

**RDHA701FP10A8QK**  
**Single-Event Test Report**  
**June 2009**

International Rectifier currently does not have a DSCC approved Radiation Hardness Assurance Program for MIL-PRF-38534.

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## **INTRODUCTION**

This test report covers single event effects tests performed on the RDHA701FP10A8QK Octal Solid-State-Relay in a hermetic package. This report also covers the RDHA701FP10A8CK product by similarity as it utilizes the same active components but does not contain the input buffer and additional circuitry to control the switching times thus making it a less complex version of the device.

On May 27<sup>th</sup>, 2009 International Rectifier Corp. (IR) tested the RDHA701FP10A8QK for Single Event Effects (SEE) hardness. The irradiation was performed at the Indiana University Cyclotron Facility. Three devices (Serial # 79, 143, and 5) were selected to determine the single event effects while the part was toggled on and off, with a 1A load condition. While the devices were exposed to the Proton beam, they were monitored for single event effects. The devices were exposed to a Linear Energy Transfer (LET) of 198MeV. Angular effects were investigated on serial number 5 to determine if there was a difference in product performance.

## **TEST PLAN**

The complete Test Plan is included in Appendix B. In summary, the SEE testing was conducted while the devices were being monitored in situ. Once devices were exposed to the beam they were checked for radiation levels. Once the levels were determined to be safe for handling the devices were tested at room temperature for compliance with the post radiation electrical specification.

The RDHA701FP10A8QK is an Octal SSR and contains eight equivalent circuits in one package. The 7cm beam diameter was capable of covering the entire internal area of the device. The distance from the end of the beam line to parts under test was approximately 12 inches which is the calibrated distance for the dosimetry measurements. Each of the eight circuits was exercised on and off at approximately 2 hertz. The parts were monitored for any SEL (Single Event Latchup), SEU (Single Event Upset) and SEGR(Single Event Gate Rupture) using logic circuitry. The load was set to 1A.

The cyclotron facility at Indiana University utilizes this beam line for medical therapy as well. Since the medical therapy takes priority the longer beam exposures were interrupted at times. The beam was automatically diverted to the medical facility and then routed back to product by the beam operators. The monitoring of the devices remained on during these interruptions. This type of radiation exposure is cumulative so the interruption did not change the total fluence the devices were subjected to.

## **Beam Conditions**

Type	Energy (MeV)	Angle (°)	Air Gap (in)	Average Flux (protons/sec cm <sup>2</sup> )	Total Fluence (protons/cm <sup>2</sup> )	Average Total Dose Rate (Krad(Si)/sec)
Proton	198	0	12	2.569e+8	1.0e+11	0.01533
Proton	198	45	12	2.289e+8	5.0e+10	0.01350
Proton	198	90	12	2.369e+8	5.0e+10	0.014

## RESULTS

All devices were tested to an LET of 198 MeV and did not have any occurrence of single event effects. The devices (Serial # 79 and 143) positioned at a 0 degree angle to the beam exhibited no evidence of any SEU, SEGR or a SEL at the LET of 198 MeV up to a maximum fluence of  $1e+11p/cm^2$  with an average flux of  $2.569e+8$  protons/sec  $cm^2$ . The device (Serial # 5) positioned at 45 and 90 degree angles to the beam exhibited no evidence of any SEU, SEGR or a SEL at the LET of 198 MeV up to a maximum fluence of  $5e+10p/cm^2$  per exposure with an average flux of  $2.329e+8$  protons/sec  $cm^2$ . All of the devices passed the post radiation electrical test specifications after exposure to the beam. There were no significant shifts in any parameters after exposure to the beam.

Due to the layout of the test facility and the nature of the test itself IR personnel were not able to stay with the equipment to monitor the results during each exposure. The decision was made to expose the first device (Serial# 79) to  $1e+10p/cm^2$  and then check the test system for any single event effects. Once those results were verified the device was then exposed to the maximum fluence of  $1e+11p/cm^2$ . Since each exposure is cumulative for this type of radiation the second run on this device was to  $9e+10p/cm^2$ . The second device (Serial # 143) was exposed to the maximum fluence of  $1e+11p/cm^2$  without any interim verification of results.

The run data below shows all the data collected for each serial number during the beam exposure. The Block diagram, datasheets and actual circuit of the clock distribution used to monitor SEU is in Appendix B.

### Run 4 Serial #79 - $1e+10p/cm^2$

Time Stamp (S)	Vdriver (V)	Vdriver SEU	Idriver (A)	Idriver SEU	Ivm (A)	Ivm SEU	Logic A SEU	Logic B SEU	Logic C SEU	Logic D SEU	Logic E SEU	Logic F SEU	Logic G SEU	Logic H SEU
0.99	6	0	1.306	0	0.966	0	0	0	0	0	0	0	0	0
2.03	6	0	1.305	0	0.965	0	0	0	0	0	0	0	0	0
2.97	6	0	1.305	0	0.969	0	0	0	0	0	0	0	0	0
4.45	6	0	1.303	0	0.967	0	0	0	0	0	0	0	0	0
5.44	6	0	1.302	0	0.966	0	0	0	0	0	0	0	0	0
6.48	6	0	1.3	0	0.965	0	0	0	0	0	0	0	0	0
7.41	6	0	1.3	0	0.969	0	0	0	0	0	0	0	0	0
8.95	6	0	1.299	0	0.967	0	0	0	0	0	0	0	0	0
9.89	6	0	1.299	0	0.966	0	0	0	0	0	0	0	0	0
10.93	6	0	1.298	0	0.965	0	0	0	0	0	0	0	0	0
11.92	6	0	1.3	0	0.969	0	0	0	0	0	0	0	0	0
13.4	6	0	1.298	0	0.967	0	0	0	0	0	0	0	0	0
14.34	6	0	1.297	0	0.966	0	0	0	0	0	0	0	0	0
15.38	6	0	1.295	0	0.965	0	0	0	0	0	0	0	0	0
16.42	6	0	1.296	0	0.968	0	0	0	0	0	0	0	0	0
17.19	6	0	1.281	0	0.968	0	0	0	0	0	0	0	0	0
17.96	6	0	1.288	0	0.967	0	0	0	0	0	0	0	0	0
18.73	6	0	1.294	0	0.966	0	0	0	0	0	0	0	0	0
19.83	6	0	1.293	0	0.965	0	0	0	0	0	0	0	0	0
20.82	6	0	1.294	0	0.969	0	0	0	0	0	0	0	0	0
22.3	6	0	1.292	0	0.967	0	0	0	0	0	0	0	0	0
23.34	6	0	1.29	0	0.966	0	0	0	0	0	0	0	0	0
24.11	6	0	1.276	0	0.968	0	0	0	0	0	0	0	0	0
24.88	6	0	1.275	0	0.969	0	0	0	0	0	0	0	0	0
26.75	6	0	1.282	0	0.967	0	0	0	0	0	0	0	0	0
27.74	6	0	1.275	0	0.966	0	0	0	0	0	0	0	0	0
28.73	6	0	1.267	0	0.965	0	0	0	0	0	0	0	0	0
29.71	6	0	1.262	0	0.969	0	0	0	0	0	0	0	0	0

31.2	6	0	1.261	0	0.967	0	0	0	0	0	0	0	0	0
32.19	6	0	1.259	0	0.966	0	0	0	0	0	0	0	0	0
33.17	6	0	1.258	0	0.965	0	0	0	0	0	0	0	0	0
34.16	6	0	1.259	0	0.969	0	0	0	0	0	0	0	0	0
35.65	6	0	1.258	0	0.967	0	0	0	0	0	0	0	0	0
36.69	6	0	1.257	0	0.966	0	0	0	0	0	0	0	0	0
37.51	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
38.28	6	0	1.242	0	0.969	0	0	0	0	0	0	0	0	0
40.1	6	0	1.256	0	0.967	0	0	0	0	0	0	0	0	0
41.08	6	0	1.255	0	0.966	0	0	0	0	0	0	0	0	0
42.13	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
43.17	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
43.94	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
44.71	6	0	1.24	0	0.967	0	0	0	0	0	0	0	0	0
45.48	6	0	1.253	0	0.966	0	0	0	0	0	0	0	0	0
46.58	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
47.62	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
48.39	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
49.16	6	0	1.252	0	0.967	0	0	0	0	0	0	0	0	0
49.93	6	0	1.252	0	1.022	0	0	0	0	0	0	0	0	0
50.7	6	0	1.237	0	0.968	0	0	0	0	0	0	0	0	0
51.47	6	0	1.25	0	0.969	0	0	0	0	0	0	0	0	0
53.5	6	0	1.249	0	0.967	0	0	0	0	0	0	0	0	0
54.49	6	0	1.249	0	0.966	0	0	0	0	0	0	0	0	0
55.47	6	0	1.248	0	0.965	0	0	0	0	0	0	0	0	0
56.46	6	0	1.249	0	0.969	0	0	0	0	0	0	0	0	0
57.95	6	0	1.247	0	0.967	0	0	0	0	0	0	0	0	0
58.93	6	0	1.247	0	0.966	0	0	0	0	0	0	0	0	0
59.92	6	0	1.245	0	0.965	0	0	0	0	0	0	0	0	0
60.91	6	0	1.246	0	0.969	0	0	0	0	0	0	0	0	0
62.4	6	0	1.256	0	0.967	0	0	0	0	0	0	0	0	0
63.38	6	0	1.267	0	0.966	0	0	0	0	0	0	0	0	0
64.43	6	0	1.277	0	0.965	0	0	0	0	0	0	0	0	0
65.36	6	0	1.289	0	0.969	0	0	0	0	0	0	0	0	0
66.84	6	0	1.287	0	0.967	0	0	0	0	0	0	0	0	0
67.83	6	0	1.286	0	0.966	0	0	0	0	0	0	0	0	0
68.88	6	0	1.285	0	0.965	0	0	0	0	0	0	0	0	0
69.92	6	0	1.286	0	0.968	0	0	0	0	0	0	0	0	0
70.69	6	0	1.272	0	0.968	0	0	0	0	0	0	0	0	0
71.46	6	0	1.285	0	0.967	0	0	0	0	0	0	0	0	0
72.23	6	0	1.285	0	0.966	0	0	0	0	0	0	0	0	0
73.33	6	0	1.284	0	0.965	0	0	0	0	0	0	0	0	0
74.37	6	0	1.285	0	0.968	0	0	0	0	0	0	0	0	0
75.14	6	0	1.27	0	0.968	0	0	0	0	0	0	0	0	0
75.91	6	0	1.276	0	0.967	0	0	0	0	0	0	0	0	0
76.68	6	0	1.283	0	0.966	0	0	0	0	0	0	0	0	0
77.77	6	0	1.281	0	0.965	0	0	0	0	0	0	0	0	0
78.76	6	0	1.282	0	0.969	0	0	0	0	0	0	0	0	0
80.25	6	0	1.281	0	0.967	0	0	0	0	0	0	0	0	0
81.23	6	0	1.281	0	0.966	0	0	0	0	0	0	0	0	0
82.28	6	0	1.281	0	0.965	0	0	0	0	0	0	0	0	0
83.27	6	0	1.283	0	0.968	0	0	0	0	0	0	0	0	0
84.04	6	0	1.268	0	0.968	0	0	0	0	0	0	0	0	0
84.86	6	0	1.271	0	0.967	0	0	0	0	0	0	0	0	0
85.63	6	0	1.281	0	0.966	0	0	0	0	0	0	0	0	0
86.67	6	0	1.279	0	0.965	0	0	0	0	0	0	0	0	0
87.66	6	0	1.28	0	0.969	0	0	0	0	0	0	0	0	0
89.2	6	0	1.279	0	0.968	0	0	0	0	0	0	0	0	0
90.13	6	0	1.278	0	0.966	0	0	0	0	0	0	0	0	0
91.18	6	0	1.278	0	0.965	0	0	0	0	0	0	0	0	0
92.22	6	0	1.279	0	0.968	0	0	0	0	0	0	0	0	0
92.99	6	0	1.264	0	0.968	0	0	0	0	0	0	0	0	0
93.76	6	0	1.264	0	0.967	0	0	0	0	0	0	0	0	0
94.53	6	0	1.277	0	0.966	0	0	0	0	0	0	0	0	0
95.63	6	0	1.275	0	0.965	0	0	0	0	0	0	0	0	0
96.67	6	0	1.276	0	0.968	0	0	0	0	0	0	0	0	0
97.44	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
98.21	6	0	1.268	0	0.967	0	0	0	0	0	0	0	0	0
98.98	6	0	1.262	0	1.048	0	0	0	0	0	0	0	0	0
99.74	6	0	1.244	0	0.968	0	0	0	0	0	0	0	0	0

100.51	6	0	1.251	0	0.969	0	0	0	0	0	0	0	0	0
102.55	6	0	1.248	0	0.968	0	0	0	0	0	0	0	0	0
103.53	6	0	1.247	0	0.966	0	0	0	0	0	0	0	0	0
104.52	6	0	1.246	0	0.965	0	0	0	0	0	0	0	0	0
105.51	6	0	1.246	0	0.969	0	0	0	0	0	0	0	0	0
106.99	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
107.98	6	0	1.245	0	0.966	0	0	0	0	0	0	0	0	0
109.03	6	0	1.244	0	0.965	0	0	0	0	0	0	0	0	0
110.02	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
110.78	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
111.55	6	0	1.244	0	0.967	0	0	0	0	0	0	0	0	0
112.38	6	0	1.244	0	0.966	0	0	0	0	0	0	0	0	0
113.48	6	0	1.242	0	0.965	0	0	0	0	0	0	0	0	0
114.52	6	0	1.242	0	0.968	0	0	0	0	0	0	0	0	0
115.29	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
116	6	0	1.241	0	0.967	0	0	0	0	0	0	0	0	0
116.83	6	0	1.242	0	1.017	0	0	0	0	0	0	0	0	0
117.6	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
118.36	6	0	1.241	0	0.969	0	0	0	0	0	0	0	0	0
120.4	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
121.39	6	0	1.24	0	0.966	0	0	0	0	0	0	0	0	0
122.37	6	0	1.239	0	0.965	0	0	0	0	0	0	0	0	0
123.42	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
124.24	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
124.96	6	0	1.231	0	0.967	0	0	0	0	0	0	0	0	0
125.78	6	0	1.239	0	0.966	0	0	0	0	0	0	0	0	0
126.88	6	0	1.238	0	0.965	0	0	0	0	0	0	0	0	0
127.92	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
128.64	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
129.4	6	0	1.237	0	0.968	0	0	0	0	0	0	0	0	0
130.23	6	0	1.237	0	1.039	0	0	0	0	0	0	0	0	0
130.94	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
131.77	6	0	1.235	0	0.969	0	0	0	0	0	0	0	0	0
133.8	6	0	1.246	0	0.968	0	0	0	0	0	0	0	0	0
134.73	6	0	1.257	0	0.966	0	0	0	0	0	0	0	0	0
135.78	6	0	1.267	0	0.965	0	0	0	0	0	0	0	0	0
136.82	6	0	1.279	0	0.968	0	0	0	0	0	0	0	0	0
137.59	6	0	1.265	0	0.968	0	0	0	0	0	0	0	0	0
138.36	6	0	1.277	0	0.968	0	0	0	0	0	0	0	0	0
139.13	6	0	1.278	0	1.023	0	0	0	0	0	0	0	0	0
139.9	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
140.66	6	0	1.276	0	0.969	0	0	0	0	0	0	0	0	0
142.7	6	0	1.276	0	0.968	0	0	0	0	0	0	0	0	0
143.68	6	0	1.275	0	0.966	0	0	0	0	0	0	0	0	0
144.73	6	0	1.275	0	0.965	0	0	0	0	0	0	0	0	0
145.66	6	0	1.276	0	0.969	0	0	0	0	0	0	0	0	0
147.15	6	0	1.274	0	0.968	0	0	0	0	0	0	0	0	0
148.13	6	0	1.274	0	0.966	0	0	0	0	0	0	0	0	0
149.18	6	0	1.272	0	0.965	0	0	0	0	0	0	0	0	0
150.22	6	0	1.273	0	0.968	0	0	0	0	0	0	0	0	0
150.99	6	0	1.259	0	0.969	0	0	0	0	0	0	0	0	0
151.76	6	0	1.273	0	0.968	0	0	0	0	0	0	0	0	0
152.53	6	0	1.274	0	0.966	0	0	0	0	0	0	0	0	0
153.63	6	0	1.273	0	0.965	0	0	0	0	0	0	0	0	0
154.62	6	0	1.275	0	0.969	0	0	0	0	0	0	0	0	0
156.1	6	0	1.273	0	0.968	0	0	0	0	0	0	0	0	0
157.09	6	0	1.272	0	0.966	0	0	0	0	0	0	0	0	0
158.08	6	0	1.271	0	0.965	0	0	0	0	0	0	0	0	0
159.06	6	0	1.272	0	0.969	0	0	0	0	0	0	0	0	0
160.55	6	0	1.271	0	0.968	0	0	0	0	0	0	0	0	0
161.54	6	0	1.27	0	0.966	0	0	0	0	0	0	0	0	0
162.58	6	0	1.27	0	0.965	0	0	0	0	0	0	0	0	0
163.57	6	0	1.271	0	0.969	0	0	0	0	0	0	0	0	0
165.05	6	0	1.269	0	0.968	0	0	0	0	0	0	0	0	0
165.98	6	0	1.269	0	0.966	0	0	0	0	0	0	0	0	0
167.03	6	0	1.268	0	0.965	0	0	0	0	0	0	0	0	0
168.07	6	0	1.268	0	0.968	0	0	0	0	0	0	0	0	0
168.84	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
169.61	6	0	1.249	0	0.968	0	0	0	0	0	0	0	0	0
170.38	6	0	1.254	0	0.966	0	0	0	0	0	0	0	0	0

171.48	6	0	1.246	0	0.965	0	0	0	0	0	0	0	0	0
172.47	6	0	1.242	0	0.969	0	0	0	0	0	0	0	0	0
173.95	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
174.94	6	0	1.239	0	0.966	0	0	0	0	0	0	0	0	0
175.98	6	0	1.238	0	0.965	0	0	0	0	0	0	0	0	0
176.97	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
177.79	6	0	1.225	0	0.969	0	0	0	0	0	0	0	0	0
178.56	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
179.33	6	0	1.238	0	0.966	0	0	0	0	0	0	0	0	0
180.43	6	0	1.237	0	0.965	0	0	0	0	0	0	0	0	0
181.42	6	0	1.239	0	0.892	0	0	0	0	0	0	0	0	0
182.19	6	0	1.224	0	0.969	0	0	0	0	0	0	0	0	0
182.96	6	0	1.237	0	0.968	0	0	0	0	0	0	0	0	0
183.73	6	0	1.222	0	0.967	0	0	0	0	0	0	0	0	0
184.49	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
185.26	6	0	1.235	0	0.858	0	0	0	0	0	0	0	0	0
186.03	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
186.8	6	0	1.235	0	0.966	0	0	0	0	0	0	0	0	0
187.85	6	0	1.235	0	0.967	0	0	0	0	0	0	0	0	0
188.83	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
189.82	6	0	1.234	0	0.969	0	0	0	0	0	0	0	0	0
191.8	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
192.79	6	0	1.234	0	0.966	0	0	0	0	0	0	0	0	0
193.83	6	0	1.233	0	0.965	0	0	0	0	0	0	0	0	0
194.88	6	0	1.234	0	0.968	0	0	0	0	0	0	0	0	0
195.64	6	0	1.219	0	0.969	0	0	0	0	0	0	0	0	0
196.41	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
197.18	6	0	1.233	0	0.966	0	0	0	0	0	0	0	0	0
198.28	6	0	1.232	0	0.965	0	0	0	0	0	0	0	0	0
199.27	6	0	1.233	0	0.969	0	0	0	0	0	0	0	0	0
200.75	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
201.74	6	0	1.23	0	0.966	0	0	0	0	0	0	0	0	0
202.78	6	0	1.229	0	0.965	0	0	0	0	0	0	0	0	0
203.72	6	0	1.23	0	0.969	0	0	0	0	0	0	0	0	0
205.2	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
206.19	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
207.23	6	0	1.261	0	0.965	0	0	0	0	0	0	0	0	0
208.28	6	0	1.273	0	0.968	0	0	0	0	0	0	0	0	0
209.05	6	0	1.259	0	0.969	0	0	0	0	0	0	0	0	0
209.82	6	0	1.272	0	0.968	0	0	0	0	0	0	0	0	0
210.58	6	0	1.272	0	0.966	0	0	0	0	0	0	0	0	0
211.68	6	0	1.27	0	0.965	0	0	0	0	0	0	0	0	0
212.67	6	0	1.271	0	0.969	0	0	0	0	0	0	0	0	0
214.15	6	0	1.27	0	0.968	0	0	0	0	0	0	0	0	0
215.14	6	0	1.27	0	0.966	0	0	0	0	0	0	0	0	0
216.19	6	0	1.269	0	0.965	0	0	0	0	0	0	0	0	0
217.12	6	0	1.271	0	0.969	0	0	0	0	0	0	0	0	0
218.6	6	0	1.269	0	0.968	0	0	0	0	0	0	0	0	0
219.59	6	0	1.268	0	0.966	0	0	0	0	0	0	0	0	0
220.64	6	0	1.267	0	0.965	0	0	0	0	0	0	0	0	0
221.68	6	0	1.268	0	0.968	0	0	0	0	0	0	0	0	0
222.45	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
223.22	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
223.99	6	0	1.268	0	0.966	0	0	0	0	0	0	0	0	0
225.08	6	0	1.268	0	0.965	0	0	0	0	0	0	0	0	0
226.13	6	0	1.269	0	0.968	0	0	0	0	0	0	0	0	0
226.9	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
227.67	6	0	1.264	0	0.968	0	0	0	0	0	0	0	0	0
228.43	6	0	1.268	0	0.966	0	0	0	0	0	0	0	0	0
229.59	6	0	1.266	0	0.965	0	0	0	0	0	0	0	0	0
230.63	6	0	1.267	0	0.968	0	0	0	0	0	0	0	0	0
231.35	6	0	1.252	0	0.969	0	0	0	0	0	0	0	0	0
232.11	6	0	1.266	0	0.968	0	0	0	0	0	0	0	0	0
232.88	6	0	1.256	0	0.982	0	0	0	0	0	0	0	0	0
233.65	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
234.42	6	0	1.265	0	0.969	0	0	0	0	0	0	0	0	0
236.51	6	0	1.265	0	0.968	0	0	0	0	0	0	0	0	0
237.5	6	0	1.264	0	0.966	0	0	0	0	0	0	0	0	0
238.54	6	0	1.263	0	0.965	0	0	0	0	0	0	0	0	0
239.53	6	0	1.264	0	0.968	0	0	0	0	0	0	0	0	0

240.3	6	0	1.249	0	0.969	0	0	0	0	0	0	0	0	0
241.07	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
241.84	6	0	1.25	0	0.966	0	0	0	0	0	0	0	0	0
242.99	6	0	1.242	0	0.965	0	0	0	0	0	0	0	0	0
243.98	6	0	1.237	0	0.969	0	0	0	0	0	0	0	0	0
245.46	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
246.4	6	0	1.235	0	0.966	0	0	0	0	0	0	0	0	0
247.44	6	0	1.234	0	0.965	0	0	0	0	0	0	0	0	0
248.43	6	0	1.235	0	0.969	0	0	0	0	0	0	0	0	0

**Run 5 Serial #79 - 9e+10p/cm<sup>2</sup> (1.0e11p/cm<sup>2</sup> total)**

Time Stamp (S)	Vdriver (V)	Vdriver SEU	Idriver (A)	Idriver SEU	Ivm (A)	Ivm SEU	Logic A SEU	Logic B SEU	Logic C SEU	Logic D SEU	Logic E SEU	Logic F SEU	Logic G SEU	Logic H SEU
1.05	6	0	1.245	0	0.965	0	0	0	0	0	0	0	0	0
1.98	6	0	1.24	0	0.969	0	0	0	0	0	0	0	0	0
3.52	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
4.51	6	0	1.237	0	0.966	0	0	0	0	0	0	0	0	0
5.5	6	0	1.236	0	0.965	0	0	0	0	0	0	0	0	0
6.54	6	0	1.237	0	0.968	0	0	0	0	0	0	0	0	0
7.31	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
8.08	6	0	1.229	0	0.968	0	0	0	0	0	0	0	0	0
8.85	6	0	1.236	0	0.966	0	0	0	0	0	0	0	0	0
10	6	0	1.235	0	0.965	0	0	0	0	0	0	0	0	0
10.93	6	0	1.236	0	0.969	0	0	0	0	0	0	0	0	0
12.47	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
13.4	6	0	1.234	0	0.966	0	0	0	0	0	0	0	0	0
14.45	6	0	1.233	0	0.965	0	0	0	0	0	0	0	0	0
15.44	6	0	1.234	0	0.969	0	0	0	0	0	0	0	0	0
16.92	6	0	1.233	0	0.968	0	0	0	0	0	0	0	0	0
17.91	6	0	1.233	0	0.966	0	0	0	0	0	0	0	0	0
18.9	6	0	1.232	0	0.965	0	0	0	0	0	0	0	0	0
19.94	6	0	1.234	0	0.968	0	0	0	0	0	0	0	0	0
20.71	6	0	1.219	0	0.969	0	0	0	0	0	0	0	0	0
21.48	6	0	1.232	0	0.968	0	0	0	0	0	0	0	0	0
22.25	6	0	1.221	0	1	0	0	0	0	0	0	0	0	0
23.02	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
23.79	6	0	1.23	0	0.969	0	0	0	0	0	0	0	0	0
25.87	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
26.92	6	0	1.23	0	0.966	0	0	0	0	0	0	0	0	0
27.69	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
28.45	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
30.38	6	0	1.229	0	0.968	0	0	0	0	0	0	0	0	0
31.31	6	0	1.228	0	0.966	0	0	0	0	0	0	0	0	0
32.35	6	0	1.227	0	0.965	0	0	0	0	0	0	0	0	0
33.34	6	0	1.228	0	0.969	0	0	0	0	0	0	0	0	0
34.83	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
35.81	6	0	1.249	0	0.966	0	0	0	0	0	0	0	0	0
36.8	6	0	1.259	0	0.965	0	0	0	0	0	0	0	0	0
37.79	6	0	1.271	0	0.969	0	0	0	0	0	0	0	0	0
39.27	6	0	1.27	0	0.968	0	0	0	0	0	0	0	0	0
40.26	6	0	1.269	0	0.966	0	0	0	0	0	0	0	0	0
41.31	6	0	1.268	0	0.965	0	0	0	0	0	0	0	0	0
42.35	6	0	1.269	0	0.968	0	0	0	0	0	0	0	0	0
43.12	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
43.89	6	0	1.267	0	0.968	0	0	0	0	0	0	0	0	0
44.66	6	0	1.268	0	1.017	0	0	0	0	0	0	0	0	0
45.43	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
46.19	6	0	1.266	0	0.969	0	0	0	0	0	0	0	0	0
48.23	6	0	1.266	0	0.968	0	0	0	0	0	0	0	0	0
49.22	6	0	1.266	0	0.966	0	0	0	0	0	0	0	0	0
50.26	6	0	1.265	0	0.965	0	0	0	0	0	0	0	0	0
51.3	6	0	1.265	0	0.968	0	0	0	0	0	0	0	0	0
52.07	6	0	1.251	0	0.969	0	0	0	0	0	0	0	0	0
52.84	6	0	1.265	0	0.968	0	0	0	0	0	0	0	0	0
53.61	6	0	1.266	0	1.036	0	0	0	0	0	0	0	0	0



