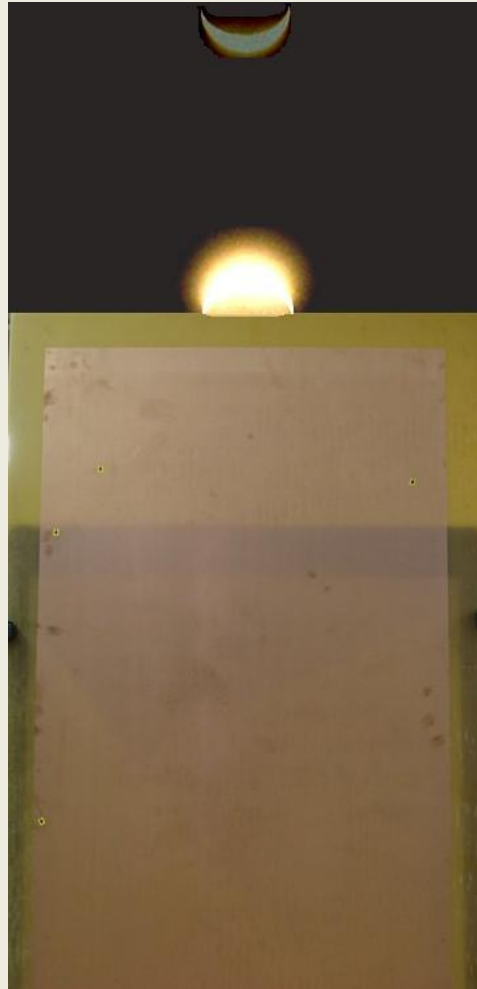


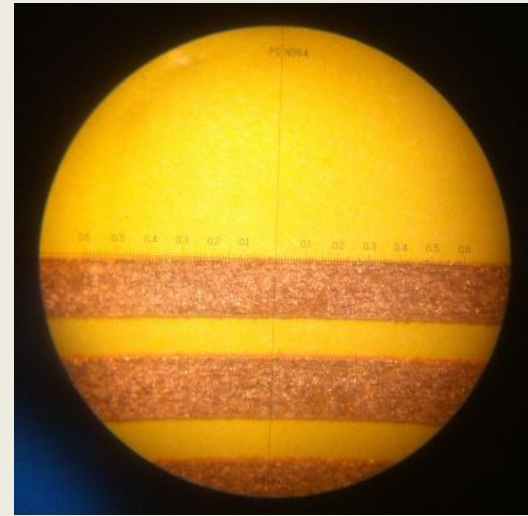
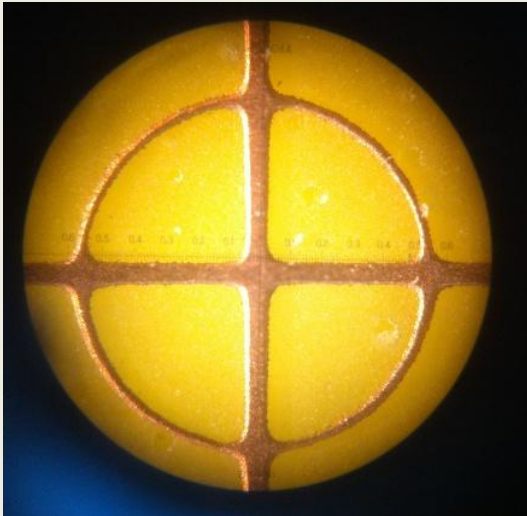
# The Many Measurements of the PCBs

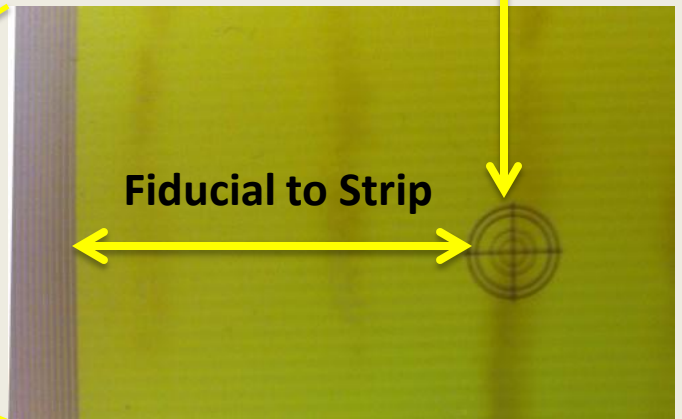
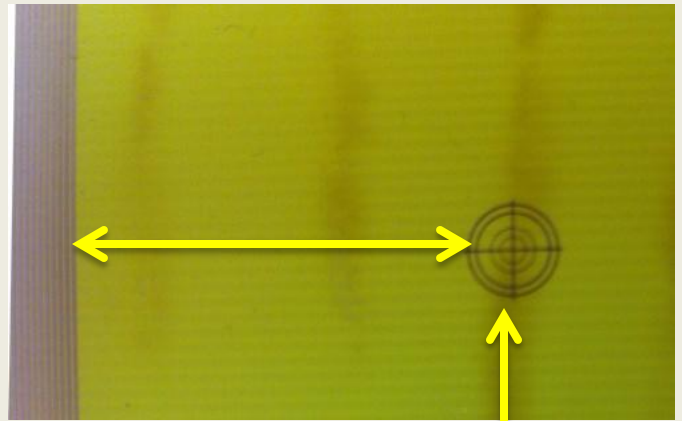
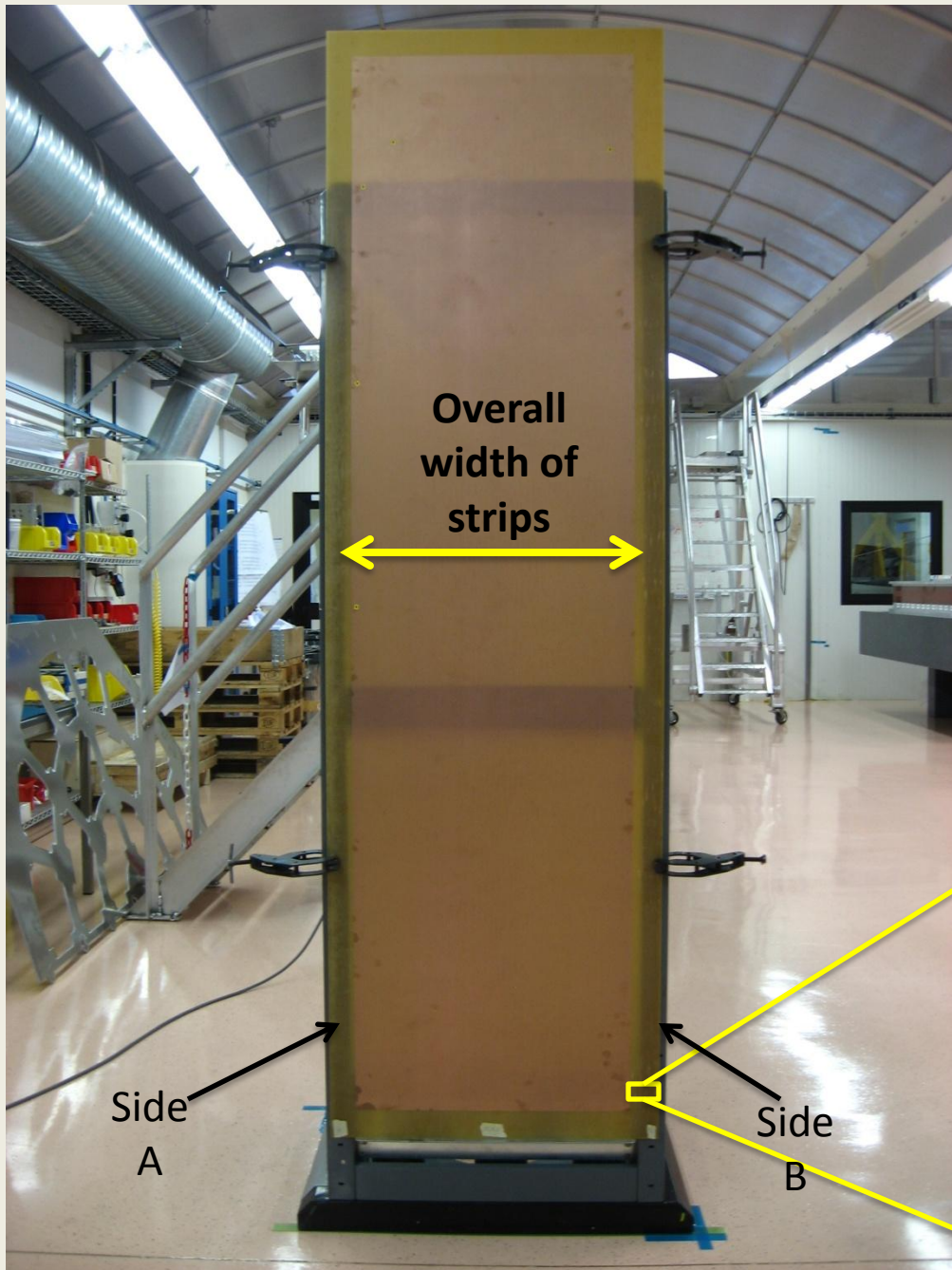


Simon Gonzalez(CSUF), Despina Sampsonidou ( AUTH), Claudio Savarese(Napoli Federico II ) and Maria Hoffmann (Københavns Universitet)

# PCB from ELTOS

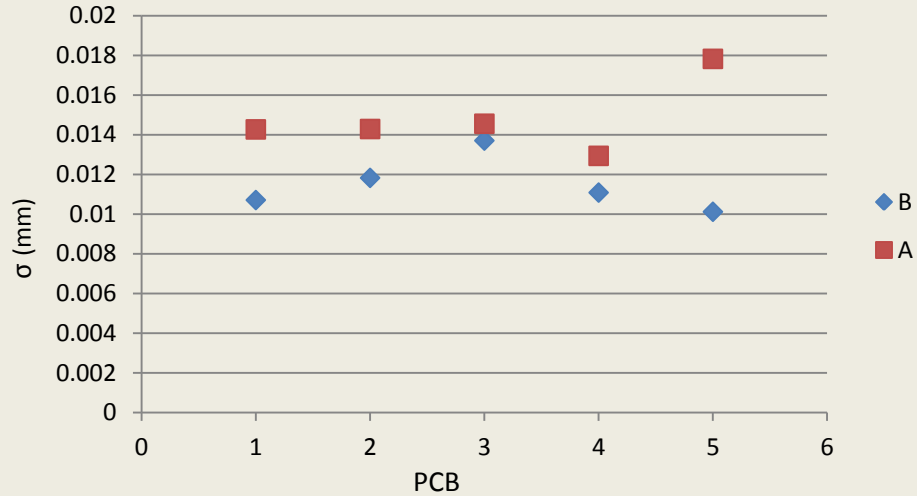
- 5 - 2x0.60m<sup>2</sup> boards
- 1250 strips on the board
- Measurements of the fiducial marks, strips and pitch were taken.



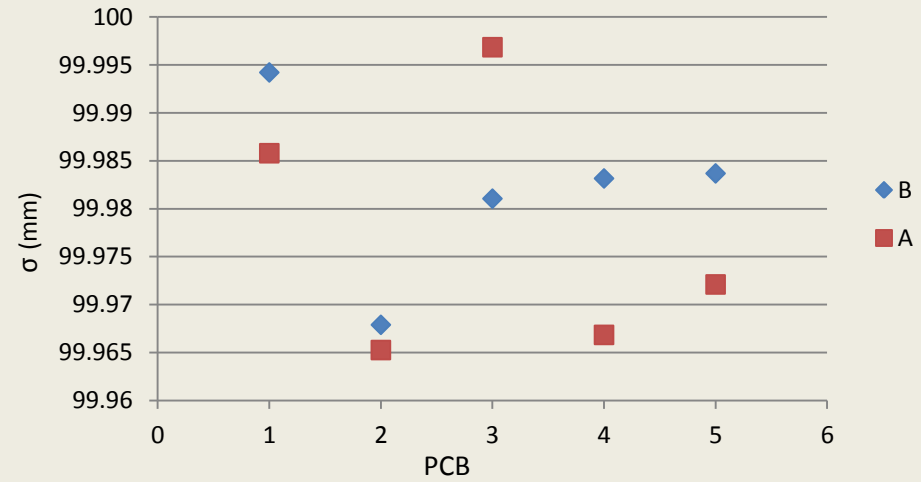


# PCB from ELTOS

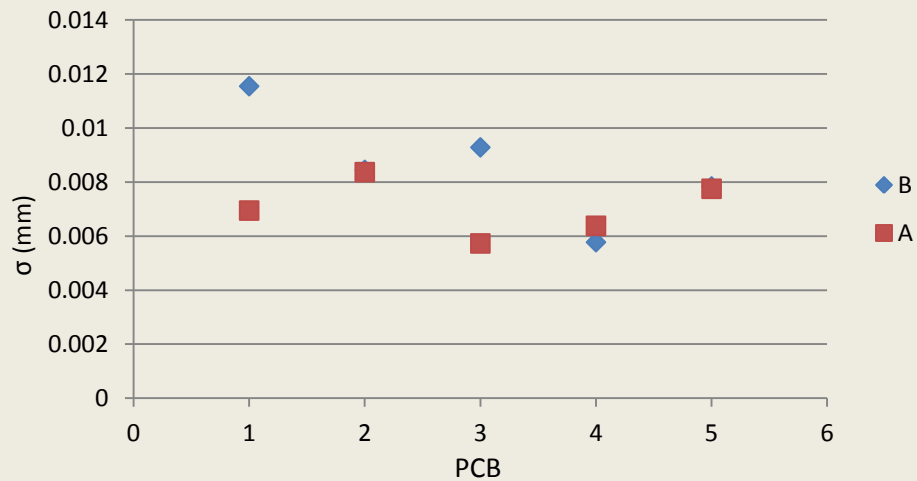
### Fiducial to Fiducial S.D.



