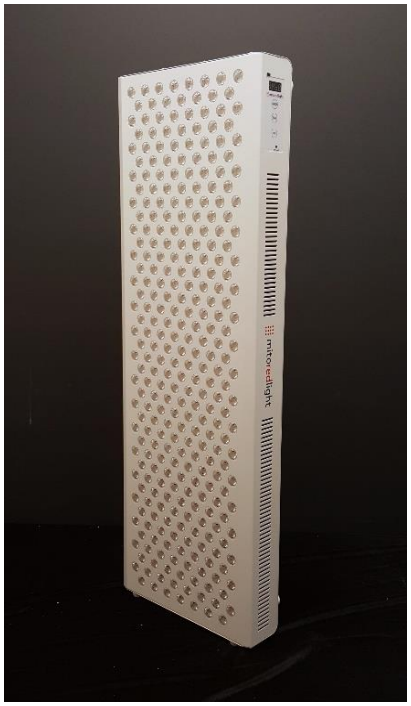
LightLab INTERNATIONAL ALLENTOWN LLC

Radiant Flux Test Report

LLIA003081-002A-R01*

Catalog Number: MitoPRO 1500+ v2 (Red + NIR Setting)
Portable, formed white steel housing, aluminum heatsink with
four cooling fans behind LEDs.
300 LEDs, 150 red "630nm, 660nm" and 150 NIR "830nm, 850nm" LEDs with clear conical plastic optic in front. 2 Mean Well XLG-200-H-A LED drivers and 1 AED24-1202000VDCW0 fan power supply.



Performance Summary

Total Radiometric (350-1700nm)		
Total Radiant Flux	153.80	W
Radiant Efficiency	41.8	% (W_r/W_e)
Radiometric Range: 570-1100nm		
Radiant Flux (570-1100nm)	153.68	W
Red/Total Red Ratio*	98.3	%
Deep Red/Total Red Ratio*	1.7	%
NIR/Total NIR Ratio*	99.6	%
Deep NIR/Total NIR Ratio*	0.4	%

*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)	631, 662, 834	nm
Luminous Flux	9979.0	Lumens
Luminous Efficacy	27.1	Lm/W

Prepared For:
Mito Red Light
9319 N 94th Way #400
Scottsdale, AZ 85258, USA

*This test report supersedes test report LLIA003081-002A

Test date: 09/18/2026
Report date: 10/22/2026

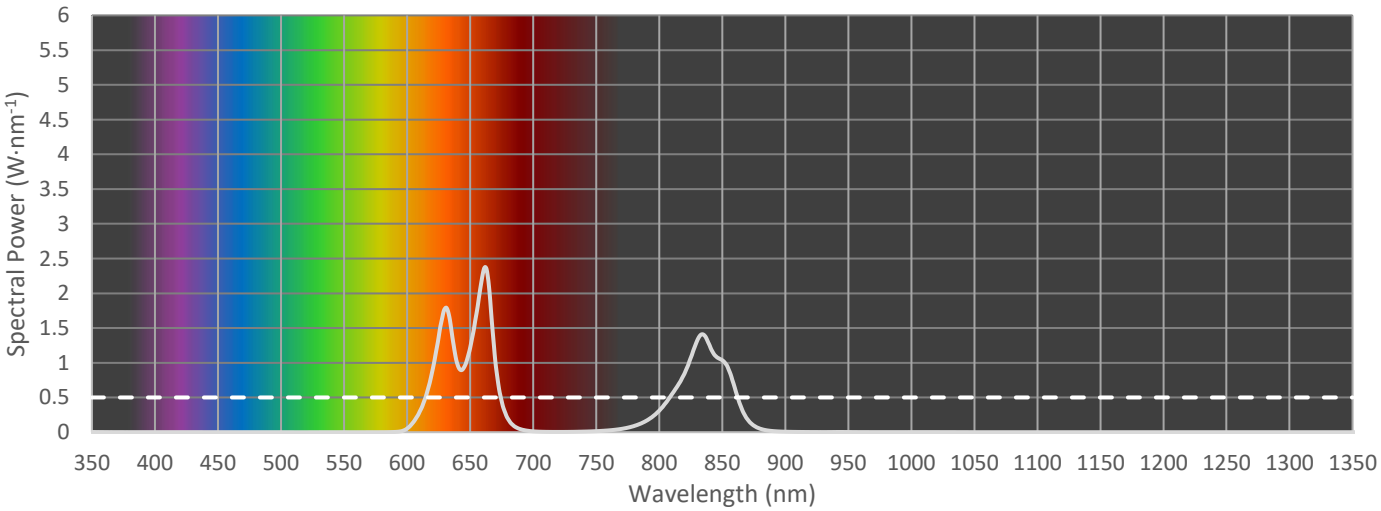
Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2026.10.23 14:13:41 -04'00'

North America (issuing laboratory)
LightLab International Allentown, LLC
905 Harrison Street, Suite 135
Allentown, PA 18103 USA
Ph: +1 484-273-0705
Fx: +1 484-209-5779
www.lightlaballentown.com

