Table 1. Red LED Power Linearity

Table 2. Red LED Power with Coverslip

Table 1. Red LED Power Linearity						Table 2. Red LED Power with Coverslip			
Rig	LED Color	Voltage	Power Reading (mW/cm2)	Power Reading (mW/cm2)	average	Rig	LED Color	Voltage	Power Reading (mW/cm2)
1.1	red	0	0.602	0.612	0.607	1.1	red	0	0.533
1.1	red	0.2	0.617	0.615	0.616	1.1	red	0.2	0.546
1.1	red	0.25	0.836	0.813	0.8245	1.1	red	0.25	0.749
1.1	red	0.5	2.34	2.32	2.33	1.1	red	0.5	2.157
1.1	red	0.75	3.88	3.85	3.865	1.1	red	0.75	3.61
1.1	red	1	5.41	5.38	5.395	1.1	red	1	5.04
1.1	red	2	12.05	11.97	12.01	1.1	red	2	11.29
1.1	red	3	18.7	18.58	18.64	1.1	red	3	17.54
1.1	red	4	25.2	25	25.1	1.1	red	4	23.6
1.1	red	5	31.3	31.2	31.25	1.1	red	5	29.5
1.2	red	0	0.682	0.679	0.6805	1.2	red	0	0.62
1.2	red	0.2				1.2	red	0.2	
1.2	red	0.25	0.798	0.792	0.795	1.2	red	0.25	0.726
1.2	red	0.5	2.22	2.21	2.215	1.2	red	0.5	2.08
1.2	red	0.75	3.8	3.77	3.785	1.2	red	0.75	3.57
1.2	red	1	5.43	5.4	5.415	1.2	red	1	5.13
1.2	red	2	12.03	11.98	12.005	1.2	red	2	11.42
1.2	red	3	18.77	18.7	18.735	1.2	red	3	17.83
1.2	red	4	25.3	25.2	25.25	1.2	red	4	24.1
1.2	red	5	31.6	31.5	31.55	1.2	red	5	30
2.1	red	0	0.659	0.662	0.6605	2.1	red	0	0.578
2.1	red	0.2				2.1	red	0.2	
2.1	red	0.25	0.679	0.679	0.679	2.1	red	0.25	0.593
2.1	red	0.5	2.011	2.02	2.0155	2.1	red	0.5	1.872
2.1	red	0.75	3.59	3.61	3.6	2.1	red	0.75	3.39
2.1	red	1	4.92	4.95	4.935	2.1	red	1	4.66
2.1	red	2	11.52	11.59	11.555	2.1	red	2	11.03
2.1	red	3	18.16	18.26	18.21	2.1	red	3	17.4
2.1	red	4	24.7	24.8	24.75	2.1	red	4	23.7
2.1	red	5	31	31.2	31.1	2.1	red	5	29.8
2.2	red	0	0.7	0.708	0.704	2.2	red	0	0.643
2.2	red	0.2				2.2	red	0.2	
2.2	red	0.25	0.752	0.755	0.7535	2.2	red	0.25	0.686
2.2	red	0.5	2.142	2.093	2.1175	2.2	red	0.5	1.955
2.2	red	0.75	3.73	3.61	3.67	2.2	red	0.75	3.4
2.2	red	1	5.07	4.91	4.99	2.2	red	1	4.63
2.2	red	2	12.02	11.61	11.815	2.2	red	2	11
2.2	red	3	18.76	18.1	18.43	2.2	red	3	17.18
2.2	red	4	25.4	24.5	24.95	2.2	red	4	23.3
2.2	red	5	31.8	30.7	31.25	2.2	red	5	29.1
3.1	red	0	0.703	0.703	0.703	3.1	red	0	0.645
3.1	red	0.2	0.751	0.755	4.004	3.1	red	0.2	0.696
3.1	red	0.25	1.007	1.001	1.004	3.1	red	0.25	0.934
3.1	red	0.5	2.5	2.47	2.485	3.1	red	0.5	2.34
3.1	red	0.75	4.13	4.07	4.1 5.40	3.1	red	0.75	3.86
3.1	red	1	5.53	5.45	5.49	3.1	red	1	5.18
3.1	red	2 3	12.2	12 18 48	12.1 18.64	3.1	red	2	11.44 17.62
3.1	red		18.8	18.48	18.64	3.1	red	3	17.62
3.1	red	4	25.2	24.8 30.9	25 21.15	3.1	red	4	23.7
3.1	red	5 0	31.4 0.718	30.9 0.715	31.15	3.1	red	5 0	29.4 0.65
3.2 3.2	red	0.2	0.710	0.715	0.7165	3.2 3.2	red	0.2	0.00
3.2	red red	0.2	0.823	0.818	0.8205	3.2	red red	0.2	0.751
3.2	red	0.5	2.33	2.32	2.325	3.2	red	0.5	2.178
3.2	red	0.75	3.77	3.76	3.765	3.2	red	0.75	3.56
3.2	red	1	5.35	5.35	5.35	3.2	red	1	5.06
3.2	red	2	12.1	12.08	12.09	3.2	red	2	11.49
3.2	red	3	18.8	18.79	18.795	3.2	red	3	17.88
3.2 3.2	red red	4 5	25.3 31.6	25.3 31.6	25.3 31.6	3.2 3.2	red red	4 5	24.1 30.1
J.Z	ieu	J	31.0	31.0	J1.U	J.Z	ieu	J	JU. I

Table 4. Green LED Power with Coverslip

**Table 3. Green LED Power Linearity** 

Rig	Table 3. C	ble 3. Green LED Power Linearity					Coverslip			
1.11   green   0	Rig		Voltage		_	average	Rig		Voltage	
1.1   green   0.2		green	0	0.691	0.695		1.1	green	0	0.639
1.1	1.1	_	0.2				1.1	green	0.2	
1.1		green	0.25	0.703	0.703	0.703	1.1	green	0.25	0.649
1.1		_	0.5	1.716	1.713	1.7145	1.1	green	0.5	1.609
1.1		_					1.1	_		2.8
1.1.1 green 2 9.22 9.24 9.23 1.1 green 2 6.77 1.1.1 green 4 20.02 20.06 20.04 1.1 green 5 149 1.1.1 green 6 5 25.18 25.22 25.2 1.1 green 6 19.06 1.11 green 5 23.99 1.2 green 0.2 0.778 0.778 1.2 green 0.2 green 0.2 1.2 green 0.2 green 0.2 1.2 green 0.2 1.2 green 0.2 green 0.2 1.2 green 0.2 gree		_						_		
1.1.   green   3		_						_		
1.1   green   4   20.02   20.06   20.04   1.1   green   5   23.99		_					1.1	_	3	14
1.1   green   5   25.18   25.22   25.2   1.1   green   5   23.99		_						_		
12		_					1.1	_	5	23.99
1.2									0	
12		_	0.2				1.2	green	0.2	
1.2   green   0.5   1.758   1.756   1.757   1.2   green   0.5   1.633   1.2   green   0.75   2.99   1.2   green   0.75   2.99   1.2   green   0.75   2.99   1.2   green   1   4.02   4.27   4.27   4.27   1.2   green   1   4.02   4.27		_						_	0.25	
1.2   green   0.75   3.19   3.19   3.19   1.2   green   0.75   2.99   1.2   green   1   4.27   4.27   4.27   1.2   green   1   4.02   4.27   1.2   green   2   10.06   10.08   10.07   1.2   green   2   9.51   1.2   green   3   16.14   16.18   16.16   1.2   green   3   15.29   15.29   1.2   green   4   22.20   22.207   22.405   1.2   green   4   20.88   1.2   green   5   27.8   27.8   27.8   1.2   green   5   26.3   1.2   green   0   0.702   2.1   green   0   0.702   2.1   green   0   0.702   2.1   green   0.2   2.1   green   0.2   2.1   green   0.2   2.1   green   0.25   2.1   green   0.5   1.492   1.504   1.498   2.1   green   0.55   1.396   2.1   green   0.5   2.78   2.88   2.1   green   0.5   2.64   3.77   3.755   2.1   green   0.5   2.64   3.55   2.1   green   1   3.74   3.77   3.755   2.1   green   1   3.55   3.2   3.2   green   2   8.87   8.93   8.9   2.1   green   2   8.46   3.40   2.1   green   2   8.46   3.40   2.1   green   3   14.04   2.1   green   4   20.22   20.33   20.275   2.1   green   3   14.04   2.1   green   4   20.22   20.33   20.275   2.1   green   3   4.04   2.1   green   3   4.04   2.1   green   3   4.04   2.1   green   0.2   2.2   green   0.5   2.76   2.2   3.3   3.1   3.1   green   0.2		_		1.758	1.756	1.757		_	0.5	1.633
1.2   green   1		_					1.2	_	0.75	2.99
1.2   green   2   10.06   10.08   10.07   1.2   green   2   9.51		_						_	1	4.02
