LightLab INTERNATIONAL ALLENTOWN LLC

Radiant Flux Test Report

LLIA003088-001A-R01*

Catalog Number: BioMax Pro Ultra
Portable, formed steel housing, aluminum heatsink panels with 4 cooling fans behind LEDs.
432 LEDs, 6 unenergized Blue, 210 Red "630nm", "660nm", and 216 NIR "810nm", "830nm", "850nm", and "1060nm" LEDs with clear plastic conical optics in front
Four 1001-014-0226 36-37V 5.5A 200W LED drivers and one ZF120A-1202000 fan power supply



Performance Summary

Total Radiometric (350-1700nm)		
Total Radiant Flux	276.37	W
Radiant Efficiency	37.3	% (W_r/W_e)
Radiometric Range: 570-1100nm		
Radiant Flux (570-1100nm)	275.61	W
Red/Total Red Ratio*	98.5	%
Deep Red/Total Red Ratio*	1.5	%
NIR/Total NIR Ratio*	93.1	%
Deep NIR/Total NIR Ratio*	6.9	%

*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, 663, 857, 1073	nm
Luminous Flux	12795.6	Lumens
Luminous Efficacy	17.3	Lm/W

Prepared For:
Platinum LED Holdings, LLC
801 International Pkwy
5th Floor
Lake Mary, FL 32746, USA
*This test report supersedes test report LLIA003088-001A

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

Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2026.10.23 12:52:26 -04'00'

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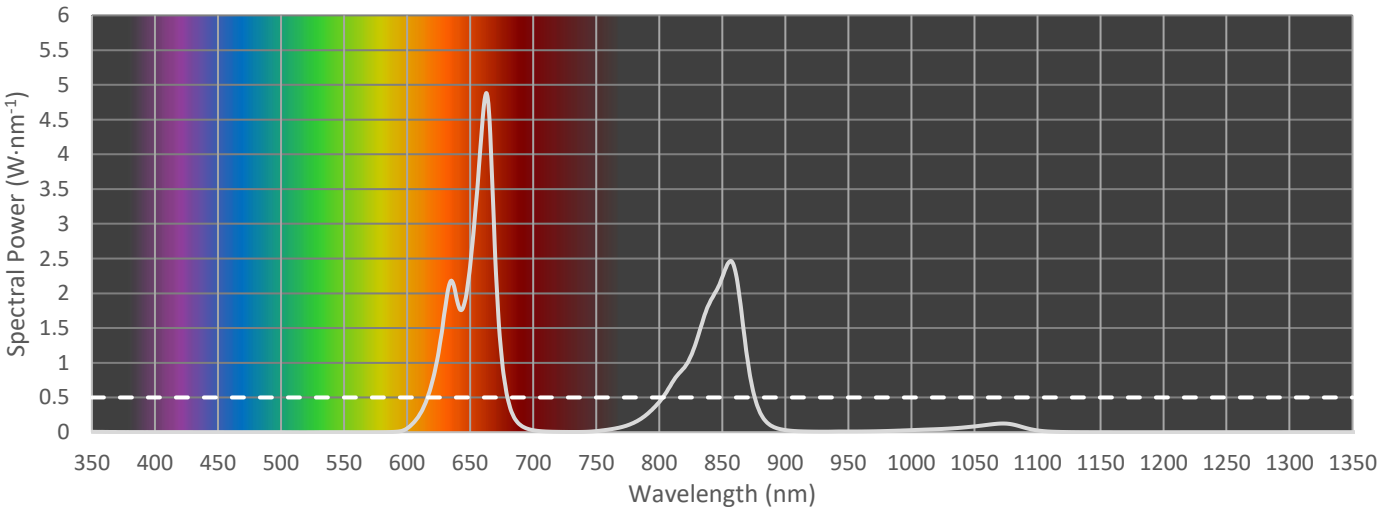
Test Report Number: LLIA003088-001A-R01*

Radiant Flux Tabulation			
Waveband (nm)	Radiant Flux (W_r)	Percent of Total	Efficiency (W_r/W_e)
350-500	0.25	0.1%	0.000
500-570	0.03	0.0%	0.000
Amber 570-600	0.23	0.1%	0.000
Red 600-700	148.41	53.7%	0.200
Deep Red 700-780	2.22	0.8%	0.003
NIR 780-900	116.15	42.0%	0.157
Deep NIR 900-1100	8.59	3.1%	0.012
570-1100	275.61	99.7%	0.372
Total 350-1700	276.37	100.0%	0.373



LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003088-001A-R01*

Electrical Data

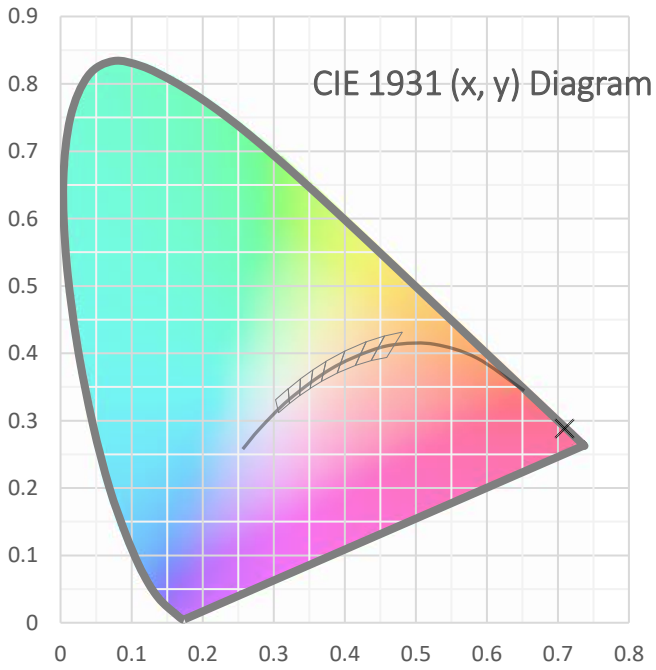
Voltage	120.0	Vac
Current	6.223	A
Power	741.1	W
Frequency	60.00	Hz
Power Factor	0.993	
Current THD	7.0	%

Spectral Power of Select Wavelengths

Wavelength (nm)	Spectral Power ($W \cdot nm^{-1}$)
590	0.0048
630	1.7589
660	4.5149
810	0.7051
830	1.3358
850	2.2294
1064	0.1140

Photometric (Human Vision) Data

Total Luminous Flux		12795.6	lm
Luminous Efficacy		17.3	lm/W
Chromaticity	(x,y)	(0.7097, 0.2886)	
	(u',v')	(0.5629, 0.5149)	
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: LLIA003088-001A-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:	25.7 °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

LLIA003088-001B-R01*

Catalog Number: BioMax Pro Ultra
Portable, formed steel housing, aluminum heatsink panels with 4 cooling fans behind LEDs.
432 LEDs, 6 unenergized Blue, 210 Red "630nm", "660nm", and 216 NIR "810nm", "830nm", "850nm", and "1060nm" LEDs with clear plastic conical optics in front
Four 1001-014-0226 36-37V 5.5A 200W LED drivers and one ZF120A-1202000 fan power supply



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:
Platinum LED Holdings, LLC
801 International Pkwy
5th Floor
Lake Mary, FL 32746, USA

*This test report supersedes test report LLIA003088-001B

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

LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003088-001B-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	102.5	54.2	48.2
1.5	100.8	53.2	47.4
2.5	99.9	52.6	47.2
3.5	99.3	52.2	47.0
4.5	99.0	52.0	46.9
5.5	98.6	51.8	46.8
6.5	98.4	51.6	46.7
7.5	98.2	51.5	46.7
8.5	98.0	51.4	46.5
9.5	97.9	51.4	46.5
10.5	97.9	51.3	46.5
11.5	97.9	51.3	46.5
12.5	97.9	51.3	46.6
13.5	97.8	51.3	46.5
14.5	97.8	51.3	46.5
15.5	97.9	51.3	46.5
16.5	97.8	51.2	46.5
17.5	97.9	51.3	46.6
18.5	97.8	51.3	46.5
19.5	97.8	51.3	46.5

