

Roadmap to 50uM Probe Pitch

by

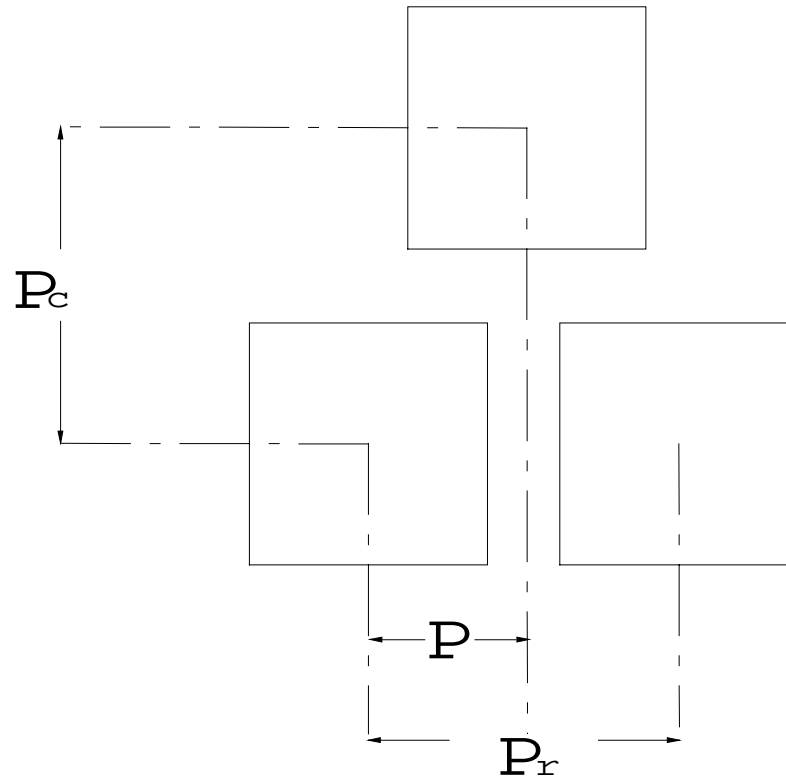
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Probe Pitch Definition

The bonding pad center to center line dimension.

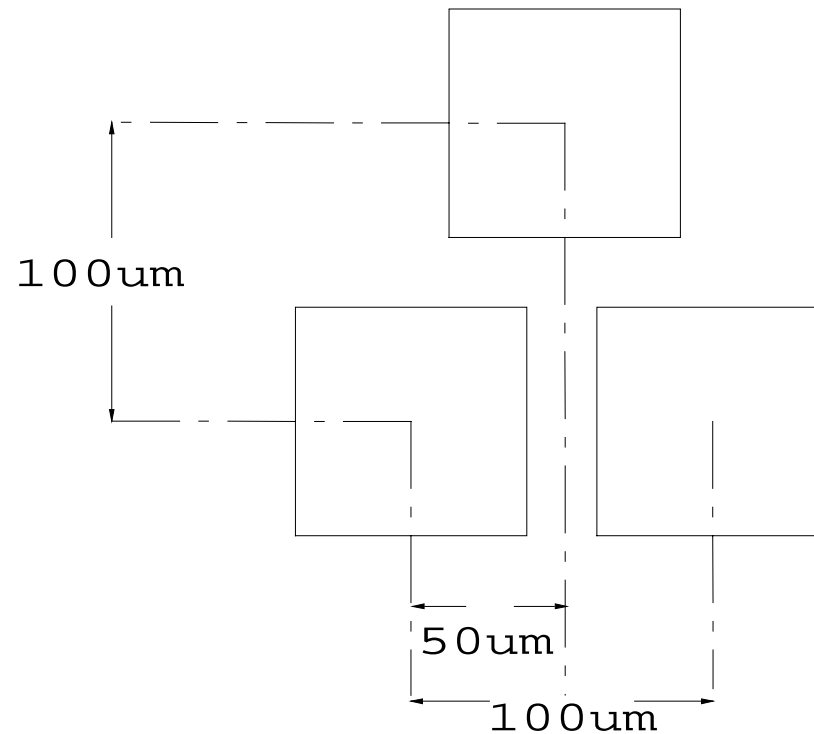


Why 50uM pitch?

Die are still shrinking and probe has
to keep pace.

