LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001381-001

Indoor Distribution Photometry Test Report

Catalog Number: F-LUHB/150/5K/G3
Highbay mounted, cast aluminum housing, frosted plastic enclosure with clear sections below LEDs.
348 white LEDs, 116 groups of 3 LEDs each.
One Sosen SS-15NH-260BH LED driver

Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary					
Input Voltage	120.0	V	Luminous Flux	20822.2	Lumens
Input Current	1.250	A	Total Efficacy	139.1	Lm/W
Input Power	149.7	W	Downward Flux	20822.2	Lumens
Frequency	60.00	Hz	Downward Flux	100.0	% of Total
Power Factor	0.998				
Current THD	5.7	%			

This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 01/04/2021
Report date: 01/05/2021

Signed: Michael L. Grather

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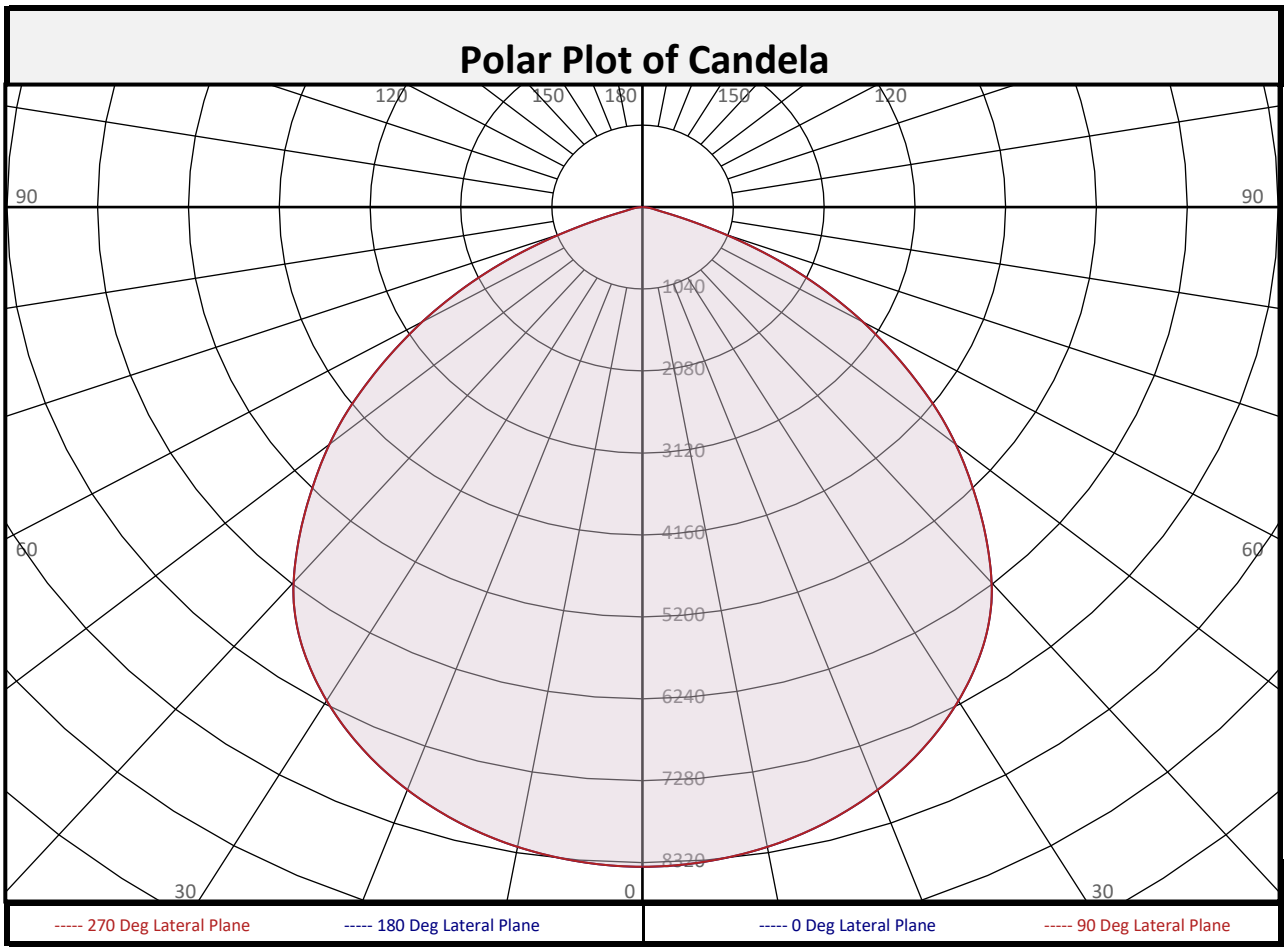
Australasia & S.E. Asia LightLab International, 50 Redcliffe Gardens Drive, Clontarf, Queensland, 4019, Australia, Ph : +61 7 3283 7862, Fx : +61 7 3283 8751, www.lightlabint.com