1.2         green         3         16.14         16.18         11.6         1.2         green         3         15.29           1.2         green         4         22.02         22.07         22.045         1.2         green         4         20.88           2.1         green         0         0.764         0.77         0.767         2.1         green         0         0.702           2.1         green         0.2         2         1         green         0.2         2.1         green         0.2         2.1         green         0.2         2.1         green         0.25         2.2         1         green         0.25         2.84         2.1         green         0.25         2.84         2.1         green         0.75         2.84         2.1         green         0.75         2.84         2.1         green         1         3.55         2.64         2.1         green         0.75         2.84         2.1         green         1         3.55		_						_	2	9.51
1.2         green         4         22.02         22.07         22.045         1.2         green         5         27.8         27.8         27.8         27.8         1.2         green         5         26.3           2.1         green         0         0.764         0.77         0.767         2.1         green         0         0.702           2.1         green         0.25         2.1         green         0.25         2.1         green         0.25         2.1         green         0.25         2.1         green         0.5         1.396         2.1         green         0.5         1.396         2.1         green         0.5         1.362         2.1         green         0.5         1.362         2.2         green         0.5         1.362         2.2         green         0.5         1.362         2.2         2.2         green         0.5         2.264         2.2         1         green         0.5         2.64         2.2         2.2         green         0.5         2.64         2.2         green         1         3.55         2.21         green         1         3.55         2.21         green         1         4.04         2.02         2.033		_						_		
1.2		_						_	4	
2.1         green         0.2         0.764         0.77         0.767         2.1         green         0.2           2.1         green         0.25         2.1         green         0.25           2.1         green         0.5         1.492         1.504         1.498         2.1         green         0.5         1.396           2.1         green         0.5         2.79         2.81         2.8         2.1         green         0.75         2.64           2.1         green         1         3.74         3.77         3.755         2.1         green         1         3.55           2.1         green         2         8.87         8.93         8.9         2.1         green         2         8.46           2.1         green         4         20.22         20.33         20.275         2.1         green         3         14.04           2.1         green         0         0.814         0.829         0.8215         2.2         green         0         0.726           2.2         green         0.2         2.56         2.58         2.57         2.1         green         0.2         2.22         green		_						_	5	
2.1         green         0.2           2.1         green         0.25           2.1         green         0.25           2.1         green         0.5         1.492           2.1         green         0.75         2.79         2.81         2.8         2.1         green         0.75         2.64           2.1         green         1         3.74         3.77         3.755         2.1         green         1         3.55           2.1         green         2         8.87         8.93         8.9         2.1         green         2         8.46           2.1         green         3         14.72         14.8         14.76         2.1         green         4         19.29           2.1         green         4         20.22         20.33         20.275         2.1         green         4         19.29           2.1         green         5         25.6         25.8         25.7         2.1         green         0         0.726           2.2         green         0.2         2         green         0.2         2         green         0.2         2         green         0.2										
2.1         green         0.25         1.492         1.504         1.498         2.1         green         0.5         1.396           2.1         green         0.5         2.79         2.81         2.8         2.1         green         0.5         2.64           2.1         green         1         3.74         3.77         3.755         2.1         green         1         3.55           2.1         green         2         8.87         8.93         8.9         2.1         green         2         8.46           2.1         green         4         20.22         20.33         20.275         2.1         green         4         19.29           2.1         green         5         25.6         25.8         25.7         2.1         green         4         19.29           2.1         green         0         0.814         0.829         0.8215         2.2         green         4         19.29           2.2         green         0.2         2.66         2.58         25.7         2.1         green         0         0.726           2.2         green         0.25         1.652         1.663         1.6575         <		_						_	0.2	