54.38	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
55.15	6	0	1.265	0	0.969	0	0	0	0	0	0	0	0	0
57.18	6	0	1.265	0	0.968	0	0	0	0	0	0	0	0	0
58.17	6	0	1.265	0	0.966	0	0	0	0	0	0	0	0	0
59.21	6	0	1.263	0	0.965	0	0	0	0	0	0	0	0	0
60.26	6	0	1.264	0	0.968	0	0	0	0	0	0	0	0	0
61.02	6	0	1.25	0	0.969	0	0	0	0	0	0	0	0	0
61.79	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
62.56	6	0	1.264	0	0.966	0	0	0	0	0	0	0	0	0
63.66	6	0	1.262	0	0.965	0	0	0	0	0	0	0	0	0
64.7	6	0	1.264	0	0.968	0	0	0	0	0	0	0	0	0
65.47	6	0	1.249	0	0.969	0	0	0	0	0	0	0	0	0
66.24	6	0	1.262	0	0.968	0	0	0	0	0	0	0	0	0
67.01	6	0	1.259	0	0.966	0	0	0	0	0	0	0	0	0
68.17	6	0	1.26	0	0.965	0	0	0	0	0	0	0	0	0
69.15	6	0	1.261	0	0.969	0	0	0	0	0	0	0	0	0
70.64	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
71.63	6	0	1.247	0	0.966	0	0	0	0	0	0	0	0	0
72.67	6	0	1.239	0	0.965	0	0	0	0	0	0	0	0	0
73.66	6	0	1.234	0	0.968	0	0	0	0	0	0	0	0	0
74.43	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
75.25	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
76.02	6	0	1.233	0	0.966	0	0	0	0	0	0	0	0	0
77.12	6	0	1.231	0	0.965	0	0	0	0	0	0	0	0	0
78.16	6	0	1.232	0	0.968	0	0	0	0	0	0	0	0	0
78.93	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
79.7	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
80.47	6	0	1.231	0	0.966	0	0	0	0	0	0	0	0	0
81.62	6	0	1.23	0	0.965	0	0	0	0	0	0	0	0	0
82.61	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
83.38	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
84.15	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
84.92	6	0	1.226	0	1.049	0	0	0	0	0	0	0	0	0
85.74	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
86.51	6	0	1.228	0	0.969	0	0	0	0	0	0	0	0	0
88.54	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
89.53	6	0	1.228	0	0.966	0	0	0	0	0	0	0	0	0
90.57	6	0	1.228	0	0.965	0	0	0	0	0	0	0	0	0
91.56	6	0	1.229	0	0.968	0	0	0	0	0	0	0	0	0
92.33	6	0	1.215	0	0.969	0	0	0	0	0	0	0	0	0
93.1	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
93.93	6	0	1.228	0	0.966	0	0	0	0	0	0	0	0	0
95.02	6	0	1.226	0	0.965	0	0	0	0	0	0	0	0	0
96.01	6	0	1.227	0	0.969	0	0	0	0	0	0	0	0	0
97.5	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
98.48	6	0	1.226	0	0.966	0	0	0	0	0	0	0	0	0
99.53	6	0	1.225	0	0.965	0	0	0	0	0	0	0	0	0
100.52	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
101.29	6	0	1.212	0	0.969	0	0	0	0	0	0	0	0	0
102.05	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
102.82	6	0	1.21	0	0.967	0	0	0	0	0	0	0	0	0
103.59	6	0	1.21	0	0.968	0	0	0	0	0	0	0	0	0
104.36	6	0	1.223	0	0.85	0	0	0	0	0	0	0	0	0
105.13	6	0	1.21	0	0.968	0	0	0	0	0	0	0	0	0
105.9	6	0	1.229	0	0.966	0	0	0	0	0	0	0	0	0
106.94	6	0	1.239	0	0.967	0	0	0	0	0	0	0	0	0
107.93	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
108.97	6	0	1.26	0	0.969	0	0	0	0	0	0	0	0	0
110.95	6	0	1.266	0	0.968	0	0	0	0	0	0	0	0	0
111.94	6	0	1.265	0	0.966	0	0	0	0	0	0	0	0	0
112.93	6	0	1.264	0	0.965	0	0	0	0	0	0	0	0	0
113.92	6	0	1.265	0	0.969	0	0	0	0	0	0	0	0	0
115.4	6	0	1.264	0	0.968	0	0	0	0	0	0	0	0	0
116.39	6	0	1.264	0	0.966	0	0	0	0	0	0	0	0	0
117.43	6	0	1.263	0	0.965	0	0	0	0	0	0	0	0	0
118.48	6	0	1.264	0	0.968	0	0	0	0	0	0	0	0	0
119.25	6	0	1.25	0	0.969	0	0	0	0	0	0	0	0	0
120.01	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
120.78	6	0	1.261	0	1.022	0	0	0	0	0	0	0	0	0
121.55	6	0	1.248	0	0.968	0	0	0	0	0	0	0	0	0

122.32	6	0	1.261	0	0.969	0	0	0	0	0	0	0	0	0
124.35	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
125.34	6	0	1.262	0	0.966	0	0	0	0	0	0	0	0	0
126.39	6	0	1.262	0	0.965	0	0	0	0	0	0	0	0	0
127.37	6	0	1.264	0	0.969	0	0	0	0	0	0	0	0	0
128.86	6	0	1.262	0	0.968	0	0	0	0	0	0	0	0	0
129.85	6	0	1.261	0	0.966	0	0	0	0	0	0	0	0	0
130.84	6	0	1.26	0	0.965	0	0	0	0	0	0	0	0	0
131.82	6	0	1.261	0	0.969	0	0	0	0	0	0	0	0	0
133.31	6	0	1.26	0	0.968	0	0	0	0	0	0	0	0	0
134.3	6	0	1.26	0	0.966	0	0	0	0	0	0	0	0	0
135.34	6	0	1.259	0	0.965	0	0	0	0	0	0	0	0	0
136.33	6	0	1.26	0	0.969	0	0	0	0	0	0	0	0	0
137.81	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
138.8	6	0	1.258	0	0.966	0	0	0	0	0	0	0	0	0
139.84	6	0	1.257	0	0.965	0	0	0	0	0	0	0	0	0
140.78	6	0	1.258	0	0.969	0	0	0	0	0	0	0	0	0
142.26	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
143.25	6	0	1.243	0	0.966	0	0	0	0	0	0	0	0	0
144.29	6	0	1.236	0	0.965	0	0	0	0	0	0	0	0	0
145.28	6	0	1.231	0	0.969	0	0	0	0	0	0	0	0	0
146.76	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
147.75	6	0	1.229	0	0.966	0	0	0	0	0	0	0	0	0
148.8	6	0	1.228	0	0.965	0	0	0	0	0	0	0	0	0
149.73	6	0	1.229	0	0.969	0	0	0	0	0	0	0	0	0
151.27	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
152.26	6	0	1.228	0	0.966	0	0	0	0	0	0	0	0	0
153.24	6	0	1.227	0	0.965	0	0	0	0	0	0	0	0	0
154.29	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
155.11	6	0	1.214	0	0.969	0	0	0	0	0	0	0	0	0
155.88	6	0	1.214	0	0.968	0	0	0	0	0	0	0	0	0
156.65	6	0	1.227	0	0.966	0	0	0	0	0	0	0	0	0
157.75	6	0	1.225	0	0.965	0	0	0	0	0	0	0	0	0
158.74	6	0	1.226	0	0.969	0	0	0	0	0	0	0	0	0
160.22	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
161.21	6	0	1.225	0	0.966	0	0	0	0	0	0	0	0	0
162.2	6	0	1.225	0	0.965	0	0	0	0	0	0	0	0	0
163.19	6	0	1.227	0	0.969	0	0	0	0	0	0	0	0	0
164.67	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
165.66	6	0	1.225	0	0.966	0	0	0	0	0	0	0	0	0
166.7	6	0	1.224	0	0.965	0	0	0	0	0	0	0	0	0
167.75	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
168.51	6	0	1.21	0	0.969	0	0	0	0	0	0	0	0	0
169.28	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
170.05	6	0	1.224	0	0.966	0	0	0	0	0	0	0	0	0
171.15	6	0	1.223	0	0.965	0	0	0	0	0	0	0	0	0
172.19	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
173.02	6	0	1.209	0	0.969	0	0	0	0	0	0	0	0	0
173.79	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
174.56	6	0	1.222	0	0.966	0	0	0	0	0	0	0	0	0
175.65	6	0	1.221	0	0.965	0	0	0	0	0	0	0	0	0
176.7	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
177.47	6	0	1.207	0	0.969	0	0	0	0	0	0	0	0	0
178.29	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
179	6	0	1.243	0	0.966	0	0	0	0	0	0	0	0	0
180.16	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
181.09	6	0	1.265	0	0.969	0	0	0	0	0	0	0	0	0
182.63	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
183.62	6	0	1.263	0	0.966	0	0	0	0	0	0	0	0	0
184.61	6	0	1.262	0	0.965	0	0	0	0	0	0	0	0	0
185.6	6	0	1.263	0	0.969	0	0	0	0	0	0	0	0	0
187.08	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
188.07	6	0	1.261	0	0.966	0	0	0	0	0	0	0	0	0
189.11	6	0	1.261	0	0.965	0	0	0	0	0	0	0	0	0
190.15	6	0	1.262	0	0.968	0	0	0	0	0	0	0	0	0
190.92	6	0	1.248	0	0.969	0	0	0	0	0	0	0	0	0
191.69	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
192.46	6	0	1.261	0	0.966	0	0	0	0	0	0	0	0	0
193.56	6	0	1.259	0	0.965	0	0	0	0	0	0	0	0	0
194.55	6	0	1.26	0	0.969	0	0	0	0	0	0	0	0	0

196.09	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
197.02	6	0	1.26	0	0.966	0	0	0	0	0	0	0	0	0
198.06	6	0	1.259	0	0.965	0	0	0	0	0	0	0	0	0
199.05	6	0	1.261	0	0.969	0	0	0	0	0	0	0	0	0
200.54	6	0	1.26	0	0.968	0	0	0	0	0	0	0	0	0
201.52	6	0	1.259	0	0.966	0	0	0	0	0	0	0	0	0
202.57	6	0	1.258	0	0.965	0	0	0	0	0	0	0	0	0
203.56	6	0	1.259	0	0.969	0	0	0	0	0	0	0	0	0
205.04	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
205.97	6	0	1.258	0	0.966	0	0	0	0	0	0	0	0	0
207.07	6	0	1.257	0	0.965	0	0	0	0	0	0	0	0	0
208.06	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
208.88	6	0	1.244	0	0.969	0	0	0	0	0	0	0	0	0
209.65	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
210.42	6	0	1.257	0	1.02	0	0	0	0	0	0	0	0	0
211.19	6	0	1.242	0	0.968	0	0	0	0	0	0	0	0	0
211.96	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
213.99	6	0	1.248	0	0.968	0	0	0	0	0	0	0	0	0
214.98	6	0	1.242	0	0.966	0	0	0	0	0	0	0	0	0
216.02	6	0	1.234	0	0.965	0	0	0	0	0	0	0	0	0
217.01	6	0	1.229	0	0.969	0	0	0	0	0	0	0	0	0
218.5	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
219.54	6	0	1.227	0	0.985	0	0	0	0	0	0	0	0	0
220.31	6	0	1.213	0	0.968	0	0	0	0	0	0	0	0	0
221.08	6	0	1.225	0	0.969	0	0	0	0	0	0	0	0	0
222.95	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
223.93	6	0	1.226	0	0.966	0	0	0	0	0	0	0	0	0
224.98	6	0	1.225	0	0.965	0	0	0	0	0	0	0	0	0
226.02	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
226.79	6	0	1.212	0	0.969	0	0	0	0	0	0	0	0	0
227.56	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
228.33	6	0	1.217	0	1.014	0	0	0	0	0	0	0	0	0
229.1	6	0	1.21	0	0.968	0	0	0	0	0	0	0	0	0
229.87	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
231.9	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
232.89	6	0	1.223	0	0.966	0	0	0	0	0	0	0	0	0
233.93	6	0	1.223	0	0.965	0	0	0	0	0	0	0	0	0
234.92	6	0	1.225	0	0.969	0	0	0	0	0	0	0	0	0
236.4	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
237.39	6	0	1.223	0	0.966	0	0	0	0	0	0	0	0	0
238.43	6	0	1.222	0	0.965	0	0	0	0	0	0	0	0	0
239.48	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
240.25	6	0	1.208	0	0.969	0	0	0	0	0	0	0	0	0
241.02	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
241.78	6	0	1.222	0	1.045	0	0	0	0	0	0	0	0	0
242.55	6	0	1.207	0	0.968	0	0	0	0	0	0	0	0	0
243.32	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
245.35	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
246.34	6	0	1.22	0	0.966	0	0	0	0	0	0	0	0	0
247.39	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0
248.43	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
249.2	6	0	1.205	0	0.969	0	0	0	0	0	0	0	0	0
249.97	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
250.74	6	0	1.24	0	1.004	0	0	0	0	0	0	0	0	0
251.51	6	0	1.232	0	0.968	0	0	0	0	0	0	0	0	0
252.28	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
254.36	6	0	1.262	0	0.968	0	0	0	0	0	0	0	0	0
255.3	6	0	1.261	0	0.966	0	0	0	0	0	0	0	0	0
256.34	6	0	1.26	0	0.965	0	0	0	0	0	0	0	0	0
257.33	6	0	1.261	0	0.969	0	0	0	0	0	0	0	0	0
258.81	6	0	1.26	0	0.968	0	0	0	0	0	0	0	0	0
259.8	6	0	1.26	0	0.966	0	0	0	0	0	0	0	0	0
260.84	6	0	1.259	0	0.965	0	0	0	0	0	0	0	0	0
261.89	6	0	1.26	0	0.968	0	0	0	0	0	0	0	0	0
262.66	6	0	1.246	0	0.969	0	0	0	0	0	0	0	0	0
263.43	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0

**Run 6 Serial #143 - 1e+11p/cm<sup>2</sup>**

Time Stamp (S)	Vdriver (V)	Vdriver SEU	Idriver (A)	Idriver SEU	Ivm (A)	Ivm SEU	Logic A SEU	Logic B SEU	Logic C SEU	Logic D SEU	Logic E SEU	Logic F SEU	Logic G SEU	Logic H SEU
0.99	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
1.81	6	0	1.232	0	0.968	0	0	0	0	0	0	0	0	0
2.58	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
3.3	6	0	1.239	0	1.022	0	0	0	0	0	0	0	0	0
4.12	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
4.89	6	0	1.243	0	0.969	0	0	0	0	0	0	0	0	0
6.92	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
7.91	6	0	1.242	0	0.966	0	0	0	0	0	0	0	0	0
8.95	6	0	1.242	0	0.965	0	0	0	0	0	0	0	0	0
9.89	6	0	1.243	0	0.969	0	0	0	0	0	0	0	0	0
11.37	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
12.36	6	0	1.24	0	0.966	0	0	0	0	0	0	0	0	0
13.4	6	0	1.239	0	0.965	0	0	0	0	0	0	0	0	0
14.45	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
15.22	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
15.99	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
16.75	6	0	1.239	0	0.966	0	0	0	0	0	0	0	0	0
17.91	6	0	1.238	0	0.965	0	0	0	0	0	0	0	0	0
18.9	6	0	1.24	0	0.969	0	0	0	0	0	0	0	0	0
20.38	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
21.37	6	0	1.237	0	0.966	0	0	0	0	0	0	0	0	0
22.36	6	0	1.236	0	0.965	0	0	0	0	0	0	0	0	0
23.35	6	0	1.237	0	0.969	0	0	0	0	0	0	0	0	0
24.83	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
25.82	6	0	1.235	0	0.966	0	0	0	0	0	0	0	0	0
26.86	6	0	1.235	0	0.965	0	0	0	0	0	0	0	0	0
27.85	6	0	1.236	0	0.969	0	0	0	0	0	0	0	0	0
29.33	6	0	1.234	0	0.968	0	0	0	0	0	0	0	0	0
30.32	6	0	1.233	0	0.966	0	0	0	0	0	0	0	0	0
31.31	6	0	1.232	0	0.965	0	0	0	0	0	0	0	0	0
32.3	6	0	1.233	0	0.969	0	0	0	0	0	0	0	0	0
33.78	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
34.77	6	0	1.254	0	0.966	0	0	0	0	0	0	0	0	0
35.81	6	0	1.264	0	0.965	0	0	0	0	0	0	0	0	0
36.8	6	0	1.276	0	0.969	0	0	0	0	0	0	0	0	0
38.28	6	0	1.274	0	0.968	0	0	0	0	0	0	0	0	0
39.27	6	0	1.274	0	0.966	0	0	0	0	0	0	0	0	0
40.26	6	0	1.273	0	0.965	0	0	0	0	0	0	0	0	0
41.25	6	0	1.273	0	0.969	0	0	0	0	0	0	0	0	0
42.79	6	0	1.272	0	0.968	0	0	0	0	0	0	0	0	0
43.78	6	0	1.272	0	0.966	0	0	0	0	0	0	0	0	0
44.77	6	0	1.271	0	0.965	0	0	0	0	0	0	0	0	0
45.81	6	0	1.272	0	0.968	0	0	0	0	0	0	0	0	0
46.58	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
47.35	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
48.17	6	0	1.27	0	0.966	0	0	0	0	0	0	0	0	0
49.22	6	0	1.269	0	0.965	0	0	0	0	0	0	0	0	0
50.2	6	0	1.27	0	0.969	0	0	0	0	0	0	0	0	0
51.74	6	0	1.269	0	0.968	0	0	0	0	0	0	0	0	0
52.68	6	0	1.269	0	0.966	0	0	0	0	0	0	0	0	0
53.72	6	0	1.269	0	0.965	0	0	0	0	0	0	0	0	0
54.71	6	0	1.271	0	0.969	0	0	0	0	0	0	0	0	0
56.19	6	0	1.269	0	0.968	0	0	0	0	0	0	0	0	0
57.18	6	0	1.269	0	0.966	0	0	0	0	0	0	0	0	0
58.22	6	0	1.267	0	0.965	0	0	0	0	0	0	0	0	0
59.16	6	0	1.268	0	0.969	0	0	0	0	0	0	0	0	0
60.69	6	0	1.267	0	0.968	0	0	0	0	0	0	0	0	0
61.68	6	0	1.267	0	0.966	0	0	0	0	0	0	0	0	0
62.67	6	0	1.266	0	0.965	0	0	0	0	0	0	0	0	0
63.72	6	0	1.267	0	0.968	0	0	0	0	0	0	0	0	0
64.48	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
65.25	6	0	1.266	0	0.968	0	0	0	0	0	0	0	0	0
66.02	6	0	1.264	0	1.036	0	0	0	0	0	0	0	0	0

66.79	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
67.62	6	0	1.263	0	0.969	0	0	0	0	0	0	0	0	0
69.65	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
70.64	6	0	1.25	0	0.966	0	0	0	0	0	0	0	0	0
71.62	6	0	1.242	0	0.965	0	0	0	0	0	0	0	0	0
72.61	6	0	1.237	0	0.969	0	0	0	0	0	0	0	0	0
74.1	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
75.08	6	0	1.235	0	0.966	0	0	0	0	0	0	0	0	0
76.13	6	0	1.234	0	0.965	0	0	0	0	0	0	0	0	0
77.17	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
77.94	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
78.71	6	0	1.234	0	0.968	0	0	0	0	0	0	0	0	0
79.48	6	0	1.234	0	1.025	0	0	0	0	0	0	0	0	0
80.25	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
81.02	6	0	1.233	0	0.969	0	0	0	0	0	0	0	0	0
83.05	6	0	1.233	0	0.968	0	0	0	0	0	0	0	0	0
84.04	6	0	1.232	0	0.966	0	0	0	0	0	0	0	0	0
85.08	6	0	1.231	0	0.965	0	0	0	0	0	0	0	0	0
86.07	6	0	1.232	0	0.969	0	0	0	0	0	0	0	0	0
87.55	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
88.54	6	0	1.231	0	0.966	0	0	0	0	0	0	0	0	0
89.59	6	0	1.23	0	0.965	0	0	0	0	0	0	0	0	0
90.52	6	0	1.232	0	0.969	0	0	0	0	0	0	0	0	0
92.06	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
92.99	6	0	1.23	0	0.966	0	0	0	0	0	0	0	0	0
94.03	6	0	1.229	0	0.965	0	0	0	0	0	0	0	0	0
95.02	6	0	1.229	0	0.969	0	0	0	0	0	0	0	0	0
96.51	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
97.49	6	0	1.228	0	0.966	0	0	0	0	0	0	0	0	0
98.54	6	0	1.227	0	0.965	0	0	0	0	0	0	0	0	0
99.53	6	0	1.228	0	0.969	0	0	0	0	0	0	0	0	0
101.01	6	0	1.227	0	0.968	0	0	0	0	0	0	0	0	0
102	6	0	1.226	0	0.966	0	0	0	0	0	0	0	0	0
102.99	6	0	1.225	0	0.965	0	0	0	0	0	0	0	0	0
104.03	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
104.8	6	0	1.211	0	0.968	0	0	0	0	0	0	0	0	0
105.62	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
106.39	6	0	1.247	0	0.966	0	0	0	0	0	0	0	0	0
107.49	6	0	1.257	0	0.965	0	0	0	0	0	0	0	0	0
108.48	6	0	1.269	0	0.969	0	0	0	0	0	0	0	0	0
109.96	6	0	1.267	0	0.968	0	0	0	0	0	0	0	0	0
110.95	6	0	1.267	0	0.966	0	0	0	0	0	0	0	0	0
111.94	6	0	1.266	0	0.965	0	0	0	0	0	0	0	0	0
112.93	6	0	1.267	0	0.969	0	0	0	0	0	0	0	0	0
114.41	6	0	1.266	0	0.968	0	0	0	0	0	0	0	0	0
115.4	6	0	1.265	0	0.966	0	0	0	0	0	0	0	0	0
116.44	6	0	1.265	0	0.965	0	0	0	0	0	0	0	0	0
117.49	6	0	1.266	0	0.968	0	0	0	0	0	0	0	0	0
118.26	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
119.03	6	0	1.264	0	0.968	0	0	0	0	0	0	0	0	0
119.79	6	0	1.253	0	0.986	0	0	0	0	0	0	0	0	0
120.56	6	0	1.249	0	0.968	0	0	0	0	0	0	0	0	0
121.33	6	0	1.263	0	0.887	0	0	0	0	0	0	0	0	0
122.1	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
122.87	6	0	1.263	0	0.966	0	0	0	0	0	0	0	0	0
123.91	6	0	1.263	0	0.967	0	0	0	0	0	0	0	0	0
124.96	6	0	1.263	0	0.969	0	0	0	0	0	0	0	0	0
125.95	6	0	1.263	0	0.969	0	0	0	0	0	0	0	0	0
127.87	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
128.86	6	0	1.263	0	0.966	0	0	0	0	0	0	0	0	0
129.9	6	0	1.262	0	0.965	0	0	0	0	0	0	0	0	0
130.94	6	0	1.262	0	0.968	0	0	0	0	0	0	0	0	0
131.71	6	0	1.248	0	0.968	0	0	0	0	0	0	0	0	0
132.48	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
133.25	6	0	1.262	0	1.042	0	0	0	0	0	0	0	0	0
134.02	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
134.79	6	0	1.26	0	0.969	0	0	0	0	0	0	0	0	0
136.88	6	0	1.26	0	0.968	0	0	0	0	0	0	0	0	0
137.86	6	0	1.259	0	0.966	0	0	0	0	0	0	0	0	0
138.85	6	0	1.258	0	0.965	0	0	0	0	0	0	0	0	0

139.84	6	0	1.259	0	0.969	0	0	0	0	0	0	0	0	0
141.33	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
142.31	6	0	1.244	0	0.966	0	0	0	0	0	0	0	0	0
143.36	6	0	1.237	0	0.965	0	0	0	0	0	0	0	0	0
144.29	6	0	1.232	0	0.969	0	0	0	0	0	0	0	0	0
145.77	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
146.76	6	0	1.23	0	0.966	0	0	0	0	0	0	0	0	0
147.81	6	0	1.229	0	0.965	0	0	0	0	0	0	0	0	0
148.85	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
149.62	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
150.39	6	0	1.229	0	0.968	0	0	0	0	0	0	0	0	0
151.16	6	0	1.215	0	0.982	0	0	0	0	0	0	0	0	0
151.93	6	0	1.214	0	0.968	0	0	0	0	0	0	0	0	0
152.69	6	0	1.228	0	0.969	0	0	0	0	0	0	0	0	0
154.78	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
155.72	6	0	1.227	0	0.966	0	0	0	0	0	0	0	0	0
156.76	6	0	1.226	0	0.965	0	0	0	0	0	0	0	0	0
157.75	6	0	1.227	0	0.969	0	0	0	0	0	0	0	0	0
159.23	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
160.22	6	0	1.226	0	0.966	0	0	0	0	0	0	0	0	0
161.26	6	0	1.225	0	0.965	0	0	0	0	0	0	0	0	0
162.31	6	0	1.227	0	0.968	0	0	0	0	0	0	0	0	0
163.08	6	0	1.212	0	0.968	0	0	0	0	0	0	0	0	0
163.84	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
164.61	6	0	1.225	0	1.043	0	0	0	0	0	0	0	0	0
165.38	6	0	1.211	0	0.968	0	0	0	0	0	0	0	0	0
166.15	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
168.24	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
169.23	6	0	1.223	0	0.966	0	0	0	0	0	0	0	0	0
170.22	6	0	1.223	0	0.965	0	0	0	0	0	0	0	0	0
171.26	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
172.03	6	0	1.21	0	0.968	0	0	0	0	0	0	0	0	0
172.8	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
173.57	6	0	1.209	0	1.03	0	0	0	0	0	0	0	0	0
174.34	6	0	1.208	0	0.968	0	0	0	0	0	0	0	0	0
175.1	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
177.19	6	0	1.232	0	0.968	0	0	0	0	0	0	0	0	0
178.18	6	0	1.242	0	0.966	0	0	0	0	0	0	0	0	0
179.17	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
180.21	6	0	1.265	0	0.968	0	0	0	0	0	0	0	0	0
180.98	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
181.75	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
182.57	6	0	1.263	0	0.966	0	0	0	0	0	0	0	0	0
183.67	6	0	1.262	0	0.965	0	0	0	0	0	0	0	0	0
184.66	6	0	1.263	0	0.969	0	0	0	0	0	0	0	0	0
186.14	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
187.13	6	0	1.261	0	0.966	0	0	0	0	0	0	0	0	0
188.12	6	0	1.261	0	0.965	0	0	0	0	0	0	0	0	0
189.11	6	0	1.262	0	0.969	0	0	0	0	0	0	0	0	0
190.65	6	0	1.26	0	0.968	0	0	0	0	0	0	0	0	0
191.58	6	0	1.26	0	0.966	0	0	0	0	0	0	0	0	0
192.63	6	0	1.259	0	0.965	0	0	0	0	0	0	0	0	0
193.61	6	0	1.26	0	0.969	0	0	0	0	0	0	0	0	0
195.1	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
196.09	6	0	1.259	0	0.966	0	0	0	0	0	0	0	0	0
197.13	6	0	1.259	0	0.965	0	0	0	0	0	0	0	0	0
198.17	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
198.94	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
199.71	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
200.48	6	0	1.259	0	1.014	0	0	0	0	0	0	0	0	0
201.25	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
202.02	6	0	1.258	0	0.969	0	0	0	0	0	0	0	0	0
204.05	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
205.04	6	0	1.257	0	0.966	0	0	0	0	0	0	0	0	0
206.08	6	0	1.257	0	0.965	0	0	0	0	0	0	0	0	0
207.07	6	0	1.258	0	0.969	0	0	0	0	0	0	0	0	0
208.55	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
209.54	6	0	1.256	0	0.966	0	0	0	0	0	0	0	0	0
210.59	6	0	1.255	0	0.965	0	0	0	0	0	0	0	0	0
211.52	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0

