Wire-bond Mechanical Protection at LPNHE

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February 2024

Metrology Measurements

Metrology of Canopies

- We received a pair of canopies.
- The Metrology measurements of canopies:

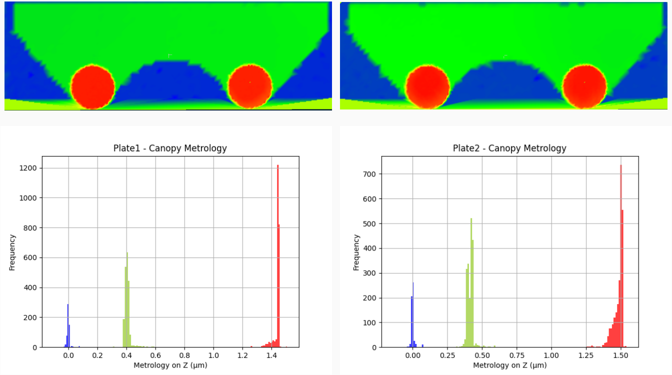

Figure 1: Canopy thickness measurements on Z-direction including: the Reference Plane (in blue), the Roof part of the Canopy Plate (in green), and the Spacers/Pillars of the Canopy Plate (in red).

Metrology of Canopies

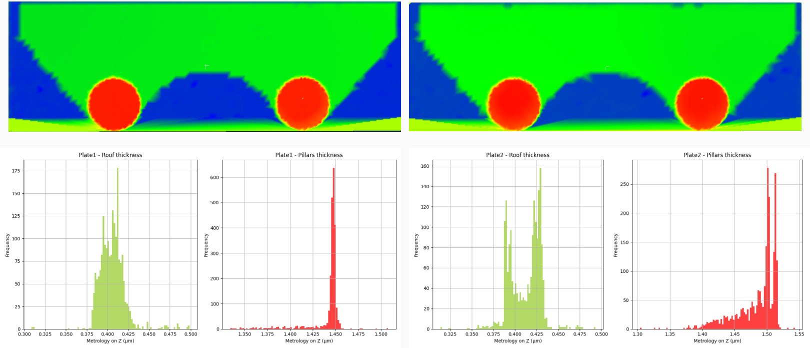

Figure 2: Canopy thickness measurements on Z-direction of the Roof (in green), and of the Pillars (in red).

	Roof thickness (µm)	Pillars thickness (µm)
Plate 1	0.3085-0.4985	1.3340-1.5079
Plate 2	0.3138-0.4929	1.3035-1.5432

Table 1: Canopy thickness measurements on Z-direction.

Metrology of the Pillars

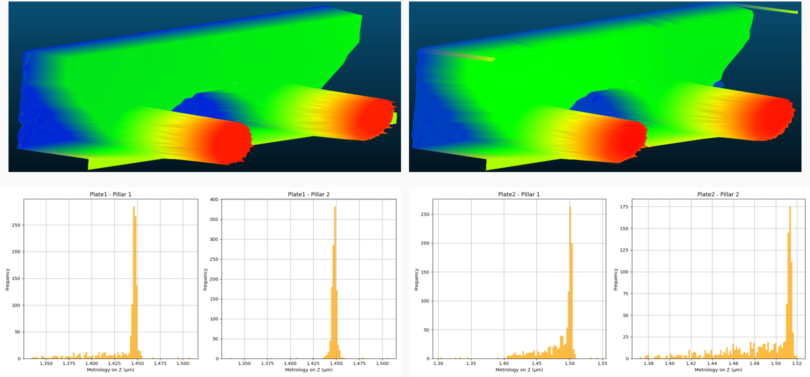

Figure 3: Pillar thickness measurements on Z-direction.

	Pillar 1 (µm)	Pillar 2 (µm)
Plate 1	1.3340-1.5079	1.3340-1.5063
Plate 2	1.3035-1.5432	1.3718-1.5200

Table 2: Pillar thickness measurements on Z-direction.

Glue Tool Pieces

- We received the glue tool.
- A vacuum connector is needed in the Module Positioning Base to proceed with WBMP attachement to a module (glass tile, test-PCB, dummy module, ..).

