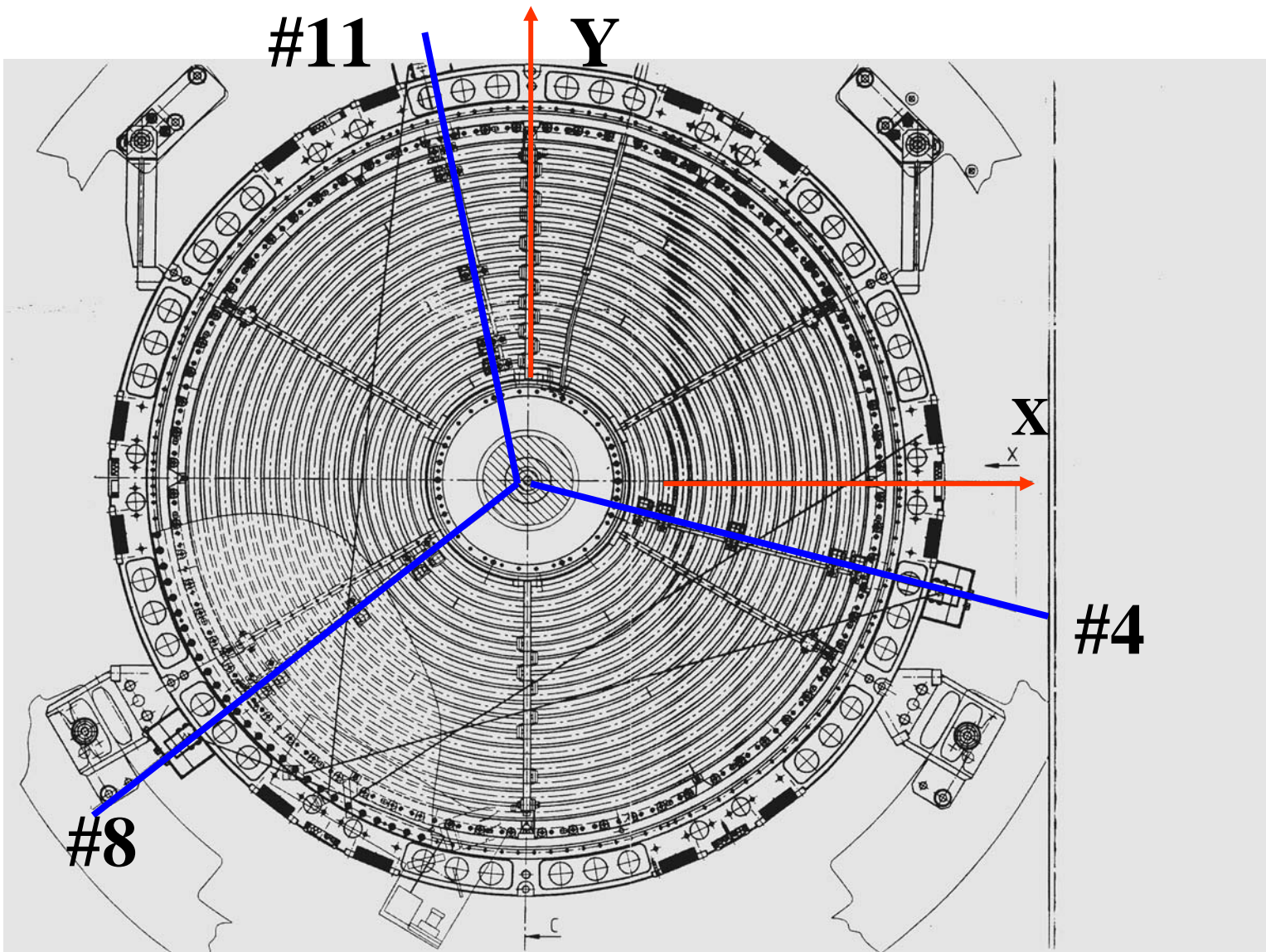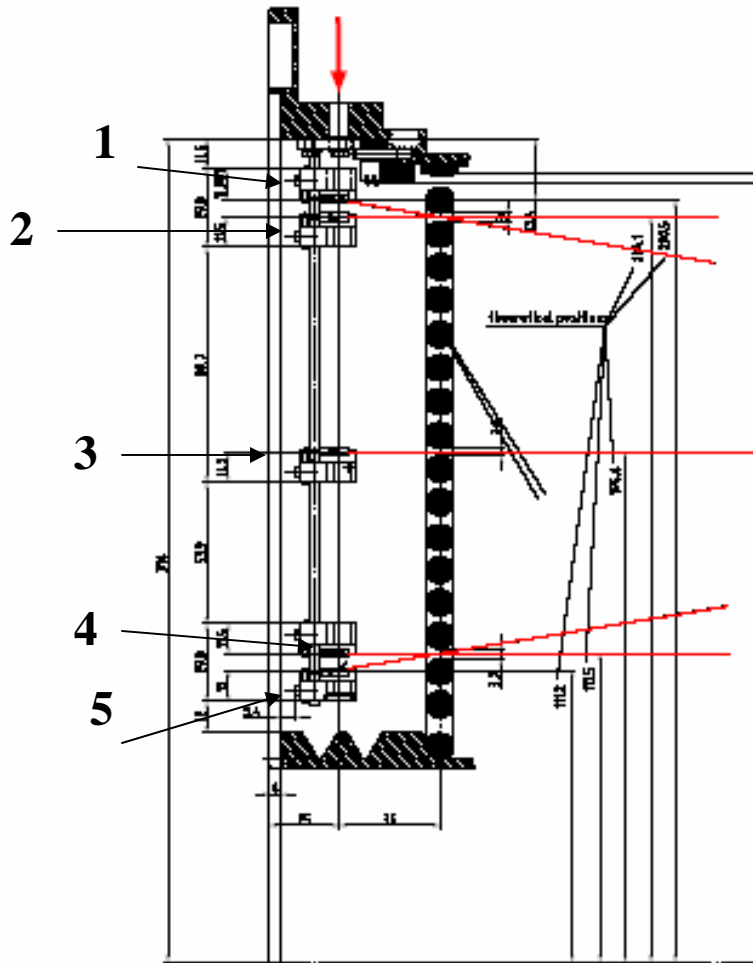Laser position in the FTPCs
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I recovered old data and engineering drawings to establish position of laser beams in the FTPCs. If we are looking on FTPC body from RDO side, we have 3 laser rafts, each of this raft has 5 mirrors. Rafts installed approximately at 4 o'clock, 8 o'clock and 11 o'clock, later I'll call them #4, #8, #11.

