

# ” MicroMegas Manufacturing Technology ”

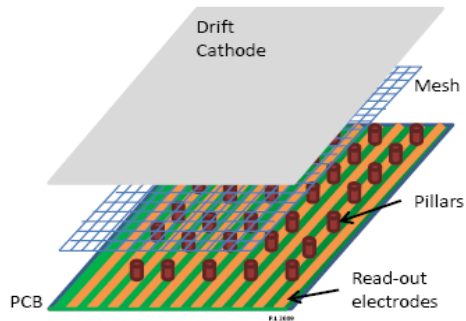


Presentation :  
**Jean-Luc Carette**

**Collaboration Meeting CERN / CEA  
Bari, Italy 8 October 2010**

# Introduction

## Technology MicroMegas Prototype



- 2010 : Freiburg, 5<sup>th</sup> RD51 meeting, prototypes manufactured at CIREA :
  - 1220 x 610 mm
  - 610 x 455 mm
- 2010 : Saclay 22 July, technical meeting CEA / CIREA
- 2010 : Bari, 6<sup>th</sup> RD51 collaboration meeting
- 2010 : Cholet 21<sup>st</sup> October, capabilities evaluation CEA / CIRÉA

# Photolithographic Process

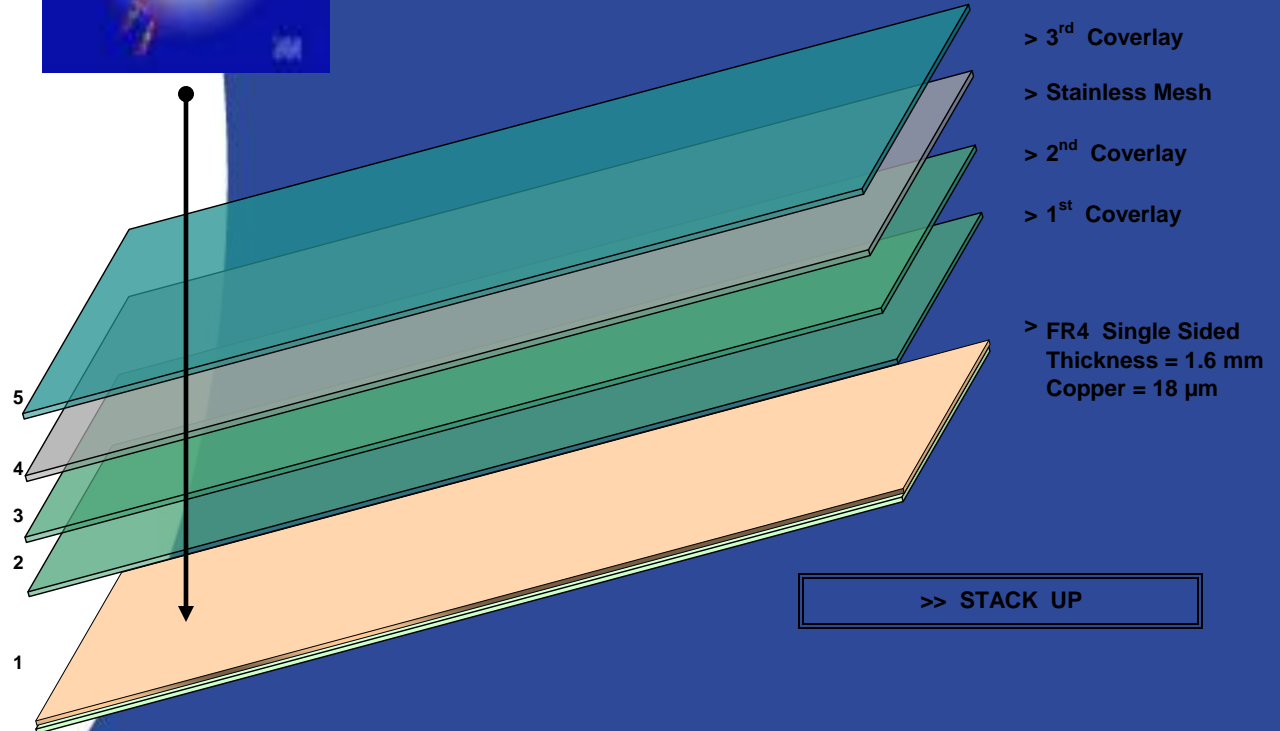
- **Prototype Detector Board**



**PCB**  
**already manufactured**

**Size 610 x 455 mm**

## PCB MicroMegas



# Photolithographic Process

- **Prototype Detector Board**

**PCB Prototype large-Size  
Size 1220 x 610 mm**

**PCB MicroMegas**



# Target CIREA Q4 / 2010

The PCB manufacturing is under control

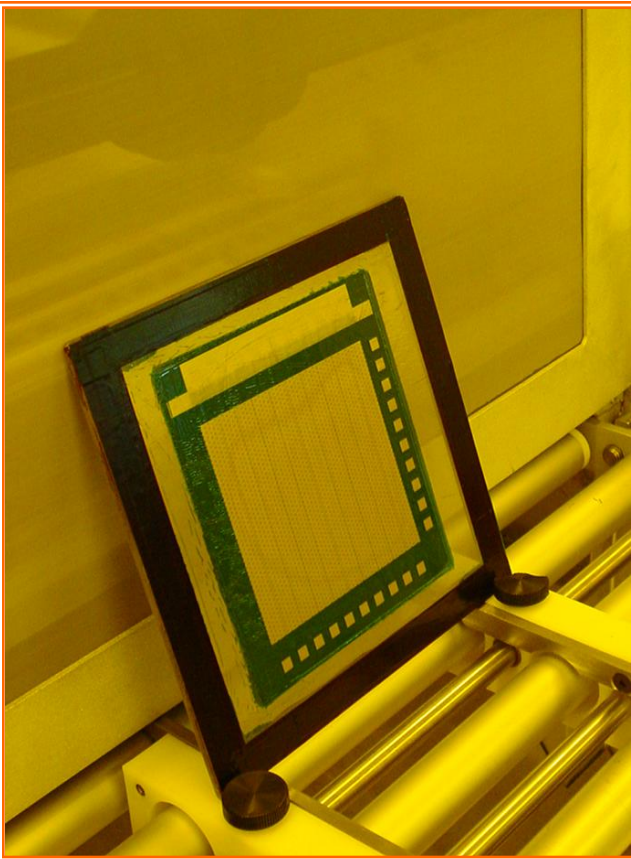
- **To be improved :**

1. Mesh lamination

2. Coverlay development

