

Content

- ## Optical measurements

These metrology files should be used for all experiments AFTER May 15th (until next upgrade/repair).

- ## Quality check in X-Y plane

[illegible]

segm: 0	20902	20908	-49	-43	43546	43542	26	22	-0.06053	48303	48300
3	-6	4									
segm: 1	20906	20906	77	77	43544	43546	-40	-38	0.10132	48301	48305
-4	0	-2									
segm: 2	20916	20867	29	78	43528	43608	-6	74	0.06970	48325	48310
15	-49	-80									
segm: 3	20909	20917	9	1	43546	43544	7	5	0.00658	48309	48303
6	8	2									
segm: 4	20911	20921	131	141	43544	43547	-63	-60	0.17895	48311	48305
6	-10	-3									
segm: 5	20901	20935	74	108	43553	43547	-41	-47	0.11972	48313	48313
0	-34	6									
segm: 6	20918	20924	-18	-24	43543	43570	-15	12	-0.02762	48328	48312
16	6	-27									
segm: 7	20896	20918	30	8	43586	43548	-7	-45	0.02499	48292	48355
-63	22	38									
Quad 3											
segm: 0	20902	20899	72	69	43537	43538	-33	-32	0.09212	48295	48293
2	3	-1									
segm: 1	20905	20909	48	52	43534	43545	-28	-17	0.06580	48300	48297
3	-4	-11									
segm: 2	20907	20907	259	259	43539	43539	124	124	0.34083	48299	48299
0	0	0									
segm: 3	20894	20901	16	9	43538	43537	10	9	0.01579	48296	48289
7	7	1									
segm: 4	20904	20903	95	94	43541	43542	-46	-45	0.12369	48299	48299
0	1	-1									
segm: 5	20904	20905	158	159	43541	43542	-77	-76	0.20791	48299	48300
-1	-1	-1									
segm: 6	20903	20905	41	39	43540	43539	22	21	0.05264	48299	48295
4	2	1									
segm: 7	20907	20904	11	14	43542	43543	5	6	0.01579	48300	48301
-1	-3	-1									

Quality check in Z

segm:	SA	LA	XSize	YSize	dZS1	dZS2	dZL1	dZL2	dZSA	dZLA	ddZS	ddZL	dZX	dZY
angXZ(deg)	angYZ(deg)	dz3(um)												
Quad 0														
segm: 0	20912	43543	43543	20912	-6	9	-115	-100	1	-107	-15	-15	-107	1
-0.14080	0.00274	-15.007												
segm: 1	20909	43545	43545	20909	-4	5	-96	-87	0	-91	-9	-9	-91	0
-0.11974	0.00000	-9.007												
segm: 2	20907	43544	20907	43544	-48	-28	-84	-64	-38	-74	-20	-20	-38	-74
-0.10414	-0.09737	-20.006												
segm: 3	20914	43556	20914	43556	-17	-4	-109	-96	-10	-102	-13	-13	-10	-102
-0.02740	-0.13418	-13.023												
segm: 4	20909	43571	43571	20909	99	-53	162	10	23	86	152	152	86	23
0.11309	0.06303	151.804												
segm: 5	20901	43550	43550	20901	-15	-72	-26	-83	-43	-54	57	57	-54	-43
-0.07104	-0.11788	57.012												
segm: 6	20934	43579	20934	43579	2	5	-11	-8	3	-9	-3	-3	3	-9
0.00821	-0.01183	-3.001												
segm: 7	20927	43549	20927	43549	-22	22	-27	17	0	-5	-44	-44	0	-5
0.00000	-0.00658	-44.030												
Quad 1														
segm: 0	20905	43538	43538	20905	76	76	24	24	76	24	0	0	24	76
0.03158	0.20830	-0.000												
segm: 1	20903	43540	43540	20903	91	92	32	33	91	32	-1	-1	32	91
0.04211	0.24943	-1.013												
segm: 2	20903	43537	20903	43537	18	17	57	56	17	56	1	1	17	56
0.04660	0.07370	0.993												
segm: 3	20902	43538	20902	43538	27	36	45	54	31	49	-9	-9	31	49

0.08498	0.06448	-9.001												
segm: 4	20906	43545	43545	20906	20	21	22	23	20	22	-1	-1	22	20
0.02895	0.05481	-0.999												
segm: 5	20909	43542	43542	20909	1	28	93	120	14	106	-27	-27	106	14
0.13948	0.03836	-27.000												
segm: 6	20907	43559	20907	43559	26	19	93	86	22	89	7	7	22	89
0.06029	0.11707	7.075												
segm: 7	20907	43542	20907	43542	17	20	125	128	18	126	-3	-3	18	126
0.04933	0.16580	-2.996												

