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Total Ionizing Dose Test Report for the SFT2222A NPN Bipolar Junction Transistor

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July 29th, 2013

I. Introduction

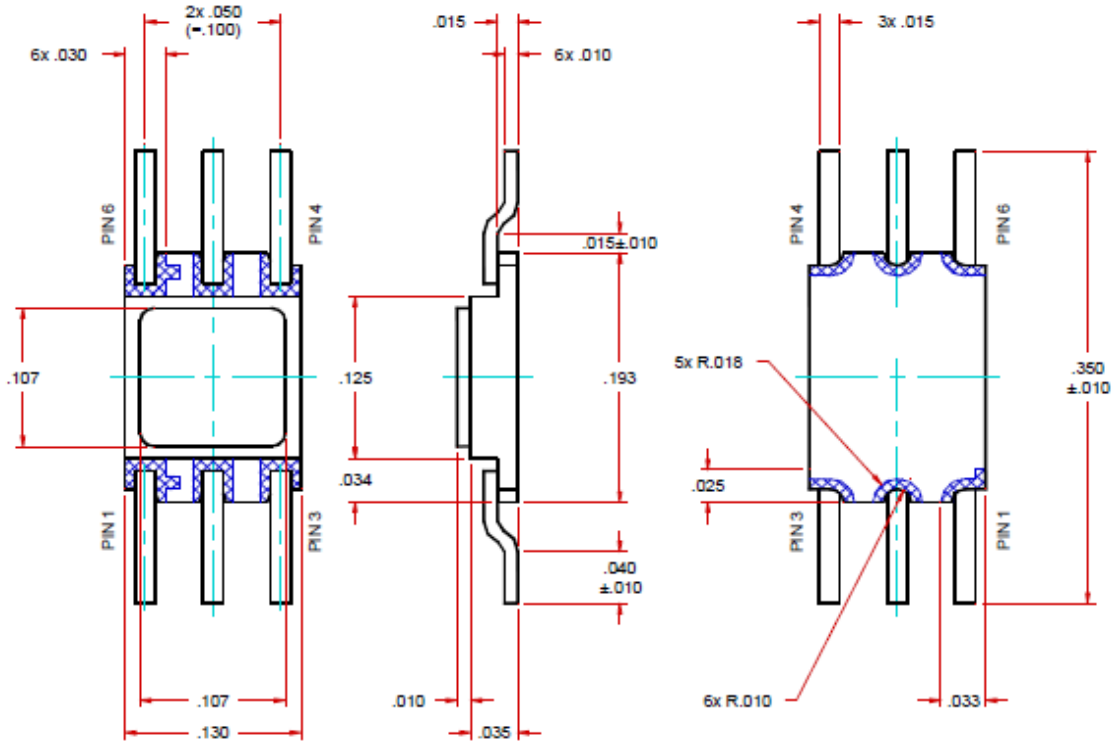
The purpose of this study is to examine the low dose rate total ionizing dose (TID) susceptibility of the SFT2222A NPN bipolar junction transistor (BJT) manufactured by Solid State Devices, Inc. (SSDI).

II. Device Description

The SFT2222A is a high speed switching NPN bipolar transistor, packaged in a Gullwing Dual Microminiature Package. Table I shows the part and test information. Figure 1 shows the package dimensions and pin configurations. The manufacturer's datasheet can be accessed via the link in the Reference [1]

Table I
Test and part information.

Generic Part Number	SFT2222A2
Package Marking	13230626-104
Manufacturer	SSDI
Lot/Date Code	1046
Quantity tested	10
Part Function	NPN Bipolar Junction Transistor
Package Style	6-lead GW
Test Equipment	Keithley 2430 1kW pulse meter, Keithley 2425 100W source meter, oscilloscope, power supply.
Test Engineer	James Forney
Target Dose Levels	3, 6, 9, 12, 18, and 30, and 50 krad(Si)
Target Dose Rate	0.010 rad(Si)/s



PIN ASSIGNMENT						
Package	**Pin 1**	**Pin 2**	**Pin 3**	**Pin 4**	**Pin 5**	**Pin 6**
GW	Collector1	Base1	Emitter1	Collector2	Base2	Emitter2

Figure 1. Package dimensions and pin assignment.

III. Test Method

The irradiation procedures and dosimetry requirements conform to MIL-STD-883G Test Method 1019.8 [2]. The irradiation was carried out in a room air source ^{60}Co facility, where the pencils are raised up from the floor during exposures. Active dosimetry was performed using air ionization probes. The device under test (DUT) was placed inside a standard Pb/Al filter box.

Five samples were biased and five samples were grounded during irradiation. The biased devices were configured with V_{CEO} = 40 V. The test conditions are shown below. Two parts were used as the controls. The control parts were characterized before the irradiated devices.

The parts were characterized in the same order throughout the test. The measurement sequence was consistent throughout the test. We did not monitor the annealing behavior following the irradiation.

Test Conditions

Test temperature:	Room temperature.
Operating frequency:	Pulsed Base-Emitter current/voltage (1 ms pulse width), DC Collector-Emitter voltage.
Device parameters:	**1.** BV_{CEO} **2.** I_{CES} **3.** I_{CBO} **4.** I_{EBO} **5.** DC h_{FE} (room temperature) **6.** $V_{CE(Sat)}$ **7.** $V_{BE(Sat)}$ **8.** In addition, the I_C and I_B values will be measured by sweeping (pulsed) the V_{BE} from 0 to 1 V in 0.05 V steps.

IV. Results

We observed that the current gain decreased monotonically with increasing dose. Figure 2 and 3 show the current gain (h_{FE}) as a function of dose, with I_C = 0.1 and 1 mA, respectively. The current gain at I_C = 0.1 mA (h_{FE1}) initially drifted out of specification limits between 18 and 30 krad(Si) in 4 biased devices (different packages). All devices, except for one, exceeded specifications for h_{FE1} after 50 krad(Si). All but 4 devices exceeded specifications for the current gain at I_C = 1 mA (h_{FE2}) between 30 and 50 krad(Si). The biased devices showed slightly higher degradation levels than the unbiased devices throughout the irradiation.

The error bars represent the standard deviation from device-to-device variability. There are two devices in each package. The device-to-device variability of the current gain in a single package was larger than the part-to-part variability.

Figure 4 shows the current gain as a function of collector current, at 0, 30, and 50 krad(Si), for devices irradiated under bias. The gain degradation increases with decreasing collector current, indicative of the surface dominated nature of the defects, which is typical of total ionizing dose effects for bipolar transistors. The current gain at the higher injection levels were within parametric limits up to 50 krad(Si). All other measured parameters also remained within specification limits up to 50 krad(Si).

The attachment at the end of the report includes the complete data from the irradiation.

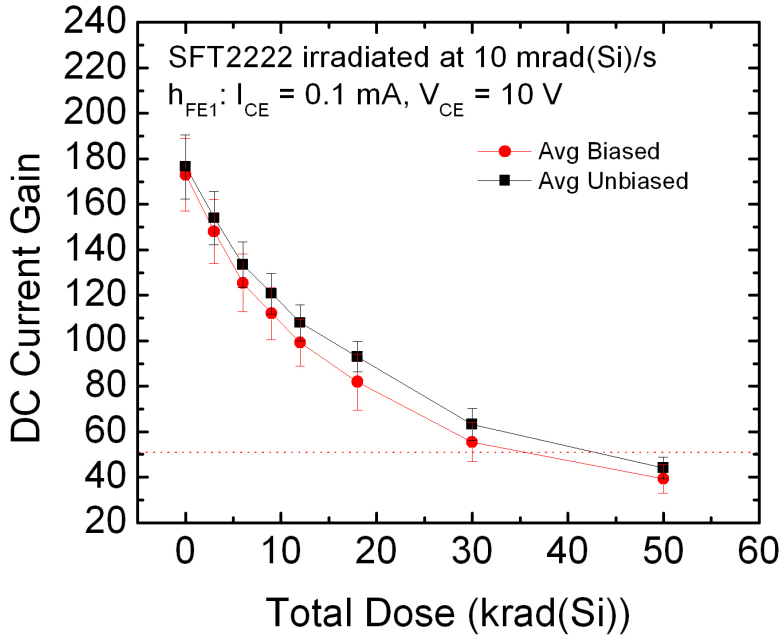


Figure 2. Current gain vs. total dose for the SFT2222 irradiated with bias and with pins grounded, at a dose rate of 10 mrad(Si)/s. Measurement taken with I_{CE} = 0.1 mA and V_{CE} = 10 V. Red dotted line indicate pre-irradiation specification limit of 50.

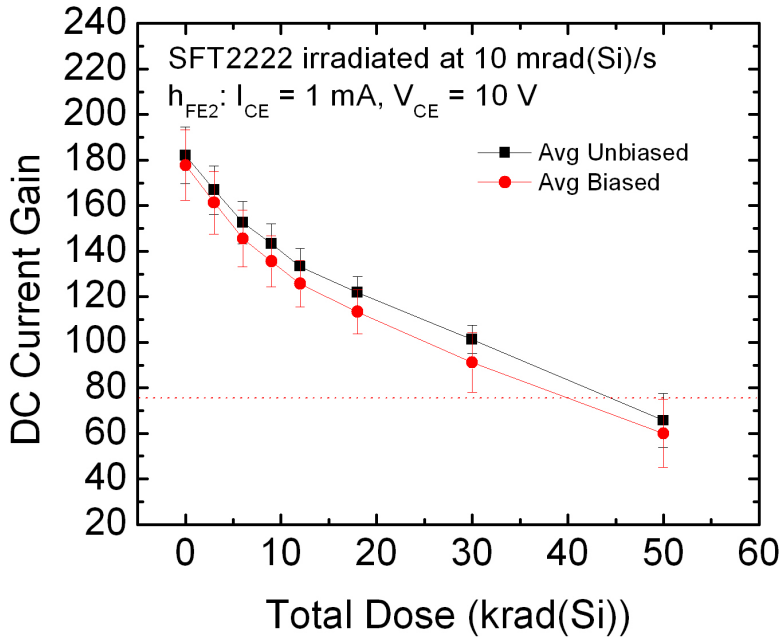


Figure 3. Current gain vs. total dose for the SFT2222 irradiated with bias and with pins grounded, at a dose rate of 10 mrad(Si)/s. Measurement taken with I_{CE} = 1 mA and V_{CE} = 10 V. Red dotted line indicate pre-irradiation specification limit of 75.

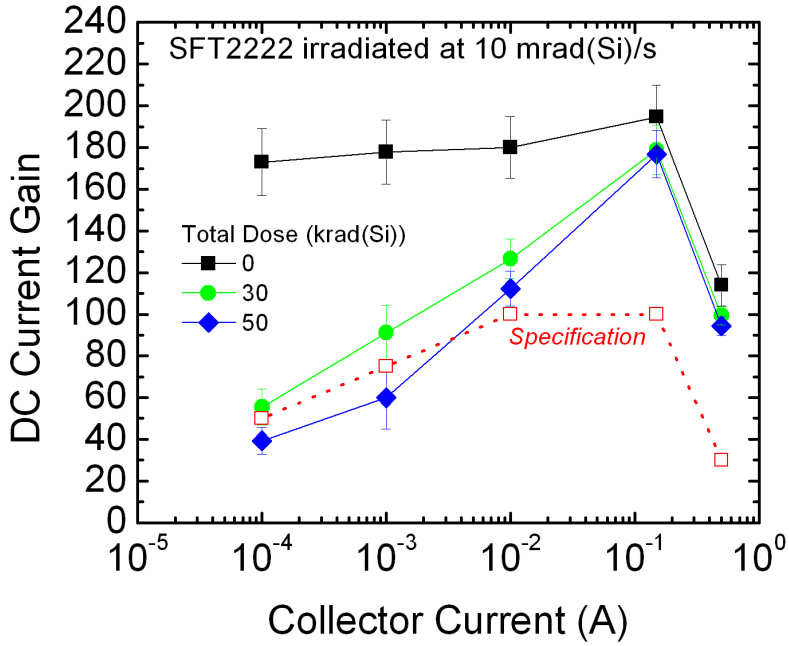


Figure 4. Current gain vs. collector current for the SFT2222 irradiated under bias, at 0, 30, and 50 krad(Si).

V. Conclusion

The SFT2222 is susceptible to TID-induced current gain degradation. The current gain at I_C = 0.1 mA exceeded specification limits between 18 and 30 krad(Si) for devices irradiated under bias. The parts remained functional throughout the irradiation, up to 50 krad(Si).

VI. Reference

[1] http://www.ssdi-power.com/Resources/DataSheets/TR0030E.pdf
[2] MIL-STD-883-G, Test Method 1019.8, Ionizing Radiation (Total Dose) Test Procedure Feb. 26, 2010.

Appendix A: SFT2222 Test Set-up

1. Connect 2430 PulseMeter Keithley to Base connector					
2. Connect 2400 (addr 26) to Collector connector					
3. Load SFT2222_Parameters on Transistor ONLY tests tab					
4. Press Transistor Tests button					
5. Next load SFT2222_TransistorPulseTest_Setup File on the Pulse Test Settings tab					
6. Press Special Sweep Test button					
7. Flip the daughter card to test the second transistor in the package. Repeat steps 4 and 6.					
Equipment used		Model	ECN or SN	Cal?	
2430 Keithley Pulse Meter		2430	2593732	2/6/2014	
2400 Keithley SourceMeter		2400	M161216	8/8/2013	
6 biased at 40V					
6 all terminals grounded					
1 control					