- Process adjustment with CEA support

- Produce Qualification board for CEA Saclay





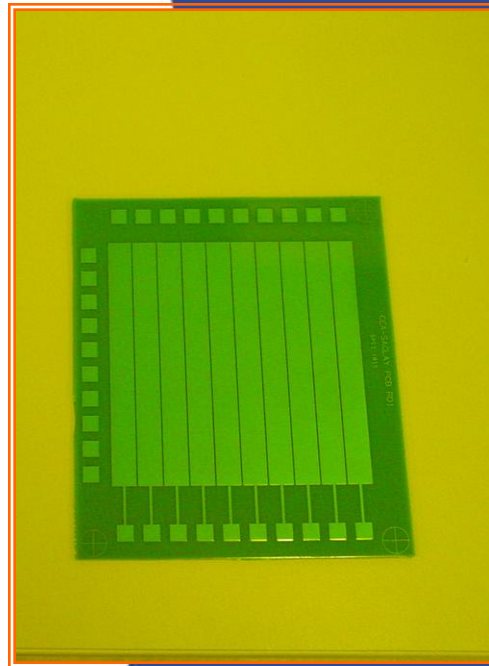
# Coverlay Lamination

## Workflow Process:

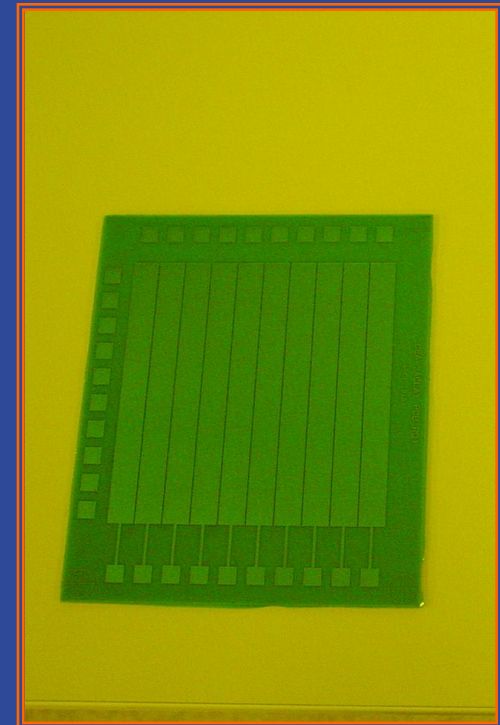
1. **1<sup>st</sup> & 2<sup>nd</sup> Coverlay Lamination**
  - Component Assembly
  - Mesh Lamination
  - Image Exposure
  - Development
  - Pillars inspection
  - Oven curing

First step

1<sup>st</sup> layer



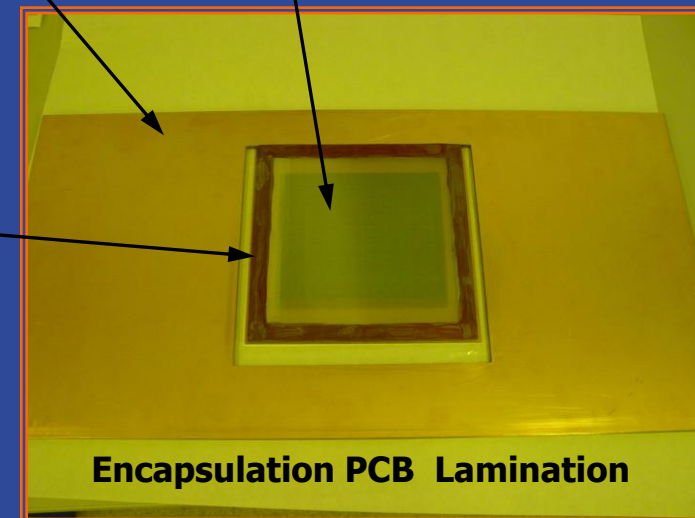
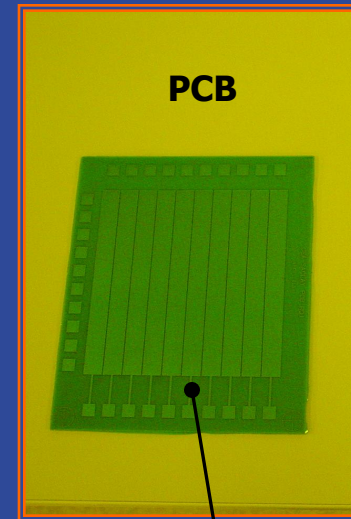
2<sup>nd</sup> layer



