LightLab INTERNATIONAL ALLENTOWN LLC

Radiant Flux Test Report

LLIA003058-001A-R01*

Catalog Number: MITO LIGHT® Mitohacker 5.0
Portable, formed black steel housing, aluminum plate with 4 fans attached to inside of back housing. 1008 LEDs - 504 red and 504 NIR, two LEDs under each conical plastic optic. Two Mean Well LOP-300-54 power supplies, 6 unmarked circuit board drivers, and one AED24-1202000VDCW0 fan power supply.



Performance Summary

Total Radiometric (350-1700nm)		
Total Radiant Flux	325.25	W
Radiant Efficiency	28.9	% (W_r/W_e)
Radiometric Range: 570-1100nm		
Radiant Flux (570-1100nm)	325.08	W
Red/Total Red Ratio*	92.7	%
Deep Red/Total Red Ratio*	7.3	%
NIR/Total NIR Ratio*	99.4	%
Deep NIR/Total NIR Ratio*	0.6	%

*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)	639, 669, 826, 845	nm
Luminous Flux	7531.7	Lumens
Luminous Efficacy	6.7	Lm/W

Prepared For:
MITO LIGHT Logistics s.r.o.
Ke Karlovu 1351/13
Plzen, 301 00, Czech Republic

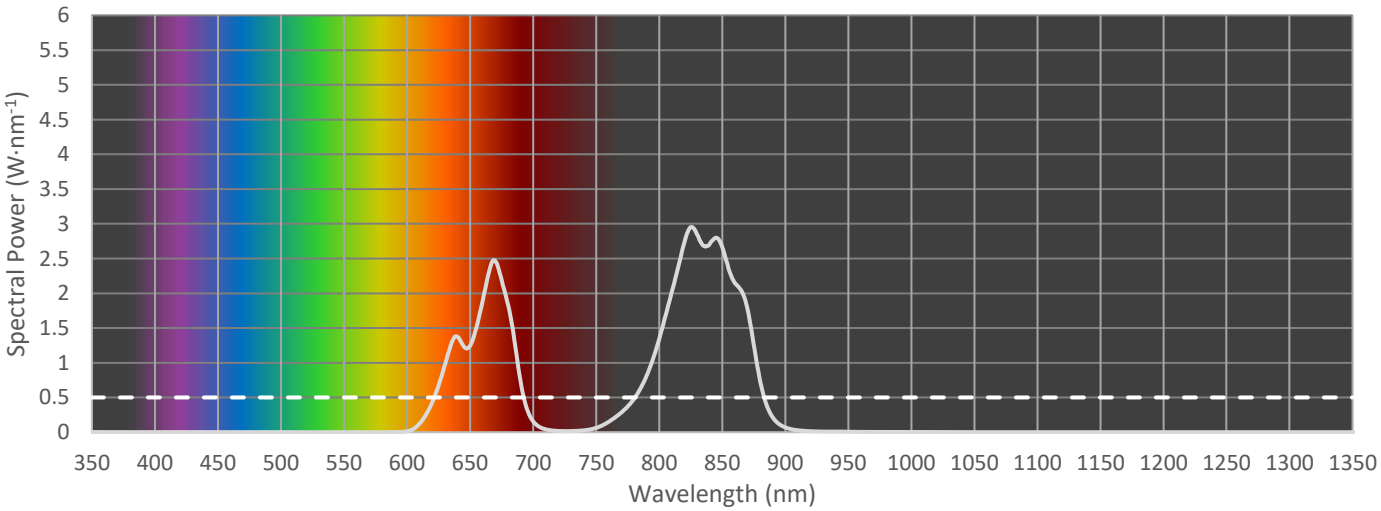
*This test report supersedes test report LLIA003058-001A

Test date: 09/09/2026
Report date: 10/22/2026

Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2026.10.23 12:47:09 -04'00'

Test Report Number: LLIA003058-001A-R01*

Radiant Flux Tabulation			
Waveband (nm)	Radiant Flux (W_r)	Percent of Total	Efficiency (W_r/W_e)
350-500	0.15	0.0%	0.000
500-570	0.03	0.0%	0.000
Amber 570-600	0.06	0.0%	0.000
Red 600-700	111.77	34.4%	0.099
Deep Red 700-780	8.78	2.7%	0.008
NIR 780-900	203.26	62.5%	0.181
Deep NIR 900-1100	1.21	0.4%	0.001
570-1100	325.08	99.9%	0.289
Total 350-1700	325.25	100.0%	0.289



