WV ENGR 10 : Solar Cell Characterization Lab

Lab Sec #: 2A Date: 7/14/22 Names: 1. Caden 2. Abhinav
3. _____ 4. _____

Solar Intensity measured with solar meter (W/m^2) 725 , Cell area (m^2) 0.00341, Power (Watt) 2.47

A. Single Cell Measurements

	Voltage V	Current mA	Power mW	Comments
1	1.17	56	80	
2	1.57	56	200	
3	2.7	55	160	
4	3.66	54	200	
5	5.06	46	240	Maximum Power
6	5.15	37	200	
7	5.35	29	160	
8	5.51	21	120	
9	5.62	14	80	
10	5.72	7	40	

B. Serial Cell measurements

	Voltage V	Current mA	Power mW
1	2.4	24	70
2	3.98	23	100
3	5.7	22	130
4	7.6	21	160
5	9.88	20	190
6	10.35	18	180
7	10.4	17	170
8	10.53	16	160
9	10.6	15	150
10	10.66	13	120

Max Power

C. Parallel Cell Measurements

	Voltage V	Current mA	Power mW
1	2.49	66	170
2	2.96	66	200
3	3.4	66	230
4	3.9	65	260
5	4.62	63	290
6	4.95	52	260
7	5.08	45	230
8	5.17	38	200
9	5.27	31	170
10	5.35	25	140

Max Power

D. Weight Lifting Experiment

	Circle the selected set up bellow:	
1	Cell Combination:	(a) 4 Series (b) 4 Parallel (c) 2S/2P
2	Gear Rotation	(a) 30:1 (red) (b) 190:1 (gray)
3	Spool Diameter	(a) Smaller (b) Larger
4	Selected Weight:	100g
5	Power @15 sec:	0.231W
6	Height @15 sec:	37cm

Write a tech. report on this project as specified in lab guidelines and include:

- Plots of V vs. I and P vs. I for all cell combinations tested (3), use Excel and fit a curve to the data points.
- Determine 1. Efficiency of the solar cell (output power/input power)
  2. Efficiency of the motor/ gear-head assembly?

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