# Component assembly

## Workflow Process:

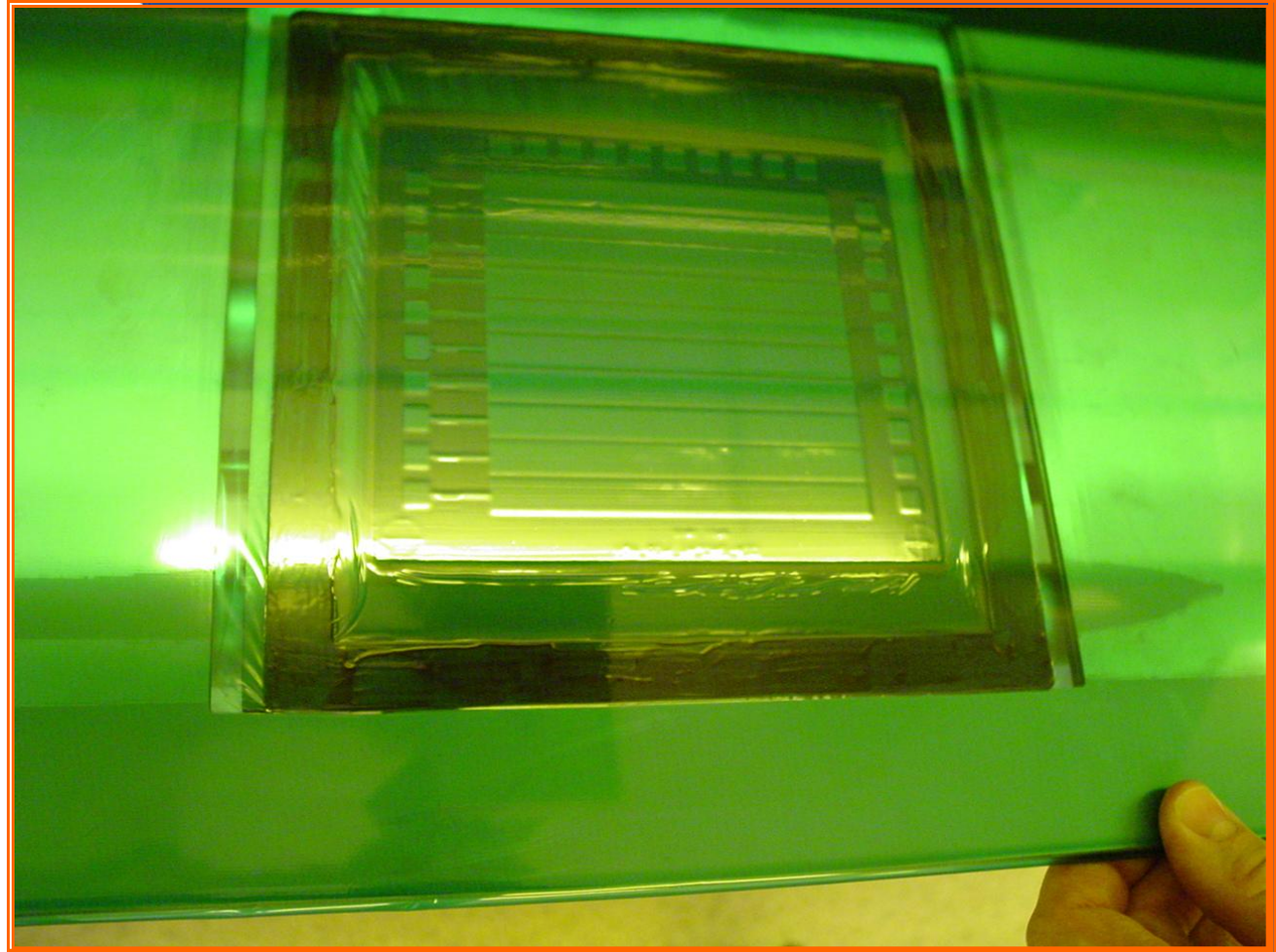
1. 1<sup>st</sup> & 2<sup>nd</sup> Coverlay Lamination
2. Component Assembly
  - Mesh Lamination
  - Image Exposure
  - Development
  - Pillars inspection
  - Oven curing



# MESH lamination

## Workflow Process:

1. 1<sup>st</sup> & 2<sup>nd</sup> Coverlay Lamination
2. Component Assembly
3. **Mesh Lamination**
  - Image Exposure
  - Development
  - Pillars inspection
  - Oven curing