Quad 2														
segm: 0	20905	43544	43544	20905	0	0	0	0	0	0	0	0	0	0
0.00000	0.00000	0.000												
segm: 1	20906	43545	43545	20906	0	0	0	0	0	0	0	0	0	0
0.00000	0.00000	0.000												
segm: 2	20891	43568	20891	43568	0	0	0	0	0	0	0	0	0	0
0.00000	0.00000	0.000												
segm: 3	20913	43545	20913	43545	0	0	0	0	0	0	0	0	0	0
0.00000	0.00000	0.000												
segm: 4	20916	43545	43545	20916	0	0	0	0	0	0	0	0	0	0
0.00000	0.00000	0.000												
segm: 5	20918	43550	43550	20918	0	0	0	0	0	0	0	0	0	0
0.00000	0.00000	0.000												
segm: 6	20921	43556	20921	43556	0	0	0	0	0	0	0	0	0	0
0.00000	0.00000	0.000												
segm: 7	20907	43567	20907	43567	0	0	0	0	0	0	0	0	0	0
0.00000	0.00000	0.000												

Quad 3														
segm: 0	20900	43537	43537	20900	97	102	-42	-37	99	-39	-5	-5	-39	99
-0.05132	0.27140	-5.015												
segm: 1	20907	43539	43539	20907	128	111	-10	-27	119	-18	17	17	-18	119
-0.02369	0.32612	17.022												
segm: 2	20907	43539	20907	43539	6	10	140	144	8	142	-4	-4	8	142
0.02192	0.18687	-4.000												
segm: 3	20897	43537	20897	43537	-5	-1	115	119	-3	117	-4	-4	-3	117
-0.00823	0.15397	-4.004												
segm: 4	20903	43541	43541	20903	19	36	-62	-45	27	-53	-17	-17	-53	27
-0.06974	0.07401	-17.002												
segm: 5	20904	43541	43541	20904	48	47	-36	-37	47	-36	1	1	-36	47
-0.04737	0.12882	1.001												
segm: 6	20904	43539	20904	43539	-7	5	222	234	-1	228	-12	-12	-1	228
-0.00274	0.30004	-12.006												
segm: 7	20905	43542	20905	43542	-10	16	155	181	3	168	-26	-26	3	168
0.00822	0.22107	-25.995												

center/0-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
197.79	197.89	299.03	95.18	620.14	619.63	704.90	497.72
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
302.63	95.46	624.44	624.31	520.94	726.27	197.40	198.14
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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
21741	21752	32869	10462	68166	68109	77482	54709
21730	21755	33193	10904	68570	68456	77425	54648
33110	10457	68275	68299	56732	79628	21754	21558
33329	10446	68158	68183	56949	79783	21811	21779
33265	10493	68638	68624	57261	79832	21698	21779
33098	10477	68452	68416	56923	79666	21681	21761
51	18	-28	18	71	-20	-15	-54
178	61	257	247	161	231	111	106
0	0	0	0	0	0	0	0
102	40	272	270	194	246	60	118

✔ tilt/0-end.data (degree)

0.04474	0.01053	-0.01579	-0.02762	-0.05128	-0.03552	-0.33658	-0.06315
0.08817	-0.01448	0.02632	0.03948	0.00000	0.06843	0.05919	0.07632
-0.06053	0.10132	0.06970	0.00658	0.17895	0.11972	-0.02762	0.02499
0.09212	0.06580	0.34083	0.01579	0.12369	0.20791	0.05264	0.01579

✔ geometry/0-end.data

```
# TITLE      Geometry parameters of CSPAD
# DATE_TIME  2014-10-16 10:24:57 PDT
# METROLOGY  /reg/neh/home/dubrovin/LCLS/CSPadMetrologyProc/2014-05-15-CSPAD-CXI-DS1-Metrology-corr.txt
# AUTHOR     dubrovin
# EXPERIMENT MEC
# DETECTOR   CSPAD
# CALIB_TYPE geometry
# COMMENT:01 Table contains the list of geometry parameters for alignment of 2x1 sensors, quads, CSPAD, etc
# COMMENT:02 All translation and rotation pars of the object are defined w.r.t. parent object Cartesian frame
# PARAM:01 PARENT      - name and version of the parent object
# PARAM:02 PARENT_IND  - index of the parent object
# PARAM:03 OBJECT      - name and version of the object
# PARAM:04 OBJECT_IND  - index of the new object
# PARAM:05 X0          - x-coordinate [um] of the object origin in the parent frame
# PARAM:06 Y0          - y-coordinate [um] of the object origin in the parent frame
# PARAM:07 Z0          - z-coordinate [um] of the object origin in the parent frame
# PARAM:08 ROT_Z       - object design rotation angle [deg] around Z axis of the parent frame
# PARAM:09 ROT_Y       - object design rotation angle [deg] around Y axis of the parent frame
# PARAM:10 ROT_X       - object design rotation angle [deg] around X axis of the parent frame
# PARAM:11 TILT_Z      - object tilt angle [deg] around Z axis of the parent frame
# PARAM:12 TILT_Y      - object tilt angle [deg] around Y axis of the parent frame
# PARAM:13 TILT_X      - object tilt angle [deg] around X axis of the parent frame
# HDR PARENT IND      OBJECT IND      X0[um]  Y0[um]  Z0[um]  ROT-Z  ROT-Y  ROT-X      TILT-Z  TILT-Y  TILT-X
QUAD:V1      0  SENS2X1:V1      0      21757  33110      51      0      0      0      0.04474 -0.14079
-0.00274
QUAD:V1      0  SENS2X1:V1      1      21769  10457      18      0      0      0      0.01053 -0.11974
0.00000
QUAD:V1      0  SENS2X1:V1      2      33464  68275      -28      270      0      0      -0.01645 0.10414
0.09737
QUAD:V1      0  SENS2X1:V1      3      10769  68299      18      270      0      0      -0.02828 0.02740
0.13418
QUAD:V1      0  SENS2X1:V1      4      68489  56732      71      180      0      0      -0.05128 -0.11309
0.06303
QUAD:V1      0  SENS2X1:V1      5      68561  79628      -20      180      0      0      -0.03552 0.07104
-0.11788
QUAD:V1      0  SENS2X1:V1      6      77637  21754      -15      270      0      0      -0.33657 -0.00821
0.01183
```