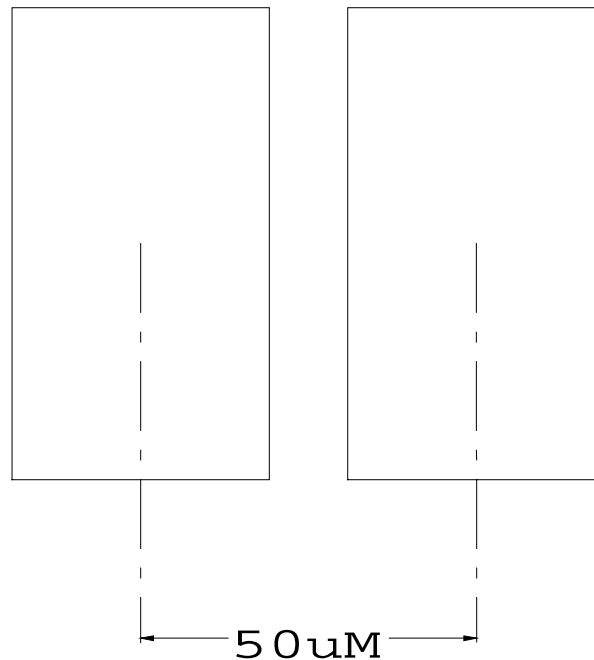
50uM pad configurations

50uM Stagger



50uM pad configurations

50uM Straight



Probe Card Supplier Excellence

Consistently deliver cards that allow
probe areas to:

Ship **ALL** the good die and **ONLY**
the good die.

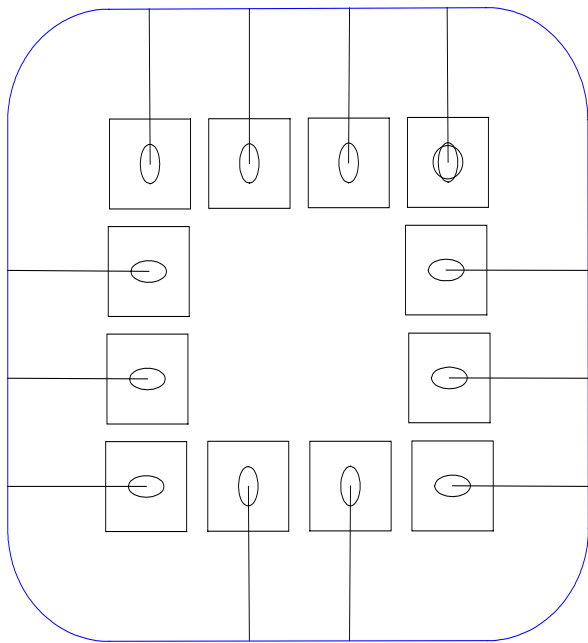
On time at a reasonable cost

Critical Process Path

- Gather customer information
- Develop design specifications
- Generate “Build Solution”
- Execute manufacturing processes
- Implement performance testing
- Perform data analysis
- Make necessary adjustments

Zero fan angle justification

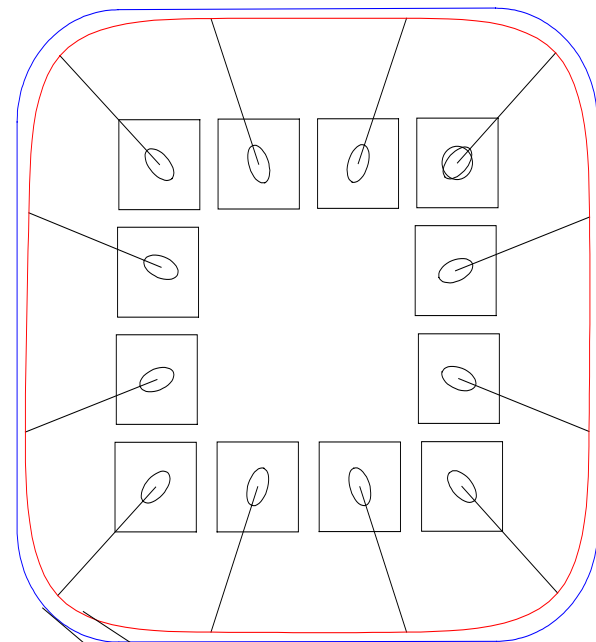
Constant Beam



Best BCF design
Straight Build

1 x 1.8 Scrub
1.5 tip dia

Angle Beam



Custom Ring
Standard Ring

BCF depends on ring design
and operator interpretation

Objective

Design, manufacture, and test
200 point 50uM stagger and straight
probe cards using proven fine pitch
design rules.

