Single-Event-Effect Test Report

R6, 200V, N-Channel

August 2003

International
IOR Rectifier
HI-REL PRODUCTS

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INTRODUCTION

On June 20th and August 25th, 2003 International Rectifier Corp. (IR) tested several product types for Single Event Effects (SEE) hardness. The irradiation was performed at Texas A & M University, using the K500 Superconducting Cyclotron. The Xenon (Xe) and Gold (Au) ion species with three (3) different combinations of Energy, Range and Linear-Energy-Transfer (LET) levels was used to characterize and verify the SEE hardness of each product type. The product types submitted for evaluation and this report are included in Table 1 below:

Table 1 Product Types Tested

Product Type	BVDSS Rating	Gen. / Channel / Process	Wafer Lot
IRH67260	200 Volts	R6 / N / 200 Volts	ER33831
IRH67260	200 Volts	R6 / N / 200 Volts	ER34312
IRH67230	200 Volts	R6 / N / 200 Volts	ER34181

The wafer lots noted above are the lots from which the test samples originated. For each product type, the results of testing herein are applicable to all other wafer lots having the same design and process.

Additionally, Mr. Louis Jaquish of Defense Supply Center Columbus (DSCC-VQE) has performed an audit of IR for the purpose of assigning lab suitability and has granted IR a Letter of Lab Suitability for Test Method 1080 in June 1998.

TEST METHOD

The test method used as a guide in developing the test plan is MIL-STD-750, Test Method 1080. The test method establishes the basic requirements for the performance of the test. Additionally, DSCC has established a minimum acceptance level of three (3) devices for each insitu bias condition. Test method 1080, in conjunction with DSCC requirements, was utilized to write the test plan.

TEST PLAN and PROCEDURE

The test plan is included in Appendix C. In summary, the testing occurred in the following manner: All devices / test samples were built and electrically tested in TO-3 packages. The lid was removed from each test sample at the test site or the samples were produced without the lid. Up to 18 test samples were loaded onto the test board and placed into the beam line, under high vacuum conditions. The desired test sample was positioned into the beam line, and when ready the beam shutter was removed beginning the irradiation of the test sample. Once the desired fluence was achieved the beam was automatically shuttered and the bias removed. The biasing equipment then subjected the test samples to gate stresses up to 20V.

The Ion with its LET and Energy must be selected for a Range of at least twice the depletion depth of the die under test.

TEST FACILITY

The K500 Superconducting Cyclotron is equipped with the necessary dosimetry to ensure the ion beam is meeting the customer expectation. A printout of the runs, included in Appendix B, also includes the beam parameters, i.e., LET, energy, Range, etc., for each run. Table 2 summarizes the 3 beam criteria for the ion species properly selected and utilized.

Table 2. Ion Beam Criteria

Ion	LET MeV/(mg/cm^2)	Energy MeV	Range µm
Xe	43	2441	205
Xe	59	825	66
Au	90	1480	80

The fluence and flux specified for this test was 3E5 ions/cm^2 and 1E4 ions/cm^2/sec, respectively. The beam diameter was set to cover the whole die-attachment area. The angle of incidence was set to zero (normal to the die surface).

RESULTS

The insitu bias conditions, where 0 failures occurred for each product type, are shown in Table 3. These results are shown graphically in Figure 1 as a plot of the Safe Operation Area (SOA). Each point on the graph, or insitu bias condition, has been verified by irradiating and subsequent electrical testing of a minimum of 3 devices, with no valid failures allowed. The devices were returned to IR and tested using production ATE. The results of the test were inspected and matched to the notes taken during the test, see Appendix F. The post-irradiation data correlates with the expected test results.

It should be noted that acceptance is assumed for product types operating at conditions below those tested herein. For example the IRH67260 was not tested under the VGS bias conditions of 0V through -5V with the Xe ion of LET=59 MeV/(mg/cm^2). The test engineer made a calculated risk assessment based on SEE Process History & SEE results at lower LET and chose to begin characterization and verification at VGS = -10V. The insitu acceptance at the -10V was then extended to the lower VGS bias voltages.

Furthermore the extension of more stressful conditions to less stressful conditions shall also apply to the LET conditions of the various ion species. For example successful operation using the Au ion (LET of 90 MeV/(mg/cm^2)) shall also imply that any other ion with a LET < 90, shall also be acceptable and not require verification.

The different runs and respective test conditions are all tabulated in Appendices A and B. Table 4 may be used as an index to identify which runs apply to a specific product type with a specific ion. Unlisted Runs are not related to this report.

Table 3 Device Insitu Bias Conditions (VDS vs. VGS) with Ion Species

Device Type Part Number Wafer Lot	Ion (LET)	VGS=0V	VGS=-5V	VGS=-10V	VGS=-15V	VGS=-17V	VGS=-18V	VGS=-19V	VGS=-20V
IRH67260 (R6, 200Volts, N-Channel) **ER33831**	Xe (43)	Qualified	Qualified	Qualified	Qualified	200 V	190 V	180 V	150 V
	Xe (59)	Qualified	Qualified	Qualified	200 V	170 V	160 V		
	Au (90)	200 V	200 V						
IRH67260 (R6, 200Volts, N-Channel) **ER34312**	Xe (43)	Qualified	Qualified	200 V	190 V				
IRH67230 (R6, 200Volts, N-Channel) **ER34181**	Xe (43)	Qualified	Qualified	200 V	200 V	200 V			
	Xe (59)	Qualified	Qualified	200 V	200 V	170 V	160 V		
	Au (90)	170 V	170 V						

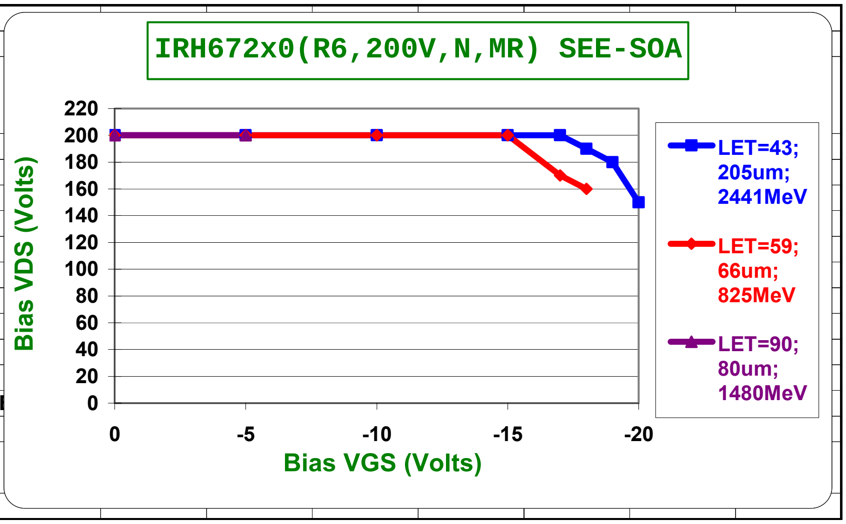
Note: "Qualified" indicates part is qualified by extension of insitu bias testing at higher VGS level. See Concluding Tutorial for more details.

Table 4 Run Number Index

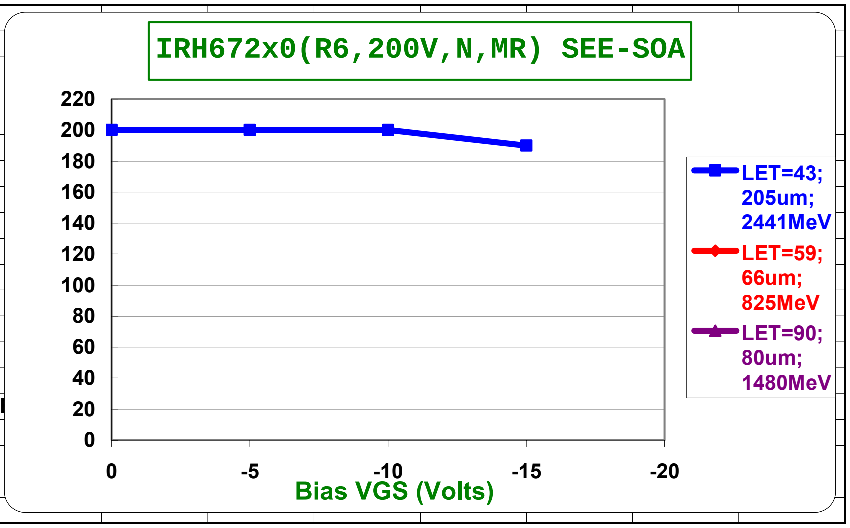
Device Type / Part Number	Wafer Lot Number	Ion (LET)	Run Date	Run Number
IRH672x0 (R6, 200Volts, N-ch, MR)	ER33831	Xe (43)	06-20-2003	169 to 201
	ER33831	Xe (59)	06-20-2003	202 to 222
	ER34312	Xe (43)	08-25-2003	189 to 203
	ER34181	Xe (43)	08-25-2003	204 to 220
	ER34181	Xe (59)	08-25-2003	221 to 226
	ER33831	Au (90)	08-25-2003	227 to 236
	ER34312	Au (90)	08-25-2003	237 to 241
	ER34181	Au (90)	08-25-2003	242 to 263

Figure 1 Device Safe Operating Area

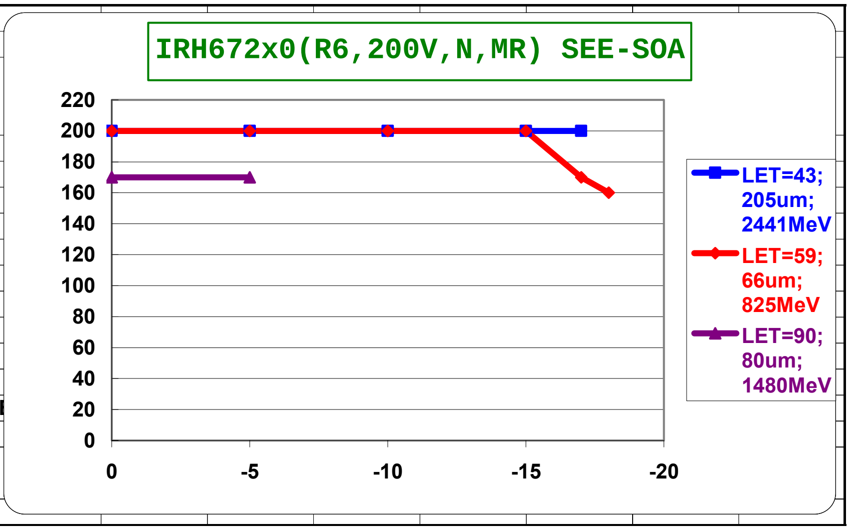
IRH67260			
VGS Bias	VDS Bias (Volts)		
	LET=43; 205um; 2441MeV	LET=59; 66um; 825MeV	LET=90; 80um; 1480MeV
0	200	200	**200**
-5	200	200	**200**
-10	200	200	50
-15	200	**200**	
-17	**200**	**170**	
-18	**190**	**160**	
-19	**180**		
-20	**150**		
	6/20/2003		8/25/2003
ER33831			
	Xe @ 25AMeV	**Xe @ 25AMeV**	**Au @ 15AMeV**



IRH67260			
VGS Bias	VDS Bias (Volts)		
	LET=43; 205um; 2441MeV	LET=59; 66um; 825MeV	LET=90; 80um; 1480MeV
0	200		
-5	200		
-10	200		
-15	190		
-18			
-19			
-20			
8/25/2003			
ER34312			
	Xe @ 25AMeV	**Xe @ 25AMeV**	**Xe @ 15AMeV**



IRH67230			
VGS Bias	VDS Bias (Volts)		
	LET=43; 205um; 2441MeV	LET=59; 66um; 825MeV	LET=90; 80um; 1480MeV
0	200	200	170
-5	200	200	170
-10	200	200	
-15	200	200	
-17	200	170	
-18		160	
-19			
-20			
8/25/2003			
ER34181			
	Xe @ 25AMeV	**Xe @ 25AMeV**	**Au @ 15AMeV**



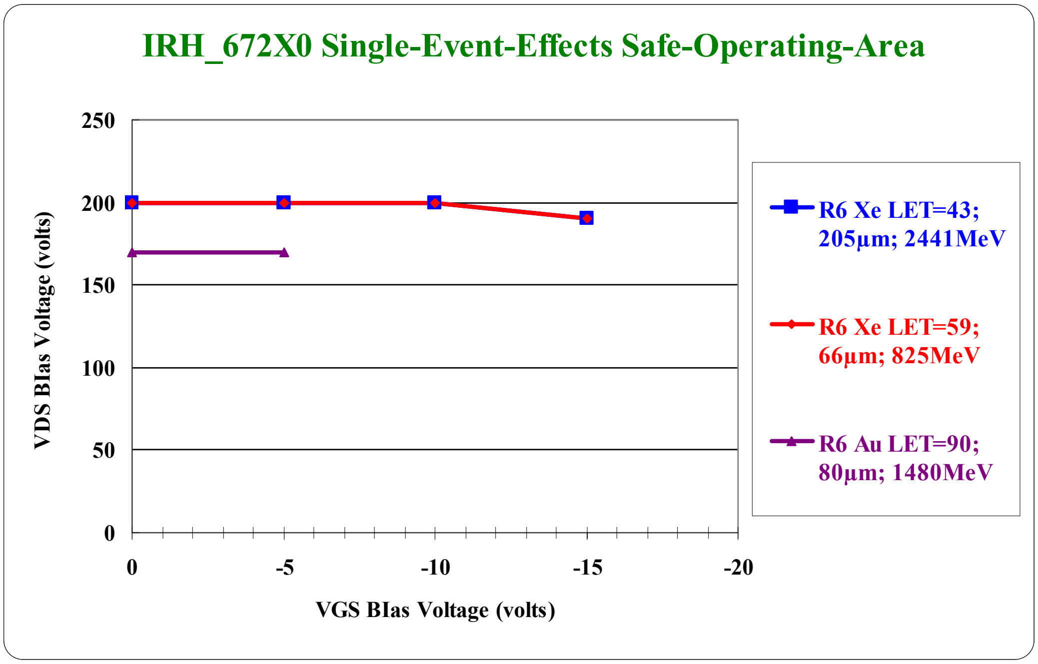
CONCLUSION

For a final SEE Specification, the SEE Results from all three wafer lots with two die sizes are combined as worst-case result and listed below in both tabular and graphic SEE Safe-Operating-Area. The 200-Volt N-Channel Dual-Epi R6 (IRHC671x0) is well SEE-hard against the charged Xenon (Xe) ion at 100% rated VDS and -10V VGS applied and against Gold heavy-ion at 85% rated VDS and -5V VGS applied.

FINAL Single-Event-Effect Safe Operating Area (Tabular)

Device Type Part Number	Ion (LET)	VGS=0V	VGS=-5V	VGS=-10V	VGS=-15V
IRH67260 (R6, 200Volts, N-Channel)	Xe (43)	Qualified	Qualified	200 V	190 V
	Xe (59)	Qualified	Qualified	200 V	190 V
	Au (90)	170 V	170 V		

FINAL Single-Event-Effect Safe Operating Area (Graph)



CONCLUDING TUTORIAL

The following is presented to help the reader understand the basis on which SEE Testing is extended to the other part numbers.

Extending Single Event Effects Testing

International Rectifier has designed Single Event Effects (SEE) experiments to maximize facility usage using four, industry accepted, assumptions as follows:

I. Test results for one die size are representative of other die sizes, if the process and design rules are not changed. In other words the scaling of die size has no affect if all other variables are held constant. Please note that for a given voltage and technology, there are no differences in design and process for the various sizes of IR's radiation hardened MOSFET die, thus the assumption is valid. In reality, IR will always test the largest available die size. We consider this a worst-case scenario. The industry standard for acceptance of a given in-situ bias condition, is the acceptable performance of three or more devices at the specified conditions. Presently a supplier could achieve this standard with size 1 die thru size 6 die. We believe that use of the smaller die reduces the probability of failure, and thus reduces the chance of a SEE problem being discovered. The size 1 die are about one-twelfth the size of the size 6 die. Thus successfully testing three size 6 die is roughly equivalent to testing 36 size 1 die. This results in a savings of valuable test time at the SEE test facility, without degrading the final test result.

II. Acceptable test results taken at given VGS and VDS conditions are applicable to lower VGS and VDS conditions. In other words an acceptable test result (>= 3 devices passing) at VGS = -15V and VDS = 200V, would also apply to VGS = -10, -5 or 0V at the same or lower VDS condition. In several cases parts have been tested at the worst-case in-situ bias condition of VGS = -20V and VDS = max rated BVDSS. With acceptable test results, the safe operation area, has been extended from VGS = 0 to –20V and VDS from 0 to the max rating. It is not necessary to verify every point below the accepted in-situ bias conditions. Again this saves valuable experiment time.

