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NVLAP LAB CODE 201042-0

Photometric Test Report

Relevant Standards
IES LM-79-2008
ANSI C78.377-2011, ANSI C82.77-2002
CIE 13.3-1995, CIE 15-2004, IES TM-30-15

Prepared For

Techbrite LLC
1000 Kieley Pl
Cincinnati OH 45127
United States

Catalog Number

RB4126SS1B5F0000

Order Number
11621041
Test Number
11621041.01

Test Date

2017-05-19 - 2017-05-22

Prepared By

Dane Hernandez-Adams, Technician

Approved By

Tiffany Hamm, Project Handler

The results contained in this report pertain only to the tested sample.
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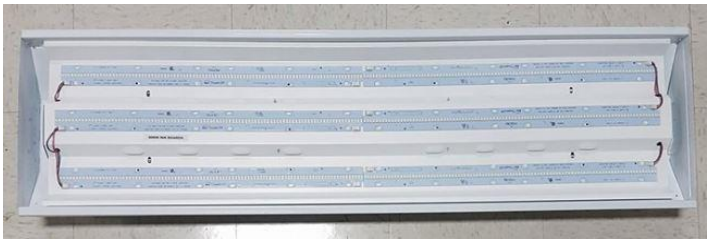
Laboratory results may not be representative of field performance
Ballast factors have not been applied

Testing was performed in a 2-meter integrating sphere using the 4π geometry method.

Absorption correction was employed for Sphere measurement

Luminaire Description: Formed white steel housing, no lens enclosure, Tested Techbrite B-4-14-4-T5-*M-*-*-blank
Lamp: 576 white LEDs
Mounting: Pendant
Ballast/Driver: Two Universal Lighting Technologies Everline D23CC90UNVT-F drivers

Luminaire



Luminaire Characteristics

Luminous Length:	48.25 in.
Luminous Width:	12.50 in.

Summary of Results

Integrating Sphere

Luminous Flux:	26440 Lumens
Efficacy:	147.4 lm/w
CCT:	5252 K
CRI (Ra):	82.8

Distribution

Total Luminaire Output:	25460 Lumens
Luminaire Efficacy:	141.8 lm/w
Maximum Candela:	8572 Candela

Electrical Data at 277 VAC

Test Temperature:	26.0 °C
Voltage:	277.0 VAC
Current:	0.6647 A
Power:	180.1 W
Power Factor:	0.978
Frequency:	60 Hz
Current THD:	8.75 %

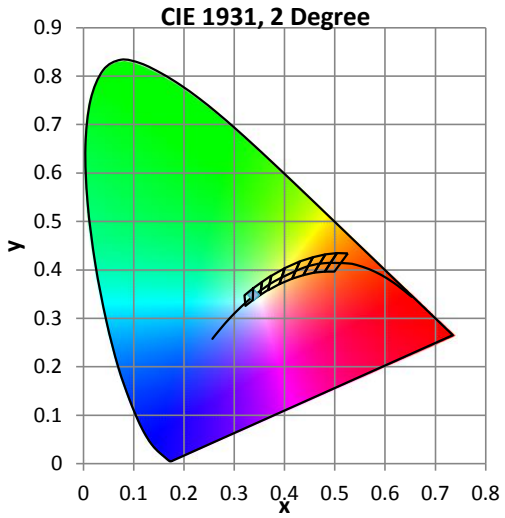
Color Quality - Integrating Sphere

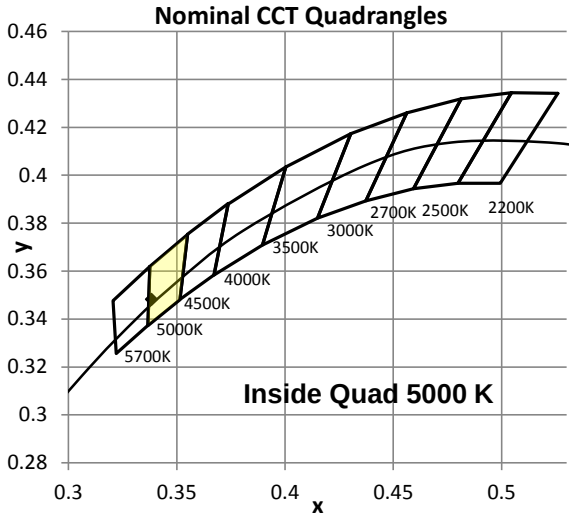
Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.3 °C	120.1 VAC	1.497 A	179.3 W	0.998	60 Hz	5.49 %

