LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001381-002

Indoor Distribution Photometry Test Report

Catalog Number: F-LUHB/240/5K/G3
Highbay mounted, cast aluminum housing, frosted
plastic enclosure with clear sections below LEDs.
560 white LEDs, 104 groups of 3 LEDs each and 124 groups of 2 LEDs each.
One Sosen SS-240NH-260BH LED driver

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

Performance Summary					
Input Voltage	120.0	V	Luminous Flux	33315.4	Lumens
Input Current	1.991	A	Total Efficacy	140.1	Lm/W
Input Power	237.8	W	Downward Flux	33315.4	Lumens
Frequency	60.00	Hz	Downward Flux	100.0	% of Total
Power Factor	0.996				
Current THD	5.4	%			

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

Test date: 01/05/2021
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

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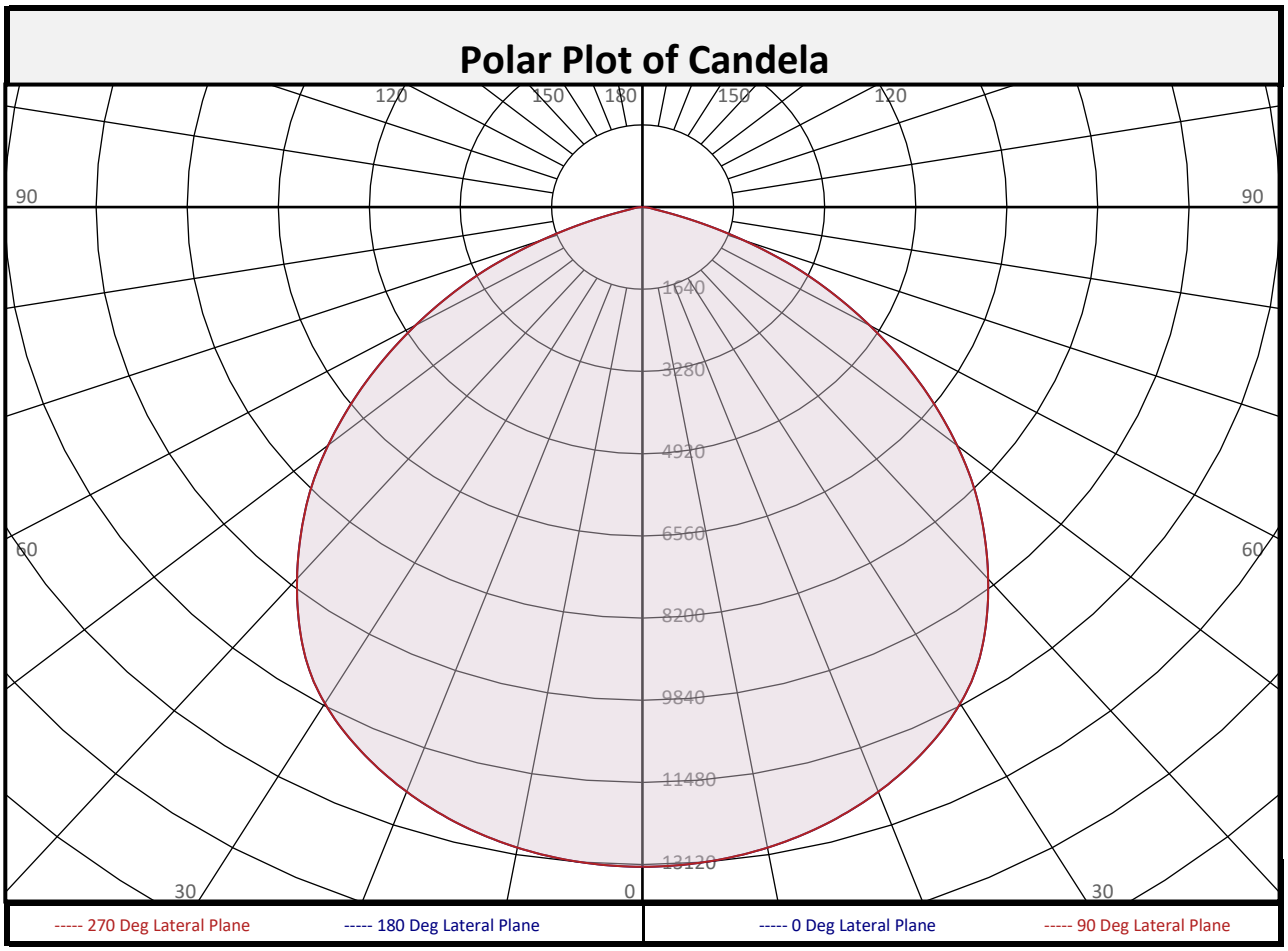

