Status on hybrid and T-board

Maowu Nie, Jianing Dong, Li Yi

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Shandong University

Outline

- **Measurements of hybrid (done and discussed in FST)**
  - **Thickness**
  - **Pad location**
- **Hybrid and T-board production**

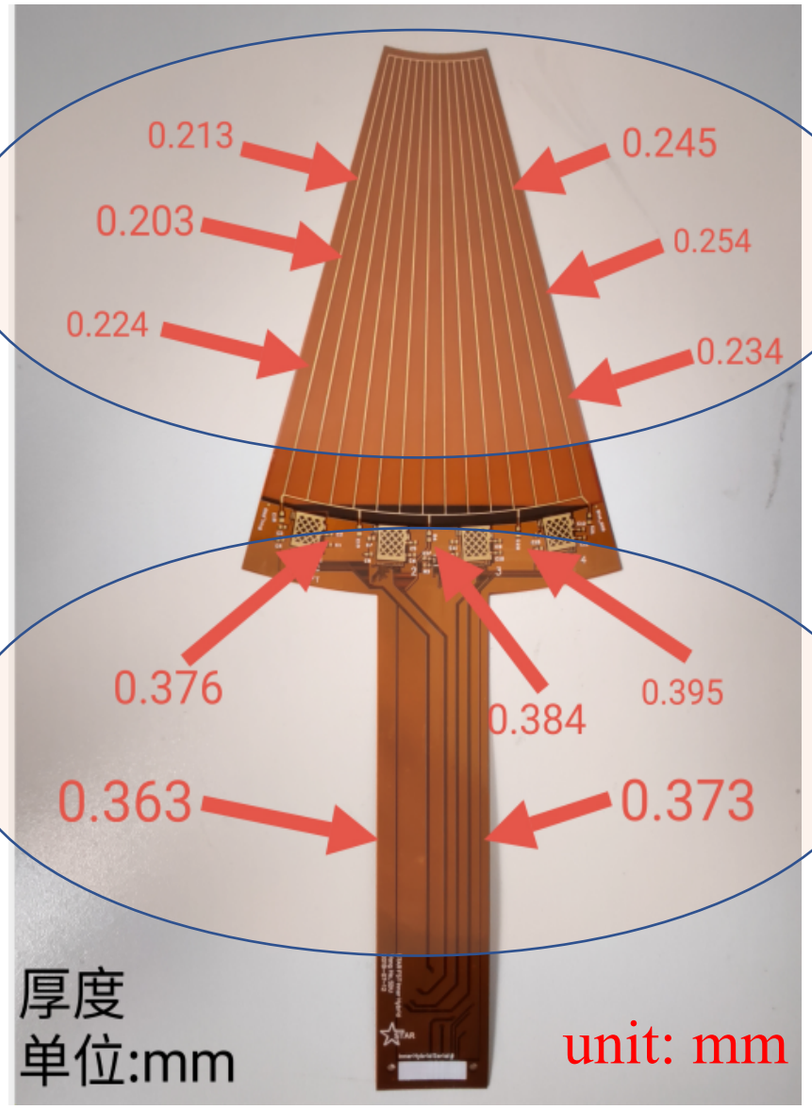
Thickness of hybrid — old vendor

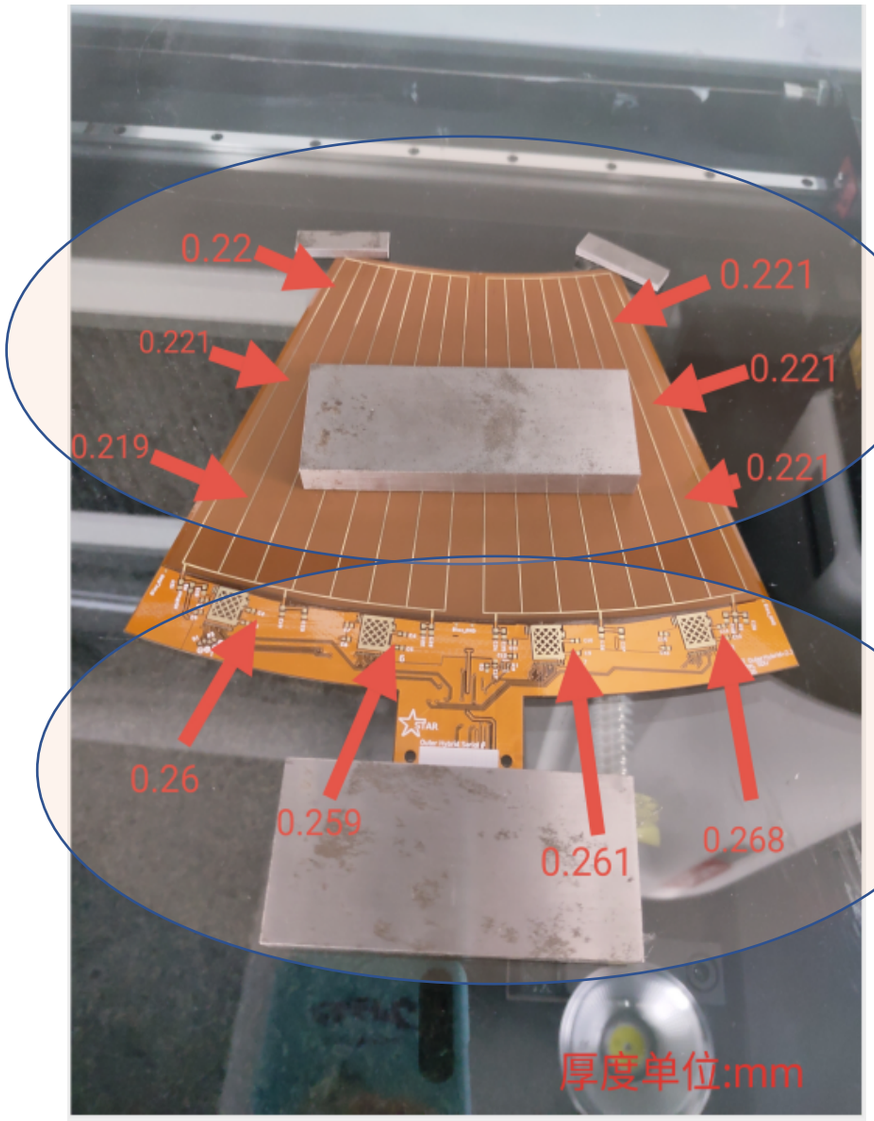
inner

outer

sensor

readout