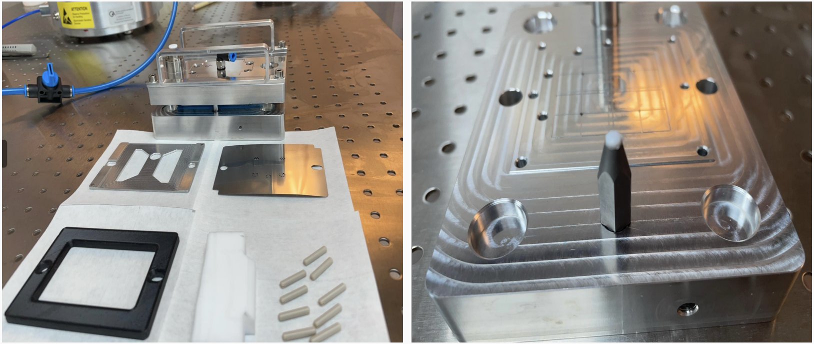

Figure 4: Glue tool.

Testing The Glue Tool

- We attempt to test the a vacuum.
- We got a vacuum loss on the WBMP & SR Pick-up Chuck.

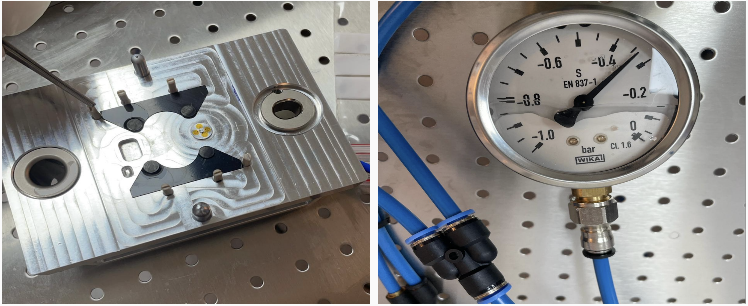

Figure 5: Glue tool testing.

- In a perfectly sealed system, our pump is expected to provide around -800 mbar.
- We measured approximately -350 mbar.
- We haven't been able to identify the source of this leak. It appears to be attributed to a generic poor adherence of the canopy to the chuck.

Glue deposition On a Test PCB

Glue deposition

Mixing silver epoxy

- Silver : 208 mg -> Hardner : 14 mg

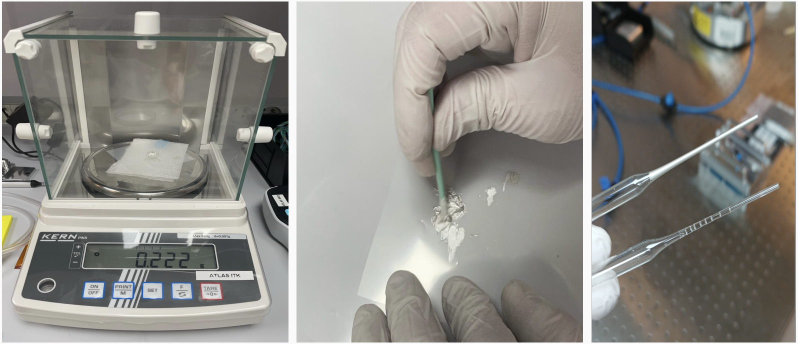

Figure 6: Glue mixing & mass measurement.

Glue deposition

Trail	PCB Before (mg)	PCB After (mg)	Glue mass (mg)	mass / pad (mg)
1	2550	2580	30	0.75
2	2550	2566	16	0.4
3	2554	2562	8	0.2
4	2551	2563	12	0.3
5	2552	2562	10	0.25

Table 3: Mass measurement of test-PCB before & after glue deposition on 40 points.

- Glue deposition by Q-top swab on test-PCB:

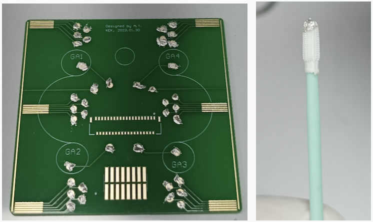

Figure 7: Silver epoxy is deposited in 40 pads on test-PCB tested at LPNHE.