Design Specifications

- Straight build
- .8 mil tip diameter
- 4 grams per mil force (10% BCF)
- 1.5 mils overdrive
- +/- .25 mil alignment
- +/- .25 mil planarity
- < 20nA leakage @ 10v

Limitations of manufacture

Stagger layout

- Materials (none)
- Methods (alignment)
- Machines (none)

Straight layout

- Materials (mylar)
- Methods (alignment)
- Machines (analyzer)

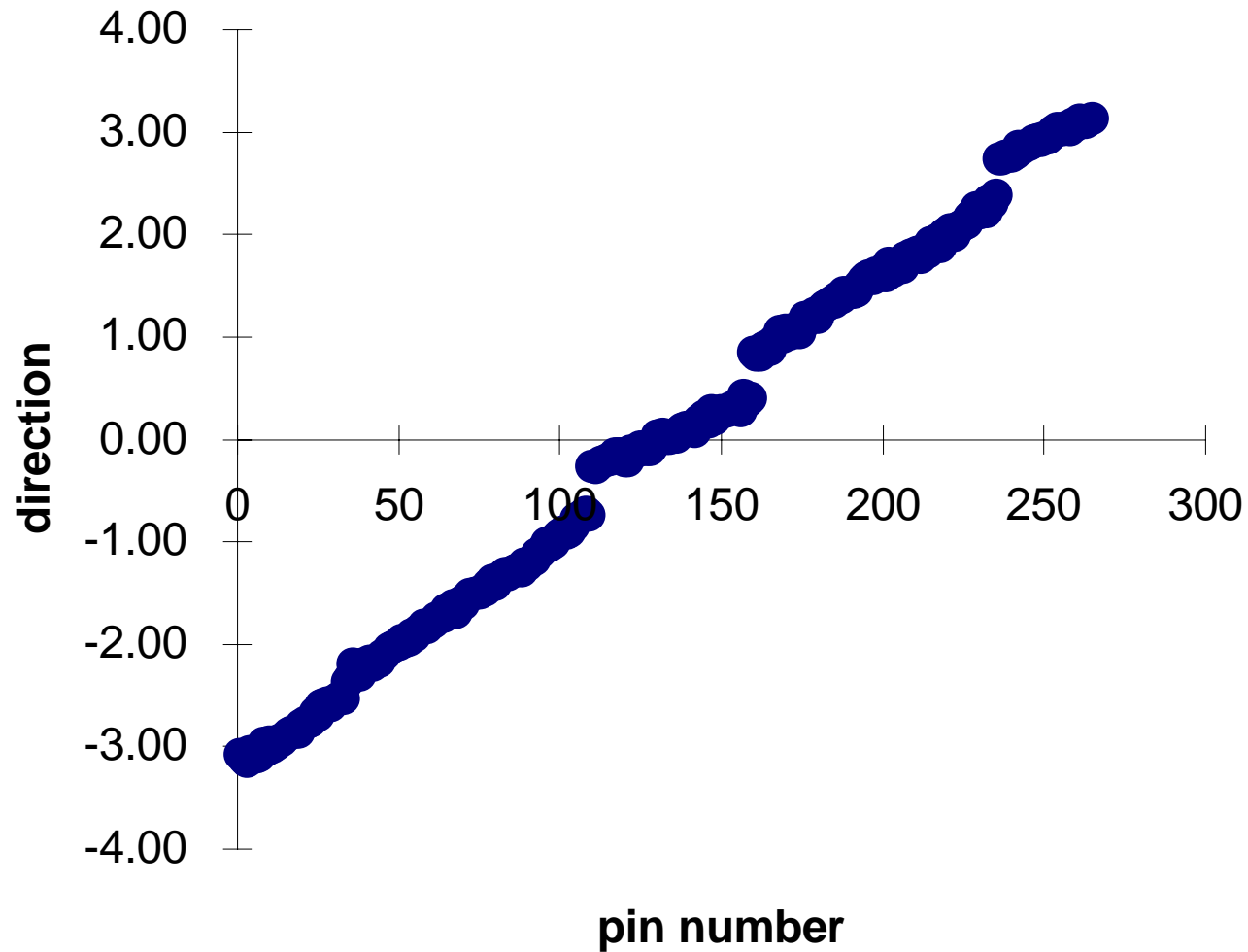
Remedies

- Custom fixture
- Custom ring
- CAD modeled “Build Solution”
- “Special” 50uM straight mylar
- ITC 1 mil post