Report of Test

LLIA001381-001



Zonal Flux Summary

Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	793.5	3.8%	90-100	0.0	0.0%	0-20	3078	14.8%
10-20	2285	11.0%	100-110	0.0	0.0%	0-30	6576	31.6%
20-30	3498	16.8%	110-120	0.0	0.0%	0-40	10820	52.0%
30-40	4244	20.4%	120-130	0.0	0.0%	0-60	18434	88.5%
40-50	4212	20.2%	130-140	0.0	0.0%	0-80	20765	99.7%
50-60	3402	16.3%	140-150	0.0	0.0%	10-90	20029	96.2%
60-70	1943	9.3%	150-160	0.0	0.0%	20-50	11954	57.4%
70-80	388.3	1.9%	160-170	0.0	0.0%	40-90	10002	48.0%
80-90	57.2	0.3%	170-180	0.0	0.0%	60-90	2388	11.5%
0-90	20822	100.0%	90-180	0.0	0.0%	0-180	20822	100.0%

Report of Test

LLIA001381-001

Luminous Intensity (Candela) Table

Vertical (Gamma) Angles	Lateral (C-Plane) Angles									
		0	22.5	45	67.5	90	112.5	135	157.5	180
	0	8373	8373	8373	8373	8373	8373	8373	8373	8373
	2.5	8364	8364	8364	8364	8364	8364	8364	8364	8364
	5	8338	8338	8338	8338	8338	8338	8338	8338	8338
	7.5	8299	8299	8299	8299	8299	8299	8299	8299	8299
	10	8245	8245	8245	8245	8245	8245	8245	8245	8245
	12.5	8176	8176	8176	8176	8176	8176	8176	8176	8176
	15	8091	8091	8091	8091	8091	8091	8091	8091	8091
	17.5	7989	7989	7989	7989	7989	7989	7989	7989	7989
	20	7872	7872	7872	7872	7872	7872	7872	7872	7872
	22.5	7739	7739	7739	7739	7739	7739	7739	7739	7739
	25	7589	7589	7589	7589	7589	7589	7589	7589	7589
	27.5	7422	7422	7422	7422	7422	7422	7422	7422	7422
	30	7236	7236	7236	7236	7236	7236	7236	7236	7236
	32.5	7029	7029	7029	7029	7029	7029	7029	7029	7029
	35	6801	6801	6801	6801	6801	6801	6801	6801	6801
	37.5	6537	6537	6537	6537	6537	6537	6537	6537	6537
	40	6219	6219	6219	6219	6219	6219	6219	6219	6219
	42.5	5850	5850	5850	5850	5850	5850	5850	5850	5850
	45	5465	5465	5465	5465	5465	5465	5465	5465	5465
	47.5	5074	5074	5074	5074	5074	5074	5074	5074	5074
	50	4682	4682	4682	4682	4682	4682	4682	4682	4682
	52.5	4265	4265	4265	4265	4265	4265	4265	4265	4265
	55	3812	3812	3812	3812	3812	3812	3812	3812	3812
	57.5	3362	3362	3362	3362	3362	3362	3362	3362	3362
	60	2916	2916	2916	2916	2916	2916	2916	2916	2916
	62.5	2451	2451	2451	2451	2451	2451	2451	2451	2451
	65	1982	1982	1982	1982	1982	1982	1982	1982	1982
	67.5	1489	1489	1489	1489	1489	1489	1489	1489	1489
	70	995	995	995	995	995	995	995	995	995
	72.5	549	549	549	549	549	549	549	549	549
	75	257	257	257	257	257	257	257	257	257
	77.5	158	158	158	158	158	158	158	158	158
	80	115	115	115	115	115	115	115	115	115
	82.5	80	80	80	80	80	80	80	80	80
	85	50	50	50	50	50	50	50	50	50
	87.5	25	25	25	25	25	25	25	25	25
	90	1	1	1	1	1	1	1	1	1