SFT2222 Low Dose			days	3.47	3.47	3.47	3.47	6.94	13.89	23.15
10mrad/sec			hr	83.33	83.33	83.33	83.33	166.67	333.33	555.56
dose rate	0.6	(rad/min)	min	5000.00	5000.00	5000.00	5000.00	10000.00	20000.00	33333.33
			4/22/12 2:40 PM	**4/25/12 4:30 PM**	**4/29/12 12:00 PM**	**5/2/12 4:40 PM**	**5/6/12 12:30 PM**	**5/13/12 12:30 PM**	**5/28/12 12:30 PM**	**6/20/12 4:03 PM**
DUT	Total Dose (rad)		0	3000	6000	9000	12000	18000	30000	50000
Control-1	V BR CEO	V	59.99953	60.000	60.000	60.000	60.000	60.000	60.000	59.999
	I CBO1	A	3.4022E-10	2.5931E-10	1.53847E-09	3.45E-10	9.2671E-10	3.3516E-10	1.97837E-09	1.86716E-09
	I CBO2	A	1.2768E-10	1.0296E-10	5.531E-10	1.68E-10	4.8425E-10	6.813E-11	6.583E-10	8.4231E-10
	I CES1	A	9.735E-11	7.333E-11	3.4696E-10	1.15E-10	3.1825E-10	4.563E-11	3.4499E-10	4.932E-10
	I EBO1	A	-1.42881E-09	-1.32222E-09	-1.63187E-09	-1.4085E-09	-1.41867E-09	-1.45422E-09	-1.57605E-09	-1.71311E-09
	I EBO2	A	-1.4078E-10	-1.337E-10	-2.5015E-10	-1.4737E-10	-1.9344E-10	-1.4939E-10	-2.6534E-10	-3.0534E-10
	h FE1		174.8830125	174.5904188	174.5817188	174.1627125	174.08865	173.9395875	173.810625	174.5282625
	Ib	A	0.000000533	0.000000533	0.000000533	0.000000533	0.000000533	0.000000533	0.000000533	0.000000533
	Ic	A	0.000093271	0.000093115	0.00009311	0.000092887	0.000092847	0.000092768	0.000092699	0.000093082
	h FE2		178.8946	178.83642	178.69344	178.1454	178.17324	178.09358	178.03792	179.09834
	Ib	A	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
	Ic	A	0.000894473	0.000894182	0.000893467	0.000890727	0.000890866	0.000890468	0.00089019	0.000895492
	h FE3		180.9506563	180.9248163	180.798825	180.2234175	180.52572	180.4788425	179.6961413	180.1653625
	Ib	A	0.000047059	0.000047059	0.000047059	0.000047059	0.000047059	0.000047059	0.000047059	0.000047059
	Ic	A	0.008515325	0.008514109	0.00850818	0.008481102	0.008495328	0.008493122	0.008456289	0.00847837
	h FE4		188.6936	184.1389333	192.4594667	189.6394667	171.8513333	186.4962667	218.9958667	225.7272
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
	Ic	A	0.1415202	0.1381042	0.1443446	0.1422296	0.1288885	0.1398722	0.1642469	0.1692954
	h FE5		109.1886588	109.4069895	109.4197988	109.4673092	109.1827973	109.4570865	109.1787763	109.4169379
	Ib	A	0.003942427	0.003936573	0.00394254	0.003932992	0.003947175	0.003943755	0.003950403	0.003934454
	Ic	A	0.4304683	0.4306886	0.4313919	0.4305341	0.4309636	0.4316719	0.4313002	0.4304959
	V BE sat1	V	0.8987041	0.8983203	0.8985637	0.8985009	0.8987703	0.8986803	0.8986741	0.8988217
	V BE sat2	V	1.164746	1.163733	1.163003	1.163136	1.163672	1.162865	1.163088	1.165966
	V CE sat1	V	0.2752948	0.2747611	0.2745052	0.2744955	0.2743479	0.2750897	0.2753699	0.2772405
	V CE sat2	V	0.7741918	0.7730712	0.7720417	0.7722356	0.7712748	0.7734987	0.7750258	0.7809392
Control-2	V BR CEO	V	59.99957	59.99953	59.99975	59.99989	60.00003	59.99971	59.99977	59.99961
	I CBO1	A	3.6045E-10	2.1381E-10	1.32613E-09	3.4527E-10	8.5592E-10	3.3011E-10	1.95815E-09	1.91266E-09
	I CBO2	A	9.103E-11	8.365E-11	5.8206E-10	1.6427E-10	4.7045E-10	6.752E-11	5.5492E-10	8.2042E-10
	I CES1	A	6.681E-11	5.109E-11	3.7688E-10	1.2146E-10	2.9833E-10	4.306E-11	2.6573E-10	4.6732E-10
	I EBO1	A	-1.58618E-09	-1.4999E-09	-1.61159E-09	-1.41358E-09	-1.52526E-09	-1.6522E-09	-1.66234E-09	-1.80956E-09
	I EBO2	A	-1.418E-10	-1.4028E-10	-2.0661E-10	-1.337E-10	-1.9395E-10	-1.4636E-10	-2.5217E-10	-3.0078E-10
	h FE1		171.1998563	171.5436375	170.660925	172.2360375	170.3262188	170.5005	170.0103375	171.2543625
	Ib	A	0.000000533	0.000000533	0.000000533	0.000000533	0.000000533	0.000000533	0.000000533	0.000000533
	Ic	A	0.000091307	0.00009149	0.000091019	0.000091859	0.000090841	0.000090934	0.000090672	0.000091336
	h FE2		174.72566	175.53632	174.38402	176.3563	174.41906	174.5645	174.19884	175.48698
	Ib	A	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
	Ic	A	0.000873628	0.000877682	0.00087192	0.000881781	0.000872095	0.000872823	0.000870994	0.000877435
	h FE3		176.7887163	177.4964688	176.2454813	178.1106363	176.2846238	176.697575	175.4631625	176.6768138
	Ib	A	0.000047059	0.000047059	0.000047059	0.000047059	0.000047059	0.000047059	0.000047059	0.000047059
	Ic	A	0.008319469	0.008352775	0.008293905	0.008381677	0.008295747	0.00831518	0.00825709	0.008314203
	h FE4		189.3921333	182.982	188.5214667	187.6885333	168.1264	182.66	218.1822667	226.1050667
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
	Ic	A	0.1420441	0.1372365	0.1413911	0.1407664	0.1260948	0.136995	0.1636367	0.1695788
	h FE5		107.3481277	107.3735934	107.4020015	107.5933022	107.315194	107.5077864	107.2816426	107.342668
	Ib	A	0.00398279	0.003980848	0.003988564	0.003980763	0.003981989	0.003977599	0.003988137	0.003990741
	Ic	A	0.427545	0.427438	0.4283798	0.4283034	0.4273279	0.4276229	0.4278539	0.4283768
	V BE sat1	V	0.9033977	0.902586	0.9037231	0.9014571	0.9035776	0.9033976	0.9037932	0.9032108
	V BE sat2	V	1.182303	1.181316	1.181713	1.179629	1.180793	1.180711	1.181582	1.183471
	V CE sat1	V	0.2741275	0.2741161	0.2737815	0.2738398	0.273826	0.2744532	0.2746932	0.2767164
	V CE sat2	V	0.7690693	0.7688853	0.7677867	0.7678602	0.7672552	0.7693949	0.7712032	0.7771925
1-1	V BR CEO	V	59.99975	59.99974	59.9996	59.99944	59.99963	59.99958	59.99979	59.99925
	I CBO1	A	2.9977E-10	2.2898E-10	1.50313E-09	4.919E-10	1.31098E-09	6.0819E-10	2.87834E-09	3.566E-09
	I CBO2	A	1.0503E-10	1.2227E-10	7.9227E-10	2.7058E-10	6.9935E-10	2.9454E-10	1.11835E-09	1.67699E-09
	I CES1	A	7.748E-11	9.836E-11	5.8016E-10	2.1877E-10	4.6024E-10	2.4308E-10	7.1314E-10	1.08768E-09
	I EBO1	A	-1.3222E-09	-1.33744E-09	-1.44407E-09	-1.36792E-09	-1.40346E-09	-1.47454E-09	-1.972E-09	-2.00755E-09
	I EBO2	A	-1.504E-10	-1.5091E-10	-2.4509E-10	-1.4636E-10	-2.542E-10	-1.6762E-10	-5.519E-10	-5.1191E-10
	h FE1		188.939625	161.6212875	137.3679711	121.1039085	106.6701711	88.57560817	55.22900657	42.76110818
	Ib	A	0.000000533	0.000000533	0.000000746	0.000000868	0.000001027	0.000001381	0.000001484	0.000002913
	Ic	A	0.000100768	0.000086198	0.000102532	0.000105064	0.000109534	0.000122289	0.000081986	0.000124573
	h FE2		192.55584	173.79126	157.0013738	144.4780068	133.5860767	119.7805345	97.08276619	58.6704517
	Ib	A	0.000005	0.000005	0.000006469	0.000007099	0.000007816	0.000009094	0.000012504	0.000018757
	Ic	A	0.000962779	0.000868956	0.001015665	0.001025701	0.001044162	0.001089338	0.001213971	0.001100467
	h FE3		193.6461075	182.6606863	171.47934	164.2911752	157.0457326	147.4881637	133.2783295	117.1555401
	Ib	A	0.000047059	0.000047059	0.000047059	0.000061611	0.000064919	0.000070031	0.00008019	0.000096314
	Ic	A	0.009112758	0.008595797	0.008069616	0.01012207	0.0101953	0.01032881	0.01068755	0.01128375
	h FE4		204.4309333	190.1872	192.5446667	185.4185333	162.3392	163.9977333	186.7468	181.4425333
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
	Ic	A	0.1533232	0.1426404	0.1444085	0.1390639	0.1217544	0.1229983	0.1400601	0.1360819
	h FE5		115.2037998	113.4976541	111.6155312	110.2889337	108.8125041	106.6025419	102.0143345	96.67029114
	Ib	A	0.003804269	0.003846259	0.003894983	0.003926334	0.003960104	0.004021933	0.004142184	0.004311208
	Ic	A	0.4382663	0.4365414	0.4347406	0.4330312	0.4309088	0.4287483	0.4225621	0.4167657
	V BE sat1	V	0.9004741	0.9009587	0.8998369	0.9016275	0.9012871	0.9016759	0.8989159	0.9007888
	V BE sat2	V	1.169758	1.169978	1.169687	1.173149	1.171876	1.173012	1.174825	1.181941
	V CE sat1	V	0.2762399	0.2764688	0.2774703	0.2782435	0.2786726	0.2804208	0.2837441	0.2876155
	V CE sat2	V	0.7769827	0.7767526	0.7785896	0.7809903	0.780257	0.7844651	0.7940189	0.8048322
1-2	V BR CEO	V	59.99969	59.99957	59.9996	59.9997	59.99979	59.99969	59.99959	59.9996
	I CBO1	A	6.1831E-10	2.3403E-10	1.55874E-09	5.8796E-10	1.26042E-09	7.5482E-10	3.01992E-09	4.40025E-09
	I CBO2	A	2.7063E-10	1.5163E-10	1.32446E-09	2.8155E-10	7.0248E-10	3.0743E-10	1.11739E-09	1.74791E-09
	I CES1	A	2.1498E-10	8.996E-11	7.3929E-10	2.1735E-10	4.5458E-10	2.3707E-10	6.6709E-10	1.10421E-09
	I EBO1	A	-1.4085E-09	-1.46944E-09	-1.45929E-09	-1.30701E-09	-1.38316E-09	-1.41361E-09	-1.98215E-09	-2.03801E-09
	I EBO2	A	-1.3876E-10	-1.6357E-10	-2.0407E-10	-1.3724E-10	-2.2939E-10	-1.6306E-10	-5.0229E-10	-4.8508E-10
	h FE1		162.3588188	133.6136187	109.9266898	96.65772095	84.56355766	60.81962839	43.33631763	31.65226308
	Ib	A	0.000000533	0.000000767	0.00000098	0.000001184	0.000001497	0.00000142	0.000002728	0.000003694
	Ic	A	0.000086591	0.000102496	0.000107692	0.000114446	0.000126551	0.000086382	0.000118219	0.000116938
	h FE2		168.66016	150.8580114	134.5225662	124.7208229	115.2010025	100.7567341	60.63465056	40.30259752
	Ib	A	0.000005	0.000006714	0.0000077	0.000008488	0.000009532	0.000011663	0.000018137	0.000027286
	Ic	A	0.000843301	0.001012816	0.00103585	0.001058616	0.001098093	0.001175078	0.001099752	0.001099682
	h FE3		172.5563963	162.581549	152.9367649	147.0058783	140.6555033	131.5840239	116.7190495	102.7808258
	Ib	A	0.000047059	0.000061852	0.000066379	0.000069642	0.000073344	0.000079895	0.000095708	0.000116335
	Ic	A	0.008120301	0.010056	0.01015178	0.01023781	0.0103163	0.01051293	0.0111709	0.01195699

SFT2222 Low Dose			days	3.47	3.47	3.47	3.47	6.94	13.89	23.15
10mrad/sec			hr	83.33	83.33	83.33	83.33	166.67	333.33	555.56
dose rate	0.6	(rad/min)	min	5000.00	5000.00	5000.00	5000.00	10000.00	20000.00	33333.33
			4/22/12 2:40 PM	**4/25/12 4:30 PM**	**4/29/12 12:00 PM**	**5/2/12 4:40 PM**	**5/6/12 12:30 PM**	**5/13/12 12:30 PM**	**5/28/12 12:30 PM**	**6/20/12 4:03 PM**
	h FE4		181.2989333	173.5062667	165.9085333	165.1294667	145.746336	149.6943182	166.5562667	165.6133333
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.001016203	0.001008839	0.00075	0.00075
	Ic	A	0.1359742	0.1301297	0.1244314	0.1238471	0.1481079	0.1510175	0.1249172	0.12421
	h FE5		110.3542721	108.8593834	107.2431969	105.9736872	104.6302896	102.1793061	97.70648299	92.16715166
	Ib	A	0.003933788	0.003972237	0.004011609	0.004046723	0.004092411	0.00416388	0.004303947	0.004507066
	Ic	A	0.4341103	0.4324153	0.4302178	0.4288462	0.4281902	0.4254624	0.4205235	0.4154034
	V BE sat1	V	0.9044279	0.9056438	0.9056309	0.9055741	0.905761	0.9065049	0.9047459	0.9052655
	V BE sat2	V	1.185414	1.188903	1.188793	1.188938	1.189033	1.190845	1.193082	1.200344
	V CE sat1	V	0.276144	0.2776218	0.2776733	0.278093	0.2786763	0.2803257	0.2835055	0.2879928
	V CE sat2	V	0.7754657	0.7791415	0.7786374	0.7787966	0.7793497	0.7836833	0.7929808	0.8064277
2-1	V BR CEO	V	59.89761	59.99963	59.99943	59.99966	59.99977	59.9998	59.9996	59.99937
	I CBO1	A	3.6551E-10	2.6437E-10	1.99862E-09	5.1718E-10	1.34131E-09	7.4976E-10	3.07048E-09	3.87442E-09
	I CBO2	A	7.288E-11	1.166E-10	9.7672E-10	2.7377E-10	7.2442E-10	3.3296E-10	1.21758E-09	1.75757E-09
	I CES1	A	5.868E-11	8.597E-11	6.7468E-10	2.1836E-10	4.6358E-10	2.7068E-10	7.6779E-10	1.08823E-09
	I EBO1	A	-1.43899E-09	-1.29684E-09	-1.41359E-09	-1.25624E-09	-1.40854E-09	-1.50499E-09	-1.92631E-09	-1.86034E-09
	I EBO2	A	-1.6053E-10	-1.3673E-10	-2.1521E-10	-1.4433E-10	-2.5217E-10	-1.7775E-10	-5.2153E-10	-4.9115E-10
	h FE1		190.7465625	161.763525	135.7497022	120.5827396	105.7725889	88.73895478	55.52541375	43.32357489
	Ib	A	0.000000533	0.000000533	0.000000759	0.000000878	0.000001048	0.000001402	0.000001465	0.000002871
	Ic	A	0.000101731	0.000086274	0.000103006	0.000105843	0.000110863	0.000124391	0.000081352	0.000124376
	h FE2		196.16248	176.82068	157.9189258	146.6789597	134.9543776	121.7628192	98.79649985	60.03156379
	Ib	A	0.000005	0.000005	0.000006438	0.000007028	0.000007762	0.000008994	0.000012265	0.00001833
	Ic	A	0.000980812	0.000884103	0.00101675	0.001030843	0.001047563	0.001095131	0.001211731	0.001100374
	h FE3		198.2118188	186.8891388	174.6950175	168.3508862	160.5167666	151.1149688	136.8728173	119.6064011
	Ib	A	0.000047059	0.000047059	0.000047059	0.000060061	0.000063487	0.000068249	0.000078163	0.000093915
	Ic	A	0.009327615	0.008794783	0.008220942	0.01011138	0.01019067	0.01031349	0.01069839	0.01123279
	h FE4		214.0124	201.0232	188.4998667	189.844	166.1044	173.4476	192.6146667	191.9872
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
	Ic	A	0.1605093	0.1507674	0.1413749	0.142383	0.1245783	0.1300857	0.144461	0.1439904
	h FE5		134.06745	132.895686	115.4328777	114.2056831	112.2551846	110.2238659	105.8028039	100.577587
	Ib	A	0.003030303	0.003030303	0.003806171	0.003837874	0.003881418	0.003938892	0.004051438	0.004196226
	Ic	A	0.406265	0.4027142	0.4393573	0.438307	0.4357093	0.4341599	0.4286535	0.4220463
	V BE sat1	V	0.8998889	0.8999161	0.9001347	0.8998418	0.9007	0.9015306	0.8985531	0.9007346
	V BE sat2	V	1.16796	1.168793	1.169416	1.168934	1.170035	1.174153	1.172817	1.18121
	V CE sat1	V	0.2770807	0.2780667	0.2785895	0.2788393	0.2795694	0.2823278	0.2844477	0.2890926
	V CE sat2	V	0.7779713	0.7798278	0.7800381	0.7798468	0.780679	0.7889778	0.7937305	0.8074952
2-2	V BR CEO	V	59.99969	59.99961	59.99963	59.99977	59.99982	59.99977	59.99952	59.99969
	I CBO1	A	4.1607E-10	3.301E-10	1.6902E-09	5.2224E-10	1.43738E-09	8.4077E-10	2.06433E-09	3.96543E-09
	I CBO2	A	1.5411E-10	1.9485E-10	8.83E-10	3.1901E-10	7.9069E-10	3.9514E-10	1.14964E-09	1.88571E-09
	I CES1	A	1.2475E-10	1.6554E-10	6.4996E-10	2.7245E-10	5.3101E-10	3.2442E-10	8.6015E-10	1.17584E-09
	I EBO1	A	-1.39838E-09	-1.40852E-09	-1.51005E-09	-1.35777E-09	-1.55576E-09	-1.61667E-09	-1.85524E-09	-2.13954E-09
	I EBO2	A	-1.6762E-10	-1.423E-10	-2.8356E-10	-1.5952E-10	-2.7142E-10	-1.9294E-10	-4.7647E-10	-5.3115E-10
	h FE1		147.2265167	126.5841021	107.0534684	95.89985477	85.29648468	68.06278687	45.53156907	30.9152041
	Ib	A	0.000000683	0.000000807	0.000000987	0.000001142	0.000001365	0.000001379	0.000001855	0.000002644
	Ic	A	0.000100557	0.000102096	0.000105643	0.000109491	0.000116387	0.000093836	0.000084474	0.000081728
	h FE2		152.5197453	138.8192867	124.9137341	116.7757019	108.9940165	98.35145861	79.92707656	45.06837473
	Ib	A	0.000006582	0.000007305	0.000008261	0.000008988	0.00000988	0.00001148	0.000015992	0.000024414
	Ic	A	0.001003952	0.001014118	0.001031874	0.001049623	0.001076867	0.00112907	0.001278216	0.001100286
	h FE3		155.3147633	147.5561606	139.1673315	133.8743279	128.4771663	121.7105347	110.4882873	97.64256285
	Ib	A	0.000064503	0.00006829	0.000073009	0.000076571	0.000080322	0.000086207	0.000099314	0.00011993
	Ic	A	0.01001834	0.0100766	0.01016053	0.01025095	0.0103196	0.01049235	0.01097304	0.01171031
	h FE4		170.9264	160.779137	152.7447857	151.6923532	133.9260391	137.4053576	161.2812	160.322
	Ib	A	0.00075	0.000939285	0.000984327	0.000987837	0.00114002	0.001088065	0.00075	0.00075
	Ic	A	0.1281948	0.1510175	0.1503508	0.1498473	0.1526783	0.1495059	0.1209609	0.1202415
	h FE5		104.0421727	102.3404862	100.5628395	99.24512833	97.85804484	95.89013108	91.85502942	86.93316467
	Ib	A	0.004106402	0.004155903	0.004214193	0.004245348	0.00429585	0.00437216	0.004520506	0.004726556
	Ic	A	0.427239	0.4253171	0.4237912	0.4213301	0.4203835	0.419247	0.4152312	0.4108945
	V BE sat1	V	0.907924	0.9087303	0.9093902	0.9096051	0.9095398	0.9101756	0.9087518	0.909416
	V BE sat2	V	1.196362	1.19864	1.199786	1.200488	1.200159	1.202287	1.204279	1.211179
	V CE sat1	V	0.2883318	0.2894599	0.2899674	0.290428	0.2911852	0.2930583	0.2957519	0.3003787
	V CE sat2	V	0.794918	0.7978042	0.7983063	0.7989898	0.7998449	0.8051369	0.8128104	0.8269032
3-1	V BR CEO	V	59.99969	59.99956	59.99963	59.99965	59.99985	59.99986	59.99974	59.99964
	I CBO1	A	4.0596E-10	1.8347E-10	1.45256E-09	4.5145E-10	1.36153E-09	5.1212E-10	1.50816E-09	2.50422E-09
	I CBO2	A	6.565E-11	9.537E-11	8.5282E-10	2.0851E-10	6.9358E-10	2.2696E-10	8.3558E-10	1.23276E-09
	I CES1	A	4.589E-11	7.172E-11	6.1058E-10	1.6296E-10	4.0782E-10	1.6983E-10	6.6148E-10	7.9282E-10
	I EBO1	A	-1.44406E-09	-1.31714E-09	-1.42883E-09	-1.40854E-09	-1.51515E-09	-1.5253E-09	-1.62681E-09	-1.87049E-09
	I EBO2	A	-1.3927E-10	-1.2762E-10	-1.8737E-10	-1.5243E-10	-2.623E-10	-1.6155E-10	-3.4786E-10	-4.0913E-10
	h FE1		161.3401875	142.5816636	124.0931912	113.6347093	103.1615442	89.87246931	66.62414695	47.7716884
	Ib	A	0.000000533	0.000000709	0.000000831	0.000000925	0.000001048	0.00000128	0.000001389	0.000001686
	Ic	A	0.000086048	0.000101158	0.000103088	0.000105142	0.000108105	0.000115037	0.000092515	0.000080524
	h FE2		165.42008	153.3996195	140.5780332	133.0407248	124.9980952	114.7743374	99.407608	83.80261261
	Ib	A	0.000005	0.000006564	0.000007235	0.00000775	0.000008329	0.000009321	0.000011483	0.000015052
	Ic	A	0.0008271	0.001006866	0.00101706	0.001031103	0.001041103	0.001069833	0.001141454	0.001261412
	h FE3		167.8358566	160.4711406	152.9240069	148.2243406	142.8706242	135.8784518	125.3944292	114.3252949
	Ib	A	0.000059624	0.000062449	0.000065952	0.000068367	0.000071361	0.000075726	0.000083796	0.0000951
	Ic	A	0.01000699	0.01002125	0.01008564	0.01013364	0.01019537	0.01028949	0.01050753	0.01087235
	h FE4		183.1088	171.0829333	164.2194667	165.5673333	144.4113379	151.0431892	173.018	175.7949333
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.001047857	0.000984825	0.00075	0.00075
	Ic	A	0.1373316	0.1283122	0.1231646	0.1241755	0.1513224	0.1487511	0.1297635	0.1318462
	h FE5		105.2548185	103.9269419	102.5939941	101.5923313	100.3036718	98.45065388	95.30107497	91.14231133
	Ib	A	0.004050085	0.004078751	0.004126511	0.004156181	0.004191587	0.004251	0.004360192	0.004506003
	Ic	A	0.426291	0.4238921	0.4233552	0.4222361	0.4204316	0.4185137	0.415531	0.4106875
	V BE sat1	V	0.9012789	0.9013851	0.9021497	0.9020432	0.9023294	0.9027172	0.9004856	0.9020774
	V BE sat2	V	1.175449	1.176232	1.178255	1.177679	1.177801	1.179008	1.180006	1.186237
	V CE sat1	V	0.2889389	0.2895293	0.289949	0.2902783	0.2908188	0.2924828	0.2950142	0.2986023
	V CE sat2	V	0.8125402	0.813699	0.8146548	0.8144878	0.8151206	0.8193634	0.826566	0.8369388
3-2	V BR CEO	V	59.99976	59.99972	59.99964	59.99974	59.99976	59.99989	59.99984	59.99933
	I CBO1	A	4.1607E-10	2.6437E-10	1.36661E-09	4.5145E-10	1.46266E-09	6.9414E-10	1.81658E-09	3.03006E-09
	I CBO2	A	7.586E-11	1.0675E-10	7.6385E-10	2.4561E-10	7.2811E-10	2.6052E-10	9.9142E-10	1.44062E-09
	I CES1	A	4.28E-11	7.556E-11	5.4992E-10	1.8227E-10	4.2501E-10	2.1113E-10	7.2624E-10	9.3719E-10
	I EBO1	A	-1.35268E-09	-1.48974E-09	-1.51512E-09	-1.33747E-09	-1.46439E-09	-1.53545E-09	-1.75371E-09	-1.97203E-09
	I EBO2	A	-1.2965E-10	-1.3623E-10	-1.9091E-10	-1.4433E-10	-2.785E-10	-1.6813E-10	-3.8837E-10	-4.4052E-10