15 Minute 570-1100nm Irradiance Retention
95.5%

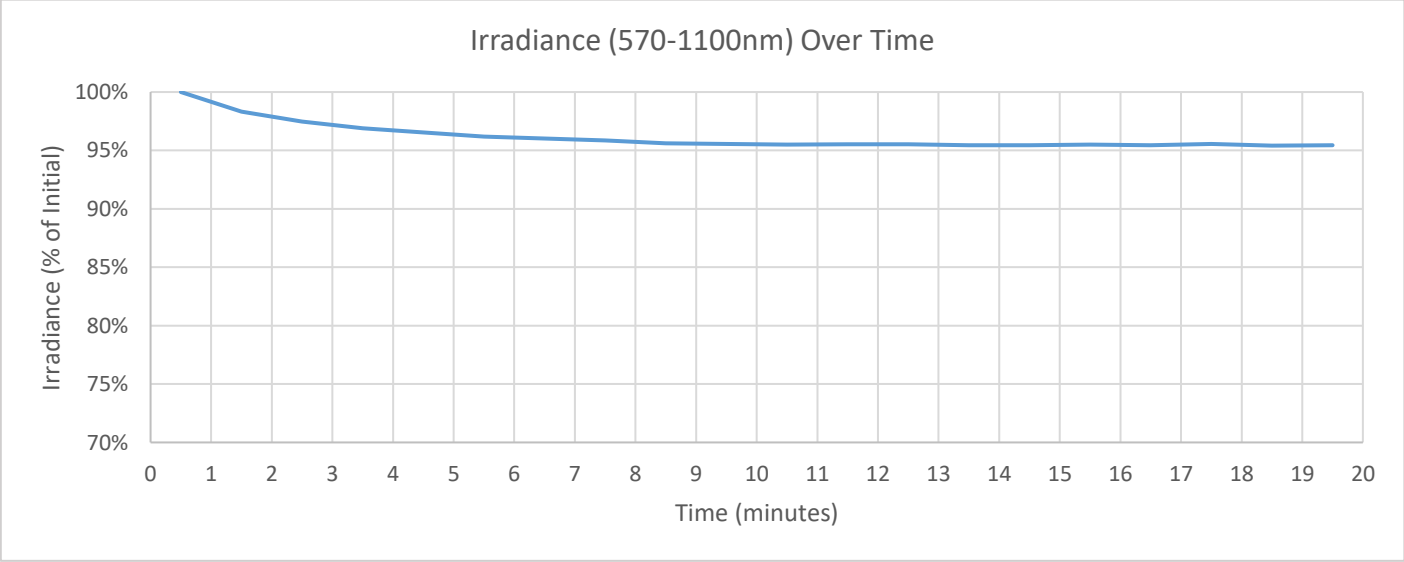
20 Minute 570-1100nm Irradiance Retention
95.4%

15 Minute 600-780nm Irradiance Retention
94.5%

20 Minute 600-780nm Irradiance Retention
94.6%

15 Minute 780-1100nm Irradiance Retention
96.6%

20 Minute 780-1100nm Irradiance Retention
96.5%



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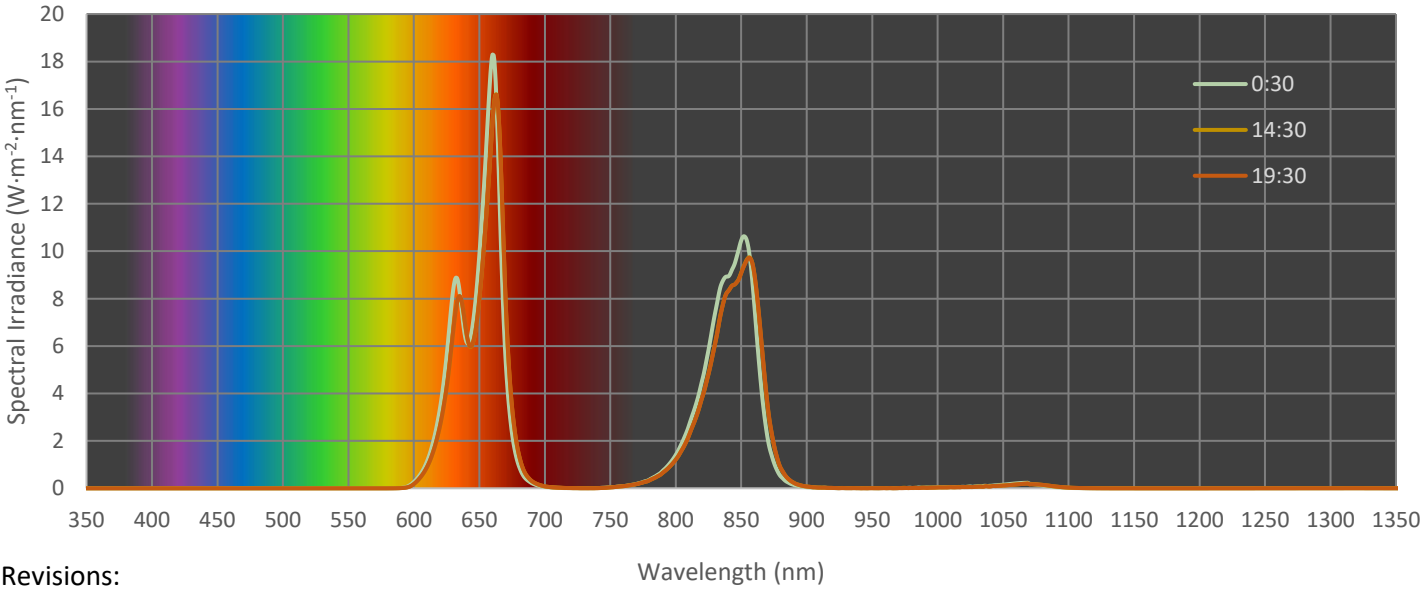
LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003088-001B-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	632	635	635
2	660	663	663
3	852	856	856