Zonal Flux Summary									
Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	1248	3.7%	90-100	0.0	0.0%	0-20	4848	14.6%
10-20	3600	10.8%	100-110	0.0	0.0%	0-30	10373	31.1%
20-30	5525	16.6%	110-120	0.0	0.0%	0-40	17029	51.1%
30-40	6657	20.0%	120-130	0.0	0.0%	0-60	29063	87.2%
40-50	6616	19.9%	130-140	0.0	0.0%	0-80	33218	99.7%
50-60	5418	16.3%	140-150	0.0	0.0%	10-90	32067	96.3%
60-70	3313	9.9%	150-160	0.0	0.0%	20-50	18797	56.4%
70-80	842.1	2.5%	160-170	0.0	0.0%	40-90	16286	48.9%
80-90	97.7	0.3%	170-180	0.0	0.0%	60-90	4252	12.8%
0-90	33315	100.0%	90-180	0.0	0.0%	0-180	33315	100.0%

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Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
Vertical (Gamma) Angles		0	22.5	45	67.5	90	112.5	135	157.5	180
	0	13164	13164	13164	13164	13164	13164	13164	13164	13164
	2.5	13152	13152	13152	13152	13152	13152	13152	13152	13152
	5	13116	13116	13116	13116	13116	13116	13116	13116	13116
	7.5	13057	13057	13057	13057	13057	13057	13057	13057	13057
	10	12979	12979	12979	12979	12979	12979	12979	12979	12979
	12.5	12875	12875	12875	12875	12875	12875	12875	12875	12875
	15	12747	12747	12747	12747	12747	12747	12747	12747	12747
	17.5	12592	12592	12592	12592	12592	12592	12592	12592	12592
	20	12414	12414	12414	12414	12414	12414	12414	12414	12414
	22.5	12212	12212	12212	12212	12212	12212	12212	12212	12212
	25	11985	11985	11985	11985	11985	11985	11985	11985	11985
	27.5	11731	11731	11731	11731	11731	11731	11731	11731	11731
	30	11437	11437	11437	11437	11437	11437	11437	11437	11437
	32.5	11093	11093	11093	11093	11093	11093	11093	11093	11093
	35	10673	10673	10673	10673	10673	10673	10673	10673	10673
	37.5	10192	10192	10192	10192	10192	10192	10192	10192	10192
	40	9678	9678	9678	9678	9678	9678	9678	9678	9678
	42.5	9145	9145	9145	9145	9145	9145	9145	9145	9145
	45	8596	8596	8596	8596	8596	8596	8596	8596	8596
	47.5	8020	8020	8020	8020	8020	8020	8020	8020	8020
	50	7388	7388	7388	7388	7388	7388	7388	7388	7388
	52.5	6736	6736	6736	6736	6736	6736	6736	6736	6736
	55	6073	6073	6073	6073	6073	6073	6073	6073	6073
	57.5	5399	5399	5399	5399	5399	5399	5399	5399	5399
	60	4721	4721	4721	4721	4721	4721	4721	4721	4721
	62.5	4043	4043	4043	4043	4043	4043	4043	4043	4043
	65	3375	3375	3375	3375	3375	3375	3375	3375	3375
	67.5	2664	2664	2664	2664	2664	2664	2664	2664	2664
	70	1935	1935	1935	1935	1935	1935	1935	1935	1935
	72.5	1255	1255	1255	1255	1255	1255	1255	1255	1255
	75	662	662	662	662	662	662	662	662	662
	77.5	290	290	290	290	290	290	290	290	290
	80	183	183	183	183	183	183	183	183	183
	82.5	133	133	133	133	133	133	133	133	133
	85	91	91	91	91	91	91	91	91	91
	87.5	49	49	49	49	49	49	49	49	49
	90	0	0	0	0	0	0	0	0	0

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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	0	0	0	0	0	0	0	0	0
	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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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	110	106	103	99		108	104	101	98		100	97	95		96	94	92		92	91	89	87
2	101	94	88	83		99	92	87	82		89	84	80		85	82	78		82	79	76	74
3	93	83	76	70		91	82	75	69		79	73	68		76	71	67		74	69	66	64
4	85	74	66	60		83	73	65	59		71	64	59		68	63	58		66	61	57	55
5	79	67	58	52		77	66	58	52		63	56	51		62	55	51		60	54	50	48
6	73	60	52	46		71	59	51	45		57	50	45		56	49	45		54	49	44	42
7	68	55	46	40		66	54	46	40		52	45	40		51	44	40		50	44	39	37
8	63	50	42	36		61	49	41	36		48	41	36		47	40	36		46	40	35	33
9	59	46	38	32		57	45	38	32		44	37	32		43	37	32		42	36	32	30
10	55	42	35	29		54	42	34	29		41	34	29		40	34	29		39	33	29	27

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
15.0	58.5	19.28	19.28
20.0	32.9	25.71	25.71
25.0	21.1	32.14	32.14
30.0	14.6	38.57	38.57
35.0	10.7	45.00	45.00
40.0	8.2	51.42	51.42