SFT2222 Low Dose			days	3.47	3.47	3.47	3.47	6.94	13.89	23.15
10mrad/sec			hr	83.33	83.33	83.33	83.33	166.67	333.33	555.56
dose rate	0.6	(rad/min)	min	5000.00	5000.00	5000.00	5000.00	10000.00	20000.00	33333.33
			4/22/12 2:40 PM	**4/25/12 4:30 PM**	**4/29/12 12:00 PM**	**5/2/12 4:40 PM**	**5/6/12 12:30 PM**	**5/13/12 12:30 PM**	**5/28/12 12:30 PM**	**6/20/12 4:03 PM**
	h FE1		150.8809602	127.5510119	107.4921018	96.36258102	85.9261265	67.51548184	46.28767751	32.80269977
	Ib	A	0.000000667	0.000000805	0.000000996	0.000001161	0.000001396	0.000001365	0.000001868	0.00000255
	Ic	A	0.000100636	0.000102655	0.000107063	0.000111829	0.000119921	0.000092127	0.000086486	0.000083655
	h FE2		157.3394794	142.9562334	129.0550277	121.0679703	113.0042003	101.5731815	82.76922503	48.3592978
	Ib	A	0.000006372	0.000007116	0.000008021	0.000008723	0.000009599	0.00001121	0.000015598	0.000022726
	Ic	A	0.001002543	0.00101722	0.001035195	0.001056077	0.001084755	0.001138602	0.001290999	0.001099019
	h FE3		160.5900479	152.9077746	144.8735364	139.9221784	134.5230986	127.3600124	115.4804194	103.1626725
	Ib	A	0.00006241	0.00006578	0.000070072	0.000072995	0.000076534	0.000082366	0.000094755	0.000112083
	Ic	A	0.01002239	0.01005825	0.01015157	0.0102136	0.01029562	0.01049016	0.01094237	0.01156281
	h FE4		173.126	158.2886617	152.2628879	154.7990013	138.6988454	140.9029713	164.0317333	161.5329333
	Ib	A	0.00075	0.00094288	0.000987111	0.000966153	0.001088142	0.001078314	0.00075	0.00075
	Ic	A	0.1298445	0.1492472	0.1503003	0.1495595	0.1509241	0.1519377	0.1230238	0.1211497
	h FE5		105.4909619	104.0368506	102.3504779	101.3528318	100.4154697	98.32963108	94.43770736	89.81676798
	Ib	A	0.00405737	0.004100206	0.004146909	0.004175103	0.004220116	0.004272895	0.004413192	0.00459834
	Ic	A	0.4280159	0.4265725	0.4244381	0.4231585	0.4237649	0.4201522	0.4167717	0.413008
	V BE sat1	V	0.9131237	0.912964	0.913727	0.9134177	0.913747	0.9142951	0.9134877	0.9138404
	V BE sat2	V	1.215956	1.216382	1.217766	1.217244	1.218049	1.219107	1.221463	1.2278
	V CE sat1	V	0.288285	0.2889942	0.2894923	0.2897391	0.2905062	0.2920664	0.2944283	0.298588
	V CE sat2	V	0.8102186	0.8115182	0.8123204	0.8122406	0.813537	0.8174446	0.8242428	0.83665
4-1	V BR CEO	V	60.00025	59.99956	59.99968	59.99987	59.99988	59.99963	59.99957	59.99949
	I CBO1	A	3.4528E-10	2.492E-10	1.28065E-09	4.11E-10	1.48288E-09	6.8909E-10	2.51431E-09	2.93399E-09
	I CBO2	A	8.238E-11	1.2378E-10	7.223E-10	2.2837E-10	7.3286E-10	2.6957E-10	1.00022E-09	1.41595E-09
	I CES1	A	6.777E-11	9.982E-11	5.3036E-10	1.7787E-10	4.3507E-10	2.0749E-10	6.5062E-10	9.1692E-10
	I EBO1	A	-1.3476E-09	-1.38314E-09	-1.4745E-09	-1.28671E-09	-1.45423E-09	-1.38823E-09	-1.7791E-09	-1.86543E-09
	I EBO2	A	-1.3623E-10	-1.3673E-10	-2.1673E-10	-1.3218E-10	-2.5926E-10	-1.823E-10	-4.5621E-10	-4.5065E-10
	h FE1		186.9361313	160.2343688	136.5514003	122.8622482	109.3395634	93.57503093	63.6123763	45.22619969
	Ib	A	0.000000533	0.000000533	0.000000752	0.000000854	0.000000993	0.000001256	0.000001384	0.000002218
	Ic	A	0.000099699	0.000085458	0.000102622	0.000104895	0.000108583	0.00011751	0.00008806	0.000100292
	h FE2		191.27324	173.31342	156.4946464	146.5895627	136.093563	123.7029914	103.5043615	70.4127259
	Ib	A	0.000005	0.000005	0.000006478	0.000007002	0.000007651	0.000008657	0.000011274	0.000016254
	Ic	A	0.000956366	0.000866567	0.001013821	0.001026403	0.001041196	0.001070871	0.001166904	0.001144507
	h FE3		193.09144	182.6548213	171.3459325	166.0228873	159.1958647	150.3618664	137.0041696	121.9511787
	Ib	A	0.000047059	0.000047059	0.000047059	0.00006096	0.000064047	0.00006823	0.000077153	0.000090899
	Ic	A	0.009086656	0.008595521	0.008063338	0.01012077	0.01019595	0.01025912	0.01057026	0.01108523
	h FE4		211.0536	196.5884	187.8553333	188.1676	163.6836	173.9112	194.0304	189.1242667
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
	Ic	A	0.1582902	0.1474413	0.1408915	0.1411257	0.1227627	0.1304334	0.1455228	0.1418432
	h FE5		116.0417762	114.7117062	112.7175922	111.5269407	110.3713106	107.9938169	104.2024205	99.2658908
	Ib	A	0.003788511	0.003819324	0.003867589	0.003896893	0.003925344	0.003987504	0.00409036	0.004239323
	Ic	A	0.4396256	0.4381212	0.4359453	0.4346086	0.4332454	0.4306258	0.4262254	0.4208202
	V BE sat1	V	0.9002841	0.8998145	0.9003367	0.9004412	0.9007673	0.9007918	0.9002101	0.9008719
	V BE sat2	V	1.169618	1.168471	1.169552	1.170549	1.170515	1.171217	1.173725	1.17991
	V CE sat1	V	0.2815921	0.2819976	0.2824004	0.2829346	0.2834453	0.2848792	0.2874213	0.2916362
	V CE sat2	V	0.791872	0.7921135	0.792454	0.7933877	0.7934939	0.7969925	0.8038732	0.8158924
4-2	V BR CEO	V	59.99937	59.99973	59.99966	59.99963	59.99976	59.99992	59.99965	59.99957
	I CBO1	A	3.7562E-10	3.0987E-10	1.4475E-09	4.4639E-10	1.49299E-09	6.7898E-10	2.46881E-09	3.05028E-09
	I CBO2	A	9.386E-11	1.3232E-10	8.0267E-10	2.4763E-10	7.685E-10	3.0041E-10	1.00396E-09	1.4614E-09
	I CES1	A	8.304E-11	1.1266E-10	5.6013E-10	2.0022E-10	4.5898E-10	2.3302E-10	6.6381E-10	9.5938E-10
	I EBO1	A	-1.35268E-09	-1.42882E-09	-1.4339E-09	-1.36792E-09	-1.47455E-09	-1.45423E-09	-1.85525E-09	-2.0431E-09
	I EBO2	A	-1.423E-10	-1.5446E-10	-2.3901E-10	-1.6104E-10	-2.8357E-10	-1.6458E-10	-4.6685E-10	-4.6837E-10
	h FE1		168.73245	147.9936456	127.0295503	115.0569915	103.386899	89.29527417	62.38909466	44.48136197
	Ib	A	0.000000533	0.000000683	0.000000813	0.000000917	0.000001057	0.000001318	0.000001431	0.000002146
	Ic	A	0.000089991	0.00010109	0.000103267	0.000105562	0.000109331	0.000117709	0.000089251	0.000095457
	h FE2		174.54428	160.3553345	145.6405153	136.7613409	127.8432099	116.8535458	98.50758055	72.07565244
	Ib	A	0.000005	0.000006285	0.000006999	0.000007531	0.000008194	0.000009216	0.000011822	0.000016625
	Ic	A	0.000872721	0.00100777	0.001019396	0.001029953	0.001047579	0.001076912	0.001164545	0.001198268
	h FE3		177.2131	169.1900243	160.0100792	154.4521294	148.3247929	140.7266049	128.3115507	115.5561419
	Ib	A	0.000047059	0.000059375	0.000063072	0.00006575	0.00006876	0.000073249	0.000082383	0.00009601
	Ic	A	0.00833944	0.01004559	0.01009222	0.01015518	0.01019877	0.01030814	0.01057074	0.0110946
	h FE4		196.1118667	181.4477333	174.5852	173.1736	152.2105644	158.2809565	179.674	178.1509333
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.000977942	0.000942003	0.00075	0.00075
	Ic	A	0.1470839	0.1360858	0.1309389	0.1298802	0.1488531	0.1491011	0.1347555	0.1336132
	h FE5		111.1476418	109.7826197	108.0698517	106.8545079	105.7562038	103.8499205	99.97327674	95.15339443
	Ib	A	0.003901651	0.003936057	0.003988536	0.004020748	0.004053195	0.004101417	0.004222751	0.004374039
	Ic	A	0.4336593	0.4321106	0.4310405	0.4296351	0.4286505	0.4259318	0.4221623	0.4162047
	V BE sat1	V	0.9091867	0.908885	0.9100156	0.9096649	0.9099628	0.9101336	0.9097073	0.9102384
	V BE sat2	V	1.200398	1.200084	1.202106	1.201024	1.201121	1.20222	1.2057	1.211995
	V CE sat1	V	0.2843465	0.2848686	0.285515	0.2857003	0.2860986	0.2877068	0.2902849	0.2945293
	V CE sat2	V	0.7929552	0.7937187	0.7947817	0.7944559	0.7942973	0.7984111	0.8060553	0.8181484
5-1	V BR CEO	V	60.00146	59.99931	59.99958	59.9995	59.99976	60.00014	59.99944	59.99928
	I CBO1	A	3.6045E-10	2.0875E-10	1.45761E-09	4.1606E-10	1.57894E-09	6.6886E-10	2.5851E-09	3.62162E-09
	I CBO2	A	7.273E-11	1.0665E-10	7.8832E-10	2.3499E-10	7.5576E-10	3.048E-10	1.0535E-09	1.66178E-09
	I CES1	A	5.276E-11	7.955E-11	5.5943E-10	1.8272E-10	4.4816E-10	2.4101E-10	6.8408E-10	1.0802E-09
	I EBO1	A	-1.2816E-09	-1.31714E-09	-1.39329E-09	-1.33239E-09	-1.56591E-09	-1.49991E-09	-1.80449E-09	-1.91111E-09
	I EBO2	A	-1.418E-10	-1.3522E-10	-2.0964E-10	-1.3724E-10	-2.866E-10	-1.5395E-10	-4.876E-10	-4.8407E-10
	h FE1		190.015125	161.346	135.4930609	119.9765416	104.8387063	87.63526485	57.43303794	36.18052963
	Ib	A	0.000000533	0.000000533	0.000000759	0.000000881	0.000001059	0.000001432	0.000001899	0.000002356
	Ic	A	0.000101341	0.000086051	0.000102865	0.000105753	0.000111012	0.000125488	0.000109086	0.000085255
	h FE2		194.2798	174.97482	156.9828136	145.405323	133.7565107	120.3708117	96.11752716	55.93831788
	Ib	A	0.000005	0.000005	0.000006468	0.000007068	0.000007847	0.000009073	0.000012818	0.000019669
	Ic	A	0.000971399	0.000874874	0.001015296	0.00102777	0.0010496	0.00109213	0.001231998	0.001100247
	h FE3		196.1500375	185.2223738	172.6759063	166.7471924	158.610526	149.719305	134.0373685	117.8072014
	Ib	A	0.000047059	0.000047059	0.000047059	0.000060683	0.000064173	0.000068764	0.000079841	0.000096851
	Ic	A	0.00923059	0.008716347	0.008125925	0.01011875	0.01017852	0.01029527	0.01070174	0.01140974
	h FE4		212.6334667	197.9970667	188.5053333	185.9053333	166.3098667	170.4188	192.2810667	188.4461333
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
	Ic	A	0.1594751	0.1484978	0.141379	0.139429	0.1247324	0.1278141	0.1442108	0.1413346
	h FE5		132.781044	115.3818324	113.5482651	112.1832951	110.803944	108.21672	104.0451292	98.70382248
	Ib	A	0.003030303	0.003810069	0.00384782	0.003880584	0.003924562	0.003980661	0.004093119	0.004259167
	Ic	A	0.4023668	0.4396127	0.4369133	0.4353367	0.434857	0.4307741	0.4258691	0.4203961
	V BE sat1	V	0.9059139	0.9055652	0.9059205	0.9058502	0.906967	0.9065306	0.9064353	0.9069618

