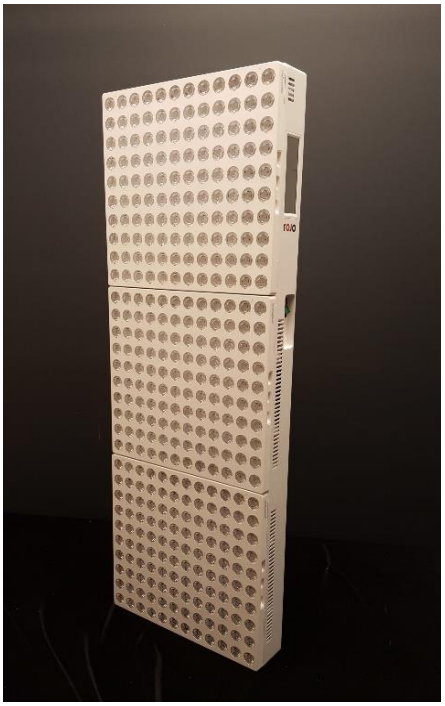
LightLab INTERNATIONAL ALLENTOWN LLC

Radiant Flux Test Report

LLIA003057-001A-R01*

Catalog Number: Switch M3 with 3 universal flat modules
Portable, formed white steel housing, three steel mounting plate sections with two cooling fans in each section, three plastic LED modules.
360 dual chip LEDs, 180 "630nm", 180 "660nm", 108 "810nm", 72 "830nm", 108 "850nm", 72 "1060nm" LEDs. Three unmarked LED drivers and six controller circuit boards



Performance Summary

Total Radiometric (350-1700nm)		
Total Radiant Flux	277.75	W
Radiant Efficiency	38.4	% (W_r/W_e)
Radiometric Range: 570-1100nm		
Radiant Flux (570-1100nm)	276.36	W
Red/Total Red Ratio*	95.1	%
Deep Red/Total Red Ratio*	4.9	%
NIR/Total NIR Ratio*	84.3	%
Deep NIR/Total NIR Ratio*	15.7	%

*Note: In this report, Red spans the wavelength range 600-700nm, Deep Red spans 700-780nm, Total Red spans 600-780nm, NIR spans 780-900nm, Deep NIR spans 900-1100nm, and Total NIR spans 780-1100nm.

Peak Wavelength(s)	635, 665, 816, 840, 854, 1075	nm
Luminous Flux	11544.4	Lumens
Luminous Efficacy	16.0	Lm/W

Prepared For:
Rojo Light Therapy
6 Wilson Drive
Ohoka, 7692, New Zealand

*This test report supersedes test report LLIA003057-001A

Test date: 09/16/2026
Report date: 10/23/2026

Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2026.10.23 12:49:21 -04'00'

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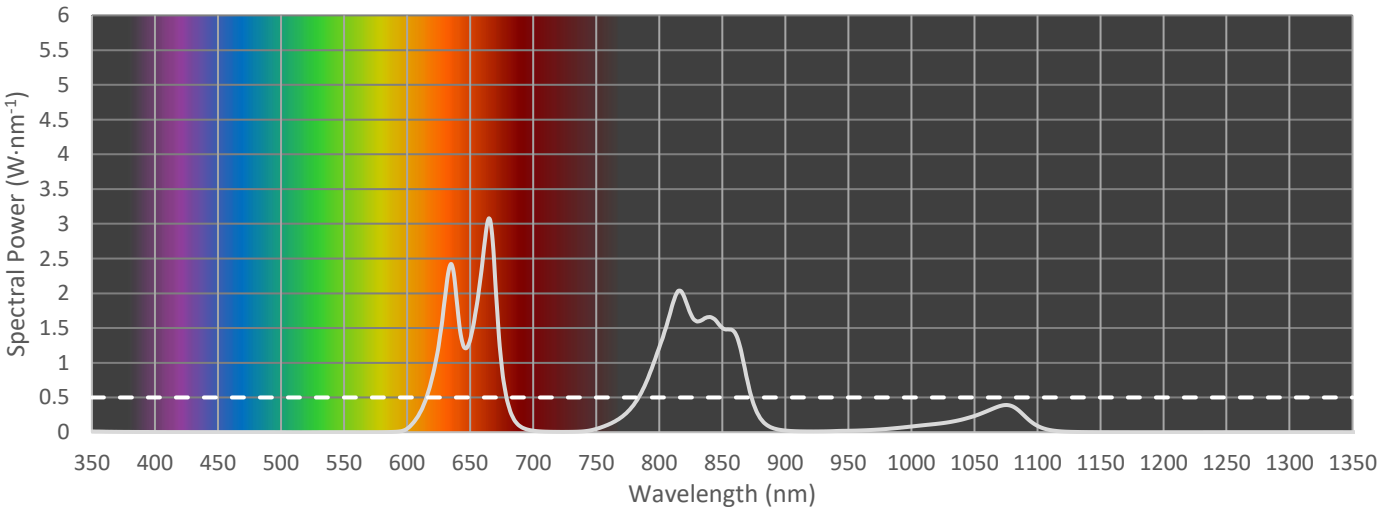
Test Report Number: LLIA003057-001A-R01*