2.1         green         0.5         1.492         1.504         1.498         2.1         green         0.5         1.396           2.1         green         0.75         2.79         2.81         2.8         2.1         green         0.75         2.64           2.1         green         1         3.74         3.77         3.755         2.1         green         1         3.55           2.1         green         2         8.87         8.93         8.9         2.1         green         2         8.46           2.1         green         4         20.22         20.33         20.275         2.1         green         3         14.04           2.1         green         5         25.6         25.8         25.7         2.1         green         5         24.45           2.2         green         0.25         2.5         2.5         2.1         green         0         0.726           2.2         green         0.5         1.652         1.663         1.6675         2.2         green         0.5         1.521           2.2         green         0.75         2.96         2.97         2.965         2.2         <		_						_		
2.1         green         0.75         2.79         2.81         2.8         2.1         green         0.75         2.64           2.1         green         1         3.74         3.77         3.755         2.1         green         1         3.55           2.1         green         2         8.87         8.93         8.9         2.1         green         2         8.46           2.1         green         4         20.22         20.33         20.275         2.1         green         3         14.04           2.1         green         4         20.22         20.33         20.275         2.1         green         4         19.29           2.1         green         5         25.6         25.8         25.7         2.1         green         5         24.45           2.2         green         0.2         2.2         green         0.5         1.521         2.2         green         0.5         1.521         2.2         green         0.5         1.521         2.2 <td< td=""><td></td><td>_</td><td></td><td>1.492</td><td>1.504</td><td>1.498</td><td></td><td>_</td><td></td><td>1.396</td></td<>		_		1.492	1.504	1.498		_		1.396
2.1         green         1         3.74         3.77         3.755         2.1         green         2         8.87         8.93         8.9         2.1         green         2         8.46           2.1         green         3         14.72         14.8         14.76         2.1         green         3         14.04           2.1         green         4         20.22         20.33         20.275         2.1         green         4         19.29           2.1         green         5         25.6         25.8         25.7         2.1         green         5         22.45           2.2         green         0.2         22         green         0.2         22.445         22.2         green         0.2         22.445         22.2         green         0.2         22.445         22.2         green         0.2         22.2         green         0.25         2.2         green         0.25         2.2         green         0.25         2.2         green         0.75         2.26         2.2		_						_		
2.1         green         2         8.87         8.93         8.9         2.1         green         2         8.46           2.1         green         3         14.72         14.8         14.76         2.1         green         3         14.02           2.1         green         4         20.22         20.33         20.275         2.1         green         4         19.29           2.1         green         5         25.6         25.8         25.7         2.1         green         5         24.45           2.2         green         0.2         22         green         0.2         22.2         green         0.2         22.766         22.2         green         0.2         2.766         22.97         2.966         2.2         green         0.5         1.521         22.2         green         0.5         1.521         22.2         green         0.5         2.2.766 <td< td=""><td></td><td>_</td><td></td><td></td><td></td><td></td><td></td><td>_</td><td></td><td></td></td<>		_						_		
2.1         green         3         14.72         14.8         14.76         2.1         green         3         14.04           2.1         green         4         20.22         20.33         20.275         2.1         green         4         19.29           2.1         green         5         25.6         25.8         25.7         2.1         green         5         24.45           2.2         green         0.2         2.2         green         0.2         2.2         green         0.2           2.2         green         0.25         2.2         green         0.25         2.2         green         0.25           2.2         green         0.5         1.652         1.663         1.6575         2.2         green         0.5         1.521           2.2         green         0.75         2.96         2.97         2.965         2.2         green         0.75         2.96         2.97         2.965         2.2         green         0.75         2.76           2.2         green         1         4.04         4.045         2.2         green         0.75         2.96         2.97         2.965         2.2         green </td <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td>		_						_		
2.1         green         4         20.22         20.33         20.275         2.1         green         4         19.29           2.1         green         5         25.6         25.8         25.7         2.1         green         5         24.45           2.2         green         0         0.814         0.829         0.8215         2.2         green         0         0.726           2.2         green         0.2         2.2         green         0.5         1.521         2.2         green         0.75         2.76         2.2         green         0.75         2.76         2.2         green         0.75         2.76         2.2         green         0.75         2.76         2.2         green         1         3.78         2.2         green         1         3.78         2.2         green         1		_						_		