213.06	6	0	1.248	0	0.968	0	0	0	0	0	0	0	0	0
214.05	6	0	1.241	0	0.966	0	0	0	0	0	0	0	0	0
215.04	6	0	1.234	0	0.965	0	0	0	0	0	0	0	0	0
216.02	6	0	1.229	0	0.969	0	0	0	0	0	0	0	0	0
217.51	6	0	1.227	0	0.968	0	0	0	0	0	0	0	0	0
218.5	6	0	1.227	0	0.966	0	0	0	0	0	0	0	0	0
219.54	6	0	1.226	0	0.965	0	0	0	0	0	0	0	0	0
220.53	6	0	1.226	0	0.969	0	0	0	0	0	0	0	0	0
222.01	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
223	6	0	1.225	0	0.966	0	0	0	0	0	0	0	0	0
223.99	6	0	1.224	0	0.965	0	0	0	0	0	0	0	0	0
225.03	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
225.8	6	0	1.211	0	0.968	0	0	0	0	0	0	0	0	0
226.57	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
227.34	6	0	1.214	0	0.967	0	0	0	0	0	0	0	0	0
228.11	6	0	1.21	0	0.968	0	0	0	0	0	0	0	0	0
228.88	6	0	1.223	0	0.894	0	0	0	0	0	0	0	0	0
229.65	6	0	1.21	0	0.968	0	0	0	0	0	0	0	0	0
230.41	6	0	1.223	0	0.966	0	0	0	0	0	0	0	0	0
231.51	6	0	1.223	0	0.967	0	0	0	0	0	0	0	0	0
232.5	6	0	1.222	0	0.969	0	0	0	0	0	0	0	0	0
233.49	6	0	1.222	0	0.969	0	0	0	0	0	0	0	0	0
235.47	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
236.46	6	0	1.222	0	0.966	0	0	0	0	0	0	0	0	0
237.5	6	0	1.221	0	0.965	0	0	0	0	0	0	0	0	0
238.49	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
239.26	6	0	1.207	0	0.968	0	0	0	0	0	0	0	0	0
240.03	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
240.8	6	0	1.218	0	1.025	0	0	0	0	0	0	0	0	0
241.62	6	0	1.206	0	0.968	0	0	0	0	0	0	0	0	0
242.39	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
244.42	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
245.41	6	0	1.219	0	0.966	0	0	0	0	0	0	0	0	0
246.4	6	0	1.218	0	0.965	0	0	0	0	0	0	0	0	0
247.39	6	0	1.219	0	0.969	0	0	0	0	0	0	0	0	0
248.92	6	0	1.229	0	0.968	0	0	0	0	0	0	0	0	0
249.97	6	0	1.239	0	0.984	0	0	0	0	0	0	0	0	0
250.74	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
251.51	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
253.37	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
254.36	6	0	1.26	0	0.966	0	0	0	0	0	0	0	0	0
255.41	6	0	1.259	0	0.965	0	0	0	0	0	0	0	0	0
256.34	6	0	1.26	0	0.969	0	0	0	0	0	0	0	0	0
257.88	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
258.81	6	0	1.259	0	0.966	0	0	0	0	0	0	0	0	0
259.85	6	0	1.258	0	0.965	0	0	0	0	0	0	0	0	0
260.84	6	0	1.26	0	0.969	0	0	0	0	0	0	0	0	0
262.38	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
263.31	6	0	1.257	0	0.966	0	0	0	0	0	0	0	0	0
264.36	6	0	1.256	0	0.965	0	0	0	0	0	0	0	0	0
265.4	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
266.17	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
266.94	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
267.71	6	0	1.243	0	0.967	0	0	0	0	0	0	0	0	0
268.48	6	0	1.246	0	0.968	0	0	0	0	0	0	0	0	0
269.25	6	0	1.257	0	0.826	0	0	0	0	0	0	0	0	0
270.02	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
270.78	6	0	1.258	0	0.966	0	0	0	0	0	0	0	0	0
271.83	6	0	1.256	0	0.967	0	0	0	0	0	0	0	0	0
272.82	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
273.81	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
275.78	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
276.77	6	0	1.255	0	0.966	0	0	0	0	0	0	0	0	0
277.81	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
278.8	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
280.29	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
281.28	6	0	1.254	0	0.966	0	0	0	0	0	0	0	0	0
282.32	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
283.31	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
284.79	6	0	1.246	0	0.968	0	0	0	0	0	0	0	0	0

285.78	6	0	1.239	0	0.966	0	0	0	0	0	0	0	0	0
286.77	6	0	1.231	0	0.965	0	0	0	0	0	0	0	0	0
287.76	6	0	1.227	0	0.969	0	0	0	0	0	0	0	0	0
289.24	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
290.23	6	0	1.225	0	0.966	0	0	0	0	0	0	0	0	0
291.27	6	0	1.223	0	0.965	0	0	0	0	0	0	0	0	0
292.26	6	0	1.224	0	0.969	0	0	0	0	0	0	0	0	0
293.74	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
294.73	6	0	1.223	0	0.966	0	0	0	0	0	0	0	0	0
295.78	6	0	1.222	0	0.965	0	0	0	0	0	0	0	0	0
296.71	6	0	1.224	0	0.969	0	0	0	0	0	0	0	0	0
298.25	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
299.18	6	0	1.222	0	0.966	0	0	0	0	0	0	0	0	0
300.22	6	0	1.22	0	0.965	0	0	0	0	0	0	0	0	0
301.27	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
302.04	6	0	1.207	0	0.968	0	0	0	0	0	0	0	0	0
302.81	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
303.58	6	0	1.214	0	0.979	0	0	0	0	0	0	0	0	0
304.34	6	0	1.207	0	0.968	0	0	0	0	0	0	0	0	0
305.11	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
307.2	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
308.19	6	0	1.22	0	0.966	0	0	0	0	0	0	0	0	0
309.23	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0
310.22	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
310.99	6	0	1.205	0	0.968	0	0	0	0	0	0	0	0	0
311.76	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
312.58	6	0	1.216	0	0.995	0	0	0	0	0	0	0	0	0
313.35	6	0	1.204	0	0.968	0	0	0	0	0	0	0	0	0
314.12	6	0	1.218	0	0.782	0	0	0	0	0	0	0	0	0
314.89	6	0	1.206	0	0.968	0	0	0	0	0	0	0	0	0
315.6	6	0	1.218	0	0.966	0	0	0	0	0	0	0	0	0
316.65	6	0	1.217	0	0.967	0	0	0	0	0	0	0	0	0
317.64	6	0	1.216	0	0.969	0	0	0	0	0	0	0	0	0
318.68	6	0	1.215	0	0.969	0	0	0	0	0	0	0	0	0
320.66	6	0	1.227	0	0.968	0	0	0	0	0	0	0	0	0
321.59	6	0	1.238	0	0.966	0	0	0	0	0	0	0	0	0
322.69	6	0	1.248	0	0.965	0	0	0	0	0	0	0	0	0
323.68	6	0	1.26	0	0.968	0	0	0	0	0	0	0	0	0
324.45	6	0	1.246	0	0.968	0	0	0	0	0	0	0	0	0
325.27	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
326.04	6	0	1.259	0	0.966	0	0	0	0	0	0	0	0	0
327.14	6	0	1.257	0	0.965	0	0	0	0	0	0	0	0	0
328.13	6	0	1.258	0	0.969	0	0	0	0	0	0	0	0	0
329.61	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
330.6	6	0	1.257	0	0.966	0	0	0	0	0	0	0	0	0
331.64	6	0	1.256	0	0.965	0	0	0	0	0	0	0	0	0
332.69	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
333.45	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
334.22	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
334.99	6	0	1.256	0	0.966	0	0	0	0	0	0	0	0	0
336.09	6	0	1.255	0	0.965	0	0	0	0	0	0	0	0	0
337.08	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
338.56	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
339.55	6	0	1.255	0	0.966	0	0	0	0	0	0	0	0	0
340.59	6	0	1.255	0	0.965	0	0	0	0	0	0	0	0	0
341.58	6	0	1.257	0	0.969	0	0	0	0	0	0	0	0	0
343.07	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
344.06	6	0	1.255	0	0.966	0	0	0	0	0	0	0	0	0
345.1	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
346.09	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
347.57	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
348.56	6	0	1.253	0	0.966	0	0	0	0	0	0	0	0	0
349.55	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
350.54	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
352.02	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
353.01	6	0	1.252	0	0.966	0	0	0	0	0	0	0	0	0
354.05	6	0	1.251	0	0.965	0	0	0	0	0	0	0	0	0
355.04	6	0	1.252	0	0.969	0	0	0	0	0	0	0	0	0
356.52	6	0	1.244	0	0.968	0	0	0	0	0	0	0	0	0
357.51	6	0	1.237	0	0.966	0	0	0	0	0	0	0	0	0



358.56	6	0	1.23	0	0.965	0	0	0	0	0	0	0	0	0
359.49	6	0	1.225	0	0.969	0	0	0	0	0	0	0	0	0
361.03	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
362.02	6	0	1.223	0	0.966	0	0	0	0	0	0	0	0	0
363	6	0	1.222	0	0.965	0	0	0	0	0	0	0	0	0
363.99	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
365.48	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
366.46	6	0	1.221	0	0.966	0	0	0	0	0	0	0	0	0
367.51	6	0	1.221	0	0.965	0	0	0	0	0	0	0	0	0
368.5	6	0	1.222	0	0.969	0	0	0	0	0	0	0	0	0
369.98	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
370.97	6	0	1.22	0	0.966	0	0	0	0	0	0	0	0	0
372.01	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0
373	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
374.48	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
375.47	6	0	1.219	0	0.966	0	0	0	0	0	0	0	0	0
376.52	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0
377.5	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
378.27	6	0	1.206	0	0.968	0	0	0	0	0	0	0	0	0
379.04	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
379.87	6	0	1.219	0	1.037	0	0	0	0	0	0	0	0	0
380.64	6	0	1.204	0	0.968	0	0	0	0	0	0	0	0	0
381.4	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
383.44	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
384.43	6	0	1.217	0	0.966	0	0	0	0	0	0	0	0	0
385.47	6	0	1.216	0	0.965	0	0	0	0	0	0	0	0	0
386.4	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
387.94	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
388.87	6	0	1.216	0	0.966	0	0	0	0	0	0	0	0	0
389.97	6	0	1.215	0	0.965	0	0	0	0	0	0	0	0	0
390.91	6	0	1.216	0	0.969	0	0	0	0	0	0	0	0	0
392.44	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
393.38	6	0	1.236	0	0.966	0	0	0	0	0	0	0	0	0
394.42	6	0	1.247	0	0.965	0	0	0	0	0	0	0	0	0
395.41	6	0	1.259	0	0.969	0	0	0	0	0	0	0	0	0
396.89	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
397.88	6	0	1.257	0	0.966	0	0	0	0	0	0	0	0	0
398.93	6	0	1.256	0	0.965	0	0	0	0	0	0	0	0	0
399.86	6	0	1.257	0	0.969	0	0	0	0	0	0	0	0	0
401.4	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
402.39	6	0	1.256	0	0.966	0	0	0	0	0	0	0	0	0
403.43	6	0	1.255	0	0.965	0	0	0	0	0	0	0	0	0
404.47	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
405.24	6	0	1.242	0	0.968	0	0	0	0	0	0	0	0	0
405.96	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
406.78	6	0	1.252	0	1.016	0	0	0	0	0	0	0	0	0
407.55	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
408.32	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
410.35	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
411.34	6	0	1.254	0	0.966	0	0	0	0	0	0	0	0	0
412.38	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
413.37	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
414.85	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
415.84	6	0	1.254	0	0.966	0	0	0	0	0	0	0	0	0
416.89	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
417.82	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
419.36	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
420.29	6	0	1.252	0	0.966	0	0	0	0	0	0	0	0	0
421.34	6	0	1.251	0	0.965	0	0	0	0	0	0	0	0	0
422.32	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
423.81	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
424.8	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
425.84	6	0	1.25	0	0.965	0	0	0	0	0	0	0	0	0
426.88	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
427.65	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
428.42	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
429.19	6	0	1.225	0	0.967	0	0	0	0	0	0	0	0	0
429.96	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
430.73	6	0	1.226	0	0.816	0	0	0	0	0	0	0	0	0
431.5	6	0	1.21	0	0.968	0	0	0	0	0	0	0	0	0

432.27	6	0	1.223	0	0.966	0	0	0	0	0	0	0	0	0
433.31	6	0	1.222	0	0.967	0	0	0	0	0	0	0	0	0
434.35	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
435.34	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
437.26	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
438.25	6	0	1.22	0	0.966	0	0	0	0	0	0	0	0	0
439.3	6	0	1.22	0	0.965	0	0	0	0	0	0	0	0	0
440.28	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
441.77	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
442.76	6	0	1.219	0	0.966	0	0	0	0	0	0	0	0	0
443.8	6	0	1.218	0	0.965	0	0	0	0	0	0	0	0	0
444.79	6	0	1.219	0	0.969	0	0	0	0	0	0	0	0	0
446.27	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
447.26	6	0	1.218	0	0.966	0	0	0	0	0	0	0	0	0
448.25	6	0	1.218	0	0.965	0	0	0	0	0	0	0	0	0
449.24	6	0	1.219	0	0.969	0	0	0	0	0	0	0	0	0
450.72	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
451.71	6	0	1.217	0	0.966	0	0	0	0	0	0	0	0	0
452.75	6	0	1.217	0	0.965	0	0	0	0	0	0	0	0	0
453.74	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
455.22	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
456.21	6	0	1.216	0	0.966	0	0	0	0	0	0	0	0	0
457.26	6	0	1.215	0	0.965	0	0	0	0	0	0	0	0	0
458.3	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
459.07	6	0	1.202	0	0.968	0	0	0	0	0	0	0	0	0
459.84	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
460.55	6	0	1.201	0	0.967	0	0	0	0	0	0	0	0	0
461.38	6	0	1.2	0	0.968	0	0	0	0	0	0	0	0	0
462.14	6	0	1.213	0	0.844	0	0	0	0	0	0	0	0	0
462.91	6	0	1.201	0	0.968	0	0	0	0	0	0	0	0	0
463.68	6	0	1.219	0	0.966	0	0	0	0	0	0	0	0	0
464.73	6	0	1.23	0	0.967	0	0	0	0	0	0	0	0	0
465.72	6	0	1.241	0	0.969	0	0	0	0	0	0	0	0	0
466.7	6	0	1.251	0	0.969	0	0	0	0	0	0	0	0	0
468.68	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
469.67	6	0	1.256	0	0.966	0	0	0	0	0	0	0	0	0
470.71	6	0	1.255	0	0.965	0	0	0	0	0	0	0	0	0
471.7	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
473.18	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
474.17	6	0	1.255	0	0.966	0	0	0	0	0	0	0	0	0
475.16	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
476.15	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
477.69	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
478.68	6	0	1.253	0	0.966	0	0	0	0	0	0	0	0	0
479.67	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
480.71	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
481.53	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
482.25	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
483.02	6	0	1.243	0	0.967	0	0	0	0	0	0	0	0	0
483.79	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
484.55	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
486.64	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
487.63	6	0	1.253	0	0.966	0	0	0	0	0	0	0	0	0
488.67	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
489.61	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
491.15	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
492.13	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
493.18	6	0	1.251	0	0.965	0	0	0	0	0	0	0	0	0
494.17	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
494.99	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
495.76	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
496.53	6	0	1.25	0	1.014	0	0	0	0	0	0	0	0	0
497.3	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
498.07	6	0	1.248	0	0.969	0	0	0	0	0	0	0	0	0
500.1	6	0	1.242	0	0.968	0	0	0	0	0	0	0	0	0
501.09	6	0	1.235	0	0.966	0	0	0	0	0	0	0	0	0
502.13	6	0	1.228	0	0.965	0	0	0	0	0	0	0	0	0
503.12	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
504.6	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
505.59	6	0	1.221	0	0.966	0	0	0	0	0	0	0	0	0

506.63	6	0	1.22	0	0.965	0	0	0	0	0	0	0	0	0
507.62	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
508.45	6	0	1.206	0	0.968	0	0	0	0	0	0	0	0	0
509.22	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
509.99	6	0	1.22	0	1.005	0	0	0	0	0	0	0	0	0
510.75	6	0	1.206	0	0.968	0	0	0	0	0	0	0	0	0
511.52	6	0	1.219	0	0.969	0	0	0	0	0	0	0	0	0
513.56	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
514.54	6	0	1.218	0	0.966	0	0	0	0	0	0	0	0	0
515.59	6	0	1.217	0	0.965	0	0	0	0	0	0	0	0	0
516.58	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
518.06	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
519.05	6	0	1.217	0	0.966	0	0	0	0	0	0	0	0	0
520.09	6	0	1.217	0	0.965	0	0	0	0	0	0	0	0	0
521.08	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
521.9	6	0	1.204	0	0.968	0	0	0	0	0	0	0	0	0
522.67	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
523.44	6	0	1.211	0	0.992	0	0	0	0	0	0	0	0	0
524.21	6	0	1.202	0	0.968	0	0	0	0	0	0	0	0	0
524.98	6	0	1.215	0	0.969	0	0	0	0	0	0	0	0	0
527.01	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
528	6	0	1.215	0	0.966	0	0	0	0	0	0	0	0	0
529.04	6	0	1.214	0	0.965	0	0	0	0	0	0	0	0	0
530.03	6	0	1.216	0	0.969	0	0	0	0	0	0	0	0	0
531.52	6	0	1.214	0	0.968	0	0	0	0	0	0	0	0	0
532.5	6	0	1.214	0	0.966	0	0	0	0	0	0	0	0	0
533.55	6	0	1.213	0	0.965	0	0	0	0	0	0	0	0	0
534.54	6	0	1.214	0	0.969	0	0	0	0	0	0	0	0	0
536.02	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
537.01	6	0	1.235	0	0.966	0	0	0	0	0	0	0	0	0
538.05	6	0	1.245	0	0.965	0	0	0	0	0	0	0	0	0
539.1	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
539.86	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
540.63	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
541.4	6	0	1.256	0	1.029	0	0	0	0	0	0	0	0	0
542.17	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
542.94	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
544.97	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
545.96	6	0	1.254	0	0.966	0	0	0	0	0	0	0	0	0
547	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
547.99	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
549.48	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
550.47	6	0	1.253	0	0.966	0	0	0	0	0	0	0	0	0
551.51	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
552.5	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
553.98	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
554.97	6	0	1.252	0	0.966	0	0	0	0	0	0	0	0	0
556.01	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
557	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
557.77	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
558.54	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
559.36	6	0	1.248	0	0.989	0	0	0	0	0	0	0	0	0
560.08	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
560.9	6	0	1.251	0	0.785	0	0	0	0	0	0	0	0	0
561.67	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
562.44	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
563.48	6	0	1.25	0	0.967	0	0	0	0	0	0	0	0	0
564.47	6	0	1.25	0	0.969	0	0	0	0	0	0	0	0	0
565.46	6	0	1.249	0	0.969	0	0	0	0	0	0	0	0	0
567.44	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
568.43	6	0	1.249	0	0.966	0	0	0	0	0	0	0	0	0
569.47	6	0	1.248	0	0.965	0	0	0	0	0	0	0	0	0
570.4	6	0	1.249	0	0.969	0	0	0	0	0	0	0	0	0
571.94	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
572.93	6	0	1.234	0	0.966	0	0	0	0	0	0	0	0	0
573.92	6	0	1.227	0	0.965	0	0	0	0	0	0	0	0	0
574.91	6	0	1.222	0	0.969	0	0	0	0	0	0	0	0	0
576.39	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
577.43	6	0	1.22	0	0.966	0	0	0	0	0	0	0	0	0
578.42	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0

579.41	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
580.89	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
581.88	6	0	1.219	0	0.966	0	0	0	0	0	0	0	0	0
582.93	6	0	1.218	0	0.965	0	0	0	0	0	0	0	0	0
583.91	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
585.4	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
586.39	6	0	1.218	0	0.966	0	0	0	0	0	0	0	0	0
587.43	6	0	1.217	0	0.965	0	0	0	0	0	0	0	0	0
588.36	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
589.9	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
590.84	6	0	1.217	0	0.966	0	0	0	0	0	0	0	0	0
591.88	6	0	1.216	0	0.965	0	0	0	0	0	0	0	0	0
592.87	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
594.35	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
595.34	6	0	1.216	0	0.966	0	0	0	0	0	0	0	0	0
596.38	6	0	1.215	0	0.965	0	0	0	0	0	0	0	0	0
597.37	6	0	1.216	0	0.969	0	0	0	0	0	0	0	0	0
598.85	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
599.9	6	0	1.214	0	0.967	0	0	0	0	0	0	0	0	0
600.72	6	0	1.2	0	0.968	0	0	0	0	0	0	0	0	0
601.49	6	0	1.211	0	0.969	0	0	0	0	0	0	0	0	0
603.36	6	0	1.214	0	0.968	0	0	0	0	0	0	0	0	0
604.29	6	0	1.213	0	0.966	0	0	0	0	0	0	0	0	0
605.39	6	0	1.212	0	0.965	0	0	0	0	0	0	0	0	0
606.32	6	0	1.213	0	0.969	0	0	0	0	0	0	0	0	0
607.86	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
608.85	6	0	1.234	0	0.966	0	0	0	0	0	0	0	0	0
609.84	6	0	1.245	0	0.965	0	0	0	0	0	0	0	0	0
610.83	6	0	1.257	0	0.969	0	0	0	0	0	0	0	0	0
612.31	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
613.3	6	0	1.254	0	0.966	0	0	0	0	0	0	0	0	0
614.34	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
615.39	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
616.16	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
616.92	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
617.69	6	0	1.239	0	0.967	0	0	0	0	0	0	0	0	0
618.46	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
619.23	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
620	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
620.77	6	0	1.253	0	0.966	0	0	0	0	0	0	0	0	0
621.81	6	0	1.252	0	0.967	0	0	0	0	0	0	0	0	0
622.8	6	0	1.251	0	0.969	0	0	0	0	0	0	0	0	0
623.79	6	0	1.25	0	0.969	0	0	0	0	0	0	0	0	0
625.82	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
626.81	6	0	1.252	0	0.966	0	0	0	0	0	0	0	0	0
627.8	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
628.84	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
629.61	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
630.38	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
631.15	6	0	1.252	0	0.966	0	0	0	0	0	0	0	0	0
632.3	6	0	1.25	0	0.965	0	0	0	0	0	0	0	0	0
633.29	6	0	1.251	0	0.969	0	0	0	0	0	0	0	0	0
634.78	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
635.76	6	0	1.25	0	0.966	0	0	0	0	0	0	0	0	0
636.81	6	0	1.249	0	0.965	0	0	0	0	0	0	0	0	0
637.8	6	0	1.251	0	0.969	0	0	0	0	0	0	0	0	0
639.28	6	0	1.249	0	0.968	0	0	0	0	0	0	0	0	0
640.27	6	0	1.249	0	0.966	0	0	0	0	0	0	0	0	0
641.26	6	0	1.248	0	0.965	0	0	0	0	0	0	0	0	0
642.25	6	0	1.248	0	0.969	0	0	0	0	0	0	0	0	0
643.78	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
644.72	6	0	1.234	0	0.966	0	0	0	0	0	0	0	0	0
645.76	6	0	1.227	0	0.965	0	0	0	0	0	0	0	0	0
646.75	6	0	1.222	0	0.969	0	0	0	0	0	0	0	0	0
648.23	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
649.22	6	0	1.219	0	0.966	0	0	0	0	0	0	0	0	0
650.26	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0
651.31	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
652.08	6	0	1.205	0	0.968	0	0	0	0	0	0	0	0	0
652.85	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0

653.62	6	0	1.204	0	0.967	0	0	0	0	0	0	0	0	0
654.38	6	0	1.205	0	0.968	0	0	0	0	0	0	0	0	0
655.15	6	0	1.218	0	0.843	0	0	0	0	0	0	0	0	0
655.92	6	0	1.206	0	0.968	0	0	0	0	0	0	0	0	0
656.69	6	0	1.218	0	0.966	0	0	0	0	0	0	0	0	0
657.73	6	0	1.217	0	0.967	0	0	0	0	0	0	0	0	0
658.72	6	0	1.216	0	0.969	0	0	0	0	0	0	0	0	0
659.77	6	0	1.215	0	0.969	0	0	0	0	0	0	0	0	0
661.74	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
662.68	6	0	1.216	0	0.966	0	0	0	0	0	0	0	0	0
663.72	6	0	1.216	0	0.965	0	0	0	0	0	0	0	0	0
664.71	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
666.19	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
667.18	6	0	1.216	0	0.966	0	0	0	0	0	0	0	0	0
668.23	6	0	1.214	0	0.965	0	0	0	0	0	0	0	0	0
669.21	6	0	1.215	0	0.969	0	0	0	0	0	0	0	0	0
670.7	6	0	1.214	0	0.968	0	0	0	0	0	0	0	0	0
671.69	6	0	1.214	0	0.966	0	0	0	0	0	0	0	0	0
672.73	6	0	1.213	0	0.965	0	0	0	0	0	0	0	0	0
673.72	6	0	1.215	0	0.969	0	0	0	0	0	0	0	0	0
675.2	6	0	1.213	0	0.968	0	0	0	0	0	0	0	0	0
676.19	6	0	1.213	0	0.966	0	0	0	0	0	0	0	0	0
677.23	6	0	1.212	0	0.965	0	0	0	0	0	0	0	0	0
678.17	6	0	1.213	0	0.969	0	0	0	0	0	0	0	0	0
679.7	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
680.69	6	0	1.233	0	0.966	0	0	0	0	0	0	0	0	0
681.68	6	0	1.244	0	0.965	0	0	0	0	0	0	0	0	0
682.67	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
684.21	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
685.14	6	0	1.254	0	0.966	0	0	0	0	0	0	0	0	0
686.19	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
687.17	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
688.66	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
689.65	6	0	1.253	0	0.966	0	0	0	0	0	0	0	0	0
690.69	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
691.68	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
693.16	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
694.15	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
695.14	6	0	1.251	0	0.965	0	0	0	0	0	0	0	0	0
696.13	6	0	1.252	0	0.969	0	0	0	0	0	0	0	0	0
697.67	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
698.65	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
699.64	6	0	1.251	0	0.965	0	0	0	0	0	0	0	0	0
700.63	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
702.11	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
703.1	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
704.15	6	0	1.25	0	0.965	0	0	0	0	0	0	0	0	0
705.14	6	0	1.251	0	0.969	0	0	0	0	0	0	0	0	0
706.62	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
707.61	6	0	1.249	0	0.966	0	0	0	0	0	0	0	0	0
708.65	6	0	1.249	0	0.965	0	0	0	0	0	0	0	0	0
709.64	6	0	1.25	0	0.969	0	0	0	0	0	0	0	0	0
711.12	6	0	1.249	0	0.968	0	0	0	0	0	0	0	0	0
712.11	6	0	1.248	0	0.966	0	0	0	0	0	0	0	0	0
713.1	6	0	1.247	0	0.965	0	0	0	0	0	0	0	0	0
714.09	6	0	1.248	0	0.969	0	0	0	0	0	0	0	0	0
715.63	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
716.56	6	0	1.233	0	0.966	0	0	0	0	0	0	0	0	0
717.66	6	0	1.226	0	0.965	0	0	0	0	0	0	0	0	0
718.59	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
720.13	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
721.06	6	0	1.219	0	0.966	0	0	0	0	0	0	0	0	0
722.16	6	0	1.218	0	0.965	0	0	0	0	0	0	0	0	0
723.15	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
723.92	6	0	1.205	0	0.968	0	0	0	0	0	0	0	0	0
724.69	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
725.46	6	0	1.215	0	1.022	0	0	0	0	0	0	0	0	0
726.23	6	0	1.204	0	0.968	0	0	0	0	0	0	0	0	0
727.05	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
729.08	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0

730.07	6	0	1.217	0	0.966	0	0	0	0	0	0	0	0	0
731.12	6	0	1.215	0	0.965	0	0	0	0	0	0	0	0	0
732.05	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
733.59	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
734.58	6	0	1.216	0	0.966	0	0	0	0	0	0	0	0	0
735.62	6	0	1.215	0	0.965	0	0	0	0	0	0	0	0	0
736.55	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
738.04	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
739.02	6	0	1.215	0	0.966	0	0	0	0	0	0	0	0	0
740.07	6	0	1.214	0	0.965	0	0	0	0	0	0	0	0	0
741.06	6	0	1.215	0	0.969	0	0	0	0	0	0	0	0	0
742.54	6	0	1.214	0	0.968	0	0	0	0	0	0	0	0	0
743.53	6	0	1.214	0	0.966	0	0	0	0	0	0	0	0	0
744.57	6	0	1.213	0	0.965	0	0	0	0	0	0	0	0	0
745.62	6	0	1.214	0	0.968	0	0	0	0	0	0	0	0	0
746.38	6	0	1.2	0	0.968	0	0	0	0	0	0	0	0	0
747.15	6	0	1.213	0	0.968	0	0	0	0	0	0	0	0	0
747.92	6	0	1.205	0	0.992	0	0	0	0	0	0	0	0	0
748.69	6	0	1.198	0	0.968	0	0	0	0	0	0	0	0	0
749.46	6	0	1.211	0	0.969	0	0	0	0	0	0	0	0	0
751.55	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
752.54	6	0	1.233	0	0.966	0	0	0	0	0	0	0	0	0
753.52	6	0	1.244	0	0.965	0	0	0	0	0	0	0	0	0
754.51	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
756	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
756.98	6	0	1.254	0	0.966	0	0	0	0	0	0	0	0	0
758.03	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
759.02	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
760.5	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
761.49	6	0	1.253	0	0.966	0	0	0	0	0	0	0	0	0
762.53	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
763.52	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
765	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
765.99	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
767.04	6	0	1.25	0	0.965	0	0	0	0	0	0	0	0	0
768.02	6	0	1.251	0	0.969	0	0	0	0	0	0	0	0	0
769.51	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
770.5	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
771.54	6	0	1.251	0	0.965	0	0	0	0	0	0	0	0	0
772.47	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
774.01	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
775	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
775.99	6	0	1.25	0	0.965	0	0	0	0	0	0	0	0	0
776.98	6	0	1.251	0	0.969	0	0	0	0	0	0	0	0	0
778.52	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
779.45	6	0	1.249	0	0.966	0	0	0	0	0	0	0	0	0
780.49	6	0	1.248	0	0.965	0	0	0	0	0	0	0	0	0
781.48	6	0	1.25	0	0.969	0	0	0	0	0	0	0	0	0
782.96	6	0	1.249	0	0.968	0	0	0	0	0	0	0	0	0
783.95	6	0	1.248	0	0.966	0	0	0	0	0	0	0	0	0
785	6	0	1.247	0	0.965	0	0	0	0	0	0	0	0	0
785.99	6	0	1.248	0	0.969	0	0	0	0	0	0	0	0	0
787.47	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
788.46	6	0	1.233	0	0.966	0	0	0	0	0	0	0	0	0
789.5	6	0	1.226	0	0.965	0	0	0	0	0	0	0	0	0
790.43	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
791.97	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
792.91	6	0	1.219	0	0.966	0	0	0	0	0	0	0	0	0
793.95	6	0	1.218	0	0.965	0	0	0	0	0	0	0	0	0
794.94	6	0	1.219	0	0.969	0	0	0	0	0	0	0	0	0
796.48	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
797.47	6	0	1.217	0	0.966	0	0	0	0	0	0	0	0	0
798.45	6	0	1.217	0	0.965	0	0	0	0	0	0	0	0	0
799.5	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
800.27	6	0	1.204	0	0.968	0	0	0	0	0	0	0	0	0
801.04	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
801.8	6	0	1.214	0	1.018	0	0	0	0	0	0	0	0	0
802.57	6	0	1.202	0	0.968	0	0	0	0	0	0	0	0	0
803.34	6	0	1.215	0	0.969	0	0	0	0	0	0	0	0	0
805.43	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0