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Test Report Number: LLIA003058-001A-R01*

Electrical Data

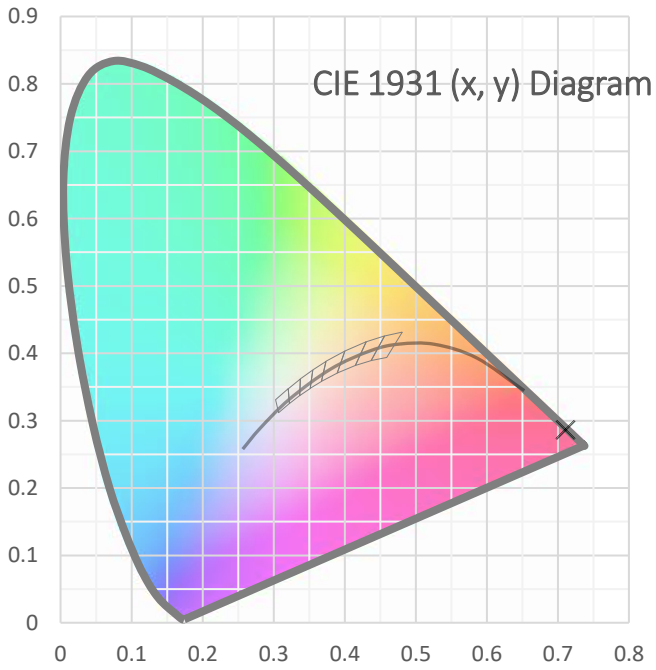
Voltage	230.0	Vac
Current	4.907	A
Power	1126.1	W
Frequency	60.00	Hz
Power Factor	0.998	
Current THD	6.1	%

Spectral Power of Select Wavelengths

Wavelength (nm)	Spectral Power ($W \cdot nm^{-1}$)
590	0.0015
630	0.9686
660	1.8926
810	2.0221
830	2.8482
850	2.6657
1064	0.0000

Photometric (Human Vision) Data

Total Luminous Flux		7531.7	lm
Luminous Efficacy		6.7	lm/W
Chromaticity	(x,y)	(0.7107, 0.2867)	
	(u',v')	(0.5664, 0.5141)	
Duv		n/a	
CCT		n/a	K
CRI (Ra)		n/a	
R9		n/a	
TM-30: Rf		n/a	
TM-30: Rg		n/a	



LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003058-001A-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:	25.8 °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

LLIA003058-001B-R01*

Catalog Number: MITO LIGHT® Mitohacker 5.0

Portable, formed black steel housing, aluminum plate with 4 fans attached to inside of back housing. 1008 LEDs - 504 red and 504 NIR, two LEDs under each conical plastic optic. Two Mean Well LOP-300-54 power supplies, 6 unmarked circuit board drivers, and one AED24-1202000VDCW0 fan power supply.



Test Equipment:

Irradiance measurements were acquired with LightLab asset A108-Gigahertz-Optik BTS2048-VL-TEC Spectral Irradiance Meter 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:
MITO LIGHT Logistics s.r.o.
Ke Karlovu 1351/13
Plzen, 301 00, Czech Republic

*This test report supersedes test report LLIA003058-001A

Test date: 09/09/2026
Report date: 10/22/2026

LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003058-001B-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	84.1	33.3	50.7
1.5	81.6	32.0	49.6
2.5	79.9	31.0	48.8
3.5	78.6	30.3	48.2
4.5	77.6	29.8	47.8
5.5	76.8	29.4	47.4
6.5	76.2	29.0	47.2
7.5	75.6	28.7	46.9
8.5	75.2	28.4	46.7
9.5	74.8	28.2	46.5
10.5	74.4	28.0	46.4
11.5	74.1	27.9	46.3
12.5	73.9	27.7	46.1
13.5	73.7	27.6	46.0
14.5	73.5	27.5	46.0
15.5	73.3	27.4	45.9
16.5	73.2	27.3	45.9
17.5	73.0	27.2	45.8
18.5	72.9	27.2	45.7
19.5	72.8	27.1	45.7