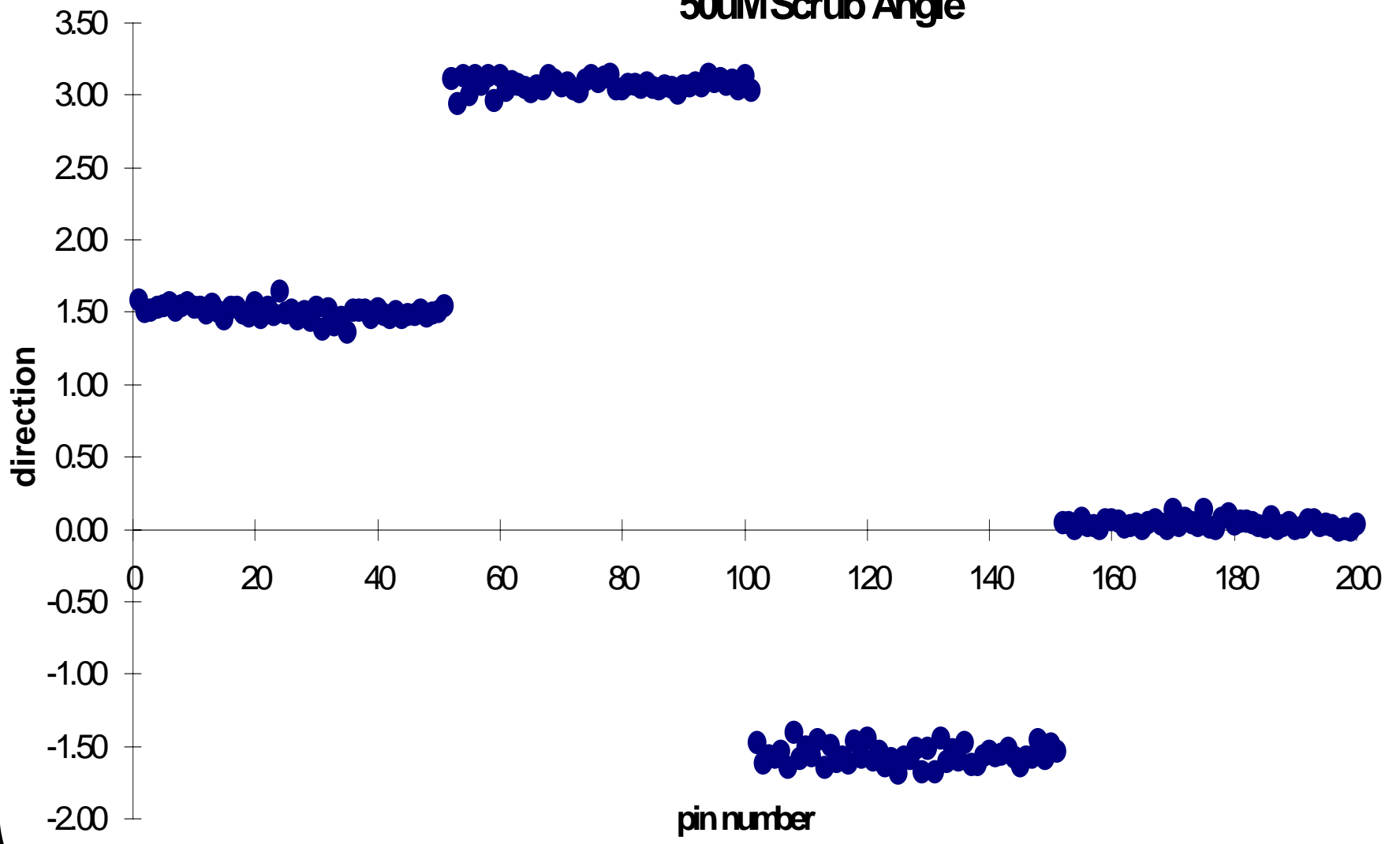
Results

A 50uM stagger probe card exists
and has been tested!