Radiant Flux Tabulation			
Waveband (nm)	Radiant Flux (W_r)	Percent of Total	Efficiency (W_r/W_e)
350-500	0.41	0.1%	0.001
500-570	0.03	0.0%	0.000
Amber 570-600	0.21	0.1%	0.000
Red 600-700	114.40	41.2%	0.158
Deep Red 700-780	5.93	2.1%	0.008
NIR 780-900	131.30	47.3%	0.182
Deep NIR 900-1100	24.52	8.8%	0.034
570-1100	276.36	99.5%	0.382
Total 350-1700	277.75	100.0%	0.384



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Test Report Number: LLIA003057-001A-R01*

Electrical Data

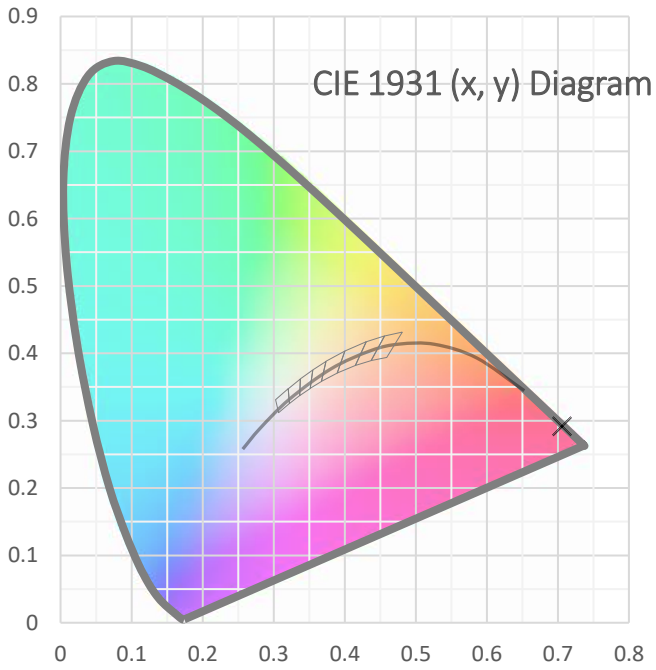
Voltage	120.0	Vac
Current	6.041	A
Power	723.4	W
Frequency	60.00	Hz
Power Factor	0.998	
Current THD	4.0	%

Spectral Power of Select Wavelengths

Wavelength (nm)	Spectral Power ($W \cdot nm^{-1}$)
590	0.0049
630	1.9246
660	2.4799
810	1.8040
830	1.5943
850	1.5029
1064	0.3333

Photometric (Human Vision) Data

Total Luminous Flux		11544.4	lm
Luminous Efficacy		16.0	lm/W
Chromaticity	(x,y)	(0.7058, 0.2917)	
	(u',v')	(0.5549, 0.5159)	
Duv		n/a	
CCT		n/a	K
CRI (Ra)		n/a	
R9		n/a	
TM-30: Rf		n/a	
TM-30: Rg		n/a	



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LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003057-001A-R01*

Test Equipment Configuration:	Measurements acquired using the LightLab International Allentown, LLC Labsphere 2m Integrating Sphere system with spectroradiometer. Testing was performed using 4π geometry
Test Temperature:	25.3 °C
Test Procedure:	Tested in accordance with the applicable sections of: LM-79-24, LM-78-20, LM-58-20, ANSI_ANSLG C78.377-2017, TM-30-24
Significance:	The laboratory has not participated in the selection of samples to be tested. All testing is performed on the understanding that the significance of the report is limited to the extent that the test sample is representative of production units.
Notes:	The measurements and other derived quantities contained in this report are based on the absolute data as measured. Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results. This report is free of erasures and corrections This report may contain data that are not covered by the NVLAP accreditation. Quantities marked with ǂ are not covered.

Revisions:

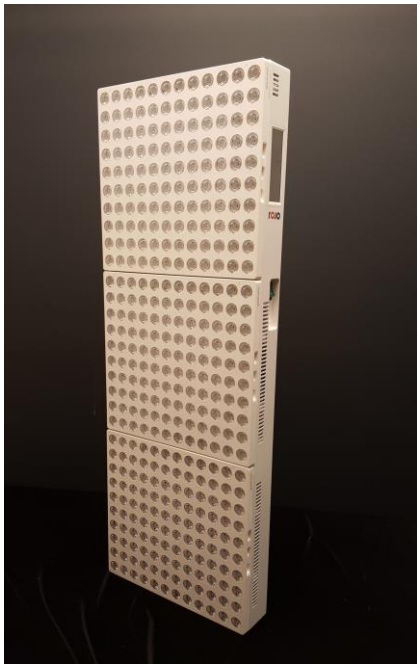
R01 - 10/22/2026 - Modified scale of SPD plot and added 0.5 W/nm line

LightLab
INTERNATIONAL
ALLENTOWN LLC

Radiant Flux Stabilization Report

LLIA003057-001B-R01*

Catalog Number: Switch M3 with 3 universal flat modules
Portable, formed white steel housing, three steel mounting plate sections with two cooling fans in each section, three plastic LED modules.
360 dual chip LEDs, 180 "630nm", 180 "660nm", 108 "810nm", 72 "830nm", 108 "850nm", 72 "1060nm" LEDs. Three unmarked LED drivers and six controller circuit boards



Test Equipment:

Irradiance measurements were acquired with LightLab asset A108-Gigahertz-Optik BTS2048-VL-TEC and A114-Gigahertz-Optik BTS2048-NIR Spectral Irradiance Meters using LightLab's Application Distance Measurement Grid in the LightLab goniometer room with stray light reduction. Spectral irradiance was recorded in one-minute intervals during stabilization.