2.1         green         5         25.6         25.8         25.7         2.1         green         5         24.45           2.2         green         0         0.814         0.829         0.8215         2.2         green         0         0.726           2.2         green         0.25         2.2         green         0.2         2.2         green         0.5         1.521         2.2         green         0.5         1.521         2.2         green         0.5         2.26         green         0.5         2.76         2.76         2.2         green         0.5         2.76         2.2         green         1         3.78         2.2         green         2         9.19         9.2         2.2		_						_		
2.2         green         0         0.814         0.829         0.8215         2.2         green         0.2           2.2         green         0.2         2.2         green         0.2         2.2         green         0.25           2.2         green         0.5         1.652         1.663         1.6575         2.2         green         0.5         1.521           2.2         green         0.75         2.96         2.97         2.965         2.2         green         0.75         2.76           2.2         green         1         4.05         4.04         4.045         2.2         green         1         3.78           2.2         green         2         9.77         9.74         9.755         2.2         green         2         9.19           2.2         green         3         16.23         16.17         16.2         2.2         green         3         15.29           2.2         green         4         22.19         22.11         22.15         2.2         green         4         20.93           2.2         green         5         28.2         28.1         28.1         28.1         28.1		_						•		
2.2         green         0.25           2.2         green         0.25           2.2         green         0.25           2.2         green         0.5         1.652         1.663         1.6575         2.2         green         0.5         1.521           2.2         green         0.75         2.96         2.97         2.965         2.2         green         0.75         2.76           2.2         green         1         4.05         4.04         4.045         2.2         green         1         3.78           2.2         green         2         9.77         9.74         9.755         2.2         green         2         9.19           2.2         green         3         16.23         16.17         16.2         2.2         green         2         9.19           2.2         green         4         22.19         22.11         22.15         2.2         green         3         15.29           2.2         green         5         28.2         28.1         28.15         2.2         green         4         20.93           2.2         green         6         28.2         28.1         28.1										
2.2         green         0.25         1.652         1.663         1.6575         2.2         green         0.5         1.521           2.2         green         0.75         2.96         2.97         2.965         2.2         green         0.75         2.76           2.2         green         1         4.05         4.04         4.045         2.2         green         1         3.78           2.2         green         2         9.77         9.74         9.755         2.2         green         2         9.19           2.2         green         3         16.23         16.17         16.2         2.2         green         2         9.19           2.2         green         4         22.19         22.11         22.15         2.2         green         4         20.93           2.2         green         5         28.2         28.1         28.15         2.2         green         4         20.93           2.2         green         5         28.2         28.1         28.15         2.2         green         4         20.93           2.2         green         0         0.813         0.819         0.816 <t< td=""><td></td><td>_</td><td></td><td></td><td></td><td></td><td></td><td>_</td><td>0.2</td><td></td></t<>		_						_	0.2	
2.2         green         0.5         1.652         1.663         1.6575         2.2         green         0.5         1.521           2.2         green         0.75         2.96         2.97         2.965         2.2         green         0.75         2.76           2.2         green         1         4.05         4.04         4.045         2.2         green         1         3.78           2.2         green         2         9.77         9.74         9.755         2.2         green         2         9.19           2.2         green         3         16.23         16.17         16.2         2.2         green         2         9.19           2.2         green         4         22.19         22.11         22.15         2.2         green         4         20.93           2.2         green         5         28.2         28.1         28.15         2.2         green         5         26.6           3.1         green         0.2         0.813         0.819         0.816         3.1         green         0.2         0.746           3.1         green         0.25         0.851         0.86         0.8555		_						_		
