

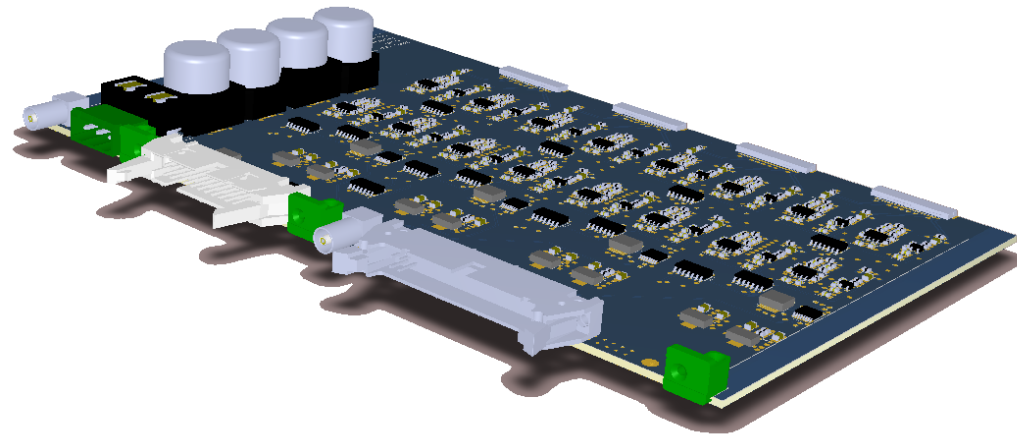
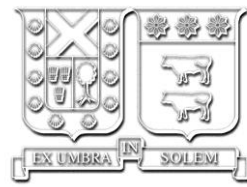
# USM Update