15 Minute 570-1100nm Irradiance Retention
87.4%

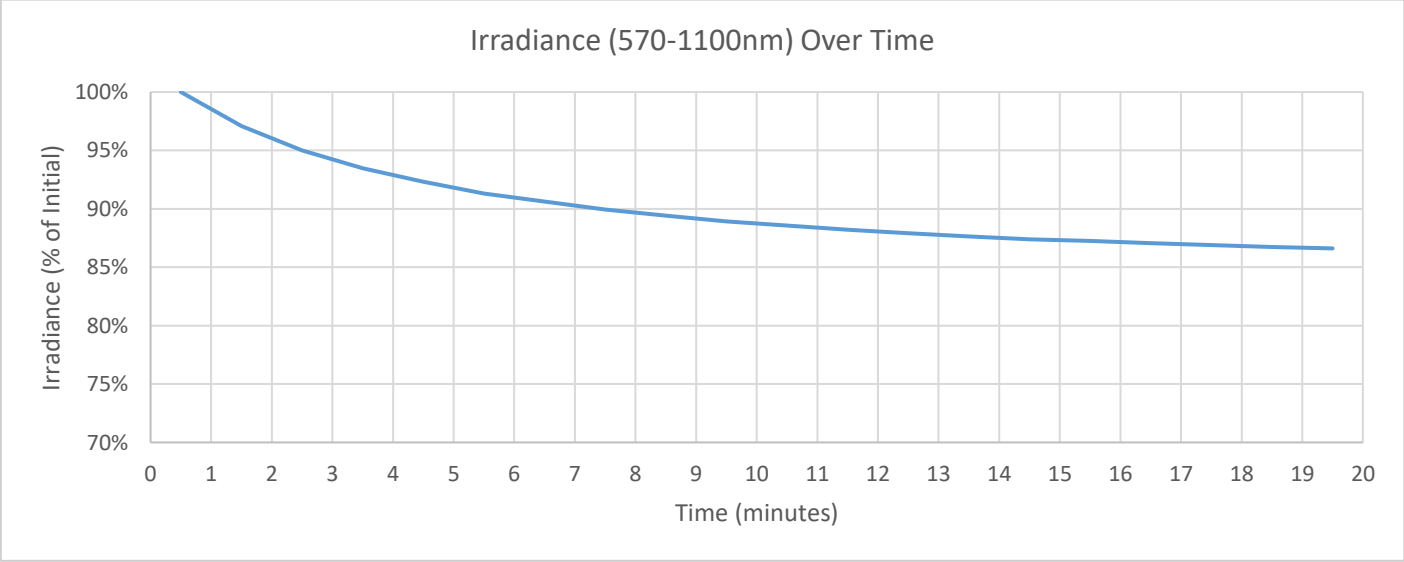
20 Minute 570-1100nm Irradiance Retention
86.6%