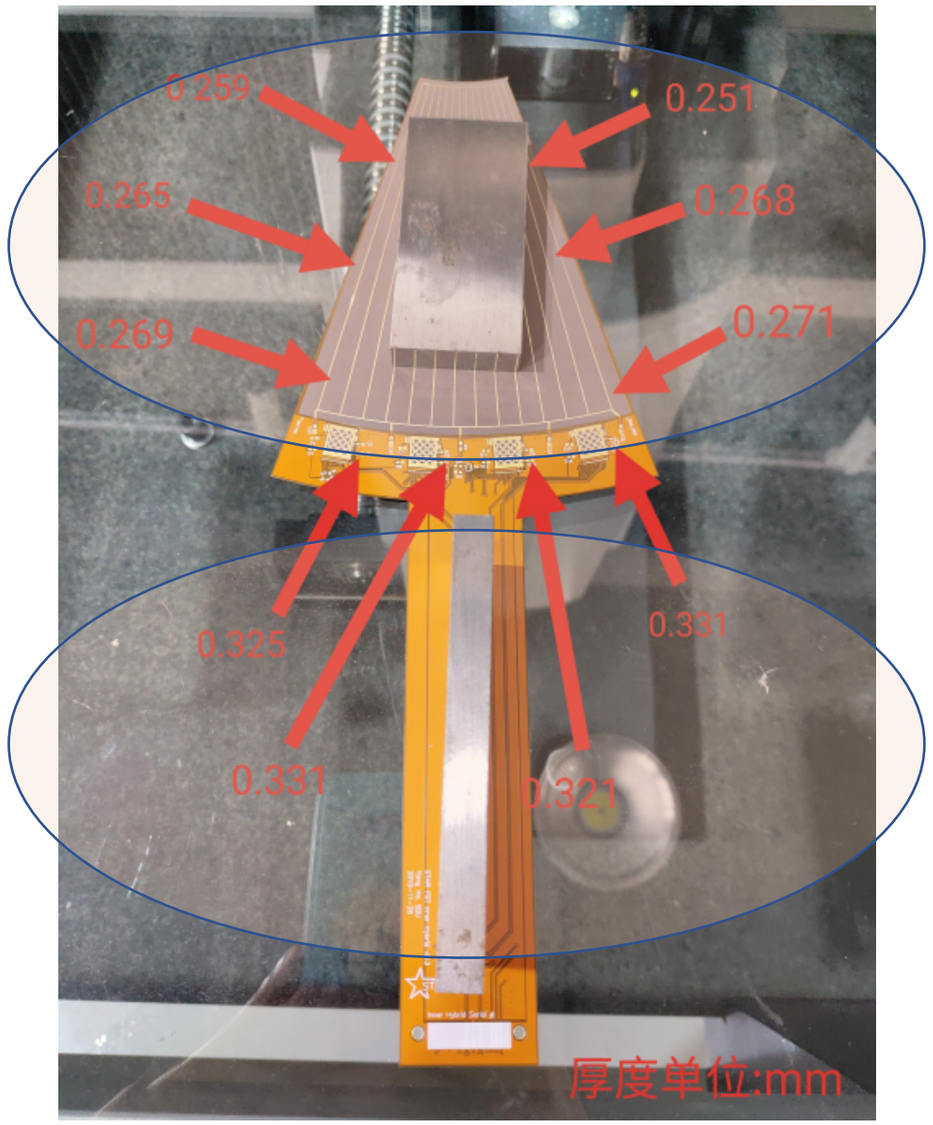
- Average thickness (old vendor:0.310+/-0.050mm)
  - inner sensor(0.2288 ± 0.0176 mm), inner readout(0.3782 ± 0.0108 mm)
  - outer sensor(0.2205 ± 0.0008 mm), outer readout(0.2680 ± 0.0035 mm)

