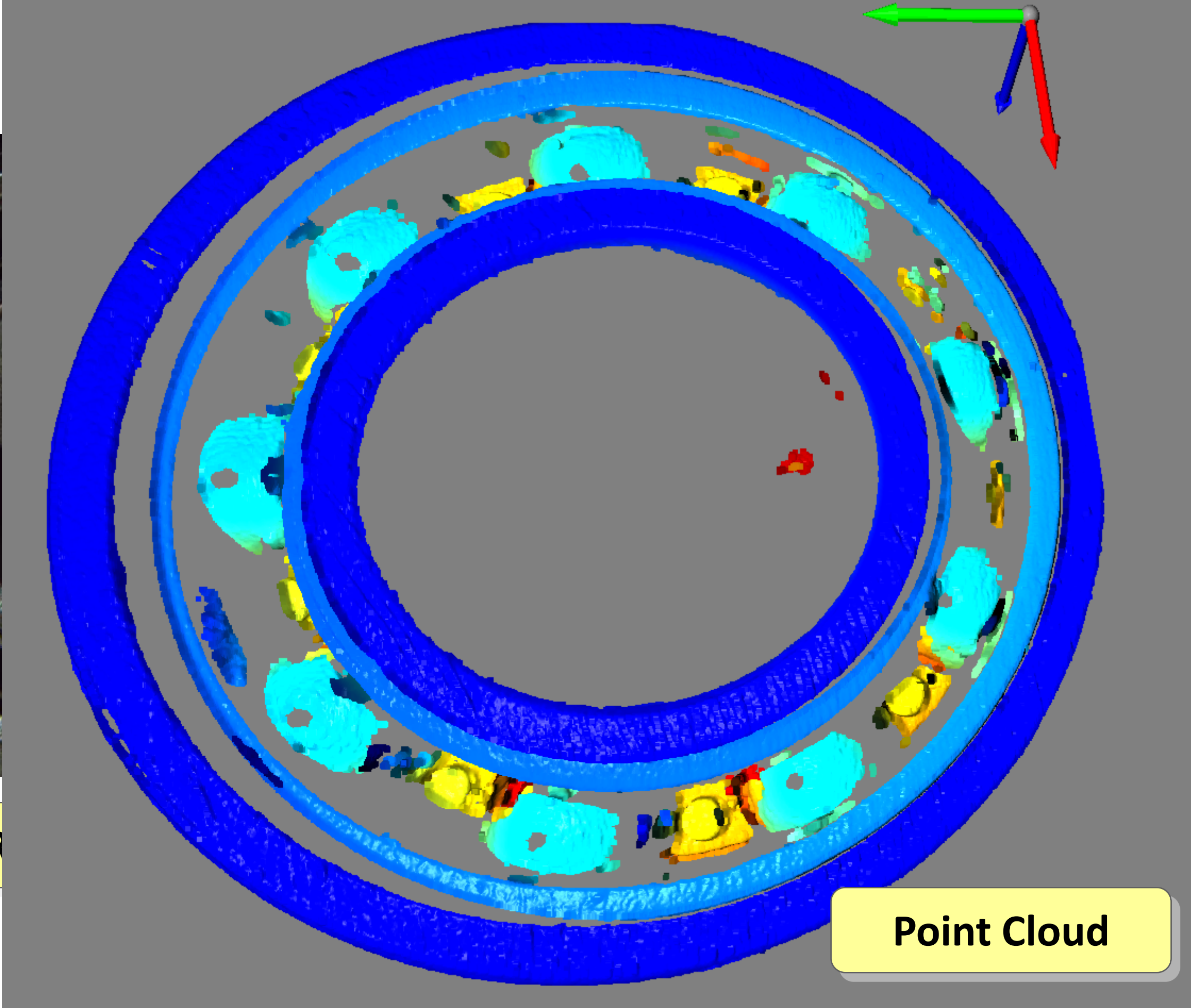
Absolute distance from central plane



16 bit Range Map



# Ball Bearing Inspection



R

Point Cloud