15 Minute 600-780nm Irradiance Retention
82.6%

20 Minute 600-780nm Irradiance Retention
81.5%

15 Minute 780-1100nm Irradiance Retention
90.6%

20 Minute 780-1100nm Irradiance Retention
90.1%

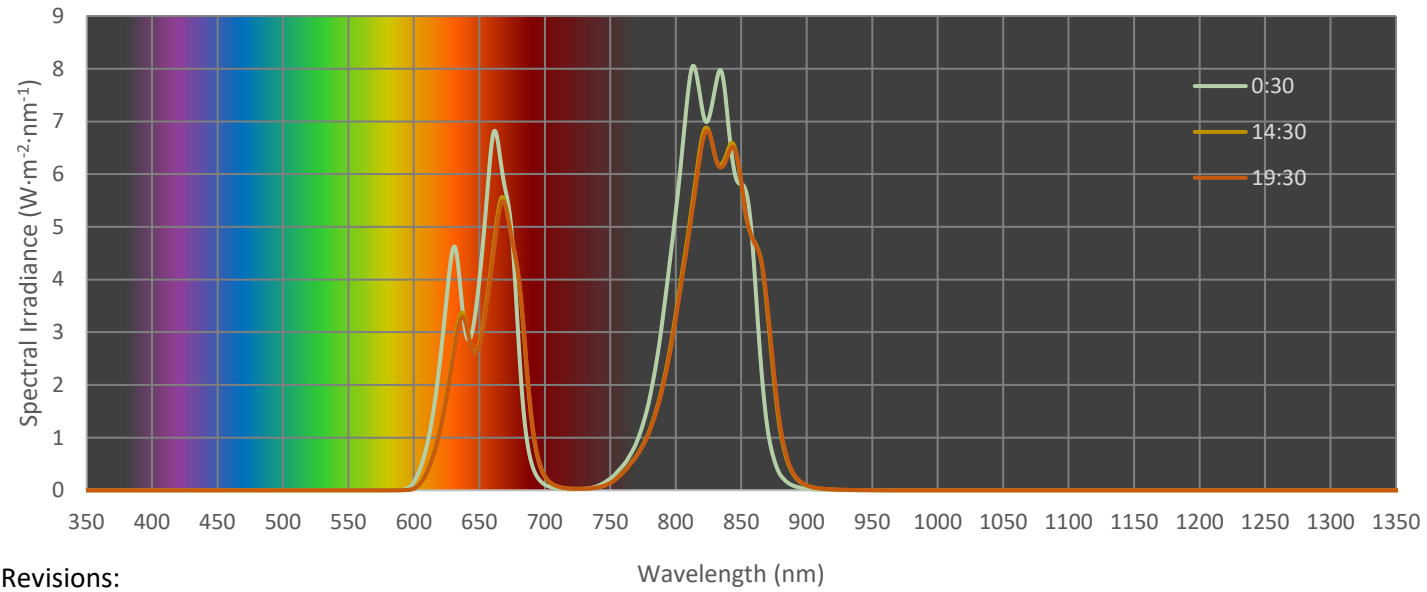


LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003058-001B-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	637	637
2	662	668	668
3	813	823	824
4	834	843	844



Revisions:

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

LightLab
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ALLENTOWN LLC

Grid Application Distance Measurement Test Report

Test Report Number: LLIA003058-001C-R01*

Catalog Number: MITO LIGHT® Mitohacker 5.0

Portable, formed black steel housing, aluminum plate with 4 fans attached to inside of back housing. 1008 LEDs - 504 red and 504 NIR, two LEDs under each conical plastic optic. Two Mean Well LOP-300-54 power supplies, 6 unmarked circuit board drivers, and one AED24-1202000VDCW0 fan power supply.



Performance Summary

Electrical		
Voltage	230.0	Vac
Current	4.935	A
Power	1133.3	W
Frequency	60.00	Hz
Power Factor	0.998	
Current THD	5.4	%
Ambient Temperature	25.4	°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 Spectral Irradiance Meter 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:
MITO LIGHT Logistics s.r.o.
Ke Karlovu 1351/13
Plzen, 301 00, Czech Republic

*This test report supersedes test report LLIA003058-001C

Test date: 09/01/2026
Report date: 10/22/2026

LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003058-001C-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	0.22	0.28	0.34	0.39	0.44	0.46	0.47	0.45	0.43	0.38	0.33	0.28	0.22
28	0.35	0.45	0.56	0.65	0.73	0.78	0.79	0.76	0.71	0.64	0.55	0.44	0.35
26	0.52	0.71	0.91	1.10	1.24	1.29	1.29	1.25	1.17	1.05	0.89	0.70	0.53
24	0.83	1.27	1.87	2.29	2.49	2.56	2.63	2.60	2.36	2.04	1.67	1.18	0.79
22	1.56	3.55	8.13	9.48	11.06	10.29	11.16	9.80	10.18	8.73	7.30	3.19	1.54
20	2.70	7.75	22.89	29.88	30.62	32.13	33.03	30.71	30.48	27.21	22.86	8.71	2.85
18	3.98	12.34	35.83	52.82	51.79	54.02	56.18	52.61	50.67	48.26	37.61	15.14	4.40
16	5.00	15.47	48.07	63.27	67.86	69.03	71.35	68.13	68.22	63.33	49.66	18.58	5.56
14	5.56	16.96	48.16	67.63	72.03	75.46	78.23	74.76	73.92	68.79	52.79	19.76	6.06
12	5.55	17.87	49.50	68.04	70.65	76.85	77.48	78.47	73.66	70.65	52.46	19.62	6.37
10	6.04	18.58	51.42	68.33	70.95	79.27	79.13	77.07	75.14	70.30	54.76	19.37	6.55
8	6.28	18.30	51.19	67.86	72.81	76.82	79.63	77.90	73.75	69.79	54.70	19.54	6.55
6	6.29	19.31	50.33	68.99	72.59	77.91	78.73	76.42	74.89	68.24	55.27	20.76	6.79
4	6.45	20.07	52.31	67.24	70.35	75.34	75.14	75.24	75.05	67.32	54.71	21.60	6.93
2	6.90	19.92	51.89	66.85	71.57	71.59	72.09	72.32	71.54	68.04	54.76	20.61	6.87
0	6.86	20.62	52.80	66.81	69.82	73.27	71.74	73.85	70.64	69.60	54.03	19.65	6.82
-2	6.78	20.57	53.00	68.22	71.24	75.41	76.25	73.51	72.25	69.76	53.63	19.39	6.69
-4	6.78	21.94	54.24	67.27	72.06	74.03	80.49	75.61	71.35	68.75	55.31	18.67	6.64
-6	6.56	21.35	53.63	68.71	71.44	74.90	78.00	77.87	73.08	69.60	52.46	18.46	6.42
-8	6.75	21.97	52.20	69.63	70.94	74.40	76.03	73.74	72.19	70.18	49.98	18.32	6.33
-10	6.62	22.17	52.90	66.88	73.42	75.64	77.03	72.85	71.88	67.22	50.17	17.94	6.01
-12	6.43	22.85	50.27	64.11	72.06	79.25	76.63	72.00	71.30	68.63	47.35	17.53	5.84
-14	6.26	21.45	52.86	65.26	68.08	74.82	75.06	71.53	71.90	65.68	45.76	17.28	5.65
-16	5.65	19.43	48.38	60.84	64.60	68.68	69.40	65.38	65.01	60.95	43.25	15.34	4.94
-18	4.44	14.96	36.18	43.35	46.51	49.58	50.49	50.48	47.14	45.24	33.31	11.23	3.90
-20	2.81	7.50	18.30	24.39	23.62	25.71	26.26	25.98	23.63	25.68	17.57	6.31	2.76
-22	1.42	2.99	6.43	8.03	8.51	9.70	9.76	9.64	7.69	9.46	7.01	3.02	1.41
-24	0.69	1.03	1.60	2.00	2.30	2.43	2.36	2.44	2.33	2.11	1.68	1.13	0.73
-26	0.47	0.61	0.77	0.91	1.03	1.11	1.14	1.12	1.05	0.95	0.81	0.62	0.48
-28	0.33	0.41	0.49	0.56	0.62	0.66	0.67	0.66	0.64	0.59	0.52	0.42	0.34
-30	0.22	0.26	0.31	0.35	0.38	0.40	0.42	0.41	0.40	0.36	0.32	0.27	0.23