Thickness of hybrid — new vendor

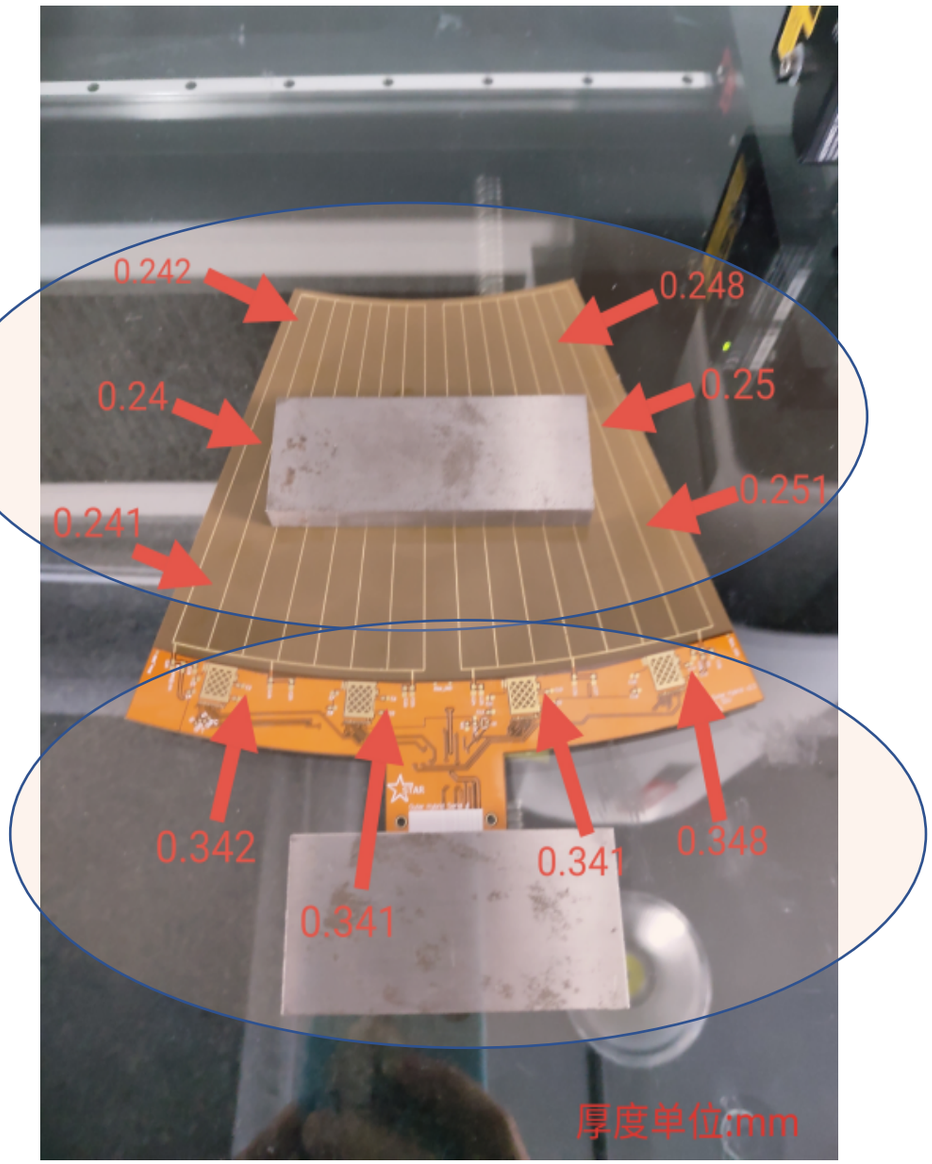
inner

outer

sensor



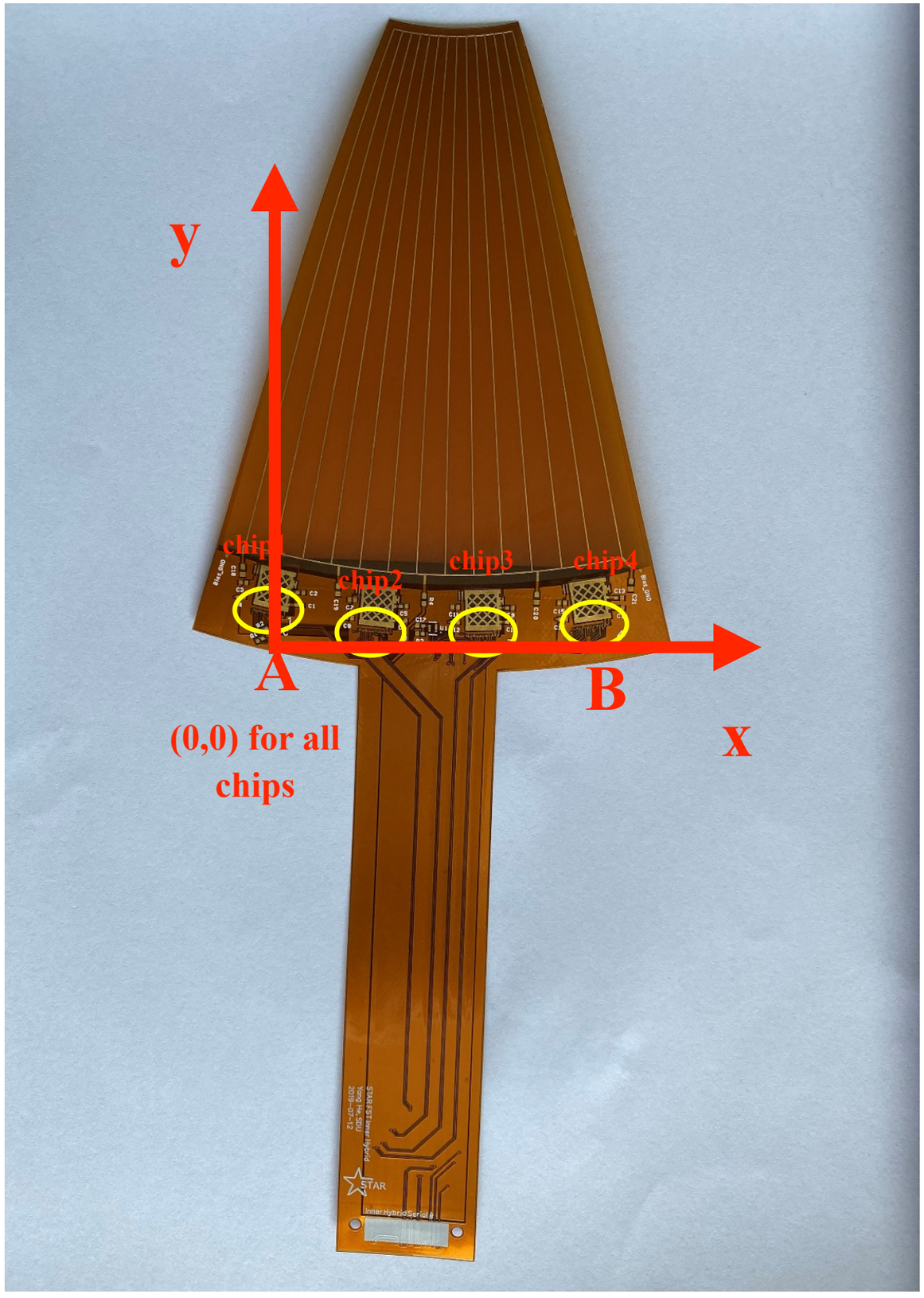
readout



- Average thickness (new vendor:0.350+/-0.050mm)
  - inner sensor(0.2638 ± 0.0069 mm), inner readout(0.3270 ± 0.0042 mm)
  - outer sensor(0.2453 ± 0.0045 mm), outer readout(0.3430 ± 0.0029 mm)