Australasia & S.E. Asia
LightLab International
50 Redcliffe Gardens Drive
Clontarf - Queensland, 4019, Australia
Ph : +61 7 3283 7862
Fx : +61 7 3283 8751
www.lightlabint.com

Test Report Number: LLIA003081-002A-R01*

Radiant Flux Tabulation			
Waveband (nm)	Radiant Flux (W_r)	Percent of Total	Efficiency (W_r/W_e)
350-500	0.11	0.1%	0.000
500-570	0.00	0.0%	0.000
Amber 570-600	0.20	0.1%	0.001
Red 600-700	87.59	56.9%	0.238
Deep Red 700-780	1.55	1.0%	0.004
NIR 780-900	64.08	41.7%	0.174
Deep NIR 900-1100	0.28	0.2%	0.001
570-1100	153.68	99.9%	0.418
Total 350-1700	153.80	100.0%	0.418



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Test Report Number: LLIA003081-002A-R01*

Electrical Data

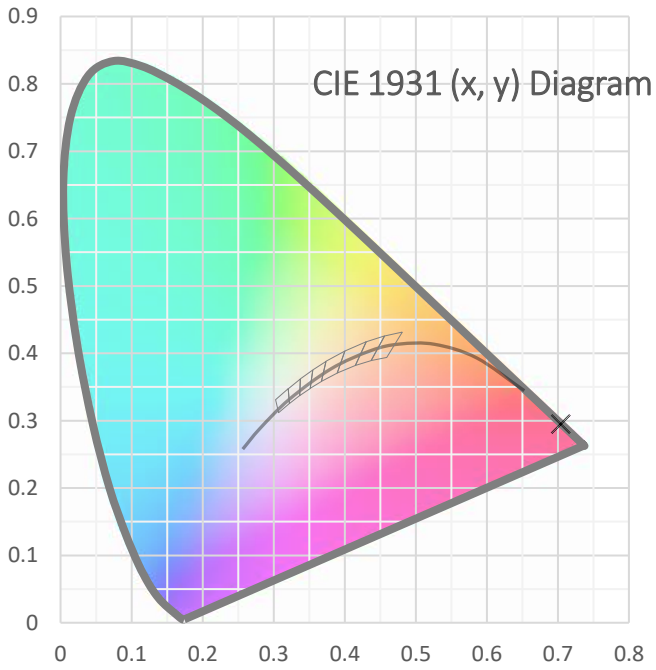
Voltage	120.0	Vac
Current	3.075	A
Power	367.8	W
Frequency	60.00	Hz
Power Factor	0.997	
Current THD	4.9	%

Spectral Power of Select Wavelengths

Wavelength (nm)	Spectral Power ($W \cdot nm^{-1}$)
590	0.0034
630	1.7777
660	2.2713
810	0.5443
830	1.3125
850	1.0359
1064	0.0000

Photometric (Human Vision) Data

Total Luminous Flux		9979.0	lm
Luminous Efficacy		27.1	lm/W
Chromaticity	(x,y)	(0.7041, 0.2948)	
	(u',v')	(0.5491, 0.5173)	
Duv		n/a	
CCT		n/a	K
CRI (Ra)		n/a	
R9		n/a	
TM-30: Rf		n/a	
TM-30: Rg		n/a	



North America (issuing laboratory)
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Fx: +1 484-209-5779
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Australasia & S.E. Asia
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Test Report Number: LLIA003081-002A-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:	25.2 °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:

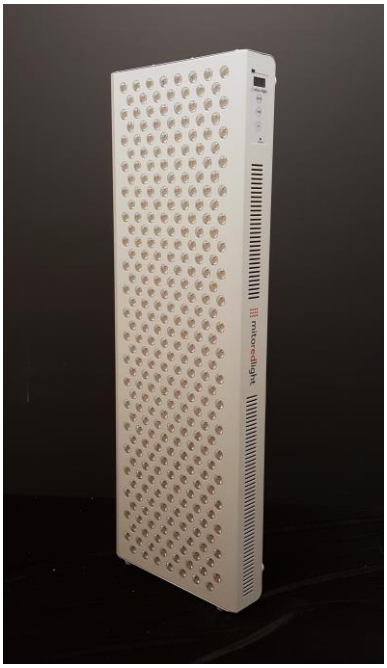
R01 - 10/22/2026 - Modified scale of SPD plot and added 0.5 W/nm line

LightLab
INTERNATIONAL
ALLENTOWN LLC

Radiant Flux Stabilization Report

LLIA003081-002B-R01*

Catalog Number: MitoPRO 1500+ v2 (Red + NIR Setting)
Portable, formed white steel housing, aluminum heatsink with
four cooling fans behind LEDs.
300 LEDs, 150 red "630nm, 660nm" and 150 NIR "830nm, 850nm" LEDs with clear conical plastic optic in front. 2 Mean Well XLG-200-H-A LED drivers and 1 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 Red Light
9319 N 94th Way #400
Scottsdale, AZ 85258, USA