806.42	6	0	1.215	0	0.966	0	0	0	0	0	0	0	0	0
807.46	6	0	1.215	0	0.965	0	0	0	0	0	0	0	0	0
808.4	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
809.93	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
810.92	6	0	1.215	0	0.966	0	0	0	0	0	0	0	0	0
811.97	6	0	1.214	0	0.965	0	0	0	0	0	0	0	0	0
812.95	6	0	1.215	0	0.969	0	0	0	0	0	0	0	0	0
814.38	6	0	1.214	0	0.968	0	0	0	0	0	0	0	0	0
815.37	6	0	1.213	0	0.966	0	0	0	0	0	0	0	0	0
816.41	6	0	1.213	0	0.965	0	0	0	0	0	0	0	0	0
817.4	6	0	1.214	0	0.969	0	0	0	0	0	0	0	0	0
818.94	6	0	1.213	0	0.968	0	0	0	0	0	0	0	0	0
819.87	6	0	1.212	0	0.966	0	0	0	0	0	0	0	0	0
820.92	6	0	1.211	0	0.965	0	0	0	0	0	0	0	0	0
821.91	6	0	1.212	0	0.969	0	0	0	0	0	0	0	0	0
823.39	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
824.38	6	0	1.233	0	0.966	0	0	0	0	0	0	0	0	0
825.42	6	0	1.243	0	0.965	0	0	0	0	0	0	0	0	0
826.41	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
827.89	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
828.88	6	0	1.253	0	0.966	0	0	0	0	0	0	0	0	0
829.93	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
830.91	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
831.74	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
832.51	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
833.28	6	0	1.251	0	1.046	0	0	0	0	0	0	0	0	0
834.05	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
834.81	6	0	1.251	0	0.969	0	0	0	0	0	0	0	0	0
836.9	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
837.84	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
838.88	6	0	1.25	0	0.965	0	0	0	0	0	0	0	0	0
839.87	6	0	1.251	0	0.969	0	0	0	0	0	0	0	0	0
841.35	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
842.34	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
843.38	6	0	1.25	0	0.965	0	0	0	0	0	0	0	0	0
844.43	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
845.2	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
845.96	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
846.73	6	0	1.248	0	1.022	0	0	0	0	0	0	0	0	0
847.5	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
848.27	6	0	1.249	0	0.796	0	0	0	0	0	0	0	0	0
849.1	6	0	1.237	0	0.968	0	0	0	0	0	0	0	0	0
849.86	6	0	1.249	0	0.966	0	0	0	0	0	0	0	0	0
850.91	6	0	1.249	0	0.967	0	0	0	0	0	0	0	0	0
851.9	6	0	1.248	0	0.969	0	0	0	0	0	0	0	0	0
852.88	6	0	1.248	0	0.969	0	0	0	0	0	0	0	0	0
854.86	6	0	1.248	0	0.968	0	0	0	0	0	0	0	0	0
855.85	6	0	1.247	0	0.966	0	0	0	0	0	0	0	0	0
856.84	6	0	1.246	0	0.965	0	0	0	0	0	0	0	0	0
857.88	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
858.65	6	0	1.233	0	0.968	0	0	0	0	0	0	0	0	0
859.42	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
860.19	6	0	1.226	0	0.967	0	0	0	0	0	0	0	0	0
860.96	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
861.73	6	0	1.223	0	0.825	0	0	0	0	0	0	0	0	0
862.55	6	0	1.207	0	0.968	0	0	0	0	0	0	0	0	0
863.32	6	0	1.22	0	0.966	0	0	0	0	0	0	0	0	0
864.36	6	0	1.219	0	0.967	0	0	0	0	0	0	0	0	0
865.3	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
866.34	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
868.32	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
869.31	6	0	1.217	0	0.966	0	0	0	0	0	0	0	0	0
870.35	6	0	1.217	0	0.965	0	0	0	0	0	0	0	0	0
871.28	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
872.82	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
873.81	6	0	1.216	0	0.966	0	0	0	0	0	0	0	0	0
874.8	6	0	1.215	0	0.965	0	0	0	0	0	0	0	0	0
875.79	6	0	1.216	0	0.969	0	0	0	0	0	0	0	0	0
877.27	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
878.26	6	0	1.215	0	0.966	0	0	0	0	0	0	0	0	0

879.3	6	0	1.215	0	0.965	0	0	0	0	0	0	0	0	0
880.29	6	0	1.216	0	0.969	0	0	0	0	0	0	0	0	0
881.78	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
882.76	6	0	1.214	0	0.966	0	0	0	0	0	0	0	0	0
883.81	6	0	1.213	0	0.965	0	0	0	0	0	0	0	0	0
884.8	6	0	1.214	0	0.969	0	0	0	0	0	0	0	0	0
886.28	6	0	1.213	0	0.968	0	0	0	0	0	0	0	0	0
887.27	6	0	1.213	0	0.966	0	0	0	0	0	0	0	0	0
888.31	6	0	1.213	0	0.965	0	0	0	0	0	0	0	0	0
889.25	6	0	1.214	0	0.969	0	0	0	0	0	0	0	0	0
890.78	6	0	1.212	0	0.968	0	0	0	0	0	0	0	0	0
891.77	6	0	1.212	0	0.966	0	0	0	0	0	0	0	0	0
892.76	6	0	1.211	0	0.965	0	0	0	0	0	0	0	0	0
893.75	6	0	1.212	0	0.969	0	0	0	0	0	0	0	0	0
895.29	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
896.22	6	0	1.233	0	0.966	0	0	0	0	0	0	0	0	0
897.26	6	0	1.243	0	0.965	0	0	0	0	0	0	0	0	0
898.25	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
899.74	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
900.72	6	0	1.253	0	0.966	0	0	0	0	0	0	0	0	0
901.77	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
902.76	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
904.24	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
905.23	6	0	1.252	0	0.966	0	0	0	0	0	0	0	0	0
906.27	6	0	1.251	0	0.965	0	0	0	0	0	0	0	0	0
907.26	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
908.74	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
909.73	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
910.78	6	0	1.25	0	0.965	0	0	0	0	0	0	0	0	0
911.76	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
912.59	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
913.3	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
914.07	6	0	1.236	0	0.967	0	0	0	0	0	0	0	0	0
914.84	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
915.61	6	0	1.251	0	0.965	0	0	0	0	0	0	0	0	0
916.38	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
917.15	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
918.25	6	0	1.25	0	0.967	0	0	0	0	0	0	0	0	0
919.23	6	0	1.249	0	0.969	0	0	0	0	0	0	0	0	0
920.22	6	0	1.249	0	0.969	0	0	0	0	0	0	0	0	0
922.2	6	0	1.249	0	0.968	0	0	0	0	0	0	0	0	0
923.19	6	0	1.249	0	0.966	0	0	0	0	0	0	0	0	0
924.23	6	0	1.248	0	0.965	0	0	0	0	0	0	0	0	0
925.22	6	0	1.249	0	0.969	0	0	0	0	0	0	0	0	0
926.7	6	0	1.248	0	0.968	0	0	0	0	0	0	0	0	0
927.69	6	0	1.247	0	0.966	0	0	0	0	0	0	0	0	0
928.74	6	0	1.246	0	0.965	0	0	0	0	0	0	0	0	0
929.73	6	0	1.247	0	0.969	0	0	0	0	0	0	0	0	0
931.21	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
932.2	6	0	1.233	0	0.966	0	0	0	0	0	0	0	0	0
933.24	6	0	1.225	0	0.965	0	0	0	0	0	0	0	0	0
934.28	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
935.05	6	0	1.206	0	0.968	0	0	0	0	0	0	0	0	0
935.82	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
936.59	6	0	1.219	0	1.026	0	0	0	0	0	0	0	0	0
937.36	6	0	1.204	0	0.968	0	0	0	0	0	0	0	0	0
938.13	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
940.22	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
941.15	6	0	1.217	0	0.966	0	0	0	0	0	0	0	0	0
942.19	6	0	1.216	0	0.965	0	0	0	0	0	0	0	0	0
943.18	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
944.67	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
945.65	6	0	1.216	0	0.966	0	0	0	0	0	0	0	0	0
946.7	6	0	1.215	0	0.965	0	0	0	0	0	0	0	0	0
947.74	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
948.51	6	0	1.201	0	0.968	0	0	0	0	0	0	0	0	0
949.28	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
950.05	6	0	1.212	0	0.986	0	0	0	0	0	0	0	0	0
950.82	6	0	1.201	0	0.968	0	0	0	0	0	0	0	0	0
951.59	6	0	1.215	0	0.831	0	0	0	0	0	0	0	0	0



952.35	6	0	1.203	0	0.968	0	0	0	0	0	0	0	0	0
953.12	6	0	1.215	0	0.966	0	0	0	0	0	0	0	0	0
954.22	6	0	1.214	0	0.967	0	0	0	0	0	0	0	0	0
955.21	6	0	1.213	0	0.987	0	0	0	0	0	0	0	0	0
955.98	6	0	1.199	0	0.965	0	0	0	0	0	0	0	0	0
956.75	6	0	1.214	0	0.968	0	0	0	0	0	0	0	0	0
957.57	6	0	1.214	0	1.049	0	0	0	0	0	0	0	0	0
958.34	6	0	1.2	0	0.968	0	0	0	0	0	0	0	0	0
959.11	6	0	1.213	0	0.966	0	0	0	0	0	0	0	0	0
960.21	6	0	1.212	0	0.965	0	0	0	0	0	0	0	0	0
961.14	6	0	1.214	0	0.969	0	0	0	0	0	0	0	0	0
962.63	6	0	1.212	0	0.968	0	0	0	0	0	0	0	0	0
963.61	6	0	1.212	0	0.966	0	0	0	0	0	0	0	0	0
964.66	6	0	1.211	0	0.965	0	0	0	0	0	0	0	0	0
965.65	6	0	1.211	0	0.969	0	0	0	0	0	0	0	0	0
967.13	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
968.12	6	0	1.232	0	0.966	0	0	0	0	0	0	0	0	0
969.16	6	0	1.243	0	0.965	0	0	0	0	0	0	0	0	0
970.21	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
970.97	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
971.74	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
972.51	6	0	1.241	0	0.967	0	0	0	0	0	0	0	0	0
973.28	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
974.05	6	0	1.252	0	0.969	0	0	0	0	0	0	0	0	0
976.14	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
977.13	6	0	1.252	0	0.966	0	0	0	0	0	0	0	0	0
978.17	6	0	1.251	0	0.965	0	0	0	0	0	0	0	0	0
979.16	6	0	1.252	0	0.969	0	0	0	0	0	0	0	0	0
980.64	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
981.63	6	0	1.25	0	0.966	0	0	0	0	0	0	0	0	0
982.62	6	0	1.249	0	0.965	0	0	0	0	0	0	0	0	0
983.61	6	0	1.25	0	0.969	0	0	0	0	0	0	0	0	0
985.15	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
986.08	6	0	1.25	0	0.966	0	0	0	0	0	0	0	0	0
987.18	6	0	1.25	0	0.965	0	0	0	0	0	0	0	0	0
988.17	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
988.94	6	0	1.237	0	0.968	0	0	0	0	0	0	0	0	0
989.76	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
990.53	6	0	1.25	0	1.028	0	0	0	0	0	0	0	0	0
991.3	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
992.01	6	0	1.249	0	0.813	0	0	0	0	0	0	0	0	0
992.78	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
993.55	6	0	1.249	0	0.966	0	0	0	0	0	0	0	0	0
994.65	6	0	1.248	0	0.967	0	0	0	0	0	0	0	0	0
995.64	6	0	1.248	0	0.988	0	0	0	0	0	0	0	0	0
996.46	6	0	1.234	0	0.965	0	0	0	0	0	0	0	0	0
997.17	6	0	1.249	0	0.968	0	0	0	0	0	0	0	0	0
997.94	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
998.77	6	0	1.234	0	0.968	0	0	0	0	0	0	0	0	0
999.48	6	0	1.248	0	0.966	0	0	0	0	0	0	0	0	0
1000.63	6	0	1.246	0	0.965	0	0	0	0	0	0	0	0	0
1001.57	6	0	1.247	0	0.969	0	0	0	0	0	0	0	0	0
1003.11	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
1004.09	6	0	1.232	0	0.966	0	0	0	0	0	0	0	0	0
1005.08	6	0	1.225	0	0.965	0	0	0	0	0	0	0	0	0
1006.07	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
1007.61	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
1008.6	6	0	1.218	0	0.966	0	0	0	0	0	0	0	0	0
1009.59	6	0	1.217	0	0.965	0	0	0	0	0	0	0	0	0
1010.58	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
1012.06	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
1013.05	6	0	1.217	0	0.966	0	0	0	0	0	0	0	0	0
1014.09	6	0	1.216	0	0.965	0	0	0	0	0	0	0	0	0
1015.08	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
1016.56	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
1017.55	6	0	1.216	0	0.966	0	0	0	0	0	0	0	0	0
1018.6	6	0	1.214	0	0.965	0	0	0	0	0	0	0	0	0
1019.58	6	0	1.215	0	0.969	0	0	0	0	0	0	0	0	0
1021.07	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
1022.06	6	0	1.215	0	0.966	0	0	0	0	0	0	0	0	0

1023.1	6	0	1.214	0	0.965	0	0	0	0	0	0	0	0	0
1024.03	6	0	1.216	0	0.969	0	0	0	0	0	0	0	0	0
1025.57	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
1026.56	6	0	1.214	0	0.966	0	0	0	0	0	0	0	0	0
1027.6	6	0	1.213	0	0.965	0	0	0	0	0	0	0	0	0
1028.59	6	0	1.214	0	0.968	0	0	0	0	0	0	0	0	0
1029.42	6	0	1.199	0	0.968	0	0	0	0	0	0	0	0	0
1030.18	6	0	1.21	0	0.968	0	0	0	0	0	0	0	0	0
1030.95	6	0	1.213	0	1.043	0	0	0	0	0	0	0	0	0
1031.72	6	0	1.199	0	0.968	0	0	0	0	0	0	0	0	0
1032.49	6	0	1.212	0	0.969	0	0	0	0	0	0	0	0	0
1034.52	6	0	1.212	0	0.968	0	0	0	0	0	0	0	0	0
1035.51	6	0	1.211	0	0.966	0	0	0	0	0	0	0	0	0
1036.56	6	0	1.21	0	0.965	0	0	0	0	0	0	0	0	0
1037.54	6	0	1.211	0	0.969	0	0	0	0	0	0	0	0	0

**Run 7 Serial #5 - 5e+10p/cm<sup>2</sup> - 45° Angle Front**

Time Stamp (S)	Vdriver (V)	Vdriver SEU	Idriver (A)	Idriver SEU	Ivm (A)	Ivm SEU	Logic A SEU	Logic B SEU	Logic C SEU	Logic D SEU	Logic E SEU	Logic F SEU	Logic G SEU	Logic H SEU
0.77	6	0	1.281	0	0.967	0	0	0	0	0	0	0	0	0
1.54	6	0	1.294	0	0.968	0	0	0	0	0	0	0	0	0
2.64	6	0	1.292	0	0.969	0	0	0	0	0	0	0	0	0
4.61	6	0	1.291	0	0.968	0	0	0	0	0	0	0	0	0
5.6	6	0	1.29	0	0.966	0	0	0	0	0	0	0	0	0
6.65	6	0	1.289	0	0.965	0	0	0	0	0	0	0	0	0
7.69	6	0	1.295	0	0.968	0	0	0	0	0	0	0	0	0
8.4	6	0	1.28	0	0.968	0	0	0	0	0	0	0	0	0
9.23	6	0	1.292	0	0.968	0	0	0	0	0	0	0	0	0
10	6	0	1.292	0	0.966	0	0	0	0	0	0	0	0	0
11.09	6	0	1.29	0	0.965	0	0	0	0	0	0	0	0	0
12.14	6	0	1.29	0	0.968	0	0	0	0	0	0	0	0	0
12.91	6	0	1.276	0	0.968	0	0	0	0	0	0	0	0	0
13.68	6	0	1.289	0	0.968	0	0	0	0	0	0	0	0	0
14.44	6	0	1.29	0	0.966	0	0	0	0	0	0	0	0	0
15.54	6	0	1.289	0	0.965	0	0	0	0	0	0	0	0	0
16.53	6	0	1.29	0	0.969	0	0	0	0	0	0	0	0	0
18.01	6	0	1.288	0	0.968	0	0	0	0	0	0	0	0	0
19	6	0	1.287	0	0.966	0	0	0	0	0	0	0	0	0
20.05	6	0	1.286	0	0.965	0	0	0	0	0	0	0	0	0
21.09	6	0	1.286	0	0.968	0	0	0	0	0	0	0	0	0
21.86	6	0	1.272	0	0.968	0	0	0	0	0	0	0	0	0
22.63	6	0	1.283	0	0.968	0	0	0	0	0	0	0	0	0
23.4	6	0	1.285	0	0.966	0	0	0	0	0	0	0	0	0
24.5	6	0	1.283	0	0.965	0	0	0	0	0	0	0	0	0
25.54	6	0	1.285	0	0.968	0	0	0	0	0	0	0	0	0
26.31	6	0	1.27	0	0.968	0	0	0	0	0	0	0	0	0
27.08	6	0	1.282	0	0.968	0	0	0	0	0	0	0	0	0
27.85	6	0	1.283	0	1.035	0	0	0	0	0	0	0	0	0
28.62	6	0	1.268	0	0.968	0	0	0	0	0	0	0	0	0
29.38	6	0	1.28	0	0.969	0	0	0	0	0	0	0	0	0
31.42	6	0	1.273	0	0.968	0	0	0	0	0	0	0	0	0
32.41	6	0	1.266	0	0.966	0	0	0	0	0	0	0	0	0
33.45	6	0	1.259	0	0.965	0	0	0	0	0	0	0	0	0
34.38	6	0	1.257	0	0.969	0	0	0	0	0	0	0	0	0
35.92	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
36.91	6	0	1.254	0	0.966	0	0	0	0	0	0	0	0	0
37.9	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
38.89	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
40.37	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
41.36	6	0	1.252	0	0.966	0	0	0	0	0	0	0	0	0
42.35	6	0	1.251	0	0.965	0	0	0	0	0	0	0	0	0
43.34	6	0	1.249	0	0.969	0	0	0	0	0	0	0	0	0
44.82	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
45.81	6	0	1.247	0	0.966	0	0	0	0	0	0	0	0	0
46.85	6	0	1.245	0	0.965	0	0	0	0	0	0	0	0	0
47.84	6	0	1.246	0	0.969	0	0	0	0	0	0	0	0	0

49.32	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
50.31	6	0	1.245	0	0.966	0	0	0	0	0	0	0	0	0
51.3	6	0	1.244	0	0.965	0	0	0	0	0	0	0	0	0
52.29	6	0	1.246	0	0.969	0	0	0	0	0	0	0	0	0
53.77	6	0	1.244	0	0.968	0	0	0	0	0	0	0	0	0
54.76	6	0	1.243	0	0.966	0	0	0	0	0	0	0	0	0
55.8	6	0	1.242	0	0.965	0	0	0	0	0	0	0	0	0
56.79	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
57.56	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
58.33	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
59.15	6	0	1.242	0	0.966	0	0	0	0	0	0	0	0	0
60.25	6	0	1.24	0	0.965	0	0	0	0	0	0	0	0	0
61.24	6	0	1.242	0	0.969	0	0	0	0	0	0	0	0	0
62.72	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
63.71	6	0	1.239	0	0.967	0	0	0	0	0	0	0	0	0
64.7	6	0	1.238	0	0.965	0	0	0	0	0	0	0	0	0
65.75	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
66.51	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
67.34	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
68.11	6	0	1.26	0	0.967	0	0	0	0	0	0	0	0	0
69.21	6	0	1.27	0	0.965	0	0	0	0	0	0	0	0	0
70.14	6	0	1.276	0	0.969	0	0	0	0	0	0	0	0	0
71.62	6	0	1.275	0	0.968	0	0	0	0	0	0	0	0	0
72.67	6	0	1.274	0	0.967	0	0	0	0	0	0	0	0	0
73.65	6	0	1.273	0	0.965	0	0	0	0	0	0	0	0	0
74.7	6	0	1.274	0	0.968	0	0	0	0	0	0	0	0	0
75.47	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
76.24	6	0	1.266	0	0.968	0	0	0	0	0	0	0	0	0
77	6	0	1.273	0	0.967	0	0	0	0	0	0	0	0	0
78.16	6	0	1.271	0	0.965	0	0	0	0	0	0	0	0	0
79.15	6	0	1.278	0	0.968	0	0	0	0	0	0	0	0	0
79.92	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
80.68	6	0	1.276	0	0.968	0	0	0	0	0	0	0	0	0
81.45	6	0	1.275	0	1.025	0	0	0	0	0	0	0	0	0
82.22	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
82.99	6	0	1.274	0	0.801	0	0	0	0	0	0	0	0	0
83.76	6	0	1.262	0	0.968	0	0	0	0	0	0	0	0	0
84.53	6	0	1.274	0	0.966	0	0	0	0	0	0	0	0	0
85.57	6	0	1.274	0	0.967	0	0	0	0	0	0	0	0	0
86.56	6	0	1.274	0	0.968	0	0	0	0	0	0	0	0	0
87.55	6	0	1.274	0	0.969	0	0	0	0	0	0	0	0	0
89.53	6	0	1.274	0	0.968	0	0	0	0	0	0	0	0	0
90.52	6	0	1.273	0	0.967	0	0	0	0	0	0	0	0	0
91.56	6	0	1.272	0	0.965	0	0	0	0	0	0	0	0	0
92.55	6	0	1.273	0	0.968	0	0	0	0	0	0	0	0	0
93.37	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
94.14	6	0	1.271	0	0.968	0	0	0	0	0	0	0	0	0
94.91	6	0	1.272	0	0.967	0	0	0	0	0	0	0	0	0
96.01	6	0	1.271	0	0.965	0	0	0	0	0	0	0	0	0
97	6	0	1.272	0	0.969	0	0	0	0	0	0	0	0	0
98.48	6	0	1.271	0	0.968	0	0	0	0	0	0	0	0	0
99.47	6	0	1.27	0	0.967	0	0	0	0	0	0	0	0	0
100.51	6	0	1.269	0	0.965	0	0	0	0	0	0	0	0	0
101.45	6	0	1.27	0	0.969	0	0	0	0	0	0	0	0	0
102.98	6	0	1.262	0	0.968	0	0	0	0	0	0	0	0	0
103.92	6	0	1.255	0	0.967	0	0	0	0	0	0	0	0	0
104.96	6	0	1.248	0	0.965	0	0	0	0	0	0	0	0	0
106.01	6	0	1.246	0	0.968	0	0	0	0	0	0	0	0	0
106.77	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
107.54	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
108.31	6	0	1.244	0	0.967	0	0	0	0	0	0	0	0	0
109.41	6	0	1.242	0	0.965	0	0	0	0	0	0	0	0	0
110.4	6	0	1.243	0	0.969	0	0	0	0	0	0	0	0	0
111.88	6	0	1.242	0	0.968	0	0	0	0	0	0	0	0	0
112.87	6	0	1.241	0	0.967	0	0	0	0	0	0	0	0	0
113.91	6	0	1.241	0	0.965	0	0	0	0	0	0	0	0	0
114.85	6	0	1.239	0	0.969	0	0	0	0	0	0	0	0	0
116.33	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
117.32	6	0	1.237	0	0.967	0	0	0	0	0	0	0	0	0
118.36	6	0	1.236	0	0.965	0	0	0	0	0	0	0	0	0

119.41	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
120.18	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
120.95	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
121.71	6	0	1.236	0	0.967	0	0	0	0	0	0	0	0	0
122.87	6	0	1.235	0	0.965	0	0	0	0	0	0	0	0	0
123.86	6	0	1.237	0	0.968	0	0	0	0	0	0	0	0	0
124.68	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
125.45	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
126.22	6	0	1.235	0	0.967	0	0	0	0	0	0	0	0	0
127.32	6	0	1.233	0	0.965	0	0	0	0	0	0	0	0	0
128.36	6	0	1.234	0	0.968	0	0	0	0	0	0	0	0	0
129.13	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
129.9	6	0	1.233	0	0.968	0	0	0	0	0	0	0	0	0
130.67	6	0	1.231	0	1.046	0	0	0	0	0	0	0	0	0
131.44	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
132.2	6	0	1.232	0	0.969	0	0	0	0	0	0	0	0	0
134.24	6	0	1.232	0	0.968	0	0	0	0	0	0	0	0	0
135.23	6	0	1.231	0	0.967	0	0	0	0	0	0	0	0	0
136.27	6	0	1.23	0	0.965	0	0	0	0	0	0	0	0	0
137.26	6	0	1.231	0	0.969	0	0	0	0	0	0	0	0	0
138.74	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
139.73	6	0	1.252	0	0.967	0	0	0	0	0	0	0	0	0
140.77	6	0	1.262	0	0.965	0	0	0	0	0	0	0	0	0
141.71	6	0	1.269	0	0.969	0	0	0	0	0	0	0	0	0
143.19	6	0	1.267	0	0.968	0	0	0	0	0	0	0	0	0
144.18	6	0	1.266	0	0.967	0	0	0	0	0	0	0	0	0
145.22	6	0	1.265	0	0.965	0	0	0	0	0	0	0	0	0
146.21	6	0	1.266	0	0.969	0	0	0	0	0	0	0	0	0
147.69	6	0	1.265	0	0.968	0	0	0	0	0	0	0	0	0
148.68	6	0	1.265	0	0.967	0	0	0	0	0	0	0	0	0
149.73	6	0	1.264	0	0.965	0	0	0	0	0	0	0	0	0
150.71	6	0	1.271	0	0.968	0	0	0	0	0	0	0	0	0
151.48	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
152.25	6	0	1.269	0	0.968	0	0	0	0	0	0	0	0	0
153.02	6	0	1.254	0	0.967	0	0	0	0	0	0	0	0	0
153.79	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
154.56	6	0	1.267	0	0.828	0	0	0	0	0	0	0	0	0
155.33	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
156.1	6	0	1.267	0	0.966	0	0	0	0	0	0	0	0	0
157.14	6	0	1.267	0	0.967	0	0	0	0	0	0	0	0	0
158.13	6	0	1.268	0	0.968	0	0	0	0	0	0	0	0	0
159.17	6	0	1.267	0	0.969	0	0	0	0	0	0	0	0	0
161.1	6	0	1.268	0	0.968	0	0	0	0	0	0	0	0	0
162.08	6	0	1.267	0	0.967	0	0	0	0	0	0	0	0	0
163.13	6	0	1.266	0	0.965	0	0	0	0	0	0	0	0	0
164.17	6	0	1.267	0	0.968	0	0	0	0	0	0	0	0	0
164.94	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
165.71	6	0	1.265	0	0.968	0	0	0	0	0	0	0	0	0
166.48	6	0	1.266	0	0.967	0	0	0	0	0	0	0	0	0
167.58	6	0	1.264	0	0.965	0	0	0	0	0	0	0	0	0
168.57	6	0	1.266	0	0.969	0	0	0	0	0	0	0	0	0
170.05	6	0	1.264	0	0.968	0	0	0	0	0	0	0	0	0
171.04	6	0	1.264	0	0.967	0	0	0	0	0	0	0	0	0
172.08	6	0	1.263	0	0.965	0	0	0	0	0	0	0	0	0
173.01	6	0	1.264	0	0.969	0	0	0	0	0	0	0	0	0
174.55	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
175.54	6	0	1.249	0	0.967	0	0	0	0	0	0	0	0	0
176.53	6	0	1.241	0	0.965	0	0	0	0	0	0	0	0	0
177.52	6	0	1.24	0	0.969	0	0	0	0	0	0	0	0	0
179	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
179.99	6	0	1.238	0	0.967	0	0	0	0	0	0	0	0	0
181.03	6	0	1.236	0	0.965	0	0	0	0	0	0	0	0	0
182.08	6	0	1.237	0	0.968	0	0	0	0	0	0	0	0	0
182.85	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
183.62	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
184.38	6	0	1.23	0	1.021	0	0	0	0	0	0	0	0	0
185.15	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
185.92	6	0	1.235	0	0.969	0	0	0	0	0	0	0	0	0
187.95	6	0	1.232	0	0.968	0	0	0	0	0	0	0	0	0
188.94	6	0	1.231	0	0.967	0	0	0	0	0	0	0	0	0