Report of Test

LLIA001381-001

Luminous Intensity (Candela) Table

Vertical (Gamma) Angles	Lateral (C-Plane) Angles									
	0	22.5	45	67.5	90	112.5	135	157.5	180
90	1	1	1	1	1	1	1	1	1
92.5	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0
97.5	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0
102.5	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0
107.5	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0
112.5	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0
117.5	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0
122.5	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0
127.5	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0
132.5	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0
137.5	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0
142.5	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0
147.5	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0
152.5	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0
157.5	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0
162.5	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0
167.5	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0
172.5	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0
177.5	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0

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Report of Test

LLIA001381-001

Coefficients of Utilization/Room Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 0.20

RC	80					70					50				30				10			0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10	0
RCR																						
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102	100
1	111	107	103	100		108	104	101	98		100	97	95		96	94	92		93	91	89	87
2	102	94	88	83		99	93	87	82		89	85	81		86	82	79		83	80	77	75
3	93	84	76	71		91	82	75	70		79	74	69		77	72	68		74	70	66	64
4	86	75	67	61		84	74	66	60		71	65	59		69	63	59		67	62	58	56
5	79	67	59	53		77	66	58	52		64	57	52		62	56	51		60	55	51	49
6	73	61	52	46		71	60	52	46		58	51	46		56	50	45		55	49	45	43
7	68	55	47	41		66	54	46	41		53	46	40		51	45	40		50	44	40	38
8	63	50	42	37		62	50	42	36		48	41	36		47	41	36		46	40	36	34
9	59	46	38	33		58	46	38	33		44	38	33		43	37	33		42	37	32	31
10	55	43	35	30		54	42	35	30		41	34	30		40	34	30		39	34	29	28

For absolute test reports, RUs are expressed as a percentage of total lumen output. For relative test reports, CUs are expressed as a percentage of total lamp output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 3) The room is spectrally neutral. When luminaires are not evenly distributed throughout the room, or do not exhibit lateral symmetry, CU values may differ from actual performance.

Circle of Light Plot

Height(ft)	Illuminance at Nadir (fc)	Ground-level distance to half-of-nadir illuminance (ft) 0-180 deg	90-270 deg
10.0	83.7	12.82	12.82
14.0	42.7	17.95	17.95
18.0	25.8	23.07	23.07
22.0	17.3	28.20	28.20
26.0	12.4	33.33	33.33
30.0	9.3	38.46	38.46

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	375563	375563	375563
45	346651	346651	346651
55	298067	298067	298067
65	210373	210373	210373
75	44594	44594	44594
85	25883	25883	25883