2.2         green         0.75         2.96         2.97         2.965         2.2         green         0.75         2.76           2.2         green         1         4.05         4.04         4.045         2.2         green         1         3.78           2.2         green         2         9.77         9.74         9.755         2.2         green         2         9.19           2.2         green         3         16.23         16.17         16.2         2.2         green         3         15.29           2.2         green         4         22.19         22.11         22.15         2.2         green         4         20.93           2.2         green         5         28.2         28.1         28.15         2.2         green         4         20.93           3.1         green         0         0.813         0.819         0.816         3.1         green         5         26.6           3.1         green         0.2         0.851         0.86         0.8555         3.1         green         0.25         0.786           3.1         green         0.5         2.075         2.08         2.0775		_		1.652	1.663	1.6575		_		1.521
2.2         green         1         4.05         4.04         4.045         2.2         green         1         3.78           2.2         green         2         9.77         9.74         9.755         2.2         green         2         9.19           2.2         green         3         16.23         16.17         16.2         2.2         green         2         9.19           2.2         green         4         22.19         22.11         22.15         2.2         green         4         20.93           2.2         green         5         28.2         28.1         28.15         2.2         green         5         26.6           3.1         green         0.2         3.1         green         0.2         0.746         3.1         green         0.2         0.746           3.1         green         0.2         0.851         0.86         0.8555         3.1         green         0.25         0.786           3.1         green         0.5         2.075         2.08         2.0775         3.1         green         0.25         0.786           3.1         green         0.75         3.58         3.57		_						_		
2.2         green         2         9.77         9.74         9.755         2.2         green         2         9.19           2.2         green         3         16.23         16.17         16.2         2.2         green         3         15.29           2.2         green         4         22.19         22.11         22.15         2.2         green         4         20.93           2.2         green         5         28.2         28.1         28.15         2.2         green         4         20.93           3.1         green         0         0.813         0.819         0.816         3.1         green         0         0.746           3.1         green         0.2         0.851         0.86         0.8555         3.1         green         0.2         0.746           3.1         green         0.5         2.075         2.08         2.0775         3.1         green         0.5         1.934           3.1         green         0.75         3.58         3.57         3.575         3.1         green         0.75         3.34           3.1         green         1         4.79         4.75         4.77		_						_		
2.2         green         3         16.23         16.17         16.2         2.2         green         3         15.29           2.2         green         4         22.19         22.11         22.15         2.2         green         4         20.93           2.2         green         5         28.2         28.1         28.15         2.2         green         4         20.93           3.1         green         0         0.813         0.819         0.816         3.1         green         0         0.746           3.1         green         0.2         3.1         green         0.2         3.1         green         0.2         0.746           3.1         green         0.25         0.851         0.86         0.8555         3.1         green         0.25         0.786           3.1         green         0.5         2.075         2.08         2.0775         3.1         green         0.5         1.934           3.1         green         0.75         3.58         3.57         3.575         3.1         green         0.75         3.34           3.1         green         2         11.03         10.91         10.97 <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2</td> <td></td>		_							2	
2.2         green         4         22.19         22.11         22.15         2.2         green         4         20.93           2.2         green         5         28.2         28.1         28.15         2.2         green         5         26.6           3.1         green         0         0.813         0.819         0.816         3.1         green         0         0.746           3.1         green         0.2         0.851         0.86         0.8555         3.1         green         0.2         0.786           3.1         green         0.5         2.075         2.08         2.0775         3.1         green         0.5         1.934           3.1         green         0.75         3.58         3.57         3.575         3.1         green         0.5         1.934           3.1         green         1         4.79         4.75         4.77         3.1         green         0.75         3.34           3.1         green         2         11.03         10.91         10.97         3.1         green         2         10.3           3.1         green         3         17.5         17.3         17.4		_						_	3	15.29