189.99	6	0	1.23	0	0.965	0	0	0	0	0	0	0	0	0
190.92	6	0	1.231	0	0.969	0	0	0	0	0	0	0	0	0
192.46	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
193.45	6	0	1.23	0	0.967	0	0	0	0	0	0	0	0	0
194.44	6	0	1.23	0	0.965	0	0	0	0	0	0	0	0	0
195.48	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
196.3	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
197.07	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
197.84	6	0	1.23	0	0.967	0	0	0	0	0	0	0	0	0
198.94	6	0	1.228	0	0.965	0	0	0	0	0	0	0	0	0
199.93	6	0	1.229	0	0.969	0	0	0	0	0	0	0	0	0
201.41	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
202.4	6	0	1.228	0	0.967	0	0	0	0	0	0	0	0	0
203.44	6	0	1.227	0	0.965	0	0	0	0	0	0	0	0	0
204.43	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
205.2	6	0	1.214	0	0.968	0	0	0	0	0	0	0	0	0
205.97	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
206.74	6	0	1.214	0	1.006	0	0	0	0	0	0	0	0	0
207.51	6	0	1.212	0	0.968	0	0	0	0	0	0	0	0	0
208.33	6	0	1.225	0	0.969	0	0	0	0	0	0	0	0	0
210.36	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
211.35	6	0	1.246	0	0.967	0	0	0	0	0	0	0	0	0
212.4	6	0	1.257	0	0.965	0	0	0	0	0	0	0	0	0
213.33	6	0	1.264	0	0.969	0	0	0	0	0	0	0	0	0
214.81	6	0	1.262	0	0.968	0	0	0	0	0	0	0	0	0
215.8	6	0	1.262	0	0.967	0	0	0	0	0	0	0	0	0
216.85	6	0	1.26	0	0.965	0	0	0	0	0	0	0	0	0
217.89	6	0	1.262	0	0.968	0	0	0	0	0	0	0	0	0
218.66	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
219.43	6	0	1.26	0	0.968	0	0	0	0	0	0	0	0	0
220.2	6	0	1.26	0	0.967	0	0	0	0	0	0	0	0	0
221.35	6	0	1.259	0	0.965	0	0	0	0	0	0	0	0	0
222.39	6	0	1.266	0	0.968	0	0	0	0	0	0	0	0	0
223.16	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
223.93	6	0	1.264	0	0.968	0	0	0	0	0	0	0	0	0
224.7	6	0	1.264	0	1.035	0	0	0	0	0	0	0	0	0
225.47	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
226.24	6	0	1.263	0	0.969	0	0	0	0	0	0	0	0	0
228.27	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
229.26	6	0	1.263	0	0.967	0	0	0	0	0	0	0	0	0
230.3	6	0	1.263	0	0.965	0	0	0	0	0	0	0	0	0
231.35	6	0	1.265	0	0.968	0	0	0	0	0	0	0	0	0
232.11	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
232.88	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
233.65	6	0	1.259	0	0.998	0	0	0	0	0	0	0	0	0
234.42	6	0	1.248	0	0.968	0	0	0	0	0	0	0	0	0
235.19	6	0	1.261	0	0.969	0	0	0	0	0	0	0	0	0
237.22	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
238.21	6	0	1.261	0	0.967	0	0	0	0	0	0	0	0	0
239.25	6	0	1.26	0	0.965	0	0	0	0	0	0	0	0	0
240.24	6	0	1.262	0	0.969	0	0	0	0	0	0	0	0	0
241.73	6	0	1.26	0	0.968	0	0	0	0	0	0	0	0	0
242.72	6	0	1.26	0	0.967	0	0	0	0	0	0	0	0	0
243.76	6	0	1.258	0	0.965	0	0	0	0	0	0	0	0	0
244.75	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
245.52	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
246.34	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
247.11	6	0	1.246	0	0.967	0	0	0	0	0	0	0	0	0
248.21	6	0	1.238	0	0.965	0	0	0	0	0	0	0	0	0
249.2	6	0	1.236	0	0.969	0	0	0	0	0	0	0	0	0
250.68	6	0	1.234	0	0.968	0	0	0	0	0	0	0	0	0
251.67	6	0	1.234	0	0.967	0	0	0	0	0	0	0	0	0
252.71	6	0	1.233	0	0.965	0	0	0	0	0	0	0	0	0
253.7	6	0	1.233	0	0.968	0	0	0	0	0	0	0	0	0
254.52	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
255.29	6	0	1.232	0	0.968	0	0	0	0	0	0	0	0	0
256.06	6	0	1.233	0	1.034	0	0	0	0	0	0	0	0	0
256.83	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
257.6	6	0	1.231	0	0.969	0	0	0	0	0	0	0	0	0
259.63	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0

260.62	6	0	1.227	0	0.967	0	0	0	0	0	0	0	0	0
261.66	6	0	1.227	0	0.965	0	0	0	0	0	0	0	0	0
262.71	6	0	1.227	0	0.968	0	0	0	0	0	0	0	0	0
263.48	6	0	1.213	0	0.968	0	0	0	0	0	0	0	0	0
264.25	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
265.01	6	0	1.216	0	0.967	0	0	0	0	0	0	0	0	0
266.11	6	0	1.226	0	0.965	0	0	0	0	0	0	0	0	0
267.1	6	0	1.228	0	0.969	0	0	0	0	0	0	0	0	0
268.58	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
269.57	6	0	1.226	0	0.967	0	0	0	0	0	0	0	0	0
270.62	6	0	1.225	0	0.965	0	0	0	0	0	0	0	0	0
271.61	6	0	1.225	0	0.969	0	0	0	0	0	0	0	0	0
273.09	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
274.08	6	0	1.224	0	0.967	0	0	0	0	0	0	0	0	0
275.12	6	0	1.223	0	0.965	0	0	0	0	0	0	0	0	0
276.16	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
276.93	6	0	1.21	0	0.968	0	0	0	0	0	0	0	0	0
277.7	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
278.47	6	0	1.217	0	0.992	0	0	0	0	0	0	0	0	0
279.24	6	0	1.208	0	0.968	0	0	0	0	0	0	0	0	0
280.01	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
282.04	6	0	1.233	0	0.968	0	0	0	0	0	0	0	0	0
283.03	6	0	1.243	0	0.967	0	0	0	0	0	0	0	0	0
284.07	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
285.06	6	0	1.261	0	0.969	0	0	0	0	0	0	0	0	0
286.55	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
287.53	6	0	1.258	0	0.967	0	0	0	0	0	0	0	0	0
288.58	6	0	1.257	0	0.965	0	0	0	0	0	0	0	0	0
289.51	6	0	1.258	0	0.969	0	0	0	0	0	0	0	0	0
291.05	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
292.04	6	0	1.257	0	0.967	0	0	0	0	0	0	0	0	0
293.03	6	0	1.256	0	0.965	0	0	0	0	0	0	0	0	0
294.07	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
294.84	6	0	1.249	0	0.968	0	0	0	0	0	0	0	0	0
295.61	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
296.38	6	0	1.261	0	1.027	0	0	0	0	0	0	0	0	0
297.15	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
297.92	6	0	1.26	0	0.969	0	0	0	0	0	0	0	0	0
300	6	0	1.26	0	0.968	0	0	0	0	0	0	0	0	0
300.99	6	0	1.26	0	0.967	0	0	0	0	0	0	0	0	0
302.03	6	0	1.26	0	0.965	0	0	0	0	0	0	0	0	0
303.02	6	0	1.262	0	0.968	0	0	0	0	0	0	0	0	0
303.85	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
304.62	6	0	1.26	0	0.968	0	0	0	0	0	0	0	0	0
305.39	6	0	1.26	0	1.031	0	0	0	0	0	0	0	0	0
306.15	6	0	1.246	0	0.968	0	0	0	0	0	0	0	0	0
306.92	6	0	1.259	0	0.969	0	0	0	0	0	0	0	0	0
308.96	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
309.94	6	0	1.258	0	0.967	0	0	0	0	0	0	0	0	0
310.99	6	0	1.258	0	0.965	0	0	0	0	0	0	0	0	0
312.03	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
312.8	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
313.57	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
314.34	6	0	1.257	0	1.016	0	0	0	0	0	0	0	0	0
315.11	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
315.88	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
317.96	6	0	1.249	0	0.968	0	0	0	0	0	0	0	0	0
318.9	6	0	1.242	0	0.967	0	0	0	0	0	0	0	0	0
319.94	6	0	1.235	0	0.965	0	0	0	0	0	0	0	0	0
320.93	6	0	1.233	0	0.969	0	0	0	0	0	0	0	0	0
322.41	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
323.4	6	0	1.231	0	0.967	0	0	0	0	0	0	0	0	0
324.44	6	0	1.23	0	0.965	0	0	0	0	0	0	0	0	0
325.43	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
326.26	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
327.03	6	0	1.229	0	0.968	0	0	0	0	0	0	0	0	0
327.79	6	0	1.226	0	1.021	0	0	0	0	0	0	0	0	0
328.56	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
329.33	6	0	1.229	0	0.969	0	0	0	0	0	0	0	0	0
331.42	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0

332.35	6	0	1.225	0	0.967	0	0	0	0	0	0	0	0	0
333.4	6	0	1.224	0	0.965	0	0	0	0	0	0	0	0	0
334.44	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
335.21	6	0	1.21	0	0.968	0	0	0	0	0	0	0	0	0
335.98	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
336.75	6	0	1.221	0	0.967	0	0	0	0	0	0	0	0	0
337.9	6	0	1.224	0	0.965	0	0	0	0	0	0	0	0	0
338.89	6	0	1.225	0	0.969	0	0	0	0	0	0	0	0	0
340.37	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
341.36	6	0	1.223	0	0.967	0	0	0	0	0	0	0	0	0
342.35	6	0	1.222	0	0.965	0	0	0	0	0	0	0	0	0
343.34	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
344.82	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
345.81	6	0	1.222	0	0.967	0	0	0	0	0	0	0	0	0
346.85	6	0	1.221	0	0.965	0	0	0	0	0	0	0	0	0
347.84	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
349.33	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
350.31	6	0	1.22	0	0.967	0	0	0	0	0	0	0	0	0
351.36	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0
352.35	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
353.83	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
354.82	6	0	1.241	0	0.967	0	0	0	0	0	0	0	0	0
355.86	6	0	1.251	0	0.965	0	0	0	0	0	0	0	0	0
356.8	6	0	1.258	0	0.969	0	0	0	0	0	0	0	0	0
358.28	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
359.27	6	0	1.256	0	0.967	0	0	0	0	0	0	0	0	0
360.31	6	0	1.255	0	0.965	0	0	0	0	0	0	0	0	0
361.35	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
362.18	6	0	1.242	0	0.968	0	0	0	0	0	0	0	0	0
362.95	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
363.72	6	0	1.255	0	0.967	0	0	0	0	0	0	0	0	0
364.81	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
365.86	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
366.63	6	0	1.246	0	0.968	0	0	0	0	0	0	0	0	0
367.4	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
368.16	6	0	1.248	0	0.976	0	0	0	0	0	0	0	0	0
368.93	6	0	1.244	0	0.968	0	0	0	0	0	0	0	0	0
369.7	6	0	1.258	0	0.969	0	0	0	0	0	0	0	0	0
371.79	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
372.72	6	0	1.258	0	0.967	0	0	0	0	0	0	0	0	0
373.77	6	0	1.258	0	0.965	0	0	0	0	0	0	0	0	0
374.76	6	0	1.26	0	0.969	0	0	0	0	0	0	0	0	0
376.24	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
377.23	6	0	1.258	0	0.967	0	0	0	0	0	0	0	0	0
378.27	6	0	1.257	0	0.965	0	0	0	0	0	0	0	0	0
379.26	6	0	1.258	0	0.969	0	0	0	0	0	0	0	0	0
380.74	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
381.73	6	0	1.256	0	0.967	0	0	0	0	0	0	0	0	0
382.78	6	0	1.255	0	0.965	0	0	0	0	0	0	0	0	0
383.82	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
384.59	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
385.36	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
386.13	6	0	1.256	0	0.967	0	0	0	0	0	0	0	0	0
387.22	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
388.21	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
389.75	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
390.68	6	0	1.24	0	0.967	0	0	0	0	0	0	0	0	0
391.73	6	0	1.233	0	0.965	0	0	0	0	0	0	0	0	0
392.72	6	0	1.231	0	0.969	0	0	0	0	0	0	0	0	0
394.2	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
395.19	6	0	1.229	0	0.967	0	0	0	0	0	0	0	0	0
396.23	6	0	1.228	0	0.965	0	0	0	0	0	0	0	0	0
397.22	6	0	1.229	0	0.969	0	0	0	0	0	0	0	0	0
398.7	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
399.69	6	0	1.228	0	0.967	0	0	0	0	0	0	0	0	0
400.74	6	0	1.227	0	0.965	0	0	0	0	0	0	0	0	0
401.72	6	0	1.225	0	0.969	0	0	0	0	0	0	0	0	0
403.21	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
404.2	6	0	1.223	0	0.967	0	0	0	0	0	0	0	0	0
405.18	6	0	1.222	0	0.965	0	0	0	0	0	0	0	0	0

406.23	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
407	6	0	1.209	0	0.968	0	0	0	0	0	0	0	0	0
407.77	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
408.54	6	0	1.208	0	0.967	0	0	0	0	0	0	0	0	0
409.3	6	0	1.209	0	0.968	0	0	0	0	0	0	0	0	0
410.07	6	0	1.222	0	0.823	0	0	0	0	0	0	0	0	0
410.84	6	0	1.21	0	0.968	0	0	0	0	0	0	0	0	0
411.67	6	0	1.222	0	0.966	0	0	0	0	0	0	0	0	0
412.71	6	0	1.221	0	0.967	0	0	0	0	0	0	0	0	0
413.64	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
414.69	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
416.66	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
417.65	6	0	1.22	0	0.967	0	0	0	0	0	0	0	0	0
418.64	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0
419.63	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
421.11	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
422.16	6	0	1.218	0	0.967	0	0	0	0	0	0	0	0	0
423.15	6	0	1.217	0	0.965	0	0	0	0	0	0	0	0	0
424.13	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
425.62	6	0	1.229	0	0.968	0	0	0	0	0	0	0	0	0
426.61	6	0	1.239	0	0.967	0	0	0	0	0	0	0	0	0
427.65	6	0	1.25	0	0.965	0	0	0	0	0	0	0	0	0
428.64	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
430.12	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
431.11	6	0	1.254	0	0.967	0	0	0	0	0	0	0	0	0
432.15	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
433.2	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
433.97	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
434.73	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
435.5	6	0	1.239	0	0.967	0	0	0	0	0	0	0	0	0
436.27	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
437.04	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
439.13	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
440.12	6	0	1.257	0	0.967	0	0	0	0	0	0	0	0	0
441.11	6	0	1.256	0	0.965	0	0	0	0	0	0	0	0	0
442.15	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
442.92	6	0	1.243	0	0.969	0	0	0	0	0	0	0	0	0
443.74	6	0	1.244	0	0.968	0	0	0	0	0	0	0	0	0
444.51	6	0	1.257	0	0.967	0	0	0	0	0	0	0	0	0
445.61	6	0	1.256	0	0.965	0	0	0	0	0	0	0	0	0
446.65	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
447.42	6	0	1.244	0	0.968	0	0	0	0	0	0	0	0	0
448.19	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
448.96	6	0	1.253	0	1.025	0	0	0	0	0	0	0	0	0
449.73	6	0	1.242	0	0.968	0	0	0	0	0	0	0	0	0
450.5	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
452.59	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
453.57	6	0	1.255	0	0.967	0	0	0	0	0	0	0	0	0
454.62	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
455.55	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
457.03	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
458.02	6	0	1.254	0	0.967	0	0	0	0	0	0	0	0	0
459.07	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
460.06	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
461.54	6	0	1.246	0	0.968	0	0	0	0	0	0	0	0	0
462.53	6	0	1.239	0	0.967	0	0	0	0	0	0	0	0	0
463.57	6	0	1.231	0	0.965	0	0	0	0	0	0	0	0	0
464.61	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
465.38	6	0	1.215	0	0.969	0	0	0	0	0	0	0	0	0
466.15	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
466.98	6	0	1.228	0	1.049	0	0	0	0	0	0	0	0	0
467.69	6	0	1.213	0	0.968	0	0	0	0	0	0	0	0	0
468.46	6	0	1.226	0	0.969	0	0	0	0	0	0	0	0	0
470.55	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
471.53	6	0	1.226	0	0.967	0	0	0	0	0	0	0	0	0
472.58	6	0	1.226	0	0.965	0	0	0	0	0	0	0	0	0
473.57	6	0	1.224	0	0.969	0	0	0	0	0	0	0	0	0
475.05	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
476.04	6	0	1.222	0	0.967	0	0	0	0	0	0	0	0	0
477.08	6	0	1.221	0	0.965	0	0	0	0	0	0	0	0	0



478.13	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
478.89	6	0	1.207	0	0.969	0	0	0	0	0	0	0	0	0
479.66	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
480.43	6	0	1.221	0	1.027	0	0	0	0	0	0	0	0	0
481.2	6	0	1.207	0	0.968	0	0	0	0	0	0	0	0	0
481.97	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
484	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
484.99	6	0	1.22	0	0.967	0	0	0	0	0	0	0	0	0
486.04	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0
487.02	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
488.51	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
489.5	6	0	1.218	0	0.967	0	0	0	0	0	0	0	0	0
490.54	6	0	1.218	0	0.965	0	0	0	0	0	0	0	0	0
491.58	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
492.35	6	0	1.205	0	0.968	0	0	0	0	0	0	0	0	0
493.12	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0

**Run 8 Serial #5 - 5e+10p/cm<sup>2</sup> - 45° Angle Side (1.0e11p/cm<sup>2</sup> total)**

Time Stamp (S)	Vdriver (V)	Vdriver SEU	Idriver (A)	Idriver SEU	Ivm (A)	Ivm SEU	Logic A SEU	Logic B SEU	Logic C SEU	Logic D SEU	Logic E SEU	Logic F SEU	Logic G SEU	Logic H SEU
0.94	6	0	1.281	0	0.968	0	0	0	0	0	0	0	0	0
1.98	6	0	1.28	0	0.969	0	0	0	0	0	0	0	0	0
3.96	6	0	1.28	0	0.968	0	0	0	0	0	0	0	0	0
4.95	6	0	1.279	0	0.966	0	0	0	0	0	0	0	0	0
5.99	6	0	1.278	0	0.965	0	0	0	0	0	0	0	0	0
7.03	6	0	1.279	0	0.968	0	0	0	0	0	0	0	0	0
7.8	6	0	1.265	0	0.968	0	0	0	0	0	0	0	0	0
8.57	6	0	1.277	0	0.968	0	0	0	0	0	0	0	0	0
9.34	6	0	1.277	0	1.022	0	0	0	0	0	0	0	0	0
10.11	6	0	1.262	0	0.968	0	0	0	0	0	0	0	0	0
10.88	6	0	1.275	0	0.969	0	0	0	0	0	0	0	0	0
12.91	6	0	1.268	0	0.968	0	0	0	0	0	0	0	0	0
13.9	6	0	1.261	0	0.967	0	0	0	0	0	0	0	0	0
14.94	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
15.93	6	0	1.248	0	0.969	0	0	0	0	0	0	0	0	0
17.41	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
18.4	6	0	1.246	0	0.967	0	0	0	0	0	0	0	0	0
19.45	6	0	1.245	0	0.965	0	0	0	0	0	0	0	0	0
20.43	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
21.2	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
21.97	6	0	1.244	0	0.968	0	0	0	0	0	0	0	0	0
22.8	6	0	1.241	0	1.014	0	0	0	0	0	0	0	0	0
23.56	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
24.33	6	0	1.243	0	0.802	0	0	0	0	0	0	0	0	0
25.1	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
25.87	6	0	1.243	0	0.966	0	0	0	0	0	0	0	0	0
26.92	6	0	1.242	0	0.967	0	0	0	0	0	0	0	0	0
27.96	6	0	1.24	0	0.97	0	0	0	0	0	0	0	0	0
28.73	6	0	1.226	0	0.965	0	0	0	0	0	0	0	0	0
29.5	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
30.27	6	0	1.241	0	1.043	0	0	0	0	0	0	0	0	0
31.03	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
31.8	6	0	1.24	0	0.967	0	0	0	0	0	0	0	0	0
32.9	6	0	1.239	0	0.965	0	0	0	0	0	0	0	0	0
33.84	6	0	1.241	0	0.969	0	0	0	0	0	0	0	0	0
35.37	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
36.31	6	0	1.238	0	0.967	0	0	0	0	0	0	0	0	0
37.35	6	0	1.237	0	0.965	0	0	0	0	0	0	0	0	0
38.34	6	0	1.238	0	0.969	0	0	0	0	0	0	0	0	0
39.82	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
40.81	6	0	1.236	0	0.967	0	0	0	0	0	0	0	0	0
41.86	6	0	1.235	0	0.965	0	0	0	0	0	0	0	0	0
42.84	6	0	1.236	0	0.969	0	0	0	0	0	0	0	0	0
44.33	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
45.32	6	0	1.234	0	0.967	0	0	0	0	0	0	0	0	0
46.3	6	0	1.233	0	0.965	0	0	0	0	0	0	0	0	0

47.29	6	0	1.233	0	0.969	0	0	0	0	0	0	0	0	0
48.83	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
49.76	6	0	1.254	0	0.967	0	0	0	0	0	0	0	0	0
50.81	6	0	1.264	0	0.965	0	0	0	0	0	0	0	0	0
51.8	6	0	1.276	0	0.969	0	0	0	0	0	0	0	0	0
53.28	6	0	1.275	0	0.968	0	0	0	0	0	0	0	0	0
54.27	6	0	1.274	0	0.967	0	0	0	0	0	0	0	0	0
55.31	6	0	1.273	0	0.965	0	0	0	0	0	0	0	0	0
56.3	6	0	1.274	0	0.969	0	0	0	0	0	0	0	0	0
57.78	6	0	1.273	0	0.968	0	0	0	0	0	0	0	0	0
58.77	6	0	1.272	0	0.967	0	0	0	0	0	0	0	0	0
59.82	6	0	1.271	0	0.965	0	0	0	0	0	0	0	0	0
60.75	6	0	1.273	0	0.969	0	0	0	0	0	0	0	0	0
62.29	6	0	1.271	0	0.968	0	0	0	0	0	0	0	0	0
63.28	6	0	1.27	0	0.967	0	0	0	0	0	0	0	0	0
64.26	6	0	1.269	0	0.965	0	0	0	0	0	0	0	0	0
65.31	6	0	1.27	0	0.968	0	0	0	0	0	0	0	0	0
66.08	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
66.9	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
67.67	6	0	1.27	0	0.967	0	0	0	0	0	0	0	0	0
68.77	6	0	1.269	0	0.965	0	0	0	0	0	0	0	0	0
69.76	6	0	1.271	0	0.969	0	0	0	0	0	0	0	0	0
71.24	6	0	1.269	0	0.968	0	0	0	0	0	0	0	0	0
72.23	6	0	1.269	0	0.967	0	0	0	0	0	0	0	0	0
73.22	6	0	1.268	0	0.965	0	0	0	0	0	0	0	0	0
74.21	6	0	1.268	0	0.969	0	0	0	0	0	0	0	0	0
75.69	6	0	1.267	0	0.968	0	0	0	0	0	0	0	0	0
76.68	6	0	1.267	0	0.967	0	0	0	0	0	0	0	0	0
77.72	6	0	1.266	0	0.965	0	0	0	0	0	0	0	0	0
78.71	6	0	1.267	0	0.969	0	0	0	0	0	0	0	0	0
80.19	6	0	1.266	0	0.968	0	0	0	0	0	0	0	0	0
81.18	6	0	1.265	0	0.967	0	0	0	0	0	0	0	0	0
82.23	6	0	1.264	0	0.965	0	0	0	0	0	0	0	0	0
83.27	6	0	1.264	0	0.968	0	0	0	0	0	0	0	0	0
83.98	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
84.81	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
85.58	6	0	1.244	0	0.979	0	0	0	0	0	0	0	0	0
86.34	6	0	1.232	0	0.968	0	0	0	0	0	0	0	0	0
87.11	6	0	1.239	0	0.829	0	0	0	0	0	0	0	0	0
87.88	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
88.65	6	0	1.236	0	0.966	0	0	0	0	0	0	0	0	0
89.7	6	0	1.235	0	0.967	0	0	0	0	0	0	0	0	0
90.68	6	0	1.234	0	0.968	0	0	0	0	0	0	0	0	0
91.67	6	0	1.233	0	0.969	0	0	0	0	0	0	0	0	0
93.65	6	0	1.234	0	0.968	0	0	0	0	0	0	0	0	0
94.64	6	0	1.233	0	0.967	0	0	0	0	0	0	0	0	0
95.68	6	0	1.233	0	0.965	0	0	0	0	0	0	0	0	0
96.67	6	0	1.234	0	0.969	0	0	0	0	0	0	0	0	0
98.15	6	0	1.232	0	0.968	0	0	0	0	0	0	0	0	0
99.14	6	0	1.232	0	0.967	0	0	0	0	0	0	0	0	0
100.19	6	0	1.23	0	0.965	0	0	0	0	0	0	0	0	0
101.12	6	0	1.231	0	0.969	0	0	0	0	0	0	0	0	0
102.66	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
103.65	6	0	1.23	0	0.967	0	0	0	0	0	0	0	0	0
104.63	6	0	1.23	0	0.965	0	0	0	0	0	0	0	0	0
105.62	6	0	1.232	0	0.969	0	0	0	0	0	0	0	0	0
107.11	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
108.1	6	0	1.229	0	0.967	0	0	0	0	0	0	0	0	0
109.14	6	0	1.228	0	0.965	0	0	0	0	0	0	0	0	0
110.18	6	0	1.229	0	0.968	0	0	0	0	0	0	0	0	0
110.95	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
111.72	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
112.49	6	0	1.228	0	0.967	0	0	0	0	0	0	0	0	0
113.59	6	0	1.227	0	0.965	0	0	0	0	0	0	0	0	0
114.58	6	0	1.228	0	0.969	0	0	0	0	0	0	0	0	0
116.11	6	0	1.227	0	0.968	0	0	0	0	0	0	0	0	0
117.05	6	0	1.226	0	0.967	0	0	0	0	0	0	0	0	0
118.09	6	0	1.225	0	0.965	0	0	0	0	0	0	0	0	0
119.14	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
119.9	6	0	1.211	0	0.968	0	0	0	0	0	0	0	0	0