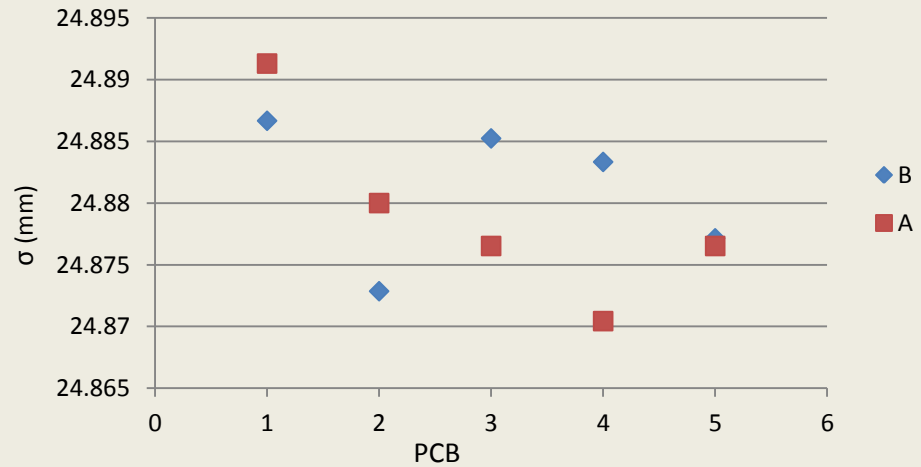
### Fiducial to Fiducial Average



### Fiducial to Strip S.D.

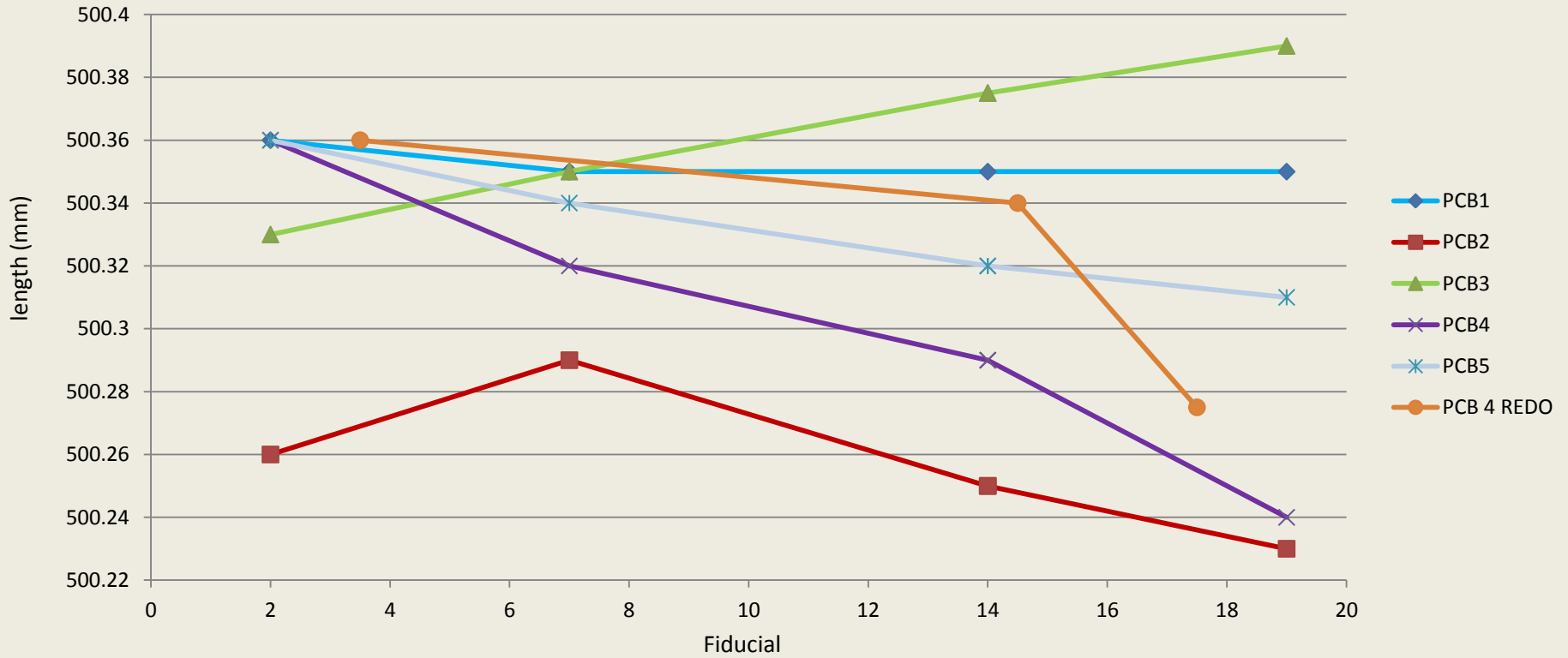


### Fiducial to Strip Average



# PCB from ELTOS

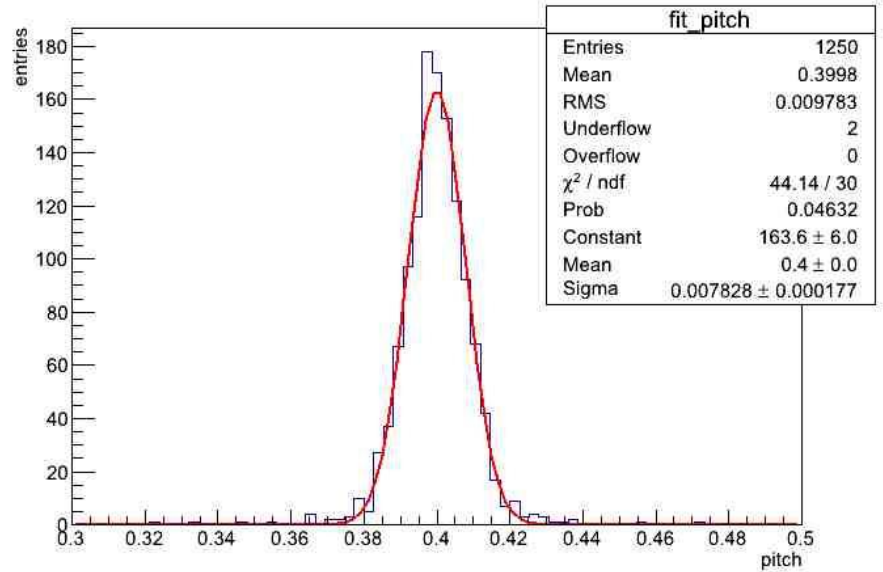
## Overall width of strips





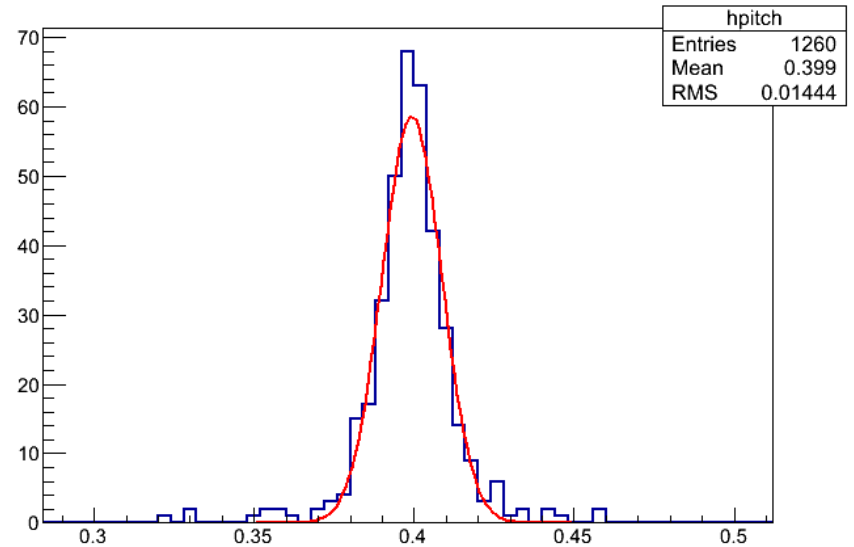
PCB 1

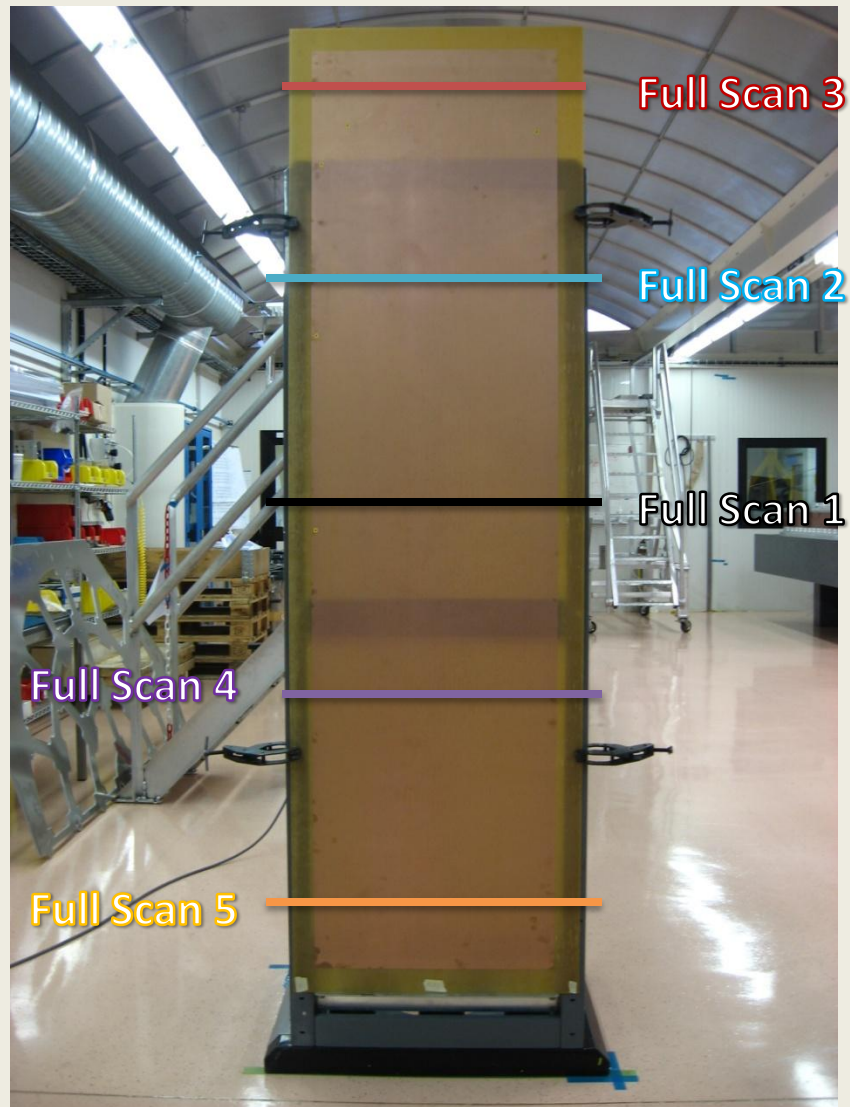
Scan 2



Scan 1

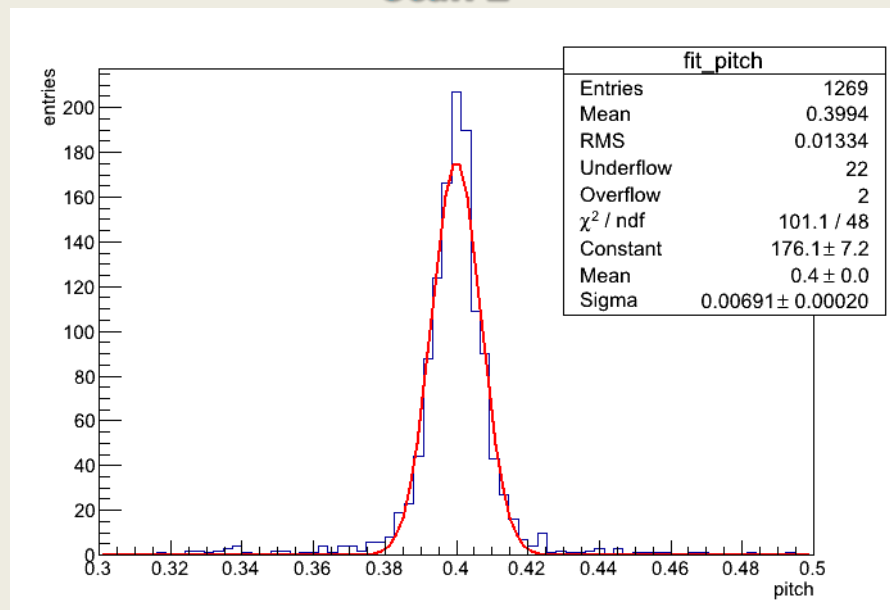
Pitch distribution