Spacing Criterion

Spacing Criterion: 1.3

Report of Test

LLIA001381-001

UGR TABLE - CORRECTED

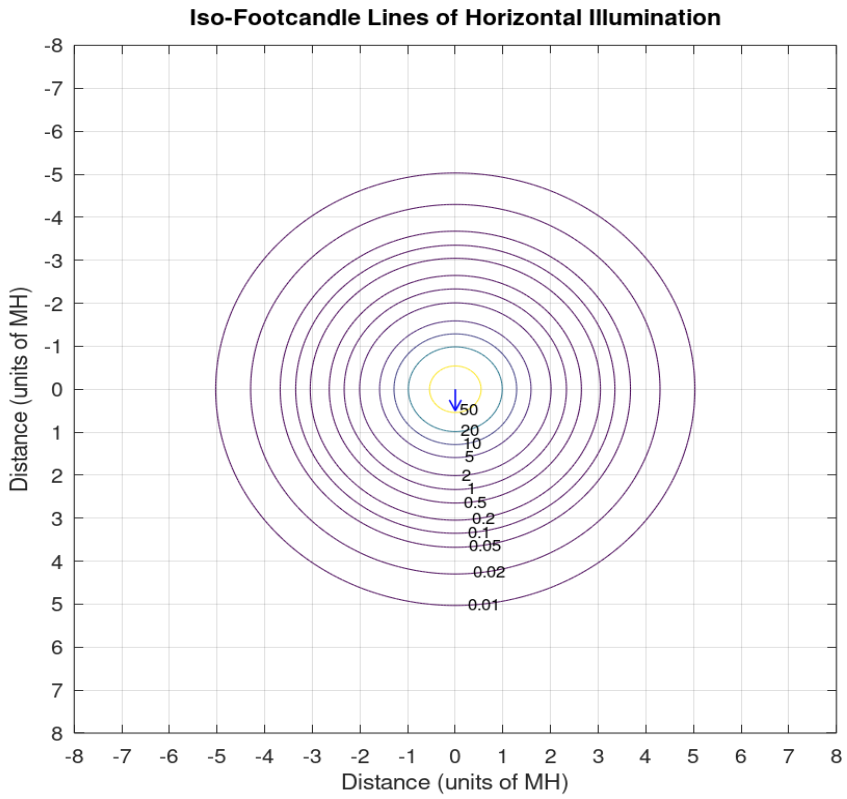
Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	26.9	28.4	27.2	28.7	29.0	26.9	28.4	27.2	28.7	29.0
	3H	27.6	29.0	28.0	29.3	29.7	27.6	29.0	28.0	29.3	29.7
	4H	27.6	28.9	28.0	29.2	29.6	27.6	28.9	28.0	29.2	29.6
	6H	27.6	28.8	28.0	29.1	29.5	27.6	28.8	28.0	29.1	29.5
	8H	27.6	28.7	28.0	29.1	29.5	27.6	28.7	28.0	29.1	29.5
	12H	27.5	28.6	27.9	29.0	29.4	27.5	28.6	27.9	29.0	29.4
4H	2H	27.2	28.5	27.6	28.9	29.2	27.2	28.5	27.6	28.9	29.2
	3H	28.0	29.1	28.5	29.5	29.9	28.0	29.1	28.5	29.5	29.9
	4H	28.0	29.0	28.5	29.4	29.8	28.0	29.0	28.5	29.4	29.8
	6H	28.0	28.8	28.5	29.3	29.7	28.0	28.8	28.5	29.3	29.7
	8H	28.0	28.7	28.5	29.2	29.7	28.0	28.7	28.5	29.2	29.7
	12H	28.0	28.6	28.5	29.1	29.6	28.0	28.6	28.5	29.1	29.6
8H	4H	28.0	28.7	28.5	29.2	29.7	28.0	28.7	28.5	29.2	29.7
	6H	28.0	28.6	28.5	29.1	29.5	28.0	28.6	28.5	29.1	29.5
	8H	27.9	28.5	28.4	29.0	29.5	27.9	28.5	28.4	29.0	29.5
	12H	27.9	28.4	28.4	28.9	29.4	27.9	28.4	28.4	28.9	29.4
12H	4H	28.0	28.6	28.5	29.1	29.6	28.0	28.6	28.5	29.1	29.6
	6H	27.9	28.5	28.4	28.9	29.5	27.9	28.5	28.4	28.9	29.5
	8H	27.9	28.4	28.4	28.9	29.4	27.9	28.4	28.4	28.9	29.4

Maximum UGR = 29.9

Report of Test

LLIA001381-001

Iso-Illuminance Plot



The isofootcandle values shown in the plot above are based on a mounting height of h = 10.0 feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution of room reflections.

Report of Test

LLIA001381-001

Additional Pictures of Test Subject

Report of Test

LLIA001381-001

Test Distance	9.5 m
Ambient Temperature	24.9 °C

Notes

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.

Tested in accordance with the applicable sections of IES LM-79-19. Format of reports and angular increments based on IES LM-41-14 and LM-46-04.

The luminous intensity values, 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.

Photometric intensity values are reported using the CIE C-Gamma coordinate system as defined in CIE publication number 121.

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.