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: LLIA003088-001C-R01*

Catalog Number: BioMax Pro Ultra

Portable, formed steel housing, aluminum heatsink panels with 4 cooling fans behind LEDs.
432 LEDs, 6 unenergized Blue, 210 Red "630nm", "660nm", and 216 NIR "810nm",
"830nm", "850nm", and "1060nm" LEDs with clear plastic conical optics in front
Four 1001-014-0226 36-37V 5.5A 200W LED drivers and one ZF120A-1202000 fan power supply



Performance Summary

Electrical		
Voltage	120.0	Vac
Current	6.225	A
Power	741.6	W
Frequency	60.00	Hz
Power Factor	0.993	
Current THD	7.0	%
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 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:
Platinum LED Holdings, LLC
801 International Pkwy
5th Floor
Lake Mary, FL 32746, USA

*This test report supersedes test report LLIA003088-001C

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

LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003088-001C-R01*

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

X Axis Distance (inches)

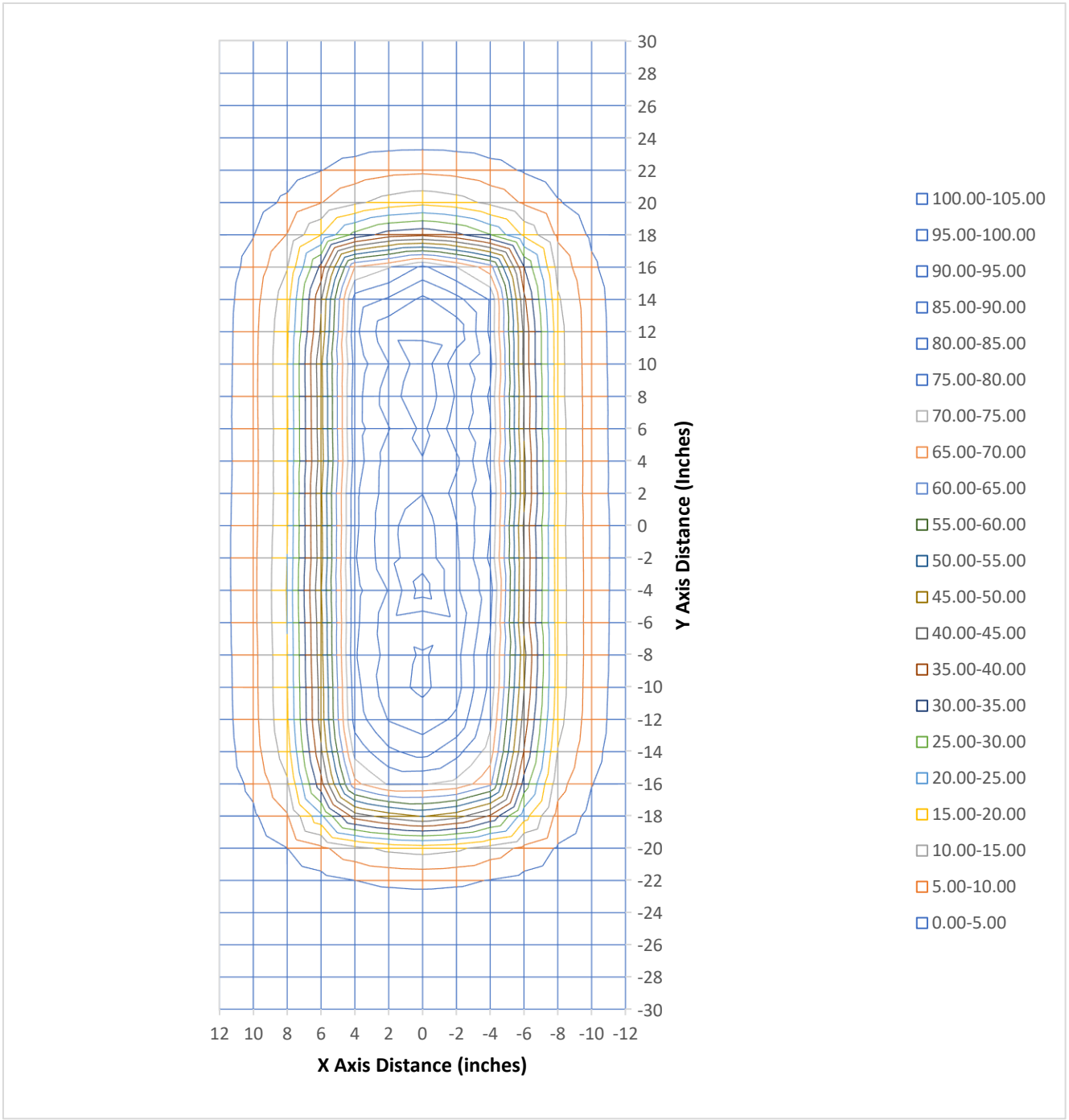
Y Axis Distance (inches)	-12	-10	-8	-6	-4	-2	0	2	4	6	8	10	12
30	0.27	0.32	0.37	0.40	0.42	0.43	0.43	0.44	0.42	0.37	0.32	0.29	0.24
28	0.35	0.39	0.45	0.48	0.50	0.51	0.52	0.51	0.48	0.47	0.42	0.37	0.30
26	0.42	0.49	0.58	0.67	0.73	0.78	0.80	0.76	0.70	0.60	0.54	0.47	0.39
24	0.53	0.70	1.09	1.64	2.25	2.62	2.72	2.60	2.14	1.54	0.95	0.61	0.48
22	0.75	1.37	2.88	4.87	6.99	8.47	8.92	8.24	6.62	4.57	2.51	1.22	0.64
20	1.15	2.83	5.92	9.82	14.02	16.95	18.44	17.06	13.76	9.32	5.36	2.48	0.93
18	1.71	4.82	10.17	19.90	31.54	37.33	38.81	36.21	30.13	19.04	9.06	4.24	1.46
16	2.26	6.67	14.72	36.35	70.00	74.50	80.91	74.99	67.21	35.09	13.16	5.72	1.94