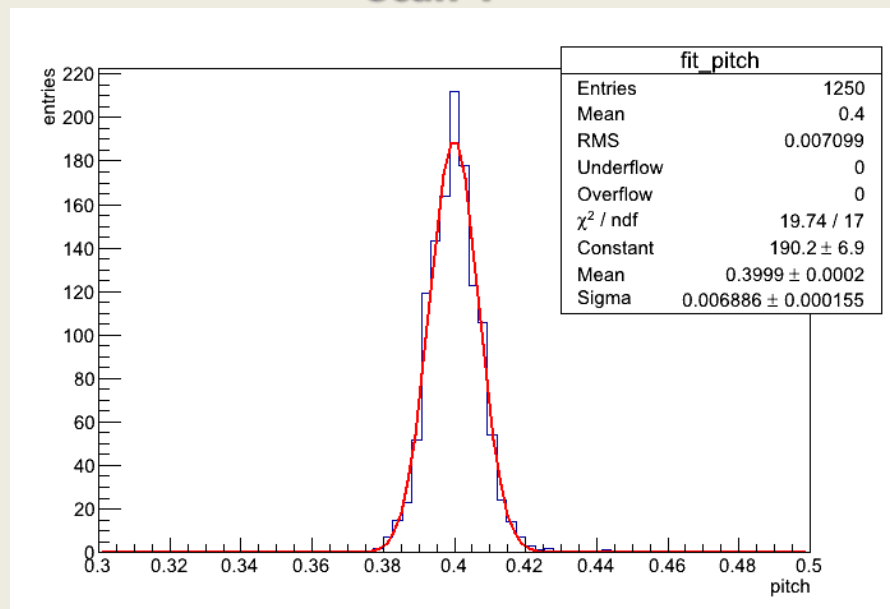


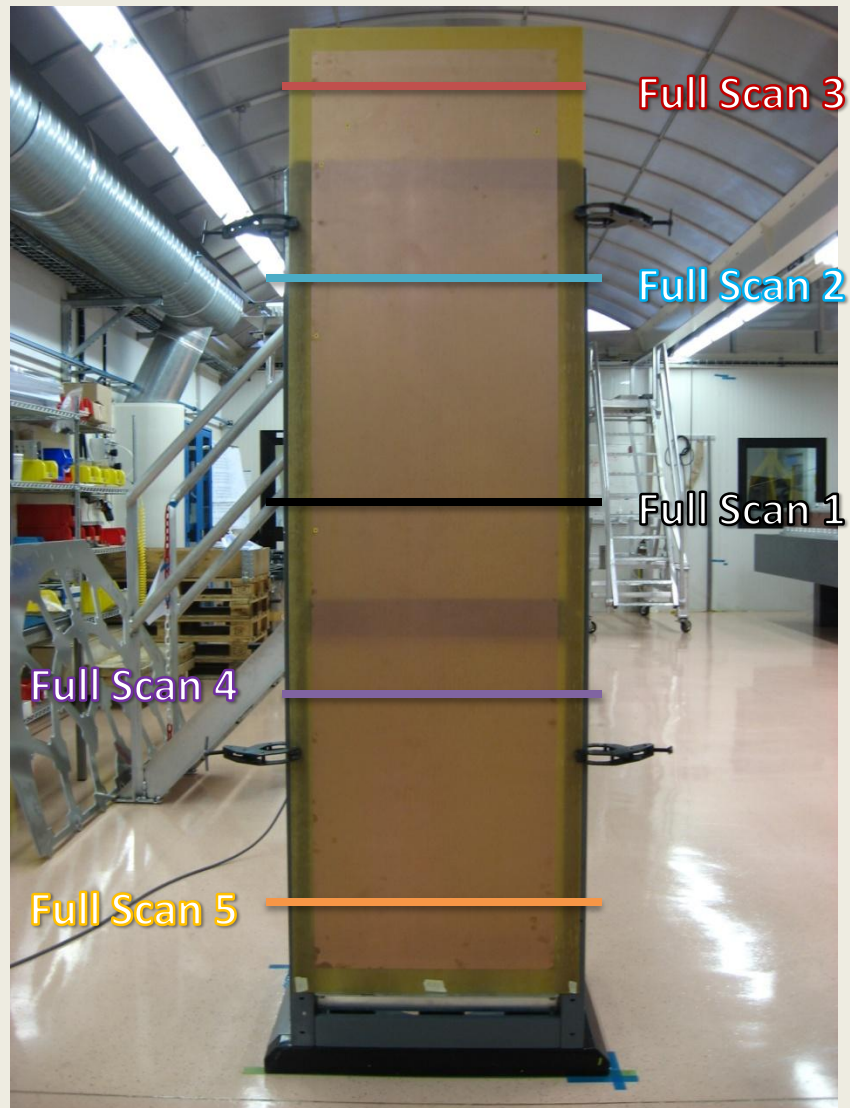
**PCB 2**

**Scan 2**



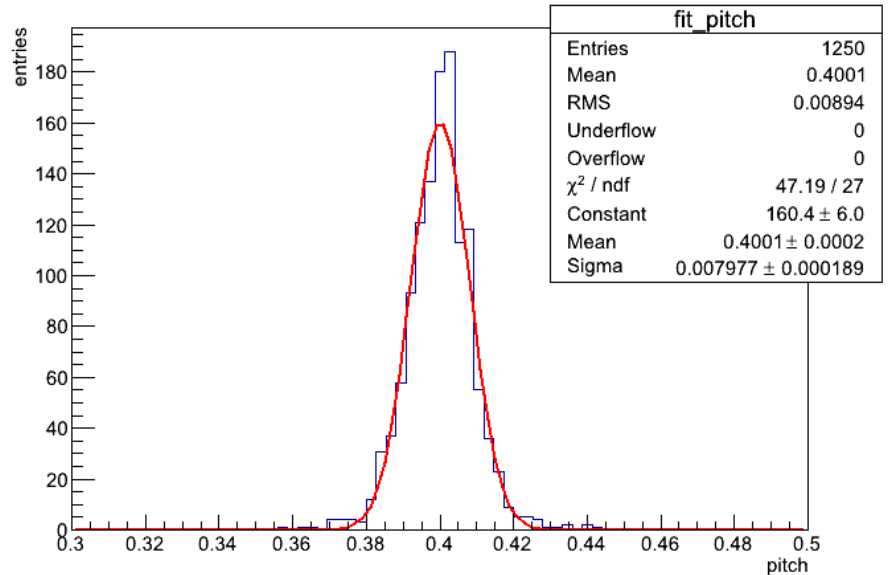
**Scan 4**



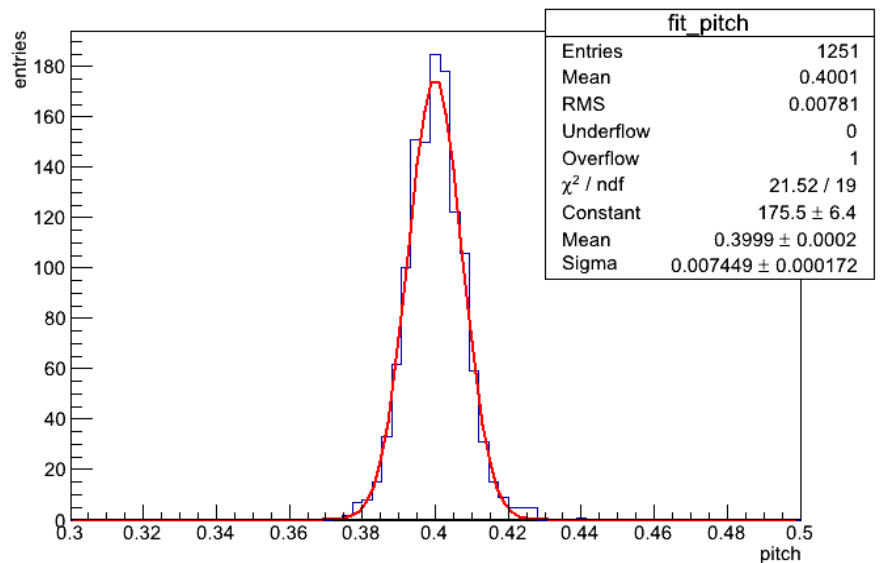


**PCB 3**

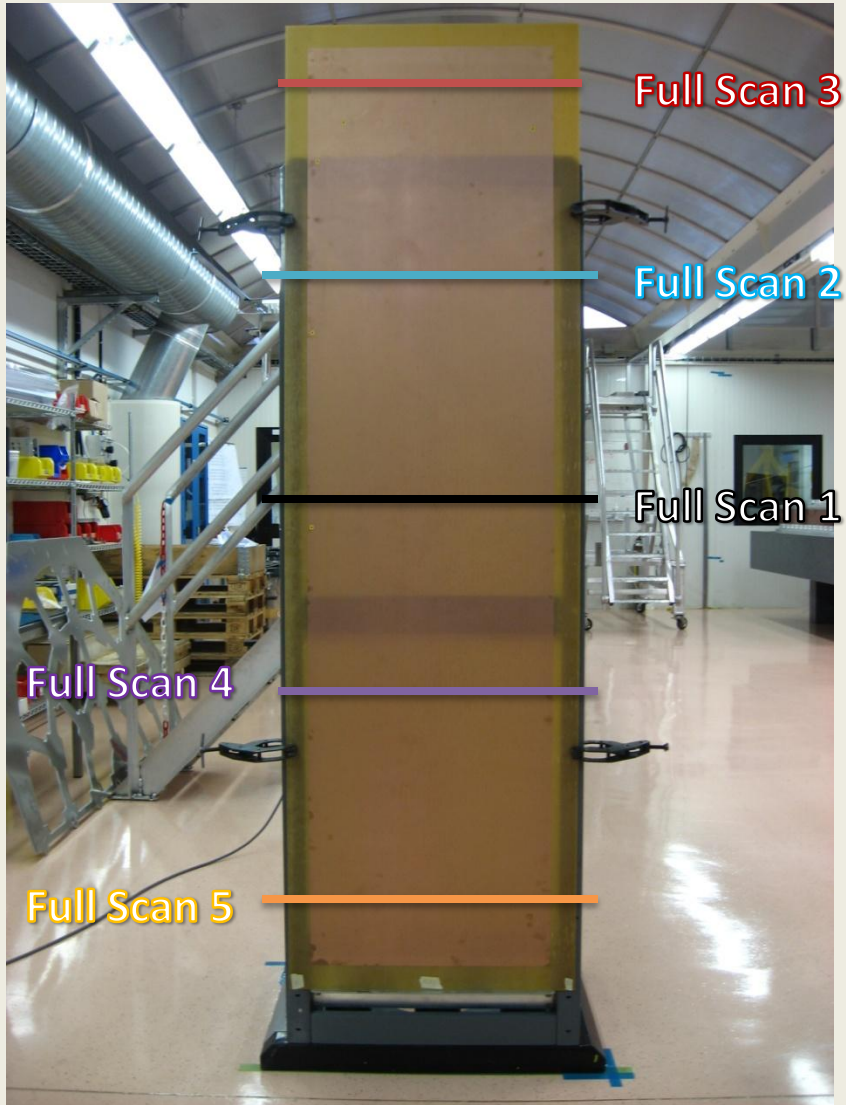
**Scan 2**



**Scan 4**



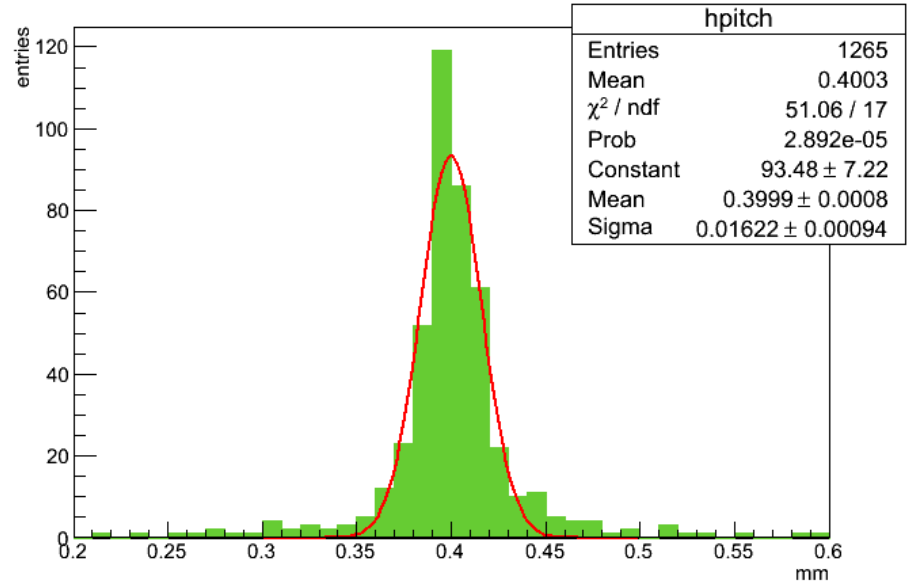




**PCB 4**

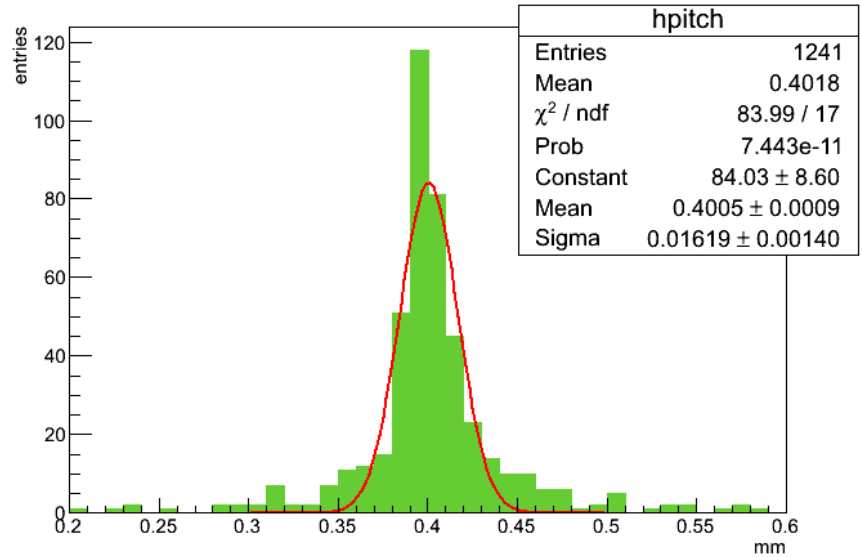
## Scan 2

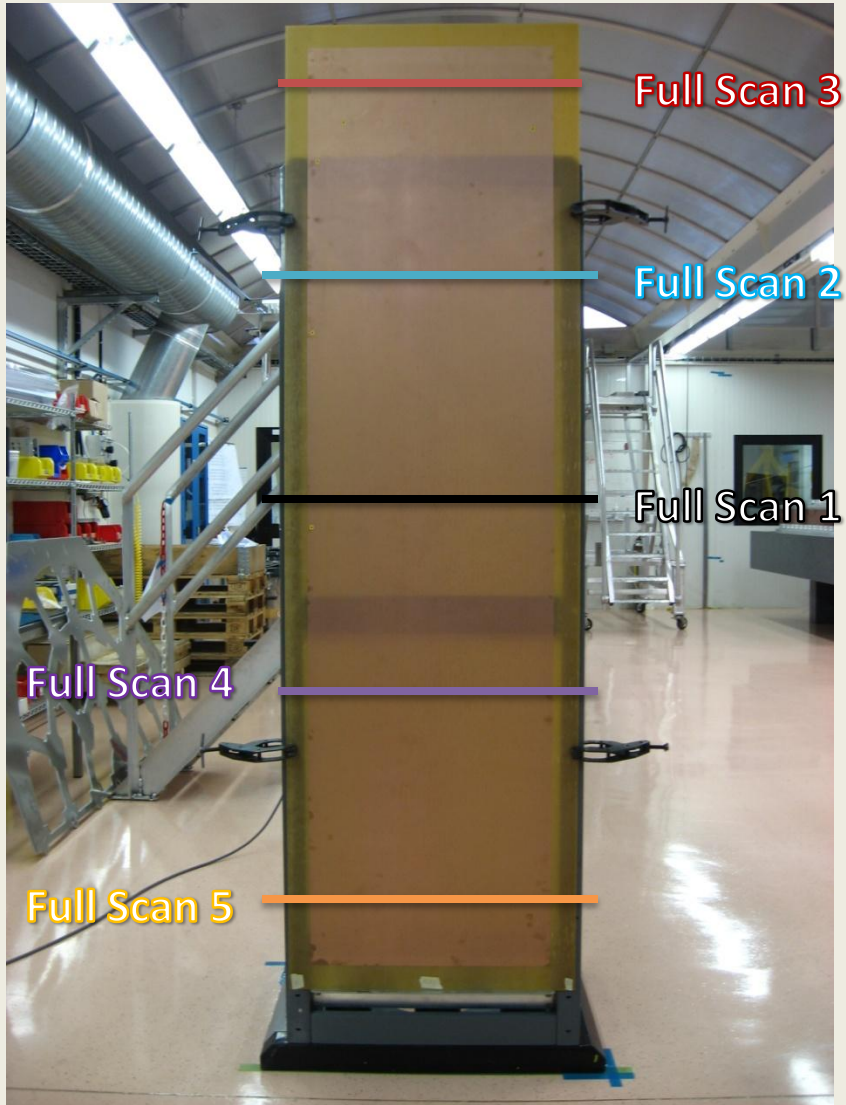
Pitch distribution



## Scan 4

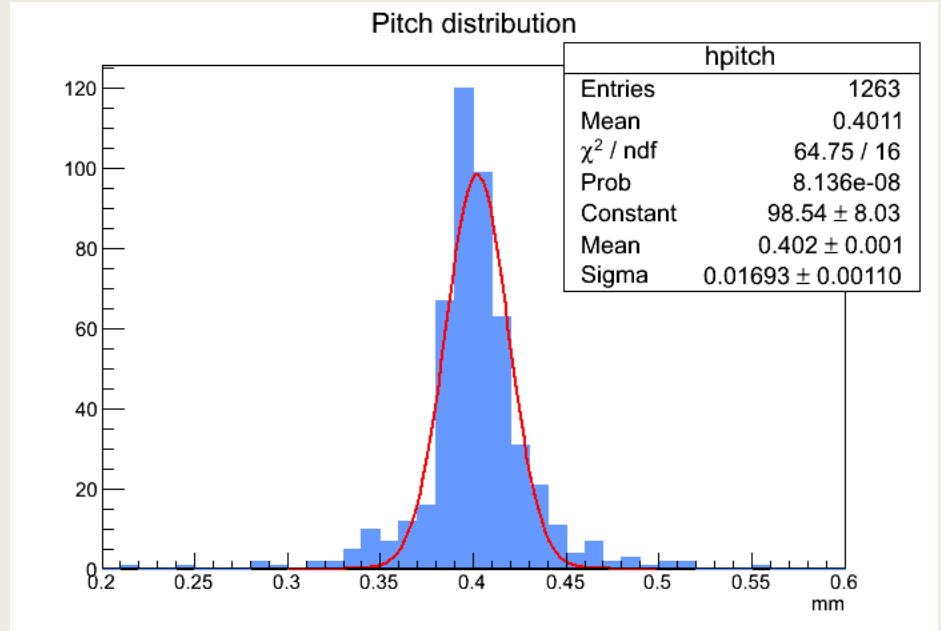
