

2020/10/08: Thursday

SDD1, SN 27058, in CC radial scan mount, obs

SDD3, SN 19717, in a midpoint mount, apft, mirror filter

C1: RMF pulse

C2: AUX2 of SDD3 F2: Perhist of C2

C3: AUX2 of SDD1 F3: Perhist of C3

C4: SDD gate signal

10:20AM (01,02) 200ns rise

Est Magna-pwr:  $V=10.51V$   $I=101A$   $104m\Omega$

Wst Magna-pwr:  $V=11.15V$   $I=102A$   $109m\Omega$

10:55AM (03,04) RMF scans. B field quite low, I wanted wall

(05,06) emission. But I also observe that we intermittently  
lose it at the end of that's when counts are coming into  
SDD1.

SDD3: classic wall spectrum, 6,000/s

SDD1: 100/s, narrow, all coming at end of pulse.

11:06AM (07,08) 45 kW, up from 35 kW. Also pulse was shortened.

SDD3: 20,000/s into Apft

SDD1: ...eh. None really.

11:10AM (09) Ap 3 now. SDD: 1,500/s.

11:12AM (10,11) DLI shield grounded. ~~630/s~~ less!?  $\rightarrow$  740/s

DLI current gets to 2.42A

11:27AM (12) Are conditions diff? we'll see.

SDD3: 675%

11:28AM Magna-Power now 50A.

SDD3: ~~800%~~ 900%

(13, 14)

Kinetics Big Blue now 130A. 140A

DLI shed: -3.1A

This isn't exactly the same as last year.

Last year: Expanded  $\rightarrow$  higher count rate.

Sharper dropoff with B.

Maybe larger aperture?

Lower power probably?

11:33AM (15, 16) MP: ~~25A~~ 25A. BR: 140A.

SDD3: Another line shows up! Fe? Cr? Take a look. 908%

DLI still -3.0A, but at the end this time.

Have we saturated the effect?

11:39AM (17) First 2 ms. 413%, the big spike is gone. Much more emphasis on the broad tail. Hmm... that's not quite true.

V<sub>probe</sub> goes from -400V to -100V in the first 2 ms. Is the plasma cooling? Is density escaping from the cell and sweeping the seed signal?

11:44AM (18) Last 2 ms of the full pulse. 1,300%. But spectrally they look similar.

11:48AM (19) Full pulse again. 1070%, the drift is real!

11:52AM (20) Magna-Power 150A Big Blue 140A 953%, within error bars.

(21)

Specz Wait, but now it's 1,300%. (huh?)

11:54AM (22) Drift. 1,670 c/s! Accelerated.  
DL shield -2.61A

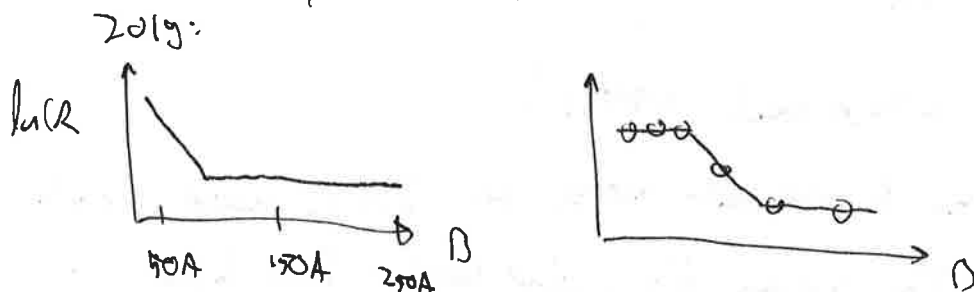
11:55AM (23,24) W/loops! PB had fallen to zero. Re-take that last  
count. 466 c/s, can't see broad tail yet  
DL1 -2.14 A.

12:06PM (25,26) 200A MP, 200A BB. 75 c/s, fallen a large amount!

That's what I was expecting.

But DL1 current is still up around -1.60A. Peaks and Zms in  
now.

I'd assumed that CR &  $I_{DL}$ ... Maybe because the DL is  
radially inward of the wall?



12:18PM (27-29) 300A MP, 300A BB. Looks like we're catching the edge of  
thermal noise in SPD3.

12:21PM (30,31) 275A MP, 275A BB. Extremely low count rate.  
-1.07A into DL1 shield. 10 c/s.

12:32PM (32,33) 175A MP, 175A BB. 100 c/s. Consistent with broader trend.  
DL1: -1.81A. Less than double I, More than 10X CR. Hmmm.

12:50PM (34,35) Higher power. Almost 1k c/s

12:52PM (36,37) Higher power & 300A 50 c/s only

1:01PM: (38,39) Higher pressure now. Not so much you'd think would make a difference, but now all the k-rays are coming at the end. Before they were coming in the middle.  $\sim 50\%$ .

1:06PM (40) Aperture 4, up from 3.  $277\%$ , in agreement with X5 area.

1:09PM (41) Aperture 5, fully open.  $1,150\%$ , in agreement, ish. But good. Let's stay here.

2:04PM: From this time on, AUX2 of SDD3 will be set to SCAG as before, but SCAG will be set to ch60-on, not ch0-on.

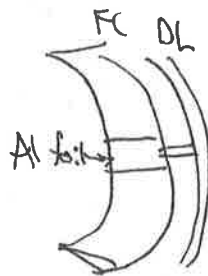
2:44PM (42) Power was moved.  $6,000\%$ !

Spectrum 41 eventually moved to  $318\%$  above ch64  
Hee, I'm over  $416\%$  above ch66,  $30\%$  higher.

2:58PM: SEC Scope C3 was changed from  $I_{DL1}$  to  $I_{DL2}$ .

$I_{DL2}$  is much smaller than  $I_{DL1}$ !  $-0.22\text{ A}$ !

Recall DL shield is shorted to aluminum which goes inboard of the FCs.



Next time try with  $DL2$ , not  $DL1$ .

3:20 PM: The highest energy cont of 41 was  $\text{CH}_2\text{O}$ .  
The highest energy cont of 42 is  $\text{CH}_3\text{SH}$  so far, and it  
hasn't even accumulated as long. Less than half.

3:38 PM: (43) SDD1 Now at 8 d.v.s. 100%

3:40 PM: (44) SDD1 Now at 7 d.v.s. 3,500%

3:42 PM (45) SDD1 Now at 6 d.v.s. 8,380%

3:45 PM (46) SDD1 Now at 5 d.v.s. 14,000%

3:47 PM (47) SDD1 Now at 4 d.v.s. 17,000%

3:48 PM (48) SDD1 Now at 3 d.v.s. 30,000%

3:50 PM (49) SDD1 Now at 2 d.v.s. 32,000%

3:52 PM (50) SDD1 Now at 0 d.v.s. 28,000%

3:53 PM (51) SDD1 Now at 2 d.v.s. 32,000%

Maybe look at <E> for these?