SFT2222 Low Dose			days	3.47	3.47	3.47	3.47	6.94	13.89	23.15
10mrad/sec			hr	83.33	83.33	83.33	83.33	166.67	333.33	555.56
dose rate	0.6	(rad/min)	min	5000.00	5000.00	5000.00	5000.00	10000.00	20000.00	33333.33
			4/22/12 2:40 PM	**4/25/12 4:30 PM**	**4/29/12 12:00 PM**	**5/2/12 4:40 PM**	**5/6/12 12:30 PM**	**5/13/12 12:30 PM**	**5/28/12 12:30 PM**	**6/20/12 4:03 PM**
	V BE sat2	V	1.184793	1.184152	1.186082	1.185706	1.18787	1.18792	1.191614	1.199546
	V CE sat1	V	0.2775232	0.2781158	0.2788796	0.279337	0.2801005	0.2818353	0.2842576	0.2896533
	V CE sat2	V	0.7842772	0.7848471	0.7864535	0.7866932	0.7878715	0.7919445	0.7991046	0.8145236
5-2	V BR CEO	V	59.99987	59.99955	59.99956	59.99956	59.99981	59.99973	59.99956	59.99941
	I CBO1	A	3.6045E-10	2.6942E-10	1.41211E-09	4.7167E-10	1.44748E-09	7.2954E-10	2.52443E-09	3.62162E-09
	I CBO2	A	6.393E-11	1.0685E-10	7.7083E-10	2.3489E-10	7.3427E-10	2.999E-10	1.10263E-09	1.68847E-09
	I CES1	A	4.771E-11	7.935E-11	5.799E-10	1.8298E-10	4.5772E-10	2.3929E-10	7.455E-10	1.08085E-09
	I EBO1	A	-1.38822E-09	-1.39329E-09	-1.39329E-09	-1.307E-09	-1.40854E-09	-1.48469E-09	-1.89586E-09	-1.88574E-09
	I EBO2	A	-1.4635E-10	-1.4484E-10	-2.2129E-10	-1.4433E-10	-2.5471E-10	-1.6053E-10	-4.8508E-10	-4.8812E-10
	h FE1		181.3751063	155.0978625	131.1796467	116.0713812	101.9595945	85.50341058	56.31129351	35.55222412
	Ib	A	0.000000533	0.000000533	0.000000786	0.000000914	0.000001092	0.000001471	0.000001933	0.000002395
	Ic	A	0.000096733	0.000082719	0.000103125	0.000106032	0.000111347	0.000125816	0.000108862	0.000085157
	h FE2		185.71126	168.14414	151.4990032	140.1952765	129.5676305	116.7071384	93.73820387	54.52919322
	Ib	A	0.000005	0.000005	0.000006713	0.000007348	0.000008121	0.000009411	0.000013172	0.000020192
	Ic	A	0.000928556	0.000840721	0.001016974	0.001030112	0.001052208	0.001098355	0.001234755	0.001101038
	h FE3		187.4682438	177.495215	167.4943816	160.2423303	153.0500369	144.4203416	129.7744121	114.2303477
	Ib	A	0.000047059	0.000047059	0.000060237	0.000063142	0.000066823	0.000071536	0.000082694	0.00010024
	Ic	A	0.008822035	0.008352716	0.01008932	0.0101181	0.01022725	0.01033127	0.01073152	0.01145048
	h FE4		201.2937333	185.7942667	178.7552	177.0606667	157.2291193	161.3696	183.8750667	183.3341333
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.000952804	0.00075	0.00075	0.00075
	Ic	A	0.1509703	0.1393457	0.1340664	0.1327955	0.1498086	0.1210272	0.1379063	0.1375006
	h FE5		113.5796976	112.2267087	110.3228272	109.1375313	107.6374763	105.4245209	101.114935	95.78281499
	Ib	A	0.003844617	0.003873854	0.003921011	0.003953565	0.004002271	0.004054373	0.004175922	0.004344894
	Ic	A	0.4366704	0.4347499	0.432577	0.4314823	0.4307944	0.4274303	0.4222481	0.4161662
	V BE sat1	V	0.9072827	0.9065487	0.9063496	0.9068616	0.9075529	0.9073653	0.9068084	0.9075794
	V BE sat2	V	1.192629	1.192259	1.192562	1.193145	1.194168	1.194465	1.197643	1.205689
	V CE sat1	V	0.2741836	0.2747168	0.2754185	0.2758256	0.2764121	0.2780577	0.2808183	0.2855696
	V CE sat2	V	0.7708859	0.7719567	0.7727216	0.773179	0.7737458	0.7775328	0.7854779	0.7996784
6-1	V BR CEO	V	59.99961	59.99958	59.99942	59.99961	60.00006	59.99969	59.99949	59.9993
	I CBO1	A	3.4022E-10	2.7448E-10	1.33627E-09	5.3235E-10	1.64467E-09	7.6493E-10	2.64577E-09	3.99577E-09
	I CBO2	A	6.13E-11	1.0639E-10	8.0783E-10	2.5122E-10	7.8366E-10	3.4014E-10	1.1823E-09	1.71202E-09
	I CES1	A	4.548E-11	8.006E-11	5.7312E-10	2.0401E-10	4.5756E-10	2.7078E-10	7.7027E-10	1.06063E-09
	I EBO1	A	-1.36283E-09	-1.35267E-09	-1.62172E-09	-1.35269E-09	-1.51515E-09	-1.55069E-09	-1.95679E-09	-1.95173E-09
	I EBO2	A	-1.4078E-10	-1.5142E-10	-2.38E-10	-1.4079E-10	-2.9167E-10	-1.8787E-10	-4.8507E-10	-4.8407E-10
	h FE1		162.1172813	135.9021826	112.9712653	99.45267537	87.05876675	67.13685037	45.39292497	34.11846962
	Ib	A	0.000000533	0.000000749	0.000000934	0.000001111	0.00000137	0.000001363	0.000002038	0.000003342
	Ic	A	0.000086463	0.000101769	0.000105564	0.000110478	0.00011923	0.000091517	0.000092493	0.00011403
	h FE2		166.178	149.5656302	133.8889698	123.9485615	114.449038	102.1561719	78.74827661	44.88772207
	Ib	A	0.000005	0.000006773	0.00000769	0.000008476	0.000009447	0.000011148	0.000016062	0.000024501
	Ic	A	0.00083089	0.001013019	0.001029548	0.001050549	0.001081154	0.001138862	0.001264857	0.001099772
	h FE3		168.4457969	159.1206252	150.1917503	143.9874919	137.4288938	129.7064424	116.4549253	102.556123
	Ib	A	0.000059259	0.000063072	0.000067536	0.000071152	0.000075112	0.000080864	0.00009467	0.000114538
	Ic	A	0.009981975	0.01003612	0.0101434	0.01024504	0.0103226	0.01048864	0.01102474	0.01174658
	h FE4		185.9474667	167.4272	160.4496	161.5527036	141.3517819	147.412928	168.202	162.8276
	Ib	A	0.00075	0.00075	0.00075	0.00094007	0.001064355	0.001028872	0.00075	0.00075
	Ic	A	0.1394606	0.1255704	0.1203372	0.1518709	0.1504485	0.1516691	0.1261515	0.1221207
	h FE5		107.4106285	105.9137066	104.1496078	102.7411556	101.2660963	99.30281475	95.03602011	90.09473973
	Ib	A	0.003995063	0.004039963	0.004083538	0.004128419	0.004175251	0.004234934	0.004374008	0.004575751
	Ic	A	0.4291122	0.4278875	0.4252989	0.4241585	0.4228114	0.4205409	0.4156883	0.4122511
	V BE sat1	V	0.8989853	0.8993256	0.898785	0.8989047	0.8997931	0.8996022	0.8991865	0.9000306
	V BE sat2	V	1.167776	1.168961	1.168569	1.168519	1.169811	1.171342	1.173313	1.180465
	V CE sat1	V	0.2842444	0.2852162	0.2857435	0.2861036	0.2866904	0.2885736	0.291431	0.2954403
	V CE sat2	V	0.8004199	0.8024385	0.8026852	0.8029708	0.8036431	0.8089097	0.8166989	0.8287153
6-2	V BR CEO	V	59.99958	59.99958	59.9996	59.99969	59.99972	59.99984	59.99972	59.99937
	I CBO1	A	3.2E-10	2.2897E-10	1.18964E-09	5.0201E-10	1.47782E-09	6.6886E-10	2.32218E-09	3.37893E-09
	I CBO2	A	6.752E-11	1.113E-10	6.8363E-10	2.3691E-10	7.4287E-10	2.9338E-10	1.06098E-09	1.60375E-09
	I CES1	A	4.968E-11	8.85E-11	5.1186E-10	1.8217E-10	4.4129E-10	2.2756E-10	7.3235E-10	1.01276E-09
	I EBO1	A	-1.25115E-09	-1.49482E-09	-1.49988E-09	-1.30192E-09	-1.40854E-09	-1.65728E-09	-1.81972E-09	-1.95173E-09
	I EBO2	A	-1.4078E-10	-1.5192E-10	-2.304E-10	-1.342E-10	-2.4661E-10	-1.8382E-10	-4.4406E-10	-4.7191E-10
	h FE1		184.98825	161.6365125	140.2724981	125.5188653	112.0432191	96.27431103	68.26601035	46.95031045
	Ib	A	0.000000533	0.000000533	0.000000728	0.000000828	0.000000956	0.000001186	0.000001339	0.000001851
	Ic	A	0.00009866	0.000086206	0.000102097	0.00010394	0.000107101	0.000114209	0.000091424	0.000086907
	h FE2		188.70364	172.63226	157.9060868	146.8496559	136.4801019	124.1143555	104.6899099	85.11796478
	Ib	A	0.000005	0.000005	0.000006408	0.000006962	0.000007603	0.000008573	0.000010903	0.000015148
	Ic	A	0.000943518	0.000863161	0.001011941	0.001022426	0.00103769	0.001064026	0.001141442	0.001289352
	h FE3		189.9344338	180.4577838	170.5477825	164.4106437	157.1140994	148.8426984	134.9355928	121.4749851
	Ib	A	0.000047059	0.000047059	0.000047059	0.000061443	0.000064764	0.000068927	0.00007787	0.000090333
	Ic	A	0.008938091	0.008492131	0.008025778	0.0101019	0.01017535	0.01025934	0.01050742	0.0109732
	h FE4		202.0092	192.1437333	182.4542667	179.5510667	160.7210667	165.5084	184.4726667	183.1257333
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
	Ic	A	0.1515069	0.1441078	0.1368407	0.1346633	0.1205408	0.1241313	0.1383545	0.1373443
	h FE5		112.3193814	110.647585	109.0494179	107.8829676	106.7308424	104.4405218	100.470212	96.08977022
	Ib	A	0.003871107	0.003907995	0.003951822	0.003977713	0.004014406	0.004067583	0.004183276	0.004331292
	Ic	A	0.4348003	0.4324102	0.4309439	0.4291275	0.4284609	0.4248205	0.4202946	0.4161929
	V BE sat1	V	0.9116566	0.9116374	0.9106061	0.9114193	0.9121253	0.9119822	0.9119298	0.9121211
	V BE sat2	V	1.208105	1.209015	1.207804	1.209015	1.209548	1.210942	1.212703	1.219518
	V CE sat1	V	0.2795949	0.2806588	0.2811584	0.2814705	0.2819084	0.2836004	0.2861552	0.2903901
	V CE sat2	V	0.7867306	0.7891338	0.7891408	0.789511	0.7895769	0.7938871	0.800382	0.8126694
7-1	V BR CEO	V	59.99981	59.99956	59.99963	59.99955	59.99981	59.99989	59.99957	59.99944
	I CBO1	A	4.4135E-10	2.5931E-10	1.37166E-09	5.1212E-10	1.57388E-09	6.6886E-10	2.02388E-09	2.62558E-09
	I CBO2	A	1.5012E-10	1.7802E-10	8.2815E-10	2.9075E-10	8.0267E-10	3.2295E-10	1.00558E-09	1.3973E-09
	I CES1	A	1.255E-10	1.4218E-10	6.1816E-10	2.406E-10	4.7349E-10	2.678E-10	7.2442E-10	9.5979E-10
	I EBO1	A	-2.29183E-09	-2.33243E-09	-2.48472E-09	-2.25123E-09	-2.27662E-09	-2.22078E-09	-2.63703E-09	-2.55582E-09
	I EBO2	A	-2.8458E-10	-2.9369E-10	-4.1419E-10	-2.8306E-10	-4.4964E-10	-2.8863E-10	-6.1874E-10	-5.8786E-10
	h FE1		149.2257716	132.9825452	117.7601372	108.4769156	98.31626831	86.66364286	60.40273151	43.01371656
	Ib	A	0.000000679	0.000000772	0.000000892	0.00000099	0.00000113	0.000001376	0.000001466	0.000002413
	Ic	A	0.00010129	0.000102636	0.000105032	0.000107373	0.000111107	0.000119216	0.000088543	0.000103794
	h FE2		161.08966	150.7080212	138.9748526	131.9108348	123.6541619	114.4481966	96.57506739	62.25028198
	Ib	A	0.000005	0.000006748	0.000007385	0.00000789	0.000008524	0.000009487	0.000012187	0.000017718
	Ic	A	0.000805448	0.001016974	0.001026387	0.00104076	0.00105403	0.001085803	0.001176951	0.001102945
	h FE3		170.6865085	163.407034	156.2473486	151.608443	145.6626275	138.87672	127.3862718	113.78894