QUAD:V1 0.00658	0	SENS2X1:V1	7	54810	21558	-54	270	0	0	-0.06315	0.00000
QUAD:V1 -0.20830	1	SENS2X1:V1	0	21757	33329	178	0	0	0	0.08883	0.03158
QUAD:V1 -0.24943	1	SENS2X1:V1	1	21773	10446	61	0	0	0	-0.01448	0.04211
QUAD:V1 -0.07370	1	SENS2X1:V1	2	33430	68158	257	270	0	0	0.02698	-0.04660
QUAD:V1 -0.06448	1	SENS2X1:V1	3	10628	68183	247	270	0	0	0.04014	-0.08498
QUAD:V1 0.05481	1	SENS2X1:V1	4	68349	56949	161	180	0	0	-0.00066	-0.02895
QUAD:V1 0.03836	1	SENS2X1:V1	5	68345	79783	231	180	0	0	0.06843	-0.13948
QUAD:V1 -0.11707	1	SENS2X1:V1	6	77454	21811	111	270	0	0	0.05919	-0.06029
QUAD:V1 -0.16580	1	SENS2X1:V1	7	54729	21779	106	270	0	0	0.07632	-0.04933
QUAD:V1 0.00000	2	SENS2X1:V1	0	21741	33265	0	0	0	0	-0.06053	0.00000
QUAD:V1 0.00000	2	SENS2X1:V1	1	21752	10493	0	0	0	0	0.10132	0.00000
QUAD:V1 0.00000	2	SENS2X1:V1	2	32869	68638	0	270	0	0	0.07036	0.00000
QUAD:V1 0.00000	2	SENS2X1:V1	3	10462	68624	0	270	0	0	0.00658	0.00000
QUAD:V1 0.00000	2	SENS2X1:V1	4	68166	57261	0	180	0	0	0.17894	0.00000
QUAD:V1 0.00000	2	SENS2X1:V1	5	68109	79832	0	180	0	0	0.11972	0.00000
QUAD:V1 0.00000	2	SENS2X1:V1	6	77482	21698	0	270	0	0	-0.02762	0.00000
QUAD:V1 0.00000	2	SENS2X1:V1	7	54709	21779	0	270	0	0	0.02499	0.00000
QUAD:V1 -0.27140	3	SENS2X1:V1	0	21730	33098	102	0	0	0	0.09278	-0.05132
QUAD:V1 -0.32612	3	SENS2X1:V1	1	21755	10477	40	0	0	0	0.06580	-0.02369
QUAD:V1 -0.18687	3	SENS2X1:V1	2	33193	68452	272	270	0	0	0.34083	-0.02192
QUAD:V1 -0.15397	3	SENS2X1:V1	3	10904	68416	270	270	0	0	0.01645	0.00823
QUAD:V1 0.07401	3	SENS2X1:V1	4	68570	56923	194	180	0	0	0.12435	0.06974
QUAD:V1 0.12882	3	SENS2X1:V1	5	68456	79666	246	180	0	0	0.20857	0.04737
QUAD:V1 -0.30004	3	SENS2X1:V1	6	77425	21681	60	270	0	0	0.05264	0.00274
QUAD:V1 -0.22107	3	SENS2X1:V1	7	54648	21761	118	270	0	0	0.01645	-0.00822
CSPAD:V1 0.00000	0	QUAD:V1	0	-4500	-2700	0	90	0	0	0.00000	0.00000
CSPAD:V1 0.00000	0	QUAD:V1	1	-3500	5800	0	0	0	0	0.00000	0.00000
CSPAD:V1 0.00000	0	QUAD:V1	2	5500	4500	0	270	0	0	0.00000	0.00000
CSPAD:V1	0	QUAD:V1	3	4500	-4500	0	180	0	0	0.00000	0.00000 0.00000

2014-06-05 Alignment of quads

hdf5 file with CSPAD array was kindly presented by Anton Barty for

exp=cxid2714:run=23

✓ offset_corr/0-end.data

0	1	2	5
0	1	3	4
0	0	0	0