III. Acceptable test results taken with a given LET, would also apply at other lower LETs. It is generally accepted that successful test results with Iodine, for example, implies the device would be hard against Bromine, Krypton, Nickel, etc., ion species with a lower LET. It is not necessary to test at each lower LET, again saving valuable test time.

IV. The package used has no effect on the SEE hardness of a die. The die are characterized fully exposed to the ion beam. In other words the lid of the package is removed making the die visible. This removes the package as a variable when comparing test results. As a rule IR uses the common TO3 package for mounting die for SEE tests.

Each of the assumptions above is generally accepted within the industry. IR has verified their validity over the last several years and makes appropriate use of them to maximize the benefit for our customers.

Appendix A

Log Sheets

(SEE Run Data)

Test Date	Run	Ion	LET(Si)	Energy	Range	Flux	Fluence	Angle	BeamDia.	Vacuum	Device	Wafer	Wafer	Serial	Batch	Socket	VGS	VDS		Pass/Fail
	#		*MeV.cm2/mg*	*MeV*	*µm*	*#/cm2/sec*	*#/cm2*	*deg*	*cm.*	or Air	Type	Lot	No.	No.	No.	No.	*Volts*	*Volts*		*Blank=Pass*
200V, N, MR, R6 to Xeon (with LET=43)																				
6/20/2003	169	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	2	F1	1	-5	200		
6/20/2003	170	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	2	F1	1	-10	200		
6/20/2003	171	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	2	F1	1	-15	100		
6/20/2003	172	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	2	F1	1	-15	120		
6/20/2003	173	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	2	F1	1	-15	140		
6/20/2003	174	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	2	F1	1	-15	160		
6/20/2003	175	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	2	F1	1	-15	180		
6/20/2003	176	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	2	F1	1	-15	200		
6/20/2003	177	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	2	F1	1	-16	200		
6/20/2003	178	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	2	F1	1	-17	200		
6/20/2003	179	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	2	F1	1	-18	200		
6/20/2003	180	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	2	F1	1	-19	200		Failed
6/20/2003	181	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	3	F2	2	-18	200		
6/20/2003	182	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	4	F3	3	-18	200		
6/20/2003	183	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	5	F4	4	-18	200		Failed
6/20/2003	184	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	1	1	F5	5	-17	200		
6/20/2003	185	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	2	7	F6	6	-18	180		
6/20/2003	186	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	2	7	F6	6	-18	190		
6/20/2003	187	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	2	8	F7	7	-18	190		
6/20/2003	188	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	2	9	F8	8	-18	190		
6/20/2003	189	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	2	10	F9	9	-19	170		
6/20/2003	190	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	2	10	F9	9	-19	180		
6/20/2003	191	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	3	11	F10	10	-19	170		
6/20/2003	192	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	3	11	F10	10	-19	180		
6/20/2003	193	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	3	14	F12	12	-19	180		
6/20/2003	194	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	3	15	F13	13	-20	160		
6/20/2003	195	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	3	15	F13	13	-20	170		
6/20/2003	196	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	4	17	F15	15	-20	160		
6/20/2003	197	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	4	17	F15	15	-20	160		
6/20/2003	198	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	4	17	F15	15	-20	170		
6/20/2003	199	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	4	18	F16	16	-20	170		Failed
6/20/2003	200	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	4	19	F17	17	-20	160		Failed
6/20/2003	201	**Xe**	43	2441	205	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	4	20	F18	18	-20	150		
200V, N, MR, R6 to Xeon (with LET=59)																				
6/20/2003	202	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	6	27	F19	1	-5	200		
6/20/2003	203	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	6	27	F19	1	-10	200		
6/20/2003	204	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	6	27	F19	1	-15	200		
6/20/2003	205	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	6	27	F19	1	-17	200		
6/20/2003	206	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	6	28	F20	2	-15	200		
6/20/2003	207	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	6	28	F20	2	-17	200		Failed
6/20/2003	208	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	6	29	F21	3	-15	200		
6/20/2003	209	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	6	30	F22	4	-15	200		
6/20/2003	210	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	7	31	F23	5	-17	180		
6/20/2003	211	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	7	31	F23	5	-17	190		
6/20/2003	212	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	7	32	F24	6	-17	180		Failed
6/20/2003	213	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	7	33	F25	7	-17	170		
6/20/2003	214	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	7	33	F25	7	-18	160		
6/20/2003	215	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	8	36	F28	10	-18	160		
6/20/2003	216	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	8	36	F28	10	-17	170		
6/20/2003	217	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	8	37	F29	12	-17	170		
6/20/2003	218	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	8	37	F29	12	-18	160		
6/20/2003	219	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	8	38	F30	13	-19	140		Failed
6/20/2003	220	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	8	39	F31	15	-19	120		
6/20/2003	221	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	9	42	F33	17	-19	100		Failed
6/20/2003	222	**Xe**	59	825	66	1.0E+04	3.0E+05	0		vacuum	IRH67260	ER33831	9	44	F34	18	-19	80		Failed

Test Date	Run	Ion	LET(Si)	Energy	Range	Flux	Fluence	Angle	BeamDia.	Vacuum	Device	Wafer	Wafer	Serial	Batch	Socket	VGS	VDS	Pass/Fail
	#		*MeV.cm2/mg*	*MeV*	*μm*	*#/cm2/sec*	*#/cm2*	*deg*	*cm.*	or Air	Type	Lot	No.	No.	No.	No.	*Volts*	*Volts*	*Blank=Pass*
200V, N, MR, R6 to Xeon (with LET=43)																			
8/25/2003	189	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	1	1	G1	1	-5	200	
8/25/2003	190	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	1	1	G1	1	-10	200	
8/25/2003	191	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	1	1	G1	1	-15	200	Failed
8/25/2003	192	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	2	3	G2	2	-10	200	
8/25/2003	193	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	2	3	G2	2	-15	180	
8/25/2003	194	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	2	3	G2	2	-15	190	
8/25/2003	195	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	2	3	G2	2	-20	150	Failed
8/25/2003	196	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	3	5	G3	3	-20	100	Failed
8/25/2003	197	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	4	8	G4	4	-18	100	Failed
8/25/2003	198	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	5	9	G5	5	-18	50	
8/25/2003	199	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	5	9	G5	5	-18	60	
8/25/2003	200	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	5	9	G5	5	-18	70	
8/25/2003	201	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	5	9	G5	5	-18	80	
8/25/2003	202	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	5	9	G5	5	-18	90	
8/25/2003	203	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67260	ER34312	6	12	G6	6	-18	70	Failed
200V, N, MR, R6 to Xeon (with LET=43)																			
8/25/2003	204	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	1	1	H1	7	-10	200	
8/25/2003	205	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	1	1	H1	7	-15	100	
8/25/2003	206	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	1	1	H1	7	-15	150	Failed
8/25/2003	207	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	6	11	I1	13	-10	200	Invalid
8/25/2003	208	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	8	15	I3	15	-10	200	
8/25/2003	209	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	8	15	I3	15	-15	100	
8/25/2003	210	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	8	15	I3	15	-15	150	
8/25/2003	211	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	8	15	I3	15	-15	160	
8/25/2003	212	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	8	15	I3	15	-15	160	
8/25/2003	213	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	8	15	I3	15	-15	170	
8/25/2003	214	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	8	15	I3	15	-15	180	
8/25/2003	215	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	8	15	I3	15	-15	190	
8/25/2003	216	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	8	15	I3	15	-15	200	
8/25/2003	217	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	8	15	I3	15	-17	180	
8/25/2003	218	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	8	15	I3	15	-17	190	
8/25/2003	219	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	8	15	I3	15	-17	200	
8/25/2003	220	**Xe**	43	2441	205	1.0E+04	1.0E+05	0		Vacuum	IRH67230	ER34181A	8	15	I3	15	-18	180	Failed
200V, N, MR, R6 to Xeon (with LET=59)																			
8/25/2003	221	**Xe**	59	825	66	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	9	17	I4	16	-10	200	
8/25/2003	222	**Xe**	59	825	66	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	9	17	I4	16	-15	200	Invalid
8/25/2003	223	**Xe**	59	825	66	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	9	17	I4	16	-15	200	
8/25/2003	224	**Xe**	59	825	66	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	9	17	I4	16	-17	160	
8/25/2003	225	**Xe**	59	825	66	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	9	17	I4	16	-17	170	
8/25/2003	226	**Xe**	59	825	66	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	9	17	I4	16	-18	160	
200V, N, MR, R6 to Gold (with LET=90)																			
8/25/2003	227	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67260	ER33831	10	48	J1	1	-5	100	
8/25/2003	228	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67260	ER33831	10	48	J1	1	-5	150	
8/25/2003	229	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67260	ER33831	10	48	J1	1	-5	200	
8/25/2003	230	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67260	ER33831	10	48	J1	1	-10	100	Failed
8/25/2003	231	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67260	ER33831	10	49	J2	2	-5	200	
8/25/2003	232	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67260	ER33831	11	54	J3	3	-5	200	
8/25/2003	233	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67260	ER33831	11	55	J4	4	-5	200	
8/25/2003	234	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67260	ER33831	12	59	J5	5	-10	50	
8/25/2003	235	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67260	ER33831	12	59	J5	5	-10	60	Failed
8/25/2003	236	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67260	ER33831	12	60	J6	6	-10	50	

Test Date	Run *#*	Ion	LET(Si) *MeV.cm2/mg*	Energy *MeV*	Range *µm*	Flux *#/cm2/sec*	Fluence *#/cm2*	Angle *deg*	BeamDia. *cm.*	Vacuum or Air	Device Type	Wafer Lot	Wafer No.	Serial No.	Batch No.	Socket No.	VGS *Volts*	VDS *Volts*	Pass/Fail *Blank=Pass*
200V, N, MR, R6 to Gold (with LET=90)																			
8/25/2003	242	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	21	42	H7	11	-5	100	Invalid
8/25/2003	243	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	22	43	H8	12	-5	100	
8/25/2003	244	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	22	43	H8	12	-5	110	
8/25/2003	245	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	22	43	H8	12	-5	120	
8/25/2003	246	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	22	43	H8	12	-5	130	
8/25/2003	247	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	22	43	H8	12	-5	140	
8/25/2003	248	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	22	43	H8	12	-5	150	
8/25/2003	249	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	22	43	H8	12	-5	160	Failed
8/25/2003	250	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	23	45	H9	13	-5	150	
8/25/2003	251	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	23	45	H9	13	-5	160	Failed
8/25/2003	252	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	6	12	I7	15	-5	150	
8/25/2003	253	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	6	12	I7	15	-5	160	
8/25/2003	254	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	6	12	I7	15	-5	170	
8/25/2003	255	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	6	12	I7	15	-5	180	
8/25/2003	256	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	6	12	I7	15	-5	190	
8/25/2003	257	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	6	12	I7	15	-5	200	Failed
8/25/2003	258	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	8	16	I8	16	-5	190	Failed
8/25/2003	259	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	9	18	I9	17	-5	160	
8/25/2003	260	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	9	18	I9	17	-5	170	
8/25/2003	261	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	9	18	I9	17	-5	180	
8/25/2003	262	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	10	20	I10	18	-5	170	
8/25/2003	263	**Au**	90	1480	80	1.0E+04	3.0E+05	0		Vacuum	IRH67230	ER34181A	10	20	I10	18	-5	180	

Appendix B

TAMU Cyclotron Institute

Facility Beam Data & Graphs

Cyclotron Institute Texas A&M University - Radiation Testing Report (V. Horvat 00/06/13)
File: IR0603 Compiled on 03/06/21 at 07:36:47