Pitch distribution



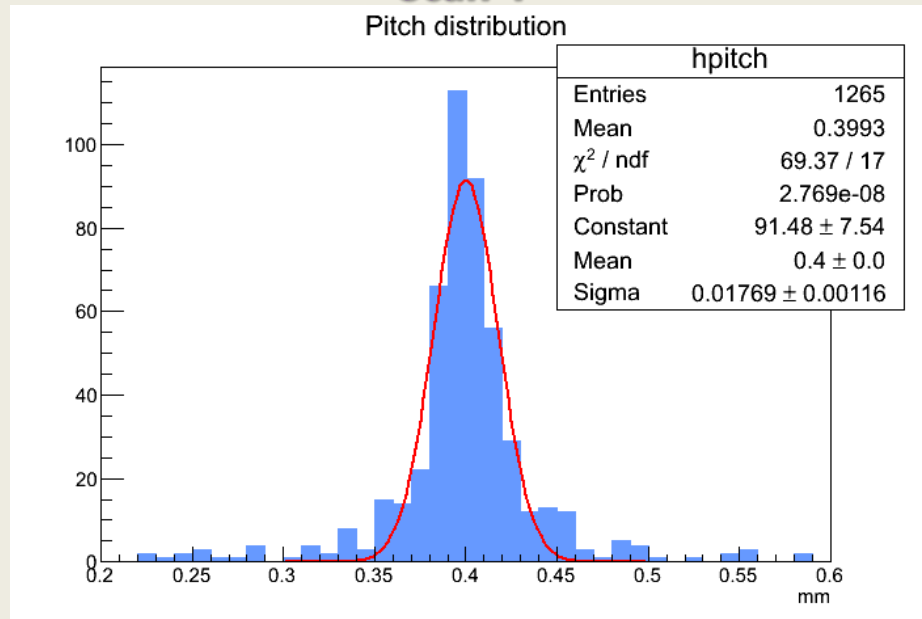


**PCB 5**

## Scan 2



## Scan 4

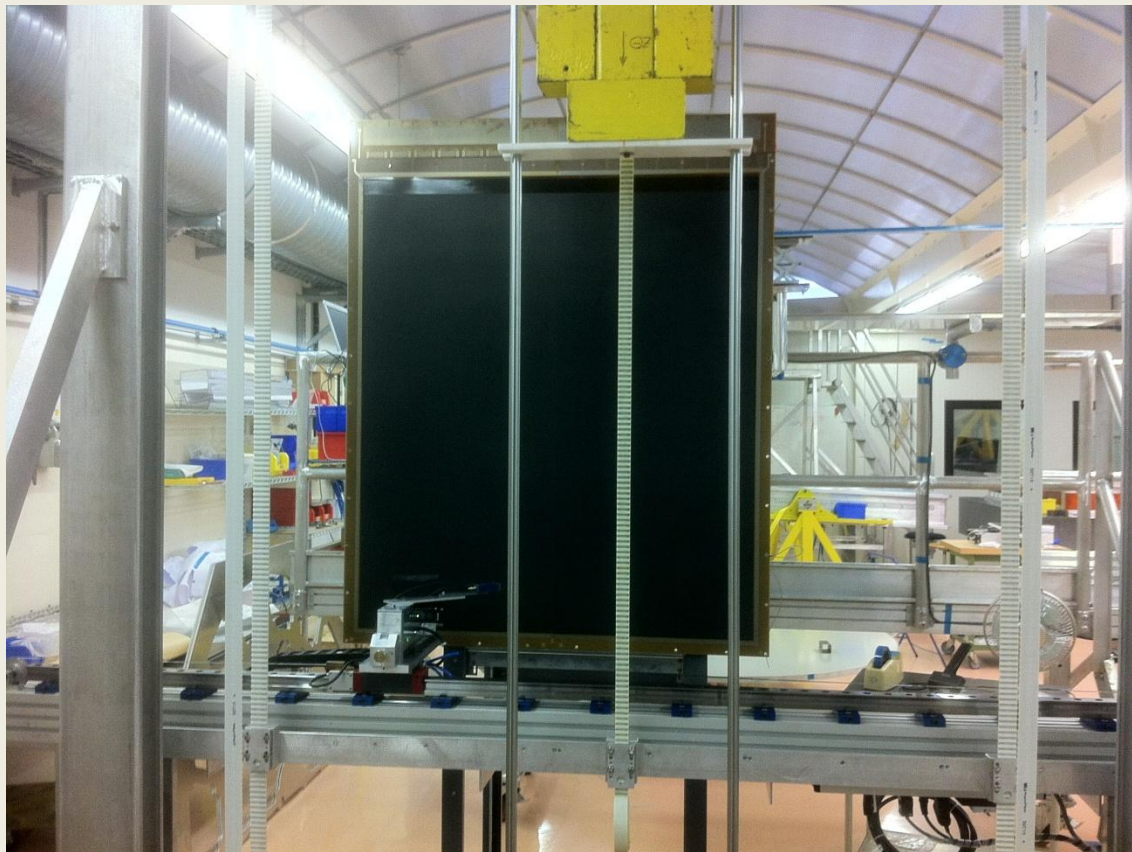


# Conclusion on the 2x0.60m<sup>2</sup> ELTOS PCB

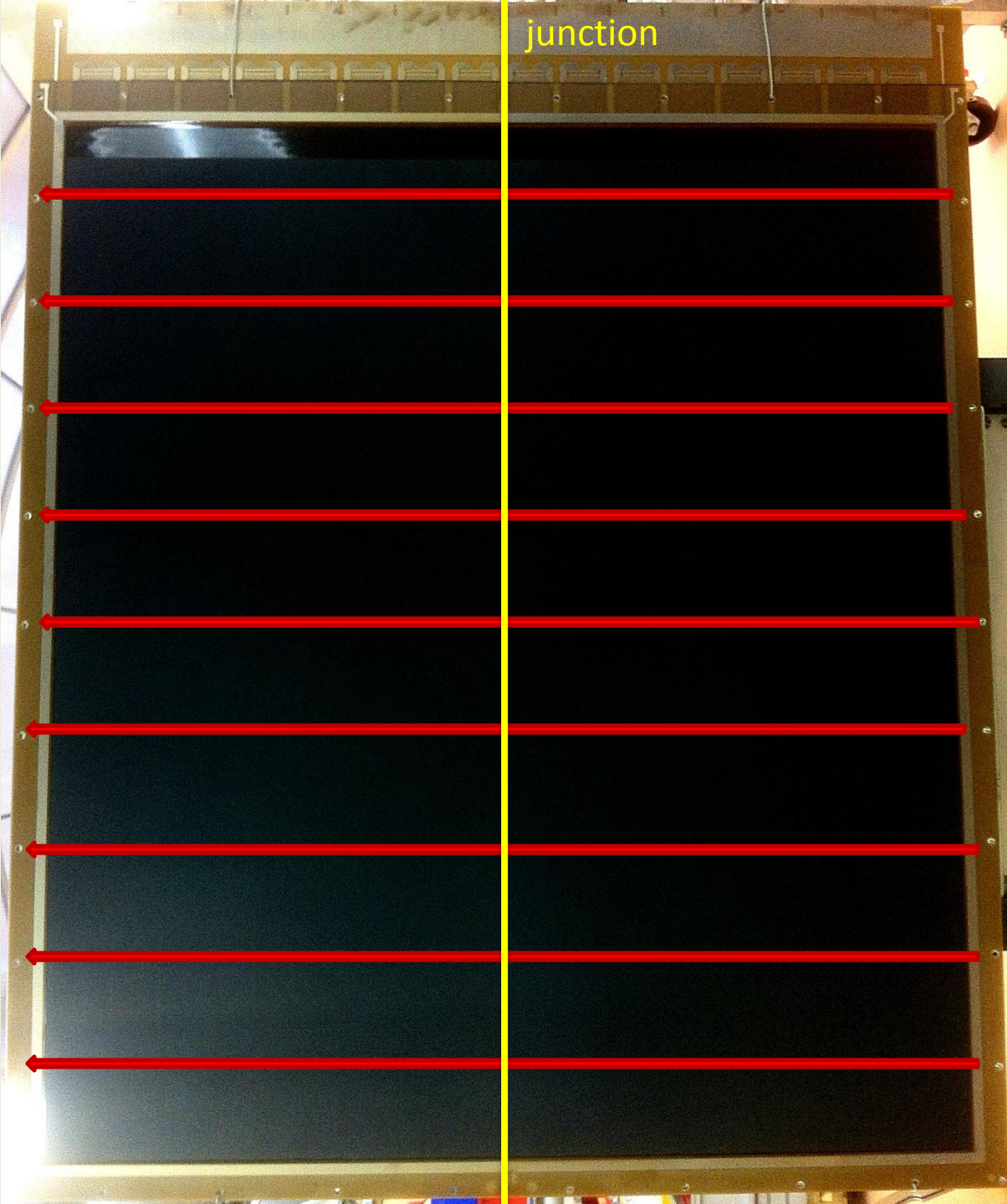
- Fiducial and strip readings were rather consistent with the largest sigma less than 20 $\mu$ m.
- Pitch reading had a sigma of less than 18 $\mu$ m.