*This test report supersedes test report LLIA003081-002B

Test date: 09/25/2026
Report date: 10/22/2026

LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003081-002B-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	68.5	38.1	30.4
1.5	68.1	37.7	30.3
2.5	67.7	37.5	30.2
3.5	67.4	37.3	30.1
4.5	67.4	37.2	30.1
5.5	67.2	37.1	30.0
6.5	67.1	37.0	30.0
7.5	67.0	37.0	30.0
8.5	66.9	36.9	30.0
9.5	66.9	36.9	30.0
10.5	66.8	36.9	29.9
11.5	66.8	36.8	29.9
12.5	66.8	36.8	29.9
13.5	66.8	36.8	29.9
14.5	66.7	36.8	29.9
15.5	66.7	36.8	29.9
16.5	66.7	36.8	29.9
17.5	66.8	36.8	30.0
18.5	66.7	36.7	29.9
19.5	66.7	36.7	29.9

15 Minute 570-1100nm Irradiance Retention
97.4%

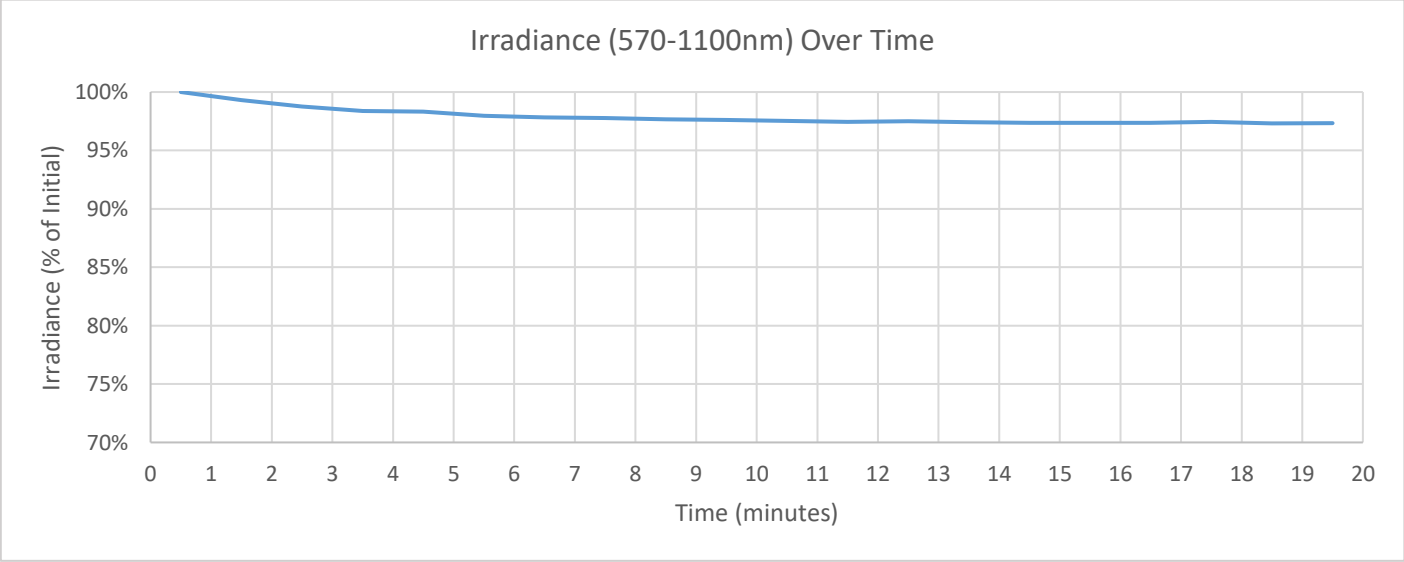
20 Minute 570-1100nm Irradiance Retention
97.3%

