

MM Industrialization in Eltos

From Tech. Trasn. to Industrialization

- I started to keep in contact with Eltos as an input coming from Mamma group that was an activity in close contact with the RD51 Collaboration. In this framework the idea was to make a Technological Transfer to the Firms involved in the MM project, Eltos in Italy.
- The T.T. focused in few major items:
 - Bulk Technology
 - Resistive Strips
 - Mechanical Precision (strips and reference markers)
- First two points ruled out moving from a 100x100 mm² prototype to large dimensions detector.
Eltos people is confident to get the required precision on the PCB as something “intrinsic” in such technology.

Tech. Trasf. Finished?

- Before try to answer to this question...make a step back.
- Eltos produced some small MM with the bulk and resistive strips, in the first batch of chambers the mesh detached from the resistive strips in 4 over 5 PCB and the detectors were not operating correctly (low gain in the center).
- About a second batch delivered at Cern more then one month ago they still have no feedback. In the meanwhile they received an order for about 30-40 PCB for small MM (I do not know which experiment) again with the bulk but without resistive strips, simply metal strips.
Eltos produced two prototypes and received in these days the green light to start the full production.
- They learned how to produce small MM PCB, but this is not what we need.

What we need now from Industry?

- PCB single layer with the read-out strips in one face...(Rui's definition: "A Piece of Cake")
- Screen Printing of resistive strips on a thin support (~ 50 micron of kapton)
- Laminate kapton on PCB
- Laminate Pyralux on top of this (twice) and remove the material in excess to have pillars.

Nothing challenging !!!

Some work is now moved from industry to the production center.

What Industrialization means?

- My personal opinion is:
Industrialization = Design Optimization
...to reach the lowest cost of the project.
- In the cost balance the biggest alternative on which make a choice is:
one vs two meter long Read-Out PCB.
For the long strips we have:
 - Cost of material 😞
 - Impact on the Industry production lane 😞
 - Electronics 😊
 - Performance 😞
 - Life in the production center 😊
- We need to know quite soon all these costs (even with some approximation)