

2014-03-19 CSPAD DS1 Alignment

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Optical measurement

- [2014-03-19-CSPAD-CXI-DS1-Metrology.xlsx](#)
- [2014-03-19-CSPAD-CXI-DS1-Metrology.txt](#)
- [2014-03-19-CSPAD-CXI-DS1-Metrology-corr.txt](#) - for Q0 and Q2 use the same corrections of typos like in [2013-12-20 CSPAD DS1 Alignment](#)

Quality check table for corrected Q0 and Q2 only

pair: D2	S1 dD	S2 d(dS)	dS1 d(dL)	dS2 dz3(um)	L1	L2	dL1	dL2	<dS/L>	angle(deg)	D1
Quad 0											
pair: 0	20913	20911	35	33	43542	43545	-17	-14	0.00078	0.04474	48305
48304	1	2	-3	-15.007							
pair: 1	20907	20911	6	10	43544	43547	-6	-3	0.00018	0.01053	48304
48305	-1	-4	-3	-9.007							
pair: 2	20907	20908	-12	-13	43543	43545	-4	-2	-0.00029	-0.01645	48305
48300	5	1	-2	-20.006							
pair: 3	20914	20915	-21	-22	43552	43561	-19	-10	-0.00049	-0.02828	48313
48321	-8	1	-9	-13.023							
pair: 4	20909	20909	-39	-39	43597	43545	23	-29	-0.00090	-0.05128	48308
48347	-39	0	52	151.804							
pair: 5	20904	20898	-24	-30	43557	43544	23	10	-0.00062	-0.03552	48309
48303	6	6	13	57.012							
pair: 6	20934	20934	-256	-256	43578	43580	-127	-125	-0.00587	-0.33658	48344
48349	-5	0	-2	-3.001							
pair: 7	20912	20942	-33	-63	43550	43548	-23	-25	-0.00110	-0.06315	48315
48317	-2	30	2	-44.030							
Quad 1											
pair: 0	20906	20905	68	67	43535	43541	-34	-28	0.00155	0.08883	48298
48295	3	1	-6	-0.000							
pair: 1	20904	20902	-10	-12	43543	43537	6	0	-0.00011	-0.00658	48295
48299	-4	2	6	-1.013							
pair: 2	20907	20900	17	24	43538	43537	11	10	0.00047	0.02698	48296
48295	1	-7	1	0.993							
pair: 3	20902	20903	31	30	43539	43537	15	13	0.00070	0.04014	48295
48296	-1	1	2	-9.001							
pair: 4	20906	20907	-1	0	43545	43545	-1	-1	-0.00001	-0.00066	48302
48304	-2	-1	0	-0.999							
pair: 5	20909	20909	52	52	43542	43542	-27	-27	0.00119	0.06843	48300
48303	-3	0	0	-27.000							
pair: 6	20907	20907	45	45	43542	43577	-14	21	0.00103	0.05919	48300
48333	-33	0	-35	7.075							
pair: 7	20908	20906	57	59	43541	43543	27	29	0.00133	0.07632	48301
48301	0	-2	-2	-2.996							
Quad 2											
pair: 0	20909	20907	-29	-31	43543	43541	14	12	-0.00069	-0.03948	48300
48302	-2	2	2	50.998							
pair: 1	20921	20912	-177	-186	43548	43563	87	102	-0.00417	-0.23876	48324
48311	13	9	-15	27.997							
pair: 2	20972	20972	-81	-81	43524	43560	-18	18	-0.00186	-0.10659	48364

48294	70	0	-36	-50.086							
pair: 3	20907	20907	-51	-51	43542	43543	-23	-22	-0.00117	-0.06711	48303
48299	4	0	-1	4.999							
pair: 4	20908	20905	127	124	43542	43541	-60	-61	0.00288	0.16514	48300
48300	0	3	1	-59.003							
pair: 5	20903	20931	76	104	43546	43545	-42	-43	0.00207	0.11842	48309
48308	1	-28	1	20.900							
pair: 6	20911	20910	74	75	43547	43546	37	36	0.00171	0.09802	48307
48306	1	-1	1	9.000							
pair: 7	20918	20925	149	142	43551	43540	80	69	0.00334	0.19144	48315
48306	9	7	11	-30.015							
Quad 3											
pair: 0	20902	20899	72	69	43537	43538	-33	-32	0.00162	0.09278	48295
48293	2	3	-1	-5.015							
pair: 1	20905	20909	48	52	43534	43545	-28	-17	0.00115	0.06580	48300
48297	3	-4	-11	17.022							
pair: 2	20907	20907	259	259	43539	43539	124	124	0.00595	0.34083	48299
48299	0	0	0	-4.000							
pair: 3	20894	20901	16	9	43538	43537	10	9	0.00029	0.01645	48296
48289	7	7	1	-4.004							
pair: 4	20904	20903	95	94	43541	43542	-46	-45	0.00217	0.12435	48299
48299	0	1	-1	-17.002							
pair: 5	20904	20905	158	159	43541	43542	-77	-76	0.00364	0.20857	48299
48300	-1	-1	-1	1.001							
pair: 6	20903	20905	41	39	43540	43539	22	21	0.00092	0.05264	48299
48295	4	2	1	-12.006							
pair: 7	20907	20904	11	14	43542	43543	5	6	0.00029	0.01645	48300
48301	-1	-3	-1	-25.995							

Quality for re-measured Quads Q1 and Q3 is very good

Geometry parameters

✓ center/O-end.data (pixel)