Prepared For:
Rojo Light Therapy
6 Wilson Drive
Ohoka, 7692, New Zealand

*This test report supersedes test report LLIA003057-001B

Test date: 10/01/2026
Report date: 10/23/2026

LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003057-001B-R01*

Spectral Irradiance measurements taken 12" above the center of the panel.

Time (minutes)	Irradiance (570-1100nm) (mW/cm2)	Irradiance (600-780nm) (mW/cm2)	Irradiance (780-1100nm) (mW/cm2)
0.5	117.6	54.6	62.9
1.5	115.9	53.6	62.2
2.5	114.4	52.8	61.5
3.5	113.3	52.2	61.0
4.5	112.4	51.8	60.5
5.5	111.7	51.4	60.2
6.5	111.0	51.1	59.9
7.5	110.7	50.9	59.7
8.5	110.3	50.7	59.5
9.5	109.9	50.5	59.3
10.5	109.6	50.3	59.2
11.5	109.4	50.3	59.1
12.5	109.2	50.1	59.0
13.5	108.9	50.0	58.8
14.5	108.8	49.9	58.8
15.5	108.6	49.8	58.7
16.5	108.5	49.8	58.6
17.5	108.4	49.7	58.7
18.5	108.3	49.7	58.5
19.5	108.2	49.6	58.5

15 Minute 570-1100nm Irradiance Retention
92.5%

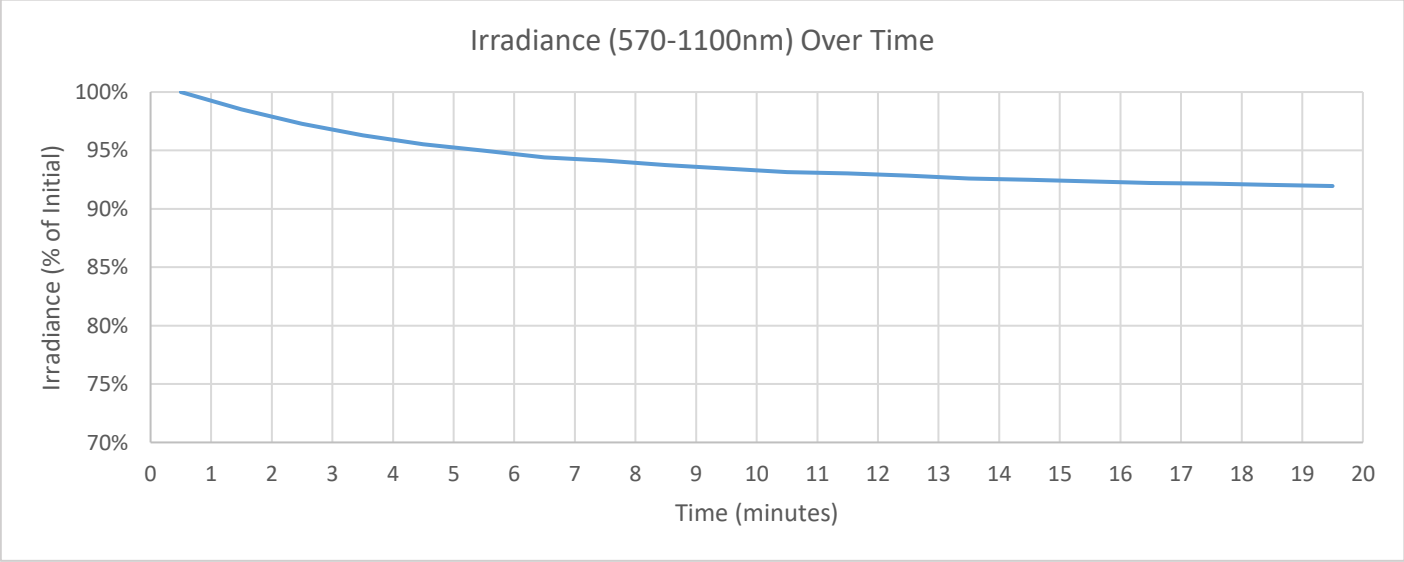
20 Minute 570-1100nm Irradiance Retention
92.0%