## 13/01/2011

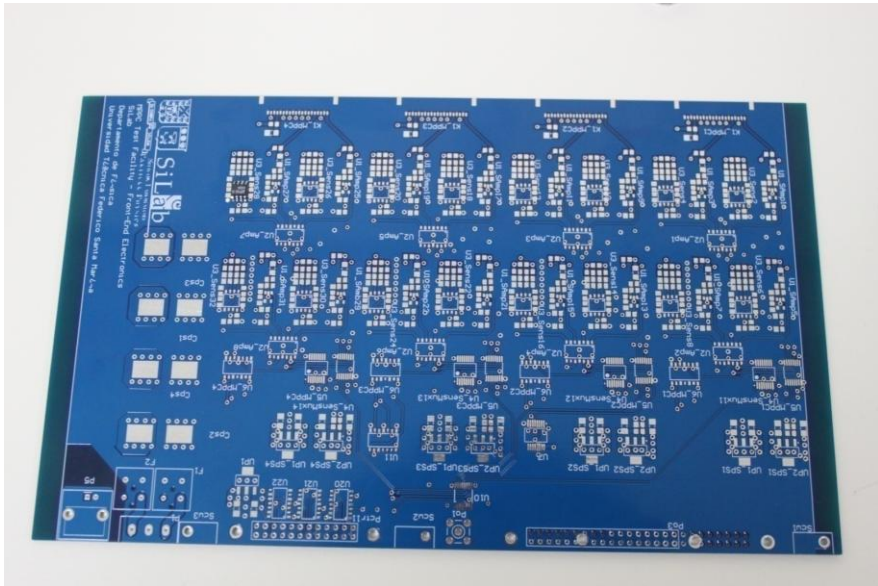


Alam Toro  
Juan Ignacio Vega

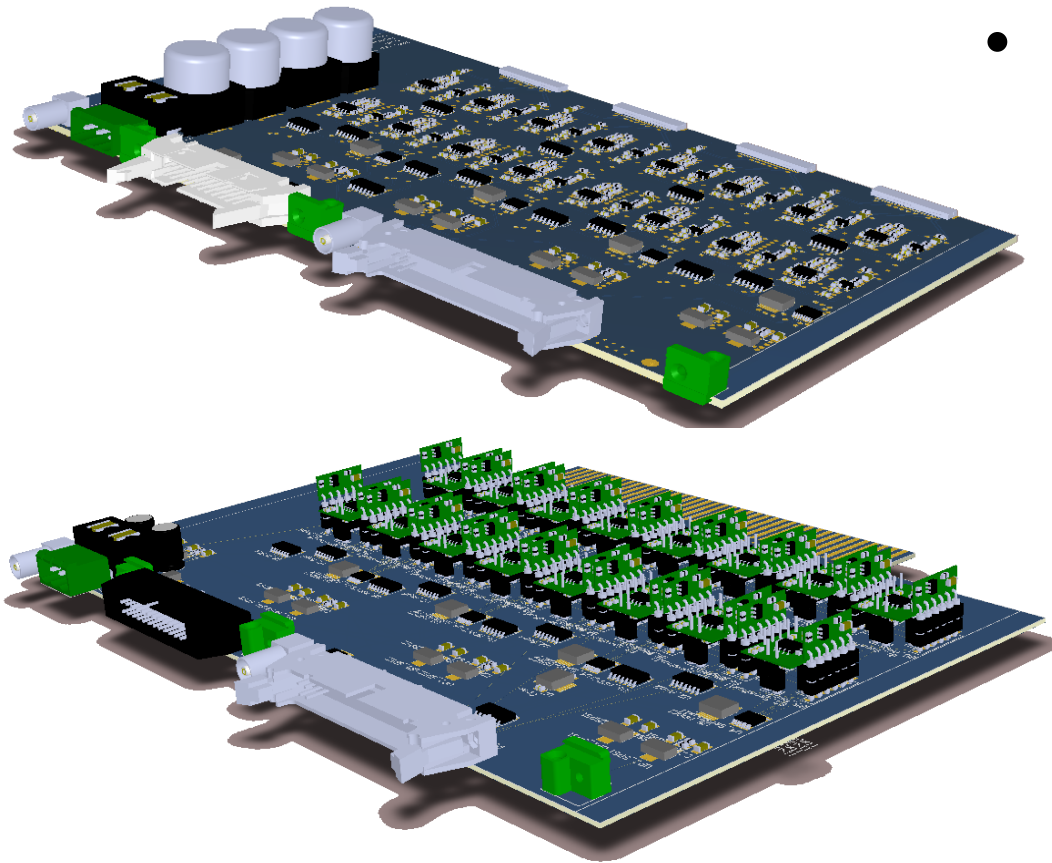
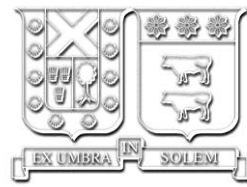
# Electronic Front-End for MPPC Test Facility



- Some problems were found in the first prototype
  - Traces to amplifier were poorly routed
  - Flat cable connector was inadequate, so we returned to using a Card Edge Connector