There is a part of engineering drawing. I put STAR coordinate axis. There is a setup for West FTPC, for East FTPC X-axis will have direction on left, Y axis is always looking upwards.

There is a mirror numbering in the laser raft, which is started from pad plane. Please note that mirrors 1 and 5 are to create inclined beams. Volker and me did a measurements of laser spots in the gaps of Al pipes, which forms an electrical field in the FTPC volume. We did measurement at RDO side for West FTPC and both RDO and entrance window for East FTPC. I tried to have laser beams in one plane, but its appeared to be difficult task. After this I relied on engineering drawings to calculate radius of laser beams in the middle of last padrow. I estimates that my accuracy is ~ 0.3mm. After this I find a main axises of laser rafts and can calculate X and Y in global STAR coordinate system. These data are not so accurate, because I assume 5 laser beams are in one plane. Later this summer I am planning to open both FTPCs and measure coordinates of laser beams on both sides.

Also I'll put more data for padmonitor, when we'll have 15 beams for each FTPC

West FTPC

There is a table with radius position for lasers

Radius, cm	raft #4	#8	#11	Joern's data	
Mirror (beam)					
1 inclined	27.56	27.41	27.41		
2 straight	28.56	28.51	28.41	28.59,	28.55
3 straight	19.545	19.445	19.345	19.55	19.42
4 straight	11.875	11.675	11.775	11.91	11.48
5 inclined	12.825	12.675	12.725		

Absolute position at last pad row Z=200cm???

Raft	#4		#8		#11	
Coordinates, cm	X	Y	X	Y	X	Y
Mirror						
1	26.65	-7.01	-21.73	-16.71	-7.01	26.45
2	26.61	-7.27	-22.60	-17.38	-7.27	27.46
3	18.90	-4.97	-15.41	-11.86	-4.95	18.70
4	11.48	-2.92	-9.25	-7.12	-3.01	11.38
5	12.40	-3.16	-10.05	-7.73	-3.26	12.30

Lasers as seen at padmonitor. Note a mirror order in table due to inclined beams

Run 4024025   Run6069052   Run 6119019

Raft #4   sector 2,   RDO 2, RC3

Mirror	pad #	time bucket #		
2	122	13	14	16
1	122	31	30	32
3	121	111	110	112
5	122	158	157	159
4	122	165	163	165

Raft #8   sector 4, RDO7, RC2

Mirror	pad #	time bucket #		
2	no signal		14	14
1	141	31	32	32
3	141	111	109	111
5	141	157	156	157
4	139	165	163	164

Raft #11   sector 6, RDO9, RC3

Mirror	pad #	time bucket #		
2	no signal		no signal	no signal
1	no signal			
3	120	113		
5	122	158		
4	120	167		

East FTPC

There is a table with radius position for lasers

Radius, cm	raft #4	#8	#11	Joern's data
Mirror (beam)				
1 inclined	27.51	27.41	27.539	
2 straight	28.41	28.41	28.31	
3 straight	19.44	19.44	19.445	NO DATA
4 straight	11.75	11.85	11.855	
5 inclined	12.65	12.75	12.75	

Absolute position at last pad row Z=200cm???

Raft	#4		#8		#11	
Coordinates, cm	X	Y	X	Y	X	Y
Mirror						
1	-27.57	-7.00	21.73	-16.71	7.052	26.64
2	-27.47	-7.23	22.52	-17.32	7.244	27.37
3	-18.80	-4.95	15.41	-11.85	4.974	18.79
4	-11.36	-2.99	9.39	-7.22	3.032	11.46
5	-12.23	-3.22	10.11	-7.77	3.262	12.33

Lasers as seen at padmonitor. Note a mirror order in table due to inclined beams

Run 4024025   Run 6096052   Run 6119019

Raft #4   sector 2,   RDO 2,   RC3

Mirror	pad #	time bucket #
2	no signal	
1	no signal	
3	39	111
5	40	158
4	40	166

Raft #8   sector 4, RDO7, RC2

Mirror	pad #	time bucket #
2	no signal	
1	no signal	
3	no signal	
5	no signal	
4	no signal	

Raft #11   sector 6, RDO9, RC3

Mirror	pad #	time bucket #		
2	38	15	16	15
1	no signal		29	30
3	120	113	109	112
5	122	158	158	no signal
4	120	167	163	