

## Solar Cells Inspection

### Executive Summary

Optimet's ConoProbe MK10 with a 25 mm focal lens was used in the application of solar cells inspection. The tests were performed to demonstrate measurement capability. Three different samples were scanned and their SNR's were compared.

### 1. Optimet's Advantages over Other Technologies:

1. Unique collinear technology
2. Capability to measure sharp angles in minimum clearance
3. High lateral resolution
4. High sampling rate with no need for averaging

### 2. Application Description

Solar cells scanning using Optimet's ConoProbe MK10 with a 25 mm focal lens.

#### Test settings:

All scans were done with a 9 kHz measurement rate, 10  $\mu\text{m}$  Y-step, and 10  $\mu\text{m}$  Y-step. The power settings varied from scan to scan:

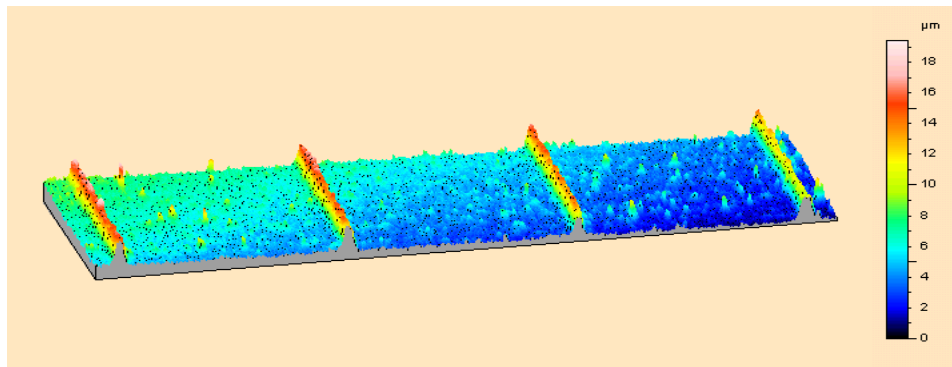
Sample 1 – laser power 8

Sample 2 – laser power 8

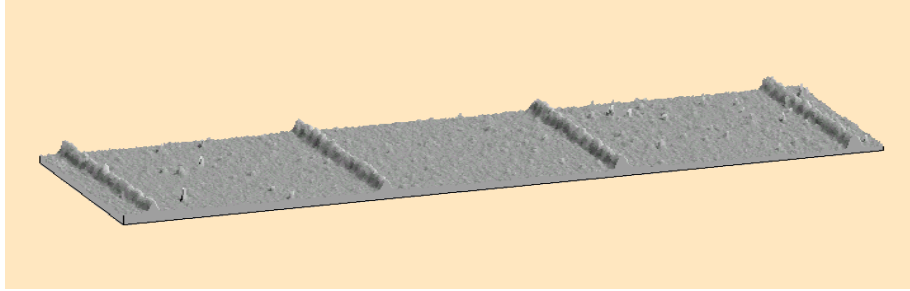
Sample 3 – laser power 7, 20 (This sample was scanned twice.)