197.94	198.05	304.45	97.98	623.08	623.74	706.30	498.64
197.93	198.08	304.13	96.70	621.81	621.77	704.64	497.90
197.22	198.51	300.71	96.77	621.46	620.95	709.39	496.88
197.69	197.92	301.97	99.21	623.82	622.78	704.38	497.16
301.22	95.14	621.13	621.36	516.12	724.42	197.91	196.12
303.22	95.04	620.07	620.30	518.10	725.83	198.43	198.14
301.51	94.34	622.96	623.24	519.67	725.08	198.86	198.69
301.11	95.32	622.75	622.42	517.86	724.77	197.25	197.98
0.47	0.17	-0.25	0.17	0.65	-0.19	-0.14	-0.50
1.62	0.56	2.34	2.25	1.47	2.11	1.02	0.97
0.01	-0.37	0.95	-0.22	0.08	-0.75	0.21	0.05
0.93	0.37	2.47	2.46	1.77	2.24	0.55	1.07

or the same in um

21757	21769	33464	10769	68489	68561	77637	54810
21757	21773	33430	10628	68349	68345	77454	54729
21678	21820	33054	10637	68310	68254	77976	54617
21730	21755	33193	10904	68570	68456	77425	54648
33110	10457	68275	68299	56732	79628	21754	21558
33329	10446	68158	68183	56949	79783	21811	21779
33141	10369	68476	68506	57121	79700	21858	21839
33098	10477	68452	68416	56923	79666	21681	21761
51	18	-28	18	71	-20	-15	-54
178	61	257	247	161	231	111	106
1	-40	104	-24	9	-82	23	6
102	40	272	270	194	246	60	118

✔ tilt/0-end.data (degree)

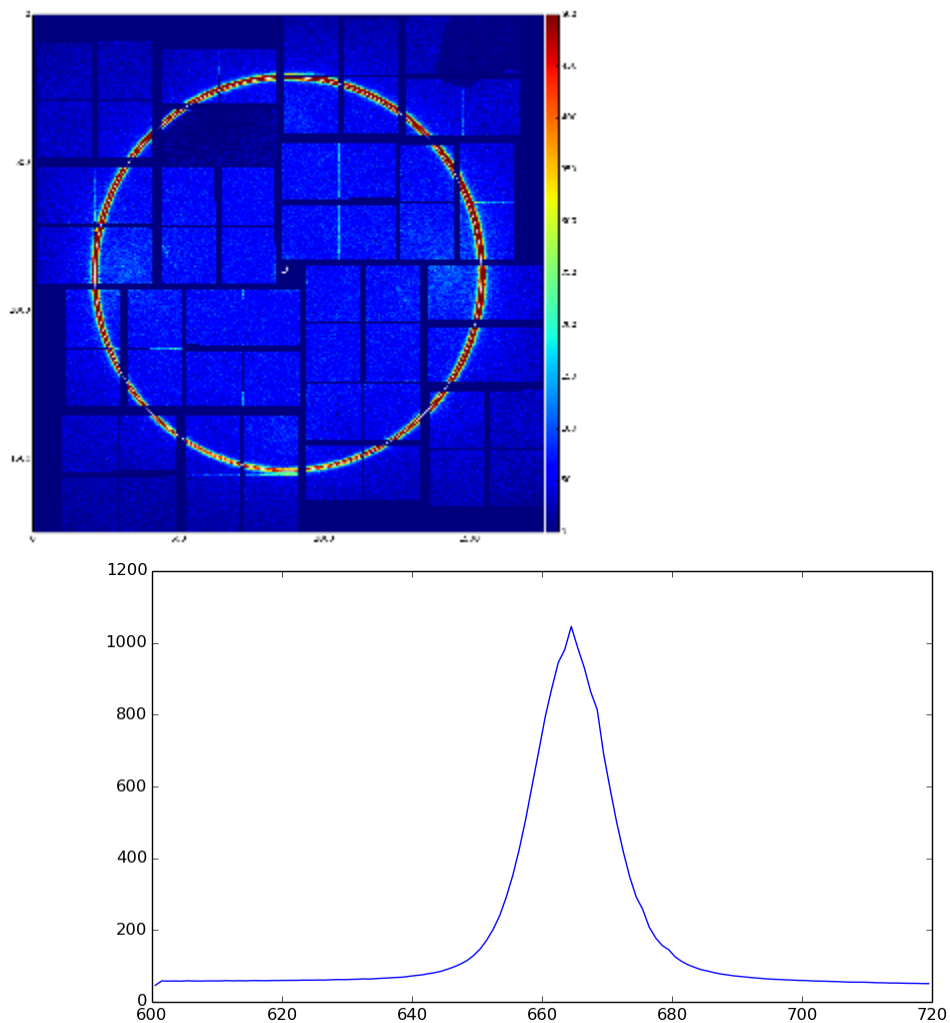
0.04474	0.01053	-0.01645	-0.02828	-0.05128	-0.03552	-0.33658	-0.06315
0.08883	-0.00658	0.02698	0.04014	-0.00066	0.06843	0.05919	0.07632
-0.03948	-0.23876	-0.10659	-0.06711	0.16514	0.11842	0.09802	0.19144
0.09278	0.06580	0.34083	0.01645	0.12435	0.20857	0.05264	0.01645

2014-03-22 Tuning of quads

use exp=cxii0114:run=227

✔ offset_corr/0-end.data

0	1	2	5
0	2	5	4
0	0	0	0



2014-03-24 Tuning of quads

use exp=cxii0114:run=227

At more detailed consideration with semi-automatic ring-center finding algorithm (and masking quads etc.) it was revealed that the gap between quads need to be increased by a few pixels, that is set in

✔ offset_corr/0-end.data

```
0  0  9 12
0  5 10  3
0  0  0  0
```

which gives image, r-phi plot, and radial histogram:

