

2016-02-16 Quad-0,1,2 MEC Alignment

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Optical measurements

Comments from Gabriel Blaj:

Attached, the latest metrology files for the 3 quads at MEC.
Quad0 and Quad2 metrologies should be applied for all experiments after 2016.02.16.
The attached metrology file for Quad 1 at MEC should be applied to all experiments that took place between 2016.02.16 and 2016.04.21.
As always, please use only Mikhail's curated version; Excel files are known to contain bugs.

Metrology files:

- [2016-02-16-Quad0-MEC-Metrology.xlsx](#)
- [2016-02-16-Quad1-MEC-Metrology.xlsx](#)
- [2016-02-16-Quad2-MEC-Metrology.xlsx](#)

- [2016-02-16-Quad0-MEC-Metrology.txt](#)
- [2016-02-16-Quad1-MEC-Metrology.txt](#)
- [2016-02-16-Quad2-MEC-Metrology.txt](#)

- Entire CSPAD:
 - Quad3 does not exist and its data replaced by the Quad0
 - [2015-02-16-CSPAD-MEC-Metrology.txt](#)
 - [2016-02-16-CSPAD-MEC-Metrology-corr.txt](#) - apply one correction per each quad (see below)

Quality check in X-Y plane

1st try and problems:

segm:	S1	S2	dS1	dS2	L1	L2	dL1	dL2	angle(deg)	D1	D2	dD	d
(dS)	d(dL)												
Quad 0													
segm: 1	-20710	-20905	-43	-238	43550	43549	-17	-18	-0.18485	48310	48220		
90	195	1											
Quad 1													
segm: 0	-20920	-20909	-141	-130	43541	44204	-65	598	-0.17696	48901	48303		
598	-11	-663											
Quad 2													
segm: 4	20911	20912	-78	-77	-43186	-43548	323	-39	0.10239	47983	48307		
-324	-1	362											

Corrected:

Quad 0: 1 0 -208 57

Quad 1: 8 43516 23349 -11

Quad 2: 20 90818 46120 10

	segm: (dS)	S1 d(dL)	S2	dS1	dS2	L1	L2	dL1	dL2	angle(deg)	D1	D2	dD	d
Quad 0														
segm:	0	-20908	-20905	-87	-84	43544	43555	-46	-35	-0.11249	48308	48307		
1	-3	-11												
segm:	1	-20905	-20905	-43	-43	43550	43549	-17	-18	-0.05657	48310	48304		
6	0	1												
segm:	2	-20906	-20908	-18	-20	-43536	-43568	10	-22	-0.02500	48323	48296		
27	2	32												
segm:	3	-20907	-20918	39	28	-43540	-43546	-16	-22	0.04408	48307	48301		
6	11	6												
segm:	4	20917	20903	140	126	-43572	-43577	41	36	-0.17488	48354	48309		
45	14	5												
segm:	5	20905	20910	-172	-167	-43547	-43549	-79	-81	0.22301	48305	48308		
-3	-5	2												
segm:	6	-20927	-20903	-10	14	-43540	-43569	17	-12	0.00263	48312	48319		
-7	-24	29												
segm:	7	-20914	-20915	80	79	-43544	-43543	-39	-38	0.10461	48306	48305		
1	1	-1												
Quad 1														
segm:	0	-20920	-20909	-141	-130	43541	43541	-65	-65	-0.17830	48303	48303		
0	-11	0												
segm:	1	-20898	-20902	60	56	43546	43544	34	32	0.07632	48305	48296		
9	4	2												
segm:	2	-20909	-20915	-199	-205	-43531	-43536	106	101	-0.26586	48290	48302		
-12	6	5												
segm:	3	-20909	-20915	-5	-11	-43536	-43544	5	-3	-0.01053	48304	48299		
5	6	8												
segm:	4	20903	20905	21	23	-43547	-43551	5	1	-0.02894	48313	48299		
14	-2	4												
segm:	5	20900	20905	-34	-29	-43552	-43553	-17	-18	0.04144	48310	48306		
4	-5	1												
segm:	6	-20935	-20912	-86	-63	-43592	-43541	9	60	-0.09798	48331	48329		
2	-23	-51												
segm:	7	-20918	-20909	-8	1	-43534	-43527	1	8	-0.00461	48291	48296		
-5	-9	-7												
Quad 2														
segm:	0	-20907	-20909	-110	-112	43542	43547	-57	-52	-0.14605	48302	48305		
-3	2	-5												
segm:	1	-20910	-20907	-179	-176	43548	43542	-84	-90	-0.23355	48303	48306		
-3	-3	6												
segm:	2	-20902	-20910	120	112	-43539	-43551	-50	-62	0.15263	48303	48303		</