Run	Ext	Date	Time	Beam	MeV/u	Energy	LET	Range	<Flux>	Fluence	Dose	E-fluen	%err	Al(um)	USD	Live	Dead	BID	Gain	Unif	Shft	E-LET	E-range	Board	DUT	X(in)	Y(in)	Z(in)	T(deg)	U(in)	V(in)	R(deg)	S	V1	V2	V3	V4	V5	V6	Layers-file	Comments
#						*MeV*	*MeV.cm2/mg*	*µm*	*#/cm2/sec*	*#/cm2*	*RAD(Si)*	*RAD(Si)*																													
1	t00	0:00	0.464	Xe	15	1934	47.3	157	11600	1.00E+06	7.59E+02	1.00E+06	3.40%	0	OUT	86	0	19	1.13	91	4	47.3	157	IRAAS&	S3.3	-3.946	2.028	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
2	t01	0:00	0.466	Xe	15	1934	47.3	157	11500	1.00E+06	7.58E+02	1.00E+06	3.39%	0	OUT	87	0	19	1.16	92	5	47.3	157	IRAAS&	S3.3	-3.946	2.028	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
3	t02	0:00	0.467	Xe	15	1934	47.3	157	11100	9.99E+05	7.57E+02	9.99E+05	3.34%	0	OUT	90	0	19	1.14	92	4	47.3	157	IRAAS&	S3.3	-3.946	2.028	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
4	t03	0:00	0.469	Xe	15	1934	47.3	157	11800	1.00E+06	7.60E+02	1.00E+06	3.43%	0	OUT	85	1	19	1.16	92	4	47.3	157	IRAAS&	S3.3	-3.946	2.028	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
5	t04	0:00	0.472	Xe	15	1934	47.3	157	10600	1.00E+06	7.58E+02	1.00E+06	3.26%	0	OUT	94	0	19	1.16	91	5	47.3	157	IRAAS&	S3.3	-3.946	2.028	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
6	t05	0:00	0.476	Xe	15	1934	47.3	157	10900	9.98E+05	7.57E+02	9.98E+05	3.31%	0	OUT	92	0	19	1.17	92	4	47.3	157	IRAAS&	S3.3	-3.946	2.028	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
7	t06	0:00	0.479	Xe	15	1934	47.3	157	10900	1.00E+06	7.58E+02	1.00E+06	3.30%	0	OUT	92	0	19	1.15	91	4	47.3	157	IRAAS&	S15S	-0.465	2.067	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
8	t07	0:00	0.481	Xe	15	1934	47.3	157	10300	1.00E+06	7.61E+02	1.00E+06	3.20%	0	OUT	97	0	19	1.14	92	4	47.3	157	IRAAS&	S15S	-0.465	2.067	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
9	t08	0:00	0.482	Xe	15	1934	47.3	157	10500	9.98E+05	7.56E+02	9.98E+05	3.24%	0	OUT	95	0	19	1.16	92	4	47.3	157	IRAAS&	S15S	-0.465	2.067	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
10	t09	0:00	0.484	Xe	15	1934	47.3	157	9940	1.00E+06	7.58E+02	1.00E+06	3.15%	0	OUT	101	0	19	1.13	92	5	47.3	157	IRAAS&	S15S	-0.465	2.067	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
11	t0A	0:00	0.487	Xe	15	1934	47.3	157	10500	9.96E+05	7.55E+02	9.96E+05	3.26%	0	OUT	94	0	19	1.16	92	4	47.3	157	IRAAS&	S15S	-0.465	2.067	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
12	t0B	0:00	0.49	Xe	15	1934	47.3	157	9820	1.00E+06	7.58E+02	1.00E+06	3.13%	0	OUT	102	0	19	1.15	92	4	47.3	157	IRAAS&	S15D	2.983	2.067	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
13	t0C	0:00	0.491	Xe	15	1934	47.3	157	9550	1.00E+06	7.58E+02	1.00E+06	3.09%	0	OUT	105	0	19	1.15	92	3	47.3	157	IRAAS&	S15D	2.983	2.067	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
14	t0D	0:00	0.493	Xe	15	1934	47.3	157	9560	1.00E+06	7.61E+02	1.00E+06	3.08%	0	OUT	105	0	19	1.18	92	5	47.3	157	IRAAS&	S15D	2.983	2.067	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
15	t0E	0:00	0.495	Xe	15	1934	47.3	157	9190	9.98E+05	7.57E+02	9.98E+05	3.04%	0	OUT	109	1	19	1.18	92	4	47.3	157	IRAAS&	S15D	2.983	2.067	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
16	t0F	0:00	0.498	Xe	15	1934	47.3	157	9170	1.00E+06	7.60E+02	1.00E+06	3.02%	0	OUT	109	0	19	1.17	91	4	47.3	157	IRAAS&	S15D	2.983	2.067	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
17	t0G	0:00	0.5	Xe	15	1934	47.3	157	9310	1.00E+06	7.60E+02	1.00E+06	3.04%	0	OUT	108	0	19	1.18	91	4	47.3	157	IRAAS&	S15D	2.983	2.067	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
18	t0H	0:00	0.509	Xe	15	1934	47.3	157	9130	9.96E+05	7.55E+02	9.96E+05	3.03%	0	OUT	109	0	19	1.17	92	4	47.3	157	IRAAS&	ART1	2.706	-2.245	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
19	t0I	0:00	0.51	Xe	15	1934	47.3	157	8810	1.00E+06	7.58E+02	1.00E+06	2.97%	0	OUT	113	0	19	1.17	92	4	47.3	157	IRAAS&	ART1	2.706	-2.245	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
20	t0J	0:00	0.513	Xe	15	1934	47.3	157	8800	1.00E+06	7.60E+02	1.00E+06	2.96%	0	OUT	114	0	19	1.17	92	4	47.3	157	IRAAS&	ART1	2.706	-2.245	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
21	t0K	0:00	0.516	Xe	15	1934	47.3	157	8700	1.00E+06	7.59E+02	1.00E+06	2.94%	0	OUT	115	0	19	1.18	91	4	47.3	157	IRAAS&	ART1	2.706	-2.245	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
22	t0L	0:00	0.519	Xe	15	1934	47.3	157	8750	9.99E+05	7.57E+02	9.99E+05	2.96%	0	OUT	114	0	19	1.2	90	6	47.3	157	IRAAS&	ART2	-0.709	-2.245	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
23	t0M	0:00	0.521	Xe	15	1934	47.3	157	8230	1.00E+06	7.60E+02	1.00E+06	2.86%	0	OUT	122	0	19	1.16	91	4	47.3	157	IRAAS&	ART2	-0.709	-2.245	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
24	t0N	0:00	0.523	Xe	15	1934	47.3	157	8370	9.98E+05	7.56E+02	9.98E+05	2.90%	0	OUT	119	1	19	1.17	92	4	47.3	157	IRAAS&	ART2	-0.709	-2.245	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
25	t0O	0:00	0.526	Xe	15	1934	47.3	157	8340	9.98E+05	7.57E+02	9.98E+05	2.89%	0	OUT	120	0	19	1.17	92	4	47.3	157	IRAAS&	ART3	-3.946	-2.245	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
26	t0P	0:00	0.527	Xe	15	1934	47.3	157	8270	1.00E+06	7.58E+02	1.00E+06	2.87%	0	OUT	121	0	19	1.15	92	4	47.3	157	IRAAS&	ART3	-3.946	-2.245	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
27	t0Q	0:00	0.53	Xe	15	1934	47.3	157	12300	8.47E+05	6.42E+02	8.47E+05	4.14%	0	OUT	69	0	19	1.14	86	9	47.3	157	IRAAS&	ART3	-3.946	-2.245	1.769	0	1.75	1.75	-0.101	0	472	413	486	394	249	0	Nolayers.lay	None.
28	t0R	0:00	0.544	Xe	15	738	60	60	11300	9.98E+05	9.59E+02	9.98E+05	36E-02	7	OUT	89	1	19	1.14	87	7	60	60	IRAAS&	S3.3	-3.946	2.028	1.769	0	1.75	1.75	54.358	2	472	413	486	394	309	0	Nolayers.lay	None.
29	t0S	0:00	0.547	Xe	15	738	60	60	9980	9.96E+05	9.58E+02	9.96E+05	17E-02	7	OUT	100	0	19	1	87	7	60	60	IRAAS&	S3.3	-3.946	2.028	1.769	0	1.75	1.75	54.358	2	472	413	486	394	309	0	Nolayers.lay	None.
30	t0T	0:00	0.551	Xe	15	738	60	60	10300	1.00E+06	9.62E+02	1.00E+06	21E-02	7	OUT	97	0	19	1.02	87	6	60	60	IRAAS&	S15S	-0.465	2.067	1.769	0	1.75	1.75	54.358	2	472	413	486	394	309	0	Nolayers.lay	None.
31	t0U	0:00	0.553	Xe	15	738	60	60	10100	1.00E+06	9.65E+02	1.00E+06	16E-02	7	OUT	100	0	19	1.03	87	8	60	60	IRAAS&	S15S	-0.465	2.067	1.769	0	1.75	1.75	54.358	2	472	413	486	394	309	0	Nolayers.lay	None.
32	t0V	0:00	0.556	Xe	15	738	60	60	9890	1.00E+06	9.64E+02	1.00E+06	14E-02	7	OUT	101	0	19	1.02	86	7	60	60	IRAAS&	S15D	2.983	2.067	1.769	0	1.75	1.75	54.358	2	472	413	486	394	309	0	Nolayers.lay	None.
33	t0W	0:00	0.561	Xe	15	738	60	60	10500	8.17E+04	7.86E+01	8.17E+04	96E-01	7	OUT	8	0	19	1.02	87	6	60	60	IRAAS&	ART1	2.706	-2.245	1.769	0	1.75	1.75	54.358	2	472	413	486	394	309	0	Nolayers.lay	None.
34	t0X	0:00	0.621	Au	15	2955	80.2	155	11900	9.98E+05	1.28E+03	9.98E+05	3.45%	0	OUT	84	0	24	1.36	92	5	80.2	155	IRAAS&	S3.3	-3.946	2.028	1.769	0	1.75	1.75	-0.101	0	361	373	365	369	226	0	Nolayers.lay	None.
35	t0Y	0:00	0.624	Au	15	2574	83	135	11800	1.01E+06	1.34E+03	1.01E+06	41E-02	8	OUT	86	0	24	1.27	91	6	83	135	IRAAS&	Curre	nt -3.9	2.028	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
36	t0Z	0:00	0.625	Au	15	2574	83	135	11700	1.00E+06	1.33E+03	1.00E+06	42E-02	8	OUT	86	0	24	1.24	89	7	83	135	IRAAS&	Curre	nt -3.9	2.028	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
37	t10	0:00	0.626	Au	15	2574	83	135	11300	9.99E+05	1.33E+03	9.99E+05	36E-02	8	OUT	89	0	24	1.2	88	8	83	135	IRAAS&	Curre	nt -3.9	2.028	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
38	t11	0:00	0.628	Au	15	2574	83	135	11600	9.97E+05	1.33E+03	9.97E+05	42E-02	8	OUT	86	0	24	1.22	91	6	83	135	IRAAS&	Curre	nt -3.9	2.028	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
39	t12	0:00	0.63	Au	15	2574	83	135	12300	9.98E+05	1.33E+03	9.98E+05	52E-02	8	OUT	81	1	24	1.27	89	7	83	135	IRAAS&	Curre	nt -3.9	2.028	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
40	t13	0:00	0.634	Au	15	2574	83	135	12200	1.00E+06	1.33E+03	1.00E+06	49E-02	8	OUT	82	0	24	1.3	89	7	83	135	IRAAS&	Curre	nt -.4	2.067	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
41	t14	0:00	0.635	Au	15	2574	83	135	12100	1.00E+06	1.34E+03	1.00E+06	46E-02	8	OUT	83	0	24	1.33	87	9	83	135	IRAAS&	Curre	nt -.4	2.067	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
42	t15	0:00	0.636	Au	15	2574	83	135	11400	1.00E+06	1.33E+03	1.00E+06	37E-02	8	OUT	88	0	24	1.3	85	11	83	135	IRAAS&	Curre	nt -.4	2.067	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
43	t16	0:00	0.639	Au	15	2574	83	135	11900	1.00E+06	1.33E+03	1.00E+06	44E-02	8	OUT	84	0	24	1.21	92	5	83	135	IRAAS&	Curre	nt -.4	2.067	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
44	t17	0:00	0.641	Au	15	2574	83	135	11300	9.97E+05	1.33E+03	9.97E+05	36E-02	8	OUT	89	0	24	1.19	93	4	83	135	IRAAS&	Curre	nt -.4	2.067	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
45	t18	0:00	0.643	Au	15	2574	83	135	12200	9.97E+05	1.33E+03	9.97E+05	50E-02	8	OUT	82	0	24	1.23	95	3	83	135	IRAAS&	Curre	nt 2.9	2.067	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
46	t19	0:00	0.645	Au	15	2574	83	135	12600	9.97E+05	1.33E+03	9.97E+05	56E-02	8	OUT	79	0	24	1.24	96	2	83	135	IRAAS&	Curre	nt 2.9	2.067	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
47	t1A	0:00	0.646	Au	15	2574	83	135	12200	9.96E+05	1.33E+03	9.96E+05	51E-02	8	OUT	82	0	24	1.16	93	4	83	135	IRAAS&	Curre	nt 2.9	2.067	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
48	t1B	0:00	0.648	Au	15	2574	83	135	13000	9.95E+05	1.32E+03	9.95E+05	63E-02	8	OUT	76	0	24	1.24	94	4	83	135	IRAAS&	Curre	nt 2.9	2.067	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
49	t1C	0:00	0.649	Au	15	2574	83	135	12800	1.00E+06	1.33E+03	1.00E+06	56E-02	8	OUT	79	0	24	1.25	95	3	83	135	IRAAS&	Curre	nt 2.9	2.067	1.769	0	1.75	1.75	10.345	1	361	373	365	369	247	0	Nolayers.lay	None.
50	t1D	0:00	0.689	Ag	15	1634	38.5	156	11500	1.01E+06	6.20E+02	1.01E+06	3.37%	0	OUT	88	0	18	1.22	94	1	38.5	156	IRAAALL	MEE L	EFT -2	2.067	1.769	0	1.909	1.796	10.345	0	454	425	400	406	251	0	Nolayers.lay	None.
51	t1E	0:00	0.691	Ag	15	1634	38.5	156	11800	9.98E+05	6.15E+02	9.98E+05	3.44%	0	OUT	85	0	18	1.24	94	1	38.5	156	IRAAALL	MEE R	IGH -.	2.067	1.769	0	1.909	1.796	10.345	0	454	425	400	406	251	0	Nolayers.lay	None.
52	t1F	0:00	0.695	Ag	15	1634	38.5	156	12400	9.96E+05	6.14E+02	9.96E+05	3.54%	0	OUT	80	0	18	1.25	93	2	38.5	156	IRAAALL	MEE R	IGH -.	2.067	1.769	0	1.909	1.796	10.345	0	454	425	400	406	251	0	Nolayers.lay	None.
53	t1G	0:00	0.697	Ag	15	1634	38.5	156	12800	1.01E+06	6.20E+02	1.01E+06	3.56%	0	OUT	78	0	18	1.25	94	2	38.5	156	IRAAALL	MEE L	EFT -2	2.067	1.769	0	1.909	1.796	10.345	0	454	425	400	406	251	0	Nolayers.lay	None.
54	t1H	0:00	0.699	Ag	15	1634	38.5	156	13100	1.01E+06	6.21E+02	1.01E+06	3.60%	0	OUT	77	0	18	1.26	94	2	38.5	156	IRAAALL	MEE L	EFT -2	2.067	1.769	0	1.909	1.796	10.345	0	454	425	400	406	251	0	Nolayers.lay	None.
55	t1I	0:00	0.701	Ag	15	1634	38.5	156	13300	9.97E+05	6.15E+02	9.97E+05	3.66%	0	OUT	75	1	18	1.26	93	2	38.5	156	IRAAALL	MEE L	EFT -2	2.067	1.769	0	1.909	1.796	10.345	0	454	425	400	406	251	0	Nolayers.lay	None.
56	t1J	0:00	0.702	Ag	15	1634	38.5	156	13400	1.00E+06	6.18E+02	1.00E+06	3.66%	0	OUT	75	0	18	1.25	94	2	38.5	156	IRAAALL	MEE L	EFT -2	2.067	1.769	0	1.909	1.796	10.345	0	454	425	400	406	251	0	Nolayers.lay	None.
57	t1K	0:00	0.706	Ag	15	1634	38.5	156	13600	1.00E+06	6.17E+02	1.00E+06	3.68%	0	OUT	74	0	18	1.24	93	3	38.5	156	IRAAALL	MEE R	IGH -.	2.067	1.769	0	1.909	1.796	10.345	0	454	425	400	406	251	0	Nolayers.lay	None.

Cyclotron Institute Texas A&M University - Radiation Testing Report (V. Horvat 00/06/13)
File: IR0803 Compiled on 03/08/26 at 07:33:24