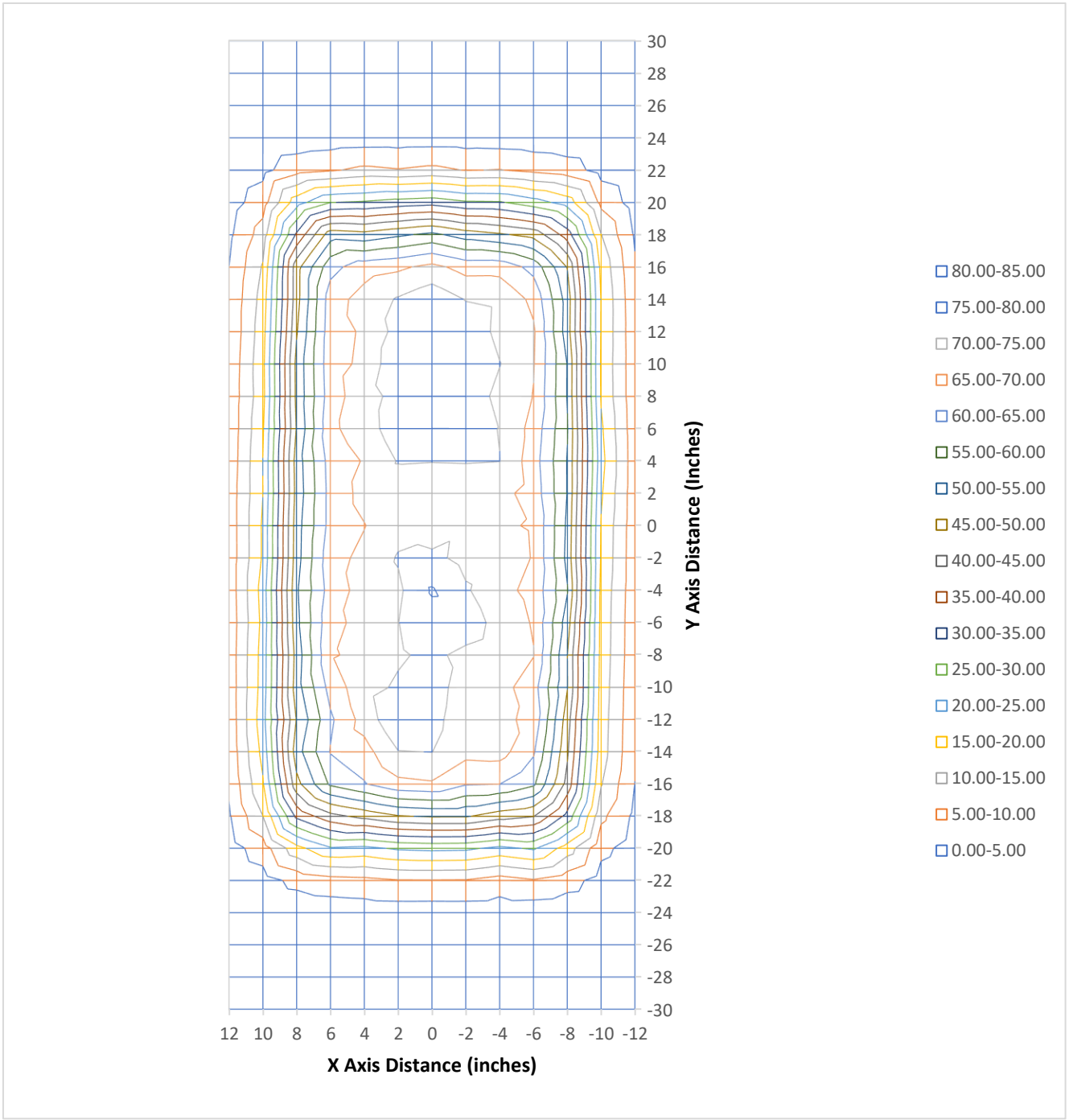
Center Point Irradiance	71.74 mW/cm^2	Target Area Radiant Power	328.8 W
Maximum Irradiance	80.49 mW/cm^2	Average Irradiance	35.39 mW/cm^2
Minimum Irradiance	0.22 mW/cm^2	Percent area over 20mW/cm^2	54.6 %
Standard Deviation	30.13 mW/cm^2	Percent area over 30mW/cm^2	48.5 %
Coefficient of Variation	94.3 %	Percent area over 40mW/cm^2	43.6 %