Summary of Results

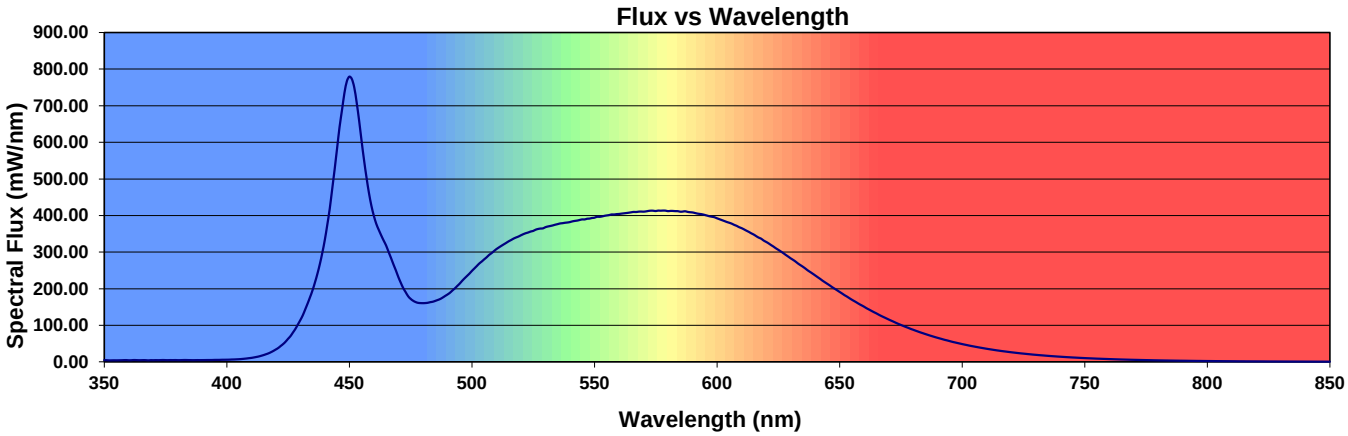
Total Output:	26440 Lumens	**Chromaticity (x):**	0.3384
Efficacy:	147.4 lm/w	**Chromaticity (y):**	0.3481
CCT:	5252 K	**Chromaticity (u'):**	0.2082
CRI (Ra):	82.8	**Chromaticity (v'):**	0.4820
CRI (R9):	10.3	**TM-30 R_f:**	80.9
Peak Wavelength:	450.2 nm	**TM-30 R_g:**	96.4
Dominant Wavelength:	566.4 nm	**Duv:**	0.0006
S/P Ratio:	1.988		





Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
82.8	81.6	87.2	90.4	83.3	82.2	81.6	87.0	69.0	10.3	68.9	82.5	60.4	82.9	94.7



Distribution - Goniophotometer

Distribution Test Conditions

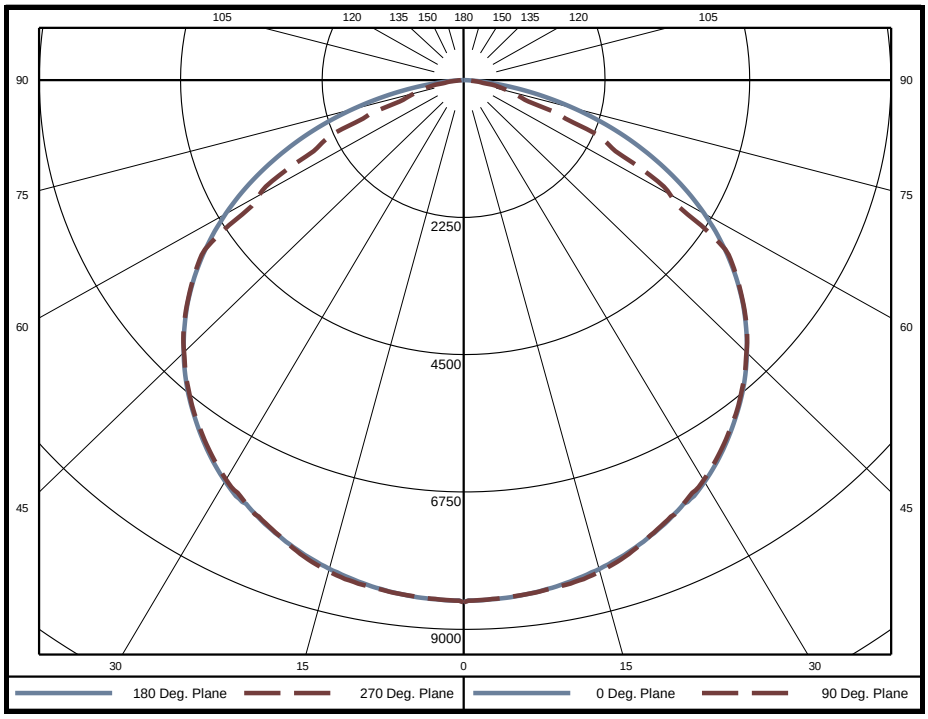
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	120.0 VAC	1.498 A	179.5 W	0.998	60 Hz	5.26 %