Run #	Ext	Date	Time	Beam	MeV/u	Energy MeV	LET MeV.cm2/mg	Range μm	<Flux> #/cm2/sec	Fluence #/cm2	Dose RAD(Si)	E-fluen RAD(Si)	%err	Al(um)	USD	Live	Dead	BID	Gain	Unif	Shft	E-LET	E-range	Board	DUT	X(in)	Y(in)	Z(in)	T(deg)	U(in)	V(in)	R(deg)	S	V1	V2	V3	V4	V5	V6	Layers-file	Comments
1	t00	03/08/25	17:04	Xe	24.8	3197	37.9	286	1.18E+04	3.63E+05	2.20E+02	3.63E+05	0.0946	0.00E+00	OUT	31	0	20	1.27	86	8	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
1	t01	03/08/25	17:09	Xe	24.8	3197	37.9	286	1.16E+04	3.02E+05	1.84E+02	3.02E+05	0.113	0.00E+00	OUT	26	0	20	1.27	87	8	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
1	t02	03/08/25	17:12	Xe	24.8	3197	37.9	286	1.25E+04	2.96E+05	1.80E+02	2.96E+05	0.119	0.00E+00	OUT	24	0	20	1.32	92	4	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
2	t03	03/08/25	17:13	Xe	24.8	3197	37.9	286	1.25E+04	2.97E+05	1.80E+02	2.97E+05	0.119	0.00E+00	OUT	24	0	20	1.32	92	4	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
3	t04	03/08/25	17:14	Xe	24.8	3197	37.9	286	1.25E+04	3.01E+05	1.83E+02	3.01E+05	0.117	0.00E+00	OUT	24	0	20	1.32	93	3	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
4	t05	03/08/25	17:15	Xe	24.8	3197	37.9	286	1.23E+04	2.99E+05	1.82E+02	2.99E+05	0.117	0.00E+00	OUT	24	0	20	1.31	93	3	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
5	t06	03/08/25	17:15	Xe	24.8	3197	37.9	286	1.22E+04	2.97E+05	1.80E+02	2.97E+05	0.117	0.00E+00	OUT	24	0	20	1.32	93	3	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
6	t07	03/08/25	17:16	Xe	24.8	3197	37.9	286	1.23E+04	3.05E+05	1.85E+02	3.05E+05	0.115	0.00E+00	OUT	25	0	20	1.31	91	4	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
7	t08	03/08/25	17:17	Xe	24.8	3197	37.9	286	1.25E+04	2.94E+05	1.79E+02	2.94E+05	0.12	0.00E+00	OUT	23	0	20	1.33	91	4	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
8	t09	03/08/25	17:17	Xe	24.8	3197	37.9	286	1.26E+04	2.95E+05	1.79E+02	2.95E+05	0.12	0.00E+00	OUT	23	0	20	1.33	92	4	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
9	t0A	03/08/25	17:18	Xe	24.8	3197	37.9	286	1.23E+04	2.96E+05	1.79E+02	2.96E+05	0.119	0.00E+00	OUT	24	0	20	1.3	92	4	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
10	t0B	03/08/25	17:19	Xe	24.8	3197	37.9	286	1.26E+04	5.99E+04	3.64E+01	5.99E+04	0.593	0.00E+00	OUT	5	0	20	1.32	93	3	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
11	t0C	03/08/25	17:20	Xe	24.8	3197	37.9	286	1.25E+04	4.99E+05	3.03E+02	4.99E+05	0.0707	0.00E+00	OUT	40	0	20	1.3	94	2	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
12	t0D	03/08/25	17:23	Xe	24.8	3197	37.9	286	1.27E+04	1.20E+04	7.30E+00	1.20E+04	2.96	0.00E+00	OUT	1	0	20	1.29	93	4	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
13	t0E	03/08/25	17:24	Xe	24.8	3197	37.9	286	1.26E+04	1.16E+04	7.02E+00	1.16E+04	3.07	0.00E+00	OUT	1	0	20	1.3	93	5	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
14	t0F	03/08/25	17:55	Xe	24.8	3197	37.9	286	1.27E+04	5.02E+05	3.05E+02	5.02E+05	0.0709	0.00E+00	OUT	40	0	20	1.32	95	2	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
15	t0G	03/08/25	17:56	Xe	24.8	3197	37.9	286	1.18E+04	4.99E+05	3.03E+02	4.99E+05	0.0688	0.00E+00	OUT	42	0	20	1.28	95	2	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
16	t0H	03/08/25	17:58	Xe	24.8	3197	37.9	286	1.15E+04	1.02E+05	6.16E+01	1.02E+05	0.333	0.00E+00	OUT	9	0	20	1.26	95	2	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
17	t0I	03/08/25	17:58	Xe	24.8	3197	37.9	286	1.15E+04	1.03E+05	6.26E+01	1.03E+05	0.33	0.00E+00	OUT	9	0	20	1.25	96	1	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
18	t0J	03/08/25	17:58	Xe	24.8	3197	37.9	286	1.15E+04	3.13E+04	1.90E+01	3.13E+04	1.08	0.00E+00	OUT	3	0	20	1.27	95	3	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
19	t0K	03/08/25	18:02	Xe	24.8	3197	37.9	286	1.10E+04	9.59E+04	5.83E+01	9.59E+04	0.346	0.00E+00	OUT	9	0	20	1.25	95	2	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
20	t0L	03/08/25	18:03	Xe	24.8	3197	37.9	286	1.12E+04	9.69E+04	5.88E+01	9.69E+04	0.345	0.00E+00	OUT	9	0	20	1.26	96	2	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
21	t0M	03/08/25	18:05	Xe	24.8	3197	37.9	286	9.56E+03	4.78E+03	2.90E+00	4.78E+03	6.47	0.00E+00	OUT	1	0	20	1.2	90	3	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
22	t0N	03/08/25	18:06	Xe	24.8	3197	37.9	286	1.06E+04	1.03E+05	6.26E+01	1.03E+05	0.316	0.00E+00	OUT	10	0	20	1.2	94	4	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
23	t0O	03/08/25	18:07	Xe	24.8	3197	37.9	286	1.08E+04	1.05E+05	6.35E+01	1.05E+05	0.315	0.00E+00	OUT	10	0	20	1.29	94	3	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
24	t0P	03/08/25	18:33	Xe	24.8	3197	37.9	286	9.83E+03	1.01E+05	6.16E+01	1.01E+05	0.309	0.00E+00	OUT	10	0	20	1.26	95	2	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
25	t0Q	03/08/25	18:35	Xe	24.8	3197	37.9	286	1.19E+04	1.03E+05	6.24E+01	1.03E+05	0.336	0.00E+00	OUT	9	0	20	1.26	95	2	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
26	t0R	03/08/25	18:37	Xe	24.8	3197	37.9	286	1.21E+04	9.90E+04	6.01E+01	9.90E+04	0.352	0.00E+00	OUT	8	0	20	1.26	96	1	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
27	t0S	03/08/25	18:37	Xe	24.8	3197	37.9	286	1.19E+04	9.55E+04	5.80E+01	9.55E+04	0.361	0.00E+00	OUT	8	0	20	1.25	97	1	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
28	t0T	03/08/25	18:37	Xe	24.8	3197	37.9	286	1.19E+04	1.05E+05	6.35E+01	1.05E+05	0.33	0.00E+00	OUT	9	0	20	1.24	97	1	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
29	t0U	03/08/25	18:38	Xe	24.8	3197	37.9	286	1.17E+04	9.54E+04	5.79E+01	9.54E+04	0.359	0.00E+00	OUT	8	0	20	1.24	97	1	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
30	t0V	03/08/25	18:40	Xe	24.8	3197	37.9	286	1.19E+04	9.66E+04	5.86E+01	9.66E+04	0.358	0.00E+00	OUT	8	0	20	1.25	97	0	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
31	t0W	03/08/25	18:41	Xe	24.8	3197	37.9	286	1.19E+04	1.01E+05	6.14E+01	1.01E+05	0.341	0.00E+00	OUT	8	0	20	1.25	97	1	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
32	t0X	03/08/25	18:42	Xe	24.8	3197	37.9	286	1.21E+04	9.53E+04	5.79E+01	9.53E+04	0.365	0.00E+00	OUT	8	0	20	1.25	96	1	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
33	t0Y	03/08/25	18:42	Xe	24.8	3197	37.9	286	1.19E+04	9.81E+04	5.96E+01	9.81E+04	0.352	0.00E+00	OUT	8	0	20	1.25	94	2	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
34	t0Z	03/08/25	18:43	Xe	24.8	3197	37.9	286	1.23E+04	1.02E+05	6.18E+01	1.02E+05	0.345	0.00E+00	OUT	8	0	20	1.25	95	1	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
35	t10	03/08/25	18:43	Xe	24.8	3197	37.9	286	1.19E+04	9.72E+04	5.90E+01	9.72E+04	0.355	0.00E+00	OUT	8	0	20	1.25	96	1	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
36	t11	03/08/25	18:45	Xe	24.8	3197	37.9	286	1.22E+04	2.03E+04	1.23E+01	2.03E+04	1.72	0.00E+00	OUT	2	0	20	1.25	95	2	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
37	t12	03/08/25	18:48	Xe	24.8	3197	37.9	286	1.30E+04	6.74E+03	4.09E+00	6.74E+03	5.36	0.00E+00	OUT	1	0	20	1.26	95	1	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
38	t13	03/08/25	19:23	Xe	24.8	3197	37.9	286	1.18E+04	1.03E+05	6.27E+01	1.03E+05	0.332	0.00E+00	OUT	9	0	20	1.26	92	5	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
39	t14	03/08/25	19:23	Xe	24.8	3197	37.9	286	1.22E+04	9.74E+04	5.92E+01	9.74E+04	0.359	0.00E+00	OUT	8	0	20	1.25	91	5	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
40	t15	03/08/25	19:24	Xe	24.8	3197	37.9	286	1.22E+04	9.69E+04	5.88E+01	9.69E+04	0.36	0.00E+00	OUT	8	0	20	1.25	91	5	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
41	t16	03/08/25	19:24	Xe	24.8	3197	37.9	286	1.19E+04	1.02E+05	6.19E+01	1.02E+05	0.338	0.00E+00	OUT	9	0	20	1.27	90	5	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
42	t17	03/08/25	19:24	Xe	24.8	3197	37.9	286	1.18E+04	1.01E+05	6.12E+01	1.01E+05	0.341	0.00E+00	OUT	9	0	20	1.27	91	5	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
43	t18	03/08/25	19:25	Xe	24.8	3197	37.9	286	1.24E+04	9.55E+04	5.80E+01	9.55E+04	0.369	0.00E+00	OUT	8	0	20	1.24	90	6	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
44	t19	03/08/25	19:25	Xe	24.8	3197	37.9	286	1.23E+04	9.84E+04	5.98E+01	9.84E+04	0.356	0.00E+00	OUT	8	0	20	1.27	91	4	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
45	t1A	03/08/25	19:26	Xe	24.8	3197	37.9	286	1.21E+04	9.90E+04	6.01E+01	9.90E+04	0.352	0.00E+00	OUT	8	0	20	1.24	87	8	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
46	t1B	03/08/25	19:26	Xe	24.8	3197	37.9	286	1.23E+04	9.60E+04	5.83E+01	9.60E+04	0.365	0.00E+00	OUT	8	0	20	1.24	87	8	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
47	t1C	03/08/25	19:26	Xe	24.8	3197	37.9	286	1.21E+04	9.60E+04	5.83E+01	9.60E+04	0.362	0.00E+00	OUT	8	0	20	1.24	90	6	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
48	t1D	03/08/25	19:27	Xe	24.8	3197	37.9	286	1.26E+04	1.05E+05	6.37E+01	1.05E+05	0.339	0.00E+00	OUT	8	0	20	1.27	91	5	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
49	t1E	03/08/25	19:28	Xe	24.8	3197	37.9	286	1.21E+04	9.98E+04	6.06E+01	9.98E+04	0.349	0.00E+00	OUT	8	0	20	1.26	90	6	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
50	t1F	03/08/25	19:28	Xe	24.8	3197	37.9	286	1.19E+04	9.82E+04	5.96E+01	9.82E+04	0.351	0.00E+00	OUT	8	0	20	1.26	89	7	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
51	t1G	03/08/25	19:29	Xe	24.8	3197	37.9	286	1.17E+04	1.00E+05	6.07E+01	1.00E+05	0.341	0.00E+00	OUT	9	0	20	1.27	90	6	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
52	t1H	03/08/25	19:30	Xe	24.8	3197	37.9	286	1.10E+04	1.03E+05	6.23E+01	1.03E+05	0.323	0.00E+00	OUT	9	0	20	1.24	89	7	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
53	t1I	03/08/25	19:30	Xe	24.8	3197	37.9	286	1.15E+04	1.05E+05	6.37E+01	1.05E+05	0.323	0.00E+00	OUT	9	0	20	1.25	89	7	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
54	t1J	03/08/25	19:30	Xe	24.8	3197	37.9	286	1.12E+04	9.47E+04	5.75E+01	9.47E+04	0.353	0.00E+00	OUT	8	0	20	1.25	90	6	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
55	t1K	03/08/25	19:31	Xe	24.8	3197	37.9	286	1.16E+04	1.01E+05	6.14E+01	1.01E+05	0.337	0.00E+00	OUT	9	0	20	1.27	87	8	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
56	t1L	03/08/25	19:32	Xe	24.8	3197	37.9	286	1.16E+04	1.01E+05	6.11E+01	1.01E+05	0.338	0.00E+00	OUT	9	0	20	1.24	87	8	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
57	t1M	03/08/25	19:32	Xe	24.8	3197	37.9	286	1.22E+04	9.59E+04	5.82E+01	9.59E+04	0.364	0.00E+00	OUT	8	0	20	1.26	87	8	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
58	t1N	03/08/25	19:33	Xe	24.8	3197	37.9	286	1.19E+04	1.02E+05	6.19E+01	1.02E+05	0.339	0.00E+00	OUT	9	0	20	1.23	88	8	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
59	t1O	03/08/25	19:33	Xe	24.8	3197	37.9	286	1.23E+04	1.05E+05	6.36E+01	1.05E+05	0.336	0.00E+00	OUT	8	0	20	1.27	87	9	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
60	t1P	03/08/25	19:33	Xe	24.8	3197	37.9	286	1.22E+04	9.37E+04	5.69E+01	9.37E+04	0.373	0.00E+00	OUT	8	0	20	1.27	86	9	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
61	t1Q	03/08/25	19:34	Xe	24.8	3197	37.9	286	1.19E+04	9.66E+04	5.86E+01	9.66E+04	0.357	0.00E+00	OUT	8	0	20	1.23	86	9	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
62	t1R	03/08/25	20:01	Xe	24.8	3197	37.9	286	1.23E+04	9.54E+04	5.79E+01	9.54E+04	0.368	0.00E+00	OUT	8	0	20	1.18	81	14	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
63	t1S	03/08/25	20:01	Xe	24.8	3197	37.9	286	1.20E+04	9.51E+04	5.77E+01	9.51E+04	0.364	0.00E+00	OUT	8	0	20	1.2	84	11	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
64	t1T	03/08/25	20:02	Xe	24.8	3197	37.9	286	1.21E+04	9.52E+04	5.78E+01	9.52E+04	0.366	0.00E+00	OUT	8	0	20	1.2	86	9	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
65	t1U	03/08/25	20:02	Xe	24.8	3197	37.9	286	1.19E+04	1.05E+05	6.36E+01	1.05E+05	0.33	0.00E+00	OUT	9	0	20	1.23	85	10	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
66	t1V	03/08/25	20:04	Xe	24.8	3197	37.9	286	1.26E+04	1.04E+05	6.30E+01	1.04E+05	0.343	0.00E+00	OUT	8	0	20	1.4	88	6	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
67	t1W	03/08/25	20:04	Xe	24.8	3197	37.9	286	1.21E+04	1.01E+05	6.12E+01	1.01E+05	0.346	0.00E+00	OUT	8	0	20	1.36	89	5	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
68	t1X	03/08/25	20:07	Xe	24.8	3197	37.9	286	1.09E+04	9.67E+04	5.87E+01	9.67E+04	0.341	0.00E+00	OUT	9	0	20	1.28	91	6	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
69	t1Y	03/08/25	20:07	Xe	24.8	3197	37.9	286	1.11E+04	9.94E+04	6.03E+01	9.94E+04	0.335	0.00E+00	OUT	9	0	20	1.27	91	5	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
70	t1Z	03/08/25	20:08	Xe	24.8	3197	37.9	286	1.05E+04	1.00E+05	6.09E+01	1.00E+05	0.323	0.00E+00	OUT	10	0	20	1.27	90	5	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
71	t20	03/08/25	20:08	Xe	24.8	3197	37.9	286	1.17E+04	1.00E+05	6.07E+01	1.00E+05	0.342	0.00E+00	OUT	9	0	20	1.39	88	6	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
72	t21	03/08/25	20:10	Xe	24.8	3197	37.9	286	1.37E+04	9.78E+04	5.94E+01	9.78E+04	0.379	0.00E+00	OUT	7	0	20	1.4	89	6	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
73	t22	03/08/25	20:20	Xe	24.8	3197	37.9	286	1.18E+04	1.01E+05	6.13E+01	1.01E+05	0.34	0.00E+00	OUT	9	0	20	1.37	89	6	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.