120.67	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
121.44	6	0	1.244	0	1.035	0	0	0	0	0	0	0	0	0
122.27	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
123.03	6	0	1.262	0	0.969	0	0	0	0	0	0	0	0	0
125.07	6	0	1.267	0	0.968	0	0	0	0	0	0	0	0	0
126.06	6	0	1.266	0	0.967	0	0	0	0	0	0	0	0	0
127.1	6	0	1.265	0	0.965	0	0	0	0	0	0	0	0	0
128.14	6	0	1.266	0	0.968	0	0	0	0	0	0	0	0	0
128.91	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
129.68	6	0	1.265	0	0.968	0	0	0	0	0	0	0	0	0
130.45	6	0	1.266	0	1.045	0	0	0	0	0	0	0	0	0
131.22	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
131.99	6	0	1.264	0	0.969	0	0	0	0	0	0	0	0	0
134.02	6	0	1.264	0	0.968	0	0	0	0	0	0	0	0	0
135.01	6	0	1.263	0	0.967	0	0	0	0	0	0	0	0	0
136.05	6	0	1.262	0	0.965	0	0	0	0	0	0	0	0	0
137.1	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
137.86	6	0	1.249	0	0.968	0	0	0	0	0	0	0	0	0
138.63	6	0	1.262	0	0.968	0	0	0	0	0	0	0	0	0
139.4	6	0	1.255	0	0.977	0	0	0	0	0	0	0	0	0
140.17	6	0	1.249	0	0.968	0	0	0	0	0	0	0	0	0
140.94	6	0	1.263	0	0.969	0	0	0	0	0	0	0	0	0
143.03	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
144.02	6	0	1.262	0	0.967	0	0	0	0	0	0	0	0	0
145.06	6	0	1.261	0	0.965	0	0	0	0	0	0	0	0	0
145.99	6	0	1.262	0	0.969	0	0	0	0	0	0	0	0	0
147.53	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
148.52	6	0	1.261	0	0.967	0	0	0	0	0	0	0	0	0
149.51	6	0	1.26	0	0.965	0	0	0	0	0	0	0	0	0
150.55	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
151.32	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
152.09	6	0	1.26	0	0.968	0	0	0	0	0	0	0	0	0
152.91	6	0	1.259	0	1.037	0	0	0	0	0	0	0	0	0
153.68	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
154.45	6	0	1.258	0	0.969	0	0	0	0	0	0	0	0	0
156.48	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
157.47	6	0	1.244	0	0.967	0	0	0	0	0	0	0	0	0
158.52	6	0	1.237	0	0.965	0	0	0	0	0	0	0	0	0
159.56	6	0	1.232	0	0.968	0	0	0	0	0	0	0	0	0
160.33	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
161.1	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
161.87	6	0	1.23	0	1.03	0	0	0	0	0	0	0	0	0
162.64	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
163.41	6	0	1.228	0	0.969	0	0	0	0	0	0	0	0	0
165.44	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
166.43	6	0	1.228	0	0.967	0	0	0	0	0	0	0	0	0
167.47	6	0	1.227	0	0.965	0	0	0	0	0	0	0	0	0
168.46	6	0	1.229	0	0.969	0	0	0	0	0	0	0	0	0
169.94	6	0	1.227	0	0.968	0	0	0	0	0	0	0	0	0
171.04	6	0	1.226	0	0.967	0	0	0	0	0	0	0	0	0
171.81	6	0	1.212	0	0.968	0	0	0	0	0	0	0	0	0
172.58	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
174.45	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
175.43	6	0	1.226	0	0.967	0	0	0	0	0	0	0	0	0
176.48	6	0	1.225	0	0.965	0	0	0	0	0	0	0	0	0
177.52	6	0	1.227	0	0.968	0	0	0	0	0	0	0	0	0
178.29	6	0	1.212	0	0.968	0	0	0	0	0	0	0	0	0
179.06	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
179.83	6	0	1.217	0	0.988	0	0	0	0	0	0	0	0	0
180.6	6	0	1.21	0	0.968	0	0	0	0	0	0	0	0	0
181.37	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
183.45	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
184.39	6	0	1.223	0	0.967	0	0	0	0	0	0	0	0	0
185.43	6	0	1.222	0	0.965	0	0	0	0	0	0	0	0	0
186.42	6	0	1.224	0	0.969	0	0	0	0	0	0	0	0	0
187.96	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
188.89	6	0	1.221	0	0.967	0	0	0	0	0	0	0	0	0
189.93	6	0	1.22	0	0.965	0	0	0	0	0	0	0	0	0
190.92	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
192.41	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0

193.39	6	0	1.242	0	0.967	0	0	0	0	0	0	0	0	0
194.44	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
195.37	6	0	1.265	0	0.969	0	0	0	0	0	0	0	0	0
196.91	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
197.84	6	0	1.262	0	0.967	0	0	0	0	0	0	0	0	0
198.94	6	0	1.261	0	0.965	0	0	0	0	0	0	0	0	0
199.88	6	0	1.262	0	0.969	0	0	0	0	0	0	0	0	0
201.41	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
202.35	6	0	1.261	0	0.967	0	0	0	0	0	0	0	0	0
203.39	6	0	1.26	0	0.965	0	0	0	0	0	0	0	0	0
204.43	6	0	1.262	0	0.968	0	0	0	0	0	0	0	0	0
205.26	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
206.03	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
206.8	6	0	1.26	0	0.967	0	0	0	0	0	0	0	0	0
207.89	6	0	1.258	0	0.965	0	0	0	0	0	0	0	0	0
208.94	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
209.71	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
210.48	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
211.25	6	0	1.245	0	0.967	0	0	0	0	0	0	0	0	0
212.01	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
212.78	6	0	1.259	0	0.82	0	0	0	0	0	0	0	0	0
213.55	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
214.32	6	0	1.26	0	0.966	0	0	0	0	0	0	0	0	0
215.36	6	0	1.258	0	0.967	0	0	0	0	0	0	0	0	0
216.35	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
217.4	6	0	1.257	0	0.969	0	0	0	0	0	0	0	0	0
219.37	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
220.36	6	0	1.257	0	0.967	0	0	0	0	0	0	0	0	0
221.35	6	0	1.256	0	0.965	0	0	0	0	0	0	0	0	0
222.4	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
223.16	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
223.93	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
224.76	6	0	1.255	0	0.997	0	0	0	0	0	0	0	0	0
225.53	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
226.29	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
228.33	6	0	1.248	0	0.968	0	0	0	0	0	0	0	0	0
229.32	6	0	1.241	0	0.967	0	0	0	0	0	0	0	0	0
230.36	6	0	1.233	0	0.965	0	0	0	0	0	0	0	0	0
231.35	6	0	1.228	0	0.969	0	0	0	0	0	0	0	0	0
232.83	6	0	1.227	0	0.968	0	0	0	0	0	0	0	0	0
233.82	6	0	1.226	0	0.967	0	0	0	0	0	0	0	0	0
234.86	6	0	1.225	0	0.965	0	0	0	0	0	0	0	0	0
235.91	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
236.68	6	0	1.212	0	0.968	0	0	0	0	0	0	0	0	0
237.44	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
238.21	6	0	1.222	0	0.967	0	0	0	0	0	0	0	0	0
239.37	6	0	1.224	0	0.965	0	0	0	0	0	0	0	0	0
240.36	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
241.18	6	0	1.211	0	0.968	0	0	0	0	0	0	0	0	0
241.95	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
242.72	6	0	1.224	0	1.025	0	0	0	0	0	0	0	0	0
243.49	6	0	1.209	0	0.968	0	0	0	0	0	0	0	0	0
244.26	6	0	1.222	0	0.811	0	0	0	0	0	0	0	0	0
245.02	6	0	1.21	0	0.968	0	0	0	0	0	0	0	0	0
245.79	6	0	1.222	0	0.966	0	0	0	0	0	0	0	0	0
246.84	6	0	1.222	0	0.967	0	0	0	0	0	0	0	0	0
247.83	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
248.81	6	0	1.222	0	0.969	0	0	0	0	0	0	0	0	0
250.79	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
251.78	6	0	1.222	0	0.967	0	0	0	0	0	0	0	0	0
252.82	6	0	1.22	0	0.965	0	0	0	0	0	0	0	0	0
253.87	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
254.64	6	0	1.207	0	0.968	0	0	0	0	0	0	0	0	0
255.41	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
256.17	6	0	1.209	0	0.967	0	0	0	0	0	0	0	0	0
256.94	6	0	1.207	0	0.968	0	0	0	0	0	0	0	0	0
257.71	6	0	1.22	0	0.898	0	0	0	0	0	0	0	0	0
258.48	6	0	1.207	0	0.968	0	0	0	0	0	0	0	0	0
259.25	6	0	1.22	0	0.966	0	0	0	0	0	0	0	0	0
260.29	6	0	1.218	0	0.967	0	0	0	0	0	0	0	0	0

261.28	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
262.27	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
264.3	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
265.29	6	0	1.239	0	0.967	0	0	0	0	0	0	0	0	0
266.28	6	0	1.25	0	0.965	0	0	0	0	0	0	0	0	0
267.38	6	0	1.262	0	0.968	0	0	0	0	0	0	0	0	0
268.15	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
268.92	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
269.69	6	0	1.26	0	0.967	0	0	0	0	0	0	0	0	0
270.78	6	0	1.258	0	0.965	0	0	0	0	0	0	0	0	0
271.77	6	0	1.259	0	0.969	0	0	0	0	0	0	0	0	0
273.26	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
274.24	6	0	1.258	0	0.967	0	0	0	0	0	0	0	0	0
275.29	6	0	1.258	0	0.965	0	0	0	0	0	0	0	0	0
276.28	6	0	1.259	0	0.969	0	0	0	0	0	0	0	0	0
277.76	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
278.75	6	0	1.257	0	0.967	0	0	0	0	0	0	0	0	0
279.79	6	0	1.256	0	0.965	0	0	0	0	0	0	0	0	0
280.84	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
281.6	6	0	1.242	0	0.968	0	0	0	0	0	0	0	0	0
282.37	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
283.14	6	0	1.254	0	1.053	0	0	0	0	0	0	0	0	0
283.91	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
284.68	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
286.77	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
287.76	6	0	1.256	0	0.967	0	0	0	0	0	0	0	0	0
288.8	6	0	1.255	0	0.965	0	0	0	0	0	0	0	0	0
289.84	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
290.61	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
291.38	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
292.15	6	0	1.255	0	0.967	0	0	0	0	0	0	0	0	0
293.25	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
294.24	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
295.72	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
296.71	6	0	1.253	0	0.967	0	0	0	0	0	0	0	0	0
297.75	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
298.8	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
299.57	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
300.33	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
301.1	6	0	1.239	0	1.02	0	0	0	0	0	0	0	0	0
301.87	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
302.7	6	0	1.227	0	0.969	0	0	0	0	0	0	0	0	0
304.73	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
305.72	6	0	1.224	0	0.967	0	0	0	0	0	0	0	0	0
306.76	6	0	1.223	0	0.965	0	0	0	0	0	0	0	0	0
307.75	6	0	1.224	0	0.969	0	0	0	0	0	0	0	0	0
309.23	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
310.22	6	0	1.222	0	0.967	0	0	0	0	0	0	0	0	0
311.26	6	0	1.222	0	0.965	0	0	0	0	0	0	0	0	0
312.2	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
313.74	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
314.72	6	0	1.221	0	0.967	0	0	0	0	0	0	0	0	0
315.71	6	0	1.22	0	0.965	0	0	0	0	0	0	0	0	0
316.7	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
318.24	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
319.23	6	0	1.22	0	0.967	0	0	0	0	0	0	0	0	0
320.22	6	0	1.22	0	0.965	0	0	0	0	0	0	0	0	0
321.26	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
322.03	6	0	1.207	0	0.968	0	0	0	0	0	0	0	0	0
322.8	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
323.62	6	0	1.22	0	1.018	0	0	0	0	0	0	0	0	0
324.34	6	0	1.205	0	0.968	0	0	0	0	0	0	0	0	0
325.11	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
327.19	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
328.18	6	0	1.218	0	0.967	0	0	0	0	0	0	0	0	0
329.23	6	0	1.217	0	0.965	0	0	0	0	0	0	0	0	0
330.21	6	0	1.219	0	0.969	0	0	0	0	0	0	0	0	0
331.7	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
332.69	6	0	1.216	0	0.967	0	0	0	0	0	0	0	0	0
333.73	6	0	1.215	0	0.965	0	0	0	0	0	0	0	0	0

334.77	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
335.54	6	0	1.202	0	0.968	0	0	0	0	0	0	0	0	0
336.31	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
337.13	6	0	1.238	0	0.967	0	0	0	0	0	0	0	0	0
338.23	6	0	1.248	0	0.965	0	0	0	0	0	0	0	0	0
339.28	6	0	1.26	0	0.968	0	0	0	0	0	0	0	0	0
340.05	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
340.81	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
341.58	6	0	1.249	0	0.989	0	0	0	0	0	0	0	0	0
342.35	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
343.12	6	0	1.257	0	0.969	0	0	0	0	0	0	0	0	0
345.21	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
346.2	6	0	1.256	0	0.967	0	0	0	0	0	0	0	0	0
347.19	6	0	1.256	0	0.965	0	0	0	0	0	0	0	0	0
348.23	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
349	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
349.82	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
350.59	6	0	1.256	0	1.038	0	0	0	0	0	0	0	0	0
351.36	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
352.13	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
354.16	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
355.15	6	0	1.254	0	0.967	0	0	0	0	0	0	0	0	0
356.19	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
357.24	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
358.01	6	0	1.242	0	0.968	0	0	0	0	0	0	0	0	0
358.78	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
359.54	6	0	1.255	0	1.013	0	0	0	0	0	0	0	0	0
360.31	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
361.14	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
363.17	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
364.16	6	0	1.253	0	0.967	0	0	0	0	0	0	0	0	0
365.2	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
366.19	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
367.67	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
368.66	6	0	1.251	0	0.967	0	0	0	0	0	0	0	0	0
369.71	6	0	1.25	0	0.965	0	0	0	0	0	0	0	0	0
370.64	6	0	1.251	0	0.969	0	0	0	0	0	0	0	0	0
372.18	6	0	1.244	0	0.968	0	0	0	0	0	0	0	0	0
373.17	6	0	1.236	0	0.967	0	0	0	0	0	0	0	0	0
374.15	6	0	1.229	0	0.965	0	0	0	0	0	0	0	0	0
375.14	6	0	1.224	0	0.969	0	0	0	0	0	0	0	0	0
376.68	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
377.67	6	0	1.222	0	0.967	0	0	0	0	0	0	0	0	0
378.71	6	0	1.221	0	0.965	0	0	0	0	0	0	0	0	0
379.7	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
380.53	6	0	1.208	0	0.968	0	0	0	0	0	0	0	0	0
381.29	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
382.06	6	0	1.221	0	1.03	0	0	0	0	0	0	0	0	0
382.83	6	0	1.207	0	0.968	0	0	0	0	0	0	0	0	0
383.6	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
385.69	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
386.68	6	0	1.219	0	0.967	0	0	0	0	0	0	0	0	0
387.67	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0
388.71	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
389.48	6	0	1.205	0	0.968	0	0	0	0	0	0	0	0	0
390.25	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
391.07	6	0	1.219	0	1.019	0	0	0	0	0	0	0	0	0
391.84	6	0	1.205	0	0.968	0	0	0	0	0	0	0	0	0
392.61	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
394.64	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
395.63	6	0	1.218	0	0.967	0	0	0	0	0	0	0	0	0
396.67	6	0	1.217	0	0.965	0	0	0	0	0	0	0	0	0
397.72	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
398.54	6	0	1.203	0	0.968	0	0	0	0	0	0	0	0	0
399.26	6	0	1.212	0	0.968	0	0	0	0	0	0	0	0	0
400.08	6	0	1.217	0	0.967	0	0	0	0	0	0	0	0	0
401.18	6	0	1.216	0	0.965	0	0	0	0	0	0	0	0	0
402.22	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
402.99	6	0	1.203	0	0.968	0	0	0	0	0	0	0	0	0
403.76	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0

404.53	6	0	1.216	0	1.042	0	0	0	0	0	0	0	0	0
405.3	6	0	1.201	0	0.968	0	0	0	0	0	0	0	0	0
406.12	6	0	1.214	0	0.969	0	0	0	0	0	0	0	0	0
408.15	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
409.14	6	0	1.236	0	0.967	0	0	0	0	0	0	0	0	0
410.19	6	0	1.246	0	0.965	0	0	0	0	0	0	0	0	0
411.17	6	0	1.258	0	0.969	0	0	0	0	0	0	0	0	0
412.66	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
413.59	6	0	1.256	0	0.967	0	0	0	0	0	0	0	0	0
414.69	6	0	1.255	0	0.965	0	0	0	0	0	0	0	0	0
415.62	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
417.16	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
418.15	6	0	1.255	0	0.967	0	0	0	0	0	0	0	0	0
419.14	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
420.18	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
421.01	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
421.77	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
422.54	6	0	1.253	0	1.006	0	0	0	0	0	0	0	0	0
423.31	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
424.08	6	0	1.252	0	0.969	0	0	0	0	0	0	0	0	0
426.17	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
427.1	6	0	1.253	0	0.967	0	0	0	0	0	0	0	0	0
428.2	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
429.19	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
429.96	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
430.73	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
431.55	6	0	1.249	0	1.048	0	0	0	0	0	0	0	0	0
432.32	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
433.09	6	0	1.252	0	0.969	0	0	0	0	0	0	0	0	0
435.12	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
436.11	6	0	1.251	0	0.967	0	0	0	0	0	0	0	0	0
437.15	6	0	1.251	0	0.965	0	0	0	0	0	0	0	0	0
438.14	6	0	1.252	0	0.969	0	0	0	0	0	0	0	0	0
439.63	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
440.61	6	0	1.25	0	0.967	0	0	0	0	0	0	0	0	0
441.66	6	0	1.249	0	0.965	0	0	0	0	0	0	0	0	0
442.7	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
443.47	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
444.24	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
445.06	6	0	1.236	0	0.967	0	0	0	0	0	0	0	0	0
446.16	6	0	1.228	0	0.965	0	0	0	0	0	0	0	0	0
447.15	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
448.63	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
449.62	6	0	1.221	0	0.967	0	0	0	0	0	0	0	0	0
450.67	6	0	1.22	0	0.965	0	0	0	0	0	0	0	0	0
451.71	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
452.48	6	0	1.207	0	0.968	0	0	0	0	0	0	0	0	0
453.25	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
454.02	6	0	1.22	0	0.967	0	0	0	0	0	0	0	0	0
455.17	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0
456.16	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
456.98	6	0	1.206	0	0.968	0	0	0	0	0	0	0	0	0
457.75	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
458.52	6	0	1.204	0	0.978	0	0	0	0	0	0	0	0	0
459.29	6	0	1.204	0	0.968	0	0	0	0	0	0	0	0	0
460.06	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0

**Run 9 Serial #5 - 5e+10p/cm<sup>2</sup> - 90° Angle Side (1.5e11p/cm<sup>2</sup> total)**

Time Stamp (S)	Vdriver (V)	Vdriver SEU	Idriver (A)	Idriver SEU	Ivm (A)	Ivm SEU	Logic A SEU	Logic B SEU	Logic C SEU	Logic D SEU	Logic E SEU	Logic F SEU	Logic G SEU	Logic H SEU
1.05	6	0	1.249	0	0.972	0	0	0	0	0	0	0	0	0
1.82	6	0	1.232	0	0.965	0	0	0	0	0	0	0	0	0
2.58	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
3.35	6	0	1.238	0	0.997	0	0	0	0	0	0	0	0	0
4.12	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
4.89	6	0	1.238	0	0.967	0	0	0	0	0	0	0	0	0

5.99	6	0	1.237	0	0.965	0	0	0	0	0	0	0	0	0
7.03	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
7.8	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
8.57	6	0	1.233	0	0.968	0	0	0	0	0	0	0	0	0
9.34	6	0	1.237	0	1.05	0	0	0	0	0	0	0	0	0
10.11	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
10.88	6	0	1.235	0	0.969	0	0	0	0	0	0	0	0	0
12.97	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
13.9	6	0	1.234	0	0.967	0	0	0	0	0	0	0	0	0
14.94	6	0	1.233	0	0.965	0	0	0	0	0	0	0	0	0
15.93	6	0	1.234	0	0.969	0	0	0	0	0	0	0	0	0
17.47	6	0	1.233	0	0.968	0	0	0	0	0	0	0	0	0
18.46	6	0	1.232	0	0.967	0	0	0	0	0	0	0	0	0
19.45	6	0	1.232	0	0.965	0	0	0	0	0	0	0	0	0
20.44	6	0	1.234	0	0.969	0	0	0	0	0	0	0	0	0
21.92	6	0	1.232	0	0.968	0	0	0	0	0	0	0	0	0
22.96	6	0	1.231	0	0.967	0	0	0	0	0	0	0	0	0
23.95	6	0	1.23	0	0.965	0	0	0	0	0	0	0	0	0
24.94	6	0	1.231	0	0.969	0	0	0	0	0	0	0	0	0
26.42	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
27.41	6	0	1.229	0	0.967	0	0	0	0	0	0	0	0	0
28.45	6	0	1.229	0	0.965	0	0	0	0	0	0	0	0	0
29.44	6	0	1.23	0	0.969	0	0	0	0	0	0	0	0	0
30.93	6	0	1.228	0	0.968	0	0	0	0	0	0	0	0	0
31.91	6	0	1.227	0	0.967	0	0	0	0	0	0	0	0	0
32.96	6	0	1.226	0	0.965	0	0	0	0	0	0	0	0	0
33.89	6	0	1.227	0	0.969	0	0	0	0	0	0	0	0	0
35.43	6	0	1.237	0	0.968	0	0	0	0	0	0	0	0	0
36.42	6	0	1.248	0	0.967	0	0	0	0	0	0	0	0	0
37.46	6	0	1.258	0	0.965	0	0	0	0	0	0	0	0	0
38.4	6	0	1.27	0	0.969	0	0	0	0	0	0	0	0	0
39.93	6	0	1.268	0	0.968	0	0	0	0	0	0	0	0	0
40.92	6	0	1.268	0	0.967	0	0	0	0	0	0	0	0	0
41.91	6	0	1.266	0	0.965	0	0	0	0	0	0	0	0	0
42.9	6	0	1.267	0	0.969	0	0	0	0	0	0	0	0	0
44.44	6	0	1.266	0	0.968	0	0	0	0	0	0	0	0	0
45.37	6	0	1.266	0	0.967	0	0	0	0	0	0	0	0	0
46.41	6	0	1.265	0	0.965	0	0	0	0	0	0	0	0	0
47.4	6	0	1.267	0	0.969	0	0	0	0	0	0	0	0	0
48.89	6	0	1.265	0	0.968	0	0	0	0	0	0	0	0	0
49.88	6	0	1.264	0	0.967	0	0	0	0	0	0	0	0	0
50.92	6	0	1.263	0	0.965	0	0	0	0	0	0	0	0	0
51.91	6	0	1.264	0	0.969	0	0	0	0	0	0	0	0	0
53.39	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
54.38	6	0	1.264	0	0.967	0	0	0	0	0	0	0	0	0
55.42	6	0	1.263	0	0.965	0	0	0	0	0	0	0	0	0
56.47	6	0	1.265	0	0.968	0	0	0	0	0	0	0	0	0
57.24	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
58	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
58.77	6	0	1.263	0	0.967	0	0	0	0	0	0	0	0	0
59.93	6	0	1.262	0	0.965	0	0	0	0	0	0	0	0	0
60.97	6	0	1.263	0	0.968	0	0	0	0	0	0	0	0	0
61.74	6	0	1.248	0	0.968	0	0	0	0	0	0	0	0	0
62.51	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
63.28	6	0	1.247	0	0.967	0	0	0	0	0	0	0	0	0
64.05	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
64.82	6	0	1.261	0	0.902	0	0	0	0	0	0	0	0	0
65.58	6	0	1.248	0	0.968	0	0	0	0	0	0	0	0	0
66.35	6	0	1.261	0	0.966	0	0	0	0	0	0	0	0	0
67.4	6	0	1.259	0	0.967	0	0	0	0	0	0	0	0	0
68.39	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
69.43	6	0	1.258	0	0.969	0	0	0	0	0	0	0	0	0
71.41	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
72.34	6	0	1.244	0	0.967	0	0	0	0	0	0	0	0	0
73.38	6	0	1.237	0	0.965	0	0	0	0	0	0	0	0	0
74.43	6	0	1.232	0	0.968	0	0	0	0	0	0	0	0	0
75.2	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
75.96	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
76.79	6	0	1.23	0	1.045	0	0	0	0	0	0	0	0	0
77.56	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0



78.33	6	0	1.228	0	0.969	0	0	0	0	0	0	0	0	0
80.36	6	0	1.229	0	0.968	0	0	0	0	0	0	0	0	0
81.35	6	0	1.228	0	0.967	0	0	0	0	0	0	0	0	0
82.39	6	0	1.227	0	0.965	0	0	0	0	0	0	0	0	0
83.38	6	0	1.229	0	0.969	0	0	0	0	0	0	0	0	0
84.86	6	0	1.227	0	0.968	0	0	0	0	0	0	0	0	0
85.85	6	0	1.227	0	0.967	0	0	0	0	0	0	0	0	0
86.9	6	0	1.226	0	0.965	0	0	0	0	0	0	0	0	0
87.88	6	0	1.226	0	0.969	0	0	0	0	0	0	0	0	0
89.37	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
90.36	6	0	1.225	0	0.967	0	0	0	0	0	0	0	0	0
91.4	6	0	1.225	0	0.965	0	0	0	0	0	0	0	0	0
92.44	6	0	1.227	0	0.968	0	0	0	0	0	0	0	0	0
93.21	6	0	1.212	0	0.968	0	0	0	0	0	0	0	0	0
93.98	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
94.75	6	0	1.225	0	0.967	0	0	0	0	0	0	0	0	0
95.9	6	0	1.223	0	0.965	0	0	0	0	0	0	0	0	0
96.84	6	0	1.224	0	0.969	0	0	0	0	0	0	0	0	0
98.37	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
99.31	6	0	1.223	0	0.967	0	0	0	0	0	0	0	0	0
100.35	6	0	1.222	0	0.965	0	0	0	0	0	0	0	0	0
101.34	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
102.82	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
103.81	6	0	1.221	0	0.967	0	0	0	0	0	0	0	0	0
104.86	6	0	1.22	0	0.965	0	0	0	0	0	0	0	0	0
105.9	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
106.67	6	0	1.206	0	0.968	0	0	0	0	0	0	0	0	0
107.44	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
108.21	6	0	1.222	0	0.967	0	0	0	0	0	0	0	0	0
108.98	6	0	1.237	0	0.968	0	0	0	0	0	0	0	0	0
109.74	6	0	1.258	0	0.836	0	0	0	0	0	0	0	0	0
110.51	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
111.28	6	0	1.263	0	0.966	0	0	0	0	0	0	0	0	0
112.33	6	0	1.262	0	0.967	0	0	0	0	0	0	0	0	0
113.31	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
114.36	6	0	1.26	0	0.969	0	0	0	0	0	0	0	0	0
116.34	6	0	1.261	0	0.968	0	0	0	0	0	0	0	0	0
117.32	6	0	1.261	0	0.967	0	0	0	0	0	0	0	0	0
118.37	6	0	1.26	0	0.965	0	0	0	0	0	0	0	0	0
119.3	6	0	1.261	0	0.969	0	0	0	0	0	0	0	0	0
120.84	6	0	1.26	0	0.968	0	0	0	0	0	0	0	0	0
121.83	6	0	1.259	0	0.967	0	0	0	0	0	0	0	0	0
122.87	6	0	1.258	0	0.965	0	0	0	0	0	0	0	0	0
123.86	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
124.68	6	0	1.244	0	0.968	0	0	0	0	0	0	0	0	0
125.45	6	0	1.258	0	0.968	0	0	0	0	0	0	0	0	0
126.22	6	0	1.254	0	1.034	0	0	0	0	0	0	0	0	0
126.99	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
127.76	6	0	1.259	0	0.819	0	0	0	0	0	0	0	0	0
128.53	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
129.3	6	0	1.259	0	0.966	0	0	0	0	0	0	0	0	0
130.34	6	0	1.258	0	0.967	0	0	0	0	0	0	0	0	0
131.33	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
132.32	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
134.3	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
135.28	6	0	1.256	0	0.967	0	0	0	0	0	0	0	0	0
136.33	6	0	1.256	0	0.965	0	0	0	0	0	0	0	0	0
137.37	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
138.14	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
138.91	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
139.68	6	0	1.255	0	0.998	0	0	0	0	0	0	0	0	0
140.45	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
141.27	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
143.3	6	0	1.247	0	0.968	0	0	0	0	0	0	0	0	0
144.29	6	0	1.24	0	0.967	0	0	0	0	0	0	0	0	0
145.34	6	0	1.233	0	0.965	0	0	0	0	0	0	0	0	0
146.32	6	0	1.228	0	0.969	0	0	0	0	0	0	0	0	0
147.81	6	0	1.226	0	0.968	0	0	0	0	0	0	0	0	0
148.8	6	0	1.225	0	0.967	0	0	0	0	0	0	0	0	0
149.84	6	0	1.225	0	0.965	0	0	0	0	0	0	0	0	0