2.2         green         5         28.2         28.1         28.15         2.2         green         5         26.6           3.1         green         0         0.813         0.819         0.816         3.1         green         0         0.746           3.1         green         0.2         0.851         0.86         0.8555         3.1         green         0.25         0.786           3.1         green         0.5         2.075         2.08         2.0775         3.1         green         0.5         1.934           3.1         green         0.75         3.58         3.57         3.575         3.1         green         0.75         3.34           3.1         green         1         4.79         4.75         4.77         3.1         green         1         4.47           3.1         green         2         11.03         10.91         10.97         3.1         green         2         10.3           3.1         green         3         17.5         17.3         17.4         3.1         green         2         10.3           3.1         green         4         23.77         23.5         23.635		•						_	4	20.93
3.1         green         0         0.813         0.819         0.816         3.1         green         0         0.746           3.1         green         0.25         0.851         0.86         0.8555         3.1         green         0.25         0.786           3.1         green         0.5         2.075         2.08         2.0775         3.1         green         0.5         1.934           3.1         green         0.75         3.58         3.57         3.575         3.1         green         0.75         3.34           3.1         green         1         4.79         4.75         4.77         3.1         green         1         4.47           3.1         green         2         11.03         10.91         10.97         3.1         green         1         4.47           3.1         green         3         17.5         17.3         17.4         3.1         green         2         10.3           3.1         green         4         23.77         23.5         23.635         3.1         green         3         16.34           3.1         green         5         29.9         29.6         29.75	2.2		5			28.15	2.2		5	26.6
3.1         green         0.2         0.851         0.86         0.8555         3.1         green         0.25         0.786           3.1         green         0.5         2.075         2.08         2.0775         3.1         green         0.5         1.934           3.1         green         0.75         3.58         3.57         3.575         3.1         green         0.75         3.34           3.1         green         1         4.79         4.75         4.77         3.1         green         1         4.47           3.1         green         2         11.03         10.91         10.97         3.1         green         2         10.3           3.1         green         3         17.5         17.3         17.4         3.1         green         3         16.34           3.1         green         4         23.77         23.5         23.635         3.1         green         4         22.19           3.2         green         5         29.9         29.6         29.75         3.1         green         5         27.9           3.2         green         0.2         3.2         green         0.2										
3.1         green         0.25         0.851         0.86         0.8555         3.1         green         0.25         0.786           3.1         green         0.5         2.075         2.08         2.0775         3.1         green         0.5         1.934           3.1         green         0.75         3.58         3.57         3.575         3.1         green         0.75         3.34           3.1         green         1         4.79         4.75         4.77         3.1         green         1         4.47           3.1         green         2         11.03         10.91         10.97         3.1         green         2         10.3           3.1         green         3         17.5         17.3         17.4         3.1         green         3         16.34           3.1         green         4         23.77         23.5         23.635         3.1         green         4         22.19           3.2         green         0         0.831         0.824         0.8275         3.2         green         0         0.751           3.2         green         0.2         3.2         green         0.2								_		
3.1       green       0.5       2.075       2.08       2.0775       3.1       green       0.5       1.934         3.1       green       0.75       3.58       3.57       3.575       3.1       green       0.75       3.34         3.1       green       1       4.79       4.75       4.77       3.1       green       1       4.47         3.1       green       2       11.03       10.91       10.97       3.1       green       2       10.3         3.1       green       3       17.5       17.3       17.4       3.1       green       2       10.3         3.1       green       4       23.77       23.5       23.635       3.1       green       3       16.34         3.1       green       5       29.9       29.6       29.75       3.1       green       4       22.19         3.2       green       0       0.824       0.8275       3.2       green       0       0.751         3.2       green       0.2       3.2       green       0.2       3.2       green       0.5       1.727         3.2       green       0.5       1.849       1.855<				0.851	0.86	0.8555				0.786