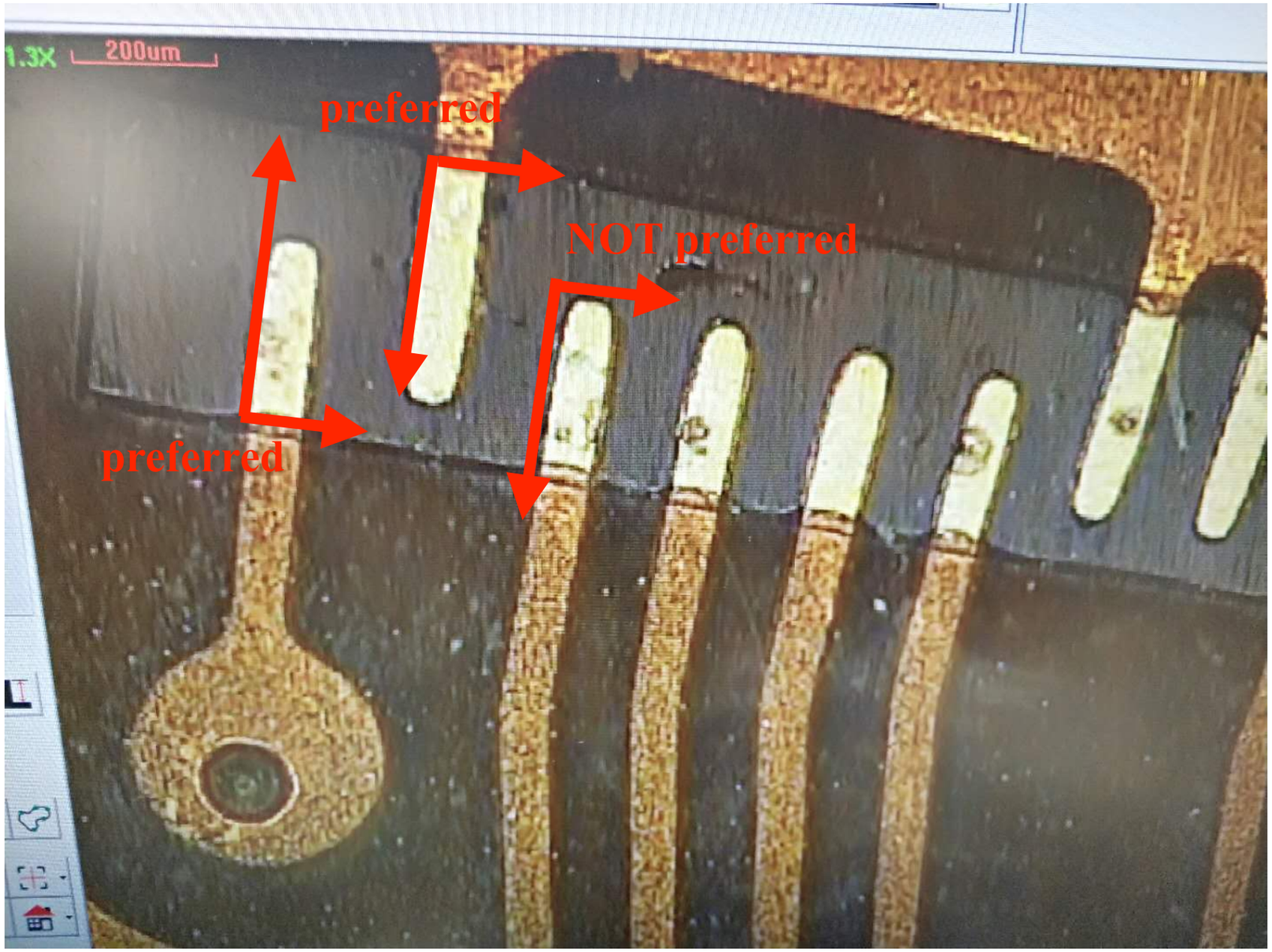
Pad location test

Take inner hybrid v2.1 from the old vendor for example.



- **Two reference holes A and B as Yi suggested.**
- **Set AB as the x axis and the line perpendicular to AB is Y axis.**
- **Set A as the origin (0,0).**
- **Measure the pads from chip 1, 2, 3, 4.**