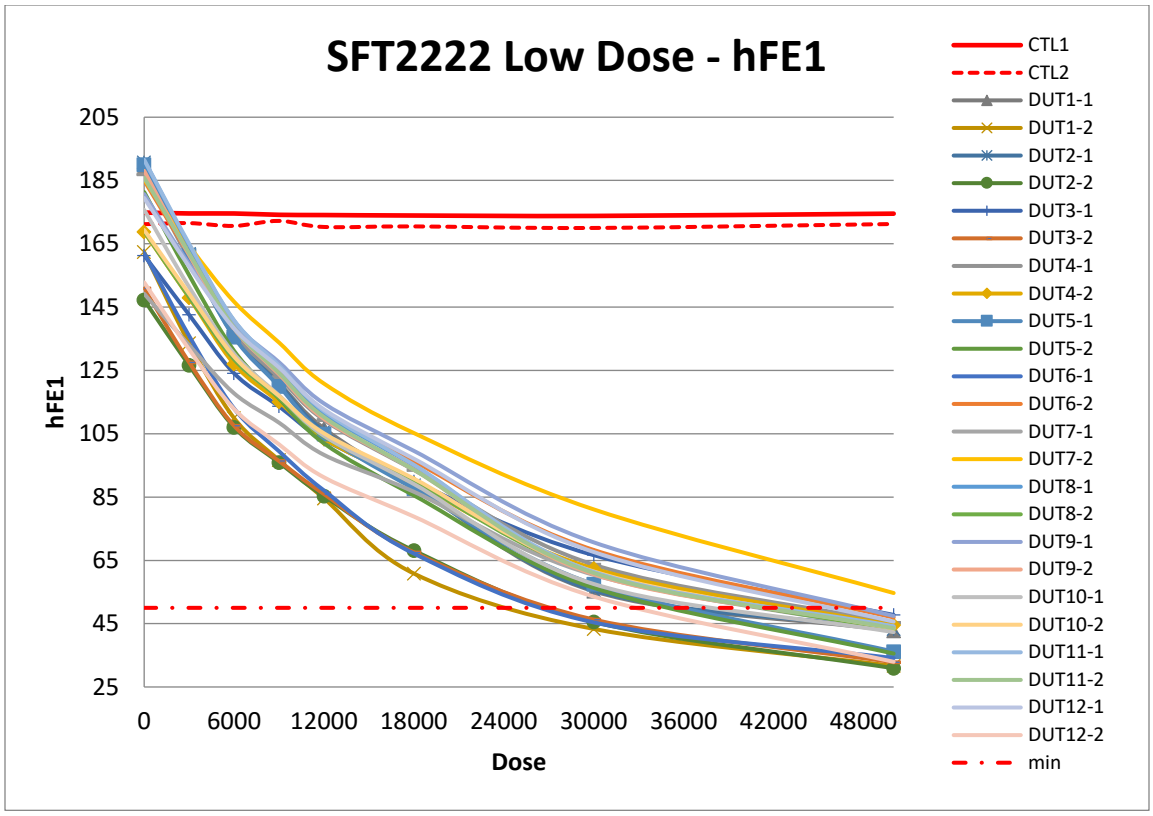
SFT2222 Low Dose			days	3.47	3.47	3.47	3.47	6.94	13.89	23.15
10mrad/sec			hr	83.33	83.33	83.33	83.33	166.67	333.33	555.56
dose rate	0.6	(rad/min)	min	5000.00	5000.00	5000.00	5000.00	10000.00	20000.00	33333.33
			4/22/12 2:40 PM	**4/25/12 4:30 PM**	**4/29/12 12:00 PM**	**5/2/12 4:40 PM**	**5/6/12 12:30 PM**	**5/13/12 12:30 PM**	**5/28/12 12:30 PM**	**6/20/12 4:03 PM**
	Ib	A	0.000058928	0.000061644	0.0000648	0.000067133	0.000070321	0.000074391	0.000083624	0.00009862
	Ic	A	0.01005824	0.01007306	0.01012482	0.01017795	0.01024315	0.01033124	0.01065259	0.01122184
	h FE4		194.4312	184.2088	174.3085333	173.0278667	152.4034778	160.4805333	183.2656	184.6797333
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.000993245	0.00075	0.00075	0.00075
	Ic	A	0.1458234	0.1381566	0.1307314	0.1297709	0.151374	0.1203604	0.1374492	0.1385098
	h FE5		111.6155146	109.9262573	108.5968092	107.588965	106.40096	104.4204694	100.8072593	96.26203676
	Ib	A	0.00389611	0.00393525	0.003972294	0.003995263	0.004026277	0.004085701	0.004190162	0.00433686
	Ic	A	0.4348663	0.4325873	0.4313784	0.4298462	0.4283997	0.4266308	0.4223987	0.417475
	V BE sat1	V	0.9036468	0.9034117	0.9032659	0.9034532	0.9046661	0.9050227	0.903813	0.9046941
	V BE sat2	V	1.180947	1.180901	1.180944	1.181629	1.18212	1.18572	1.18481	1.19142
	V CE sat1	V	0.2944325	0.2949592	0.2953631	0.2957102	0.2958787	0.2983693	0.2998219	0.3036527
	V CE sat2	V	0.8085242	0.809827	0.8100149	0.8106411	0.8100139	0.8172246	0.8206993	0.8320502
7-2	V BR CEO	V	60.0013	59.99974	59.99992	59.99952	59.99997	59.99989	59.99961	59.99925
	I CBO1	A	3.7562E-10	3.5032E-10	1.24525E-09	4.6156E-10	1.54354E-09	6.5875E-10	2.10478E-09	2.5194E-09
	I CBO2	A	9.356E-11	1.3086E-10	7.2134E-10	2.4187E-10	7.5333E-10	2.8408E-10	9.938E-10	1.37481E-09
	I CES1	A	7.334E-11	9.957E-11	5.2384E-10	1.9056E-10	4.4078E-10	2.3843E-10	7.0587E-10	9.4902E-10
	I EBO1	A	-1.32729E-09	-1.52019E-09	-1.48973E-09	-1.44406E-09	-1.35778E-09	-1.55069E-09	-1.75373E-09	-1.94158E-09
	I EBO2	A	-1.3876E-10	-1.504E-10	-2.4407E-10	-1.5699E-10	-3.0787E-10	-1.8129E-10	-4.6736E-10	-4.8154E-10
	h FE1		185.4106688	164.4624375	146.7014723	133.7933256	120.8257313	105.20419	81.08281019	54.67883827
	Ib	A	0.000000533	0.000000533	0.000000693	0.000000771	0.000000873	0.00000105	0.000001631	0.000001994
	Ic	A	0.000098886	0.000087713	0.000101691	0.000103131	0.000105472	0.000110461	0.000132214	0.000109047
	h FE2		191.60698	176.84856	163.38872	155.1911001	145.142225	132.9648911	112.4459975	91.36426003
	Ib	A	0.000005	0.000005	0.000005	0.000006544	0.000007072	0.000007857	0.000009899	0.000013679
	Ic	A	0.000958035	0.000884243	0.000816944	0.001015528	0.001026388	0.001044672	0.001113088	0.001249797
	h FE3		194.23979	185.453935	177.8070163	170.5749613	165.1274352	156.9770867	142.1474791	127.8101795
	Ib	A	0.000047059	0.000047059	0.000047059	0.000047059	0.000061202	0.000065004	0.000073081	0.000084677
	Ic	A	0.009140696	0.008727244	0.008367389	0.008027057	0.01010617	0.01020419	0.01038834	0.01082264
	h FE4		210.9145333	198.6712	191.0013333	193.0842667	167.5857333	175.0424	196.3248	198.4708
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
	Ic	A	0.1581859	0.1490034	0.143251	0.1448132	0.1256893	0.1312818	0.1472436	0.1488531
	h FE5		133.041744	115.9007588	114.816834	113.3739916	112.3374707	110.6116618	106.5858658	101.6468142
	Ib	A	0.003030303	0.003791463	0.003816897	0.003854461	0.003879944	0.003924057	0.004024428	0.004170344
	Ic	A	0.4031568	0.4394334	0.438244	0.4369956	0.4358631	0.4340465	0.4289471	0.4239022
	V BE sat1	V	0.903927	0.9041249	0.9038228	0.9042311	0.9051553	0.9048794	0.9046913	0.9052448
	V BE sat2	V	1.182674	1.183873	1.18636	1.184748	1.185721	1.187286	1.188443	1.195055
	V CE sat1	V	0.2771909	0.2780861	0.2795235	0.278933	0.2794186	0.2812818	0.2833331	0.2872471
	V CE sat2	V	0.7739909	0.7760432	0.7796234	0.777189	0.7775384	0.7826315	0.7874607	0.7984326
8-1	V BR CEO	V	60.00126	59.9994	59.99974	59.9996	59.99985	59.99989	59.99958	59.99927
	I CBO1	A	3.8067E-10	2.6942E-10	1.18458E-09	4.8178E-10	1.84185E-09	6.183E-10	1.92276E-09	2.70647E-09
	I CBO2	A	8.86E-11	1.1554E-10	6.8236E-10	2.5319E-10	7.279E-10	2.8888E-10	1.00386E-09	1.41494E-09
	I CES1	A	7.055E-11	1.0346E-10	5.0023E-10	2.0522E-10	3.5191E-10	2.5036E-10	7.4899E-10	9.6762E-10
	I EBO1	A	-1.42375E-09	-1.32729E-09	-1.54048E-09	-1.42376E-09	-1.62175E-09	-1.45931E-09	-1.75881E-09	-1.88574E-09
	I EBO2	A	-1.4534E-10	-1.2154E-10	-2.3192E-10	-1.6306E-10	-3.6306E-10	-1.8281E-10	-4.6938E-10	-5.0381E-10
	h FE1		191.4230625	164.5012688	140.6636725	126.1075037	111.481959	94.94940733	60.98975417	43.92355286
	Ib	A	0.000000533	0.000000533	0.000000727	0.000000827	0.000000969	0.000001234	0.000001399	0.000002832
	Ic	A	0.000102092	0.000087734	0.000102218	0.000104252	0.000108042	0.000117141	0.00008533	0.000124408
	h FE2		195.72926	177.37746	160.7065437	149.7572083	138.5000326	126.299422	103.5126928	61.178019
	Ib	A	0.000005	0.000005	0.000006305	0.00000682	0.000007493	0.000008492	0.000011448	0.000017963
	Ic	A	0.000978646	0.000886887	0.001013294	0.001021369	0.00103773	0.001072506	0.001184974	0.00109895
	h FE3		197.4763988	186.8484875	175.80006	169.7040954	161.974226	153.7073216	139.1705431	122.2234114
	Ib	A	0.000047059	0.000047059	0.000047059	0.000059462	0.000062677	0.000066681	0.000075905	0.000092054
	Ic	A	0.009293007	0.00879287	0.008272944	0.01009099	0.010152	0.01024938	0.01056373	0.0112512
	h FE4		214.2801333	186.4737333	189.528	188.294	166.1752	177.8869333	196.1790667	190.7749333
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
	Ic	A	0.1607101	0.1398553	0.142146	0.1412205	0.1246314	0.1334152	0.1471343	0.1430812
	h FE5		133.213971	116.204343	114.335209	112.9589268	111.7859692	109.6769053	105.6866464	100.5063558
	Ib	A	0.003030303	0.003792926	0.003826164	0.003859524	0.003893218	0.00394677	0.004052013	0.004204843
	Ic	A	0.4036787	0.4407545	0.4374653	0.4359677	0.4352071	0.4328695	0.4282437	0.4226134
	V BE sat1	V	0.898127	0.897903	0.8978823	0.8978391	0.8993014	0.8991051	0.8985946	0.8991415
	V BE sat2	V	1.163021	1.162527	1.164554	1.163435	1.165007	1.167339	1.167567	1.174398
	V CE sat1	V	0.2750987	0.2758059	0.276815	0.2768165	0.2773398	0.2795459	0.2816292	0.2854117
	V CE sat2	V	0.7725884	0.7733421	0.7755479	0.7745398	0.7749296	0.7810007	0.7859308	0.7968588
8-2	V BR CEO	V	59.99979	59.99959	59.99978	59.99977	59.99987	59.99983	59.99943	59.99926
	I CBO1	A	3.5034E-10	2.2897E-10	1.17447E-09	4.3122E-10	1.54354E-09	6.6381E-10	1.8722E-09	2.54973E-09
	I CBO2	A	7.03E-11	9.992E-11	6.6002E-10	2.1887E-10	7.5217E-10	2.5622E-10	1.0447E-09	1.3282E-09
	I CES1	A	5.215E-11	7.252E-11	5.0033E-10	1.7893E-10	3.826E-10	2.1452E-10	7.3195E-10	8.8265E-10
	I EBO1	A	-1.47958E-09	-1.35775E-09	-1.54557E-09	-1.29684E-09	-1.6116E-09	-1.57099E-09	-1.85525E-09	-1.91111E-09
	I EBO2	A	-1.3977E-10	-1.5901E-10	-2.1673E-10	-1.5243E-10	-3.2458E-10	-1.6914E-10	-4.0913E-10	-4.6837E-10
	h FE1		168.9245063	148.1729502	128.4948689	116.3288029	104.1139374	90.02048066	61.1058871	43.00101904
	Ib	A	0.000000533	0.000000681	0.000000801	0.000000902	0.000001043	0.000001296	0.000001447	0.000002532
	Ic	A	0.000090093	0.00010093	0.000102897	0.000104984	0.000108577	0.000116708	0.000088444	0.000108875
	h FE2		173.37392	159.8028151	146.1345726	137.1007171	127.7042196	117.2300781	97.80544296	61.16450671
	Ib	A	0.000005	0.000006309	0.000006977	0.000007488	0.000008166	0.000009194	0.000011984	0.000017982
	Ic	A	0.00086687	0.001008218	0.001019591	0.001026617	0.001042819	0.001077836	0.001172086	0.001099833
	h FE3		175.550415	167.5850147	159.5732467	153.9826022	147.6019704	140.5706676	127.6013887	113.6763127
	Ib	A	0.000047059	0.000059746	0.000063091	0.000065796	0.000069159	0.000073373	0.000083006	0.000098509
	Ic	A	0.008261196	0.0100125	0.01006765	0.01013147	0.01020795	0.01031414	0.01059172	0.01119814
	h FE4		188.1164	169.8768	170.5998667	171.4989333	150.9269234	155.161226	178.3490667	176.2482667
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.000993174	0.000945544	0.00075	0.00075
	Ic	A	0.1410873	0.1274076	0.1279499	0.1286242	0.1498967	0.1467118	0.1337618	0.1321862
	h FE5		106.7472875	105.5230997	104.1366919	103.1738292	101.7357689	100.1057181	96.70398868	91.9644441
	Ib	A	0.004009361	0.004033734	0.004076011	0.004102714	0.004143022	0.004188991	0.004307405	0.004470134
	Ic	A	0.4279884	0.4256521	0.4244623	0.4232927	0.4214935	0.419342	0.4165432	0.4110934
	V BE sat1	V	0.9040422	0.9033186	0.9032882	0.9030008	0.9042784	0.904137	0.9039938	0.9044351
	V BE sat2	V	1.184741	1.183468	1.185343	1.18345	1.184659	1.18684	1.187958	1.194346
	V CE sat1	V	0.2747318	0.2749895	0.2759602	0.2762777	0.2763108	0.2782196	0.280295	0.2841153
	V CE sat2	V	0.7703841	0.770667	0.7728642	0.7726026	0.7717229	0.7771073	0.7820857	0.792877
9-1	V BR CEO	V	59.98485	59.99942	59.99972	59.99964	59.99982	59.99967	59.99968	59.99933
	I CBO1	A	3.7562E-10	1.683E-10	1.05312E-09	4.6662E-10	1.675E-09	6.5875E-10	1.91265E-09	2.66602E-09
	I CBO2	A	8.941E-11	1.2302E-10	6.5148E-10	2.3464E-10	7.7183E-10	2.9045E-10	1.04187E-09	1.40337E-09
	I CES1	A	6.57E-11	9.876E-11	4.9796E-10	1.9096E-10	4.0322E-10	2.3747E-10	7.8018E-10	9.6939E-10