15 Minute 600-780nm Irradiance Retention
91.4%

20 Minute 600-780nm Irradiance Retention
90.8%

15 Minute 780-1100nm Irradiance Retention
93.5%

20 Minute 780-1100nm Irradiance Retention
93.1%

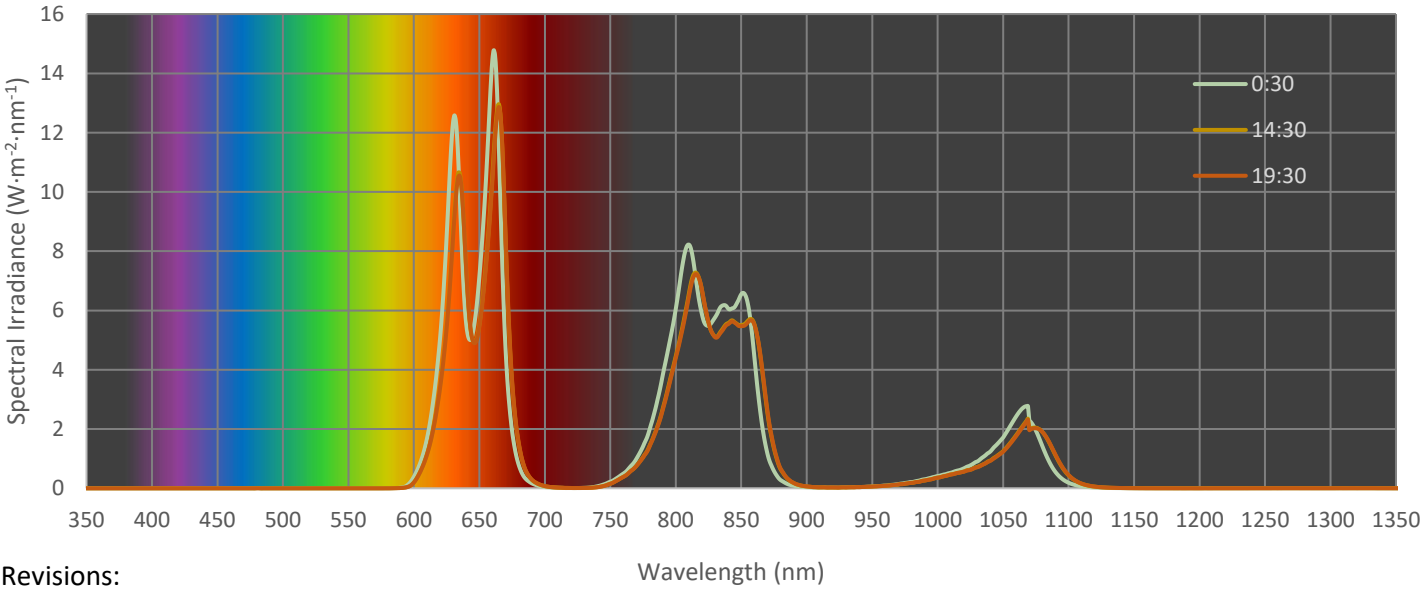


LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003057-001B-R01*

Spectral Irradiance measurements taken 12" above the center of the panel.

Local Peak Number	0.5 min peak wavelength (nm)	14.5 min peak wavelength (nm)	19.5 min peak wavelength (nm)
1	631	634	635
2	661	665	665
3	810	815	815
4	837	843	843
5	851	857	857
6	1068	1069	1069



Revisions:

R01 - 10/22/2026 - Modified scale of Irrad retention plot. Fixed typo on "full spectral range" irrad retention labels.

LightLab INTERNATIONAL ALLENTOWN LLC

Grid Application Distance Measurement Test Report

Test Report Number: LLIA003057-001C-R01*

Catalog Number: Switch M3 with 3 universal flat modules

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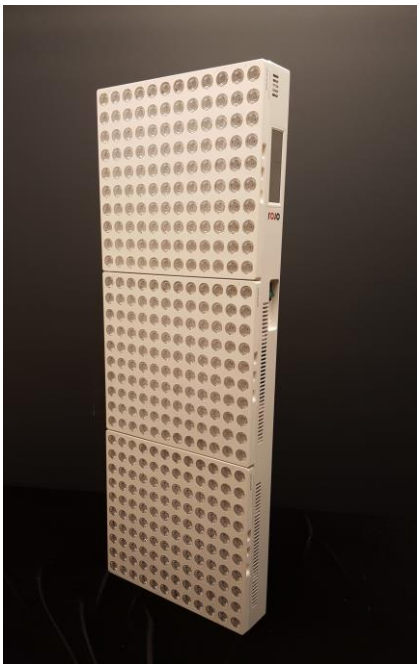


Performance Summary

Electrical		
Voltage	120.0	Vac
Current	6.041	A
Power	723.5	W
Frequency	60.00	Hz
Power Factor	0.998	
Current THD	4.0	%
Ambient Temperature	24.8	°C
Grid Dimensions		
Test Plane Distance	12	inches
X Axis minimum	-12	inches
X Axis maximum	12	inches
X Axis increments	2	inches
Y Axis minimum	-30	inches
Y Axis maximum	30	inches
Y Axis increments	2	inches
Number of measurement points	403	

Test Equipment:

Irradiance measurements were acquired with LightLab asset A108-Gigahertz-Optik BTS2048-VL-TEC and A114-Gigahertz-Optik BTS2048-NIR Spectral Irradiance Meters using LightLab's Application Distance Measurement Grid in the LightLab goniometer room with stray light reduction. The test subject was allowed to reach stabilization according to IES LM-79-24 criteria prior to measurements.