14	2.65	7.91	17.86	44.39	82.09	85.61	91.06	86.44	79.51	41.13	15.68	6.87	2.24
12	2.74	8.38	19.13	45.72	83.67	93.90	93.87	92.90	79.06	43.75	16.84	7.13	2.33
10	2.80	8.50	19.68	48.77	81.85	89.97	97.93	87.25	81.39	43.69	16.98	7.20	2.38
8	2.91	8.56	19.68	48.23	82.77	92.72	99.01	89.39	79.24	44.85	16.92	7.34	2.42
6	2.99	8.43	19.42	48.17	82.84	89.77	96.12	87.49	80.53	44.40	17.38	7.30	2.50
4	3.00	8.34	19.52	47.56	82.14	92.45	94.82	90.84	78.61	45.97	17.43	7.36	2.56
2	3.08	8.43	19.43	49.18	83.83	92.55	94.91	88.50	80.84	46.25	17.53	7.25	2.63
0	3.16	8.58	19.65	48.59	83.77	93.95	97.58	90.24	80.10	44.05	17.22	7.53	2.73
-2	3.14	8.77	20.05	48.19	84.49	93.57	97.80	90.81	79.02	44.83	17.35	7.60	2.68
-4	3.08	8.80	20.31	49.61	83.44	90.23	102.46	90.83	82.17	44.40	17.50	7.64	2.62
-6	3.04	8.78	20.11	48.54	83.75	92.85	90.79	93.32	80.56	43.92	17.51	7.60	2.56
-8	2.99	8.49	19.80	48.13	84.43	91.88	95.74	91.62	78.68	46.55	17.67	7.57	2.49
-10	2.90	8.45	19.73	47.23	83.11	93.18	96.05	91.95	78.66	45.20	17.56	7.36	2.43
-12	2.81	8.28	19.32	47.04	82.16	90.25	92.68	89.04	76.19	42.84	16.75	7.20	2.29
-14	2.54	7.66	17.56	44.12	76.72	84.00	86.89	81.60	72.70	39.65	14.73	6.42	2.07
-16	2.14	6.07	14.27	38.24	68.65	75.52	75.29	73.52	66.13	32.98	11.90	5.16	1.74
-18	1.52	4.21	9.56	23.88	42.24	47.05	50.26	46.88	39.23	22.04	8.28	3.58	1.34
-20	0.93	2.14	4.96	8.87	13.53	16.17	17.08	15.98	12.84	8.71	4.49	2.17	0.90
-22	0.66	1.01	2.00	3.42	4.97	5.90	6.23	5.84	4.82	3.52	1.97	1.01	0.62
-24	0.50	0.63	0.81	1.12	1.49	1.69	1.70	1.65	1.40	1.12	0.77	0.61	0.47
-26	0.40	0.47	0.54	0.62	0.68	0.71	0.72	0.71	0.65	0.59	0.53	0.45	0.39
-28	0.34	0.37	0.43	0.46	0.50	0.52	0.52	0.50	0.49	0.45	0.40	0.37	0.33
-30	0.27	0.31	0.34	0.37	0.40	0.41	0.40	0.40	0.39	0.36	0.34	0.29	0.25