15 Minute 600-780nm Irradiance Retention
96.6%

20 Minute 600-780nm Irradiance Retention
96.5%

15 Minute 780-1100nm Irradiance Retention
98.4%

20 Minute 780-1100nm Irradiance Retention
98.6%

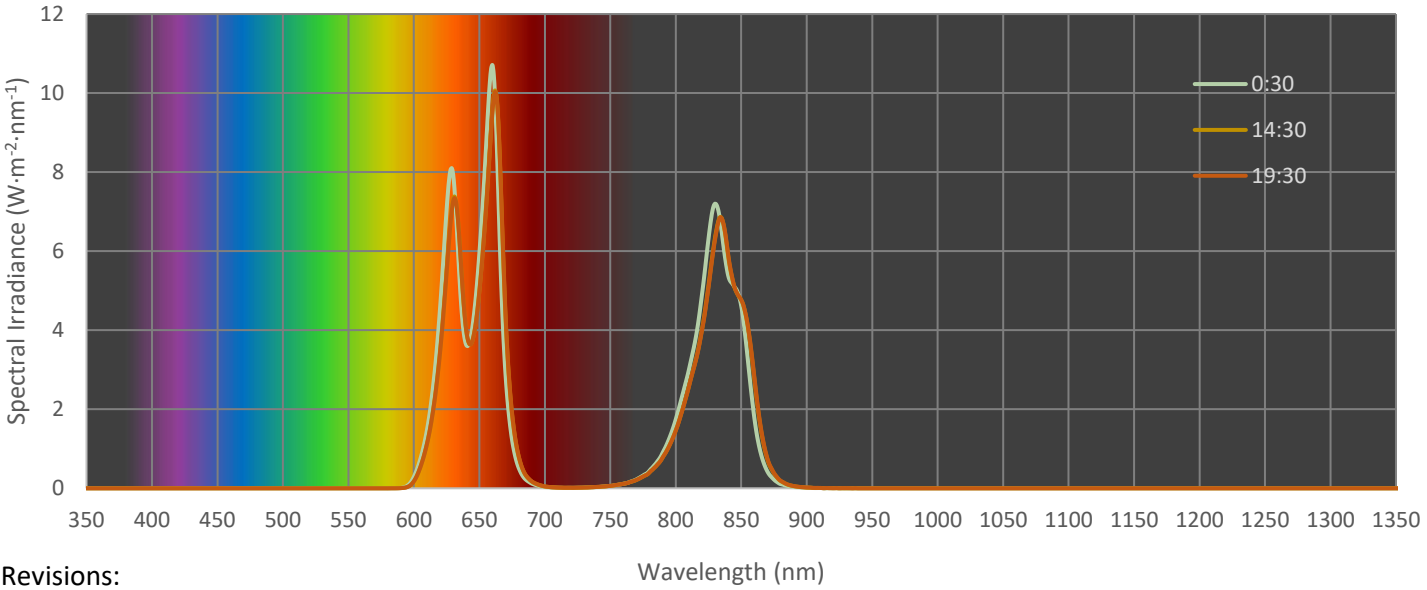


LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003081-002B-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	629	631	631
2	660	662	662
3	830	834	834



Revisions:

R01 - 10/22/2026 - Modified scale of Irrad retention plot.

LightLab INTERNATIONAL ALLENTOWN LLC

Grid Application Distance Measurement Test Report

Test Report Number: LLIA003081-002C-R01*

Catalog Number: MitoPRO 1500+ v2 (Red + NIR Setting)
Portable, formed white steel housing, aluminum heatsink with four cooling fans behind LEDs.
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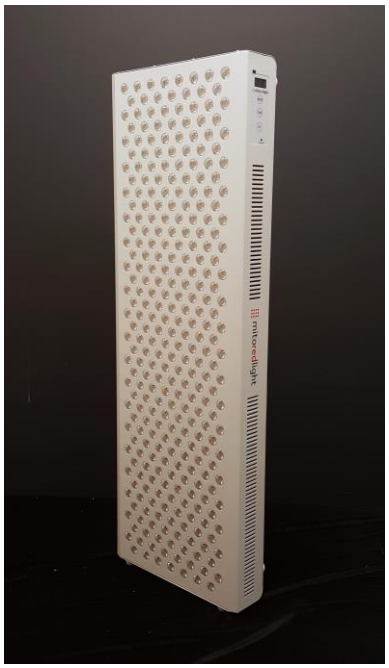

Performance Summary

Electrical		
Voltage	120.0	Vac
Current	3.101	A
Power	370.9	W
Frequency	60.00	Hz
Power Factor	0.997	
Current THD	5.0	%
Ambient Temperature	25.0	°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 Red Light
9319 N 94th Way #400
Scottsdale, AZ 85258, USA

