



## Horticultural Lighting Test Report

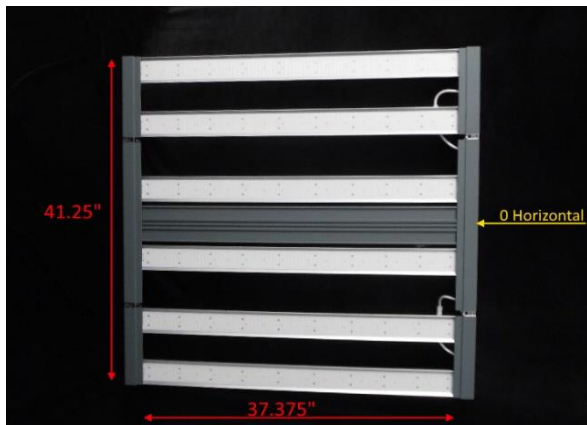
LLIA001614-001

Catalog Number: AB780PRO

Suspended, extruded aluminum assembly with six LED light bars and one central driver compartment between two end supports, open bottom.

4176 total LEDs, 4080 white LEDs and 96 red LEDs

Three Fahold FD-240E-054B LED drivers, dimmer set for 100% output



### Performance Summary

#### Electrical

Voltage	277.0 Vac
Current	2.889 A
Power	772.0 W
Power Factor	0.965
Current THD	8.7 %

#### Radiometric and Quantum

Total Radiant Flux	447.48 W
Radiant Efficiency	0.580
Total Photon Flux	2114.23 $\mu\text{mol}\cdot\text{s}^{-1}$
Photon Flux Efficacy	2.739 $\mu\text{mol}\cdot\text{J}^{-1}$

#### Horticultural

PPF	2067.97 $\mu\text{mol}\cdot\text{s}^{-1}$
PPE	2.679 $\mu\text{mol}\cdot\text{J}^{-1}$
Far-Red Photon Flux	43.48 $\mu\text{mol}\cdot\text{s}^{-1}$
PPFD Conversion Factor	14.73 $\mu\text{mol}\cdot\text{s}^{-1}\cdot\text{m}^{-2}\cdot\text{klx}^{-1}$

Prepared For:

AB Lighting

11301 Carmel Commons Blvd

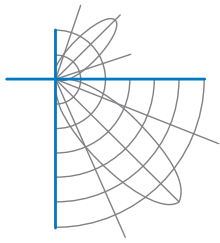
Suite 103

Charlotte, NC 28226, USA

Test date: 12/22/2021

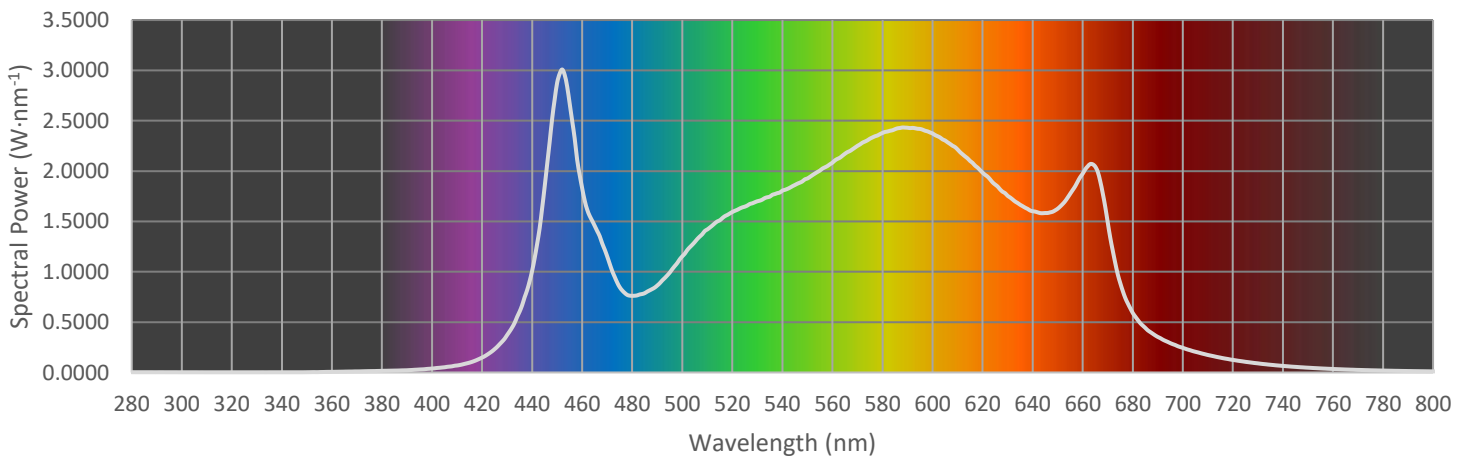
Report date: 12/23/2021

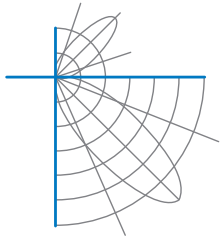
Signed: \_\_\_\_\_



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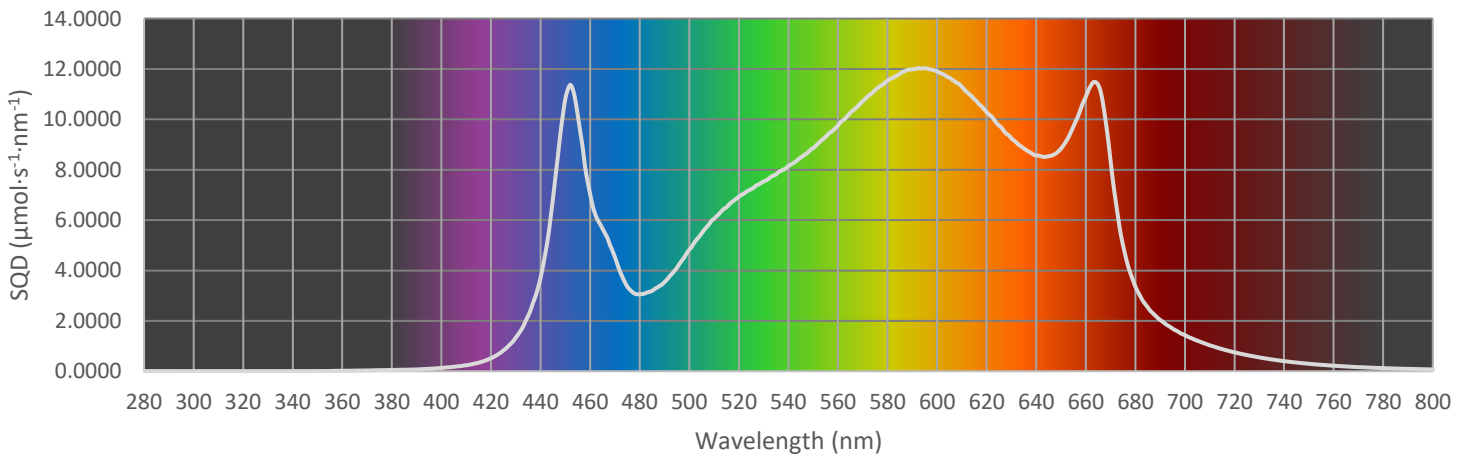
Radiant Flux Tabulation			
Waveband (nm)	Radiant Flux ( $W_r$ )	Percent of Total	Efficiency ( $W_r/W_e$ )
UV-B 280-315	0.08	0.0%	0.000
UV-A 315-400	0.81	0.2%	0.001
400-500	96.25	21.5%	0.125
500-600	193.9	43.3%	0.251
600-700	149.3	33.4%	0.193
Far-Red 700-800	7.15	1.6%	0.009
Total 280-800	447.5	100.0%	0.580
PAR 400-700	439.4	98.2%	0.569

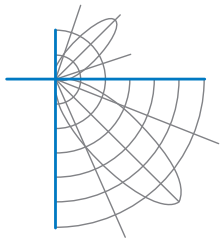




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Photon Flux Tabulation			
Waveband (nm)	Photon Flux ( $\mu\text{mol}\cdot\text{s}^{-1}$ )	Percent of Total (%)	Photon Flux Efficacy ( $\mu\text{mol}\cdot\text{J}^{-1}$ )
UV-B 280-315	0.19	0.0%	0.000
UV-A 315-400	2.57	0.1%	0.003
400-500	370.4	17.5%	0.480
500-600	900.2	42.6%	1.166
600-700	797.4	37.7%	1.033
Far-Red 700-800	43.48	2.1%	0.056
Total 280-800	2114.2	100.0%	2.739
PAR 400-700	2068.0	97.8%	2.679