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	164950	164950	164950
45	152322	152322	152322
55	132680	132680	132680
65	100068	100068	100068
75	32061	32061	32061
85	13026	13026	13026

Spacing Criterion

Spacing Criterion: 1.3

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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	27.0	28.6	27.4	28.9	29.2	27.0	28.6	27.4	28.9	29.2
	3H	28.0	29.4	28.4	29.7	30.1	28.0	29.4	28.4	29.7	30.1
	4H	28.1	29.4	28.5	29.7	30.1	28.1	29.4	28.5	29.7	30.1
	6H	28.1	29.3	28.5	29.6	30.0	28.1	29.3	28.5	29.6	30.0
	8H	28.0	29.2	28.5	29.6	30.0	28.0	29.2	28.5	29.6	30.0
	12H	28.0	29.1	28.5	29.5	29.9	28.0	29.1	28.5	29.5	29.9
4H	2H	27.5	28.8	27.9	29.1	29.5	27.5	28.8	27.9	29.1	29.5
	3H	28.6	29.6	29.0	30.0	30.4	28.6	29.6	29.0	30.0	30.4
	4H	28.6	29.6	29.1	30.0	30.5	28.6	29.6	29.1	30.0	30.5
	6H	28.6	29.4	29.1	29.9	30.3	28.6	29.4	29.1	29.9	30.3
	8H	28.6	29.4	29.0	29.8	30.3	28.6	29.4	29.0	29.8	30.3
	12H	28.6	29.2	29.0	29.7	30.2	28.6	29.2	29.0	29.7	30.2
8H	4H	28.6	29.4	29.1	29.8	30.3	28.6	29.4	29.1	29.8	30.3
	6H	28.6	29.2	29.1	29.7	30.2	28.6	29.2	29.1	29.7	30.2
	8H	28.5	29.1	29.1	29.6	30.1	28.5	29.1	29.1	29.6	30.1
	12H	28.5	29.0	29.1	29.5	30.1	28.5	29.0	29.1	29.5	30.1
12H	4H	28.6	29.3	29.1	29.8	30.2	28.6	29.3	29.1	29.8	30.2
	6H	28.5	29.1	29.1	29.6	30.1	28.5	29.1	29.1	29.6	30.1
	8H	28.5	29.0	29.0	29.5	30.1	28.5	29.0	29.0	29.5	30.1

Maximum UGR = 30.5

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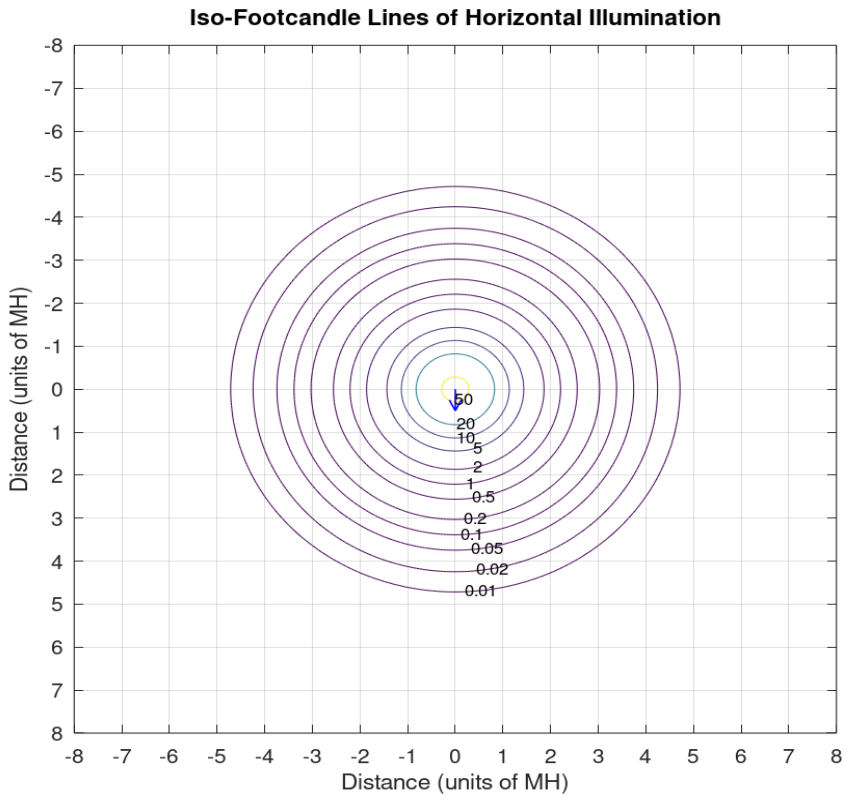
Iso-Illuminance Plot



The isofootcandle values shown in the plot above are based on a mounting height of h = 15.0 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.

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Additional Pictures of Test Subject

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Test Distance	9.5 m
Ambient Temperature	25.1 °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.