LightLab INTERNATIONAL ALLENTOWN LLC

Report of Test

Test Report Number: LLIA003058-001C-R01*

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



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Test Report Number: LLIA003058-001C-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	5.56	16.96	48.16	67.63	72.03	75.46	78.23	74.76	73.92	68.79	52.79	19.76	6.06
12	5.55	17.87	49.50	68.04	70.65	76.85	77.48	78.47	73.66	70.65	52.46	19.62	6.37
10	6.04	18.58	51.42	68.33	70.95	79.27	79.13	77.07	75.14	70.30	54.76	19.37	6.55
8	6.28	18.30	51.19	67.86	72.81	76.82	79.63	77.90	73.75	69.79	54.70	19.54	6.55
6	6.29	19.31	50.33	68.99	72.59	77.91	78.73	76.42	74.89	68.24	55.27	20.76	6.79
4	6.45	20.07	52.31	67.24	70.35	75.34	75.14	75.24	75.05	67.32	54.71	21.60	6.93
2	6.90	19.92	51.89	66.85	71.57	71.59	72.09	72.32	71.54	68.04	54.76	20.61	6.87
0	6.86	20.62	52.80	66.81	69.82	73.27	71.74	73.85	70.64	69.60	54.03	19.65	6.82
-2	6.78	20.57	53.00	68.22	71.24	75.41	76.25	73.51	72.25	69.76	53.63	19.39	6.69
-4	6.78	21.94	54.24	67.27	72.06	74.03	80.49	75.61	71.35	68.75	55.31	18.67	6.64
-6	6.56	21.35	53.63	68.71	71.44	74.90	78.00	77.87	73.08	69.60	52.46	18.46	6.42
-8	6.75	21.97	52.20	69.63	70.94	74.40	76.03	73.74	72.19	70.18	49.98	18.32	6.33
-10	6.62	22.17	52.90	66.88	73.42	75.64	77.03	72.85	71.88	67.22	50.17	17.94	6.01
-12	6.43	22.85	50.27	64.11	72.06	79.25	76.63	72.00	71.30	68.63	47.35	17.53	5.84
-14	6.26	21.45	52.86	65.26	68.08	74.82	75.06	71.53	71.90	65.68	45.76	17.28	5.65

Center Point Irradiance	71.74	mW/cm^2	Target Area Radiant Power	254.4 W
Maximum Irradiance	80.49	mW/cm^2	Average Irradiance	54.77 mW/cm^2
Minimum Irradiance	5.55	mW/cm^2	Percent area over 20mW/cm^2	81.2 %
Standard Deviation	26.80	mW/cm^2	Percent area over 30mW/cm^2	75.5 %
Coefficient of Variation	52.4	%	Percent area over 40mW/cm^2	71.2 %