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Photosynthetically Active Radiation (PAR) Metrics (400-700nm)

Photosynthetic Photon Flux (PPF)	2067.97 $\mu\text{mol}\cdot\text{s}^{-1}$
Photosynthetic Photon Efficacy (PPE)	2.679 $\mu\text{mol}\cdot\text{J}^{-1}$
Photosynthetic Photon Efficacy (PPE)	9.643 $\text{mol}\cdot\text{kWh}^{-1}$
PPFD Conversion Factor	14.73 $\mu\text{mol}\cdot\text{s}^{-1}\cdot\text{m}^{-2}\cdot\text{klx}^{-1}$

Photobiologically Active Radiation (PBAR) Metrics (280-800nm)

PBAR Flux	2114.23 $\mu\text{mol}\cdot\text{s}^{-1}$
PBAR Efficacy	2.739 $\mu\text{mol}\cdot\text{J}^{-1}$

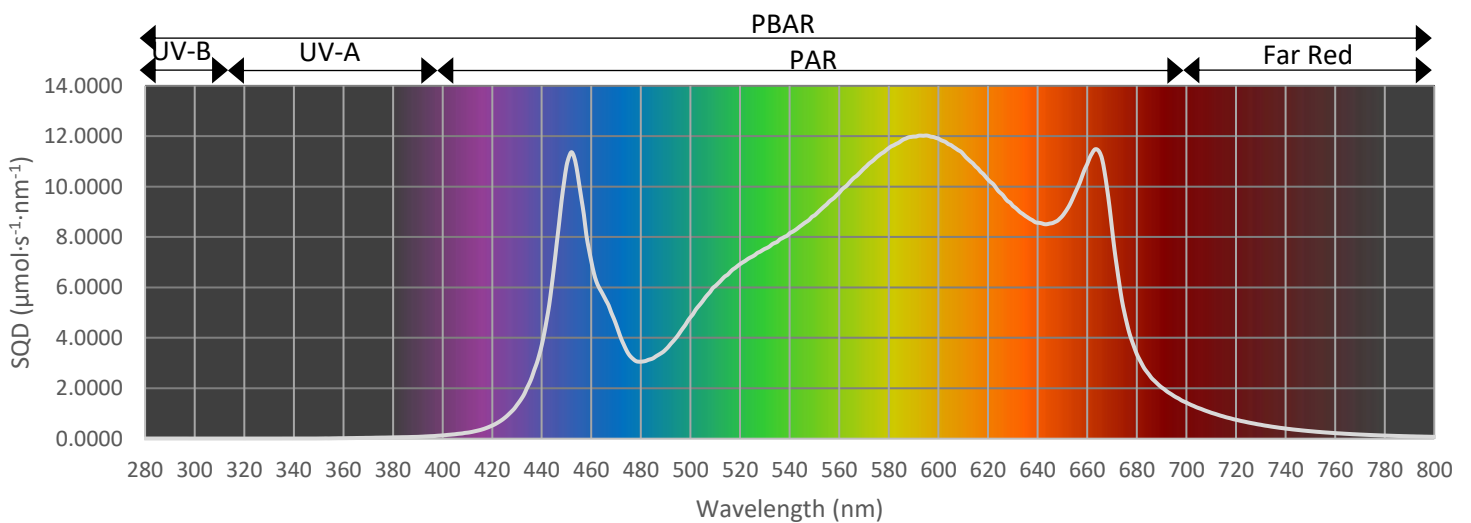
Yield Photon Flux (YPF) Metrics (Weighted 350-725nm)

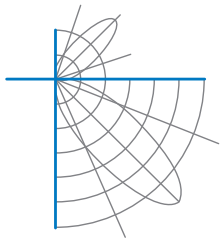
YPF	1825.81 $\mu\text{mol}\cdot\text{s}^{-1}$
YPF Efficacy	2.365 $\mu\text{mol}\cdot\text{J}^{-1}$
Yield Efficiency (YPF/PPF)	88.3 %