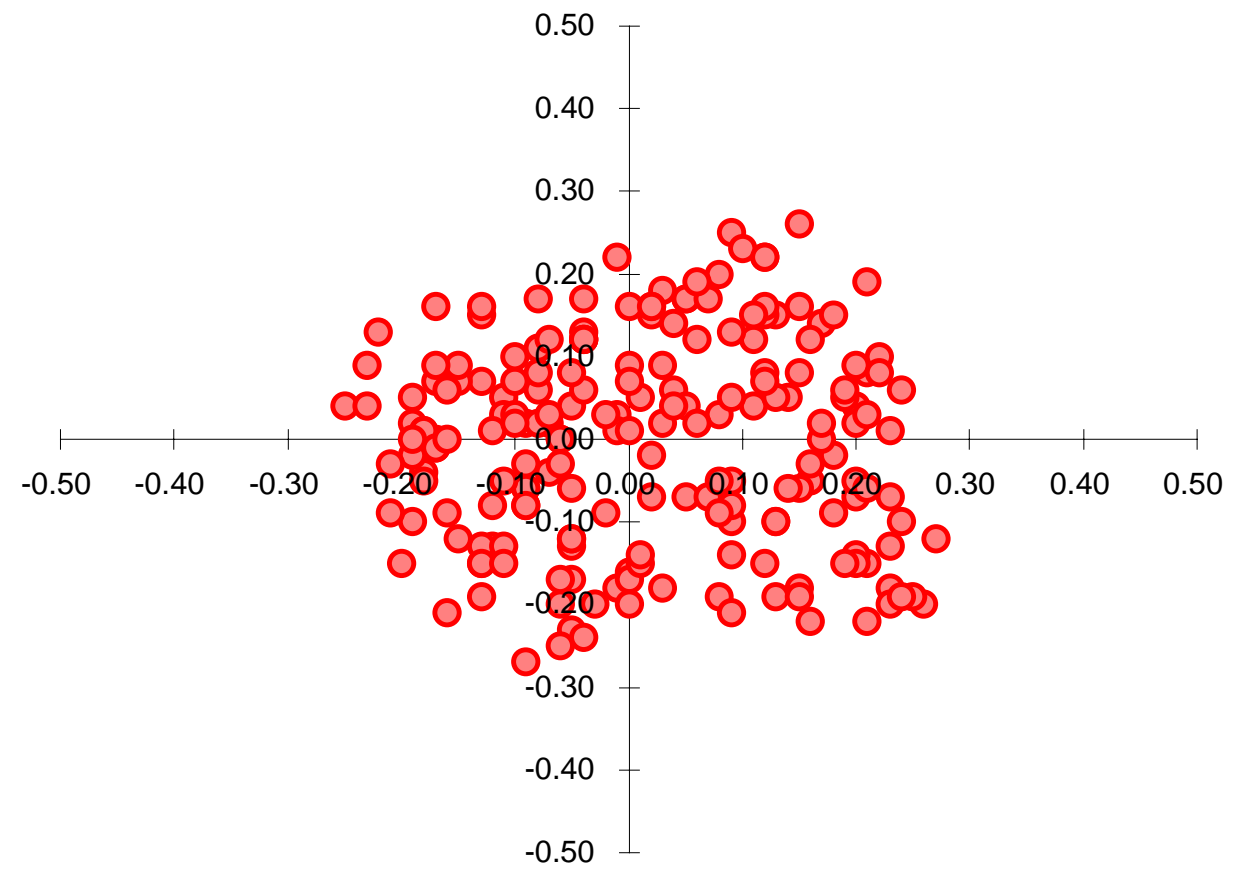
Typical "Fan-out" Scrub Angle



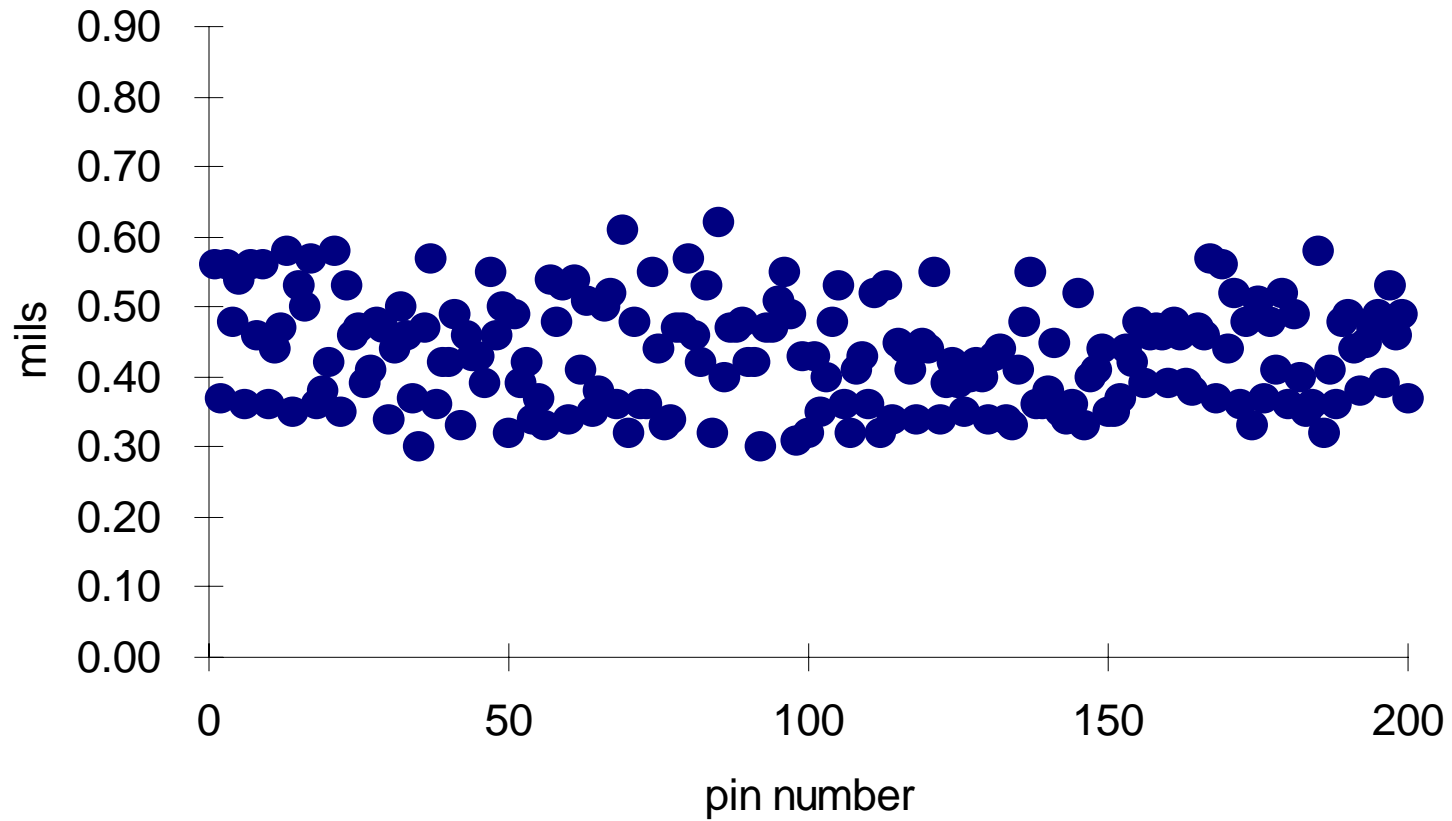
50uM Scrub Angle



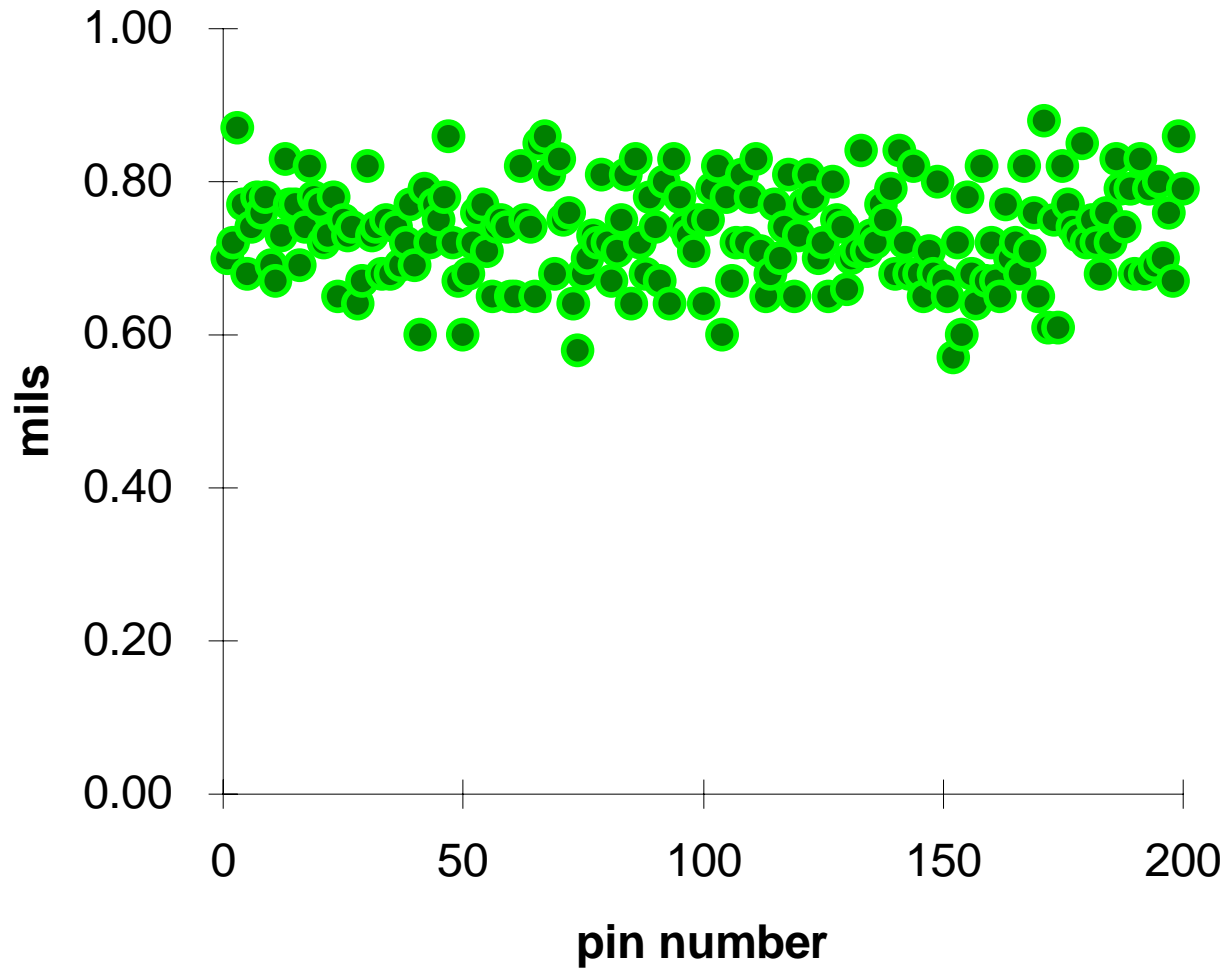