### 3. Results and Observations

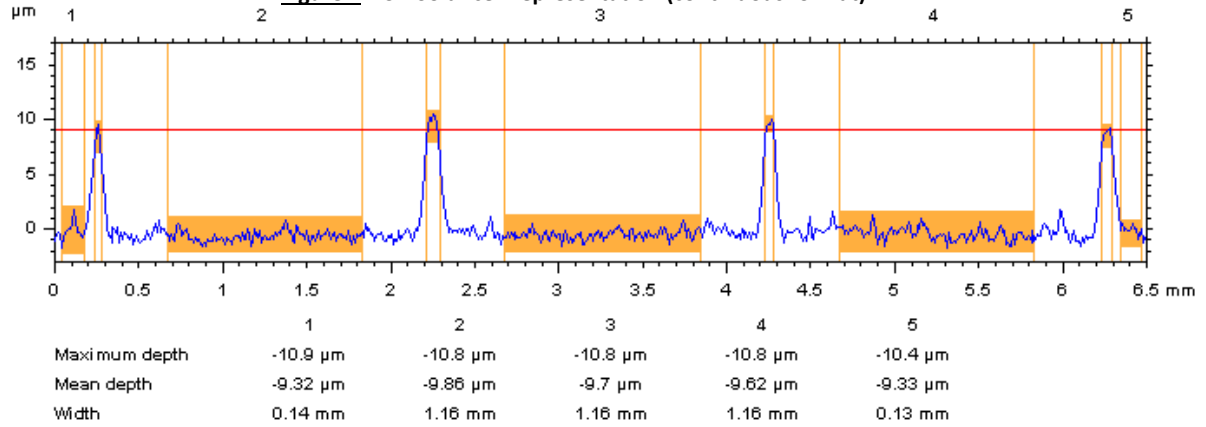
#### Sample 1



**Figure 1** – 3D Solar cell representation (mesh format)

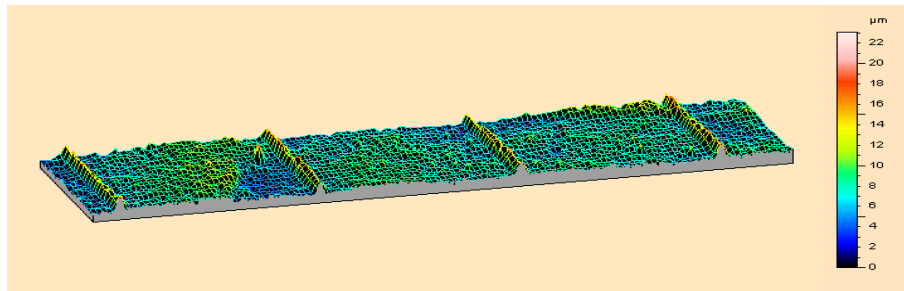


**Figure 2 – 3D Solar cell representation (continuous format)**

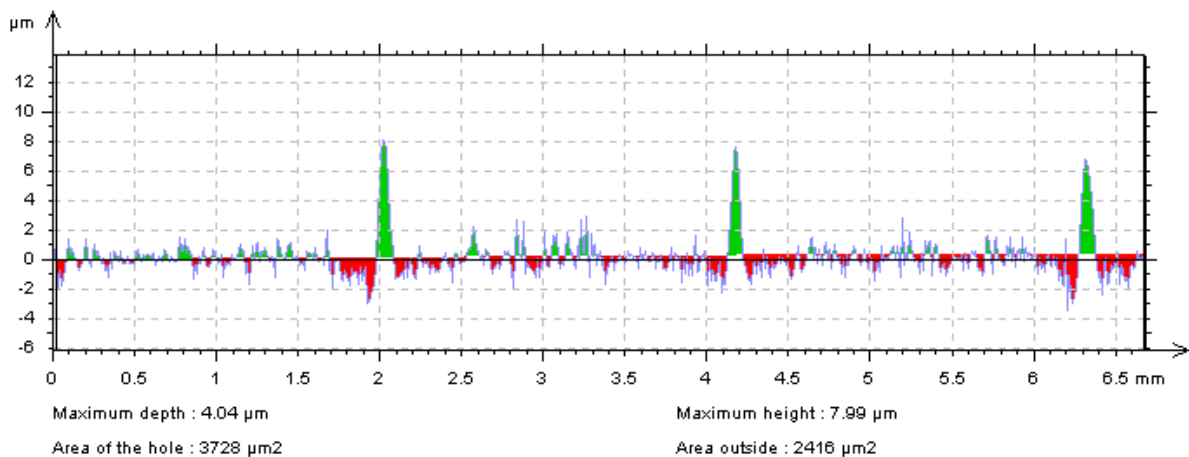


**Figure 3 –X profile**

**Sample 2**



**Figure 4 – 3D Solar cell presentation**



**Figure 5 – Sample's X profile**

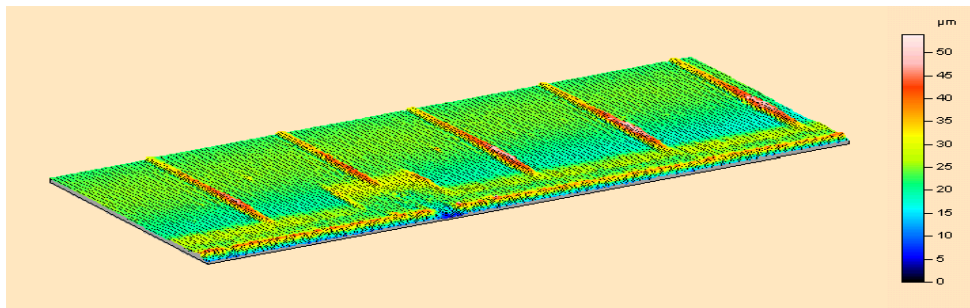


**OPTIMET**

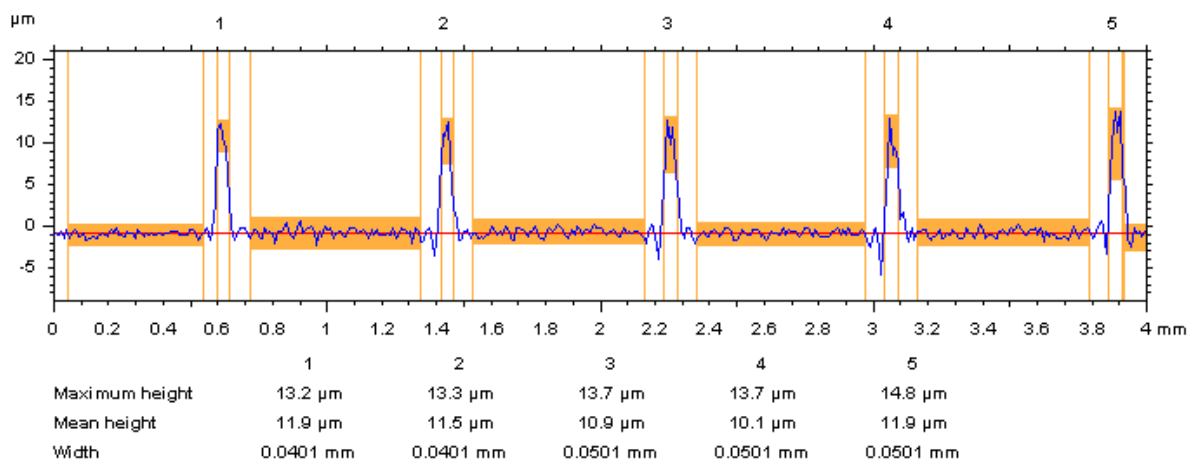