Center Point Irradiance	97.58	mW/cm^2	
Maximum Irradiance	102.46	mW/cm^2	
Minimum Irradiance	0.24	mW/cm^2	
Standard Deviation	33.46	mW/cm^2	
Coefficient of Variation	126.0	%	
Target Area Radiant Power	274.6	W	
Average Irradiance	29.56	mW/cm^2	
Percent area over 20mW/cm^2	39.6	%	
Percent area over 30mW/cm^2	35.0	%	
Percent area over 40mW/cm^2	30.3	%	

Report of Test

Test Report Number: LLIA003088-001C-R01*

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



LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003088-001C-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	2.65	7.91	17.86	44.39	82.09	85.61	91.06	86.44	79.51	41.13	15.68	6.87	2.24
12	2.74	8.38	19.13	45.72	83.67	93.90	93.87	92.90	79.06	43.75	16.84	7.13	2.33
10	2.80	8.50	19.68	48.77	81.85	89.97	97.93	87.25	81.39	43.69	16.98	7.20	2.38
8	2.91	8.56	19.68	48.23	82.77	92.72	99.01	89.39	79.24	44.85	16.92	7.34	2.42
6	2.99	8.43	19.42	48.17	82.84	89.77	96.12	87.49	80.53	44.40	17.38	7.30	2.50
4	3.00	8.34	19.52	47.56	82.14	92.45	94.82	90.84	78.61	45.97	17.43	7.36	2.56
2	3.08	8.43	19.43	49.18	83.83	92.55	94.91	88.50	80.84	46.25	17.53	7.25	2.63
0	3.16	8.58	19.65	48.59	83.77	93.95	97.58	90.24	80.10	44.05	17.22	7.53	2.73
-2	3.14	8.77	20.05	48.19	84.49	93.57	97.80	90.81	79.02	44.83	17.35	7.60	2.68
-4	3.08	8.80	20.31	49.61	83.44	90.23	102.46	90.83	82.17	44.40	17.50	7.64	2.62
-6	3.04	8.78	20.11	48.54	83.75	92.85	90.79	93.32	80.56	43.92	17.51	7.60	2.56
-8	2.99	8.49	19.80	48.13	84.43	91.88	95.74	91.62	78.68	46.55	17.67	7.57	2.49
-10	2.90	8.45	19.73	47.23	83.11	93.18	96.05	91.95	78.66	45.20	17.56	7.36	2.43
-12	2.81	8.28	19.32	47.04	82.16	90.25	92.68	89.04	76.19	42.84	16.75	7.20	2.29
-14	2.54	7.66	17.56	44.12	76.72	84.00	86.89	81.60	72.70	39.65	14.73	6.42	2.07

Center Point Irradiance	97.58	mW/cm^2	Target Area Radiant Power	225.7	W
Maximum Irradiance	102.46	mW/cm^2	Average Irradiance	48.58	mW/cm^2
Minimum Irradiance	2.07	mW/cm^2	Percent area over $20mW/cm^2$	63.6	%
Standard Deviation	36.30	mW/cm^2	Percent area over $30mW/cm^2$	58.6	%
Coefficient of Variation	80.4	%	Percent area over $40mW/cm^2$	52.4	%