Summary of Results

Spacing Criteria
0-180: 1.32
90-270: 1.32

Total Lumen Output: 25460 Lumens
Luminaire Efficacy: 141.8 lm/w
Maximum Candela: 8572 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	204	0.8%	60-65	1813	7.1%	120-125	0	0.0%
5-10	608	2.4%	65-70	1360	5.3%	125-130	0	0.0%
10-15	995	3.9%	70-75	865	3.4%	130-135	0	0.0%
15-20	1355	5.3%	75-80	485	1.9%	135-140	0	0.0%
20-25	1676	6.6%	80-85	202	0.8%	140-145	0	0.0%
25-30	1956	7.7%	85-90	44	0.2%	145-150	0	0.0%
30-35	2181	8.6%	90-95	0	0.0%	150-155	0	0.0%
35-40	2337	9.2%	95-100	0	0.0%	155-160	0	0.0%
40-45	2423	9.5%	100-105	0	0.0%	160-165	0	0.0%
45-50	2433	9.6%	105-110	0	0.0%	165-170	0	0.0%
50-55	2359	9.3%	110-115	0	0.0%	170-175	0	0.0%
55-60	2167	8.5%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	11312	44.4%
0-60	20694	81.3%
0-90	25463	100.0%
90-180	0	0.0%

Candela Tabulation

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	8557	8557	8557	8557	8557	8557	8557	8557	8557	8557	8557	8557	8557	8557	8557	8557
5	8506	8534	8542	8544	8498	8544	8542	8534	8506	8534	8542	8544	8498	8544	8542	8534
10	8424	8454	8461	8468	8438	8468	8461	8454	8424	8454	8461	8468	8438	8468	8461	8454
15	8287	8316	8326	8323	8329	8323	8326	8316	8287	8316	8326	8323	8329	8323	8326	8316
20	8093	8125	8128	8115	8106	8115	8128	8125	8093	8125	8128	8115	8106	8115	8128	8125
25	7843	7887	7881	7851	7853	7851	7881	7887	7843	7887	7881	7851	7853	7851	7881	7887
30	7590	7605	7600	7581	7558	7581	7600	7605	7590	7605	7600	7581	7558	7581	7600	7605
35	7219	7235	7222	7212	7191	7212	7222	7235	7219	7235	7222	7212	7191	7212	7222	7235
40	6791	6802	6789	6778	6772	6778	6789	6802	6791	6802	6789	6778	6772	6778	6789	6802
45	6299	6305	6296	6290	6290	6290	6296	6305	6299	6305	6296	6290	6290	6290	6296	6305
50	5739	5737	5735	5739	5749	5739	5735	5737	5739	5737	5735	5739	5749	5739	5735	5737
55	5092	5089	5106	5125	5125	5125	5106	5089	5092	5089	5106	5125	5125	5125	5106	5089
60	4366	4369	4409	3942	3747	3942	4409	4369	4366	4369	4409	3942	3747	3942	4409	4369
65	3558	3566	3498	2740	2527	2740	3498	3566	3558	3566	3498	2740	2527	2740	3498	3566
70	2699	2718	2246	1594	1475	1594	2246	2718	2699	2718	2246	1594	1475	1594	2246	2718
75	1809	1798	1097	791	784	791	1097	1798	1809	1798	1097	791	784	791	1097	1798
80	972	803	470	488	489	488	470	803	972	803	470	488	489	488	470	803
85	289	174	174	148	109	148	174	174	289	174	174	148	109	148	174	174
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Average Luminance (cd/m^2)