50uM Stagger Alignment



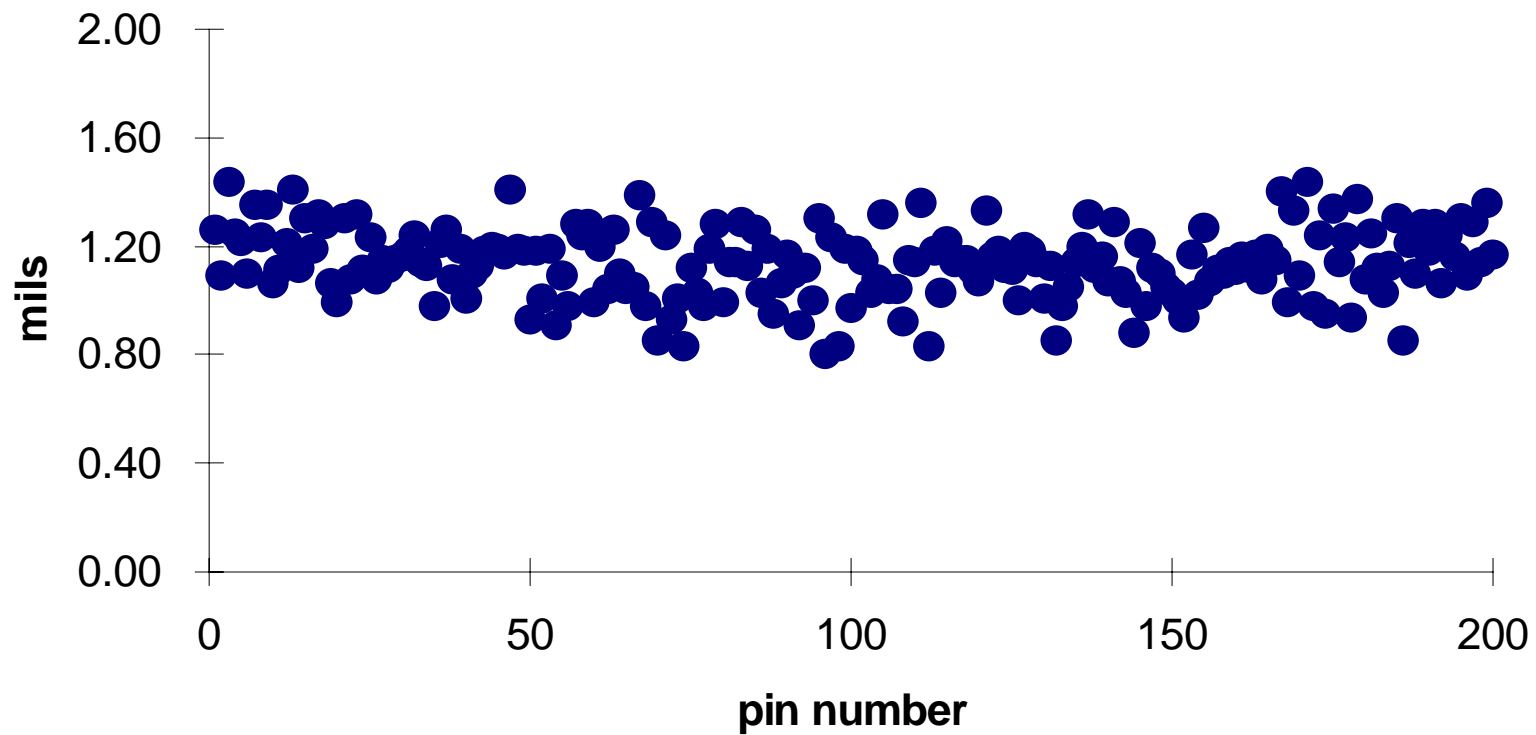
50uM stagger scrub @ 1.3od



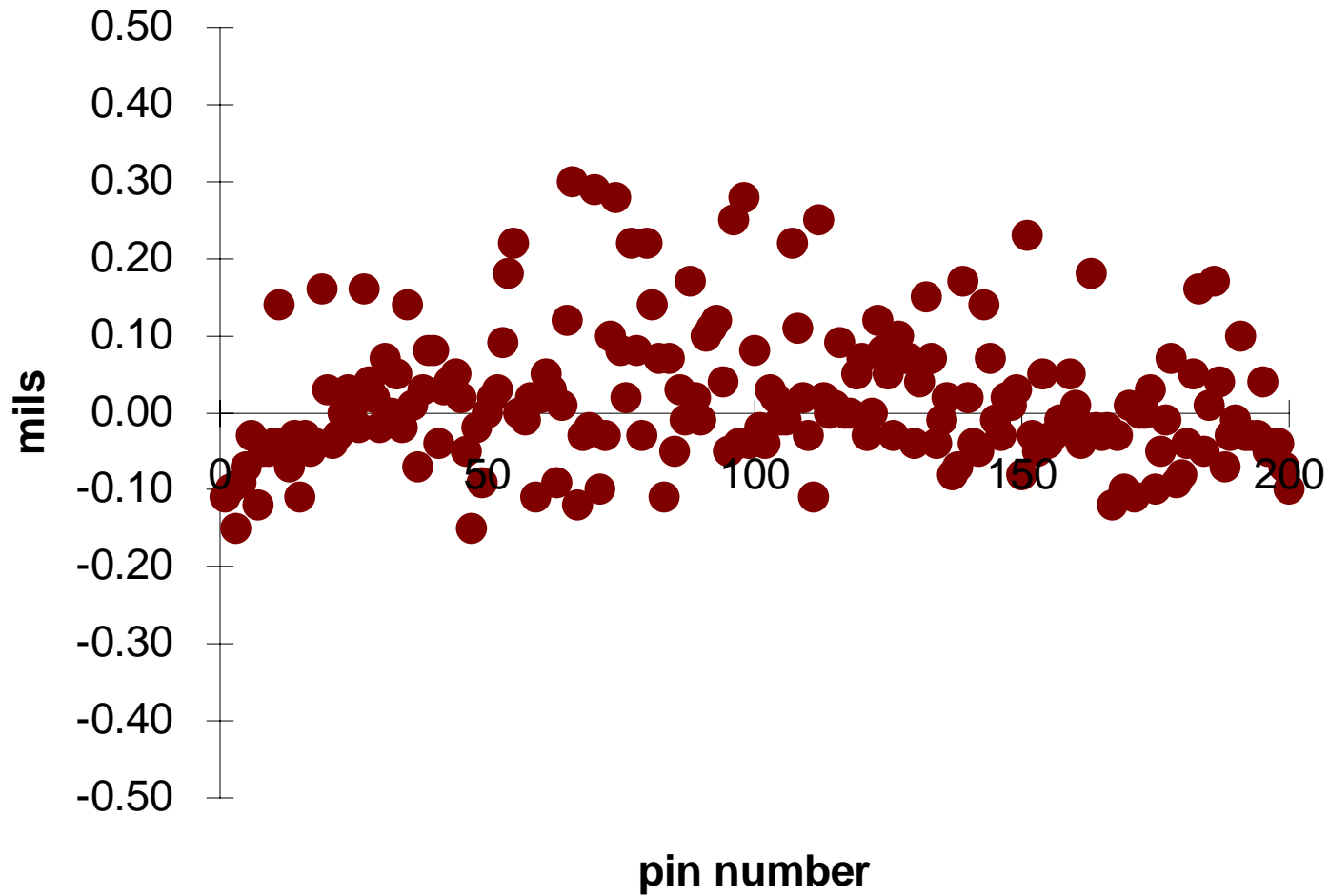
50uM Stagger Tip Diameters



50uM Stagger TScrub @ 1.30d



50uM Stagger planarity



What's Next?

More testing!!!

Gram force

Electrical

Life

50uM Conclusion

	Stagger	Straight
Can it be built?	Yes	Not yet
Can it be tested?	Yes	Maybe
Is it serviceable?	It depends	Don't know
Can it be used on a probe floor?	Needs testing	Not now