*This test report supersedes test report LLIA003081-002C

Test date: 09/25/2026
Report date: 10/22/2026

LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003081-002C-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	0.12	0.14	0.16	0.18	0.20	0.21	0.21	0.20	0.19	0.17	0.15	0.13	0.11
28	0.16	0.19	0.22	0.25	0.27	0.29	0.29	0.28	0.26	0.24	0.21	0.18	0.14
26	0.21	0.25	0.29	0.34	0.38	0.40	0.41	0.40	0.37	0.33	0.28	0.24	0.19
24	0.27	0.33	0.40	0.54	0.76	0.93	1.00	1.03	0.86	0.62	0.40	0.32	0.25
22	0.34	0.44	0.89	1.66	2.56	3.43	3.83	3.45	2.64	1.71	0.94	0.47	0.32
20	0.42	0.89	1.96	3.86	6.23	8.12	8.75	7.79	5.88	3.65	1.91	0.91	0.41
18	0.53	1.51	3.73	8.93	17.10	22.03	23.49	22.72	15.24	7.10	3.29	1.41	0.53
16	0.68	2.34	5.46	14.78	34.67	46.88	51.17	49.58	32.10	12.39	4.82	2.02	0.65
14	0.79	2.83	6.98	18.08	44.32	59.47	58.44	55.84	39.69	15.31	6.17	2.51	0.71
12	0.88	3.16	7.79	19.84	47.80	60.92	63.74	62.26	42.10	16.91	6.99	2.63	0.79
10	0.94	3.15	8.05	20.34	48.34	63.59	67.64	63.16	42.73	17.84	7.20	2.73	0.87
8	0.98	3.26	8.10	20.06	49.18	60.35	68.09	62.77	44.92	18.45	7.44	2.77	0.91
6	1.02	3.25	8.05	19.37	44.41	63.63	69.09	64.77	43.12	17.92	7.32	3.01	0.95
4	1.05	3.22	8.11	19.77	47.25	63.71	68.73	62.47	44.89	18.85	7.59	2.96	1.00
2	1.06	3.33	7.87	19.19	44.32	65.77	69.26	66.49	45.05	19.13	7.51	3.02	1.03
0	1.07	3.20	8.15	19.04	47.37	64.75	66.95	65.06	44.95	19.33	7.83	3.02	1.03
-2	1.06	3.22	8.09	19.33	47.11	63.27	70.32	66.08	46.90	19.04	7.86	3.07	1.02
-4	1.03	3.12	7.87	19.27	47.16	65.82	69.54	64.85	45.62	19.37	7.90	3.12	1.00
-6	1.00	3.03	7.84	18.64	46.76	64.32	71.34	65.76	48.01	19.85	8.09	3.00	0.98
-8	0.95	2.89	7.62	18.33	45.02	66.99	71.54	65.83	47.04	20.19	7.94	3.05	0.95
-10	0.90	2.80	7.62	18.44	47.71	66.33	67.35	65.06	49.89	20.60	7.97	2.97	0.90
-12	0.81	2.78	7.22	17.40	42.65	63.70	67.94	66.16	47.08	19.28	7.43	2.93	0.84
-14	0.74	2.47	6.37	15.56	41.57	60.24	61.08	58.73	43.95	17.41	6.65	2.63	0.77
-16	0.65	1.91	4.85	11.88	31.16	48.01	52.39	49.72	37.83	14.17	5.08	2.00	0.66
-18	0.51	1.25	3.07	6.92	14.33	21.52	23.31	21.44	17.19	8.30	3.50	1.39	0.55
-20	0.40	0.74	1.75	3.42	5.61	7.66	8.64	7.97	5.96	3.83	1.89	0.74	0.44
-22	0.32	0.42	0.73	1.46	2.34	3.31	3.62	3.31	2.45	1.58	0.81	0.46	0.35
-24	0.25	0.31	0.39	0.49	0.69	0.89	0.97	0.94	0.76	0.55	0.42	0.34	0.28
-26	0.20	0.24	0.29	0.33	0.38	0.41	0.42	0.41	0.38	0.35	0.30	0.26	0.21
-28	0.15	0.18	0.22	0.25	0.27	0.29	0.30	0.29	0.28	0.25	0.23	0.19	0.16
-30	0.11	0.13	0.16	0.18	0.20	0.21	0.22	0.21	0.20	0.19	0.17	0.14	0.12

Center Point Irradiance	66.95	mW/cm^2	
Maximum Irradiance	71.54	mW/cm^2	
Minimum Irradiance	0.11	mW/cm^2	
Standard Deviation	22.13	mW/cm^2	
Coefficient of Variation	145.2	%	
Target Area Radiant Power	157.9	W	
Average Irradiance	16.99	mW/cm^2	
Percent area over 20mW/cm^2	27.5	%	
Percent area over 30mW/cm^2	23.5	%	
Percent area over 40mW/cm^2	19.3	%	