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	45	90
0	21990	21990	21990
45	22890	22880	22860
55	22810	22880	22960
65	21640	21270	15370
75	17960	10900	7786
85	8531	5124	3224

Utilization of Lumens - Zonal Cavity Method

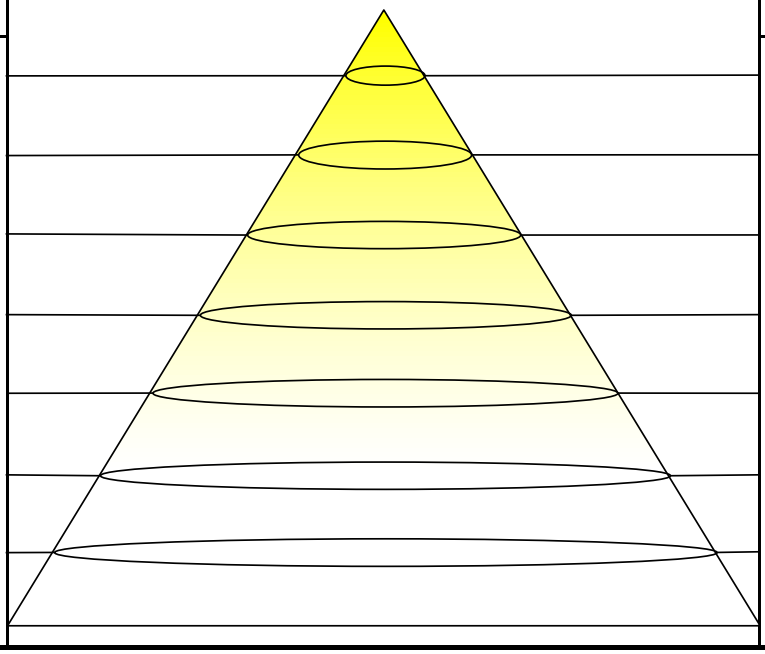
Effective Floor Cavity Reflectance 20%																		
Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **																	
0	30312	30312	30312	30312	29607	29607	29607	29607	28291	28291	28291	27087	27087	27087	25982	25982	25982	25462
1	27817	26653	25609	24669	27129	26077	25127	24267	24998	24217	23501	24007	23371	22783	23093	22584	22107	21581
2	25317	23263	21564	20136	24651	22784	21221	19895	21882	20568	19432	21051	19954	18989	20283	19376	18567	18022
3	23064	20410	18356	16720	22434	20008	18103	16568	19250	17618	16273	18549	17158	15989	17898	16722	15715	15161
4	21088	18048	15822	14122	20502	17709	15630	14022	17069	15260	13827	16476	14907	13637	15923	14571	13453	12901
5	19362	16088	13800	12112	18824	15802	13651	12043	15260	13363	11909	14755	13088	11779	14285	12824	11650	11108
6	17851	14449	12167	10529	17361	14206	12049	10480	13745	11820	10385	13315	11601	10291	12911	11390	10200	9673
7	16526	13070	10830	9261	16082	12863	10736	9225	12468	10551	9155	12098	10373	9087	11752	10202	9019	8510
8	15363	11902	9725	8229	14961	11724	9647	8203	11384	9497	8150	11065	9351	8098	10766	9210	8047	7559
9	14336	10902	8799	7379	13973	10749	8736	7359	10455	8611	7318	10179	8490	7278	9919	8373	7239	6771
10	13427	10043	8017	6669	13098	9909	7964	6653	9655	7860	6622	9414	7759	6591	9187	7661	6560	6111