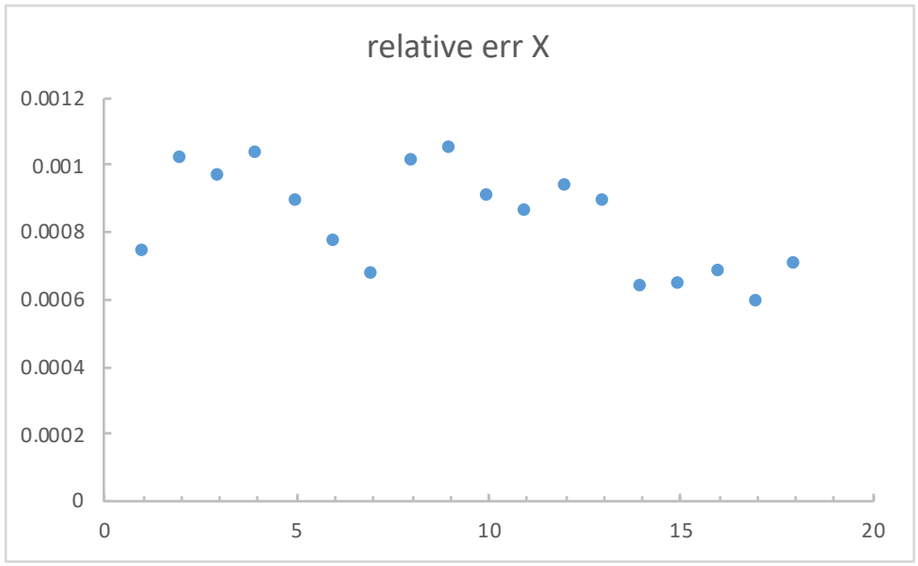
Pad location test

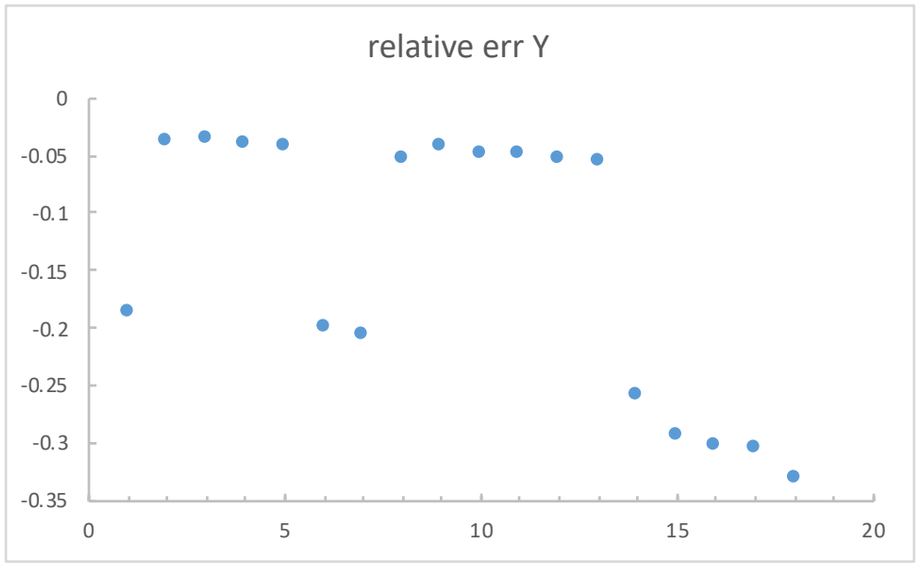


- **Measure the left top corner or the left bottom corner of the pads.**

Pad location test — chip 3

	pad	CAD_X	measured X	CAD_Y	measured Y	abs_err X	relative_err X	abs_err Y	relative_err Y
Chip3 (unit: mm)	1	42.957	42.989	-1.173	-0.955	0.032	0.000744931	0.218	-0.185848252
	2	43.203	43.247	-1.406	-1.353	0.044	0.001018448	0.053	-0.03769559
	3	43.428	43.47	-1.387	-1.336	0.042	0.000967118	0.051	-0.036770007
	4	43.652	43.697	-1.367	-1.313	0.045	0.001030881	0.054	-0.03950256
	5	43.876	43.915	-1.348	-1.291	0.039	0.000888869	0.057	-0.042284866
	6	44.078	44.112	-1.075	-0.861	0.034	0.00077136	0.214	-0.199069767
	7	44.302	44.332	-1.055	-0.838	0.03	0.00067717	0.217	-0.205687204
	8	44.548	44.593	-1.289	-1.221	0.045	0.001010146	0.068	-0.052754073
	9	44.997	45.044	-1.249	-1.195	0.047	0.001044514	0.054	-0.043234588
	10	45.221	45.262	-1.23	-1.17	0.041	0.000906658	0.06	-0.048780488
	11	45.445	45.484	-1.21	-1.151	0.039	0.00085818	0.059	-0.048760331
	12	46.117	46.16	-1.151	-1.09	0.043	0.000932411	0.061	-0.052997394
	13	47.014	47.056	-1.073	-1.014	0.042	0.000893351	0.059	-0.054986021
	14	47.216	47.246	-0.8	-0.593	0.03	0.000635378	0.207	-0.25875
	15	48.112	48.143	-0.722	-0.51	0.031	0.00064433	0.212	-0.293628809
	16	48.561	48.594	-0.682	-0.476	0.033	0.000679558	0.206	-0.302052786
	17	48.785	48.814	-0.663	-0.462	0.029	0.000594445	0.201	-0.303167421
	18	49.457	49.492	-0.604	-0.404	0.035	0.000707685	0.2	-0.331125828