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Report of Test

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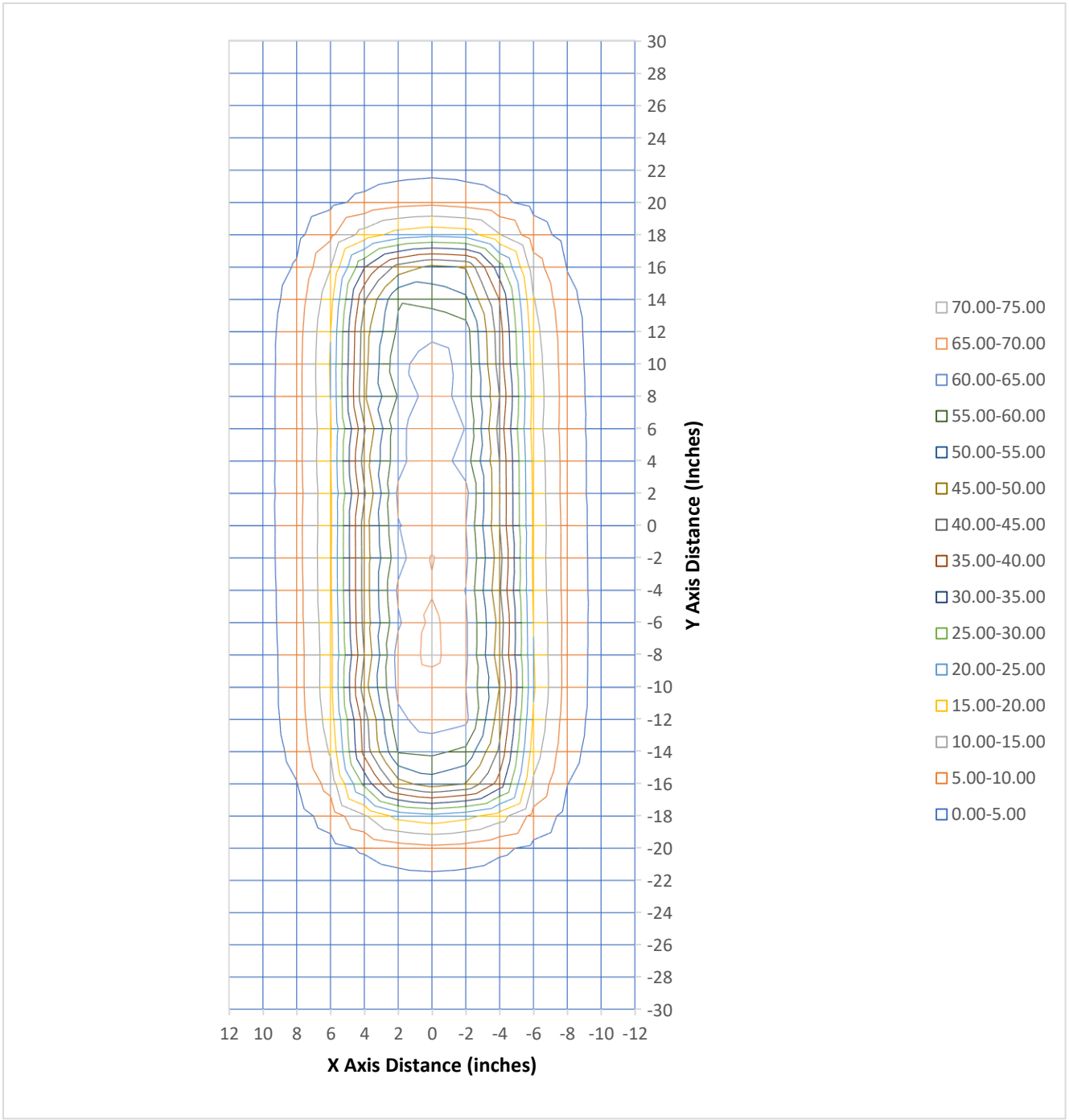
Total Irradiance (570-1100nm) in mW/cm^2
Test Distance = 12 inches



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Test Report Number: LLIA003081-002C-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	0.79	2.83	6.98	18.08	44.32	59.47	58.44	55.84	39.69	15.31	6.17	2.51	0.71
12	0.88	3.16	7.79	19.84	47.80	60.92	63.74	62.26	42.10	16.91	6.99	2.63	0.79
10	0.94	3.15	8.05	20.34	48.34	63.59	67.64	63.16	42.73	17.84	7.20	2.73	0.87
8	0.98	3.26	8.10	20.06	49.18	60.35	68.09	62.77	44.92	18.45	7.44	2.77	0.91
6	1.02	3.25	8.05	19.37	44.41	63.63	69.09	64.77	43.12	17.92	7.32	3.01	0.95
4	1.05	3.22	8.11	19.77	47.25	63.71	68.73	62.47	44.89	18.85	7.59	2.96	1.00
2	1.06	3.33	7.87	19.19	44.32	65.77	69.26	66.49	45.05	19.13	7.51	3.02	1.03
0	1.07	3.20	8.15	19.04	47.37	64.75	66.95	65.06	44.95	19.33	7.83	3.02	1.03
-2	1.06	3.22	8.09	19.33	47.11	63.27	70.32	66.08	46.90	19.04	7.86	3.07	1.02
-4	1.03	3.12	7.87	19.27	47.16	65.82	69.54	64.85	45.62	19.37	7.90	3.12	1.00
-6	1.00	3.03	7.84	18.64	46.76	64.32	71.34	65.76	48.01	19.85	8.09	3.00	0.98
-8	0.95	2.89	7.62	18.33	45.02	66.99	71.54	65.83	47.04	20.19	7.94	3.05	0.95
-10	0.90	2.80	7.62	18.44	47.71	66.33	67.35	65.06	49.89	20.60	7.97	2.97	0.90
-12	0.81	2.78	7.22	17.40	42.65	63.70	67.94	66.16	47.08	19.28	7.43	2.93	0.84
-14	0.74	2.47	6.37	15.56	41.57	60.24	61.08	58.73	43.95	17.41	6.65	2.63	0.77