Red and Far-Red Flux Metrics (700-800nm)

Far-Red Photon Flux	43.48 $\mu\text{mol}\cdot\text{s}^{-1}$
Red/Far-Red Ratio (R/FR Ratio)	14.65

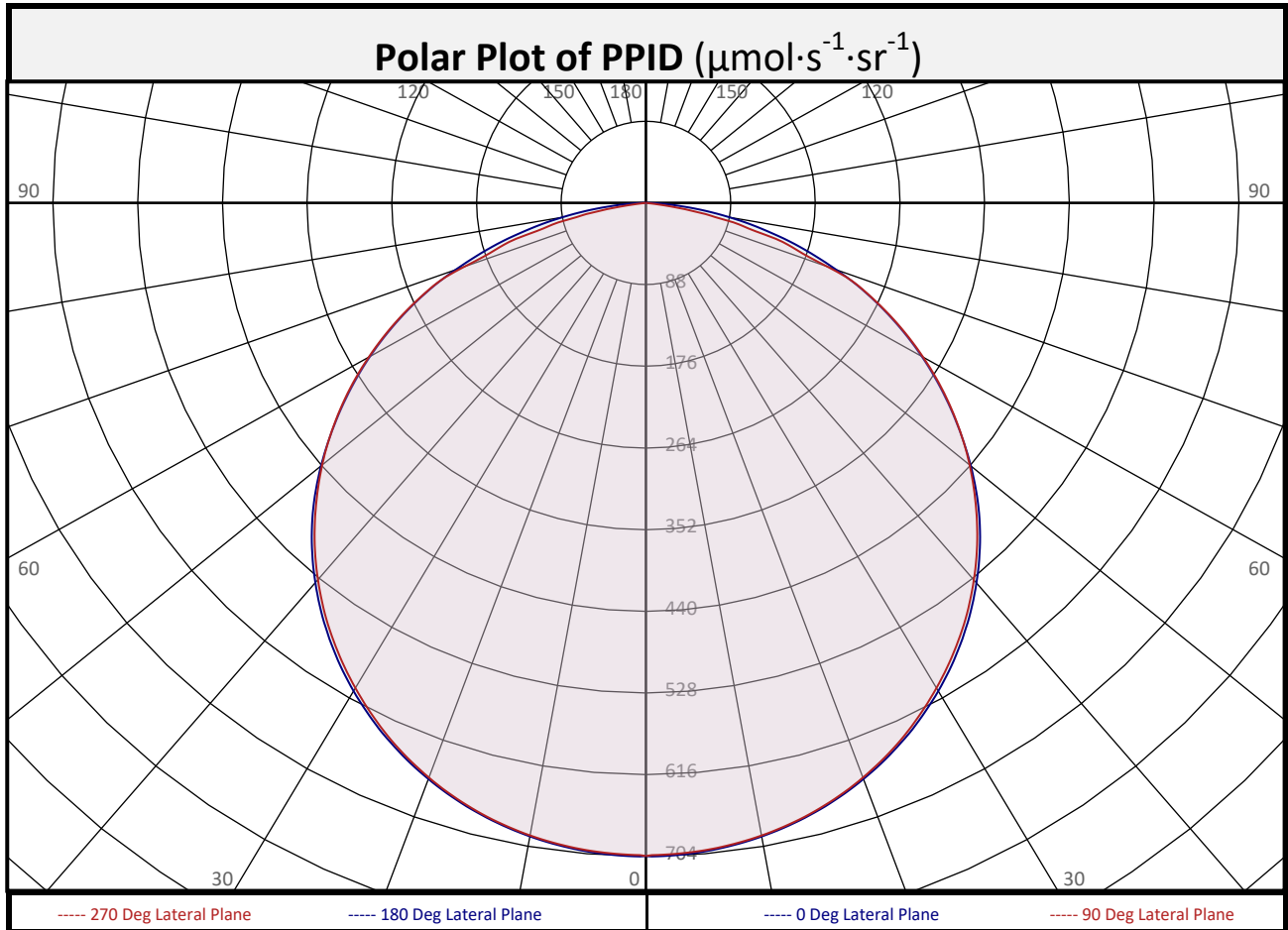
Note: for R/FR Ratio, Red Range=640-680nm, Far-Red Range=710-750nm