Prepared For:
Rojo Light Therapy
6 Wilson Drive
Ohoka, 7692, New Zealand

*This test report supersedes test report LLIA003057-001C

Test date: 09/16/2026

Report date: 10/23/2026

LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003057-001C-R01*

Full Body Target Area
Total Irradiance (570-1100nm) in mW/cm^2
Test Distance = 12 inches

X Axis Distance (inches)

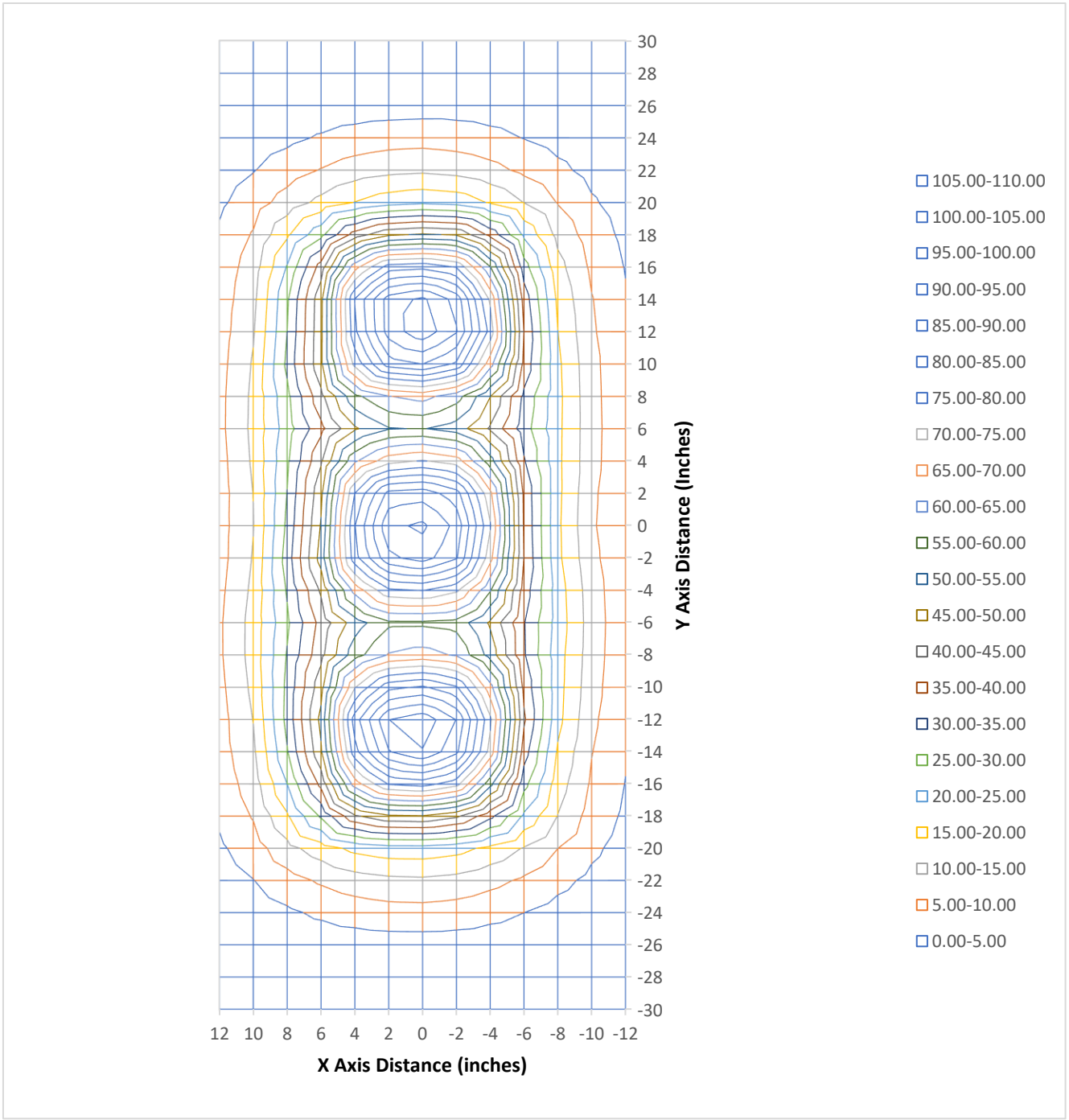
Y Axis Distance (inches)	-12	-10	-8	-6	-4	-2	0	2	4	6	8	10	12
30	0.26	0.31	0.34	0.38	0.41	0.43	0.44	0.42	0.40	0.36	0.31	0.27	0.23
28	0.35	0.41	0.50	0.59	0.66	0.70	0.72	0.70	0.65	0.57	0.47	0.37	0.30
26	0.49	0.76	1.23	1.82	2.32	2.63	2.83	2.83	2.47	1.83	1.22	0.69	0.42
24	1.02	2.19	3.81	5.52	6.95	7.84	8.09	7.56	6.45	4.84	3.23	1.78	0.82
22	2.37	4.75	7.64	10.26	12.45	13.59	14.05	13.31	11.58	8.93	6.15	3.51	1.70
20	4.10	7.63	12.12	16.40	20.14	22.82	24.00	23.15	19.50	14.90	9.76	5.60	2.82
18	5.72	10.46	19.23	28.53	42.23	49.10	50.62	49.50	38.50	24.04	13.49	7.59	3.87
16	6.83	12.47	25.39	42.23	67.99	82.29	83.49	79.57	60.14	32.18	16.75	9.04	4.77
14	7.40	13.60	29.24	48.57	85.18	102.44	105.98	98.09	74.00	37.92	18.94	10.26	5.41
12	7.76	14.50	30.00	48.81	83.95	102.18	108.27	100.44	78.04	39.86	20.06	10.72	5.65
10	8.24	15.52	31.08	48.96	76.52	92.64	95.12	89.13	67.15	38.52	21.00	11.46	5.76
8	8.61	16.05	28.67	43.54	58.72	64.83	66.72	62.17	50.13	33.80	21.29	11.66	5.84
6	8.66	16.21	27.65	38.68	49.30	54.65	55.30	52.65	44.32	32.32	21.15	11.81	5.92
4	8.19	15.77	29.10	44.30	64.12	73.09	75.41	72.48	57.07	35.49	21.10	11.69	5.79
2	7.88	15.06	30.13	48.76	80.03	96.63	97.80	92.13	71.18	38.99	21.18	11.01	5.65
0	8.00	14.81	31.05	50.44	84.76	103.72	105.97	98.50	75.50	39.33	20.93	10.72	5.66
-2	8.11	15.35	32.27	52.16	83.11	98.76	102.18	95.57	71.76	39.85	21.11	11.37	5.81
-4	8.74	16.11	30.50	45.78	66.73	79.00	80.17	75.97	60.41	37.69	22.39	12.29	6.14
-6	9.24	16.88	29.09	41.78	52.65	59.06	59.13	58.17	49.21	35.31	22.77	12.54	6.35
-8	9.22	16.89	30.37	43.55	57.92	65.38	66.88	64.44	53.07	35.54	22.04	12.37	6.21
-10	8.64	16.14	31.24	48.20	74.71	88.65	90.89	85.75	66.86	38.67	21.81	11.92	5.91
-12	8.00	15.13	31.52	51.42	87.61	104.92	108.44	99.83	76.04	40.78	21.46	11.06	5.68
-14	7.78	14.00	29.60	49.26	83.16	99.59	104.58	96.13	73.04	37.39	19.35	10.18	5.40
-16	6.88	12.47	25.00	41.44	67.35	80.30	82.10	76.93	56.56	31.70	17.33	9.30	4.87
-18	5.78	10.41	19.35	30.70	44.08	48.94	49.43	45.95	36.39	24.10	14.85	7.96	4.17
-20	4.20	7.62	13.39	17.58	21.32	22.85	22.94	21.78	18.65	14.62	10.04	6.06	3.03
-22	2.48	4.89	8.04	10.70	12.71	13.79	14.08	13.32	11.51	9.20	6.36	3.87	1.84
-24	1.14	2.40	4.19	5.89	7.22	8.02	8.17	7.67	6.50	5.01	3.32	1.88	0.88
-26	0.52	0.86	1.43	2.05	2.49	2.79	2.81	2.71	2.32	1.76	1.18	0.73	0.45
-28	0.36	0.44	0.54	0.64	0.71	0.74	0.75	0.72	0.67	0.59	0.49	0.40	0.33
-30	0.27	0.32	0.37	0.41	0.45	0.47	0.47	0.45	0.43	0.39	0.34	0.29	0.25