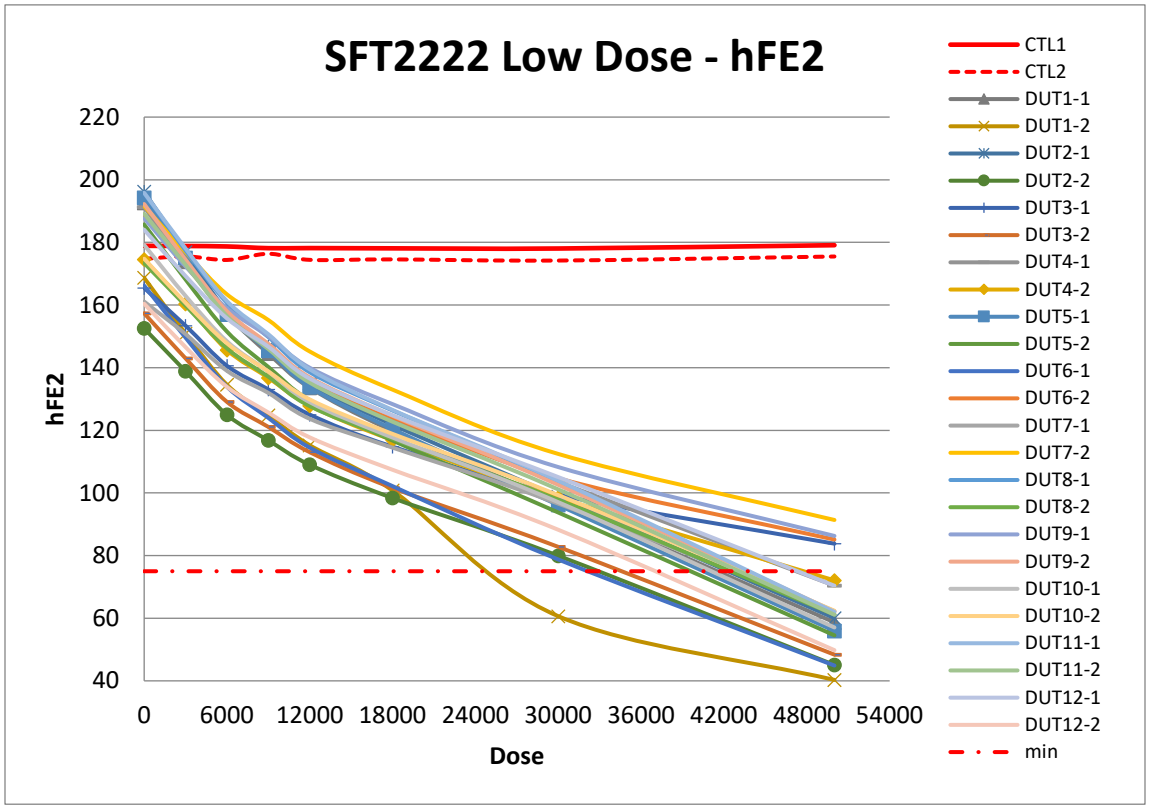
SFT2222 Low Dose			days	3.47	3.47	3.47	3.47	6.94	13.89	23.15
10mrad/sec			hr	83.33	83.33	83.33	83.33	166.67	333.33	555.56
dose rate	0.6	(rad/min)	min	5000.00	5000.00	5000.00	5000.00	10000.00	20000.00	33333.33
			4/22/12 2:40 PM	**4/25/12 4:30 PM**	**4/29/12 12:00 PM**	**5/2/12 4:40 PM**	**5/6/12 12:30 PM**	**5/13/12 12:30 PM**	**5/28/12 12:30 PM**	**6/20/12 4:03 PM**
	I EBO1	A	-1.46943E-09	-1.42374E-09	-1.33743E-09	-1.42884E-09	-1.56591E-09	-1.47961E-09	-1.68266E-09	-1.92127E-09
	I EBO2	A	-1.5243E-10	-1.4433E-10	-2.228E-10	-1.5547E-10	-3.5293E-10	-1.7268E-10	-4.5672E-10	-4.8052E-10
	h FE1		180.7020938	158.606325	139.6974996	127.5796412	114.5499956	99.57150533	70.67206964	47.41809902
	Ib	A	0.000000533	0.000000533	0.000000732	0.000000815	0.000000932	0.000001134	0.000001299	0.000001868
	Ic	A	0.000096374	0.00008459	0.000102223	0.000103921	0.000106802	0.000112952	0.000091836	0.000088593
	h FE2		187.71162	172.32734	158.9682138	150.0290184	139.949874	128.3392538	108.2517402	86.27152408
	Ib	A	0.000005	0.000005	0.000006377	0.000006815	0.000007412	0.000008249	0.000010464	0.000014962
	Ic	A	0.000938558	0.000861637	0.001013756	0.001022405	0.001037351	0.001058704	0.001132743	0.001290773
	h FE3		190.9952125	181.9044838	172.6792638	167.6513228	160.8019605	152.9102926	139.4388461	124.663293
	Ib	A	0.000047059	0.000047059	0.000047059	0.00006015	0.00006309	0.000066961	0.00007503	0.000087788
	Ic	A	0.00898801	0.008560211	0.008126083	0.01008427	0.01014499	0.01023902	0.01046214	0.01094393
	h FE4		210.78	190.26	187.9038667	187.0965333	162.9933333	169.5846667	194.4242667	189.9045333
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
	Ic	A	0.158085	0.142695	0.1409279	0.1403224	0.122245	0.1271885	0.1458182	0.1424284
	h FE5		132.463716	115.0795265	113.6688919	112.8439845	111.292367	109.3015513	105.6619219	100.6947919
	Ib	A	0.003030303	0.003809367	0.003850534	0.003867949	0.003909208	0.003949377	0.004050574	0.004202807
	Ic	A	0.4014052	0.4383802	0.4376859	0.4364748	0.435065	0.431673	0.4279914	0.4232008
	V BE sat1	V	0.8998426	0.8995393	0.8992738	0.8991662	0.9004663	0.8999943	0.8992018	0.9000788
	V BE sat2	V	1.168358	1.168682	1.168485	1.167132	1.168909	1.170341	1.171036	1.17728
	V CE sat1	V	0.2826292	0.2837276	0.283752	0.2839606	0.2842906	0.2860575	0.2883307	0.2921206
	V CE sat2	V	0.7874092	0.7897702	0.789052	0.7886242	0.7887263	0.7936989	0.7990674	0.8096622
9-2	V BR CEO	V	60.00055	59.99947	59.99975	59.99979	59.99982	59.99992	59.99944	59.99947
	I CBO1	A	3.1494E-10	1.9864E-10	1.2048E-09	3.0482E-10	1.64467E-09	5.9808E-10	1.86209E-09	2.6104E-09
	I CBO2	A	6.884E-11	9.396E-11	7.3827E-10	2.0972E-10	7.2401E-10	2.627E-10	9.6731E-10	1.35817E-09
	I CES1	A	4.402E-11	7.662E-11	5.4977E-10	1.6822E-10	3.8593E-10	2.1715E-10	7.1572E-10	9.2465E-10
	I EBO1	A	-1.41359E-09	-1.4339E-09	-1.40849E-09	-1.29177E-09	-1.53546E-09	-1.45423E-09	-1.62682E-09	-1.99234E-09
	I EBO2	A	-1.4332E-10	-1.3724E-10	-2.0559E-10	-1.5041E-10	-3.3723E-10	-1.7268E-10	-4.2128E-10	-4.7951E-10
	h FE1		188.0578125	161.4995625	138.2505986	123.7797587	109.6924229	93.61148456	60.60141131	43.989565
	Ib	A	0.000000533	0.000000533	0.000000741	0.000000845	0.00000099	0.000001261	0.000001407	0.000002748
	Ic	A	0.000100297	0.000086133	0.000102376	0.000104641	0.000108543	0.000118064	0.000085272	0.00012087
	h FE2		192.23652	174.49116	157.9993576	147.5898492	136.867276	124.6188375	102.5742483	62.17785811
	Ib	A	0.000005	0.000005	0.000006404	0.000006946	0.000007601	0.000008602	0.000011545	0.000017686
	Ic	A	0.000961183	0.000872456	0.001011869	0.001025123	0.00104034	0.001071919	0.001184214	0.001099697
	h FE3		193.58665	183.6388875	172.4982563	166.7721702	159.4104931	151.5869533	137.1021905	121.2005163
	Ib	A	0.000047059	0.000047059	0.000047059	0.000060506	0.000063693	0.000067657	0.000076931	0.000092065
	Ic	A	0.00910996	0.00864183	0.008117565	0.01009078	0.0101533	0.01025594	0.01054735	0.01115828
	h FE4		207.8257333	188.0357333	185.5477333	186.4317333	162.8797333	171.2016	190.264	182.502
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
	Ic	A	0.1558693	0.1410268	0.1391608	0.1398238	0.1221598	0.1284012	0.142698	0.1368765
	h FE5		115.8268813	114.3767387	112.5852015	111.2985124	110.1334185	108.1703367	104.1520295	99.26589655
	Ib	A	0.003795458	0.003826926	0.003868889	0.003904661	0.003932392	0.003984689	0.004092794	0.004239983
	Ic	A	0.4396161	0.4377113	0.4355797	0.434583	0.4330878	0.4310251	0.4262728	0.4208857
	V BE sat1	V	0.908985	0.9087073	0.9087977	0.9090653	0.9100808	0.9094744	0.9097037	0.9098063
	V BE sat2	V	1.197681	1.197565	1.198815	1.198389	1.199832	1.200635	1.203404	1.2092
	V CE sat1	V	0.2745605	0.275493	0.2761515	0.2765331	0.2769125	0.2787105	0.2809561	0.2850579
	V CE sat2	V	0.7721452	0.7740195	0.7749131	0.7752316	0.7753199	0.7799007	0.7859924	0.7976338
10-1	V BR CEO	V	59.99972	59.99955	59.99964	59.9998	59.99962	60	59.99926	59.99947
	I CBO1	A	3.1494E-10	2.6942E-10	1.17447E-09	4.6156E-10	1.48793E-09	6.0819E-10	1.89242E-09	2.63063E-09
	I CBO2	A	6.732E-11	9.032E-11	6.6174E-10	2.2069E-10	7.366E-10	2.8094E-10	1.02701E-09	1.41004E-09
	I CES1	A	4.73E-11	6.61E-11	4.7571E-10	1.7959E-10	4.381E-10	2.3019E-10	7.5803E-10	9.7101E-10
	I EBO1	A	-1.59634E-09	-1.42375E-09	-1.43388E-09	-1.4136E-09	-1.57606E-09	-1.39331E-09	-1.81972E-09	-1.94158E-09
	I EBO2	A	-1.5344E-10	-1.4889E-10	-2.2078E-10	-1.3674E-10	-3.0281E-10	-1.6408E-10	-4.6229E-10	-4.7596E-10
	h FE1		175.7356875	151.326975	130.234234	117.0894677	104.3177705	89.09467891	57.52017003	42.3289454
	Ib	A	0.000000533	0.000000533	0.000000789	0.000000898	0.000001045	0.000001334	0.000001475	0.000003046
	Ic	A	0.000093726	0.000080708	0.000102779	0.000105092	0.000108977	0.000118823	0.00008486	0.000128926
	h FE2		179.16132	162.89934	148.3954161	138.6957888	128.9665713	117.664122	97.03627882	57.04329427
	Ib	A	0.000005	0.000005	0.000006858	0.000007422	0.000008107	0.000009188	0.000012318	0.000019267
	Ic	A	0.000895807	0.000814497	0.001017639	0.001029346	0.001045507	0.001081053	0.001195316	0.001099059
	h FE3		180.5416575	171.36255	162.2590105	156.2567746	149.9742458	142.2944308	129.2784388	114.2549292
	Ib	A	0.000047059	0.000047059	0.000061932	0.000064791	0.000068053	0.000072389	0.000082176	0.000098951
	Ic	A	0.008496078	0.00806412	0.01004901	0.01012402	0.01020621	0.01030062	0.01062359	0.0113056
	h FE4		198.9488	185.2773333	179.2717333	173.5462667	153.8007778	161.9389333	183.5070667	176.1174667
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.000972738	0.00075	0.00075	0.00075
	Ic	A	0.1492116	0.138958	0.1344538	0.1301597	0.1496079	0.1214542	0.1376303	0.1320881
	h FE5		110.4871901	109.0810436	107.3854425	106.2617562	104.9930847	103.0141859	99.42285136	94.58127603
	Ib	A	0.003912187	0.003953649	0.00399778	0.004026587	0.004062805	0.004112206	0.004232244	0.00438804
	Ic	A	0.4322465	0.4312682	0.4293034	0.4278722	0.4265664	0.4236156	0.4207818	0.4150264
	V BE sat1	V	0.9001877	0.9006701	0.9002142	0.9001009	0.90054	0.900546	0.900325	0.9006705
	V BE sat2	V	1.17141	1.172885	1.172827	1.171047	1.171978	1.172762	1.17629	1.181059
	V CE sat1	V	0.2828997	0.2846149	0.2846127	0.2845451	0.2849672	0.2864908	0.2892957	0.2930954
	V CE sat2	V	0.8007103	0.8048283	0.804184	0.8026682	0.8028297	0.8064335	0.8146161	0.8246383
10-2	V BR CEO	V	59.99953	59.9996	59.99967	59.99976	59.99964	59.99993	59.99944	59.99948
	I CBO1	A	4.009E-10	2.0369E-10	1.12896E-09	4.0594E-10	1.50309E-09	5.9808E-10	1.78119E-09	2.53457E-09
	I CBO2	A	1.1266E-10	1.53E-10	6.8024E-10	2.4581E-10	7.6667E-10	2.8509E-10	1.00118E-09	1.36742E-09
	I CES1	A	9.28E-11	1.2444E-10	5.1519E-10	1.9587E-10	4.5473E-10	2.4157E-10	7.453E-10	9.4326E-10
	I EBO1	A	-1.4745E-09	-1.4339E-09	-1.49987E-09	-1.31207E-09	-1.58621E-09	-1.44408E-09	-1.57605E-09	-1.80959E-09
	I EBO2	A	-1.4382E-10	-1.8028E-10	-2.3445E-10	-1.6762E-10	-3.1597E-10	-1.8028E-10	-4.3242E-10	-4.6736E-10
	h FE1		169.3453688	149.2157351	129.3475276	116.9312442	105.1196159	90.78601795	61.4785708	43.48739348
	Ib	A	0.000000533	0.000000677	0.000000796	0.000000899	0.000001034	0.00000129	0.000001431	0.000002526
	Ic	A	0.000090318	0.000100962	0.000103005	0.000105178	0.000108698	0.000117087	0.000087985	0.000109859
	h FE2		174.77862	160.67556	147.764858	138.7823671	129.8330987	118.830937	99.29280857	62.38479143
	Ib	A	0.000005	0.000005	0.000006883	0.000007417	0.000008049	0.000009037	0.00001183	0.000017642
	Ic	A	0.000873893	0.000803378	0.001016995	0.001029418	0.001044964	0.001073865	0.001174623	0.001100606
	h FE3		178.0676263	170.338355	162.3403284	156.1575978	150.3555763	142.7461831	130.1453459	116.0919153
	Ib	A	0.000047059	0.000058894	0.000062107	0.000064899	0.00006777	0.000071963	0.000081402	0.000096271
	Ic	A	0.008379653	0.01003187	0.01008239	0.0101345	0.01018959	0.01027248	0.01059409	0.01117628
	h FE4		193.5989333	182.1812	177.6825333	176.3394667	152.6703824	162.2753333	185.0121333	176.0018667
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.000971918	0.00075	0.00075	0.00075
	Ic	A	0.1451992	0.1366359	0.1332619	0.1322546	0.1483831	0.1217065	0.1387591	0.1320014
	h FE5		111.5237991	110.4101079	108.539008	107.5541345	106.1360627	104.5401331	100.6463503	95.93288917
	Ib	A	0.003898694	0.003924823	0.003970377	0.003997381	0.004037304	0.004085439	0.004200018	0.004346851