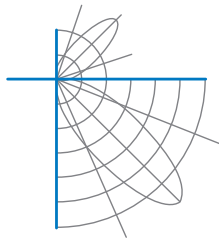
Report of Test

LLIA001614-001A



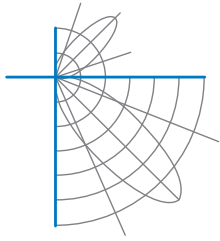
Zonal PPF Summary										
Zone (Deg Vert)	PPF ( $\mu\text{mol}\cdot\text{s}^{-1}$ )	Percent of Total		Zone (Deg Vert)	PPF ( $\mu\text{mol}\cdot\text{s}^{-1}$ )	Percent of Total		Zone (Deg Vert)	PPF ( $\mu\text{mol}\cdot\text{s}^{-1}$ )	Percent of Total
0-10	66.7	3.2%		90-100	0.0	0.0%		0-20	258.5	12.5%
10-20	191.8	9.3%		100-110	0.0	0.0%		0-30	551.6	26.7%
20-30	293.1	14.2%		110-120	0.0	0.0%		0-40	909.4	44.0%
30-40	357.8	17.3%		120-130	0.0	0.0%		0-60	1632	78.9%
40-50	376.8	18.2%		130-140	0.0	0.0%		0-80	2046	98.9%
50-60	345.9	16.7%		140-150	0.0	0.0%		10-90	2001	96.8%
60-70	269.0	13.0%		150-160	0.0	0.0%		20-50	1028	49.7%
70-80	145.1	7.0%		160-170	0.0	0.0%		40-90	1159	56.0%
80-90	21.7	1.0%		170-180	0.0	0.0%		60-90	435.8	21.1%
0-90	2068	100.0%		90-180	0.0	0.0%		0-180	2068	100.0%





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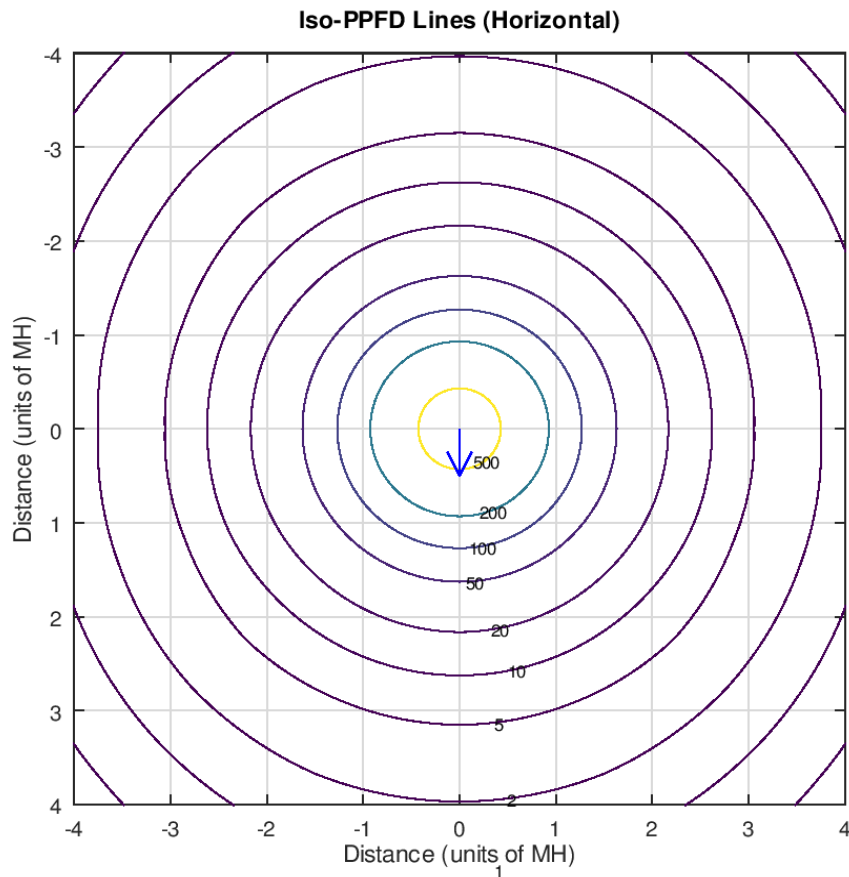
Circle of Light Plot			
Height(m)	PPFD at Nadir ( $\mu\text{mol}\cdot\text{s}^{-1}\cdot\text{m}^{-2}$ )	Ground-level distance to half-of-nadir PPFD (m)	
		0-180 deg	90-270 deg
0.5	2814.9	0.64	0.64
1.0	703.7	1.28	1.27
1.5	312.8	1.92	1.91
2.0	175.9	2.57	2.55
2.5	112.6	3.21	3.19
3.0	78.2	3.85	3.82