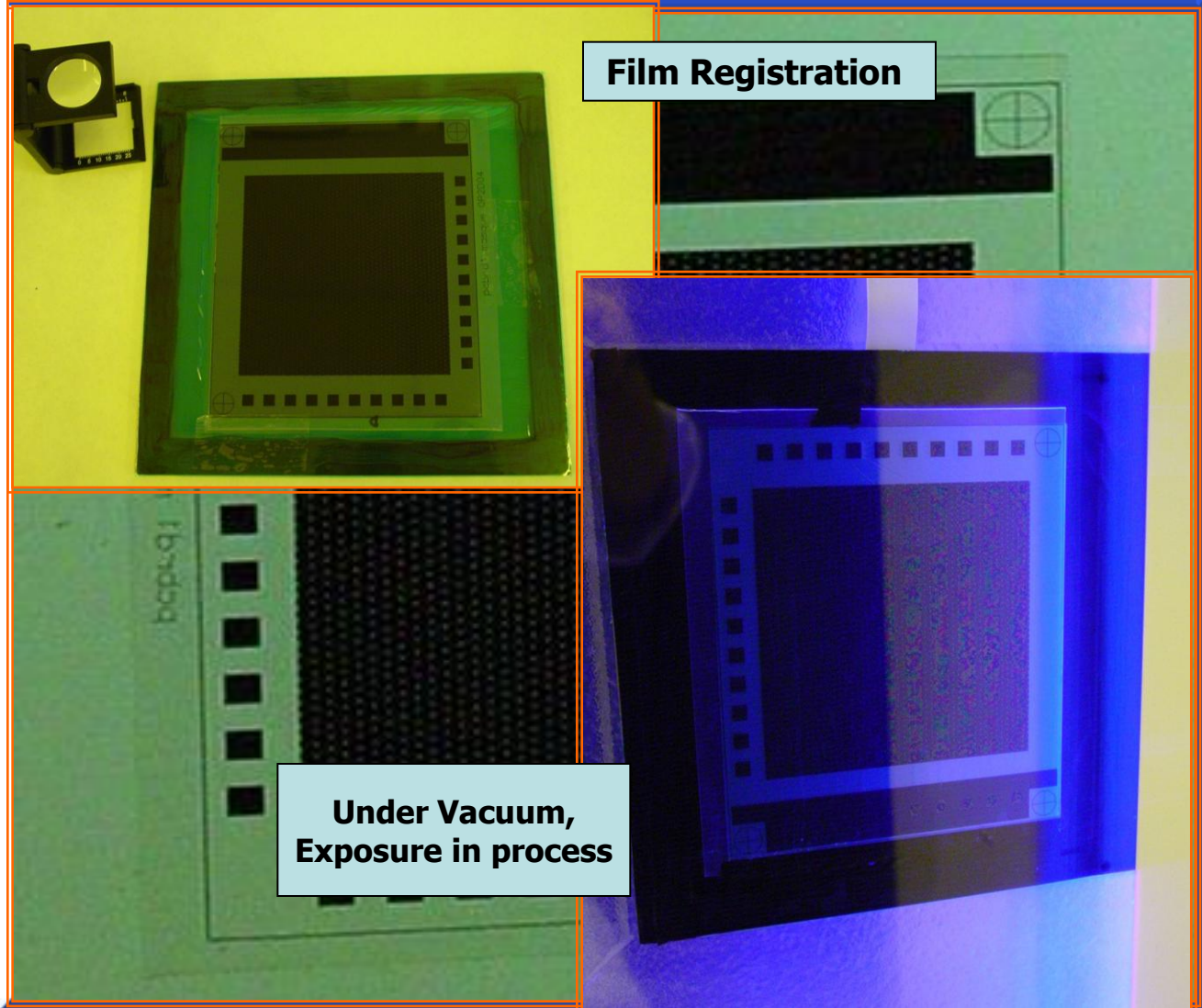




# Image exposure

## Workflow Process:

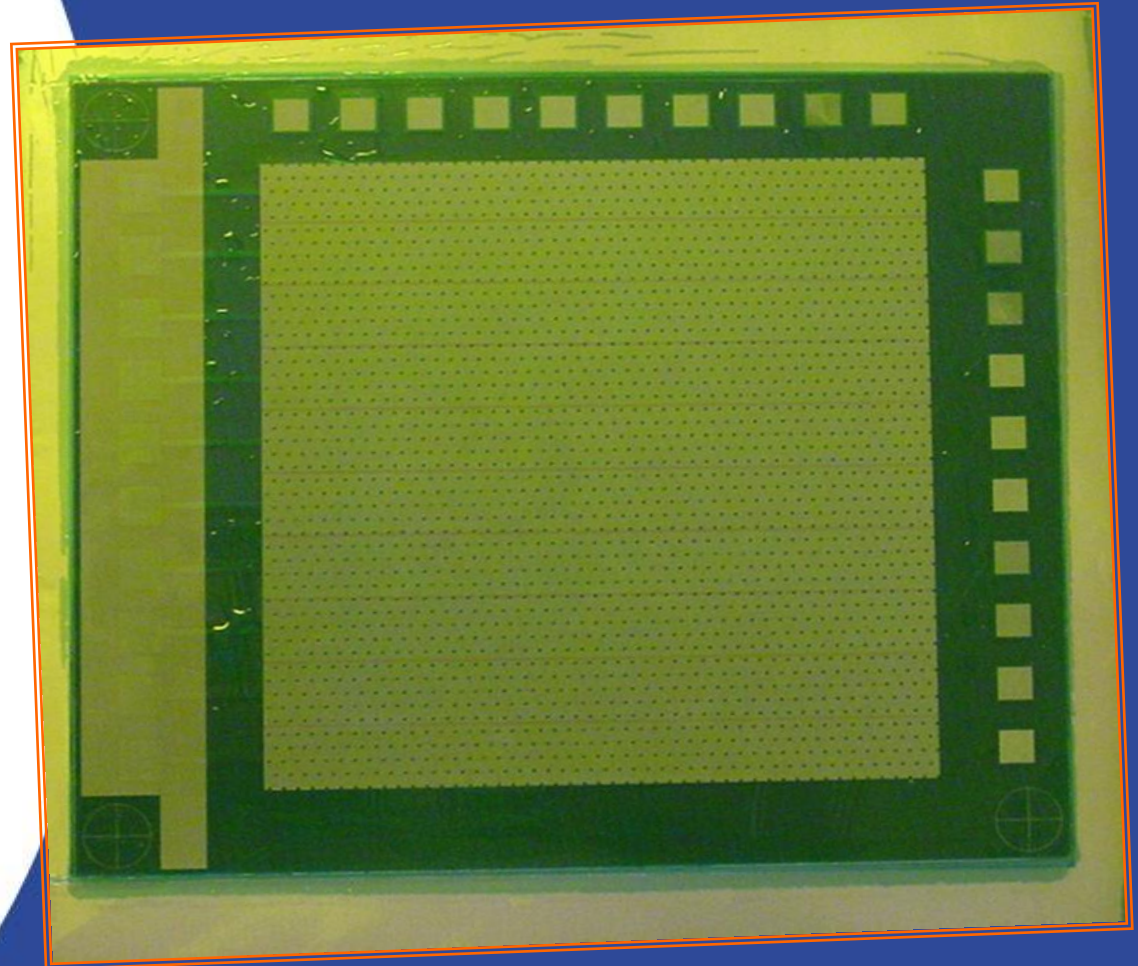
1. 1<sup>st</sup> & 2<sup>nd</sup> Coverlay Lamination
2. Component Assembly
3. Mesh Lamination
4. **Image Exposure**
  - Development
  - Pillars inspection
  - Oven curing



