DISTANCE MEASUREMENT

OPTICS

Microlens array

Aims

- Non contact measurement of a microlens array,
- Quality control of the shape, size and position of individual microlenses,
- Control of the surface quality

Measurement parameters

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement system</td>
<td>MICROMESURE 2 Profilometer</td>
</tr>
<tr>
<td>Controller</td>
<td>CHR150L</td>
</tr>
<tr>
<td>Optical pen</td>
<td>CL2 MG140</td>
</tr>
<tr>
<td>Sample</td>
<td>Microlens array</td>
</tr>
<tr>
<td>Material</td>
<td>Silicium</td>
</tr>
<tr>
<td>Picture size</td>
<td>3.2mm x 2.4mm</td>
</tr>
<tr>
<td>Measurement pitch</td>
<td>4µm x 4µm</td>
</tr>
</tbody>
</table>

1- Microlens array (false color 3D representation)

2- A single microlens (false color Altitude image)

3- A single microlens (3D rendering showing the surface quality)
DISTANCE MEASUREMENT

FINGERPRINT

3D Topography of a fingerprint

Measurement parameters

Measurement system: Multi Points Line Sensor 180 (MPLS180)
Controller: MPLS180
Optical head: MicroView
Line length: 1.8mm
Scanned area: 1.8mm x 10mm
Scan duration: 2s
DISTANCE MEASUREMENT

PACKAGING FOR FOOD INDUSTRY

Glass bottle for light drinks

Aims:

- Quality control of glass bottles for light drinks,
- Characterization of the defects on the bottle neck (shape, size, localization).

Measurement parameters

- Measurement system: MICROMESURE 2 Profilomet
- Controller: CHR150L
- Optical pen: CL2 MG140
- Sample: Bottle for light drinks
- Material: Glass
- Picture size: 1mm x 2.5mm
- Measurement pitch: 4µm x 4µm
DISTANCE MEASUREMENT

ELECTRONICS & MICROELECTRONICS

Pins Measurement

Aims:
Measurement of the central pins height to detect production defects (bended pins, broken pins)

Measurement parameters
Measurement system: CCS Prima
Optical pen: CL6 MG20
Measuring range: 24mm
Spot size (diameter): 28µm
Scanned surface: 30mm x 30mm
Step size (X,Y): 75µm x 75µm

The central pins height vary between 8.89 mm and 9.04mm
(inside specifications)
DISTANCE MEASUREMENT
BIOMEDICAL APPLICATIONS

Chromatic Confocal Imaging (Point or Line sensors)

Wasp eye surface

Human FingerPrint

Human Hair

Human Tooth

STIL SAS – 595 ,rue Pierre Berthier – Domaine de Saint Hilaire – 13855 Aix en Provence – France
Phone: +33 4 42 39 66 51 – Fax: +33 4 42 24 38 05 – Email: contact@stilsa.com – Website: www.stilsa.com
THICKNESS MEASUREMENT

GLASS SAMPLES

Glass Tube Thickness Measurement

Measurement parameters

Technology: Chromatic Confocal Imaging
Different numerical Aperture along 2 Axes: Up to 0.42 (Max. sample slope: 25°)
Measuring range: From 1.4mm to 42mm
Axial resolution: Down to 50mm
Working distance: Up to 10 kHz

STIL Sensors are able to measure simultaneously:

- The thickness of the 2 glass layers
- The inner and outer diameters of the tube
THICKNESS MEASUREMENT

MEASUREMENT OF MULTILAYER SAMPLE

By Chromatic Confocal Sensor

Schema representation

* Depending on CL-MG optical pen used, Minimum measurable thickness: < 5µm

Measurement parameters
Technology: Chromatic Confocal Sensor
Controller: STIL-DUO
Optical pen: CL3 MG70
Min. measurable thickness: 40µm
Spot diameter: 11µm
Software: STIL MultiPeak
THICKNESS MEASUREMENT

Screenshot of the running MultiPeak Software

Statistics

<table>
<thead>
<tr>
<th>Name</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layer 1</td>
<td>Min: 59.6 µm Max: 59.7 µm Avr: 59.7 µm Std Dev: 0.02 µm</td>
</tr>
<tr>
<td>Layer 2</td>
<td>Min: 323.2 µm Max: 323.2 µm Avr: 323.2 µm Std Dev: 0.02 µm</td>
</tr>
<tr>
<td>Layer 3</td>
<td>Min: 102.9 µm Max: 102.9 µm Avr: 102.9 µm Std Dev: 0.00 µm</td>
</tr>
<tr>
<td>Layer 4</td>
<td>Min: 102.8 µm Max: 102.9 µm Avr: 102.9 µm Std Dev: 0.02 µm</td>
</tr>
<tr>
<td>Layer 5</td>
<td>Min: 301.1 µm Max: 301.1 µm Avr: 301.1 µm Std Dev: 0.02 µm</td>
</tr>
<tr>
<td>Total</td>
<td>Min: 889.7 µm Max: 889.7 µm Avr: 889.7 µm Std Dev: 0.02 µm</td>
</tr>
</tbody>
</table>

STIL-DUO with MultiPeak Software is able to measure simultaneously
The thicknesses of a multilayer sample (up to 10 layers)
THICKNESS MEASUREMENT
ELECTRONICS & MICROELECTRONICS

Measurement of thickness: TFT screen

Schematic representation of the sample:

Thickness Mapping #1:

Extracted profiles:

Measurement parameters
Controller: CCS STIL-VIZIR
Technology: Confocal Chromatic Sensor
Using infrared light source
Optical pen: CLIR3 MGIR140
Measuring range: 350µm

STIL Sensors are able to measure the thicknesses of TFT screen layers acquired simultaneously.
The measuring range in this case is 350µm.