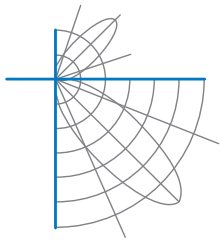
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LLIA001614-001A

### Iso-PPFD Plot



The PPFD values shown in the plot above are based on a mounting height of  $h = 1.0$  m. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of  $\mu\text{mol}/\text{s}/\text{m}^2$ . The values expressed are based on the direct light from a single unit without the contribution of room reflections.



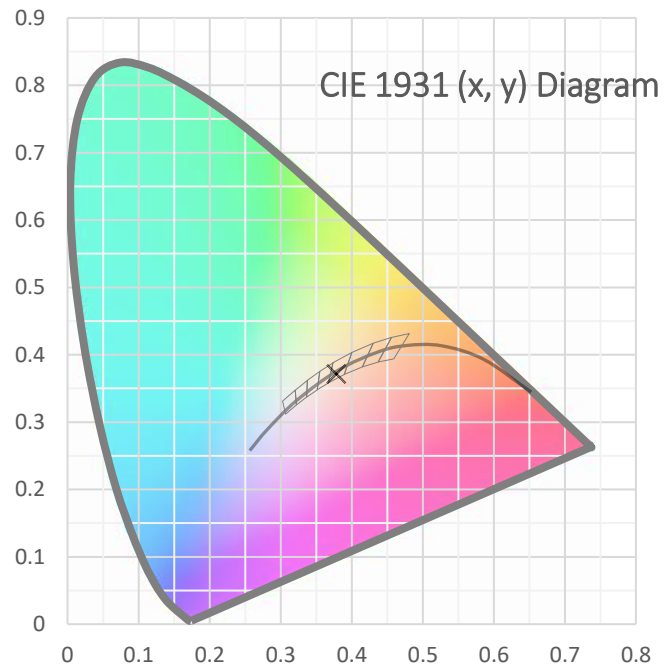
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**Electrical Data**

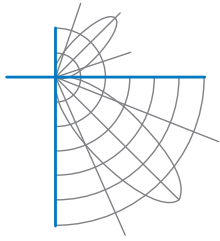
Voltage	277.0 Vac
Current	2.889 A
Power	772.0 W
Frequency	59.99 Hz
Power Factor	0.965
Current THD	8.7 %

**Photometric (Human Vision) Data**

Total Luminous Flux	140386.2 lm
Luminous Efficacy	181.8 lm/W
Chromaticity (x,y)	(0.3785, 0.3717)
(u',v')	(0.2258, 0.4990)
Duv	-0.0018
CCT	4017 K
CRI (Ra)	85
R9	28
TM-30: Rf	83
TM-30: Rg	96







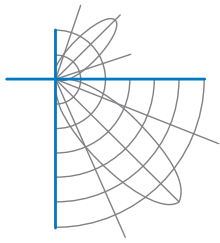
**LightLab**  
**INTERNATIONAL**  
ALLENTOWN LLC



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### Additional Pictures of Test Subject





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**Test Equipment Configuration:** Measurements acquired using the LightLab International Allentown, LLC Labsphere 2m Integrating Sphere system with spectroradiometer.  
Testing was performed using  $4\pi$  geometry  
Intensity measurements were acquired using the LightLab International Allentown, LLC goniometer with a test distance of 9.5m.

**Test Temperature:** 25.2 °C

**Test Procedure:** Tested in accordance with the applicable sections of:  
LM-79-19, LM-78-20, LM-58-20, ANSI\_ANSI C78.377-2017, TM-30-20

**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