- Overall strip width doesn't look consistent however, more data may be needed to see if there is a pattern among all the PCBs.

# 1x1m<sup>2</sup> board

- Check the flatness of the black surface.



junction



Scan 9

Scan 8

Scan 7

Scan 6

Scan 5

Scan 4

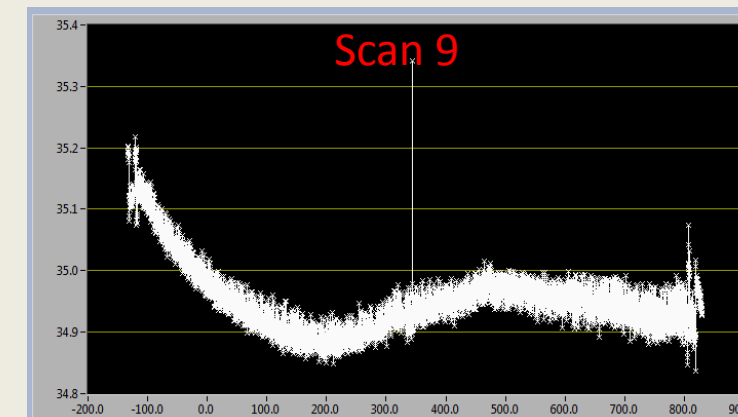
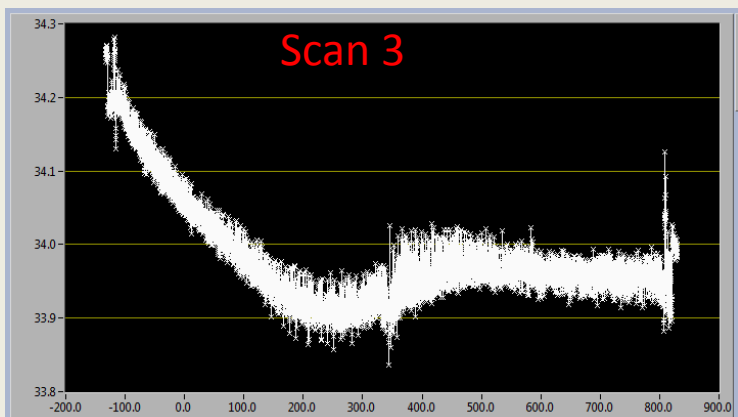
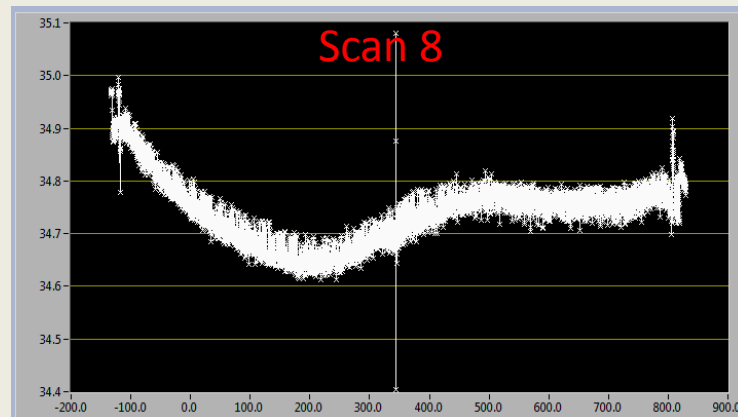
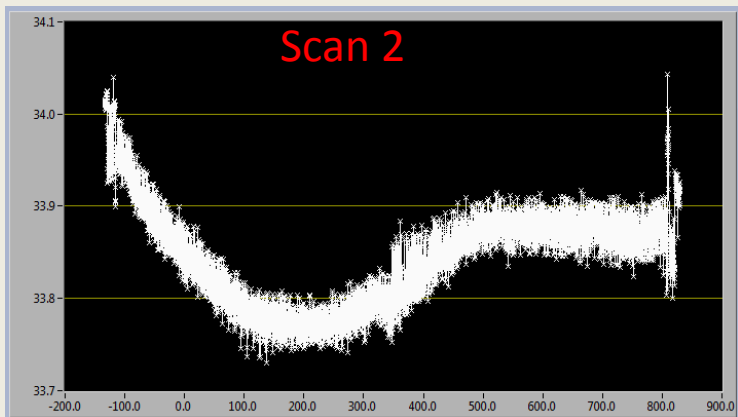
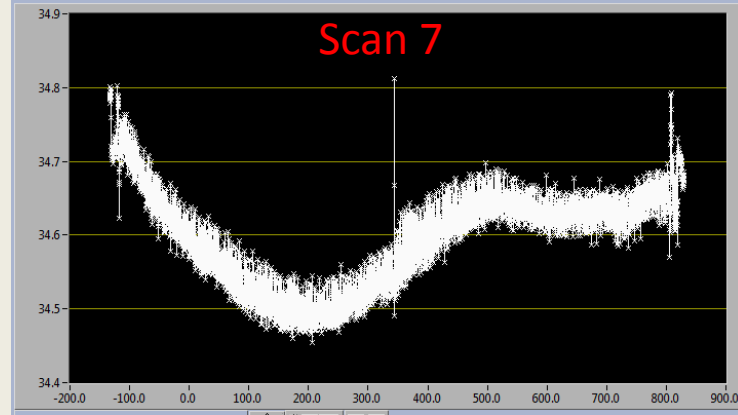
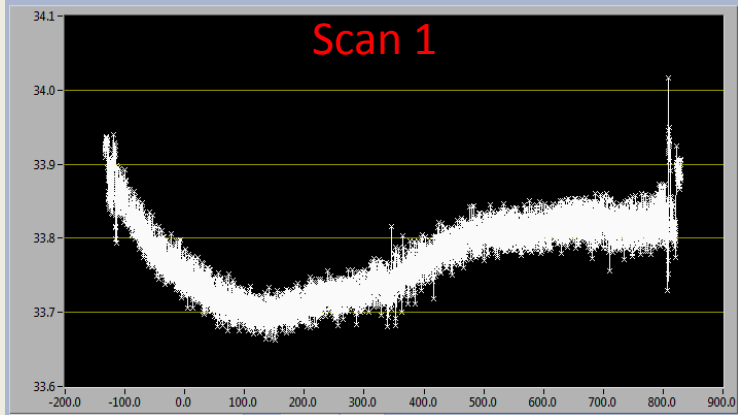
Scan 3