150.88	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
151.65	6	0	1.211	0	0.968	0	0	0	0	0	0	0	0	0
152.42	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
153.19	6	0	1.219	0	1.01	0	0	0	0	0	0	0	0	0
153.96	6	0	1.21	0	0.968	0	0	0	0	0	0	0	0	0
154.73	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
156.82	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
157.75	6	0	1.223	0	0.967	0	0	0	0	0	0	0	0	0
158.79	6	0	1.221	0	0.965	0	0	0	0	0	0	0	0	0
159.78	6	0	1.222	0	0.969	0	0	0	0	0	0	0	0	0
161.32	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
162.25	6	0	1.222	0	0.967	0	0	0	0	0	0	0	0	0
163.3	6	0	1.221	0	0.965	0	0	0	0	0	0	0	0	0
164.29	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
165.82	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
166.76	6	0	1.221	0	0.967	0	0	0	0	0	0	0	0	0
167.8	6	0	1.22	0	0.965	0	0	0	0	0	0	0	0	0
168.79	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
170.27	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
171.26	6	0	1.219	0	0.967	0	0	0	0	0	0	0	0	0
172.3	6	0	1.218	0	0.965	0	0	0	0	0	0	0	0	0
173.29	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
174.78	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
175.76	6	0	1.218	0	0.967	0	0	0	0	0	0	0	0	0
176.81	6	0	1.217	0	0.965	0	0	0	0	0	0	0	0	0
177.8	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
179.28	6	0	1.227	0	0.968	0	0	0	0	0	0	0	0	0
180.27	6	0	1.238	0	0.967	0	0	0	0	0	0	0	0	0
181.31	6	0	1.249	0	0.965	0	0	0	0	0	0	0	0	0
182.3	6	0	1.261	0	0.969	0	0	0	0	0	0	0	0	0
183.78	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
184.77	6	0	1.259	0	0.967	0	0	0	0	0	0	0	0	0
185.82	6	0	1.258	0	0.965	0	0	0	0	0	0	0	0	0
186.86	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
187.63	6	0	1.244	0	0.968	0	0	0	0	0	0	0	0	0
188.4	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
189.17	6	0	1.243	0	0.967	0	0	0	0	0	0	0	0	0
189.94	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
190.7	6	0	1.257	0	0.889	0	0	0	0	0	0	0	0	0
191.47	6	0	1.245	0	0.968	0	0	0	0	0	0	0	0	0
192.24	6	0	1.257	0	0.966	0	0	0	0	0	0	0	0	0
193.29	6	0	1.256	0	0.967	0	0	0	0	0	0	0	0	0
194.27	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
195.32	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
197.3	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
198.28	6	0	1.255	0	0.967	0	0	0	0	0	0	0	0	0
199.27	6	0	1.255	0	0.965	0	0	0	0	0	0	0	0	0
200.26	6	0	1.257	0	0.969	0	0	0	0	0	0	0	0	0
201.8	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
202.73	6	0	1.255	0	0.967	0	0	0	0	0	0	0	0	0
203.83	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
204.82	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
205.59	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
206.36	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
207.13	6	0	1.245	0	0.967	0	0	0	0	0	0	0	0	0
207.95	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
208.66	6	0	1.253	0	0.936	0	0	0	0	0	0	0	0	0
209.43	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
210.2	6	0	1.253	0	0.966	0	0	0	0	0	0	0	0	0
211.3	6	0	1.252	0	0.967	0	0	0	0	0	0	0	0	0
212.34	6	0	1.251	0	0.98	0	0	0	0	0	0	0	0	0
213.11	6	0	1.237	0	0.965	0	0	0	0	0	0	0	0	0
213.88	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
214.65	6	0	1.248	0	1.03	0	0	0	0	0	0	0	0	0
215.42	6	0	1.231	0	0.968	0	0	0	0	0	0	0	0	0
216.24	6	0	1.238	0	0.967	0	0	0	0	0	0	0	0	0
217.29	6	0	1.23	0	0.965	0	0	0	0	0	0	0	0	0
218.28	6	0	1.225	0	0.969	0	0	0	0	0	0	0	0	0
219.76	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
220.75	6	0	1.223	0	0.967	0	0	0	0	0	0	0	0	0

221.79	6	0	1.222	0	0.965	0	0	0	0	0	0	0	0	0
222.78	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
224.26	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
225.25	6	0	1.222	0	0.967	0	0	0	0	0	0	0	0	0
226.3	6	0	1.221	0	0.965	0	0	0	0	0	0	0	0	0
227.28	6	0	1.222	0	0.969	0	0	0	0	0	0	0	0	0
228.77	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
229.76	6	0	1.22	0	0.967	0	0	0	0	0	0	0	0	0
230.8	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0
231.73	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
233.27	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
234.26	6	0	1.219	0	0.967	0	0	0	0	0	0	0	0	0
235.3	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0
236.35	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
237.12	6	0	1.206	0	0.968	0	0	0	0	0	0	0	0	0
237.89	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
238.65	6	0	1.217	0	0.998	0	0	0	0	0	0	0	0	0
239.42	6	0	1.204	0	0.968	0	0	0	0	0	0	0	0	0
240.19	6	0	1.217	0	0.834	0	0	0	0	0	0	0	0	0
240.96	6	0	1.205	0	0.968	0	0	0	0	0	0	0	0	0
241.73	6	0	1.218	0	0.966	0	0	0	0	0	0	0	0	0
242.77	6	0	1.217	0	0.967	0	0	0	0	0	0	0	0	0
243.76	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
244.81	6	0	1.216	0	0.969	0	0	0	0	0	0	0	0	0
246.78	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
247.72	6	0	1.216	0	0.967	0	0	0	0	0	0	0	0	0
248.82	6	0	1.214	0	0.965	0	0	0	0	0	0	0	0	0
249.75	6	0	1.215	0	0.969	0	0	0	0	0	0	0	0	0
251.29	6	0	1.225	0	0.968	0	0	0	0	0	0	0	0	0
252.28	6	0	1.236	0	0.967	0	0	0	0	0	0	0	0	0
253.26	6	0	1.247	0	0.965	0	0	0	0	0	0	0	0	0
254.36	6	0	1.259	0	0.968	0	0	0	0	0	0	0	0	0
255.13	6	0	1.244	0	0.968	0	0	0	0	0	0	0	0	0
255.9	6	0	1.257	0	0.968	0	0	0	0	0	0	0	0	0
256.67	6	0	1.252	0	1.005	0	0	0	0	0	0	0	0	0
257.44	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
258.21	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
260.29	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
261.28	6	0	1.255	0	0.967	0	0	0	0	0	0	0	0	0
262.33	6	0	1.255	0	0.965	0	0	0	0	0	0	0	0	0
263.32	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
264.14	6	0	1.242	0	0.968	0	0	0	0	0	0	0	0	0
264.91	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
265.68	6	0	1.254	0	0.998	0	0	0	0	0	0	0	0	0
266.45	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
267.22	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
269.25	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
270.24	6	0	1.254	0	0.967	0	0	0	0	0	0	0	0	0
271.28	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
272.27	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
273.81	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
274.74	6	0	1.253	0	0.967	0	0	0	0	0	0	0	0	0
275.78	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
276.83	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
277.6	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
278.37	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
279.13	6	0	1.238	0	0.967	0	0	0	0	0	0	0	0	0
279.9	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
280.73	6	0	1.251	0	0.784	0	0	0	0	0	0	0	0	0
281.5	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
282.27	6	0	1.252	0	0.966	0	0	0	0	0	0	0	0	0
283.31	6	0	1.25	0	0.967	0	0	0	0	0	0	0	0	0
284.35	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
285.29	6	0	1.249	0	0.969	0	0	0	0	0	0	0	0	0
287.26	6	0	1.243	0	0.968	0	0	0	0	0	0	0	0	0
288.25	6	0	1.235	0	0.967	0	0	0	0	0	0	0	0	0
289.3	6	0	1.228	0	0.965	0	0	0	0	0	0	0	0	0
290.34	6	0	1.223	0	0.968	0	0	0	0	0	0	0	0	0
291.11	6	0	1.209	0	0.968	0	0	0	0	0	0	0	0	0
291.88	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0

292.65	6	0	1.211	0	0.991	0	0	0	0	0	0	0	0	0
293.41	6	0	1.207	0	0.968	0	0	0	0	0	0	0	0	0
294.18	6	0	1.22	0	0.969	0	0	0	0	0	0	0	0	0
296.27	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
297.26	6	0	1.22	0	0.967	0	0	0	0	0	0	0	0	0
298.3	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0
299.29	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
300.77	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
301.76	6	0	1.219	0	0.967	0	0	0	0	0	0	0	0	0
302.81	6	0	1.217	0	0.965	0	0	0	0	0	0	0	0	0
303.8	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
305.28	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
306.27	6	0	1.218	0	0.967	0	0	0	0	0	0	0	0	0
307.31	6	0	1.217	0	0.965	0	0	0	0	0	0	0	0	0
308.3	6	0	1.219	0	0.969	0	0	0	0	0	0	0	0	0
309.78	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
310.77	6	0	1.217	0	0.967	0	0	0	0	0	0	0	0	0
311.81	6	0	1.216	0	0.965	0	0	0	0	0	0	0	0	0
312.8	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
313.63	6	0	1.202	0	0.968	0	0	0	0	0	0	0	0	0
314.4	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
315.17	6	0	1.201	0	0.967	0	0	0	0	0	0	0	0	0
315.88	6	0	1.213	0	0.968	0	0	0	0	0	0	0	0	0
316.65	6	0	1.215	0	0.895	0	0	0	0	0	0	0	0	0
317.47	6	0	1.203	0	0.968	0	0	0	0	0	0	0	0	0
318.24	6	0	1.215	0	0.966	0	0	0	0	0	0	0	0	0
319.34	6	0	1.214	0	0.967	0	0	0	0	0	0	0	0	0
320.33	6	0	1.213	0	0.968	0	0	0	0	0	0	0	0	0
321.32	6	0	1.212	0	0.969	0	0	0	0	0	0	0	0	0
323.29	6	0	1.224	0	0.968	0	0	0	0	0	0	0	0	0
324.28	6	0	1.235	0	0.967	0	0	0	0	0	0	0	0	0
325.27	6	0	1.245	0	0.965	0	0	0	0	0	0	0	0	0
326.26	6	0	1.258	0	0.969	0	0	0	0	0	0	0	0	0
327.8	6	0	1.256	0	0.968	0	0	0	0	0	0	0	0	0
328.79	6	0	1.255	0	0.967	0	0	0	0	0	0	0	0	0
329.83	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
330.76	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
332.25	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
333.24	6	0	1.254	0	0.967	0	0	0	0	0	0	0	0	0
334.28	6	0	1.254	0	0.965	0	0	0	0	0	0	0	0	0
335.27	6	0	1.255	0	0.969	0	0	0	0	0	0	0	0	0
336.81	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
337.79	6	0	1.253	0	0.967	0	0	0	0	0	0	0	0	0
338.78	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
339.77	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
341.31	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
342.3	6	0	1.252	0	0.967	0	0	0	0	0	0	0	0	0
343.34	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
344.33	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
345.15	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
345.92	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
346.69	6	0	1.242	0	0.967	0	0	0	0	0	0	0	0	0
347.41	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
348.23	6	0	1.251	0	0.792	0	0	0	0	0	0	0	0	0
349	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
349.77	6	0	1.251	0	0.966	0	0	0	0	0	0	0	0	0
350.81	6	0	1.251	0	0.967	0	0	0	0	0	0	0	0	0
351.8	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
352.79	6	0	1.25	0	0.969	0	0	0	0	0	0	0	0	0
354.77	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
355.76	6	0	1.249	0	0.967	0	0	0	0	0	0	0	0	0
356.8	6	0	1.248	0	0.965	0	0	0	0	0	0	0	0	0
357.79	6	0	1.249	0	0.969	0	0	0	0	0	0	0	0	0
359.33	6	0	1.241	0	0.968	0	0	0	0	0	0	0	0	0
360.26	6	0	1.235	0	0.967	0	0	0	0	0	0	0	0	0
361.3	6	0	1.227	0	0.965	0	0	0	0	0	0	0	0	0
362.29	6	0	1.222	0	0.969	0	0	0	0	0	0	0	0	0
363.77	6	0	1.221	0	0.968	0	0	0	0	0	0	0	0	0
364.76	6	0	1.22	0	0.967	0	0	0	0	0	0	0	0	0
365.81	6	0	1.219	0	0.965	0	0	0	0	0	0	0	0	0

366.85	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
367.62	6	0	1.206	0	0.968	0	0	0	0	0	0	0	0	0
368.39	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
369.21	6	0	1.213	0	0.97	0	0	0	0	0	0	0	0	0
369.98	6	0	1.205	0	0.968	0	0	0	0	0	0	0	0	0
370.75	6	0	1.218	0	0.803	0	0	0	0	0	0	0	0	0
371.52	6	0	1.206	0	0.968	0	0	0	0	0	0	0	0	0
372.29	6	0	1.219	0	0.966	0	0	0	0	0	0	0	0	0
373.33	6	0	1.218	0	0.967	0	0	0	0	0	0	0	0	0
374.32	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
375.31	6	0	1.216	0	0.969	0	0	0	0	0	0	0	0	0
377.29	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
378.27	6	0	1.217	0	0.967	0	0	0	0	0	0	0	0	0
379.32	6	0	1.216	0	0.965	0	0	0	0	0	0	0	0	0
380.31	6	0	1.218	0	0.969	0	0	0	0	0	0	0	0	0
381.79	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
382.78	6	0	1.216	0	0.967	0	0	0	0	0	0	0	0	0
383.82	6	0	1.215	0	0.965	0	0	0	0	0	0	0	0	0
384.81	6	0	1.216	0	0.969	0	0	0	0	0	0	0	0	0
386.29	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
387.34	6	0	1.214	0	0.967	0	0	0	0	0	0	0	0	0
388.33	6	0	1.214	0	0.965	0	0	0	0	0	0	0	0	0
389.37	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
390.14	6	0	1.201	0	0.968	0	0	0	0	0	0	0	0	0
390.91	6	0	1.214	0	0.968	0	0	0	0	0	0	0	0	0
391.68	6	0	1.211	0	0.967	0	0	0	0	0	0	0	0	0
392.45	6	0	1.199	0	0.968	0	0	0	0	0	0	0	0	0
393.21	6	0	1.212	0	0.839	0	0	0	0	0	0	0	0	0
394.04	6	0	1.199	0	0.968	0	0	0	0	0	0	0	0	0
394.75	6	0	1.218	0	0.966	0	0	0	0	0	0	0	0	0
395.85	6	0	1.228	0	0.967	0	0	0	0	0	0	0	0	0
396.89	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
397.88	6	0	1.249	0	0.969	0	0	0	0	0	0	0	0	0
399.81	6	0	1.255	0	0.968	0	0	0	0	0	0	0	0	0
400.79	6	0	1.254	0	0.967	0	0	0	0	0	0	0	0	0
401.84	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
402.83	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
404.31	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
405.3	6	0	1.253	0	0.967	0	0	0	0	0	0	0	0	0
406.34	6	0	1.252	0	0.965	0	0	0	0	0	0	0	0	0
407.33	6	0	1.254	0	0.969	0	0	0	0	0	0	0	0	0
408.81	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
409.8	6	0	1.252	0	0.967	0	0	0	0	0	0	0	0	0
410.85	6	0	1.251	0	0.965	0	0	0	0	0	0	0	0	0
411.89	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
412.66	6	0	1.237	0	0.968	0	0	0	0	0	0	0	0	0
413.43	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
414.2	6	0	1.252	0	1.017	0	0	0	0	0	0	0	0	0
414.97	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
415.79	6	0	1.252	0	0.969	0	0	0	0	0	0	0	0	0
417.82	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
418.81	6	0	1.251	0	0.967	0	0	0	0	0	0	0	0	0
419.85	6	0	1.25	0	0.965	0	0	0	0	0	0	0	0	0
420.84	6	0	1.251	0	0.969	0	0	0	0	0	0	0	0	0
422.33	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
423.31	6	0	1.25	0	0.967	0	0	0	0	0	0	0	0	0
424.36	6	0	1.249	0	0.965	0	0	0	0	0	0	0	0	0
425.4	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
426.17	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
426.94	6	0	1.249	0	0.968	0	0	0	0	0	0	0	0	0
427.71	6	0	1.235	0	0.967	0	0	0	0	0	0	0	0	0
428.48	6	0	1.234	0	0.968	0	0	0	0	0	0	0	0	0
429.25	6	0	1.248	0	0.874	0	0	0	0	0	0	0	0	0
430.01	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
430.78	6	0	1.244	0	0.966	0	0	0	0	0	0	0	0	0
431.88	6	0	1.237	0	0.967	0	0	0	0	0	0	0	0	0
432.87	6	0	1.23	0	0.968	0	0	0	0	0	0	0	0	0
433.86	6	0	1.223	0	0.969	0	0	0	0	0	0	0	0	0
435.84	6	0	1.22	0	0.968	0	0	0	0	0	0	0	0	0
436.83	6	0	1.219	0	0.967	0	0	0	0	0	0	0	0	0

437.87	6	0	1.218	0	0.965	0	0	0	0	0	0	0	0	0
438.86	6	0	1.219	0	0.969	0	0	0	0	0	0	0	0	0
440.34	6	0	1.218	0	0.968	0	0	0	0	0	0	0	0	0
441.33	6	0	1.218	0	0.967	0	0	0	0	0	0	0	0	0
442.37	6	0	1.217	0	0.965	0	0	0	0	0	0	0	0	0
443.36	6	0	1.219	0	0.969	0	0	0	0	0	0	0	0	0
444.84	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0
445.83	6	0	1.217	0	0.967	0	0	0	0	0	0	0	0	0
446.88	6	0	1.216	0	0.965	0	0	0	0	0	0	0	0	0
447.87	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
449.35	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
450.34	6	0	1.216	0	0.967	0	0	0	0	0	0	0	0	0
451.38	6	0	1.216	0	0.965	0	0	0	0	0	0	0	0	0
452.37	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
453.85	6	0	1.216	0	0.968	0	0	0	0	0	0	0	0	0
454.84	6	0	1.215	0	0.967	0	0	0	0	0	0	0	0	0
455.88	6	0	1.214	0	0.965	0	0	0	0	0	0	0	0	0
456.87	6	0	1.215	0	0.969	0	0	0	0	0	0	0	0	0
458.41	6	0	1.214	0	0.968	0	0	0	0	0	0	0	0	0
459.34	6	0	1.214	0	0.967	0	0	0	0	0	0	0	0	0
460.39	6	0	1.213	0	0.965	0	0	0	0	0	0	0	0	0
461.38	6	0	1.214	0	0.969	0	0	0	0	0	0	0	0	0
462.86	6	0	1.213	0	0.968	0	0	0	0	0	0	0	0	0
463.85	6	0	1.212	0	0.967	0	0	0	0	0	0	0	0	0
464.89	6	0	1.211	0	0.965	0	0	0	0	0	0	0	0	0
465.88	6	0	1.212	0	0.969	0	0	0	0	0	0	0	0	0
467.36	6	0	1.222	0	0.968	0	0	0	0	0	0	0	0	0
468.35	6	0	1.233	0	0.967	0	0	0	0	0	0	0	0	0
469.4	6	0	1.244	0	0.965	0	0	0	0	0	0	0	0	0
470.38	6	0	1.256	0	0.969	0	0	0	0	0	0	0	0	0
471.87	6	0	1.254	0	0.968	0	0	0	0	0	0	0	0	0
472.86	6	0	1.254	0	0.967	0	0	0	0	0	0	0	0	0
473.9	6	0	1.253	0	0.965	0	0	0	0	0	0	0	0	0
474.94	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
475.71	6	0	1.239	0	0.968	0	0	0	0	0	0	0	0	0
476.48	6	0	1.253	0	0.968	0	0	0	0	0	0	0	0	0
477.25	6	0	1.238	0	0.982	0	0	0	0	0	0	0	0	0
478.02	6	0	1.238	0	0.968	0	0	0	0	0	0	0	0	0
478.84	6	0	1.252	0	0.969	0	0	0	0	0	0	0	0	0
480.88	6	0	1.252	0	0.968	0	0	0	0	0	0	0	0	0
481.86	6	0	1.251	0	0.967	0	0	0	0	0	0	0	0	0
482.91	6	0	1.25	0	0.965	0	0	0	0	0	0	0	0	0
483.9	6	0	1.251	0	0.969	0	0	0	0	0	0	0	0	0
485.38	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
486.37	6	0	1.251	0	0.967	0	0	0	0	0	0	0	0	0
487.41	6	0	1.251	0	0.965	0	0	0	0	0	0	0	0	0
488.4	6	0	1.253	0	0.969	0	0	0	0	0	0	0	0	0
489.88	6	0	1.251	0	0.968	0	0	0	0	0	0	0	0	0
490.87	6	0	1.251	0	0.967	0	0	0	0	0	0	0	0	0
491.92	6	0	1.249	0	0.965	0	0	0	0	0	0	0	0	0
492.96	6	0	1.25	0	0.968	0	0	0	0	0	0	0	0	0
493.73	6	0	1.236	0	0.968	0	0	0	0	0	0	0	0	0
494.5	6	0	1.249	0	0.968	0	0	0	0	0	0	0	0	0
495.27	6	0	1.245	0	1.006	0	0	0	0	0	0	0	0	0
496.04	6	0	1.235	0	0.968	0	0	0	0	0	0	0	0	0
496.86	6	0	1.248	0	0.969	0	0	0	0	0	0	0	0	0
498.89	6	0	1.248	0	0.968	0	0	0	0	0	0	0	0	0
499.88	6	0	1.248	0	0.967	0	0	0	0	0	0	0	0	0
500.92	6	0	1.247	0	0.965	0	0	0	0	0	0	0	0	0
501.91	6	0	1.248	0	0.969	0	0	0	0	0	0	0	0	0
503.4	6	0	1.24	0	0.968	0	0	0	0	0	0	0	0	0
504.38	6	0	1.233	0	0.967	0	0	0	0	0	0	0	0	0
505.43	6	0	1.226	0	0.965	0	0	0	0	0	0	0	0	0
506.42	6	0	1.221	0	0.969	0	0	0	0	0	0	0	0	0
507.9	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
508.89	6	0	1.219	0	0.967	0	0	0	0	0	0	0	0	0
509.93	6	0	1.218	0	0.965	0	0	0	0	0	0	0	0	0
510.97	6	0	1.219	0	0.968	0	0	0	0	0	0	0	0	0
511.74	6	0	1.204	0	0.968	0	0	0	0	0	0	0	0	0
512.51	6	0	1.217	0	0.968	0	0	0	0	0	0	0	0	0

513.28	6	0	1.21	0	0.967	0	0	0	0	0	0	0	0	0
514.11	6	0	1.203	0	0.968	0	0	0	0	0	0	0	0	0
514.87	6	0	1.217	0	0.79	0	0	0	0	0	0	0	0	0
515.64	6	0	1.205	0	0.968	0	0	0	0	0	0	0	0	0
516.41	6	0	1.217	0	0.966	0	0	0	0	0	0	0	0	0
517.46	6	0	1.216	0	0.967	0	0	0	0	0	0	0	0	0
518.5	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
519.43	6	0	1.214	0	0.969	0	0	0	0	0	0	0	0	0
521.41	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0
522.4	6	0	1.215	0	0.967	0	0	0	0	0	0	0	0	0
523.44	6	0	1.215	0	0.965	0	0	0	0	0	0	0	0	0
524.43	6	0	1.217	0	0.969	0	0	0	0	0	0	0	0	0
525.91	6	0	1.215	0	0.968	0	0	0	0	0	0	0	0	0

## SUMMARY

Three devices (Serial # 79, 143, and 5) of part number RDHA701FP10A8QK, an octal solid state relay were evaluated for Single-Event Effects (SEE) with protons. Two of the devices (79 and 143) were tested at an angle of 0 degrees and one device (5) was evaluated for angular affects at 45° and 90°. International Rectifier conducted the tests on May 27<sup>th</sup>, 2009 at Indiana University. The devices under test were monitored for SEU, SEGR and SEL. The devices were exposed in open-air. All devices exhibited no Single Event Effects during the beam exposures and devices 79 and 143 passed the post radiation electrical test requirements. Device 5 was not checked to the post radiation electrical test requirements.

## CONCLUSION

The RDHA701FP10A8QK is immune to single event effects for LET level up to 198 MeV protons. The RDHA701FP10A8CK product is immune to single event effects for LET level up to 198 MeV protons by similarity as it utilizes the same active components but does not contain the input buffer and additional circuitry to control the switching times thus making it a less complex version of the device.

# Appendix A



## Electrical Test Data (Pre SEE )<sup>1</sup>

OMR13880SXX  
PXI  
TESTER  
Wednesday, May 27, 2009, 7:34 AM

Lot #: OMR13923

Serial #	Test Status	Comment	IIn (A)	IQin (A)	IHSS 1 (A)	IHSS 2 (A)	IINPEAK 1 (A)	IINPEAK 2 (A)	IILSS 1 (A)
			Max Limit	Min Limit	Max Limit	Min Limit	Max Limit	Min Limit	Max Limit
			2.38E-02	1.50E-05	1.00E-06	1.00E-06	1.00E-03	1.00E-03	1.00E-06
			1.70E-02	0.00E+00	-1.00E-06	-1.00E-06	-1.00E-03	-1.00E-03	-1.00E-06
			****	****	****	****	****	****	****
71	P	GS 1+2	2.00E-02	4.10E-06	3.09E-10	7.50E-10	4.25E-10	7.29E-10	-3.02E-10
71	P	GS 3+4	1.99E-02	4.10E-06	1.51E-08	5.20E-09	1.58E-08	5.30E-09	-1.03E-08
71	P	GS 5+6	2.02E-02	4.10E-06	3.80E-10	9.49E-10	4.33E-10	7.60E-10	-3.56E-10
71	P	GS 7+8	2.02E-02	4.10E-06	4.60E-10	6.60E-10	5.68E-10	5.37E-10	-2.82E-10
79	P	1+2	2.00E-02	4.00E-06	4.70E-10	9.26E-10	5.66E-10	9.84E-10	-4.06E-10
79	P	3+4	1.99E-02	3.90E-06	6.37E-08	1.37E-08	6.59E-08	1.42E-08	-5.72E-08
79	P	5+6	2.00E-02	4.10E-06	5.57E-10	6.08E-10	6.33E-10	6.70E-10	-2.90E-10
79	P	7+8	2.02E-02	4.10E-06	5.63E-10	6.50E-10	6.55E-10	6.56E-10	-1.84E-10
143	P	1+2	2.01E-02	4.00E-06	4.87E-10	7.45E-10	5.72E-10	7.49E-10	-2.54E-10
143	P	3+4	2.02E-02	4.00E-06	1.71E-08	5.20E-09	1.77E-08	5.10E-09	-1.31E-08
143	P	5+6	2.00E-02	4.10E-06	5.18E-10	5.29E-10	5.94E-10	5.86E-10	-3.31E-10
143	P	7+8	2.03E-02	4.10E-06	4.49E-10	5.44E-10	5.18E-10	6.11E-10	-2.96E-10

## Electrical Test Data (Pre SEE continued)<sup>1</sup>

Serial #	IILSS 2 (A)	IO [leak] 1 (A)	IO [leak] 2 (A)	Rdson 1 (Ohm)	Rdson 2 (Ohm)	Ton 1 (S)	Trise 1 (S)	Ton 2 (S)	Trise 2 (S)
	Max Limit	Min Limit	Max Limit	Min Limit	Max Limit	Min Limit	Max Limit	Min Limit	Max Limit
	1.00E-06	1.00E-05	1.00E-05	3.50E-01	3.50E-01	1.50E-02	3.00E-03	1.50E-02	3.00E-03
	-1.00E-06	1.00E-10	1.00E-10	1.00E-02	1.00E-02	1.00E-04	5.00E-04	1.00E-04	5.00E-04
	****	****	****	****	****	****	****	****	****
71	-5.84E-10	5.49E-08	5.04E-08	1.65E-01	1.61E-01	3.40E-03	9.29E-04	4.20E-03	1.10E-03
71	-7.30E-09	4.81E-08	4.53E-08	1.80E-01	2.02E-01	3.00E-03	9.11E-04	3.50E-03	9.75E-04
71	-1.77E-10	4.98E-08	4.35E-08	1.64E-01	1.02E-01	2.60E-03	8.09E-04	2.90E-03	9.30E-04
71	-2.67E-10	4.47E-08	2.86E-07	1.65E-01	1.96E-01	3.60E-03	9.23E-04	3.60E-03	1.00E-03
79	-5.89E-10	1.31E-07	1.38E-07	1.56E-01	1.62E-01	3.30E-03	9.55E-04	3.20E-03	9.08E-04
79	-2.17E-08	1.04E-07	1.35E-07	1.68E-01	1.63E-01	3.20E-03	8.98E-04	2.80E-03	8.74E-04
79	-2.27E-10	1.15E-07	8.99E-08	1.67E-01	1.44E-01	3.50E-03	9.77E-04	3.80E-03	1.00E-03
79	-2.23E-10	8.32E-08	4.02E-07	1.44E-01	1.65E-01	3.30E-03	9.43E-04	2.60E-03	8.40E-04
143	-4.16E-10	1.47E-07	1.46E-07	1.63E-01	1.61E-01	2.90E-03	9.19E-04	4.10E-03	1.10E-03
143	-6.30E-09	1.04E-07	1.24E-07	1.71E-01	1.62E-01	3.80E-03	1.00E-03	2.90E-03	8.98E-04
143	-2.77E-10	1.30E-07	7.94E-08	1.67E-01	1.48E-01	3.20E-03	9.09E-04	4.20E-03	1.10E-03
143	-3.08E-10	8.82E-08	4.23E-07	1.55E-01	1.66E-01	3.50E-03	9.76E-04	4.00E-03	1.00E-03

<sup>1</sup> Serial Number 71 was used as a control Sample for this test.