Run	Ext	Date	Time	Beam	MeV/u	Energy	LET	Range	<Flux>	Fluence	Dose	E-fluen	%err	Al(um)	USD	Live	Dead	BID	Gain	Unif	Shft	E-LET	E-range	Board	DUT	X(in)	Y(in)	Z(in)	T(deg)	U(in)	V(in)	R(deg)	S	V1	V2	V3	V4	V5	V6	Layers-file	Comments
#						*MeV*	*MeV.cm2/mg*	*µm*	*#/cm2/sec*	*#/cm2*	*RAD(Si)*	*RAD(Si)*																													
74	t23	03/08/25	20:21	Xe	24.8	3197	37.9	286	1.15E+04	1.04E+05	6.34E+01	1.04E+05	0.325	0.00E+00	OUT	9	0	20	1.36	91	4	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
75	t24	03/08/25	20:21	Xe	24.8	3197	37.9	286	1.18E+04	9.98E+04	6.06E+01	9.98E+04	0.344	0.00E+00	OUT	8	0	20	1.36	90	5	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
76	t25	03/08/25	20:22	Xe	24.8	3197	37.9	286	1.20E+04	1.03E+05	6.22E+01	1.03E+05	0.337	0.00E+00	OUT	9	0	20	1.37	91	4	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
77	t26	03/08/25	20:22	Xe	24.8	3197	37.9	286	1.21E+04	1.03E+05	6.24E+01	1.03E+05	0.338	0.00E+00	OUT	9	0	20	1.37	92	4	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
78	t27	03/08/25	20:23	Xe	24.8	3197	37.9	286	1.24E+04	7.94E+04	4.82E+01	7.94E+04	0.444	0.00E+00	OUT	6	0	20	1.4	89	5	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
79	t28	03/08/25	20:43	Xe	24.8	3197	37.9	286	1.25E+04	9.89E+04	6.01E+01	9.89E+04	0.358	0.00E+00	OUT	8	0	20	1.42	91	1	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
80	t29	03/08/25	20:43	Xe	24.8	3197	37.9	286	1.28E+04	9.34E+04	5.67E+01	9.34E+04	0.382	0.00E+00	OUT	7	0	20	1.44	92	1	37.9	286	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
81	t2A	03/08/25	20:44	Xe	24.8	3197	37.9	286	1.32E+04	1.06E+05	6.42E+01	1.06E+05	0.344	0.00E+00	OUT	8	0	20	1.45	92	0	37.9	286	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
82	t2B	03/08/25	20:47	Xe	24.8	3197	37.9	286	1.34E+04	9.54E+04	5.80E+01	9.54E+04	0.384	0.00E+00	OUT	7	0	20	1.46	91	1	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
83	t2C	03/08/25	20:48	Xe	24.8	3197	37.9	286	1.34E+04	1.04E+05	6.31E+01	1.04E+05	0.352	0.00E+00	OUT	8	0	20	1.46	91	1	37.9	286	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
84	t2D	03/08/25	20:49	Xe	24.8	3197	37.9	286	1.29E+04	9.44E+04	5.73E+01	9.44E+04	0.381	0.00E+00	OUT	7	0	20	1.44	91	1	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
85	t2E	03/08/25	20:49	Xe	24.8	3197	37.9	286	1.29E+04	9.95E+04	6.04E+01	9.95E+04	0.361	0.00E+00	OUT	8	0	20	1.45	91	1	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
86	t2F	03/08/25	20:50	Xe	24.8	3197	37.9	286	1.29E+04	9.77E+04	5.93E+01	9.77E+04	0.368	0.00E+00	OUT	8	0	20	1.45	92	1	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
87	t2G	03/08/25	20:50	Xe	24.8	3197	37.9	286	1.46E+04	1.00E+05	6.09E+01	1.00E+05	0.382	0.00E+00	OUT	7	0	20	1.44	92	1	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
88	t2H	03/08/25	20:50	Xe	24.8	3197	37.9	286	1.27E+04	1.02E+05	6.22E+01	1.02E+05	0.348	0.00E+00	OUT	8	0	20	1.44	92	2	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
89	t2I	03/08/25	20:51	Xe	24.8	3197	37.9	286	1.28E+04	1.06E+05	6.43E+01	1.06E+05	0.338	0.00E+00	OUT	8	0	20	1.47	90	2	37.9	286	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	-0.101	0	326	320	309	317	220	0	Nolayers.lay	None.
90	t2J	03/08/25	21:35	Xe	24.8	2861	40	249	1.10E+04	9.93E+04	6.36E+01	9.93E+04	34E-01	3.00E+00	OUT	9	0	20	1.47	87	3	40	249	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
91	t2K	03/08/25	21:35	Xe	24.8	2861	40	249	1.12E+04	1.02E+05	6.54E+01	1.02E+05	28E-01	3.00E+00	OUT	9	0	20	1.47	87	4	40	249	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
92	t2L	03/08/25	21:36	Xe	24.8	2861	40	249	1.16E+04	9.51E+04	6.10E+01	9.51E+04	58E-01	3.00E+00	OUT	8	0	20	1.51	87	3	40	249	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
93	t2M	03/08/25	21:36	Xe	24.8	2861	40	249	1.14E+04	1.04E+05	6.65E+01	1.04E+05	26E-01	3.00E+00	OUT	9	0	20	1.51	87	4	40	249	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
94	t2N	03/08/25	21:36	Xe	24.8	2861	40	249	1.15E+04	1.01E+05	6.46E+01	1.01E+05	36E-01	3.00E+00	OUT	9	0	20	1.53	87	4	40	249	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
95	t2O	03/08/25	21:37	Xe	24.8	2861	40	249	1.14E+04	9.49E+04	6.08E+01	9.49E+04	56E-01	3.00E+00	OUT	8	0	20	1.53	87	3	40	249	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
96	t2P	03/08/25	21:37	Xe	24.8	2861	40	249	1.15E+04	9.94E+04	6.37E+01	9.94E+04	41E-01	3.00E+00	OUT	9	0	20	1.53	88	3	40	249	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
97	t2Q	03/08/25	21:37	Xe	24.8	2861	40	249	1.13E+04	1.06E+05	6.80E+01	1.06E+05	17E-01	3.00E+00	OUT	9	0	20	1.5	86	4	40	249	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
98	t2R	03/08/25	21:39	Xe	24.8	2861	40	249	1.19E+04	1.02E+05	6.51E+01	1.02E+05	40E-01	3.00E+00	OUT	9	0	20	1.5	87	3	40	249	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
99	t2S	03/08/25	21:39	Xe	24.8	2861	40	249	1.16E+04	9.96E+04	6.38E+01	9.96E+04	41E-01	3.00E+00	OUT	9	0	20	1.5	86	4	40	249	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
100	t2T	03/08/25	21:40	Xe	24.8	2861	40	249	1.17E+04	1.05E+05	6.72E+01	1.05E+05	26E-01	3.00E+00	OUT	9	0	20	1.5	87	3	40	249	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
101	t2U	03/08/25	21:41	Xe	24.8	2861	40	249	1.23E+04	9.46E+04	6.06E+01	9.46E+04	71E-01	3.00E+00	OUT	8	0	20	1.5	88	4	40	249	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
102	t2V	03/08/25	21:41	Xe	24.8	2861	40	249	1.26E+04	1.01E+05	6.45E+01	1.01E+05	53E-01	3.00E+00	OUT	8	0	20	1.5	88	5	40	249	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
103	t2W	03/08/25	21:41	Xe	24.8	2861	40	249	1.10E+04	6.00E+04	3.85E+01	6.00E+04	54E-01	3.00E+00	OUT	5	6	20	1.5	88	2	40	249	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
103	t2X	03/08/25	21:43	Xe	24.8	2861	40	249	1.14E+04	9.80E+04	6.28E+01	9.80E+04	45E-01	3.00E+00	OUT	9	0	20	1.39	91	2	40	249	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
104	t2Y	03/08/25	21:44	Xe	24.8	2861	40	249	1.12E+04	9.76E+04	6.25E+01	9.76E+04	43E-01	3.00E+00	OUT	9	0	20	1.39	86	7	40	249	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
105	t2Z	03/08/25	21:44	Xe	24.8	2861	40	249	1.09E+04	9.97E+04	6.39E+01	9.97E+04	31E-01	3.00E+00	OUT	9	0	20	1.39	87	5	40	249	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
106	t30	03/08/25	21:44	Xe	24.8	2861	40	249	1.18E+04	9.71E+04	6.22E+01	9.71E+04	54E-01	3.00E+00	OUT	8	0	20	1.46	87	6	40	249	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
107	t31	03/08/25	21:45	Xe	24.8	2861	40	249	1.15E+04	9.89E+04	6.34E+01	9.89E+04	43E-01	3.00E+00	OUT	9	0	20	1.46	87	5	40	249	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
108	t32	03/08/25	21:45	Xe	24.8	2861	40	249	1.15E+04	9.86E+04	6.32E+01	9.86E+04	44E-01	3.00E+00	OUT	9	0	20	1.46	87	5	40	249	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
109	t33	03/08/25	21:46	Xe	24.8	2861	40	249	1.18E+04	9.68E+04	6.20E+01	9.68E+04	55E-01	3.00E+00	OUT	8	0	20	1.49	87	5	40	249	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
110	t34	03/08/25	21:46	Xe	24.8	2861	40	249	1.19E+04	3.37E+04	2.16E+01	3.37E+04	02E+00	3.00E+00	OUT	3	0	20	1.49	89	4	40	249	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
111	t35	03/08/25	22:17	Xe	24.8	2861	40	249	1.14E+04	9.93E+04	6.36E+01	9.93E+04	40E-01	3.00E+00	OUT	9	0	20	1.51	86	6	40	249	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
112	t36	03/08/25	22:17	Xe	24.8	2861	40	249	1.12E+04	9.88E+04	6.33E+01	9.88E+04	39E-01	3.00E+00	OUT	9	0	20	1.51	87	5	40	249	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
113	t37	03/08/25	22:17	Xe	24.8	2861	40	249	1.13E+04	1.50E+04	9.64E+00	1.50E+04	23E+00	3.00E+00	OUT	1	0	20	1.51	88	6	40	249	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
114	t38	03/08/25	22:19	Xe	24.8	2861	40	249	1.10E+04	1.02E+05	6.55E+01	1.02E+05	24E-01	3.00E+00	OUT	9	0	20	1.51	86	5	40	249	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
115	t39	03/08/25	22:20	Xe	24.8	2861	40	249	1.13E+04	1.01E+05	6.47E+01	1.01E+05	33E-01	3.00E+00	OUT	9	0	20	1.51	86	5	40	249	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
116	t3A	03/08/25	22:20	Xe	24.8	2861	40	249	1.12E+04	9.66E+04	6.19E+01	9.66E+04	47E-01	3.00E+00	OUT	9	0	20	1.51	86	6	40	249	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
117	t3B	03/08/25	22:21	Xe	24.8	2861	40	249	1.08E+04	9.92E+04	6.36E+01	9.92E+04	31E-01	3.00E+00	OUT	9	0	20	1.51	86	6	40	249	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
118	t3C	03/08/25	22:22	Xe	24.8	2861	40	249	1.10E+04	1.02E+05	6.54E+01	1.02E+05	26E-01	3.00E+00	OUT	9	0	20	1.51	88	4	40	249	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
119	t3D	03/08/25	22:22	Xe	24.8	2861	40	249	1.06E+04	9.85E+04	6.31E+01	9.85E+04	30E-01	3.00E+00	OUT	9	0	20	1.51	87	6	40	249	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
120	t3E	03/08/25	22:23	Xe	24.8	2861	40	249	1.18E+04	1.05E+05	6.73E+01	1.05E+05	27E-01	3.00E+00	OUT	9	0	20	1.5	89	3	40	249	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
121	t3F	03/08/25	22:23	Xe	24.8	2861	40	249	1.22E+04	9.67E+04	6.20E+01	9.67E+04	61E-01	3.00E+00	OUT	8	0	20	1.48	89	3	40	249	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
122	t3G	03/08/25	22:23	Xe	24.8	2861	40	249	1.23E+04	9.48E+04	6.08E+01	9.48E+04	70E-01	3.00E+00	OUT	8	0	20	1.48	91	2	40	249	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
123	t3H	03/08/25	22:26	Xe	24.8	2861	40	249	1.06E+04	9.73E+04	6.23E+01	9.73E+04	34E-01	3.00E+00	OUT	9	0	20	1.47	87	4	40	249	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
124	t3I	03/08/25	22:27	Xe	24.8	2861	40	249	1.04E+04	1.03E+05	6.58E+01	1.03E+05	14E-01	3.00E+00	OUT	10	0	20	1.48	87	4	40	249	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
125	t3J	03/08/25	22:27	Xe	24.8	2861	40	249	1.04E+04	9.57E+04	6.13E+01	9.57E+04	37E-01	3.00E+00	OUT	9	0	20	1.48	88	4	40	249	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
126	t3K	03/08/25	22:28	Xe	24.8	2861	40	249	1.04E+04	9.54E+04	6.11E+01	9.54E+04	38E-01	3.00E+00	OUT	9	0	20	1.47	88	4	40	249	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
127	t3L	03/08/25	22:47	Xe	24.8	2861	40	249	9.99E+03	1.01E+05	6.48E+01	1.01E+05	12E-01	3.00E+00	OUT	10	0	20	1.46	87	5	40	249	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
128	t3M	03/08/25	22:47	Xe	24.8	2861	40	249	9.91E+03	9.96E+04	6.38E+01	9.96E+04	16E-01	3.00E+00	OUT	10	0	20	1.46	86	6	40	249	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
129	t3N	03/08/25	22:48	Xe	24.8	2861	40	249	9.87E+03	1.05E+05	6.70E+01	1.05E+05	01E-01	3.00E+00	OUT	11	0	20	1.46	87	5	40	249	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
130	t3O	03/08/25	22:49	Xe	24.8	2861	40	249	9.95E+03	9.74E+04	6.24E+01	9.74E+04	24E-01	3.00E+00	OUT	10	0	20	1.46	86	5	40	249	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
131	t3P	03/08/25	22:50	Xe	24.8	2861	40	249	9.66E+03	1.02E+05	6.55E+01	1.02E+05	04E-01	3.00E+00	OUT	11	0	20	1.46	87	4	40	249	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
132	t3Q	03/08/25	22:50	Xe	24.8	2861	40	249	9.88E+03	1.01E+05	6.45E+01	1.01E+05	12E-01	3.00E+00	OUT	10	0	20	1.48	88	4	40	249	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
133	t3R	03/08/25	22:53	Xe	24.8	2861	40	249	9.80E+03	9.75E+04	6.25E+01	9.75E+04	21E-01	3.00E+00	OUT	10	0	20	1.49	86	4	40	249	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
134	t3S	03/08/25	22:53	Xe	24.8	2861	40	249	1.00E+04	9.52E+04	6.10E+01	9.52E+04	32E-01	3.00E+00	OUT	10	0	20	1.49	86	4	40	249	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
135	t3T	03/08/25	22:56	Xe	24.8	2861	40	249	9.31E+03	1.01E+05	6.49E+01	1.01E+05	01E-01	3.00E+00	OUT	11	0	20	1.45	87	4	40	249	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
136	t3U	03/08/25	22:57	Xe	24.8	2861	40	249	9.17E+03	9.83E+04	6.30E+01	9.83E+04	08E-01	3.00E+00	OUT	11	0	20	1.45	87	4	40	249	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
137	t3V	03/08/25	23:22	Xe	24.8	2861	40	249	9.71E+03	6.38E+04	4.09E+01	6.38E+04	89E-01	3.00E+00	OUT	7	0	20	1.46	89	4	40	249	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
138	t3W	03/08/25	23:24	Xe	24.8	2861	40	249	9.81E+03	9.59E+04	6.15E+01	9.59E+04	26E-01	3.00E+00	OUT	10	0	20	1.51	87	4	40	249	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
139	t3X	03/08/25	23:24	Xe	24.8	2861	40	249	9.50E+03	9.97E+04	6.39E+01	9.97E+04	09E-01	3.00E+00	OUT	11	0	20	1.49	88	4	40	249	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
140	t3Y	03/08/25	23:25	Xe	24.8	2861	40	249	9.08E+03	1.02E+05	6.51E+01	1.02E+05	97E-01	3.00E+00	OUT	11	0	20	1.49	87	4	40	249	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
141	t3Z	03/08/25	23:25	Xe	24.8	2861	40	249	9.08E+03	9.54E+04	6.12E+01	9.54E+04	16E-01	3.00E+00	OUT	11	0	20	1.49	87	4	40	249	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	57.705	1	326	320	309	317	247	0	Nolayers.lay	None.
142	t40	03/08/25	23:36	Xe	24.8	2441	43	205	8.77E+03	1.02E+05	7.00E+01	1.02E+05	92E-01	2.00E+00	OUT	12	0	20	1.49	88	3	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
143	t41	03/08/25	23:36	Xe	24.8	2441	43	205	8.79E+03	1.04E+05	7.17E+01	1.04E+05	85E-01	2.00E+00	OUT	12	0	20	1.49	87	4	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
144	t42	03/08/25	23:37	Xe	24.8	2441	43	205	8.67E+03	1.02E+05	7.03E+01	1.02E+05	89E-01	2.00E+00	OUT	12	0	20	1.49	88	3	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
145	t43	03/08/25	23:37	Xe	24.8	2441	43	205	8.78E+03	1.02E+05	7.06E+01	1.02E+05	89E-01	2.00E+00	OUT	12	0	20	1.47	87	4	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
146	t44	03/08/25	23:38	Xe	24.8	2441	43	205	8.81E+03	9.86E+04	6.79E+01	9.86E+04	01E-01	2.00E+00	OUT	11	0	20	1.47	88	4	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
147	t45	03/08/25	23:38	Xe	24.8	2441	43	205	8.84E+03	1.03E+05	7.09E+01	1.03E+05	89E-01	2.00E+00	OUT	12	0	20	1.47	87	4	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
148	t46	03/08/25	23:39	Xe	24.8	2441	43	205	8.49E+03	9.85E+04	6.79E+01	9.85E+04	96E-01	2.00E+00	OUT	12	0	20	1.45	88	3	43	205	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
149	t47	03/08/25	23:41	Xe	24.8	2441	43	205	8.59E+03	1.03E+05	7.10E+01	1.03E+05	84E-01	2.00E+00	OUT	12	0	20	1.49	88	2	43	205	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
150	t48	03/08/25	23:41	Xe	24.8	2441	43	205	8.80E+03	1.00E+05	6.91E+01	1.00E+05	96E-01	2.00E+00	OUT	11	0	20	1.49	88	3	43	205	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
151	t49	03/08/26	0:05	Xe	24.8	2441	43	205	7.53E+03	1.00E+05	6.91E+01	1.00E+05	73E-01	2.00E+00	OUT	13	0	20	1.47	89	4	43	205	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
152	t4A	03/08/26	0:06	Xe	24.8	2441	43	205	8.00E+03	9.90E+04	6.82E+01	9.90E+04	86E-01	2.00E+00	OUT	12	0	20	1.47	88	4	43	205	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.