Center Point Irradiance	66.95 mW/cm^2		Target Area Radiant Power	133.3 W
Maximum Irradiance	71.54 mW/cm^2		Average Irradiance	28.69 mW/cm^2
Minimum Irradiance	0.71 mW/cm^2		Percent area over 20mW/cm^2	47.4 %
Standard Deviation	25.55 mW/cm^2		Percent area over 30mW/cm^2	42.2 %
Coefficient of Variation	96.0 %		Percent area over 40mW/cm^2	35.8 %

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Report of Test

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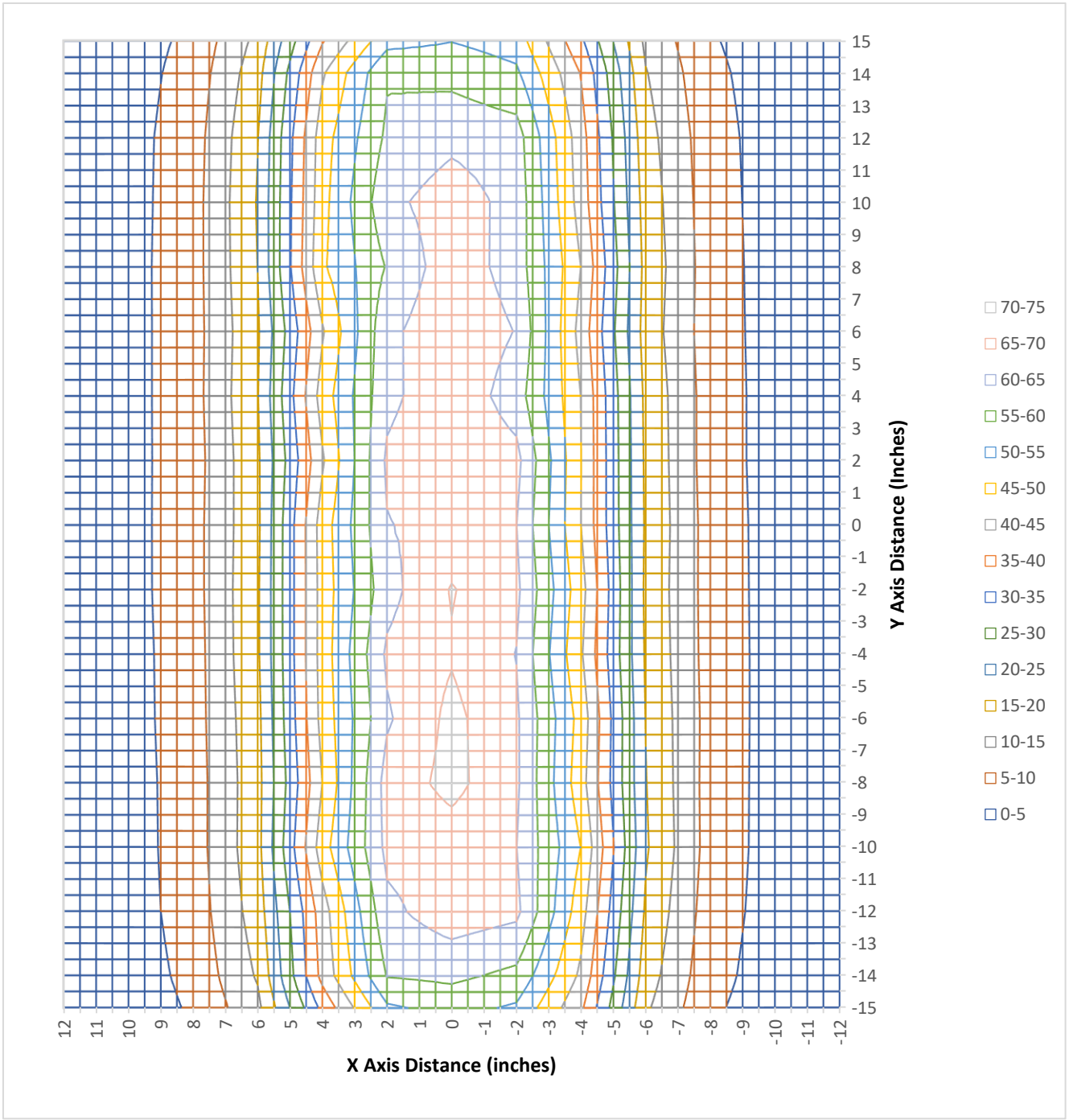
Total Irradiance (570-1100nm) in mW/cm^2
Test Distance = 12 inches



LightLab INTERNATIONAL ALLENTOWN LLC

Test Report Number: LLIA003081-002C-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	63.71	68.73	62.47
2	65.77	69.26	66.49
0	64.75	66.95	65.06
-2	63.27	70.32	66.08
-4	65.82	69.54	64.85