Center Point Irradiance	105.97	mW/cm^2	
Maximum Irradiance	108.44	mW/cm^2	
Minimum Irradiance	0.23	mW/cm^2	
Standard Deviation	30.16	mW/cm^2	
Coefficient of Variation	109.9	%	
Target Area Radiant Power	281.5	W	
Average Irradiance	30.30	mW/cm^2	
Percent area over 20mW/cm^2	45.8	%	
Percent area over 30mW/cm^2	37.1	%	
Percent area over 40mW/cm^2	30.1	%	

Report of Test

Test Report Number: LLIA003057-001C-R01*

Total Irradiance (570-1100nm) in mW/cm^2
Test Distance = 12 inches



LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003057-001C-R01*

Half Body Target Area
Total Irradiance (570-1100nm) in mW/cm^2
Test Distance = 12 inches

X Axis Distance (inches)

Y Axis Distance (inches)	-12	-10	-8	-6	-4	-2	0	2	4	6	8	10	12
14	7.40	13.60	29.24	48.57	85.18	102.44	105.98	98.09	74.00	37.92	18.94	10.26	5.41
12	7.76	14.50	30.00	48.81	83.95	102.18	108.27	100.44	78.04	39.86	20.06	10.72	5.65
10	8.24	15.52	31.08	48.96	76.52	92.64	95.12	89.13	67.15	38.52	21.00	11.46	5.76
8	8.61	16.05	28.67	43.54	58.72	64.83	66.72	62.17	50.13	33.80	21.29	11.66	5.84
6	8.66	16.21	27.65	38.68	49.30	54.65	55.30	52.65	44.32	32.32	21.15	11.81	5.92
4	8.19	15.77	29.10	44.30	64.12	73.09	75.41	72.48	57.07	35.49	21.10	11.69	5.79
2	7.88	15.06	30.13	48.76	80.03	96.63	97.80	92.13	71.18	38.99	21.18	11.01	5.65
0	8.00	14.81	31.05	50.44	84.76	103.72	105.97	98.50	75.50	39.33	20.93	10.72	5.66
-2	8.11	15.35	32.27	52.16	83.11	98.76	102.18	95.57	71.76	39.85	21.11	11.37	5.81
-4	8.74	16.11	30.50	45.78	66.73	79.00	80.17	75.97	60.41	37.69	22.39	12.29	6.14
-6	9.24	16.88	29.09	41.78	52.65	59.06	59.13	58.17	49.21	35.31	22.77	12.54	6.35
-8	9.22	16.89	30.37	43.55	57.92	65.38	66.88	64.44	53.07	35.54	22.04	12.37	6.21
-10	8.64	16.14	31.24	48.20	74.71	88.65	90.89	85.75	66.86	38.67	21.81	11.92	5.91
-12	8.00	15.13	31.52	51.42	87.61	104.92	108.44	99.83	76.04	40.78	21.46	11.06	5.68
-14	7.78	14.00	29.60	49.26	83.16	99.59	104.58	96.13	73.04	37.39	19.35	10.18	5.40