SFT2222 Low Dose			days	3.47	3.47	3.47	3.47	6.94	13.89	23.15
10mrad/sec			hr	83.33	83.33	83.33	83.33	166.67	333.33	555.56
dose rate	0.6	(rad/min)	min	5000.00	5000.00	5000.00	5000.00	10000.00	20000.00	33333.33
			4/22/12 2:40 PM	**4/25/12 4:30 PM**	**4/29/12 12:00 PM**	**5/2/12 4:40 PM**	**5/6/12 12:30 PM**	**5/13/12 12:30 PM**	**5/28/12 12:30 PM**	**6/20/12 4:03 PM**
	Ic	A	0.4347972	0.4333401	0.4309408	0.4299348	0.4285036	0.4270923	0.4227165	0.417006
	V BE sat1	V	0.9076392	0.9081746	0.907752	0.9081019	0.9086976	0.9084912	0.908435	0.9085412
	V BE sat2	V	1.195925	1.199106	1.198623	1.197945	1.198765	1.199346	1.201851	1.207907
	V CE sat1	V	0.2809493	0.2829559	0.2829576	0.2829853	0.2834712	0.2849888	0.2872151	0.2912026
	V CE sat2	V	0.7854351	0.7911895	0.7903102	0.7894735	0.7897518	0.7935933	0.799592	0.8109537
11-1	V BR CEO	V	60.00172	59.99983	59.99965	59.99981	59.99988	59.99975	59.9996	59.99934
	I CBO1	A	4.0595E-10	1.9863E-10	1.22502E-09	4.8178E-10	1.5941E-09	6.2841E-10	1.84187E-09	2.62052E-09
	I CBO2	A	9.886E-11	1.1069E-10	6.581E-10	2.4065E-10	7.6309E-10	2.9009E-10	1.04021E-09	1.40428E-09
	I CES1	A	7.667E-11	9.123E-11	4.7839E-10	1.8925E-10	4.4123E-10	2.3863E-10	7.8528E-10	9.6611E-10
	I EBO1	A	-1.34252E-09	-1.37298E-09	-1.47956E-09	-1.28161E-09	-1.44408E-09	-1.45931E-09	-1.63696E-09	-1.94158E-09
	I EBO2	A	-1.4433E-10	-1.3015E-10	-2.3597E-10	-1.4281E-10	-3.2154E-10	-1.9091E-10	-4.4913E-10	-4.7748E-10
	h FE1		191.5325625	165.0101438	140.817422	126.5658388	112.1513036	95.18080215	61.32426097	44.18202407
	Ib	A	0.000000533	0.000000533	0.000000727	0.000000824	0.000000963	0.00000123	0.000001392	0.000002777
	Ic	A	0.000102151	0.000088005	0.000102314	0.000104244	0.000107989	0.00011709	0.000085374	0.000122682
	h FE2		195.82662	178.02516	161.2224145	150.6444752	139.4422394	126.4779589	103.8835618	62.00217554
	Ib	A	0.000005	0.000005	0.000006287	0.000006796	0.000007446	0.000008458	0.000011353	0.000017755
	Ic	A	0.000979133	0.000890126	0.001013597	0.001023828	0.001038326	0.001069777	0.001179339	0.001100878
	h FE3		198.0542288	187.7505075	176.25991	170.310759	162.6662457	154.0397323	139.6443049	122.8265068
	Ib	A	0.000047059	0.000047059	0.000047059	0.000059133	0.000062374	0.000066325	0.000075546	0.000091194
	Ic	A	0.009320199	0.008835318	0.008294584	0.01007097	0.01014614	0.01021668	0.0105496	0.01120108
	h FE4		214.4481333	197.7937333	191.1745333	192.5557333	168.2633333	176.1024	200.7641333	186.8933333
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
	Ic	A	0.1608361	0.1483453	0.1433809	0.1444168	0.1261975	0.1320768	0.1505731	0.14017
	h FE5		133.238721	132.117777	114.2254146	113.3197057	112.0390393	110.0820748	105.8591226	100.9162953
	Ib	A	0.003030303	0.003030303	0.003830424	0.003858891	0.003886108	0.003936977	0.004042768	0.004197113
	Ic	A	0.4037537	0.4003569	0.4375318	0.4372884	0.4353958	0.4333906	0.4279639	0.4235571
	V BE sat1	V	0.8987085	0.8981942	0.8981215	0.8984916	0.8992949	0.8995048	0.898963	0.8993133
	V BE sat2	V	1.16528	1.165121	1.16512	1.166301	1.165805	1.169204	1.169771	1.176419
	V CE sat1	V	0.2755965	0.2765277	0.2768377	0.2776568	0.277566	0.2799917	0.2818855	0.2857714
	V CE sat2	V	0.7736915	0.7760074	0.7753955	0.7771576	0.7753229	0.7823558	0.7868934	0.7981645
11-2	V BR CEO	V	59.99979	59.99949	59.99968	59.99976	59.99965	60.00011	59.99956	59.99951
	I CBO1	A	3.655E-10	1.8347E-10	1.25536E-09	4.1606E-10	1.57388E-09	5.9808E-10	1.86715E-09	2.66097E-09
	I CBO2	A	6.914E-11	1.0255E-10	6.767E-10	2.1503E-10	7.5682E-10	2.8787E-10	1.04829E-09	1.42743E-09
	I CES1	A	5.094E-11	6.757E-11	4.9457E-10	1.7282E-10	4.3588E-10	2.4071E-10	7.9317E-10	9.9467E-10
	I EBO1	A	-1.37806E-09	-1.30191E-09	-1.54047E-09	-1.36791E-09	-1.52023E-09	-1.49991E-09	-1.72834E-09	-2.03803E-09
	I EBO2	A	-1.4888E-10	-1.4433E-10	-1.9648E-10	-1.4433E-10	-3.0331E-10	-1.5648E-10	-4.4558E-10	-4.9571E-10
	h FE1		185.8947188	161.9766938	138.4670938	124.1985209	110.2500557	93.58184294	60.99356435	43.5524672
	Ib	A	0.000000533	0.000000533	0.000000738	0.000000839	0.000000976	0.000001244	0.000001419	0.000002747
	Ic	A	0.000099144	0.000086388	0.000102128	0.000104142	0.000107641	0.000116373	0.000086561	0.000119624
	h FE2		189.10788	172.84412	156.4823687	145.935174	135.2023946	122.7283064	101.1129826	61.12081737
	Ib	A	0.000005	0.000005	0.000006479	0.000007012	0.000007662	0.000008739	0.000011656	0.000018011
	Ic	A	0.000945539	0.000864221	0.001013879	0.001023351	0.00103588	0.001072522	0.001178537	0.001100819
	h FE3		190.0354563	180.98982	170.6611766	163.8240429	156.5023648	148.243052	134.2438112	118.8100987
	Ib	A	0.000047059	0.000047059	0.00005898	0.000061726	0.00006501	0.000069185	0.000078879	0.000094587
	Ic	A	0.008942845	0.008517168	0.01006554	0.01011217	0.01017426	0.01025616	0.01058898	0.01123793
	h FE4		203.4524	188.8228	185.7576	182.7868	160.5888	166.5825333	189.0918667	178.6041333
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
	Ic	A	0.1525893	0.1416171	0.1393182	0.1370901	0.1204416	0.1249369	0.1418189	0.1339531
	h FE5		112.5600581	110.9079285	109.059763	108.0122486	106.5443126	104.7969558	100.6597884	95.96486754
	Ib	A	0.003867534	0.003900159	0.003953496	0.003969158	0.004016411	0.004076331	0.004184187	0.004328393
	Ic	A	0.4353298	0.4325585	0.4311673	0.4287177	0.4279257	0.4271871	0.4211794	0.4153737
	V BE sat1	V	0.9053544	0.9045931	0.9046839	0.9050595	0.9055315	0.9055306	0.9057447	0.9056887
	V BE sat2	V	1.186666	1.1869	1.186599	1.186872	1.187519	1.189725	1.191621	1.197374
	V CE sat1	V	0.2736644	0.2750366	0.2752336	0.2756187	0.2763148	0.2780761	0.280426	0.2844542
	V CE sat2	V	0.7672417	0.7707473	0.7698246	0.7698839	0.7707852	0.7756139	0.7815883	0.7926689
12-1	V BR CEO	V	59.99967	59.99945	59.99971	59.99975	59.99999	59.99969	59.99989	59.99953
	I CBO1	A	3.1494E-10	2.1886E-10	1.20985E-09	4.2111E-10	1.43231E-09	6.5369E-10	1.84187E-09	2.58007E-09
	I CBO2	A	6.843E-11	9.057E-11	6.5183E-10	2.1513E-10	7.3372E-10	2.6644E-10	1.06043E-09	1.34428E-09
	I CES1	A	5.155E-11	7.222E-11	4.8299E-10	1.6983E-10	4.2243E-10	2.2124E-10	8.0409E-10	9.3249E-10
	I EBO1	A	-1.39328E-09	-1.35267E-09	-1.56586E-09	-1.33238E-09	-1.45931E-09	-1.46946E-09	-1.65219E-09	-1.9365E-09
	I EBO2	A	-1.3471E-10	-1.4129E-10	-2.2685E-10	-1.5192E-10	-2.947E-10	-1.6357E-10	-4.1571E-10	-4.4559E-10
	h FE1		179.4831375	157.7991563	138.2499531	125.8789627	112.6682565	97.08692301	67.63192806	45.64561448
	Ib	A	0.000000533	0.000000533	0.000000739	0.000000825	0.000000947	0.000001169	0.000001343	0.000002112
	Ic	A	0.000095724	0.00008416	0.000102147	0.00010383	0.000106668	0.000113464	0.000090809	0.000096426
	h FE2		184.04094	169.23376	155.7174458	146.6721867	136.4950919	124.7922653	105.0470599	70.36957907
	Ib	A	0.000005	0.000005	0.000006505	0.000006956	0.000007575	0.000008507	0.000010929	0.000016044
	Ic	A	0.000920205	0.000846169	0.001012874	0.001020191	0.001033992	0.001061609	0.001148042	0.001128987
	h FE3		185.5842825	177.4117025	168.8812384	163.4941188	156.4435272	148.3659809	135.2546308	120.581375
	Ib	A	0.000047059	0.000047059	0.000059462	0.000061765	0.000064905	0.00006909	0.000077793	0.000091507
	Ic	A	0.008733378	0.008348786	0.01004199	0.01009822	0.01015395	0.01025066	0.01052181	0.01103403
	h FE4		199.732	185.7549333	182.6561333	180.1021333	157.1802484	164.4909333	190.1994667	182.0857333
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.000937959	0.00075	0.00075	0.00075
	Ic	A	0.149799	0.1393162	0.1369921	0.1350766	0.1474286	0.1233682	0.1426496	0.1365643
	h FE5		112.5172654	111.4780143	109.9168192	108.6793833	107.4201078	105.5793878	101.6925324	97.09069943
	Ib	A	0.003868059	0.003900804	0.003934773	0.003962928	0.003998312	0.004057173	0.004167557	0.004314644
	Ic	A	0.4352234	0.4348539	0.4324977	0.4306886	0.4294991	0.4283538	0.4238094	0.4189118
	V BE sat1	V	0.8993992	0.8988129	0.8984141	0.8983095	0.8998164	0.899765	0.8992873	0.9000187
	V BE sat2	V	1.167313	1.165818	1.165814	1.166103	1.167427	1.169428	1.170591	1.17831
	V CE sat1	V	0.2767833	0.2773837	0.2778737	0.2781807	0.2788761	0.2804271	0.2827191	0.2869559
	V CE sat2	V	0.7795076	0.7801849	0.7806044	0.7809145	0.7819152	0.7861236	0.7914969	0.8040764
12-2	V BR CEO	V	59.99973	59.99952	59.99977	59.99974	59.9999	59.99984	59.9995	59.99916
	I CBO1	A	2.8461E-10	1.6324E-10	1.07334E-09	4.4133E-10	1.55365E-09	6.4358E-10	1.89242E-09	2.44861E-09
	I CBO2	A	6.065E-11	8.799E-11	6.4172E-10	2.0072E-10	7.4676E-10	2.5835E-10	1.09126E-09	1.30247E-09
	I CES1	A	4.482E-11	6.651E-11	4.4801E-10	1.5568E-10	4.2718E-10	2.1225E-10	8.0409E-10	8.9018E-10
	I EBO1	A	-1.51004E-09	-1.35267E-09	-1.58617E-09	-1.4796E-09	-1.56591E-09	-1.49992E-09	-1.64205E-09	-1.92127E-09
	I EBO2	A	-1.3927E-10	-1.3623E-10	-2.39E-10	-1.4585E-10	-3.0736E-10	-1.575E-10	-3.909E-10	-4.4457E-10
	h FE1		152.8260938	131.6603393	112.8136476	101.6337038	91.21738672	78.82499703	53.54725453	32.95369658
	Ib	A	0.000000533	0.000000776	0.000000937	0.000001079	0.000001269	0.000001659	0.000002033	0.00000249
	Ic	A	0.000081507	0.000102207	0.000105724	0.000109613	0.000115758	0.000130756	0.000108863	0.000082062
	h FE2		160.3924442	146.5438909	133.8559531	125.6695554	117.7206212	107.3777106	88.22958237	49.79310932
	Ib	A	0.000006255	0.000006911	0.000007695	0.000008324	0.000009055	0.00001036	0.000014148	0.000022085

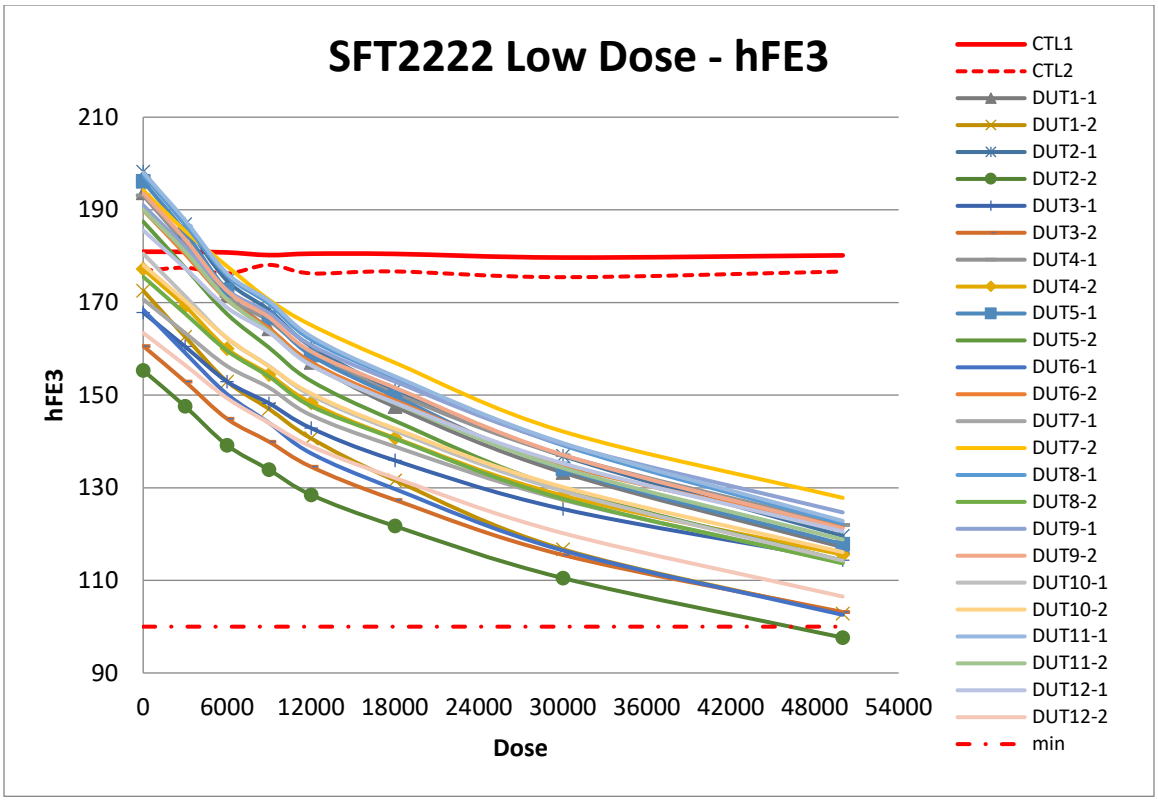
SFT2222 Low Dose			days	3.47	3.47	3.47	3.47	6.94	13.89	23.15
10mrad/sec			hr	83.33	83.33	83.33	83.33	166.67	333.33	555.56
dose rate	0.6	(rad/min)	min	5000.00	5000.00	5000.00	5000.00	10000.00	20000.00	33333.33
			4/22/12 2:40 PM	**4/25/12 4:30 PM**	**4/29/12 12:00 PM**	**5/2/12 4:40 PM**	**5/6/12 12:30 PM**	**5/13/12 12:30 PM**	**5/28/12 12:30 PM**	**6/20/12 4:03 PM**
	Ic	A	0.001003315	0.001012708	0.001030074	0.001046078	0.001065984	0.001112469	0.001248291	0.001099693
	h FE3		163.4249236	156.4745439	149.3293952	143.9679896	138.9402226	132.1025827	120.1904917	106.5019256
	Ib	A	0.000061088	0.000064213	0.00006785	0.000070857	0.000073825	0.000078616	0.00008954	0.000108189
	Ic	A	0.009983307	0.01004776	0.01013205	0.01020115	0.01025727	0.01038537	0.01076181	0.01152237
	h FE4		176.5161333	164.2702667	164.1533333	160.4576	141.5741798	145.8538784	172.8785333	171.7594667
	Ib	A	0.00075	0.00075	0.00075	0.00075	0.001053181	0.001019041	0.00075	0.00075
	Ic	A	0.1323871	0.1232027	0.123115	0.1203432	0.1491033	0.1486311	0.1296589	0.1288196
	h FE5		106.7245687	105.287017	104.2786056	102.9618738	101.6682708	100.0981748	96.71173228	91.83808018
	Ib	A	0.004017993	0.004063124	0.004089424	0.004123979	0.004171519	0.004217264	0.004333638	0.004517657
	Ic	A	0.4288186	0.4277942	0.4264394	0.4246126	0.4241111	0.4221404	0.4191136	0.4148929
	V BE sat1	V	0.9048725	0.9040876	0.9041263	0.9044731	0.9046206	0.9051356	0.9052397	0.9058986
	V BE sat2	V	1.18998	1.187964	1.189852	1.188919	1.189329	1.191146	1.193174	1.200969
	V CE sat1	V	0.2797747	0.2800539	0.2808689	0.2807766	0.2814092	0.2826974	0.2849518	0.2891037
	V CE sat2	V	0.7808657	0.780961	0.7831168	0.7818719	0.7827501	0.7861509	0.792433	0.804602
	hFE 1 min		50	50	50	50	50	50	50	50
	hFE2 min		75	75	75	75	75	75	75	75
	hFE 3 min		100	100	100	100	100	100	100	100
	hFE 4 min		100	100	100	100	100	100	100	100
	hFE 5 min		30	30	30	30	30	30	30	30