## Electrical Test Data (Pre SEE continued)<sup>1</sup>

	Toff 1 (S)	Tfall 1 (S)	Toff 2 (S)	Tfall 2 (S)
	6.00E-02	1.50E-02	6.00E-02	1.50E-02
	1.00E-04	1.00E-03	1.00E-04	1.00E-03
Serial #	****	****	****	****
71	3.17E-02	1.09E-02	3.12E-02	1.14E-02
71	3.19E-02	1.12E-02	3.33E-02	1.12E-02
71	3.32E-02	1.10E-02	3.27E-02	1.15E-02
71	3.17E-02	1.11E-02	3.24E-02	1.14E-02
79	3.31E-02	1.17E-02	3.28E-02	1.18E-02
79	3.23E-02	1.15E-02	3.32E-02	1.16E-02
79	3.30E-02	1.15E-02	3.43E-02	1.12E-02
79	3.33E-02	1.13E-02	3.30E-02	1.18E-02
143	3.44E-02	1.10E-02	3.30E-02	1.12E-02
143	3.32E-02	1.07E-02	3.43E-02	1.11E-02
143	3.39E-02	1.13E-02	3.25E-02	1.16E-02
143	3.36E-02	1.15E-02	3.36E-02	1.12E-02

<sup>1</sup> Serial Number 71 was used as a control Sample for this test.

## Electrical Test Data (Post 1e+11p/cm<sup>2</sup> exposure)<sup>1</sup>

OMR13923SXX  
PXI  
TESTER  
Wednesday, May 27, 2009, 11:20 AM

Lot #: omr13923

		IDin (A)	IQin (A)	IIHSS 1 (A)	IIHSS 2 (A)	IINPEAK 1 (A)	IINPEAK 2 (A)	IILSS 1 (A)	
	Max Limit	2.38E-02	1.50E-05	1.00E-06	1.00E-06	1.00E-03	1.00E-03	1.00E-06	
	Min Limit	1.70E-02	0.00E+00	-1.00E-06	-1.00E-06	-1.00E-03	-1.00E-03	-1.00E-06	
Serial #	Test Status	Comment	****	****	****	****	****	****	
71	P	GS 1+2	2.00E-02	3.80E-06	6.11E-10	1.00E-09	7.14E-10	9.99E-10	-1.67E-11
71	P	GS 3+4	2.00E-02	3.90E-06	1.44E-08	4.10E-09	1.51E-08	4.10E-09	-1.01E-08
71	P	GS 5+6	2.02E-02	3.90E-06	6.58E-10	1.20E-09	7.41E-10	1.10E-09	-2.48E-11
71	P	GS 7+8	2.02E-02	3.90E-06	6.20E-10	9.12E-10	7.13E-10	8.33E-10	-1.87E-11
79	P	1+2	2.00E-02	3.90E-06	6.40E-10	1.10E-09	7.03E-10	1.10E-09	-4.40E-11
79	P	3+4	2.00E-02	3.90E-06	1.33E-08	4.10E-09	1.38E-08	4.20E-09	-8.90E-09
79	P	5+6	2.00E-02	4.00E-06	6.73E-10	9.59E-10	8.07E-10	1.00E-09	-5.16E-11
79	P	7+8	2.02E-02	4.00E-06	7.50E-10	9.65E-10	8.95E-10	9.90E-10	-1.77E-11
143	P	1+2	2.01E-02	4.00E-06	6.67E-10	8.92E-10	7.89E-10	9.19E-10	-6.87E-11
143	P	3+4	2.02E-02	3.90E-06	2.28E-08	5.20E-09	2.34E-08	5.30E-09	-1.80E-08
143	P	5+6	2.01E-02	4.00E-06	6.91E-10	8.01E-10	7.60E-10	8.45E-10	-4.09E-11
143	P	7+8	2.03E-02	4.00E-06	6.19E-10	7.57E-10	7.41E-10	8.05E-10	-3.74E-11

<sup>1</sup> Serial Number 71 was used as a control Sample for this test.

## Electrical Test Data (Post 1e+11p/cm<sup>2</sup> exposure continued)<sup>1</sup>

Serial #	IILSS 2 (A)	IO [leak] 1 (A)	IO [leak] 2 (A)	Rdson 1 (Ohm)	Rdson 2 (Ohm)	Ton 1 (S)	Trise 1 (S)	Ton 2 (S)	Trise 2 (S)
	1.00E-06	1.00E-05	1.00E-05	3.50E-01	3.50E-01	1.50E-02	3.00E-03	1.50E-02	3.00E-03
	-1.00E-06	1.00E-10	1.00E-10	1.00E-02	1.00E-02	1.00E-04	5.00E-04	1.00E-04	5.00E-04
	****	****	****	****	****	****	****	****	****
71	-9.60E-11	5.02E-08	4.76E-08	1.67E-01	1.63E-01	3.40E-03	9.34E-04	4.10E-03	1.20E-03
71	-5.30E-09	4.77E-08	4.60E-08	1.71E-01	1.85E-01	2.90E-03	8.56E-04	3.40E-03	9.62E-04
71	1.18E-10	4.86E-08	4.55E-08	1.67E-01	1.61E-01	2.60E-03	7.72E-04	2.80E-03	9.28E-04
71	7.57E-11	4.37E-08	2.07E-07	1.64E-01	1.66E-01	3.60E-03	1.00E-03	3.50E-03	1.00E-03
79	2.52E-11	6.05E-08	5.87E-08	1.68E-01	1.65E-01	3.70E-03	1.00E-03	3.50E-03	9.93E-04
79	-4.40E-09	5.15E-08	5.86E-08	1.63E-01	1.62E-01	3.40E-03	9.01E-04	3.10E-03	9.32E-04
79	2.42E-11	6.19E-08	5.08E-08	1.66E-01	1.64E-01	3.90E-03	1.00E-03	4.30E-03	1.10E-03
79	4.54E-11	5.51E-08	3.97E-07	1.63E-01	1.65E-01	3.80E-03	9.73E-04	2.90E-03	8.93E-04
143	4.73E-13	6.22E-08	6.00E-08	1.66E-01	1.67E-01	3.20E-03	9.29E-04	4.50E-03	1.20E-03
143	-5.90E-09	4.95E-08	5.68E-08	1.68E-01	1.66E-01	4.10E-03	1.00E-03	3.20E-03	9.15E-04
143	6.00E-12	5.99E-08	5.07E-08	1.69E-01	1.65E-01	3.60E-03	9.68E-04	4.60E-03	1.20E-03
143	-5.60E-12	5.81E-08	3.43E-07	1.67E-01	1.67E-01	3.70E-03	1.00E-03	4.40E-03	1.20E-03

<sup>1</sup> Serial Number 71 was used as a control Sample for this test.

## Electrical Test Data (Post 1e+11p/cm<sup>2</sup> exposure continued)<sup>1</sup>

Serial #	Toff 1 (S)	Tfall 1 (S)	Toff 2 (S)	Tfall 2 (S)
	6.00E-02	1.50E-02	6.00E-02	1.50E-02
	1.00E-04	1.00E-03	1.00E-04	1.00E-03
	****	****	****	****
71	3.18E-02	1.17E-02	3.12E-02	1.16E-02
71	3.21E-02	1.11E-02	3.33E-02	1.11E-02
71	3.34E-02	1.13E-02	3.28E-02	1.18E-02
71	3.18E-02	1.16E-02	3.24E-02	1.17E-02
79	3.06E-02	1.19E-02	3.02E-02	1.18E-02
79	2.96E-02	1.21E-02	3.00E-02	1.17E-02
79	3.03E-02	1.23E-02	3.09E-02	1.08E-02
79	3.03E-02	1.22E-02	3.01E-02	1.14E-02
143	3.18E-02	1.14E-02	3.04E-02	1.16E-02
143	3.04E-02	1.17E-02	3.14E-02	1.19E-02
143	3.10E-02	1.19E-02	2.97E-02	1.16E-02
143	3.08E-02	1.21E-02	3.08E-02	1.17E-02

<sup>1</sup> Serial Number 71 was used as a control Sample for this test.

## Appendix B

# Test Plan

## Test Plan Outline

### 1.0 Purpose

The purpose of this test is to qualify this product for single event effects.

### 2.0 Test Responsibility

International Rectifier shall be responsible for conducting the tests, which shall be performed at Indiana University Cyclotron Facility. International Rectifier shall be responsible for the final Test Report.

### 3.0 Test Facility

#### 3.1 Accelerator

The Indiana University Cyclotron Facility shall be used to provide the necessary proton beam conditions.

#### 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 handle the individual test devices.

### 4.0 Test Devices

4.1 The RDHA701FP10A8QK SSR devices are planned for SEE evaluation and all SEE test specifications are listed in Appendix C of this document.

4.2 All devices shall be built in their respective packages.

4.3 The devices shall have the lids removed, all shall be verified for correct electrical performance (baseline) prior to SEE testing, and shall be properly packed in static-free containers.

4.4 The open samples shall be exposed to the beam and the one lidded sample shall be kept as a control to verify the test set up.

### 5.0 Test Method

5.1 The test board holds one sample at a time.

5.2 Each test sample shall be loaded on to the test board at the end of the beam line.

5.3 The entire sample shall be exposed to the beam during the test.

5.4 Just prior to the start of the exposure the device monitor software shall be started and it shall be confirmed the sample is operating correctly. If a problem is found it shall be corrected before starting the beam.

5.4.1  $V_{in} = 5V$  ( $I_F \cong 10mA$ ),  $V_{out} = 28V$ ,  $I_{out} = 1A$

5.5 The beam shall be turned on for proper amount time at the specified conditions.

5.5.1 The proton energies to be used are 30 MeV, 60 MeV, 100 and 200 MeV. However, in order to minimize the number of exposures the highest LET shall be checked first and then to decrease to the next LET only if SEE sensitivity is detected at that LET value.

5.5.2 The fluence to be achieved for each energy level shall be  $1E11$  p/cm<sup>2</sup>.

5.5.2 The maximum fluence a device shall be exposed to on a single run shall be  $1E11$  p/cm<sup>2</sup>.

5.5.3 The flux for the test shall be from  $1E5$  to  $1E9$  p's/sec cm<sup>2</sup>.

5.6 The device shall be monitored for Single Event Effects using the timing diagram shown below and the data shall be recorded until after the beam has reached the required total fluence for the exposure.

5.7 The sample shall be removed from the test board.

5.8 The results of the exposure shall be reviewed for any Single Event Effects or catastrophic events.

5.9 The sample shall be tested for the DC parametric and switching parameters at 25C per Appendix A.

5.10 If the result of the test is acceptable the second sample would be exposed per steps 5.1 through 5.9 at the same beam conditions.

5.11 If the result of the test is not acceptable repeat steps 5.1 through 5.9 for the next (lower) beam condition or electrical bias condition.

### 6.0 Test Report

The Test Report shall include the following information:

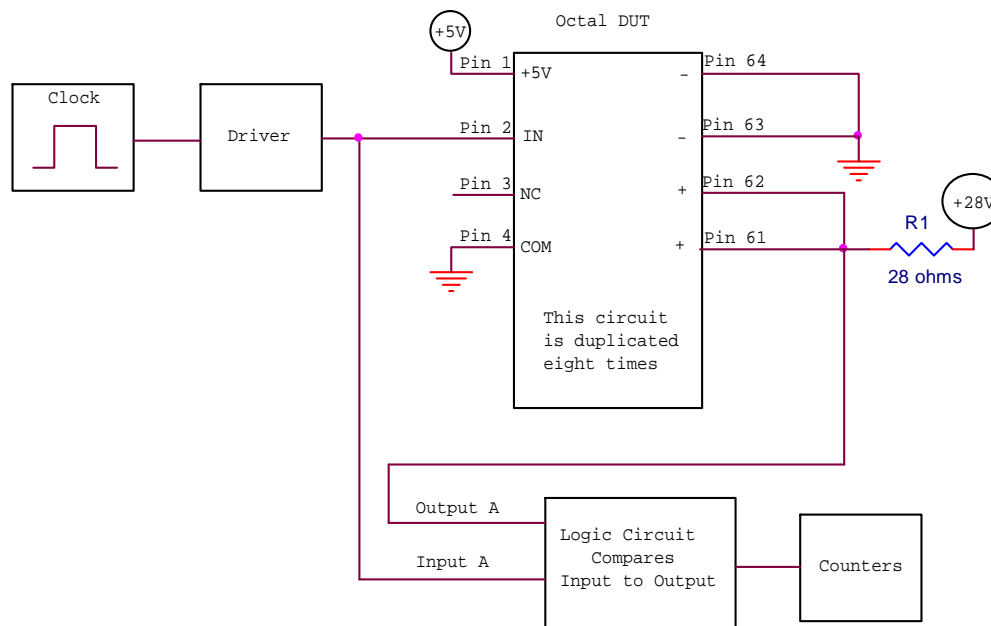
- a. Device type(s), serial numbers, wafer lot identification (per active component)
- b. Test dates and personnel names

- c. Facility, source type
- d. Schematic of test circuit
- e. Insitu bias conditions
- f. Comments and observations
- g. Pre and Post Electrical data
- h. Summary descriptive including graphs (if applicable)

### 7.0 Record Keeping

All single event exposure information shall be recorded on the data file and used to correlate data from different exposure levels. The Indiana University Cyclotron Facility shall provide a copy of the summary of all exposure runs showing key parameters such as; LET, flux rate, fluence level, and time duration for exposure. International Rectifier shall provide comments regarding the tests including observations or deviations from the plan.

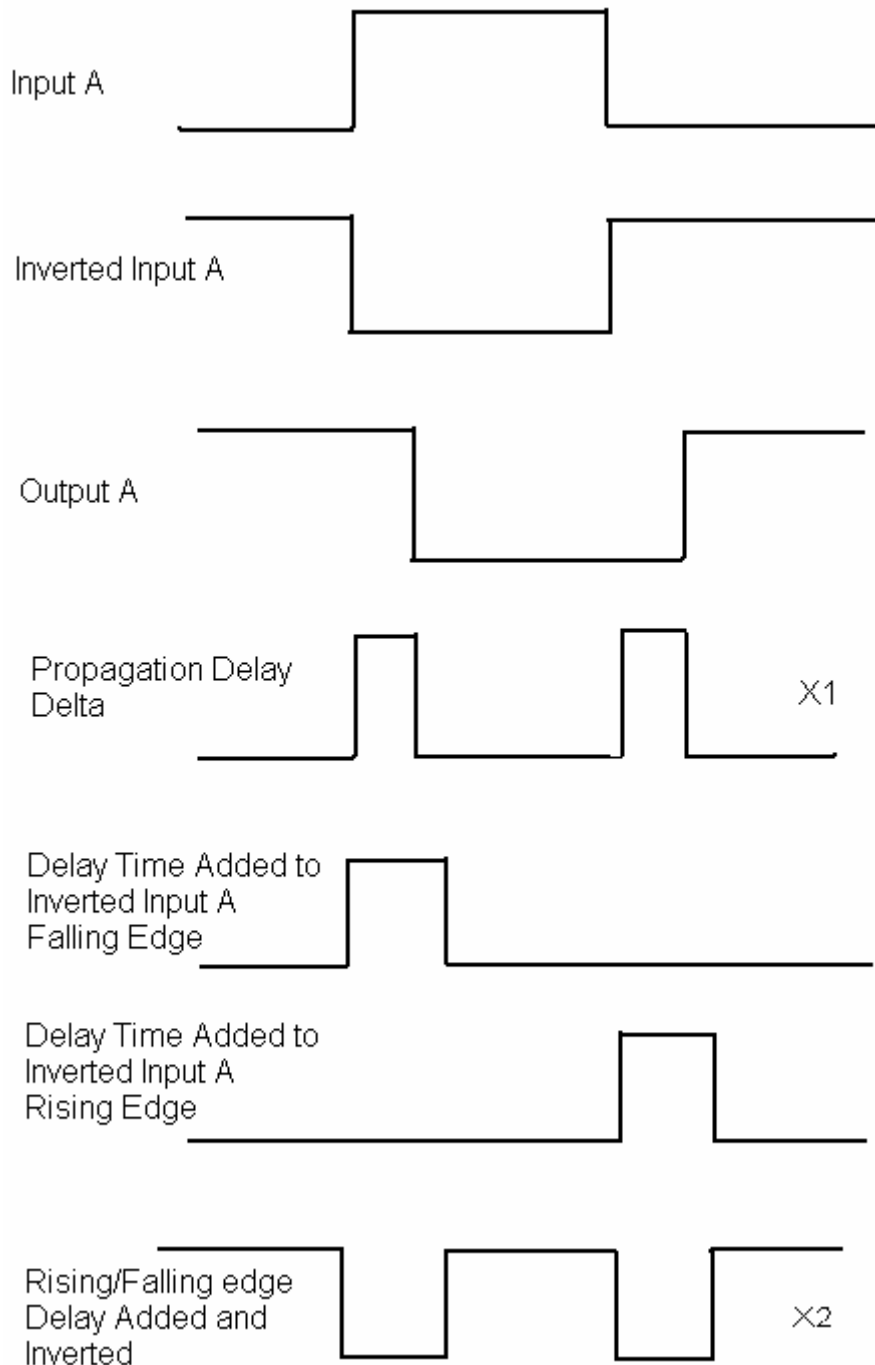
## SEE Test Circuit Block Diagram



### SEE Test Circuit Block Diagram for one of eight identical circuits.

The test circuit shall monitor and count any SEL, SEGR and SEU by using logic circuits. Transients would be detected only in the active region of the logic circuit and is limited to speeds relative to the logic circuitry, which are in the hundreds of nanoseconds. The active region refers to any region in the 2hz frequency accept for the blocked out area, due to propagation delay inherent in the part and the test circuitry. This has to be blocked out, so there are no false counts occurring while the part is switching. The timing diagram shows this in detail.

### Timing Diagram



### Timing / Logic Diagram

Signals X1 and X2 are sent through an AND gate and sent to a counter. If no transients occur there will be no counts. If any SEU, SEL or SEGR occur the logic circuitry will catch and count them.

# Appendix C

## Test Specification



PRODUCT DESCRIPTION: Octal Opto-MOSFET Solid State Relay									
Automatic Test					Tester: PXI-Rack				
Table 1: Pre Radiation Tests, 25C only									
Prog. Ref.	Test	Symbol	Test Conditions	Rad Level:	Notes	MIN	MAX	Units	
A	Supply Current High	IDin	Vdd=5V, two channels on	Pre Rad	1	1.70E-02	2.38E-02	A	
A	Supply Current Low	IQin	Vdd=5V, two channels off	Pre Rad	1	0.00E+00	1.50E-05	A	
A	Input Current High	IiHSS1	VDD=5V, VIH=5.0V	Pre Rad	1	-1.00E-06	1.00E-06	A	
A	Input Current High	IiHSS2	VDD=5V, VIH=5.0V	Pre Rad	1	-1.00E-06	1.00E-06	A	
A	Input Current Peak	IINPEAK1	VDD=5.25V, VIH=5.25V	Pre Rad	1	-1.00E-03	1.00E-03	A	
A	Input Current Peak	IINPEAK2	VDD=5.25V, VIH=5.25V	Pre Rad	1	-1.00E-03	1.00E-03	A	
A	Input Current Low	IILSS1	VDD=5.0V, VIL=0.80V	Pre Rad	1	-1.00E-06	1.00E-06	A	
A	Input Current Low	IILSS2	VDD=5.0V, VIL=0.80V	Pre Rad	1	-1.00E-06	1.00E-06	A	
A	Leakage Current Off	IO [leak] 1	VDD=5.0V, Vin =0.8V, Vout=100V	Pre Rad	1	1.00E-10	1.00E-05	A	
A	Leakage Current Off	IO [leak] 2	VDD=5.0V, Vin =0.8V, Vout=100V	Pre Rad	1	1.00E-10	1.00E-05	A	
A	Drain to Source Resistance	Rdson 1	VDD=5.0V, Iin =10mA, Iout=1A	Pre Rad	1	1.00E-02	3.50E-01	Ohm	
A	Drain to Source Resistance	Rdson 2	VDD=5.0V, Iin =10mA, Iout=1A	Pre Rad	1	1.00E-02	3.50E-01	Ohm	
A	Time On	Ton 1	VDD=5.0V, RCL=41ohm/100uF, Vbus=28V, Vin =4.5V	Pre Rad	1	1.00E-04	1.50E-02	S	
A	Time Rise	Trise1	VDD=5.0V, RCL=41ohm/100uF, Vbus=28V, Vin =4.5V	Pre Rad	1	5.00E-04	3.00E-03	S	
A	Time On	Ton 2	VDD=5.0V, RCL=41ohm/100uF, Vbus=28V, Vin =4.5V	Pre Rad	1	1.00E-04	1.50E-02	S	
A	Time Rise	Trise2	VDD=5.0V, RCL=41ohm/100uF, Vbus=28V, Vin =4.5V	Pre Rad	1	5.00E-04	3.00E-03	S	
A	Time Off	Toff 1	VDD=5.0V, RCL=41ohm/100uF, Vbus=28V, Vin =4.5V	Pre Rad	1	1.00E-04	6.00E-02	S	
A	Time Fall	TFall1	VDD=5.0V, RCL=41ohm/100uF, Vbus=28V, Vin =4.5V	Pre Rad	1	1.00E-03	1.50E-02	S	
A	Time Off	Toff 2	VDD=5.0V, RCL=41ohm/100uF, Vbus=28V, Vin =4.5V	Pre Rad	1	1.00E-04	6.00E-02	S	
A	Time Fall	TFall12	VDD=5.0V, RCL=41ohm/100uF, Vbus=28V, Vin =4.5V	Pre Rad	1	1.00E-03	1.50E-02	S	

1. Only two out of the eight circuits are tested at one time.

Automatic Test		Tester: PXI-Rack						
Table 2: Post Radiation Tests, 25C only								
Prog. Ref.	Test	Symbol	Test Conditions	Rad Level:	Notes	MIN	MAX	Units
B	Supply Current Low	IDin	Vdd=5V, two channels on	Post Rad	1	1.70E-02	2.38E-02	A
B	Supply Current High	IQin	Vdd=5V, two channels off	Post Rad	1	0.00E+00	1.50E-05	A
B	Input Current High	IHSS1	VDD=5V, VIH=5.0V	Post Rad	1	-1.00E-06	1.00E-06	A
B	Input Current High	IHSS2	VDD=5V, VIH=5.0V	Post Rad	1	-1.00E-06	1.00E-06	A
B	Input Current Peak	IINPEAK1	VDD=5.25V, VIH=5.25V	Post Rad	1	-1.00E-03	1.00E-03	A
B	Input Current Peak	IINPEAK2	VDD=5.25V, VIH=5.25V	Post Rad	1	-1.00E-03	1.00E-03	A
B	Input Current Low	IILSS1	VDD=5.0V, VIL=0.80V	Post Rad	1	-1.00E-06	1.00E-06	A
B	Input Current Low	IILSS2	VDD=5.0V, VIL=0.80V	Post Rad	1	-1.00E-06	1.00E-06	A
B	Leakage Current Off	IO [leak] 1	VDD=5.0V, Vin =0.8V, Vout=100V	Post Rad	1	1.00E-10	1.00E-05	A
B	Leakage Current Off	IO [leak] 2	VDD=5.0V, Vin =0.8V, Vout=100V	Post Rad	1	1.00E-10	1.00E-05	A
B	Drain to Source Resistance	Rdson 1	VDD=5.0V, Iin =10mA, Iout=1A	Post Rad	1	1.00E-02	3.50E-01	Ohm
B	Drain to Source Resistance	Rdson 2	VDD=5.0V, Iin =10mA, Iout=1A	Post Rad	1	1.00E-02	3.50E-01	Ohm
B	Time On	Ton 1	VDD=5.0V, RCL=41ohm/100uF. Vbus=28V, Vin =4.5V	Post Rad	1	1.00E-04	1.50E-02	S
B	Time Rise	Trise1	VDD=5.0V, RCL=41ohm/100uF. Vbus=28V, Vin =4.5V	Post Rad	1	5.00E-04	3.00E-03	S
B	Time On	Ton 2	VDD=5.0V, RCL=41ohm/100uF. Vbus=28V, Vin =4.5V	Post Rad	1	1.00E-04	1.50E-02	S
B	Time Rise	Trise2	VDD=5.0V, RCL=41ohm/100uF. Vbus=28V, Vin =4.5V	Post Rad	1	5.00E-04	3.00E-03	S
B	Time Off	Toff 1	VDD=5.0V, RCL=41ohm/100uF. Vbus=28V, Vin =4.5V	Post Rad	1	1.00E-04	6.00E-02	S
B	Time Fall	TFall1	VDD=5.0V, RCL=41ohm/100uF. Vbus=28V, Vin =4.5V	Post Rad	1	1.00E-03	1.50E-02	S
B	Time Off	Toff 2	VDD=5.0V, RCL=41ohm/100uF. Vbus=28V, Vin =4.5V	Post Rad	1	1.00E-04	6.00E-02	S
B	Time Fall	TFall12	VDD=5.0V, RCL=41ohm/100uF. Vbus=28V, Vin =4.5V	Post Rad	1	1.00E-03	1.50E-02	S

1. Only two out of the eight circuits are tested at one time.

Table 6: Single Event Effects Requirements <sup>8,9</sup> Single Event Effects@ Indians University Cyclotron facility				
Beam Information Indiana University Cyclotron				
Step	Beam Type	LET (MeV)	Avg Flux (protons/cm <sup>2</sup> /sec)	Total Fluence (protons/cm <sup>2</sup> )
1	Proton	200	1 e5 min, 1 e9 max	1 e10 min, 1e11 max
2	Proton	100		
3	Proton	60		
4	Proton	30		
SEE testing screened for SEL, SEGR, SEB, SEU				
Bias Information				
Bias Conditions: Vdd=5V, Vout = 28V, Iout=1A, Vin=(0V to 5V), clock @ 2hertz				
Test Board Number: 08-087 (Test Board), 08-088 (Driver boards), 08-089 (Digital IO)				
Test Program: Reference C				
Test Console: 04-134-TC				
Chamber: Air				

8. Each device is tested in-flux under the specified load and test program 08-088-1-TS. After the devices are subjected to beam they are tested per the post irradiation specifications of table

9. In order to minimize the number of exposures the highest LET shall be checked first and then decrease to the next LET only if SEE sensitivity is detected at that LET value.

# Appendix D

## Log Sheet

DATE : 5/27/09			OPERATORS : C. DICIENZO, D. LISIEWICZ				FACILITY : IUCF			PAGE <u> 1 </u> OF <u> 1 </u>	
RUN #	Beam Type	LET MeV	AVG FLUX p's / cm <sup>2</sup>	Fluence #/ cm <sup>2</sup>	Distance in	Angle deg	BEAM Dia cm	PART #	S/N	TID kRad	COMMENTS
4	Proton	198	2.587E8	1.007E10	12	0	7	RDHA701FP10A8QK	79	0.601	No events recorded proceeded to 1E11 total fluence
5	Proton	198	2.605E8	9.003E10	12	0	7	RDHA701FP10A8QK	79	5.980	No events recorded
6	Proton	198	2.515E8	1.000E11	12	0	7	RDHA701FP10A8QK	143	5.978	No events recorded
7	Proton	198	2.176E8	5.010E10	12	45	7	RDHA701FP10A8QK	5	2.994	No events recorded
8	Proton	198	2.403E8	5.002E11	12	45	7	RDHA701FP10A8QK	5	5.982	No events recorded
9	Proton	198	2.369E8	5.002E11	12	90	7	RDHA701FP10A8QK	5	8.971	No events recorded