Run	Ext	Date	Time	Beam	MeV/u	Energy	LET	Range	<Flux>	Fluence	Dose	E-fluen	%err	Al(um)	USD	Live	Dead	BID	Gain	Unif	Shft	E-LET	E-range	Board	DUT	X(in)	Y(in)	Z(in)	T(deg)	U(in)	V(in)	R(deg)	S	V1	V2	V3	V4	V5	V6	Layers-file	Comments
#						*MeV*	*MeV.cm2/mg*	*μm*	*#/cm2/sec*	*#/cm2*	*RAD(Si)*	*RAD(Si)*																													
153	t4B	03/08/26	0:07	Xe	24.8	2441	43	205	8.24E+03	1.04E+05	7.16E+01	1.04E+05	76E-01	2.00E+00	OUT	13	0	20	1.47	88	3	43	205	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
154	t4C	03/08/26	0:07	Xe	24.8	2441	43	205	7.67E+03	1.01E+05	6.97E+01	1.01E+05	74E-01	2.00E+00	OUT	13	0	20	1.45	87	3	43	205	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
155	t4D	03/08/26	0:09	Xe	24.8	2441	43	205	8.30E+03	9.84E+04	6.78E+01	9.84E+04	93E-01	2.00E+00	OUT	12	0	20	1.45	89	3	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
156	t4E	03/08/26	0:10	Xe	24.8	2441	43	205	8.67E+03	9.72E+04	6.69E+01	9.72E+04	03E-01	2.00E+00	OUT	11	0	20	1.47	90	3	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
157	t4F	03/08/26	0:10	Xe	24.8	2441	43	205	8.49E+03	1.03E+05	7.07E+01	1.03E+05	84E-01	2.00E+00	OUT	12	0	20	1.47	88	3	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
158	t4G	03/08/26	0:10	Xe	24.8	2441	43	205	8.82E+03	9.61E+04	6.62E+01	9.61E+04	09E-01	2.00E+00	OUT	11	0	20	1.47	88	4	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
159	t4H	03/08/26	0:11	Xe	24.8	2441	43	205	1.05E+04	1.01E+05	6.98E+01	1.01E+05	19E-01	2.00E+00	OUT	10	0	20	1.47	85	9	43	205	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
160	t4I	03/08/26	0:12	Xe	24.8	2441	43	205	1.05E+04	9.80E+04	6.75E+01	9.80E+04	31E-01	2.00E+00	OUT	9	0	20	1.47	87	8	43	205	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
161	t4J	03/08/26	0:12	Xe	24.8	2441	43	205	1.04E+04	9.96E+04	6.86E+01	9.96E+04	25E-01	2.00E+00	OUT	10	0	20	1.47	86	8	43	205	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
162	t4K	03/08/26	0:12	Xe	24.8	2441	43	205	9.90E+03	1.05E+05	7.24E+01	1.05E+05	99E-01	2.00E+00	OUT	11	0	20	1.4	85	9	43	205	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
163	t4L	03/08/26	0:30	Xe	24.8	2441	43	205	1.05E+04	9.76E+04	6.72E+01	9.76E+04	31E-01	2.00E+00	OUT	9	0	20	1.32	88	3	43	205	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
164	t4M	03/08/26	0:31	Xe	24.8	2441	43	205	1.07E+04	9.79E+04	6.74E+01	9.79E+04	34E-01	2.00E+00	OUT	9	0	20	1.33	88	2	43	205	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
165	t4N	03/08/26	0:31	Xe	24.8	2441	43	205	1.04E+04	9.57E+04	6.59E+01	9.57E+04	37E-01	2.00E+00	OUT	9	0	20	1.33	87	3	43	205	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
166	t4O	03/08/26	0:32	Xe	24.8	2441	43	205	1.06E+04	1.01E+05	6.93E+01	1.01E+05	24E-01	2.00E+00	OUT	9	0	20	1.34	89	4	43	205	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
167	t4P	03/08/26	0:33	Xe	24.8	2441	43	205	1.04E+04	9.90E+04	6.82E+01	9.90E+04	26E-01	2.00E+00	OUT	9	0	20	1.34	89	2	43	205	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
168	t4Q	03/08/26	0:33	Xe	24.8	2441	43	205	9.87E+03	1.03E+05	7.09E+01	1.03E+05	05E-01	2.00E+00	OUT	10	0	20	1.34	89	2	43	205	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
169	t4R	03/08/26	0:33	Xe	24.8	2441	43	205	1.03E+04	1.00E+05	6.91E+01	1.00E+05	20E-01	2.00E+00	OUT	10	0	20	1.34	89	3	43	205	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
170	t4S	03/08/26	0:34	Xe	24.8	2441	43	205	1.06E+04	9.66E+04	6.66E+01	9.66E+04	36E-01	2.00E+00	OUT	9	0	20	1.37	88	2	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
171	t4T	03/08/26	0:35	Xe	24.8	2441	43	205	1.03E+04	1.02E+05	7.04E+01	1.02E+05	14E-01	2.00E+00	OUT	10	0	20	1.32	89	1	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
172	t4U	03/08/26	0:36	Xe	24.8	2441	43	205	1.00E+04	9.95E+04	6.86E+01	9.95E+04	18E-01	2.00E+00	OUT	10	0	20	1.32	88	3	43	205	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
173	t4V	03/08/26	0:37	Xe	24.8	2441	43	205	1.02E+04	1.03E+05	7.09E+01	1.03E+05	10E-01	2.00E+00	OUT	10	0	20	1.32	89	3	43	205	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
174	t4W	03/08/26	0:37	Xe	24.8	2441	43	205	1.02E+04	1.01E+05	6.96E+01	1.01E+05	16E-01	2.00E+00	OUT	10	0	20	1.32	89	2	43	205	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
175	t4X	03/08/26	0:57	Xe	24.8	2441	43	205	1.44E+04	9.96E+04	6.86E+01	9.96E+04	81E-01	2.00E+00	OUT	7	0	20	1.93	88	4	43	205	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
176	t4Y	03/08/26	0:57	Xe	24.8	2441	43	205	1.04E+04	1.01E+05	6.98E+01	1.01E+05	19E-01	2.00E+00	OUT	10	0	20	1.37	88	4	43	205	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
177	t4Z	03/08/26	0:58	Xe	24.8	2441	43	205	1.03E+04	9.88E+04	6.81E+01	9.88E+04	25E-01	2.00E+00	OUT	10	0	20	1.37	89	4	43	205	Current	SOCKET 1	-0.312	1.971	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
178	t50	03/08/26	0:59	Xe	24.8	2441	43	205	1.04E+04	9.79E+04	6.74E+01	9.79E+04	29E-01	2.00E+00	OUT	9	0	20	1.37	88	4	43	205	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
179	t51	03/08/26	1:00	Xe	24.8	2441	43	205	1.04E+04	9.91E+04	6.83E+01	9.91E+04	26E-01	2.00E+00	OUT	10	0	20	1.37	87	4	43	205	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
180	t52	03/08/26	1:00	Xe	24.8	2441	43	205	9.84E+03	9.63E+04	6.63E+01	9.63E+04	26E-01	2.00E+00	OUT	10	0	20	1.34	88	4	43	205	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
181	t53	03/08/26	1:00	Xe	24.8	2441	43	205	1.01E+04	9.67E+04	6.66E+01	9.67E+04	29E-01	2.00E+00	OUT	10	0	20	1.34	89	4	43	205	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
182	t54	03/08/26	1:01	Xe	24.8	2441	43	205	1.04E+04	2.21E+04	1.53E+01	2.21E+04	45E+00	2.00E+00	OUT	2	0	20	1.34	87	4	43	205	Current	SOCKET 2	-0.312	0.583	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
183	t55	03/08/26	1:02	Xe	24.8	2441	43	205	1.00E+04	9.69E+04	6.68E+01	9.69E+04	27E-01	2.00E+00	OUT	10	0	20	1.34	87	5	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
184	t56	03/08/26	1:02	Xe	24.8	2441	43	205	1.02E+04	1.04E+05	7.16E+01	1.04E+05	07E-01	2.00E+00	OUT	10	0	20	1.34	88	4	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
185	t57	03/08/26	1:03	Xe	24.8	2441	43	205	1.05E+04	9.68E+04	6.67E+01	9.68E+04	34E-01	2.00E+00	OUT	9	0	20	1.36	88	3	43	205	Current	SOCKET 3	-0.312	-0.744	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
186	t58	03/08/26	1:04	Xe	24.8	2441	43	205	1.01E+04	1.00E+05	6.89E+01	1.00E+05	18E-01	2.00E+00	OUT	10	0	20	1.34	89	3	43	205	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
187	t59	03/08/26	1:05	Xe	24.8	2441	43	205	1.01E+04	9.67E+04	6.66E+01	9.67E+04	29E-01	2.00E+00	OUT	10	0	20	1.34	88	3	43	205	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
188	t5A	03/08/26	1:05	Xe	24.8	2441	43	205	1.04E+04	1.01E+05	6.96E+01	1.01E+05	20E-01	2.00E+00	OUT	10	0	20	1.34	88	4	43	205	Current	SOCKET 4	-0.312	-1.951	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
189	t5B	03/08/26	3:57	Xe	24.8	2441	43	205	8.07E+03	1.00E+05	6.90E+01	1.00E+05	84E-01	2.00E+00	OUT	12	0	20	1.43	81	14	43	205	Current	SOCKET 1	-4.249	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
190	t5C	03/08/26	3:57	Xe	24.8	2441	43	205	7.78E+03	9.65E+04	6.65E+01	9.65E+04	89E-01	2.00E+00	OUT	12	0	20	1.43	81	14	43	205	Current	SOCKET 1	-4.249	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
191	t5D	03/08/26	3:57	Xe	24.8	2441	43	205	7.77E+03	7.43E+04	5.12E+01	7.43E+04	75E-01	2.00E+00	OUT	10	0	20	1.43	81	13	43	205	Current	SOCKET 1	-4.249	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
192	t5E	03/08/26	3:59	Xe	24.8	2441	43	205	7.72E+03	9.83E+04	6.77E+01	9.83E+04	83E-01	2.00E+00	OUT	13	0	20	1.41	80	14	43	205	Current	SOCKET 2	-2.463	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
193	t5F	03/08/26	4:00	Xe	24.8	2441	43	205	8.14E+03	9.95E+04	6.86E+01	9.95E+04	87E-01	2.00E+00	OUT	12	0	20	1.41	81	13	43	205	Current	SOCKET 2	-2.463	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
194	t5G	03/08/26	4:00	Xe	24.8	2441	43	205	7.98E+03	9.85E+04	6.78E+01	9.85E+04	87E-01	2.00E+00	OUT	12	0	20	1.4	81	14	43	205	Current	SOCKET 2	-2.463	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
195	t5H	03/08/26	4:02	Xe	24.8	2441	43	205	8.40E+03	1.57E+04	1.08E+01	1.57E+04	35E+00	2.00E+00	OUT	2	0	20	1.45	82	10	43	205	Current	SOCKET 2	-2.463	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
196	t5I	03/08/26	4:03	Xe	24.8	2441	43	205	8.25E+03	8.53E+03	5.88E+00	8.53E+03	37E+00	2.00E+00	OUT	1	0	20	1.43	82	12	43	205	Current	SOCKET 3	-0.796	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
197	t5J	03/08/26	4:05	Xe	24.8	2441	43	205	8.29E+03	8.84E+03	6.09E+00	8.84E+03	26E+00	2.00E+00	OUT	1	0	20	1.43	80	11	43	205	Current	SOCKET 4	0.894	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
198	t5K	03/08/26	4:06	Xe	24.8	2441	43	205	8.24E+03	1.01E+05	6.96E+01	1.01E+05	84E-01	2.00E+00	OUT	12	0	20	1.4	82	11	43	205	Current	SOCKET 5	2.728	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
199	t5L	03/08/26	4:06	Xe	24.8	2441	43	205	8.52E+03	9.71E+04	6.69E+01	9.71E+04	01E-01	2.00E+00	OUT	11	0	20	1.4	81	12	43	205	Current	SOCKET 5	2.728	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
200	t5M	03/08/26	4:07	Xe	24.8	2441	43	205	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0E+00	2.00E+00	OUT	0	28	20	1.4	0	0	43	205	Current	SOCKET 5	2.728	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
200	t5N	03/08/26	4:11	Xe	24.8	2441	43	205	7.63E+03	9.70E+04	6.68E+01	9.70E+04	85E-01	2.00E+00	OUT	13	0	20	1.39	85	5	43	205	Current	SOCKET 5	2.728	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
201	t5O	03/08/26	4:12	Xe	24.8	2441	43	205	7.77E+03	9.79E+04	6.74E+01	9.79E+04	85E-01	2.00E+00	OUT	13	0	20	1.39	85	6	43	205	Current	SOCKET 5	2.728	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
202	t5P	03/08/26	4:12	Xe	24.8	2441	43	205	8.01E+03	9.90E+04	6.82E+01	9.90E+04	86E-01	2.00E+00	OUT	12	0	20	1.39	85	6	43	205	Current	SOCKET 5	2.728	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
203	t5Q	03/08/26	4:19	Xe	24.8	2441	43	205	8.16E+03	1.67E+04	1.15E+01	1.67E+04	71E+00	2.00E+00	OUT	2	0	20	1.4	84	10	43	205	Current	SOCKET 6	4.465	-2.256	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
204	t5R	03/08/26	4:20	Xe	24.8	2441	43	205	8.17E+03	1.01E+05	6.98E+01	1.01E+05	82E-01	2.00E+00	OUT	12	0	20	1.4	84	8	43	205	Current	SOCKET 7	-4.266	-0.111	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
205	t5S	03/08/26	4:21	Xe	24.8	2441	43	205	7.85E+03	1.01E+05	6.99E+01	1.01E+05	76E-01	2.00E+00	OUT	13	0	20	1.4	85	9	43	205	Current	SOCKET 7	-4.266	-0.111	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
206	t5T	03/08/26	4:21	Xe	24.8	2441	43	205	7.62E+03	4.18E+04	2.88E+01	4.18E+04	61E-01	2.00E+00	OUT	5	0	20	1.4	85	9	43	205	Current	SOCKET 7	-4.266	-0.111	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
207	t5U	03/08/26	4:23	Xe	24.8	2441	43	205	8.81E+03	7.99E+04	5.51E+01	7.99E+04	71E-01	2.00E+00	OUT	9	0	20	1.4	85	8	43	205	Current	SOCKET 1	-4.266	2.101	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
208	t5V	03/08/26	4:25	Xe	24.8	2441	43	205	9.15E+03	2.59E+03	1.79E+00	2.59E+03	17E+01	2.00E+00	OUT	0	0	20	1.4	84	10	43	205	Current	SOCKET 1	-2.628	2.142	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
208	t5W	03/08/26	4:27	Xe	24.8	2441	43	205	8.39E+03	9.60E+04	6.62E+01	9.60E+04	02E-01	2.00E+00	OUT	11	0	20	1.4	86	6	43	205	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
209	t5X	03/08/26	4:27	Xe	24.8	2441	43	205	8.89E+03	9.67E+04	6.66E+01	9.67E+04	08E-01	2.00E+00	OUT	11	0	20	1.45	86	5	43	205	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
210	t5Y	03/08/26	4:27	Xe	24.8	2441	43	205	8.83E+03	1.03E+05	7.06E+01	1.03E+05	90E-01	2.00E+00	OUT	12	0	20	1.46	87	6	43	205	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
211	t5Z	03/08/26	4:28	Xe	24.8	2441	43	205	8.84E+03	1.01E+05	6.98E+01	1.01E+05	93E-01	2.00E+00	OUT	11	0	20	1.46	86	5	43	205	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
212	t60	03/08/26	4:29	Xe	24.8	2441	43	205	8.65E+03	9.83E+04	6.77E+01	9.83E+04	99E-01	2.00E+00	OUT	11	0	20	1.47	86	4	43	205	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
213	t61	03/08/26	4:29	Xe	24.8	2441	43	205	8.66E+03	1.02E+05	7.02E+01	1.02E+05	89E-01	2.00E+00	OUT	12	0	20	1.47	87	5	43	205	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
214	t62	03/08/26	4:30	Xe	24.8	2441	43	205	9.07E+03	1.02E+05	7.05E+01	1.02E+05	94E-01	2.00E+00	OUT	11	0	20	1.46	87	5	43	205	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
215	t63	03/08/26	4:31	Xe	24.8	2441	43	205	9.05E+03	1.01E+05	6.93E+01	1.01E+05	99E-01	2.00E+00	OUT	11	0	20	1.46	86	5	43	205	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
216	t64	03/08/26	4:31	Xe	24.8	2441	43	205	8.61E+03	1.00E+05	6.89E+01	1.00E+05	93E-01	2.00E+00	OUT	12	0	20	1.45	88	5	43	205	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
217	t65	03/08/26	4:32	Xe	24.8	2441	43	205	8.73E+03	9.70E+04	6.68E+01	9.70E+04	05E-01	2.00E+00	OUT	11	0	20	1.48	86	5	43	205	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
218	t66	03/08/26	4:32	Xe	24.8	2441	43	205	8.61E+03	1.01E+05	6.96E+01	1.01E+05	91E-01	2.00E+00	OUT	12	0	20	1.45	88	5	43	205	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
219	t67	03/08/26	4:33	Xe	24.8	2441	43	205	8.72E+03	1.00E+05	6.92E+01	1.00E+05	94E-01	2.00E+00	OUT	12	0	20	1.45	88	5	43	205	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
220	t68	03/08/26	4:34	Xe	24.8	2441	43	205	8.69E+03	7.03E+04	4.84E+01	7.03E+04	20E-01	2.00E+00	OUT	8	0	20	1.45	88	4	43	205	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	45.434	2	326	320	309	317	292	0	Nolayers.lay	None.
221	t69	03/08/26	4:40	Xe	24.8	825	59	66	8.65E+03	9.73E+04	9.19E+01	9.73E+04	02E-01	9.70E+01	OUT	11	0	20	1.45	87	5	59	66	Current	SOCKET 1	0.984	2.144	0	-0.002	0.432	0.552	39.45	3	326	320	309	317	750	0	Nolayers.lay	None.
222	t6A	03/08/26	4:41	Xe	24.8	825	59	66	2.52E+05	1.26E+05	1.19E+02	1.26E+05	26E+00	9.70E+01	OUT	1	0	20	42.2	87	6	59	66	Current	SOCKET 1	0.984	2.144	0	-0.002	0.432	0.552	39.45	3	326	320	309	317	750	0	Nolayers.lay	None.
223	t6B	03/08/26	4:49	Xe	24.8	825	59	66	7.87E+03	8.28E+04	7.82E+01	8.28E+04	39E-01	9.70E+01	OUT	11	0	20	1.38	86	6	59	66	Current	SOCKET 1	0.984	2.144	0	-0.002	0.432	0.552	39.45	3	326	320	309	317	362	0	Nolayers.lay	None.
224	t6C	03/08/26	4:51	Xe	24.8	825	59	66	7.79E+03	9.95E+04	9.40E+01	9.95E+04	80E-01	9.70E+01	OUT	13	0	20	1.43	86	6	59	66	Current	SOCKET 1	0.984	2.144	0	-0.002	0.432	0.552	39.45	3	326	320	309	317	362	0	Nolayers.lay	None.
224	t6D	03/08/26	4:54	Xe	24.8	825	59	66	7.20E+03	1.04E+05	9.78E+01	1.04E+05	59E-01	9.70E+01	OUT	14	0	20	1.37	86	6	59	66	Current	SOCKET 1	0.984	2.144	0	-0.002	0.432	0.552	39.45	3	326	320	309	317	362	0	Nolayers.lay	None.
225	t6E	03/08/26	4:54	Xe	24.8	825	59	66	7.28E+03	9.97E+04	9.42E+01	9.97E+04	71E-01	9.70E+01	OUT	14	0	20	1.37	85	7	59	66	Current	SOCKET 1	0.984	2.144	0	-0.002	0.432	0.552	39.45	3	326	320	309	317	362	0	Nolayers.lay	None.
226	t6F	03/08/26	4:55	Xe	24.8	825	59	66	4.39E+03	1.53E+04	1.45E+01	1.53E+04	37E+00	9.70E+01	OUT	3	20	20	1.38	88	1	59	66	Current	SOCKET 1	0.984	2.144	0	-0.002	0.432	0.552	39.45	3	326	320	309	317	362	0	Nolayers.lay	None.
226	t6G	03/08/26	4:56	Xe	24.8	825	59	66	7.40E+03	9.87E+04	9.33E+01	9.87E+04	75E-01	9.70E+01	OUT	13	0	20	1.38	86	7	59	66	Current	SOCKET 1	0.984	2.144	0	-0.002	0.432	0.552	39.45	3	326	320	309	317	362	0	Nolayers.lay	None.
227	t6H	03/08/26	6:20	Au	15	1480	90	80	2.39E+03	9.99E+04	1.44E+02	9.99E+04	55E-01	7.00E+00	OUT	42	1	24	0.06	91	3	90	80	Current	SOCKET 1	-4.249	-2.256	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	228	0	Nolayers.lay	None.
228	t6I	03/08/26	6:30	Au	15	1480	90	80	1.85E+04	9.94E+04	1.43E+02	9.94E+04	33E-01	7.00E+00	OUT	5	0	24	1.09	88	7	90	80	Current	SOCKET 1	-4.249	-2.256	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.