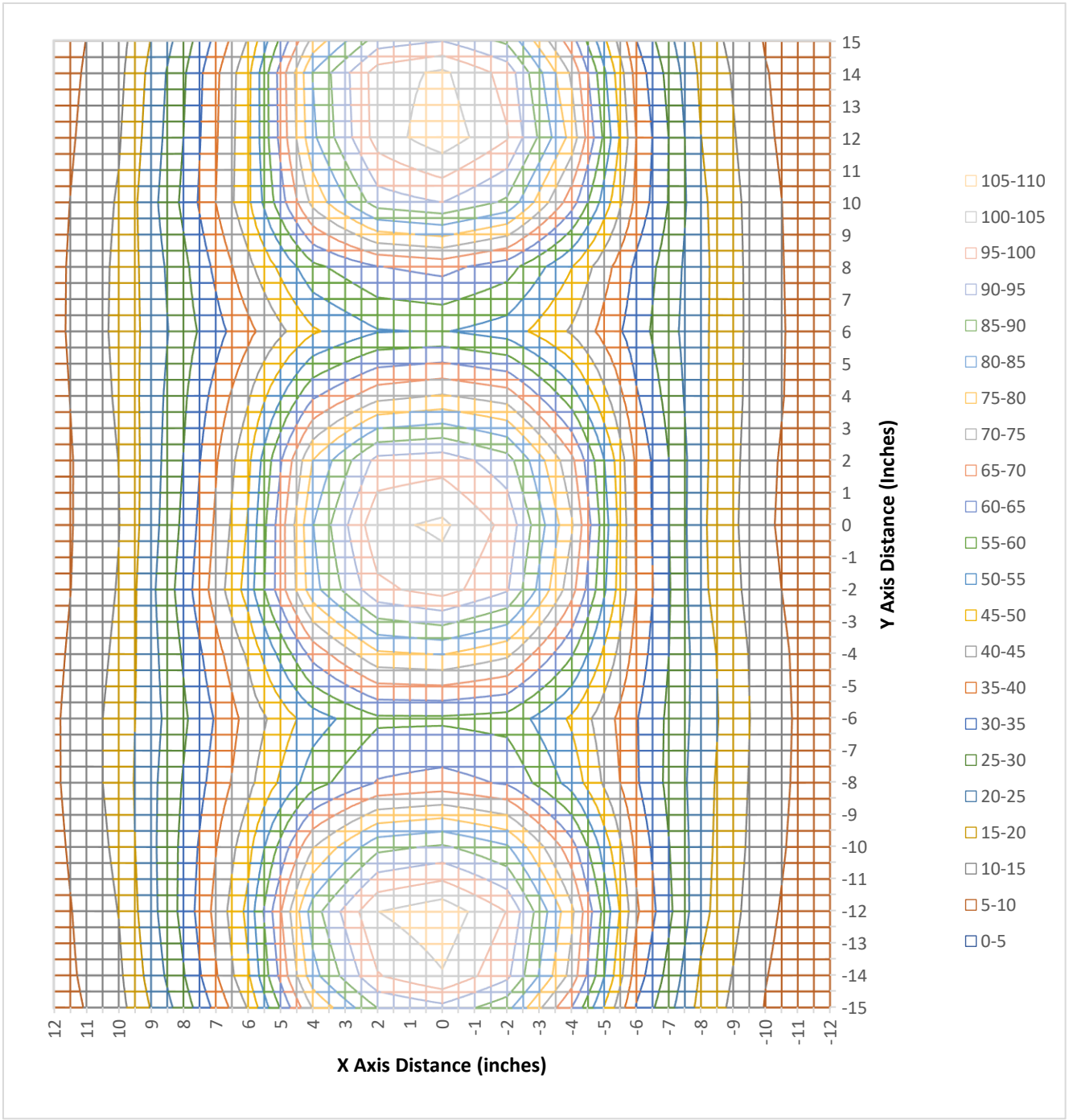
Center Point Irradiance	105.97	mW/cm^2	Target Area Radiant Power	217.3	W
Maximum Irradiance	108.44	mW/cm^2	Average Irradiance	46.78	mW/cm^2
Minimum Irradiance	5.40	mW/cm^2	Percent area over $20mW/cm^2$	71.5	%
Standard Deviation	31.73	mW/cm^2	Percent area over $30mW/cm^2$	60.8	%
Coefficient of Variation	72.3	%	Percent area over $40mW/cm^2$	50.6	%

LightLab INTERNATIONAL ALLENTOWN LLC

Report of Test

Test Report Number: LLIA003057-001C-R01*

Total Irradiance (570-1100nm) in mW/cm^2
Test Distance = 12 inches



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Face Target Area
Total Irradiance (570-1100nm) in mW/cm^2
Test Distance = 12 inches

Y Axis Distance (inches) \ X Axis Distance (inches)	-2	0	2
4	73.09	75.41	72.48
2	96.63	97.80	92.13
0	103.72	105.97	98.50
-2	98.76	102.18	95.57
-4	79.00	80.17	75.97