3.1     green     0.75     3.58     3.57     3.575     3.1     green     0.75     3.34       3.1     green     1     4.79     4.75     4.77     3.1     green     1     4.47       3.1     green     2     11.03     10.91     10.97     3.1     green     2     10.3       3.1     green     3     17.5     17.3     17.4     3.1     green     3     16.34       3.1     green     4     23.77     23.5     23.635     3.1     green     4     22.19       3.1     green     5     29.9     29.6     29.75     3.1     green     5     27.9       3.2     green     0     0.831     0.824     0.8275     3.2     green     0     0.751       3.2     green     0.2     3.2     green     0.2     3.2     green     0.2       3.2     green     0.5     1.849     1.855     1.852     3.2     green     0.5     1.727       3.2     green     0.75     3.18     3.18     3.18     3.2     green     0.75     2.98       3.2     green     1     4.56     4.55     4.555     3.2										
3.1     green     1     4.79     4.75     4.77     3.1     green     1     4.47       3.1     green     2     11.03     10.91     10.97     3.1     green     2     10.3       3.1     green     3     17.5     17.3     17.4     3.1     green     3     16.34       3.1     green     4     23.77     23.5     23.635     3.1     green     4     22.19       3.1     green     5     29.9     29.6     29.75     3.1     green     5     27.9       3.2     green     0.2     3.2     green     0     0.751       3.2     green     0.25       3.2     green     0.25       3.2     green     0.5     1.849     1.855     1.852     3.2     green     0.5     1.727       3.2     green     0.75     3.18     3.18     3.18     3.2     green     0.75     2.98       3.2     green     1     4.56     4.55     4.555     3.2     green     1     4.28       3.2     green     2     10.5     10.48     10.49     3.2     green     2     9.91       3.2     green <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td>		_						_		
3.1     green     2     11.03     10.91     10.97     3.1     green     2     10.3       3.1     green     3     17.5     17.3     17.4     3.1     green     3     16.34       3.1     green     4     23.77     23.5     23.635     3.1     green     4     22.19       3.1     green     5     29.9     29.6     29.75     3.1     green     5     27.9       3.2     green     0     0.831     0.824     0.8275     3.2     green     0     0.751       3.2     green     0.2     3.2     green     0.2       3.2     green     0.5     1.849     1.855     1.852     3.2     green     0.5     1.727       3.2     green     0.75     3.18     3.18     3.18     3.2     green     0.75     2.98       3.2     green     1     4.56     4.55     4.555     3.2     green     1     4.28       3.2     green     2     10.5     10.48     10.49     3.2     green     2     9.91       3.2     green     3     16.77     16.73     16.75     3.2     green     3     15.84 <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td>		_						_		
3.1     green     3     17.5     17.3     17.4     3.1     green     3     16.34       3.1     green     4     23.77     23.5     23.635     3.1     green     4     22.19       3.1     green     5     29.9     29.6     29.75     3.1     green     5     27.9       3.2     green     0     0.831     0.824     0.8275     3.2     green     0     0.751       3.2     green     0.2     3.2     green     0.2       3.2     green     0.25     3.2     green     0.25       3.2     green     0.5     1.849     1.855     1.852     3.2     green     0.5     1.727       3.2     green     0.75     3.18     3.18     3.18     3.2     green     0.75     2.98       3.2     green     1     4.56     4.55     4.555     3.2     green     1     4.28       3.2     green     2     10.5     10.48     10.49     3.2     green     2     9.91       3.2     green     3     16.77     16.73     16.75     3.2     green     3     15.84       3.2     green     4     2										
3.1         green         4         23.77         23.5         23.635         3.1         green         4         22.19           3.1         green         5         29.9         29.6         29.75         3.1         green         5         27.9           3.2         green         0         0.831         0.824         0.8275         3.2         green         0         0.751           3.2         green         0.2         3.2         green         0.2         3.2         green         0.2           3.2         green         0.5         1.849         1.855         1.852         3.2         green         0.5         1.727           3.2         green         0.75         3.18         3.18         3.18         3.2         green         0.75         2.98           3.2         green         1         4.56         4.55         4.555         3.2         green         1         4.28           3.2         green         2         10.5         10.48         10.49         3.2         green         2         9.91           3.2         green         3         16.77         16.73         16.75         3.2 <t< td=""><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td><td>_</td><td></td><td></td></t<>						1		_		
3.1         green         5         29.9         29.6         29.75         3.1         green         5         27.9           3.2         green         0         0.831         0.824         0.8275         3.2         green         0         0.751           3.2         green         0.2         3.2         green         0.2         3.2         green         0.2           3.2         green         0.5         1.849         1.855         1.852         3.2         green         0.5         1.727           3.2         green         0.75         3.18         3.18         3.18         3.2         green         0.75         2.98           3.2         green         1         4.56         4.55         4.555         3.2         green         1         4.28           3.2         green         2         10.5         10.48         10.49         3.2         green         2         9.91           3.2         green         3         16.77         16.73         16.75         3.2         green         3         15.84           3.2         green         4         22.83         22.77         22.8         3.2 <td< td=""><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td><td>_</td><td></td><td></td></td<>						1		_		