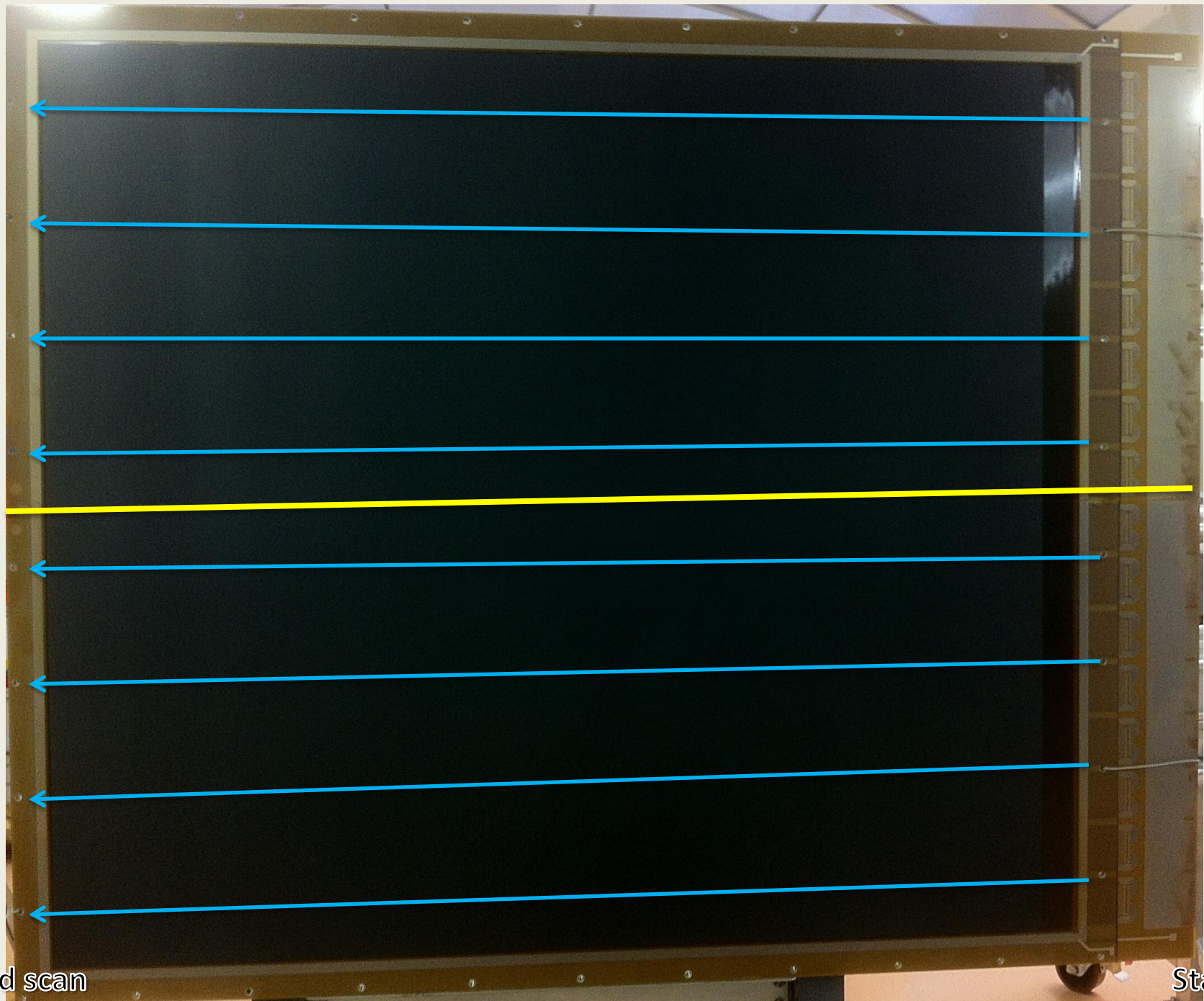
Scan 2

Scan 1

End scan

Start scan





Scan 8

Scan 7

Scan 6

Scan 5

junction

Scan 4

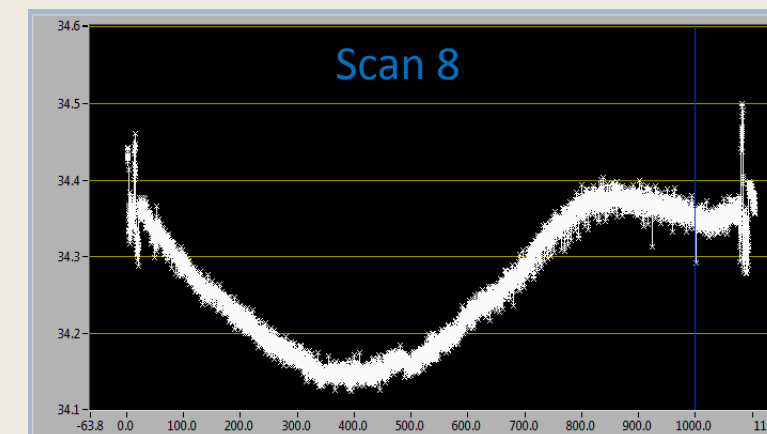
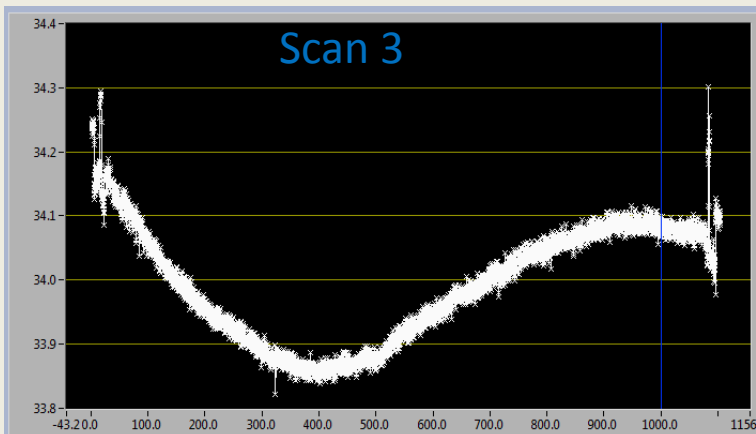
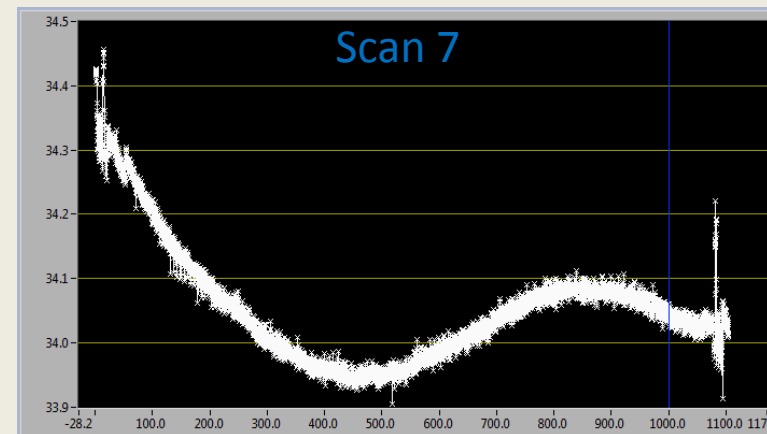
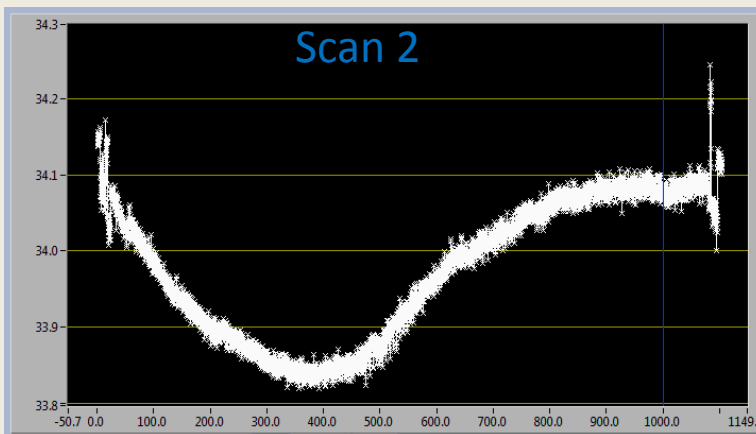
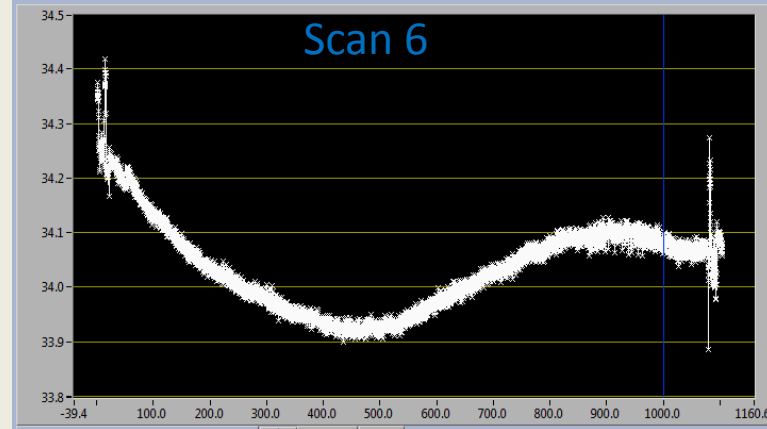
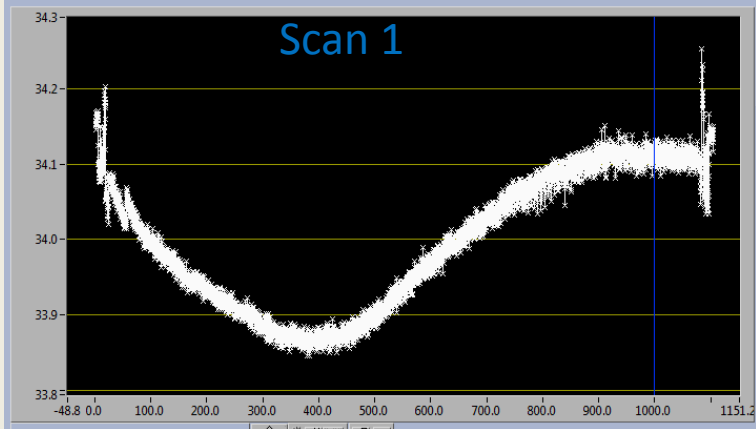
Scan 3

Scan 2

Scan 1

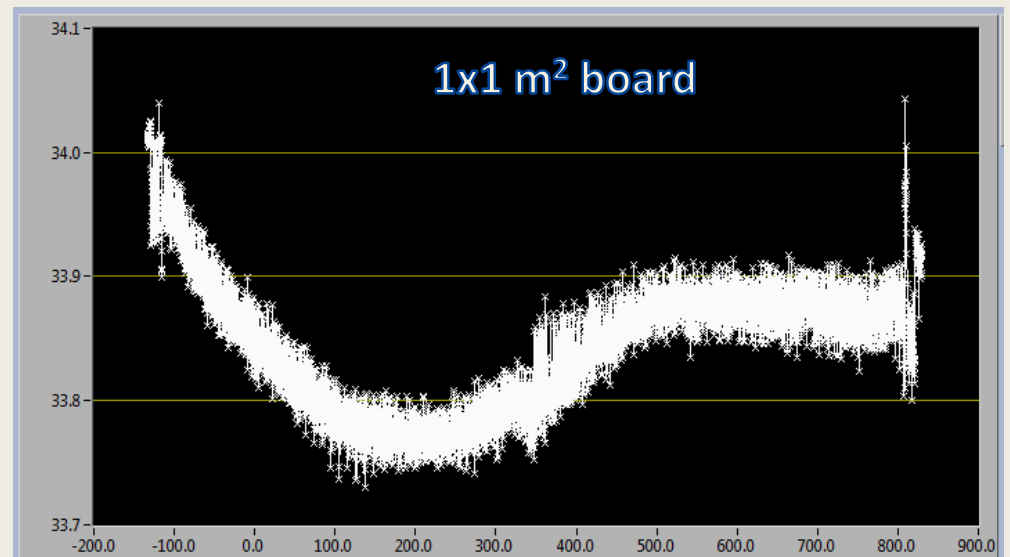
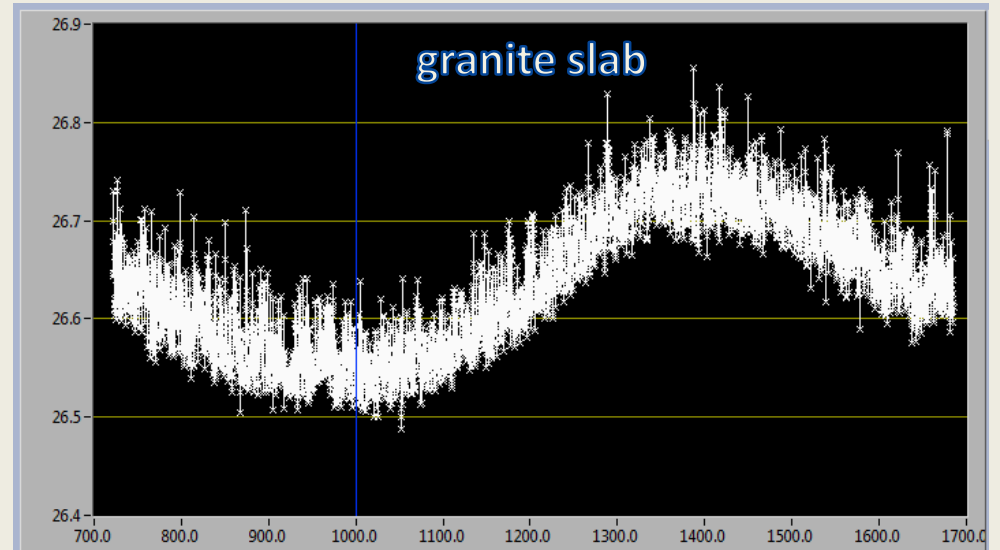
End scan