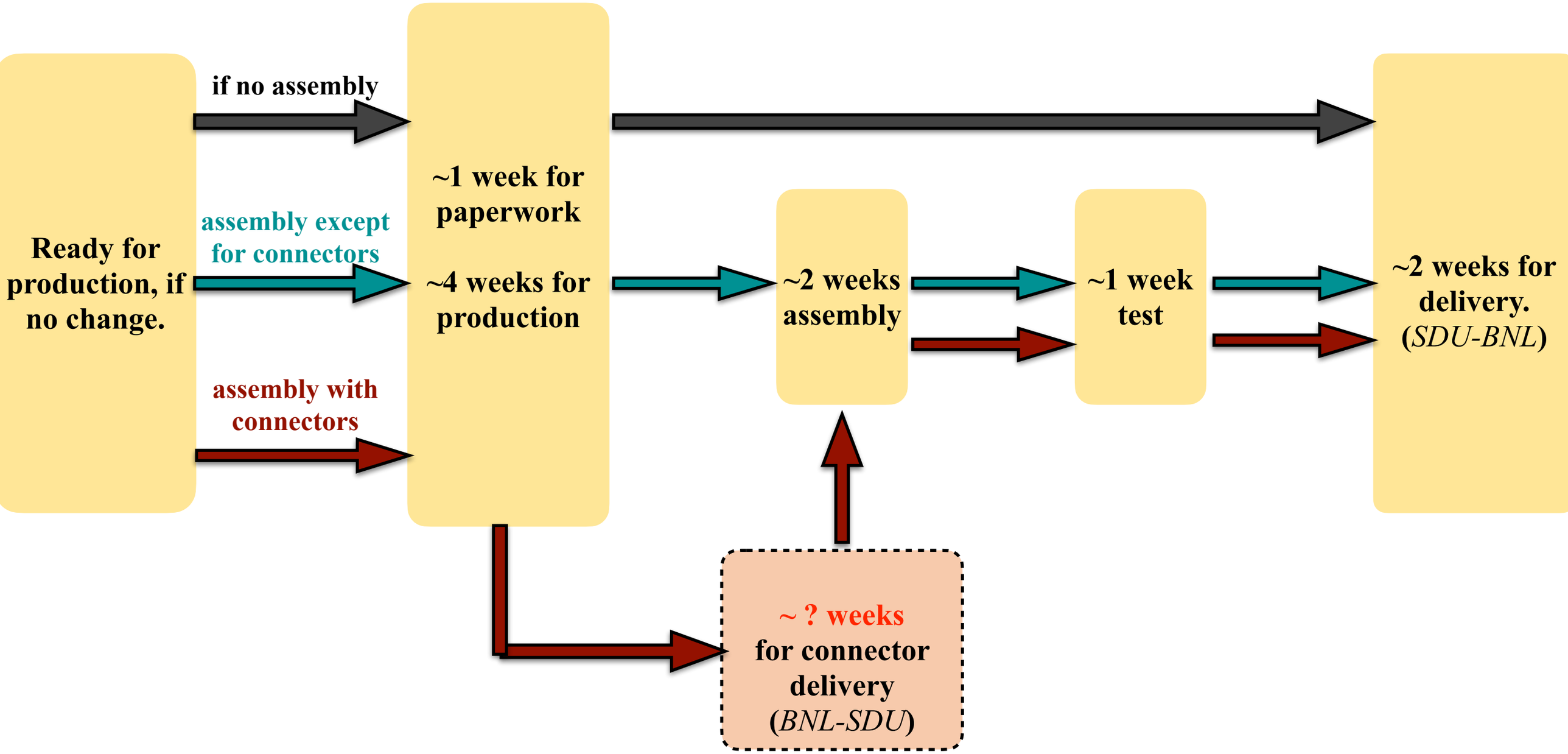




https://drupal.star.bnl.gov/STAR/blog/nie/measurements-hybrid

- **Chip location test is roughly consistent with CAD values within 10%.**

Hybrid and T-board production



Summary

- **We have a detail measurement on hybrid, which will be helpful for the MS.**
- **We are ready for production and can take charge of the T-board assembly.**