# Development

## Workflow Process:

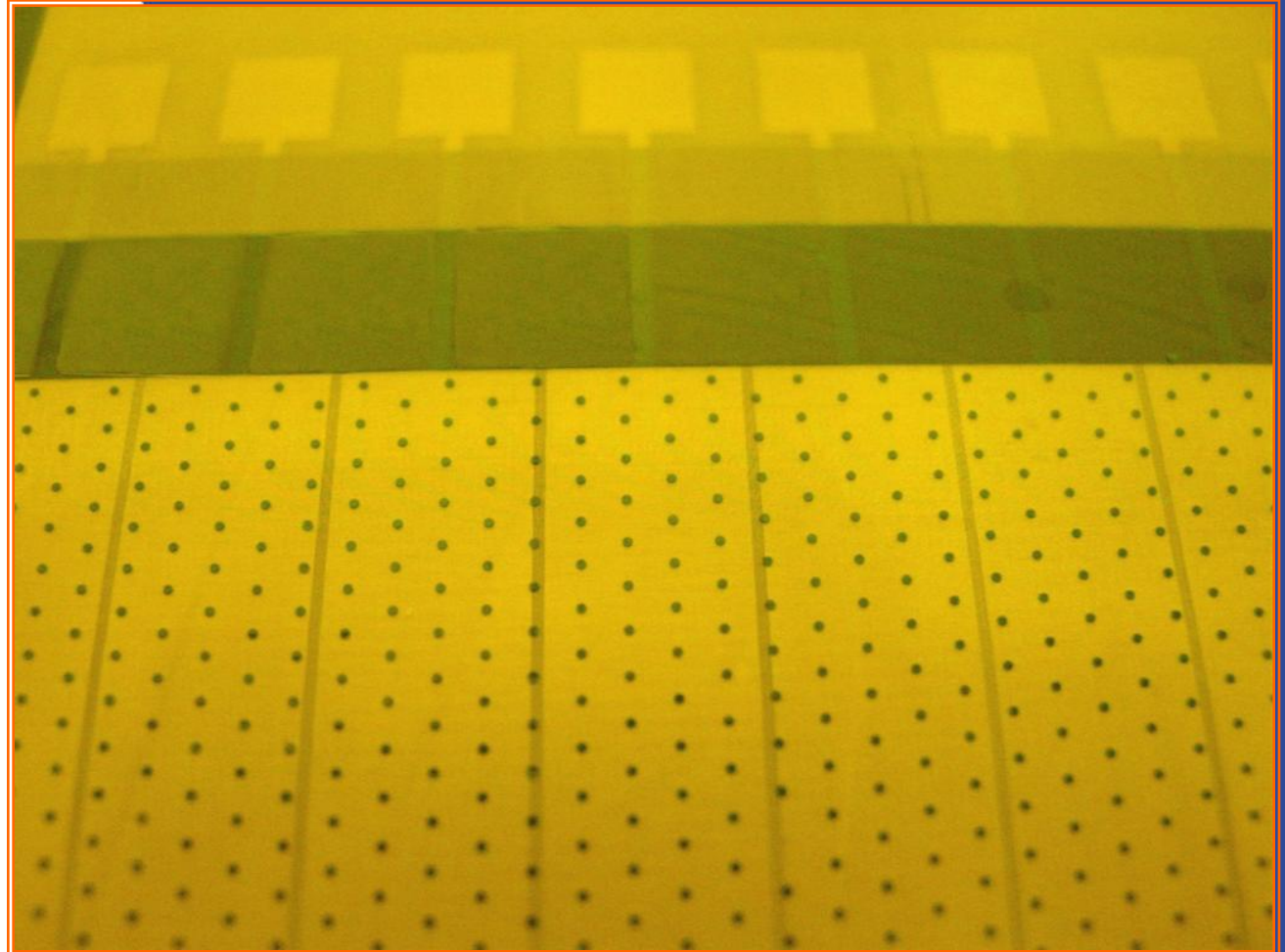
1. 1<sup>st</sup> & 2<sup>nd</sup> Coverlay Lamination
2. Component Assembly
3. Mesh Lamination
4. Image Exposure
5. **Development**
  - Pillars inspection
  - Oven curing



# Pillars inspection

## Workflow Process:

1. 1<sup>st</sup> & 2<sup>nd</sup> Coverlay Lamination
2. Component Assembly
3. Mesh Lamination
4. Image Exposure
5. Development
6. Pillars inspection
  - Oven curing