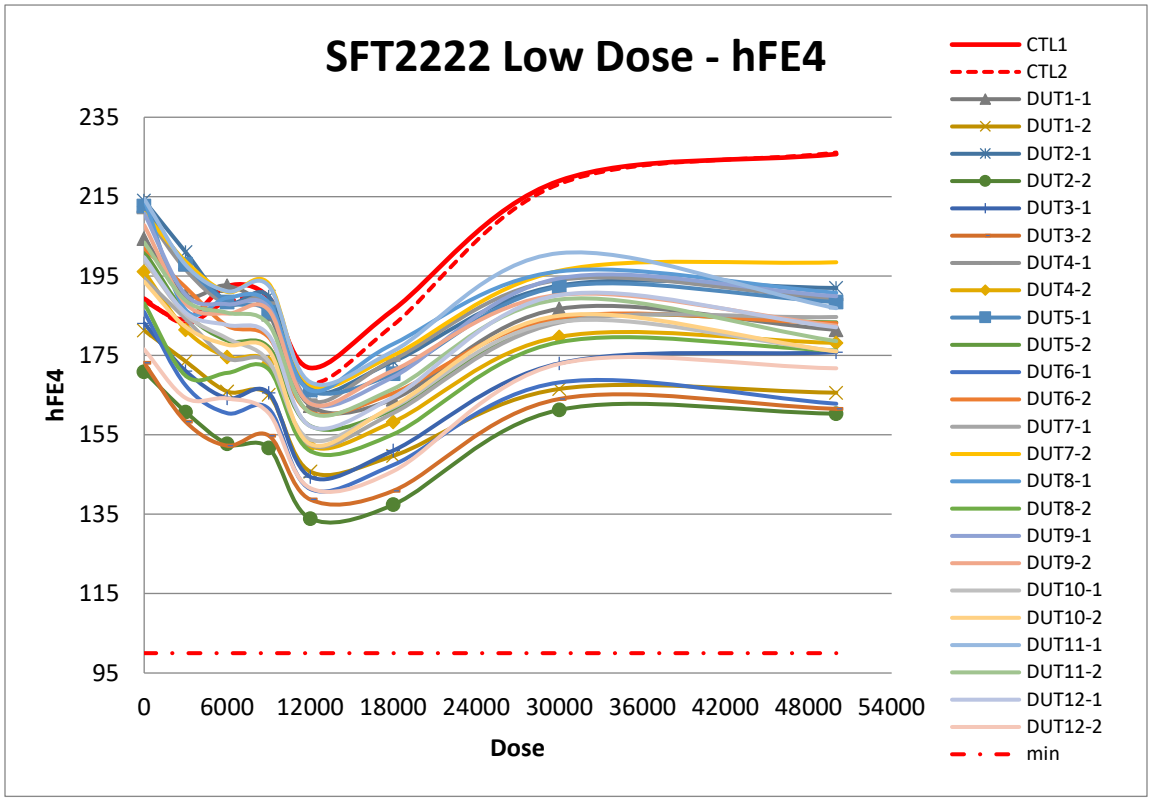
Appendix C: SFT2222A Low Dose graphs



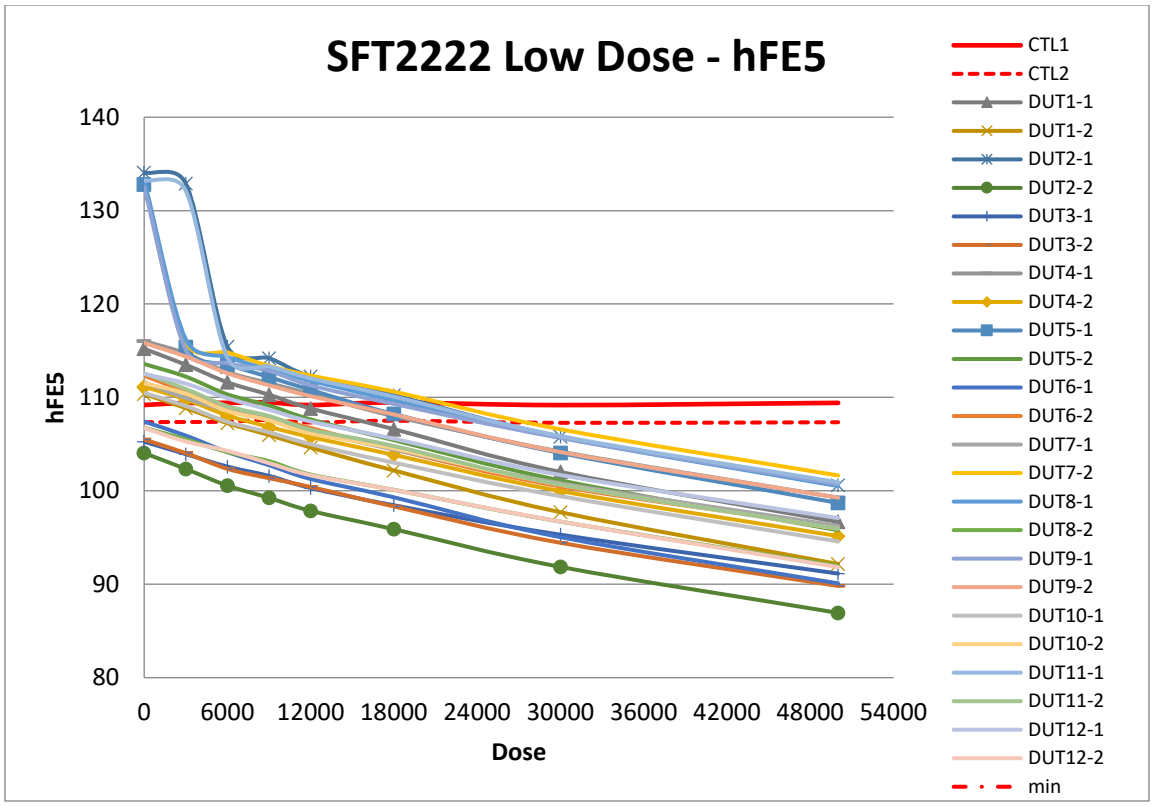


Appendix C: SFT2222A Low Dose graphs

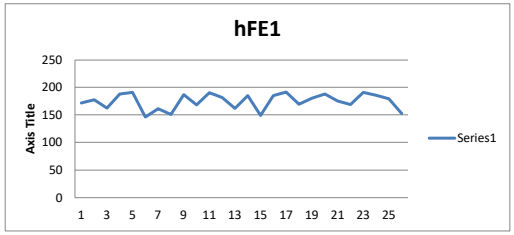
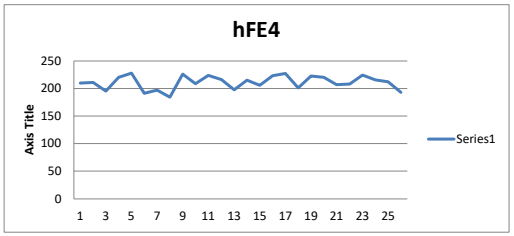
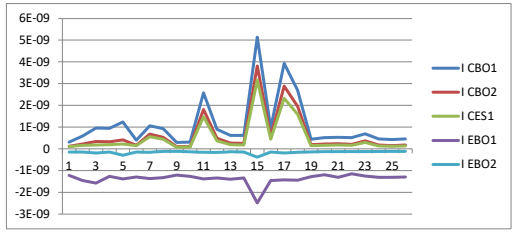
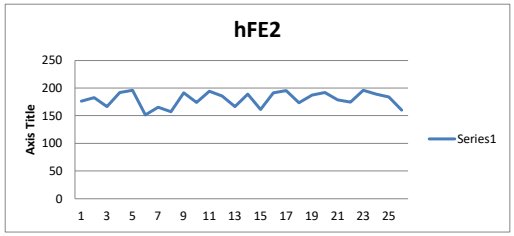
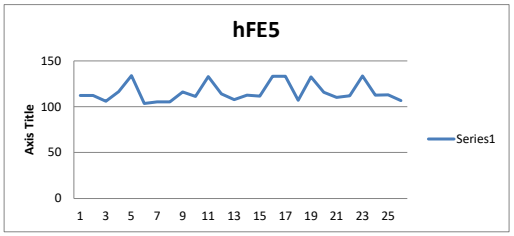
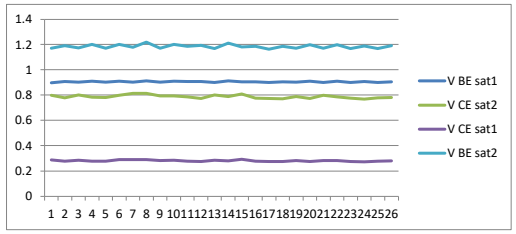
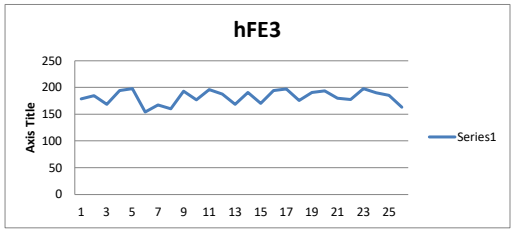




Appendix C: SFT2222A Low Dose graphs



Appendix D: SFT2222 Compare DUTs PreRad

PRE RAD

	Ctl-1	Ctl-2	1-1	1-2	2-1	2-2	3-1	3-2	4-1	4-2	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	10-1	10-2	11-1	11-2	12-1	12-2
V BR CEO	59.99932	59.99951	59.99953	59.99973	59.89494	59.99951	59.99949	59.99918	59.99997	59.99941	60.00103	59.99936	59.99931	59.99911	59.99926	60.00106	60.00084	59.99919	59.97206	60.0004	59.9992	59.9994	60.00137	59.99933	59.99936	59.99939
I CBO1	3.0989E-10	5.8292E-10	9.6213E-10	9.4191E-10	1.2301E-09	4.009E-10	1.0531E-09	9.3179E-10	2.9472E-10	3.0989E-10	2.5801E-09	8.964E-10	6.1326E-10	6.1326E-10	5.1486E-09	9.6213E-10	3.9351E-09	2.6863E-09	4.3629E-10	5.0708E-10	5.3236E-10	5.0708E-10	6.8404E-10	4.5652E-10	4.2618E-10	4.5652E-10
I CBO2	1.1934E-10	2.2413E-10	3.4029E-10	3.2841E-10	4.0556E-10	1.6665E-10	6.7079E-10	5.3077E-10	1.0538E-10	1.0619E-10	1.8121E-09	4.8012E-10	2.6689E-10	2.49E-10	3.8251E-09	5.614E-10	2.8815E-09	1.9612E-09	1.8829E-10	2.1649E-10	2.3287E-10	2.0012E-10	3.6254E-10	1.7226E-10	1.5326E-10	1.7798E-10
I CES1	9.472E-11	1.6776E-10	1.7969E-10	1.8925E-10	2.2206E-10	1.4203E-10	5.5478E-10	4.3331E-10	8.218E-11	8.911E-11	1.4775E-09	3.6375E-10	1.8429E-10	1.7504E-10	3.1683E-09	4.4261E-10	2.3295E-09	1.5894E-09	1.3935E-10	1.6084E-10	1.7889E-10	1.5856E-10	2.86E-10	1.2439E-10	1.1307E-10	1.3021E-10
I EBO1	-1.216E-09	-1.459E-09	-1.571E-09	-1.271E-09	-1.383E-09	-1.297E-09	-1.368E-09	-1.322E-09	-1.211E-09	-1.261E-09	-1.383E-09	-1.343E-09	-1.393E-09	-1.337E-09	-2.48E-09	-1.464E-09	-1.424E-09	-1.449E-09	-1.277E-09	-1.195E-09	-1.312E-09	-1.145E-09	-1.256E-09	-1.317E-09	-1.317E-09	-1.297E-09
I EBO2	-1.418E-10	-1.464E-10	-1.853E-10	-1.514E-10	-2.972E-10	-1.423E-10	-1.656E-10	-1.14E-10	-1.099E-10	-1.367E-10	-1.691E-10	-1.58E-10	-1.372E-10	-1.464E-10	-3.762E-10	-1.438E-10	-1.904E-10	-1.661E-10	-1.408E-10	-1.367E-10	-1.297E-10	-1.251E-10	-1.256E-10	-1.362E-10	-1.241E-10	-1.205E-10
h FE1	171.575588	177.751519	162.637125	187.953375	190.774125	146.491979	161.262394	150.697694	186.945788	168.342113	190.181625	181.614656	162.069506	185.357813	149.330204	185.373356	191.39925	169.246744	180.586763	188.047688	175.208794	168.92895	191.409563	185.901413	179.173519	152.321213
Ib	5.33E-07	5.33E-07	5.33E-07	5.33E-07	5.33E-07	6.86E-07	5.33E-07	6.67E-07	5.33E-07	5.33E-07	5.33E-07	5.33E-07	5.33E-07	5.33E-07	6.77E-07	5.33E-07	5.33E-07	5.33E-07	5.33E-07	5.33E-07	5.33E-07	5.33E-07	5.33E-07	5.33E-07	5.33E-07	5.33E-07
Ic	9.1507E-05	9.4801E-05	0.00008674	0.00010024	0.00010175	0.00010055	8.6007E-05	0.00010055	9.9704E-05	8.9782E-05	0.00010143	9.6861E-05	8.6437E-05	9.8858E-05	0.00010112	9.8866E-05	0.00010208	9.0265E-05	9.6313E-05	0.00010029	9.3445E-05	9.0095E-05	0.00010209	9.9147E-05	9.5559E-05	8.1238E-05
h FE2	176.13986	182.27172	166.6019	191.97848	195.8462	151.432283	165.43356	157.169974	191.2065	173.76624	194.25694	185.2253	166.20236	188.9655	161.12808	191.09672	195.25628	173.37496	187.01392	191.91532	178.36688	174.24182	196.04972	188.99112	183.40688	159.730542
Ib	0.000005	0.000005	0.000005	0.000005	0.000005	0.00000663	0.000005	0.00000639	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	6.282E-06
Ic	0.0008807	0.00091136	0.00083301	0.00095989	0.00097923	0.00100399	0.00082717	0.00100425	0.00095603	0.00086883	0.00097129	0.00092613	0.00083101	0.00094483	0.00080564	0.00095548	0.00097628	0.00086688	0.00093507	0.00095958	0.00089183	0.00087121	0.00098025	0.00094496	0.00091703	0.00100343
h FE3	178.292154	184.184651	168.474869	193.83196	197.679613	154.231925	167.11939	160.141278	193.02446	176.695726	195.8111	187.180561	168.130894	190.222329	170.303873	193.751784	196.859256	175.315156	190.503275	193.218281	179.938604	177.25169	197.426695	189.598578	184.995636	162.854461
Ib	4.7059E-05	4.7059E-05	5.9387E-05	4.7059E-05	4.7059E-05	6.4753E-05	5.9727E-05	6.2488E-05	4.7059E-05	4.7059E-05	4.7059E-05	4.7059E-05	5.9393E-05	4.7059E-05	5.8908E-05	4.7059E-05	4.7059E-05	4.7059E-05	4.7059E-05	4.7059E-05	4.7059E-05	4.7059E-05	4.7059E-05	4.7059E-05	4.7059E-05	6.1464E-05
Ic	0.00839022	0.00866751	0.01000525	0.0091215	0.00930257	0.00998691	0.00998148	0.01000684	0.0090835	0.00831509	0.00921464	0.0088085	0.00998581	0.00895164	0.01003229	0.00911773	0.00926397	0.00825013	0.00896486	0.00909263	0.0084677	0.00834126	0.00929067	0.00892229	0.00870568	0.01000968
h FE4	209.621333	210.65	195.039467	220.134933	227.607867	191.071333	196.9752	184.281333	225.716	208.5628	223.566267	215.829067	197.534533	214.929867	205.7896	223.0264	227.012133	201.157733	222.369467	219.872133	206.683333	207.620933	224.309467	215.5584	212.191333	193.021067
Ib	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
Ic	0.157216	0.1579875	0.1462796	0.1651012	0.1707059	0.1433035	0.1477314	0.138211	0.169287	0.1564221	0.1676747	0.1618718	0.1481509	0.1611974	0.1543422	0.1672698	0.1702591	0.1508683	0.1667771	0.1649041	0.1550125	0.1557157	0.1682321	0.1616688	0.1591435	0.1447658
h FE5	111.97566	112.113349	105.997103	116.235172	134.007522	103.601348	105.092401	105.219719	115.96227	111.189918	132.745833	113.883264	107.417919	112.304272	111.247519	133.050291	133.194468	106.807896	132.35244	115.68777	110.153633	111.682548	133.478499	112.358334	112.751667	106.635835
Ib	0.00388927	0.00388036	0.00402662	0.00378896	0.0030303	0.00411176	0.0040473	0.00406802	0.00379149	0.0039041	0.0030303	0.0038373	0.00400044	0.00387208	0.00390359	0.0030303	0.0030303	0.00400036	0.0030303	0.00379735	0.0039277	0.0038951	0.0030303	0.00387066	0.0038646	0.00402418
Ic	0.4355037	0.4350402	0.4268095	0.4404107	0.4060834	0.425984	0.4253402	0.4280358	0.4396697	0.434097	0.4022601	0.4370044	0.4297193	0.4348508	0.4342647	0.4031827	0.4036196	0.4272698	0.401068	0.4393071	0.4326502	0.4350146	0.4044803	0.4349012	0.4357404	0.4291213
V BE sat1	0.8993031	0.9065646	0.9010267	0.9101756	0.9008998	0.9103962	0.9029874	0.9144313	0.9012074	0.9100439	0.9064129	0.9076729	0.8996219	0.9124117	0.9039401	0.9050393	0.8993373	0.9047585	0.9009808	0.9095564	0.900657	0.9090145	0.8997058	0.9061564	0.900131	0.9054396
V BE sat2	1.171418	1.190825	1.172643	1.200242	1.17039	1.200854	1.178956	1.218337	1.171395	1.201129	1.185638	1.193891	1.168313	1.209992	1.181074	1.185248	1.164992	1.186066	1.170235	1.197749	1.16994	1.198444	1.166947	1.188504	1.167772	1.18948
V CE sat1	0.2861646	0.278143	0.2859841	0.2778769	0.2781053	0.2896462	0.2899566	0.2888713	0.2820819	0.2844651	0.2777984	0.274365	0.2842581	0.2803276	0.2944199	0.277597	0.2755313	0.2747895	0.28307	0.2747927	0.282287	0.2810579	0.2759347	0.2740048	0.2765583	0.2790964
V CE sat2	0.7985727	0.7793412	0.801892	0.7825276	0.7818925	0.7996632	0.8160299	0.8124939	0.7936437	0.7935961	0.7855158	0.7724393	0.8006868	0.788884	0.8088983	0.7760053	0.774072	0.7715461	0.7887378	0.773032	0.7988769	0.7865654	0.7747469	0.7687381	0.7791263	0.7794772