Beam	MeV/u	Energy	LET	Range	<Flux>	Fluence	Dose	E-fluen	%err	Al(um)	USD	Live	Dead	BID	Gain	Unif	Shft	E-LET	E-range	Board	DUT	X(in)	Y(in)	Z(in)	T(deg)	U(in)	V(in)	R(deg)	S	V1	V2	V3	V4	V5	V6	Layers-file	Comments
		MeV	*MeV.cm2/mg*	*µm*	*#/cm2/sec*	*#/cm2*	*RAD(Si)*	*RAD(Si)*																													
Au	15	1480	90	80	1.75E+04	1.02E+05	1.47E+02	1.02E+05	11E-01	7.00E+00	OUT	6	0	24	1.06	88	7	90	80	Current	SOCKET 1	-4.249	-2.256	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	1.74E+04	2.09E+04	3.01E+01	2.09E+04	00E+00	7.00E+00	OUT	1	0	24	1.07	91	5	90	80	Current	SOCKET 1	-4.249	-2.256	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	1.54E+04	9.85E+04	1.42E+02	9.85E+04	99E-01	7.00E+00	OUT	6	0	24	1.07	89	6	90	80	Current	SOCKET 2	-2.463	-2.256	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	1.39E+04	1.05E+05	1.52E+02	1.05E+05	54E-01	7.00E+00	OUT	8	0	24	1.06	88	7	90	80	Current	SOCKET 3	-0.796	-2.256	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	1.26E+04	9.41E+04	1.36E+02	9.41E+04	77E-01	7.00E+00	OUT	7	0	24	1.06	91	4	90	80	Current	SOCKET 4	0.894	-2.256	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	1.25E+04	1.05E+05	1.52E+02	1.05E+05	36E-01	7.00E+00	OUT	8	0	24	1.08	91	4	90	80	Current	SOCKET 5	2.728	-2.256	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	1.28E+04	1.21E+04	1.75E+01	1.21E+04	94E+00	7.00E+00	OUT	1	0	24	1.07	92	4	90	80	Current	SOCKET 5	2.728	-2.256	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	1.19E+04	1.02E+05	1.48E+02	1.02E+05	37E-01	7.00E+00	OUT	9	0	24	1.07	92	4	90	80	Current	SOCKET 6	4.465	-2.256	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	1.16E+04	9.49E+04	1.37E+02	9.49E+04	59E-01	7.00E+00	OUT	8	0	24	1.07	91	4	90	80	Current	SOCKET 7	-4.266	-0.111	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	9.23E+03	1.04E+05	1.50E+02	1.04E+05	92E-01	7.00E+00	OUT	11	0	24	1.07	89	7	90	80	Current	SOCKET 8	-2.627	-0.061	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	9.05E+03	1.03E+05	1.49E+02	1.03E+05	91E-01	7.00E+00	OUT	11	0	24	1.07	90	6	90	80	Current	SOCKET 8	-2.627	-0.061	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	8.94E+03	9.99E+04	1.44E+02	9.99E+04	99E-01	7.00E+00	OUT	11	0	24	1.04	91	5	90	80	Current	SOCKET 9	-0.859	-0.062	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	7.94E+03	9.72E+04	1.40E+02	9.72E+04	90E-01	7.00E+00	OUT	12	1	24	1.04	89	6	90	80	Current	SOCKET 1	0.983	-0.061	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	7.43E+03	1.02E+05	1.47E+02	1.02E+05	68E-01	7.00E+00	OUT	14	0	24	1.05	90	6	90	80	Current	SOCKET 1	4.465	-0.06	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	4.35E+03	1.00E+05	1.44E+02	1.00E+05	08E-01	7.00E+00	OUT	23	0	24	1.05	89	7	90	80	Current	SOCKET 1	4.465	-0.06	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	4.30E+03	9.96E+04	1.44E+02	9.96E+04	08E-01	7.00E+00	OUT	23	0	24	1.04	92	4	90	80	Current	SOCKET 1	4.465	-0.06	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	8.24E+03	9.78E+04	1.41E+02	9.78E+04	94E-01	7.00E+00	OUT	12	0	24	1.03	90	5	90	80	Current	SOCKET 1	4.465	-0.06	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	7.21E+03	9.69E+04	1.40E+02	9.69E+04	77E-01	7.00E+00	OUT	13	0	24	1.07	91	4	90	80	Current	SOCKET 1	4.465	-0.06	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	7.57E+03	1.03E+05	1.48E+02	1.03E+05	67E-01	7.00E+00	OUT	14	0	24	1.04	90	5	90	80	Current	SOCKET 1	4.465	-0.06	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	7.92E+03	1.02E+05	1.47E+02	1.02E+05	76E-01	7.00E+00	OUT	13	0	24	1.06	92	4	90	80	Current	SOCKET 1	4.465	-0.06	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	7.33E+03	1.03E+05	1.48E+02	1.03E+05	63E-01	7.00E+00	OUT	14	0	24	1.06	91	4	90	80	Current	SOCKET 1	-4.266	2.101	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	7.44E+03	2.03E+04	2.93E+01	2.03E+04	34E+00	7.00E+00	OUT	3	0	24	1.08	89	5	90	80	Current	SOCKET 1	-4.266	2.101	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	6.71E+03	1.01E+05	1.46E+02	1.01E+05	56E-01	7.00E+00	OUT	15	0	24	1.08	89	6	90	80	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	7.02E+03	1.01E+05	1.45E+02	1.01E+05	64E-01	7.00E+00	OUT	14	0	24	1.08	89	6	90	80	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	7.22E+03	9.88E+04	1.42E+02	9.88E+04	72E-01	7.00E+00	OUT	14	0	24	1.07	90	5	90	80	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	6.80E+03	9.75E+04	1.41E+02	9.75E+04	67E-01	7.00E+00	OUT	14	0	24	1.05	88	7	90	80	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	6.97E+03	1.02E+05	1.48E+02	1.02E+05	58E-01	7.00E+00	OUT	15	0	24	1.05	90	6	90	80	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	7.05E+03	9.84E+04	1.42E+02	9.84E+04	70E-01	7.00E+00	OUT	14	0	24	1.06	90	6	90	80	Current	SOCKET 1	-0.799	2.142	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	6.30E+03	6.70E+04	9.67E+01	6.70E+04	74E-01	7.00E+00	OUT	11	0	24	1.06	92	3	90	80	Current	SOCKET 1	0.984	2.144	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	8.18E+03	9.72E+04	1.40E+02	9.72E+04	94E-01	7.00E+00	OUT	12	0	24	1.07	89	6	90	80	Current	SOCKET 1	2.726	2.144	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	7.18E+03	1.02E+05	1.47E+02	1.02E+05	63E-01	7.00E+00	OUT	14	0	24	1.05	89	6	90	80	Current	SOCKET 1	2.726	2.144	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	5.81E+03	1.02E+05	1.46E+02	1.02E+05	37E-01	7.00E+00	OUT	17	1	24	1.04	90	5	90	80	Current	SOCKET 1	2.726	2.144	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	5.45E+03	9.79E+04	1.41E+02	9.79E+04	38E-01	7.00E+00	OUT	18	0	24	1.04	90	5	90	80	Current	SOCKET 1	4.474	2.144	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.
Au	15	1480	90	80	5.95E+03	4.43E+04	6.39E+01	4.43E+04	50E-01	7.00E+00	OUT	7	0	24	1.04	90	5	90	80	Current	SOCKET 1	4.474	2.144	0	-0.002	0.432	0.552	40.769	2	430	371	372	387	318	0	Nolayers.lay	None.

Appendix C

International Rectifier

Test Plan

and

Procedure

Test Plan, Single Event Effects (TAMU, K500 Superconducting Cyclotron)

1.0 Purpose

The purpose of this test is to characterize and establish Single Event Effects (SEE) Safe-Operating-Area (SOA) curves for several International Rectifier Corp. (IR) Power MOSFET devices. The data resulting from the tests shall be used for qualification to several US Government military slash sheets and shall be incorporated in the IR data sheets.

2.0 Test Responsibility

IR shall be responsible for conducting the tests, which shall be performed at the Texas A & M University (TAMU), Cyclotron Institute. IR shall be responsible for the SEE testing of devices-under-test (DUT) and final Test Report.

3.0 Test Facility

3.1 K500 Superconducting Cyclotron

The Texas A&M University, Tandem K500 Superconducting Cyclotron shall be used to provide the necessary ion species and energy. TAMU Cyclotron Institute shall provide adequate dosimeter for verification of the ion beam parameters.

3.2 Test Equipment

The necessary test equipment including the test interface board, cables, power supplies, etc. shall be provided by IR. IR shall provide the equipment needed to de-lid and handle the individual test devices.

4.0 Test Devices

4.1 The following device types are planned for characterization and qualification:

IRH67260	(Hex-6, 200V, N-channel, R6, MR Process)	Depletion Depth=38µm typical
IRH67230	(Hex-3, 200V, N-channel, R6, MR Process)	Depletion Depth=38µm typical

4.2 All devices shall be built in TO-3 packages. The devices shall be properly sealed and packed for transportation to TAMU Cyclotron Institute.

4.3 All devices shall be verified for correct electrical performance prior to arrival at TAMU Cyclotron.

5.0 Test Method

The MIL-STD-750, Method 1080 shall be used to set procedure for all testing described herein.

6.0 Ion Specie and Energy

There are three (3) available ion specie with different energy level, at BNL. All parts will be first tested with one specie of lowest energy (LET) level before the Accelerator is switched to the next ion specie with higher energy level.

a. Xeon	$_{54}Xe^{131}$	Energy = 2441 MeV	LET = 43 MeV/(mg/cm^2)	Range = 205 µm
b. Xeon	$_{54}Xe^{131}$	Energy = 825 MeV	LET = 59 MeV/(mg/cm^2)	Range = 66 µm
c. Gold	$_{79}Au^{197}$	Energy = 1480 MeV	LET = 90 MeV/(mg/cm^2)	Range = 80 µm

7.0 Record Keeping

Each irradiation shall be assigned a run number. This number will be used to correlate data from different sources.

7.1 Cyclotron Accelerator Output

The K500 Cyclotron Institute shall provide a hardcopy summary of all test runs showing key parameters such as run, date, time, flux, fluence, ion, energy, LET, and range. An output of beam diagnostics shall also be provided.

7.2 IR Output

IR shall also keep a written log of each run including run, ion, device tested, VDS and VGS biases. IR shall also record comments regarding the test including observations or deviations from test plan.

8.0 Characterizations and Verification

Characterization and Verification may be accomplished simultaneously. Characterization implies that the SOA curve is set using at least one (1) device at each insitu bias. Verification is simply an extension of the characterization, demonstrating total three (3) non-destructive devices passing at each insitu bias condition.

9.0 Test Procedure

The IR Product Engineer assigned to this test shall control the following test procedure based on Test Method 1080. IR shall be responsible to direct the ion specie, beam characteristics, insitu bias conditions and device selection.

9.1 Nominal Beam Characteristics are : Flux = 1×10^4 (1E4) ions/cm^2/sec.
Fluence = 3×10^5 (3E5) ions/cm^2.
Beam Diameter = 1.5 cm.
(or large enough to cover the whole die-attachment area)
9.2 Initial Starting Point : typically at VDS =Rated VDS and VGS = 0.
9.3 Irradiate the device at the selected flux and fluence.
9.4 Post irradiation, test IDSS & IGSS at VDS=80% Rated VDS and VGS up to 20 V (5 V increment).
9.5 Based on apparent pass or fail, select next operating conditions.
9.6 Repeat with new device.

10. Test Report

The Test Report shall include the following information :

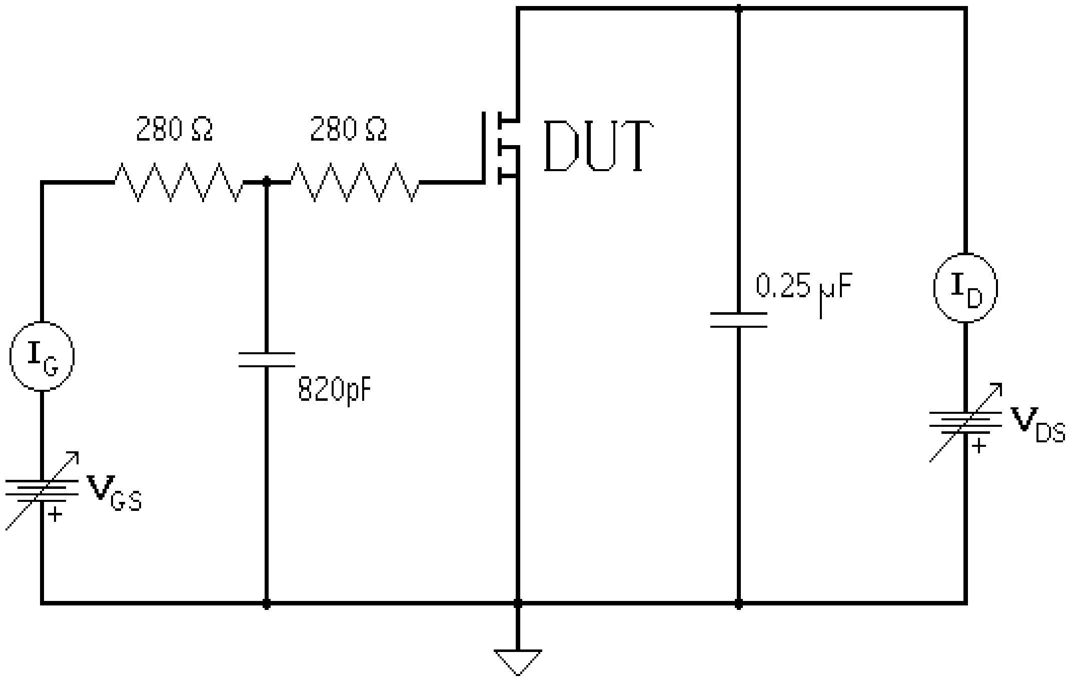
a. Device Type(s), serial numbers, wafer lot identification, date code (if applicable).
b. Test dates and personnel names.
c. Facility, accelerator type.
d. Ion specie, energy, LET, range, flux and fluence.
e. Schematic of test circuit used.
f. Dosimeter for each ion beam used.
g. Insitu bias conditions.
h. Comments and observations.
i. Pre and post electrical test results.
j. Summary description including curves.