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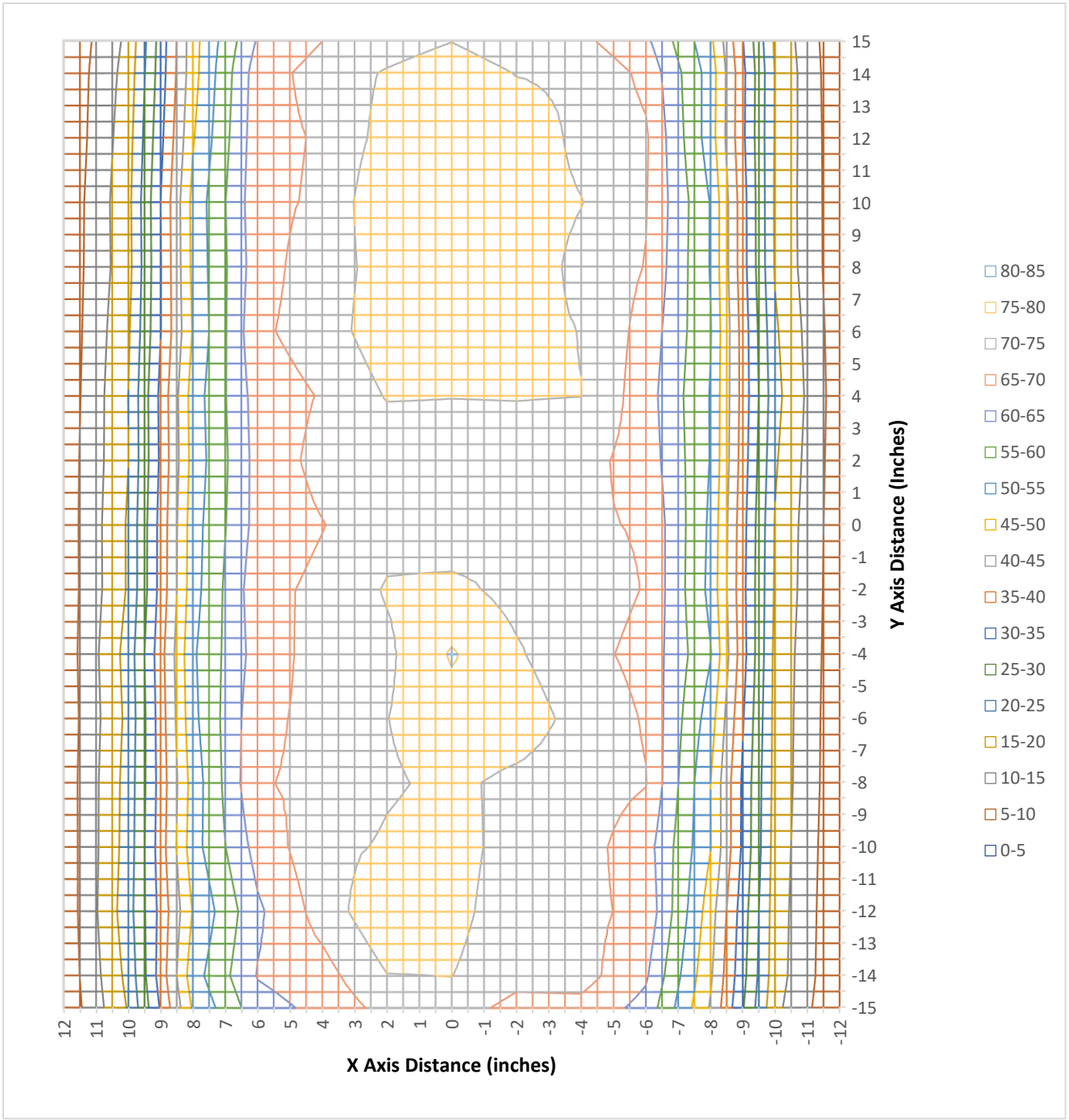
LightLab INTERNATIONAL ALLENTOWN LLC

Report of Test

Test Report Number: LLIA003058-001C-R01*

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



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LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003058-001C-R01*

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	75.34	75.14	75.24
2	71.59	72.09	72.32
0	73.27	71.74	73.85
-2	75.41	76.25	73.51
-4	74.03	80.49	75.61