segm: 6	-20927	-20903	-10	14	-43540	-43569	17	-12	0.00263	48312	48319
-7	-24	29									
segm: 7	-20914	-20915	80	79	-43544	-43543	-39	-38	0.10461	48306	48305
1	1	-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	-20906	43549	43549	20906	24	25	36	37	24	36	-1	-1	36	24
0.04736	0.06578	0.994												
segm: 1	-20905	43549	43549	20905	71	72	-10	-9	71	-9	-1	-1	-9	71
-0.01184	0.19459	1.000												
segm: 2	-20907	-43552	20907	43552	29	29	19	19	29	19	0	0	29	19
0.07947	0.02500	0.017												
segm: 3	-20912	-43543	20912	43543	27	-5	67	35	11	51	32	32	11	51
0.03014	0.06711	32.002												
segm: 4	20910	-43574	43574	20910	2	-18	2	-18	-8	-8	20	20	-8	-8
-0.01052	-0.02192	-20.012												
segm: 5	20907	-43548	43548	20907	60	-3	54	-9	28	22	63	63	22	28
0.02895	0.07673	-63.002												
segm: 6	-20915	-43554	20915	43554	5	9	30	34	7	32	-4	-4	7	32
0.01918	0.04210	-3.988												
segm: 7	-20914	-43543	20914	43543	-65	-63	24	26	-64	25	-2	-2	-64	25
-0.17533	0.03290	-2.004												
Quad 1														
segm: 0	-20914	43541	43541	20914	-5	-6	-8	-9	-5	-8	1	1	-8	-5
-0.01053	-0.01370	-1.003												
segm: 1	-20900	43545	43545	20900	29	20	-1	-10	24	-5	9	9	-5	24
-0.00658	0.06579	-9.006												
segm: 2	-20912	-43533	20912	43533	7	43	2	38	25	20	-36	-36	25	20
0.06850	0.02632	-35.983												
segm: 3	-20912	-43540	20912	43540	-18	-27	30	21	-22	25	9	9	-22	25
-0.06028	0.03290	8.996												
segm: 4	20904	-43549	43549	20904	16	-34	50	0	-9	25	50	50	25	-9
0.03289	-0.02467	-50.001												
segm: 5	20902	-43552	43552	20902	6	-11	13	-4	-2	4	17	17	4	-2
0.00526	-0.00548	-16.998												
segm: 6	-20923	-43566	20923	43566	18	23	-18	-13	20	-15	-5	-5	20	-15
0.05477	-0.01973	-5.010												
segm: 7	-20913	-43530	20913	43530	16	1	7	-8	8	0	15	15	8	0
0.02192	0.00000	15.001												
Quad 2														
segm: 0	-20908	43544	43544	20908	-10	-10	27	27	-10	27	0	0	27	-10
0.03553	-0.02740	-0.002												
segm: 1	-20908	43545	43545	20908	-30	0	-3	27	-15	12	-30	-30	12	-15
0.01579	-0.04111	29.999												
segm: 2	-20906	-43545	20906	43545	4	4	2	2	4	2	0	0	4	2
0.01096	0.00263	0.002												
segm: 3	-20909	-43542	20909	43542	1	-7	7	-1	-3	3	8	8	-3	3
-0.00822	0.00395	7.998												
segm: 4	20911	-43548	43548	20911	-59	7	-17	49	-26	16	-66	-66	16	-26
0.02105	-0.07124	66.000												
segm: 5	20911	-43545	43545	20911	12	28	31	47	20	39	-16	-16	39	20
0.05132	0.05480	15.997												
segm: 6	-20908	-43541	20908	43541	8	8	-17	-17	8	-17	0	0	8	-17
0.02192	-0.02237	0.002												
segm: 7	-20918	-43544	20918	43544	-11	8	-31	-12	-1	-21	-19	-19	-1	-21
-0.00274	-0.02763	-19.003												
Quad 3														
segm: 0	-20906	43549	43549	20906	24	25	36	37	24	36	-1	-1	36	24
0.04736	0.06578	0.994												
segm: 1	-20905	43549	43549	20905	71	72	-10	-9	71	-9	-1	-1	-9	71

-0.01184	0.19459	1.000												
segm: 2	-20907	-43552	20907	43552	29	29	19	19	29	19	0	0	29	19
0.07947	0.02500	0.017												
segm: 3	-20912	-43543	20912	43543	27	-5	67	35	11	51	32	32	11	51
0.03014	0.06711	32.002												
segm: 4	20910	-43574	43574	20910	2	-18	2	-18	-8	-8	20	20	-8	-8
-0.01052	-0.02192	-20.012												
segm: 5	20907	-43548	43548	20907	60	-3	54	-9	28	22	63	63	22	28
0.02895	0.07673	-63.002												
segm: 6	-20915	-43554	20915	43554	5	9	30	34	7	32	-4	-4	7	32
0.01918	0.04210	-3.988												
segm: 7	-20914	-43543	20914	43543	-65	-63	24	26	-64	25	-2	-2	-64	25
-0.17533	0.03290	-2.004												

Constants

✓ Archive: /reg/g/psdm/detector/alignment/cspad/calib-mec-2016-02-16/calib/CsPad::CalibV1/MecTargetChamber.0:Cspad.0/geometry/0-end.data

References

- [CSPAD Alignment](#)