Appendix D

Test Circuit
Schematic
Diagram

Reference: MIL-STD-750, Method 1080

Details of Test Method can be reviewed from DSCC Website:
http://www.dscc.dla.mil/Downloads/MilSpec/Docs/MIL-STD-750/std750_1000.pdf



Test Circuit Schematic Diagram

Appendix E

TAMU K500 Cyclotron

Ion Species,
Surface LET
and
Range

Cyclotron Institute · Texas A&M University
Radiation Effects Facility

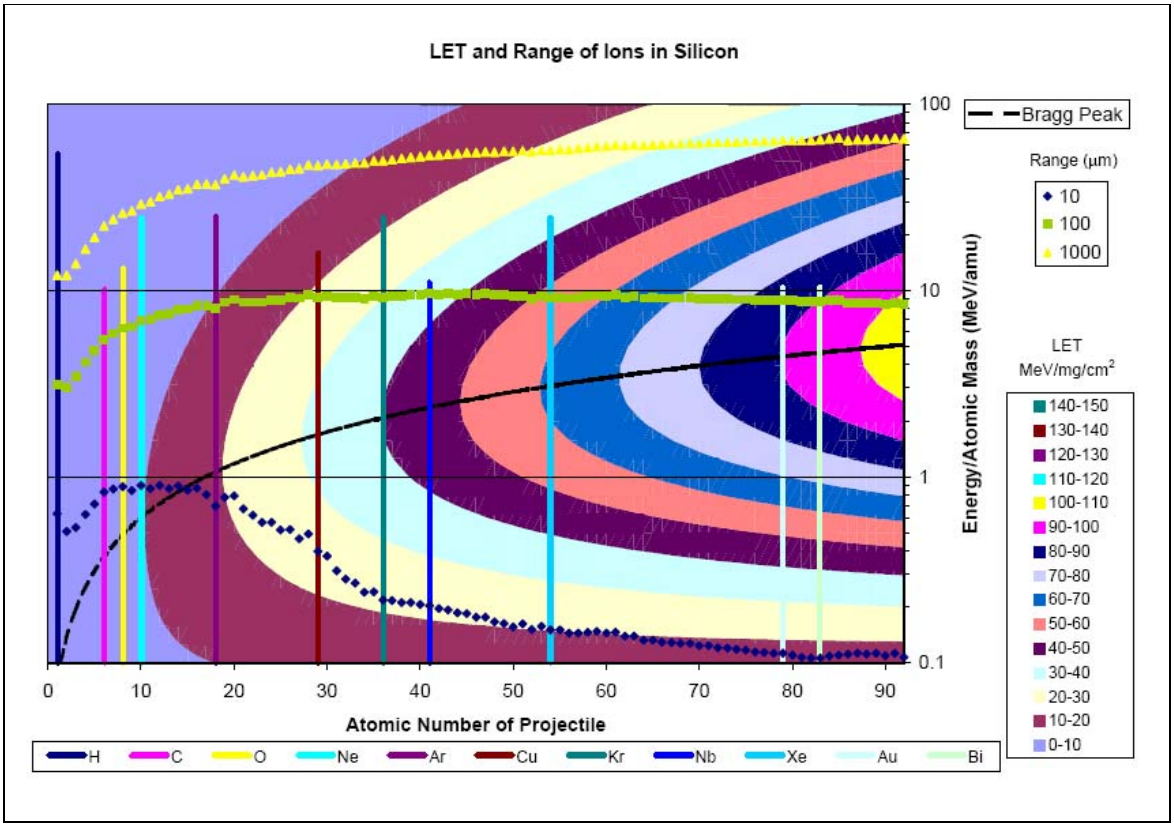
Available Beams

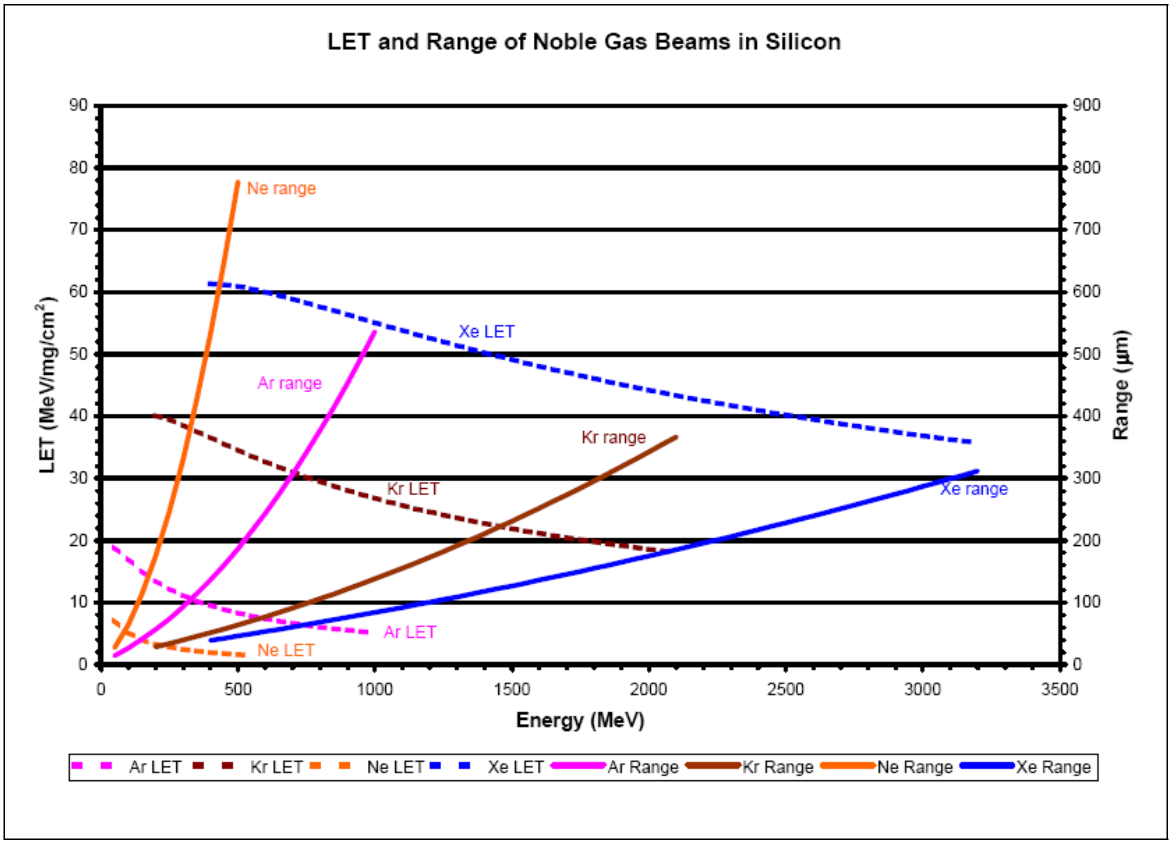
Particle	A MeV	LET$_{init}$ (MeV/mg/cm^2)	LET$_{Bragg}$ (MeV/mg/cm^2)	Range$_{Bragg}$ (microns)
^{20}Ne	15	2.5	9.6	305
^{40}Ar	"	7.7	20.1	220
^{63}Cu	"	17.8	34.0	156
^{84}Kr	"	25.4	41.4	154
^{109}Ag	"	38.5	54.8	130
^{129}Xe	"	47.3	63.4	127
^{141}Pr	"	53.8	69.6	117
^{165}Ho	"	64.3	79.2	112
^{181}Ta	"	72.2	86.4	107
^{197}Au	"	80.2	93.5	102
^{22}Ne	24.8	1.7	9.7	790
^{40}Ar	"	5.4	20.1	491
^{84}Kr	"	19.3	41.4	315
^{129}Xe	"	37.9	63.4	254
proton	40	0.012	0.58	8147
^{20}Ne	"	1.2	9.7	1648
^{40}Ar	"	3.8	20.1	1070
^{78}Kr	"	14.2	41.4	601
^{16}O	55.1	0.59	7.4	3607
^{36}Ar	"	3.0	20.1	1665

Cyclotron Institute · Texas A&M University

Radiation Effects Facility

Available Beams





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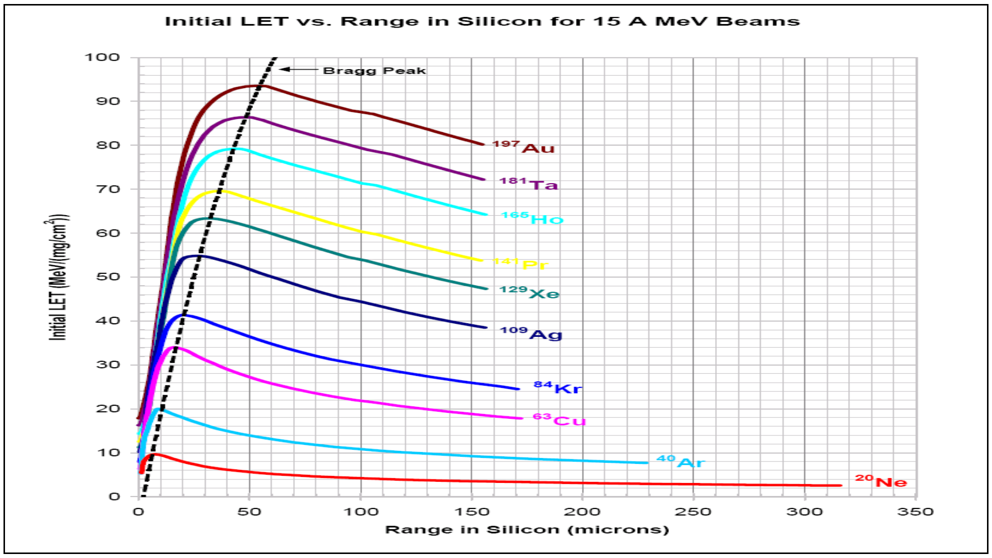
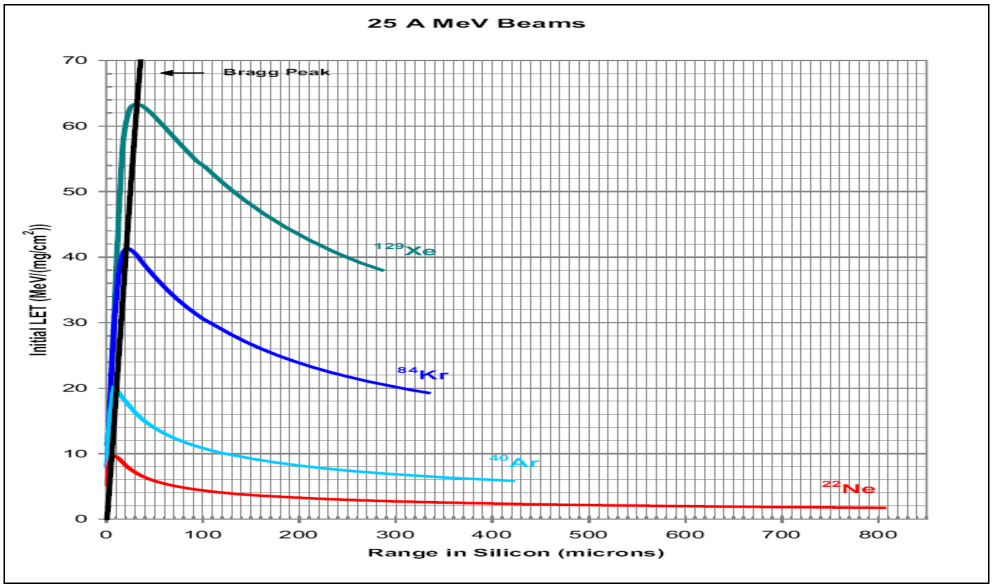
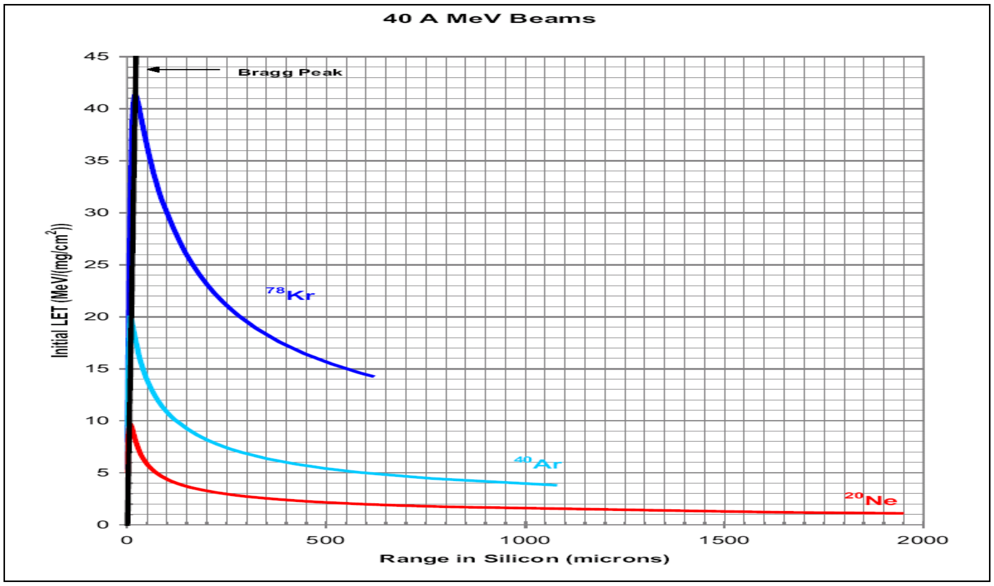
Available Beams


Initial LET vs. Range in Silicon for 15 A MeV Beams


25 A MeV Beams


40 A MeV Beams

Appendix F

Post-SEE

Electrical Measurements

		RadHard MOSFET - R6, 200V, N-channel						
		Pre - SEE Electricals Data				Post - SEE Electricals Data		
	Parameter	**I GSSf**	**I GSSr**	**I DSS**		**I GSSf**	**I GSSr**	**I DSS**
	Conditions	VGS=20V	VGS=-20V	VDS=160V		VGS=20V	VGS=-20V	VDS=160V
		VDS=0V	VDS=0V	VGS=0V		VDS=0V	VDS=0V	VGS=0V
	Limits	100 nA Max	-100 nA Max	10 µA Max		100 nA Max	-100 nA Max	10 µA Max
	Unit	nA	nA	nA		nA	nA	nA
	DUT Serial							
F5	**1**	0.13	0.52	0.63	**ER33831 (06-20-2003)**	18.30	95.30	240.00
F2	**3**	0.39	0.27	0.39		83.50	97.60	242.00
F3	**4**	0.20	1.92	0.20		34.30	71.20	269.00
F6	**7**	0.35	0.34	1.05		11.60	15.30	312.00
F7	**8**	0.33	2.12	0.73		26.20	35.30	236.00
F8	**9**	1.31	1.47	0.11		64.40	87.80	1190.00
F9	**10**	0.23	1.52	0.75		10.50	54.90	285.00
F10	**11**	0.34	2.20	0.01		31.10	67.90	257.00
F13	**15**	1.58	0.50	0.19		29.60	166.00	1020.00
F15	**17**	0.37	0.22	1.34		44.30	52.60	254.00
F18	**20**	1.04	1.24	0.72		77.60	82.70	1120.00
F11	**23**	0.41	0.42	0.90		55.10	970.00	388.00
F19	**27**	0.28	2.95	0.48		59.90	77.60	450.00
F21	**29**	1.17	1.12	0.71		46.80	67.60	159.00
F22	**30**	0.35	0.22	0.03		24.50	43.90	220.00
F23	**31**	1.00	0.41	0.05		13.66	17.10	731.00
F25	**33**	0.35	0.27	0.29		71.50	83.30	109.00
F28	**36**	0.32	1.52	0.69		44.70	81.60	236.00
F29	**37**	0.68	0.24	0.68		0.97	90.70	62.80
J2	**49**	0.03	6.36	2.15	**ER33831 (08-25-2003)**	6.87	9.33	587.00
J3	**54**	1.94	2.66	4.62		6.14	7.88	692.00
J4	**55**	0.12	6.60	2.41		1.67	2.58	563.00
J6	**60**	4.56	30.45	2.35		0.83	0.98	506.00
G5	**9**	2.42	4.29	3.51	**ER34212 (08-25-2003)**	2.24	4.29	189.00
G9	**41**	18.15	11.59	4.04		5.61	8.65	516.00
I1	**11**	0.72	1.45	0.28	**ER34181 (08-25-2003)**	0.40	0.65	820.00
I4	**17**	2.17	3.59	0.84		1.34	6.24	596.00
I9	**18**	3.04	3.77	0.95		3.72	7.53	269.00