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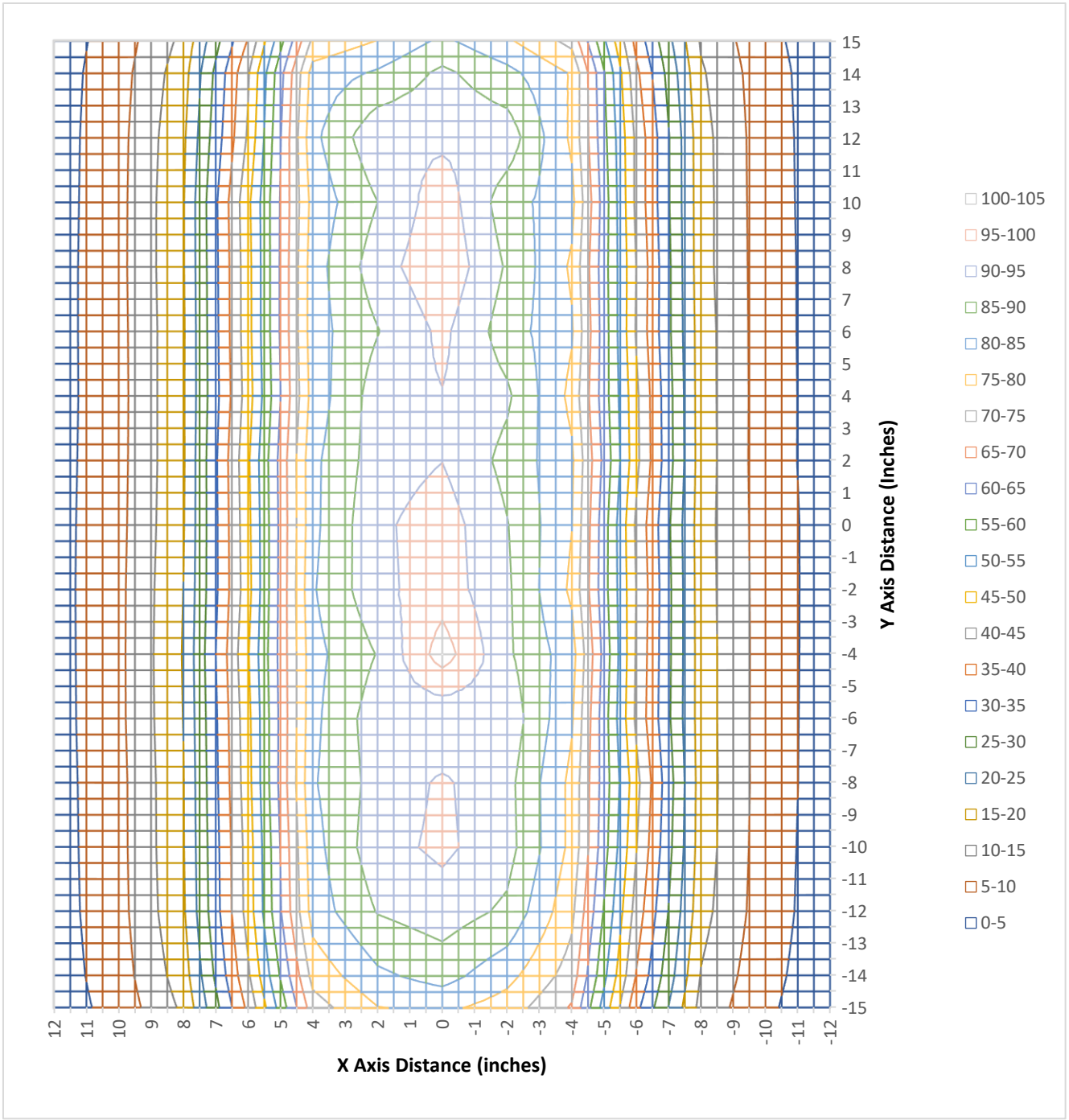
Report of Test

Test Report Number: LLIA003088-001C-R01*

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



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Test Report Number: LLIA003088-001C-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	92.45	94.82	90.84
2	92.55	94.91	88.50
0	93.95	97.58	90.24
-2	93.57	97.80	90.81
-4	90.23	102.46	90.83