3.2     green     0     0.831     0.824     0.8275     3.2     green     0     0.751       3.2     green     0.2     3.2     green     0.2       3.2     green     0.25     3.2     green     0.25       3.2     green     0.5     1.849     1.855     1.852     3.2     green     0.5     1.727       3.2     green     0.75     3.18     3.18     3.18     3.2     green     0.75     2.98       3.2     green     1     4.56     4.55     4.555     3.2     green     1     4.28       3.2     green     2     10.5     10.48     10.49     3.2     green     2     9.91       3.2     green     3     16.77     16.73     16.75     3.2     green     3     15.84       3.2     green     4     22.83     22.77     22.8     3.2     green     4     21.58		_						_		
3.2     green on the green of t										
3.2     green of green		_						_		
3.2     green     0.5     1.849     1.855     1.852     3.2     green     0.5     1.727       3.2     green     0.75     3.18     3.18     3.18     3.2     green     0.75     2.98       3.2     green     1     4.56     4.55     4.555     3.2     green     1     4.28       3.2     green     2     10.5     10.48     10.49     3.2     green     2     9.91       3.2     green     3     16.77     16.73     16.75     3.2     green     3     15.84       3.2     green     4     22.83     22.77     22.8     3.2     green     4     21.58		_					3.2	_		
3.2     green     1     4.56     4.55     4.555     3.2     green     1     4.28       3.2     green     2     10.5     10.48     10.49     3.2     green     2     9.91       3.2     green     3     16.77     16.73     16.75     3.2     green     3     15.84       3.2     green     4     22.83     22.77     22.8     3.2     green     4     21.58	3.2	_	0.5			1	3.2	_	0.5	
3.2     green     2     10.5     10.48     10.49     3.2     green     2     9.91       3.2     green     3     16.77     16.73     16.75     3.2     green     3     15.84       3.2     green     4     22.83     22.77     22.8     3.2     green     4     21.58		_				1		_		
3.2 green 3 16.77 16.73 16.75 3.2 green 3 15.84 3.2 green 4 22.83 22.77 22.8 3.2 green 4 21.58		_				1		_		
3.2 green 4 22.83 22.77 22.8 3.2 green 4 21.58		_						_		
		_						_		
	3.2	green	5	28.7	28.7	28.7	3.2	green		27.2

**Table 5. Red LED Chamber Homogeneity** 

Table 5. Red LED Chamber Homogeneity								
Rig	mic	LED Color	Voltage	Power Reading (mW/cm2)	percent difference (max, min)			
1.1	1	red	2.5	14.92	9.938733833			
1.1	2	red	2.5	15.3				
1.1	3	red	2.5	15.42				
1.1	4	red	2.5	14.59				
1.1	5	red	2.5	15.01				
1.1	6	red	2.5	15.04				
1.1	7	red	2.5	13.96				
1.1	8	red	2.5	14.4				
1.1	9	red	2.5	14.4				
1.2	1	red	2.5	15.79	5.465191932			
1.2	2	red	2.5	15.53				
1.2	3	red	2.5	15.25				
1.2	4	red	2.5	15.51				
1.2	5	red	2.5	15.62				
1.2	6	red	2.5	15.3				
1.2	7	red	2.5	14.97				
1.2	8	red	2.5	15.23				
1.2	9	red	2.5	14.95				
2.1	1	red	2.5	15.12	7.515796475			
2.1	2	red	2.5	15.12	7.515790475			
2.1	3	red	2.5	14.56				
2.1	4			15.6				
2.1	5	red	2.5					
		red	2.5	15.49				
2.1	6	red	2.5	14.91				
2.1	7	red	2.5	15.36				
2.1	8	red	2.5	15.2				
2.1	9	red	2.5	14.47	4.040070704			
2.2	1	red	2.5	14.86	4.216073781			
2.2	2	red	2.5	15.27				
2.2	3	red	2.5	15.14				
2.2	4	red	2.5	15.2				
2.2	5	red	2.5	15.5				
2.2	6	red	2.5	15.3				
2.2	7	red	2.5	15.17				
2.2	8	red	2.5	15.28				
2.2	9	red	2.5	15.2				
3.1	1	red	2.5	14.87	6.016042781			
3.1	2	red	2.5	15.02				
3.1	3	red	2.5	14.81				
3.1	4	red	2.5	15.41				
3.1	5	red	2.5	15.21				
3.1	6	red	2.5	14.84				
3.1	7	red	2.5	15.4				
3.1	8	red	2.5	14.93				
3.1	9	red	2.5	14.51				
3.2	1	red	2.5	15.25	6.503519946			
3.2	2	red	2.5	15.18				
3.2	3	red	2.5	15.03				
3.2	4	red	2.5	15.15				
3.2	5	red	2.5	15.4				
3.2	6	red	2.5	15.4				
3.2	7	red	2.5	14.43				
3.2	8	red	2.5	14.95				
3.2	9	red	2.5	15.01				

**Table 6. Green LED Chamber Homogeneity** 

	LED Chamber Homogeneity				percent difference
Rig	mic	Color	Voltage	(mW/cm2)	(max, min)
1.1	1	green	2.5	10.85	10.06564551
1.1	2	green	2.5	11.3	
1.1	3	green	2.5	11.2	
1.1	4	green	2.5	11.5	
1.1	5	green	2.5	11.8	
1.1	6	green	2.5	11.9	
1.1	7	green	2.5	11.8	
1.1	8	green	2.5	12	
1.1	9	green	2.5	12	
1.2	1	green	2.5	12.4	8.752025932
1.2	2	green	2.5	12.46	
1.2	3	green	2.5	11.95	
1.2	4	green	2.5	12.88	
1.2	5	green	2.5	12.8	
1.2	6	green	2.5	12.2	
1.2	7	green	2.5	12.76	
1.2	8	green	2.5	12.6	
1.2	9	green	2.5	11.8	
2.1	1	green	2.5	10.95	10.22727273
2.1	2	green	2.5	11.1	
2.1	3	green	2.5	10.95	
2.1	4	green	2.5	10.75	
2.1	5	green	2.5	10.99	
2.1	6	green	2.5	10.77	
2.1	7	green	2.5	10.02	
2.1	8	green	2.5	10.2	
2.1	9	green	2.5	10.15	
2.2	1	green	2.5	12.15	7.524752475
2.2	2	green	2.5	12.7	
2.2	3	green	2.5	12.67	
2.2	4	green	2.5	12.65	
2.2	5	green	2.5	13.05	
2.2	6	green	2.5	13.1	
2.2	7	green	2.5	12.49	
2.2	8	green	2.5	12.86	
2.2	9	green	2.5	12.74	
3.1	1	green	2.5	13.7	10.59554256
3.1	2	green	2.5	14.35	
3.1	3	green	2.5	14.41	
3.1	4	green	2.5	13.72	
3.1	5	green	2.5	14.26	
3.1	6	green	2.5	14.35	
3.1	7	green	2.5	12.96	
3.1	8	green	2.5	13.32	
3.1	9	green	2.5	13.39	
3.2	1	green	2.5	12.9	4.914933837
3.2	2	green	2.5	13.05	
3.2	3	green	2.5	12.96	
3.2	4	green	2.5	13.4	
3.2	5	green	2.5	13.55	
3.2	6	green	2.5	13.33	
3.2	7	green	2.5	13.08	
3.2	8	green	2.5	13.21	
3.2	9	green	2.5	13	