Center Point Irradiance	71.74	mW/cm^2	Target Area Radiant Power	28.7	W
Maximum Irradiance	80.49	mW/cm^2	Average Irradiance	74.25	mW/cm^2
Minimum Irradiance	71.59	mW/cm^2	Percent area over 20mW/cm^2	100.0	%
Standard Deviation	2.27	mW/cm^2	Percent area over 30mW/cm^2	100.0	%
Coefficient of Variation	3.1	%	Percent area over 40mW/cm^2	100.0	%

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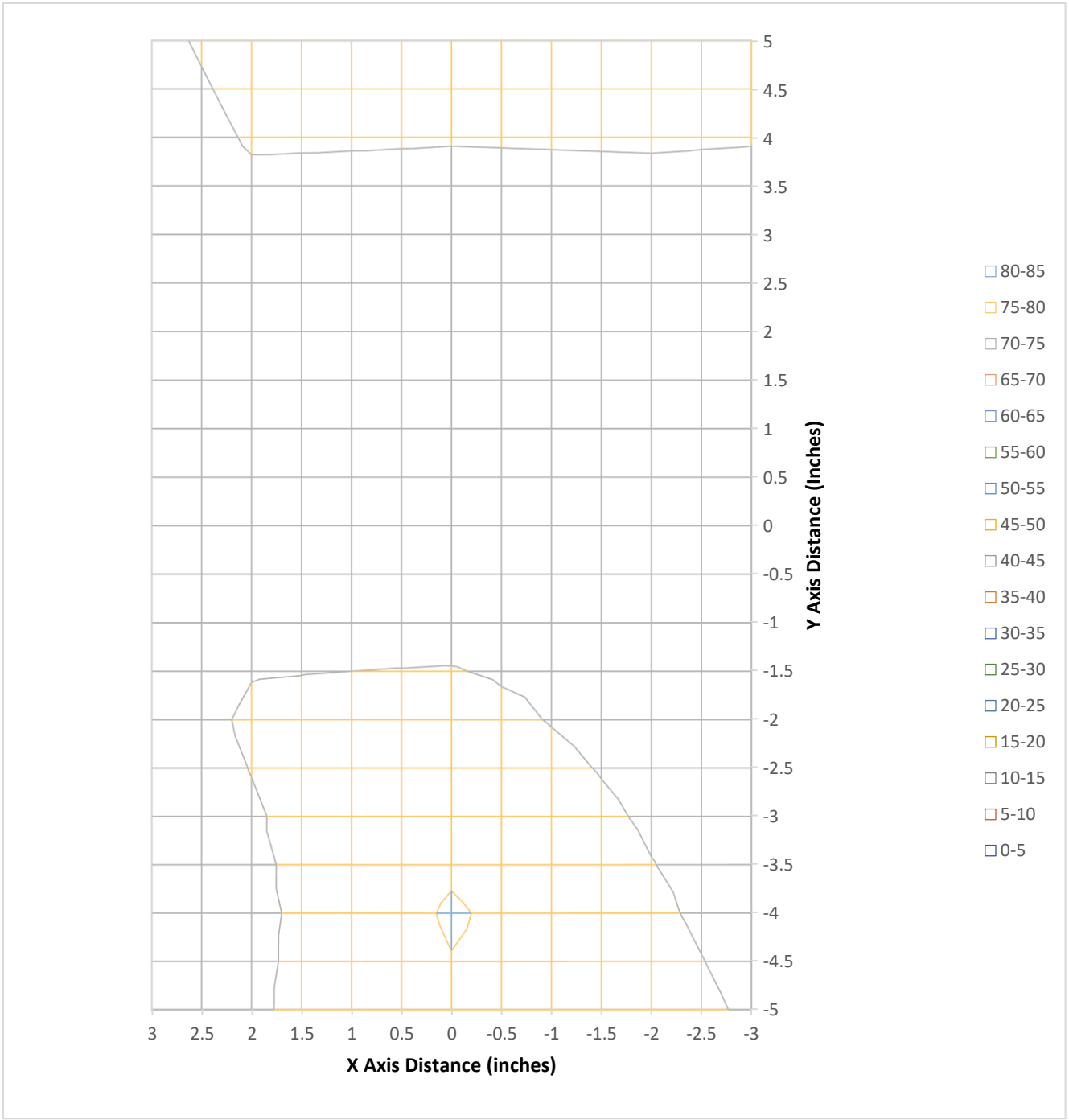
LightLab INTERNATIONAL ALLENTOWN LLC

Report of Test

Test Report Number: LLIA003058-001C-R01*

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



LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003058-001C-R01*

Test Equipment Configuration:	LightLab International Allentown Application Distance Measurement Grid Measurements acquired using a spectral irradiance meter (350-1050nm) 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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