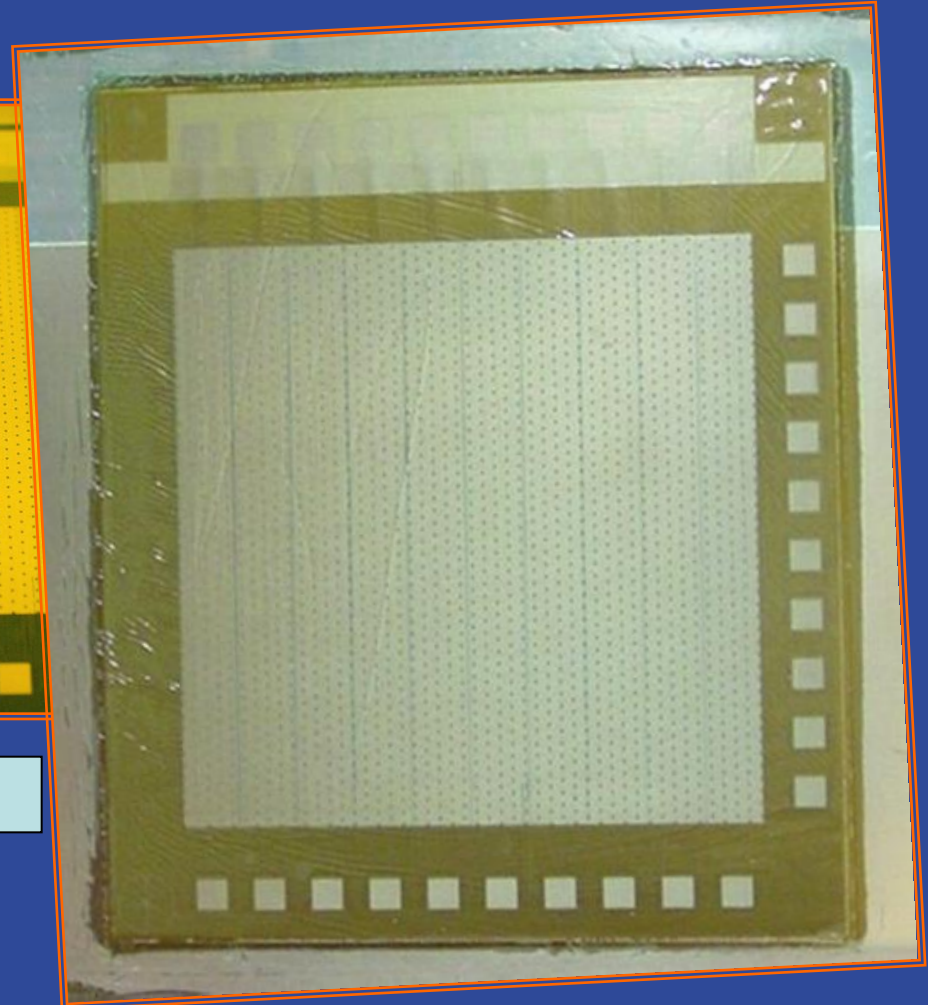
# Oven curing

## Workflow Process:

1. 1<sup>st</sup> & 2<sup>nd</sup> Coverlay Lamination
2. Component Assembly
3. Mesh Lamination
4. Image Exposure
5. Development
6. Pillars inspection
- Oven curing



BEFORE

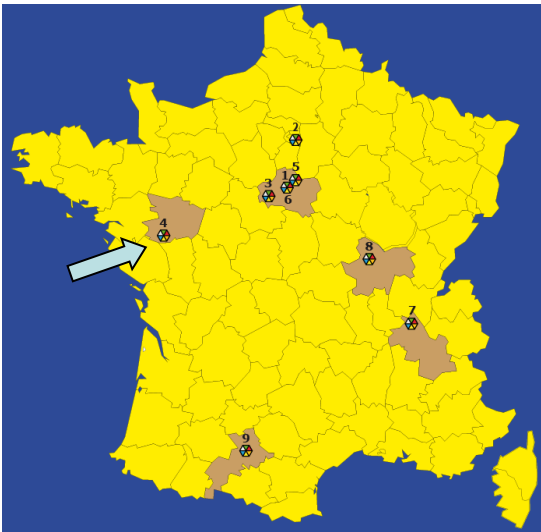


AFTER



# Volumes / Capacity

- 200 units per month, 1 shift
- Exposure area available :  
2800 x 630 mm
- Possibilities :  
with strenght MESH  
SD 45-18 = 900 x 630 mm  
without strenght MESH  
SD 50-30 = 2800 x 630 mm



## Next step ...

To go further... →

- Pre-production manufacturing in order to improve all processes
- We need YOUR support ... to continu ... and to success ...

# *Circuits Imprimés Réalisations Électronique Anjou*

Thanks for your attention!



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