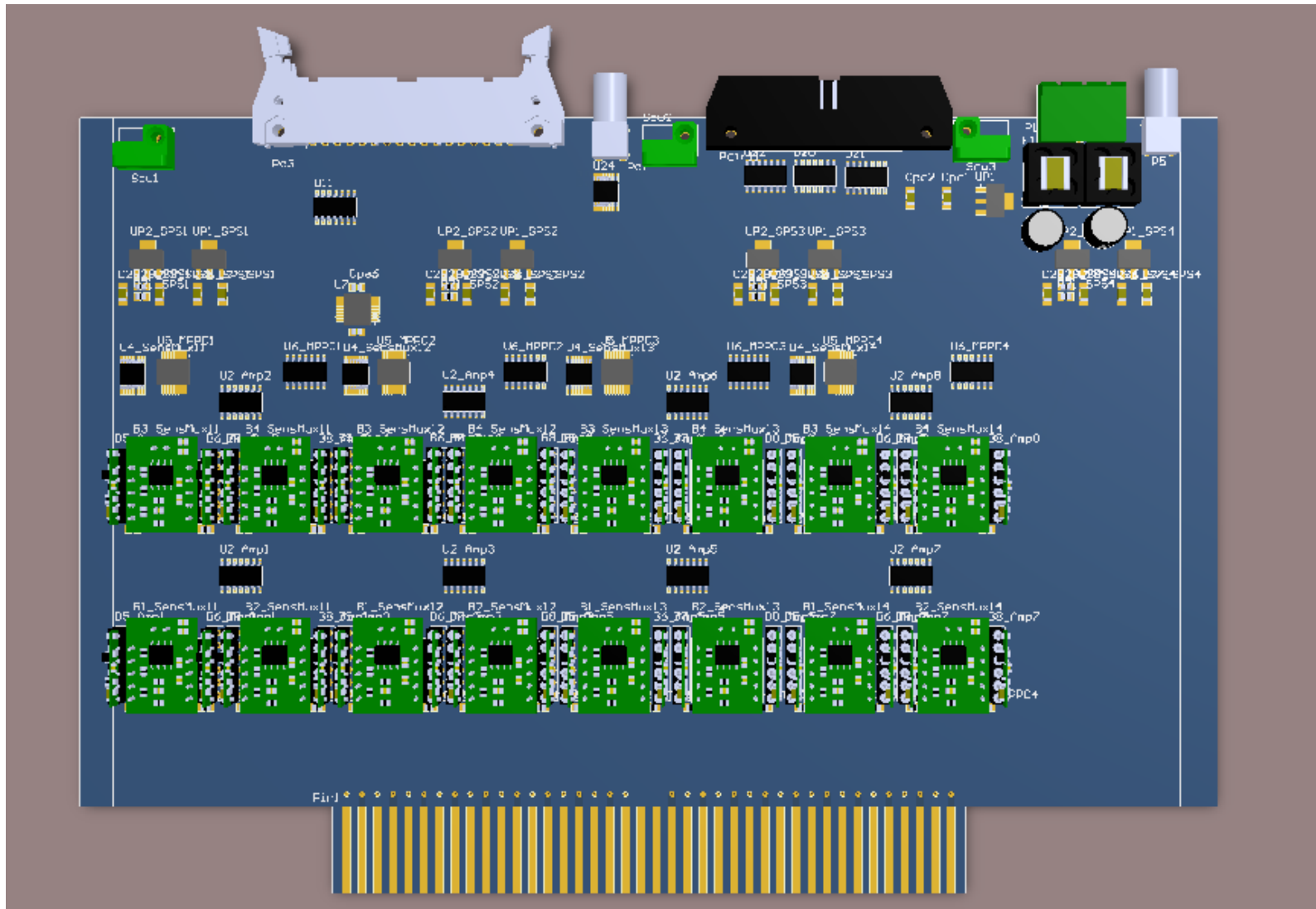


# Electronic Front-End for MPPC Test Facility

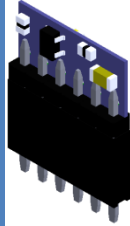
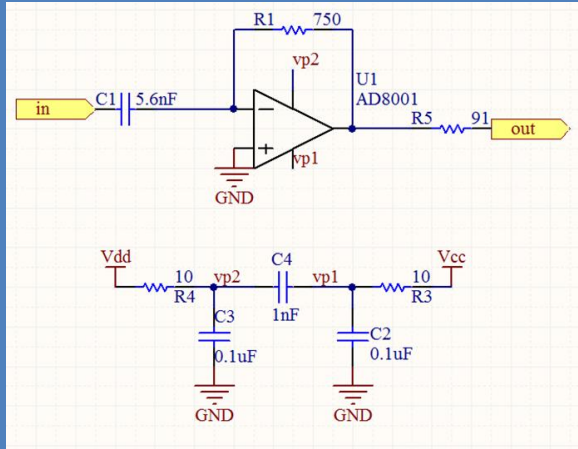


- A more modular approach has now been adopted:
  - The design of the current sensing board and the amplifier board will be retained, however,
  - They will now be configured as two daughter boards attached to the main board

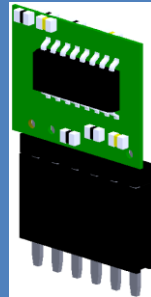
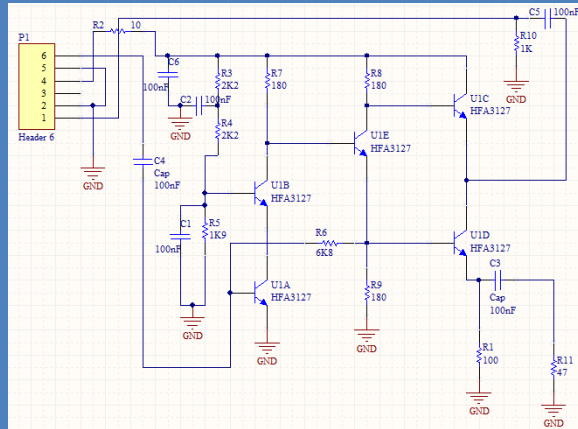
# Top view of new Design