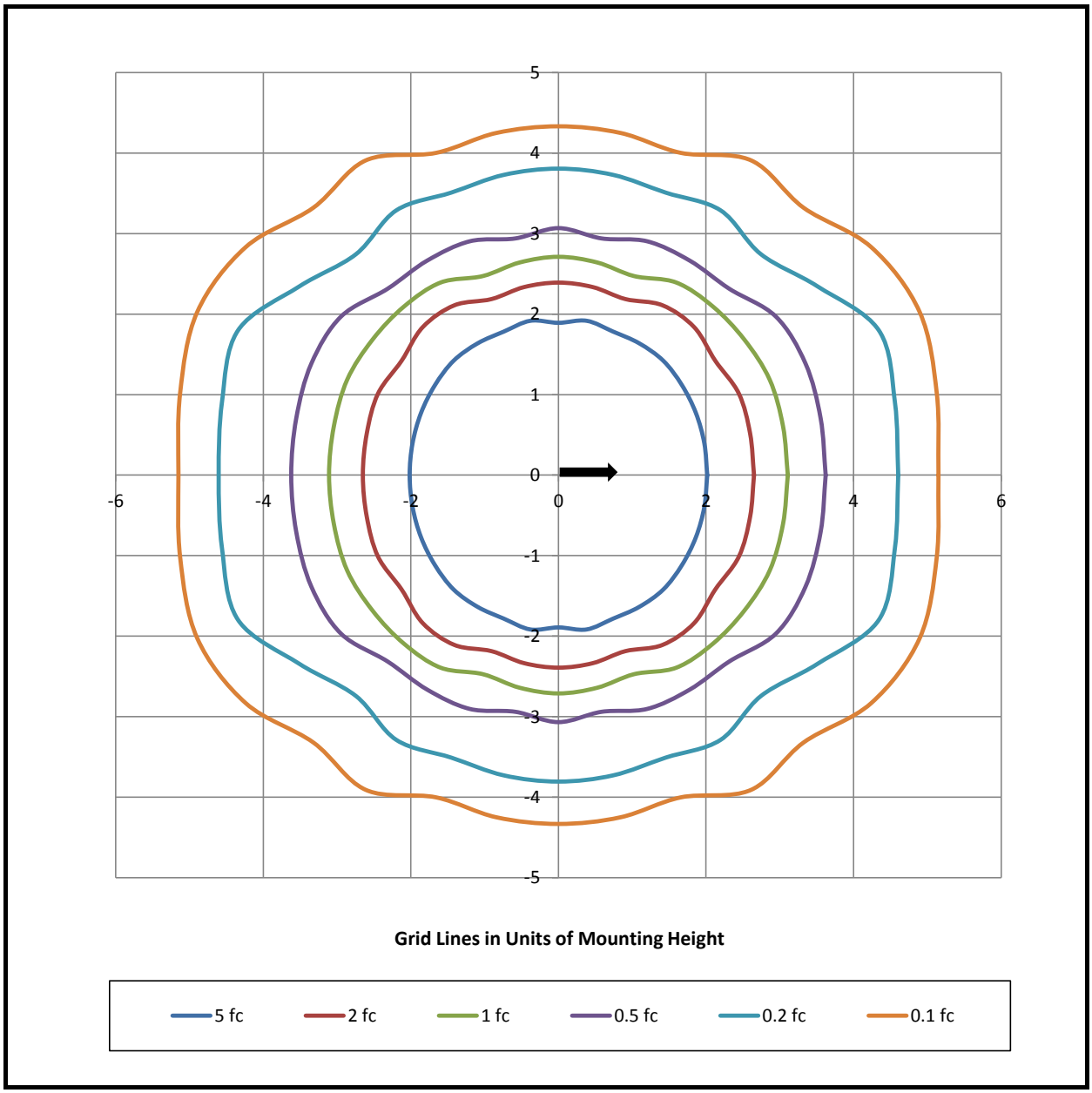
Beam and Field Information

CIE Type:	Direct
Center Beam Intenisty:	8557 Candela
Central Cone Intensity:	8547 Candela
Beam Flux:	20689.3 Lumens
Beam Angle (0-180):	121.1 Degrees
Beam Angle (90-270):	115.5 Degrees
Field Angle (0-180):	161.5 Degrees
Field Angle (90-270):	147.8 Degrees

Cone of Light Tabulation

Mounting Height (Feet)	Footcandles at Nadir	Diameter (Feet)
4.00	535	5.27
6.00	238	7.91
8.00	134	10.5
10.0	85.6	13.2
12.0	59.4	15.8
14.0	43.7	18.4
16.0	33.4	21.1



ISOFootcandle Plot

Mounting Height - 8 Feet