

2020/02/05: Wednesday

SDD3, 19777, in a midpoint mount, ap2

SDD1, 27054, in a radial scan, 3.5 d/s

Re-shielded yesterday.

9:30 AM (01,02) 2000s noise.

12:53 PM: SDD1 obs, centermost, $r = 0.5 \text{ cm} \pm 0.5 \text{ cm}$

1:01 PM SDD3: 9000/s above ch30, but no transmission feature

SDD1: 5000/s above ch30, but no transmission feature.

(03,04) Again I suspect pileup.

1:04 PM: 5ms, up from 3ms pulses.

(05,06) SDD3: 4,000/s counts start only after 1ms. Take time to ramp up.
SDD1: 5,000/s.

1:09 PM: Going up from 60 kV to 70 kV

(07,08) SDD3: 9,000/s Again, suspect pileup
SDD1: 7,000/s

X-ray signal peaks at 3ms, then declines

1:16 PM: Now 72 kV. (09,10)

SDD3: 3,000/s above ch30.
SDD1: 9,000/s

The time is odd. peaks at 2ms, falls by 3ms, then has a 2ms baseline.

1:26 PM: Aperture 1 on SDD3. (11) 30/s only. Hopefully these are 1-to-1 X-rays. We'll leave that to accumulate. In the meantime, will do a radial scan.

1:29PM: SDD1: 0 durs. 7,000's (12)

1:32PM: Evaluate diff. still 0 durs (1 durs corresponds to 1 can at from the axis) 6,000's. (13)

1:36PM: SDD1 at 1 durs. 6,700's. (14) Similar time shape, 6,400's above ch30

1:44PM: SDD1 at 2 durs (15) Similar time shape. 7,000's

1:55PM: SDD1 at 3 durs (16) Similar time shape 9,500's

2:10PM: SDD1 at 4 durs (17) Similar time shape. 10,000's

He7, SDD3 time trace peaks significantly after SDD1

2:20PM SDD1 at 5 durs (18) Similar time shape. 8,400's

2:28PM SDD1 at 3 durs (19) Let's see if anything changed. 9,500's again great!

2:32PM Fiddling a bit with the shield, so we can go to 8 durs

2:35PM SDD1 at 4 durs (20) Let's see if anything changed channel. 13,900's different.

2:45PM SDD1 at 8 durs (21) No counts! Well... no 6's only.

2:47PM SDD1 at 7 durs (22) 125's

2:56PM SDD1 at 6 durs (23) odd time trace. Peak @ 2ms, another at 4.5ms 3,200's

CR has gone up to 4,000's! It's not steady.

3:05PM SDD1 at 5 durs. (24) 21,000's yes, CR has gone up. Time traces are different too

3:10PM SDD1 at 7 durs (26) 350's still low. Good. That's consistent at least.

3:20PM Beg. mfg of quills scan.

durs	counts	time	spread	durs	counts	time	spread
8	1	0.31	(27)	3	2210	0.31	(32)
7	31	0.31	(28)	2			(35)
6	2080	0.31	(29)				
5	4096	0.31	(30)				
4	1950	0.31	(31)				

with 100's
no 8's

3:39 PM Let's red track, call it gaussian 2

counts	time	spectrum
8	0.31	34
7		35

3:42 PM w/loops lost by blue. Let's call it gaussian 3

spectrum	divs	CR	counts	time
(36)	8	$3.2 \pm 3.2\%$	1	0.31
(37)	7	$664 \pm 66\%$	206	0.31
(38)	6		2299	0.31
(39)	5		1654	0.31
(40)	4		990	0.31
(41)	3		2204	0.31 ? noise?
(42)	2		1107	0.31
(43)	1		1186	0.31

noise again DAG

residual
> a bit.
Spectrum
Dil.

4:05 PM Go to 5 divisions.

4:22 PM 7ms pulse wv.

(46, 47)

SAD 3, 402: 40%5

SAD 1, 524: 10,000%5

Do a fit to SAD. Interferometer $\rightarrow \Delta e \sim 7 \cdot 10^{-11} \text{u}$

4:32 PM Pressure down a little bit