# Amplifiers



- Two kinds of amplifiers will be tested.
- Type 1: 23 have already been mounted and are being tested.
- Type 2: has been designed, tests will begin soon.



# Tests of Amplifier Type 1 (Preliminary Measurements)

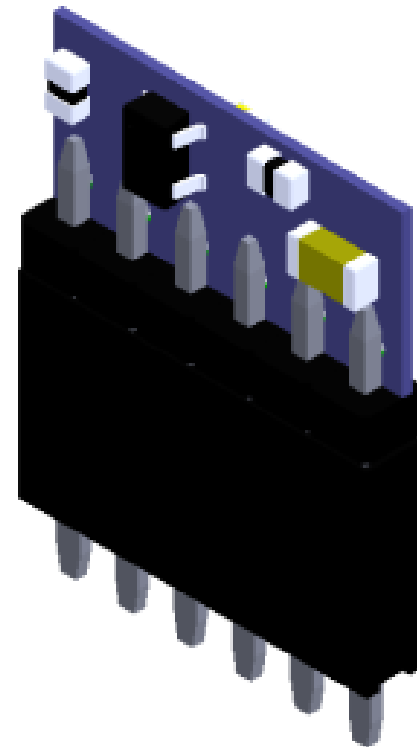
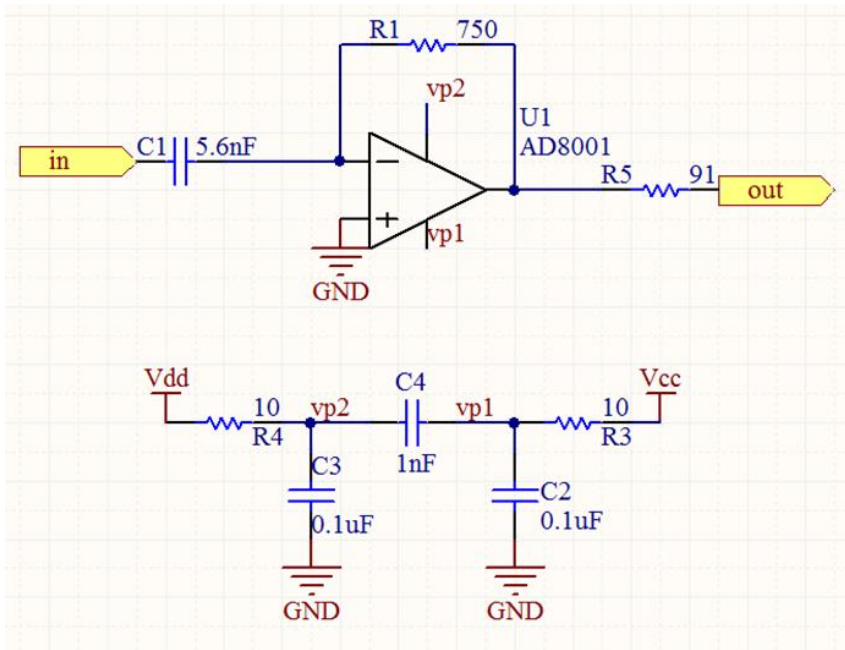
- Gain:

$$4.86 \cdot 10^{10} [V/C]$$

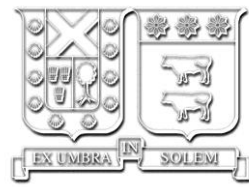
- Input Noise:

$$\sim 8 \cdot 10^4 [e]$$

- AD8001 Current Feedback Amplifier



# Light Guide Production





# Light Guide Production

Some problems were found in the first prototype.

## Problem

- Long time milling (33 hours).
- Lower surface quality.