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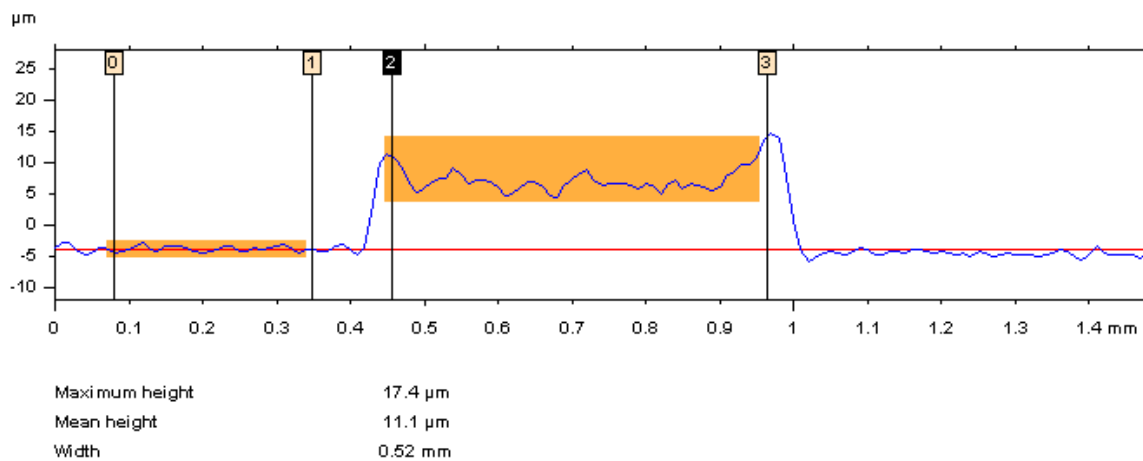
**Sample 3**



**Figure 6 – 3D Solar cell presentation**



**Figure 7 – Sample's X profile**



**Figure 8 – Protrusion's height**

#### 4. Data

<b>Parameter</b>	<b>Value</b>
Reflective/Diffusive/Transparent/Translucent	Diffusive
Working Range (mm)	0.7
Precision ( $\mu\text{m}$ )	1
Stand Off (mm)	14
Max. Data Rate (Hz)	9K
Lateral Resolution	4
Z Resolution	-
Application Category	-

**Figure 8 – Protrusion's height**