Start scan



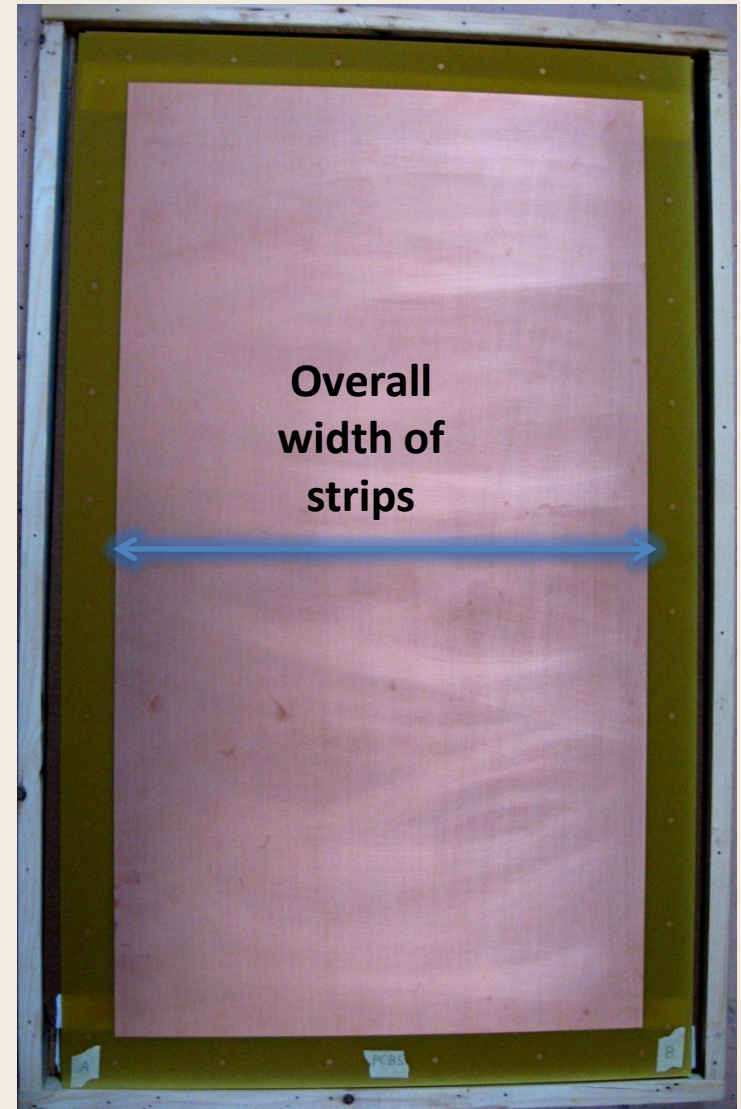


# 1x1m<sup>2</sup> board conclusion



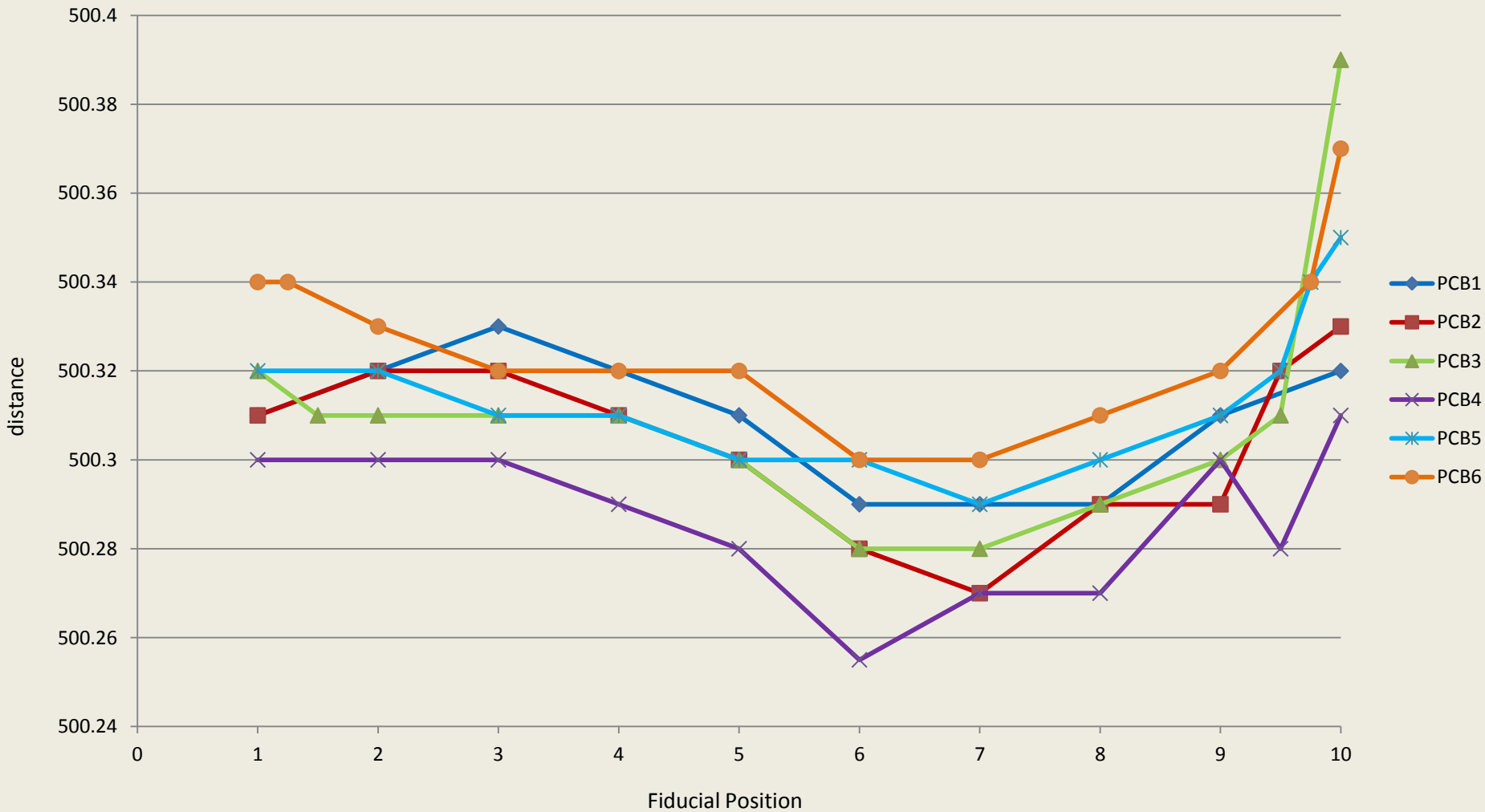
# PCB from Triangle

- 6 – 1x0.6m<sup>2</sup> boards
- 1250 strips on the board
- Obtain the overall strip width along the length of the board.

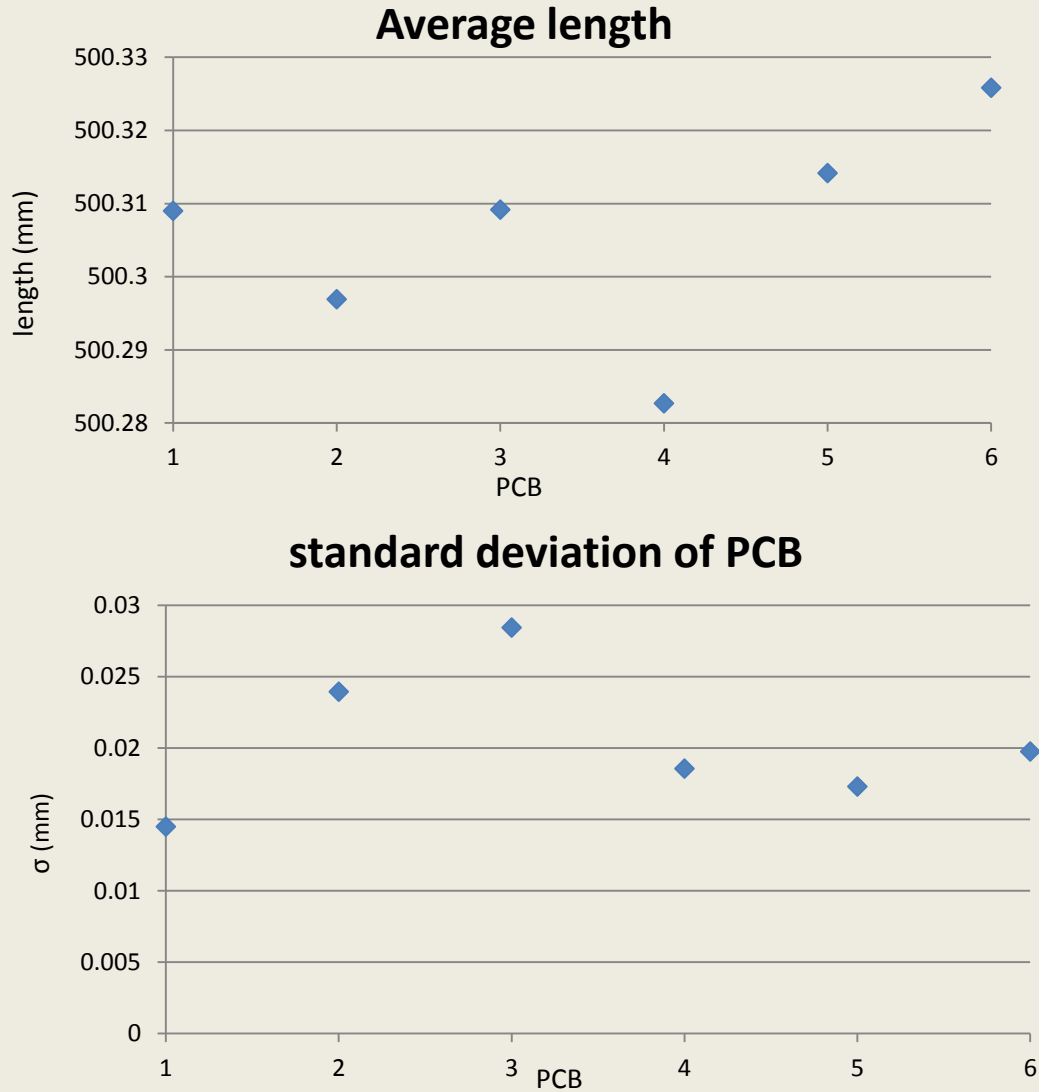


# Triangle 1x0.6m<sup>2</sup> PCB

## Overall Strip Width



# PCB from Triangle



# Triangle 1x0.6m<sup>2</sup> PCB Conclusion

- The boards aren't consistent however they all do have a similar pattern.
- Using the largest average for strip width we get a pitch of 400.26  $\mu\text{m}$  and 400.23  $\mu\text{m}$  for the lowest.

# The work continues

- Still need to take overall strip measurements of the  $2 \times 0.6 \text{m}^2$  PCBs from Triangle labs.
- Write all my findings in a note.