## Why?

- Basic CAM Software had limited features .
- Finishing process removed material by using both the bottom and **sides** of the cutter (bit).

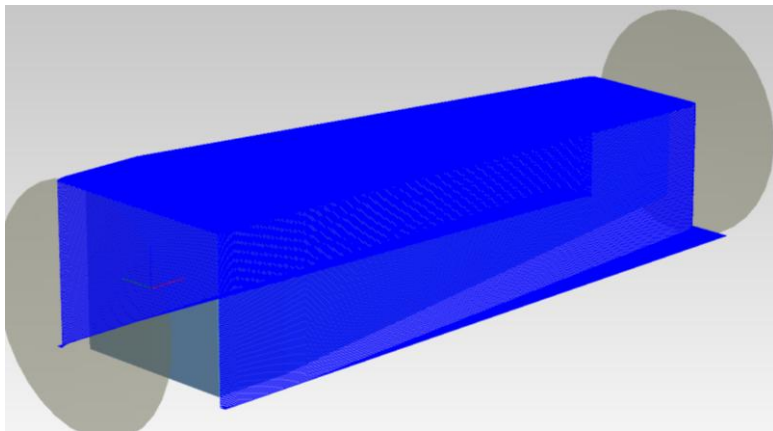


# LG cnc programming

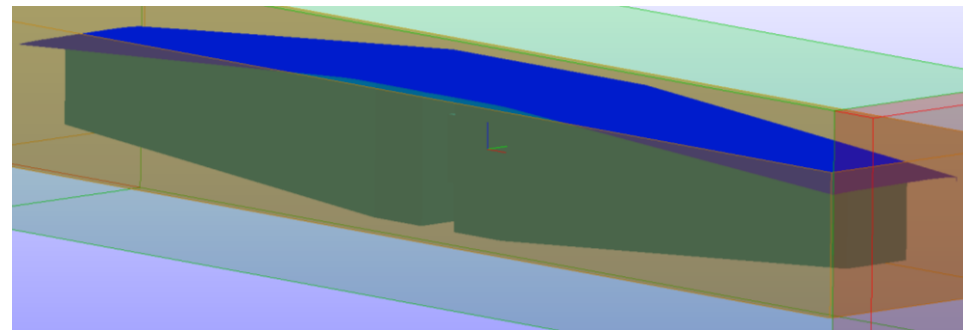
From  to

33 hours per LG  
Low quality  
1 LG at a time