Center Point Irradiance	97.58	mW/cm^2	Target Area Radiant Power	35.8	W
Maximum Irradiance	102.46	mW/cm^2	Average Irradiance	92.55	mW/cm^2
Minimum Irradiance	88.50	mW/cm^2	Percent area over 20mW/cm^2	100.0	%
Standard Deviation	3.67	mW/cm^2	Percent area over 30mW/cm^2	100.0	%
Coefficient of Variation	3.9	%	Percent area over 40mW/cm^2	100.0	%

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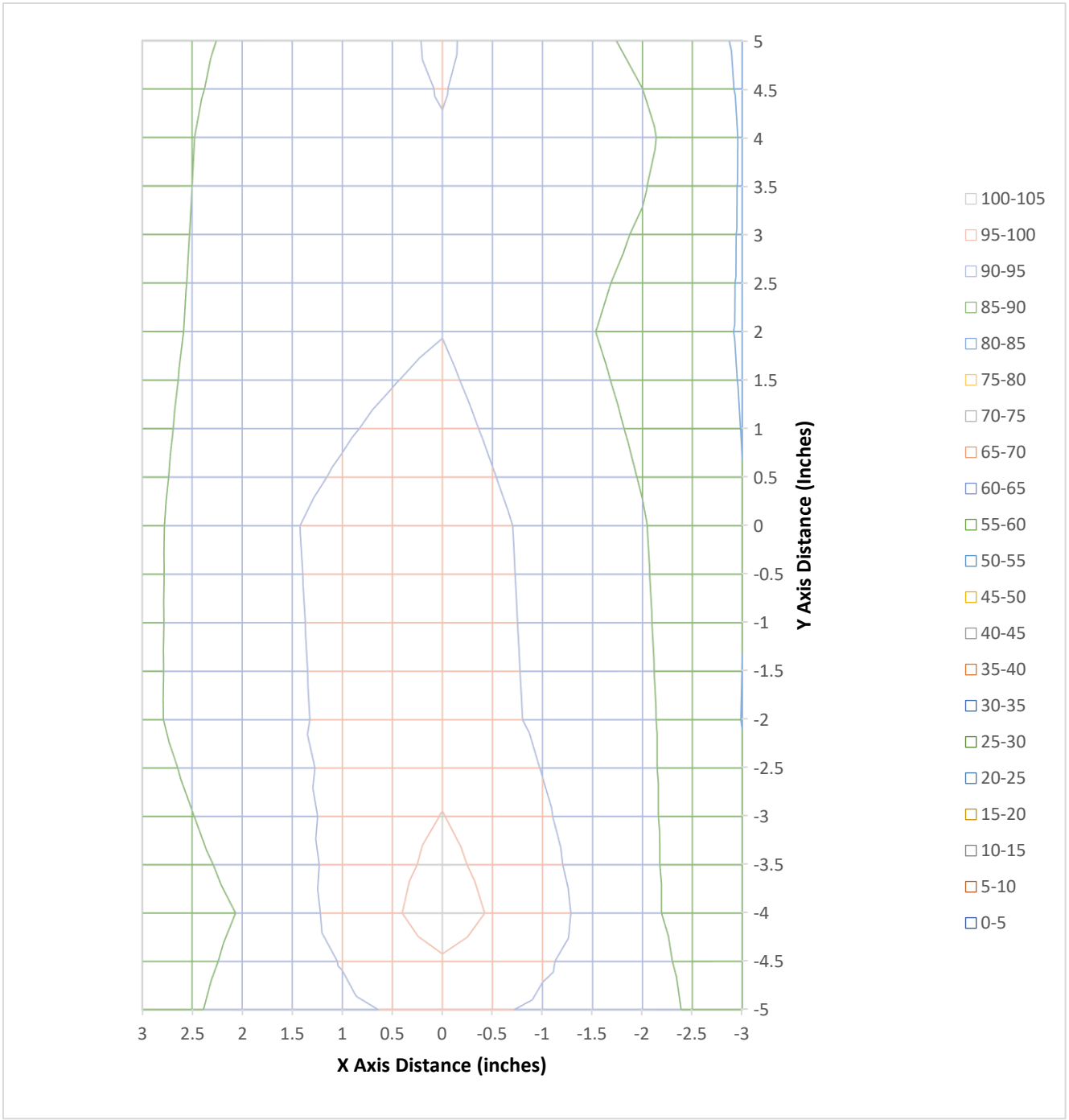
Report of Test

Test Report Number: LLIA003088-001C-R01*

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



LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003088-001C-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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