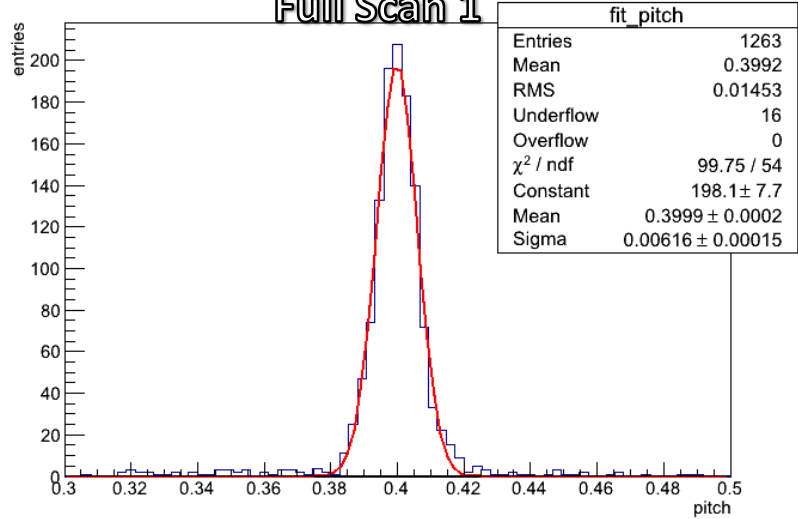


Extra data

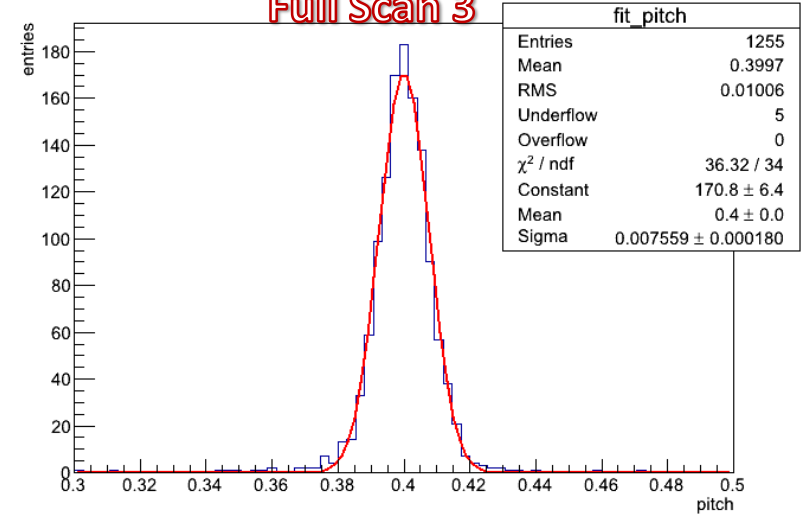


# ELTOS PCB 2

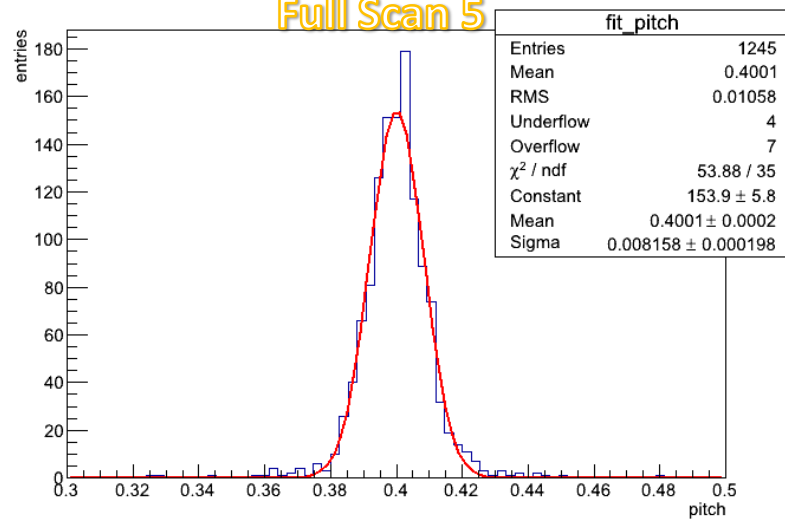
## Full Scan 1



## Full Scan 3

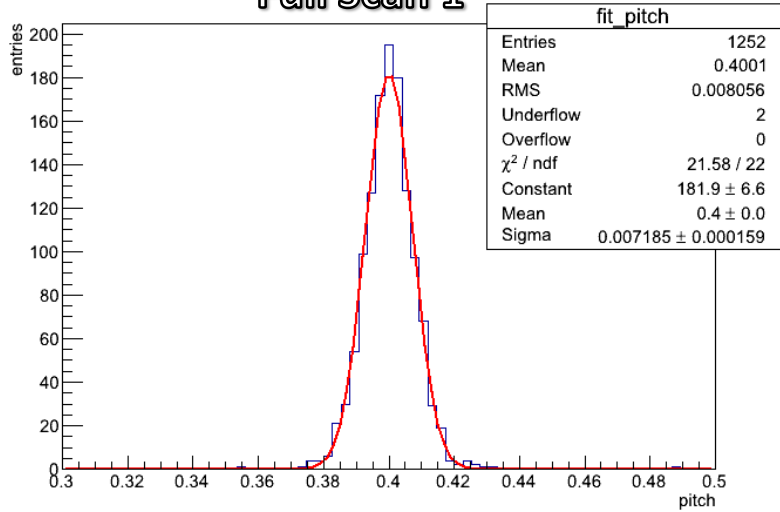


## Full Scan 5

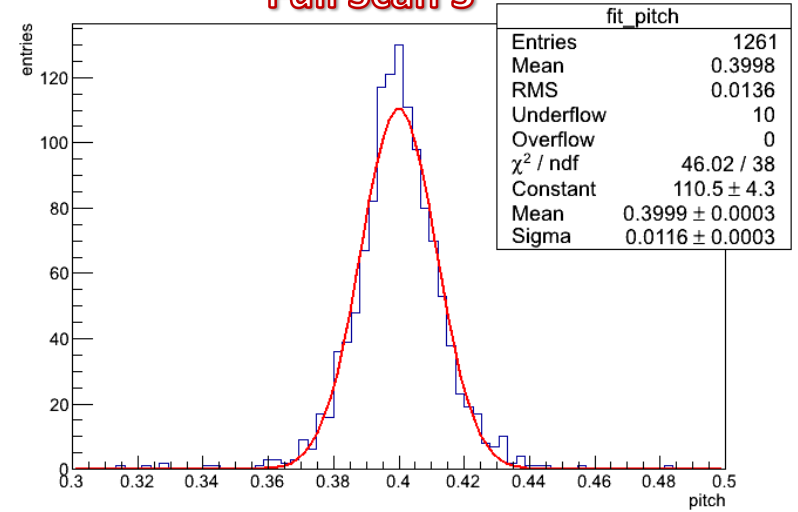


# ELTOS PCB 3

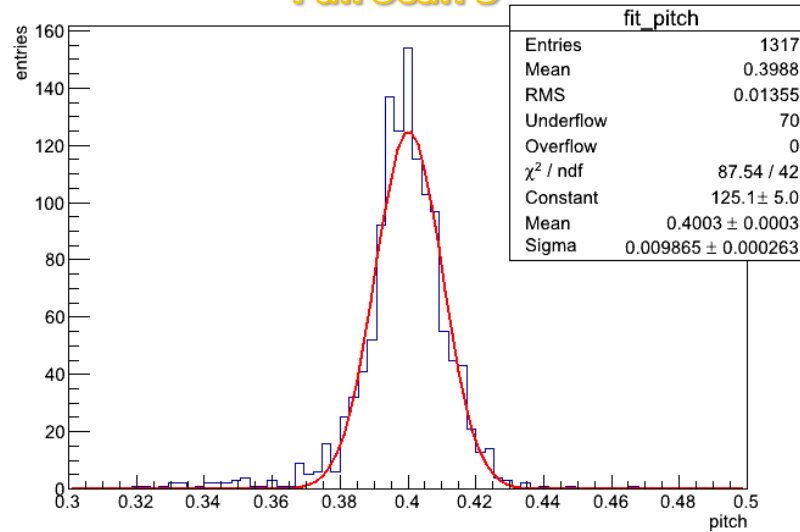
## Full Scan 1



## Full Scan 3

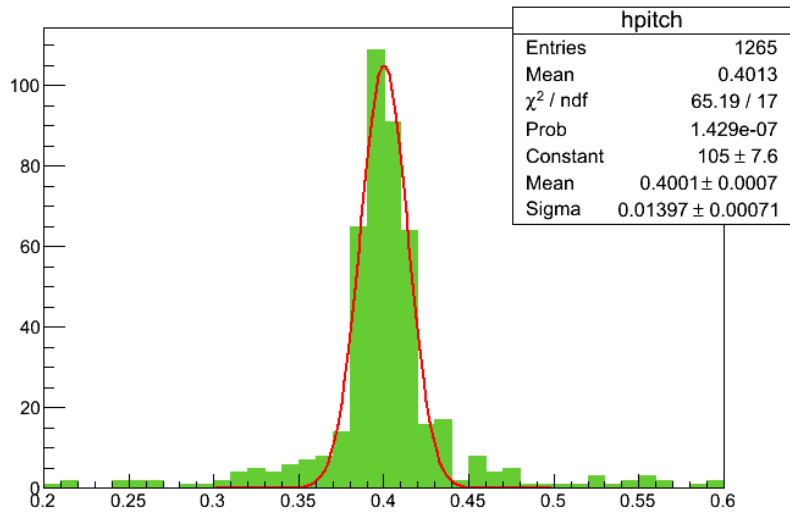


## Full Scan 5



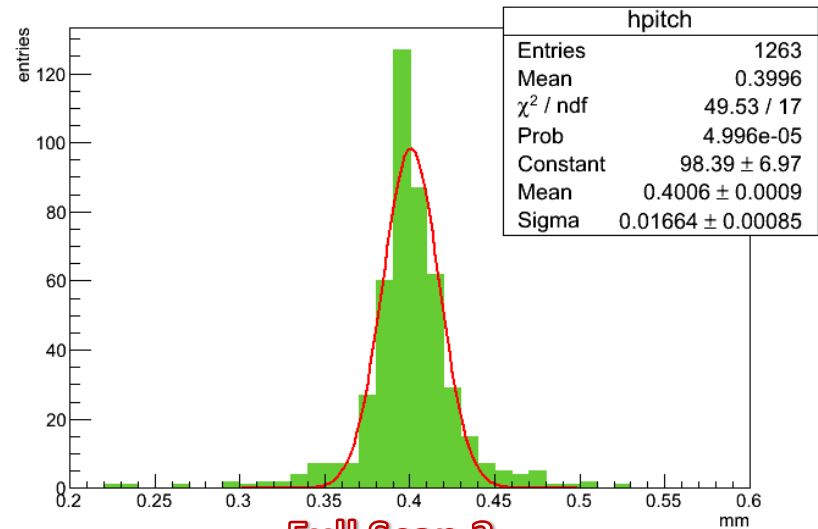
# ELTOS PCB4

Pitch distribution



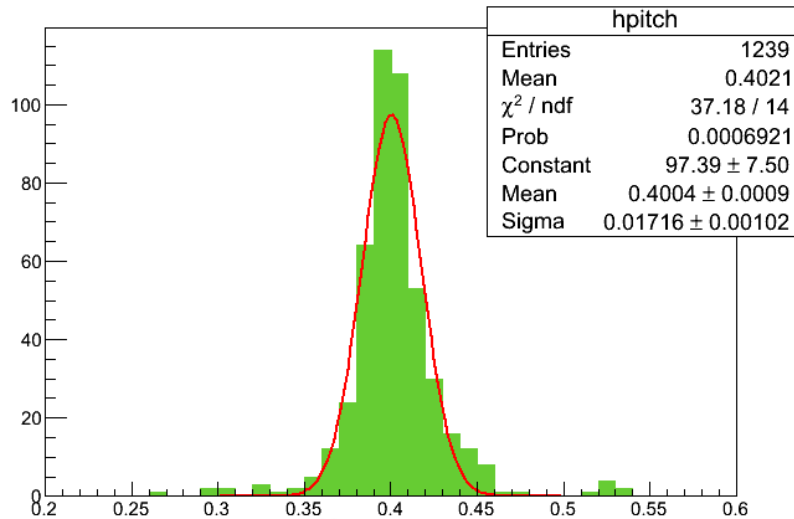
Full Scan 1

Pitch distribution



Full Scan 3

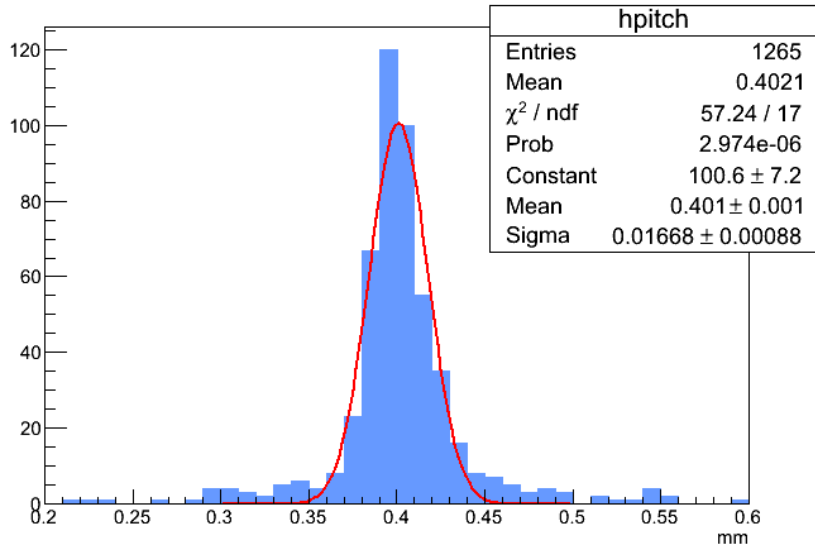
Pitch distribution



Full Scan 5

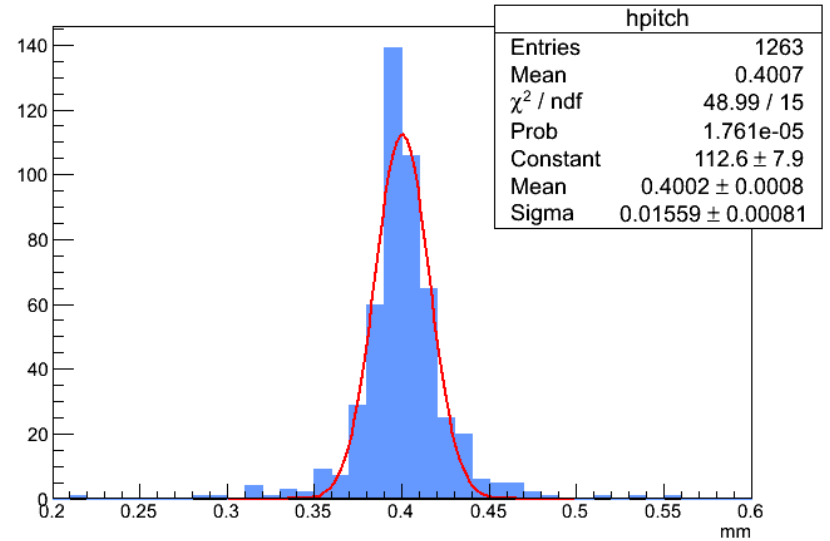
# ELTOS PCB 5

Pitch distribution



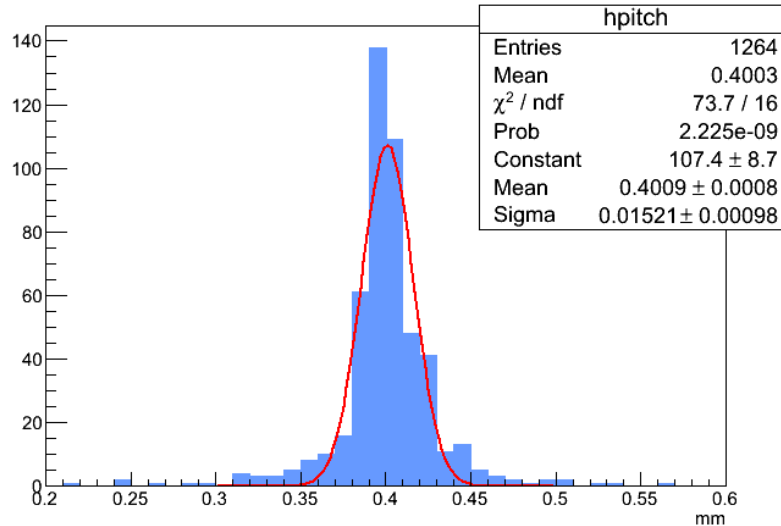
Full Scan 1

Pitch distribution



Full Scan 3

Pitch distribution



Full Scan 5