8 hours per LG  
Better quality  
2 LG at the same time



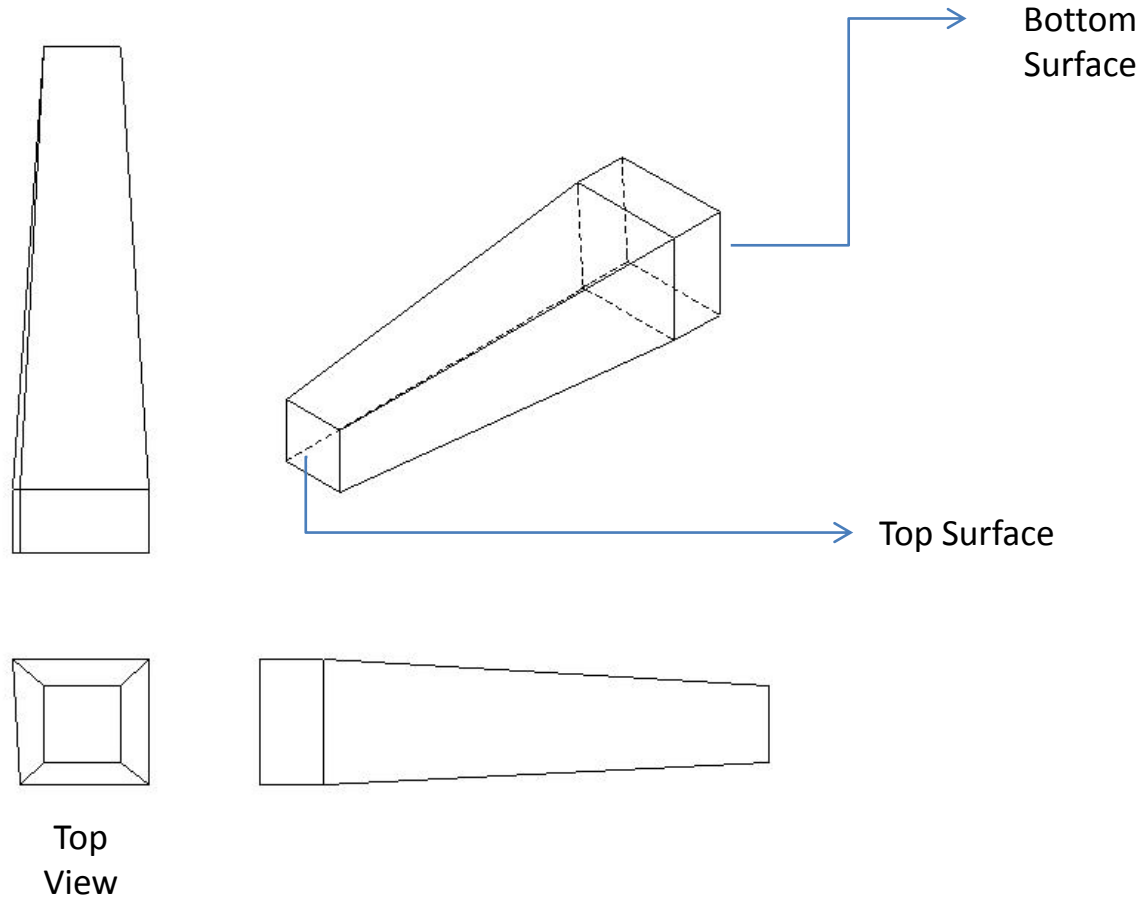
Picture 1.



Picture 2 : Machining two at the same time in an 16 hour process.

\*Blue lines: Tool Path

# LG Reference



# Oldest LG Details

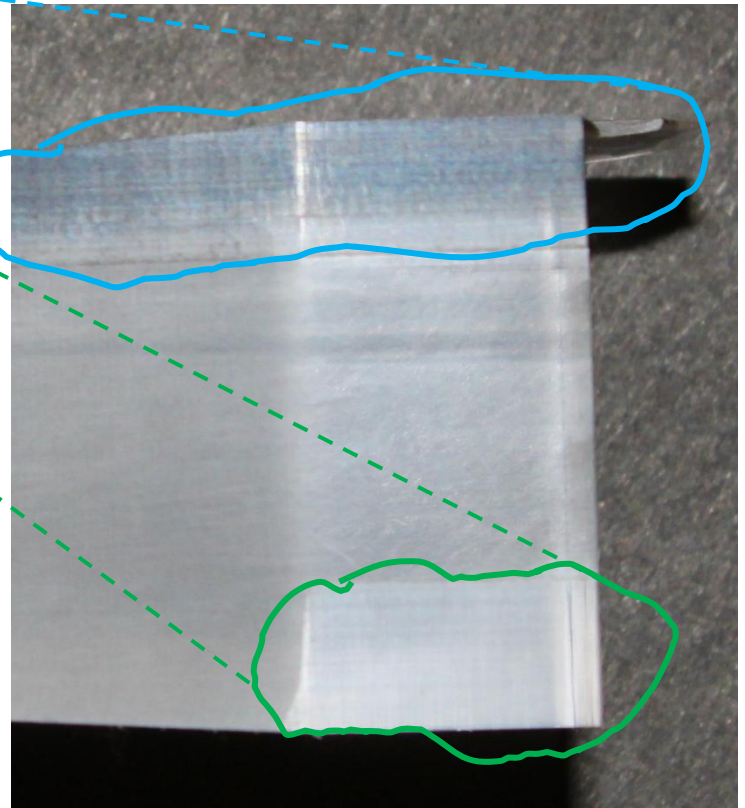
From 



Picture 3.