Center Point Irradiance	66.95	mW/cm^2	Target Area Radiant Power	25.0	W
Maximum Irradiance	70.32	mW/cm^2	Average Irradiance	64.67	mW/cm^2
Minimum Irradiance	62.47	mW/cm^2	Percent area over 20mW/cm^2	100.0	%
Standard Deviation	2.37	mW/cm^2	Percent area over 30mW/cm^2	100.0	%
Coefficient of Variation	3.6	%	Percent area over 40mW/cm^2	100.0	%

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LightLab International Allentown, LLC
905 Harrison Street, Suite 135
Allentown, PA 18103 USA
Ph: +1 484-273-0705
Fx: +1 484-209-5779
www.lightlaballentown.com

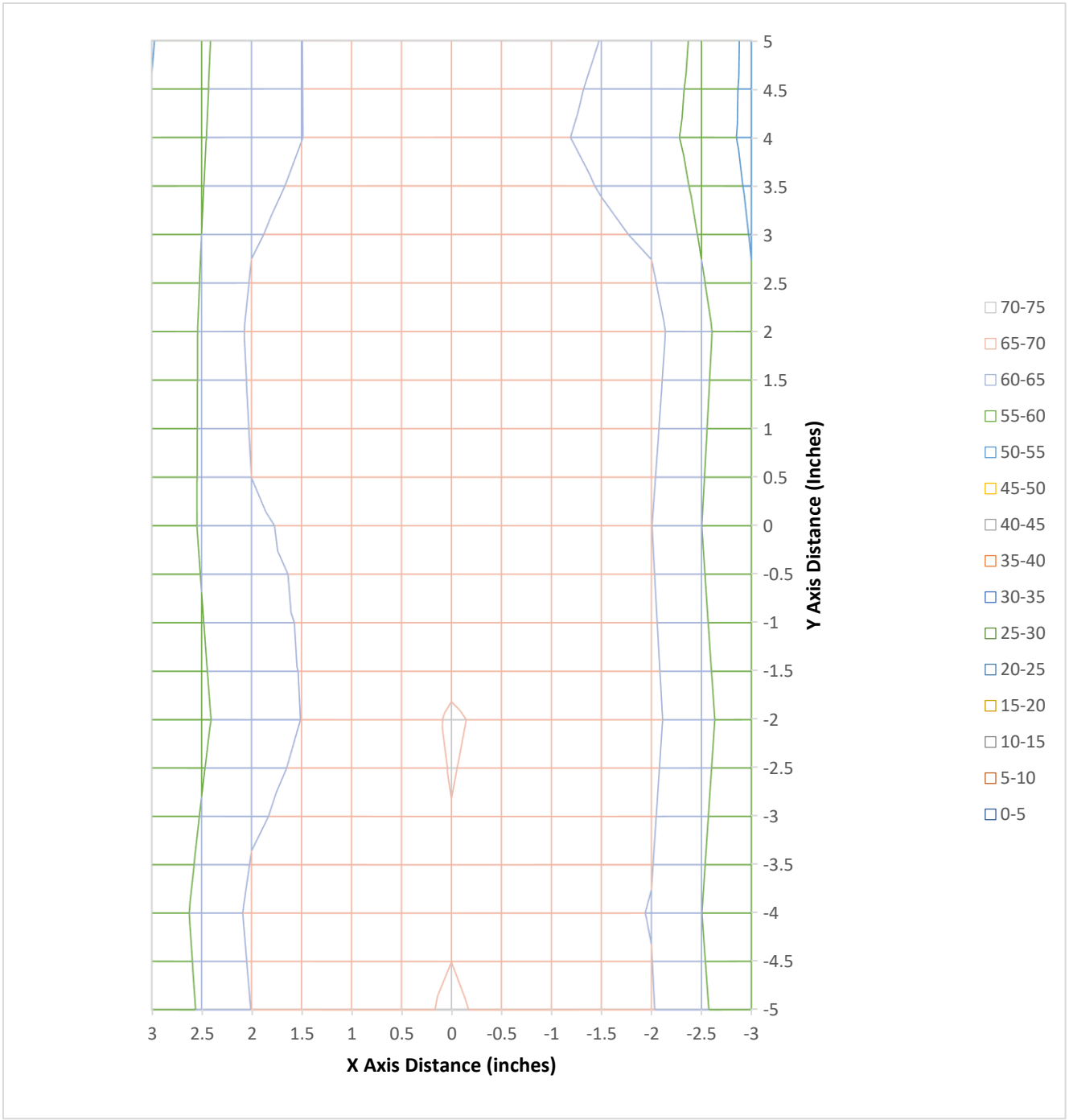
Australasia & S.E. Asia
LightLab International
50 Redcliffe Gardens Drive
Clontarf - Queensland, 4019, Australia
Ph : +61 7 3283 7862
Fx : +61 7 3283 8751
www.lightlabint.com

LightLab INTERNATIONAL ALLENTOWN LLC

Report of Test

Test Report Number: LLIA003081-002C-R01*

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



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Test Report Number: LLIA003081-002C-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.

North America (issuing laboratory)
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