Center Point Irradiance	105.97	mW/cm^2	Target Area Radiant Power	33.8	W
Maximum Irradiance	105.97	mW/cm^2	Average Irradiance	87.45	mW/cm^2
Minimum Irradiance	72.48	mW/cm^2	Percent area over $20mW/cm^2$	100.0	%
Standard Deviation	12.25	mW/cm^2	Percent area over $30mW/cm^2$	100.0	%
Coefficient of Variation	13.6	%	Percent area over $40mW/cm^2$	100.0	%

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Report of Test

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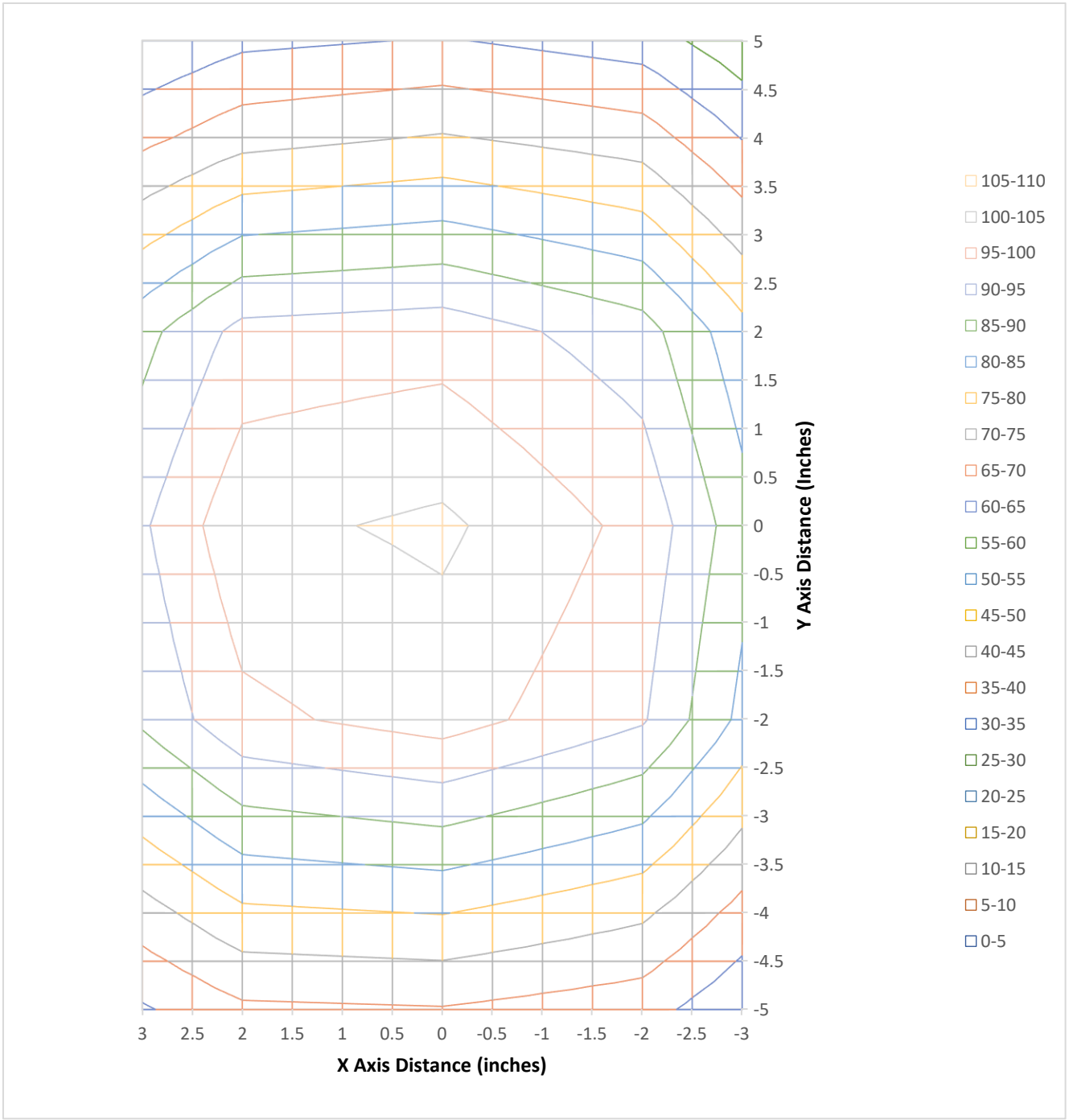
Total Irradiance (570-1100nm) in mW/cm^2
Test Distance = 12 inches



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LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003057-001C-R01*

Test Equipment Configuration:	LightLab International Allentown Application Distance Measurement Grid Measurements acquired using spectral irradiance meters (350-1700nm) The rectangular scan method was employed using cartesian coordinates. No symmetry was applied to the results.
Test Procedure:	Tested in accordance with the applicable sections of: LM-91-22, LM-79-24, LM-58-20
Significance:	The laboratory has not participated in the selection of samples to be tested. All testing is performed on the understanding that the significance of the report is limited to the extent that the test sample is representative of production units.
Notes:	The measurements and other derived quantities contained in this report are based on the absolute data as measured. Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results. This report is free of erasures and corrections This report may contain data that are not covered by the NVLAP accreditation. Quantities marked with ‡ are not covered. This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Revision History: R01 - 10/22/2026 - Corrected typo on front page Xmin and Xmax values.

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