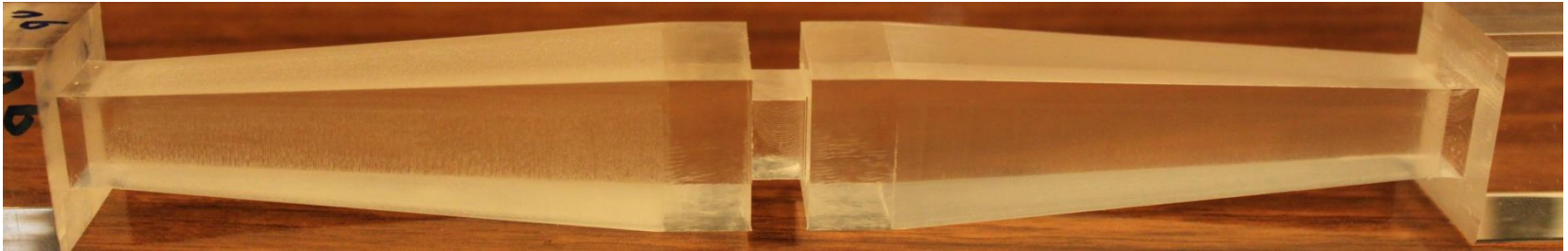
Picture 5: Top Surface.



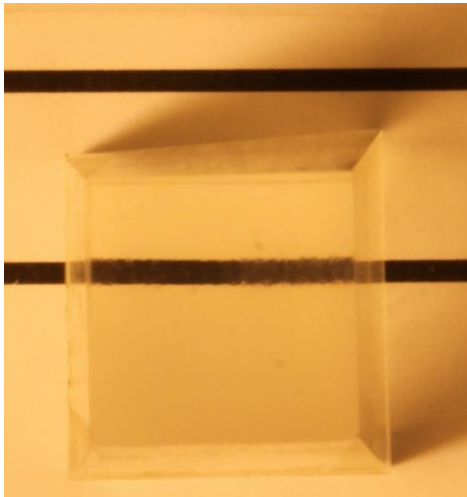
Picture 4.

# Newest LG Details

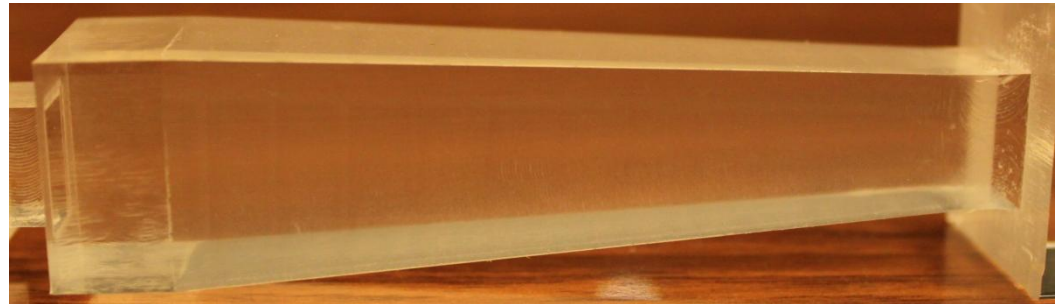
→ to



Picture 6.



Picture 7: View through Top and Bottom Surface. After fifth milling process.

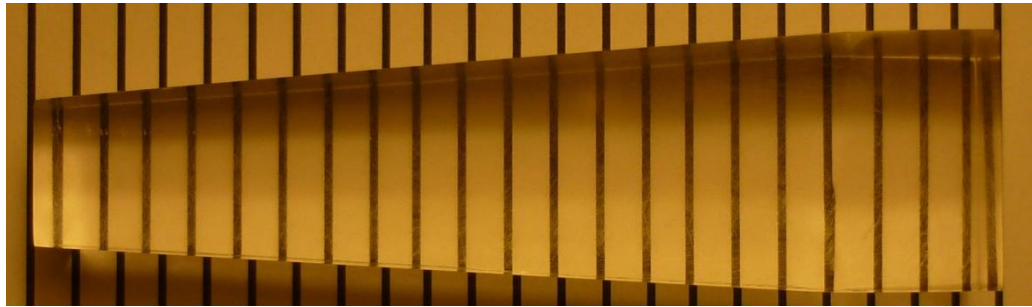


Picture 8 :After second milling process.

# Polishing test\_1



Picture 9: View through Bottom and Top Surface.



Picture 10: View through both sides surface.

**END**