LightLab INTERNATIONAL ALLENTOWN LLC

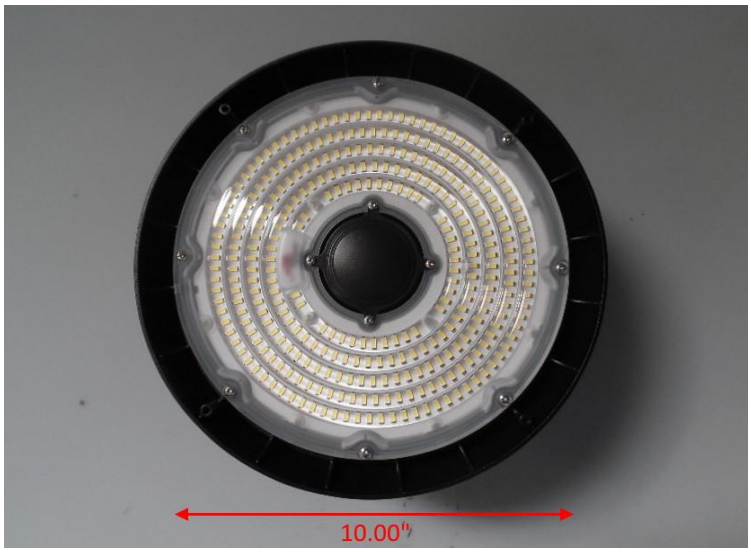
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001538-001

Indoor Distribution Photometry Test Report

Catalog Number: HBC/100W/50K/BL
Suspended downlight, cast aluminum luminaire and driver housings, clear plastic enclosure with concentric lenses.
320 white LEDs on white circuit board
One Sosen SS-120CL-130BH LED driver



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

Performance Summary					
Input Voltage	120.0	V	Luminous Flux	15245.9	Lumens
Input Current	0.8435	A	Total Efficacy	151.4	Lm/W
Input Power	100.7	W	Downward Flux	15245.9	Lumens
Frequency	60.00	Hz	Downward Flux	100.0	% of Total
Power Factor	0.995				
Current THD	7.0	%			

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

Test date: 09/03/2021
Report date: 09/08/2021

Signed: Michael L. Grather

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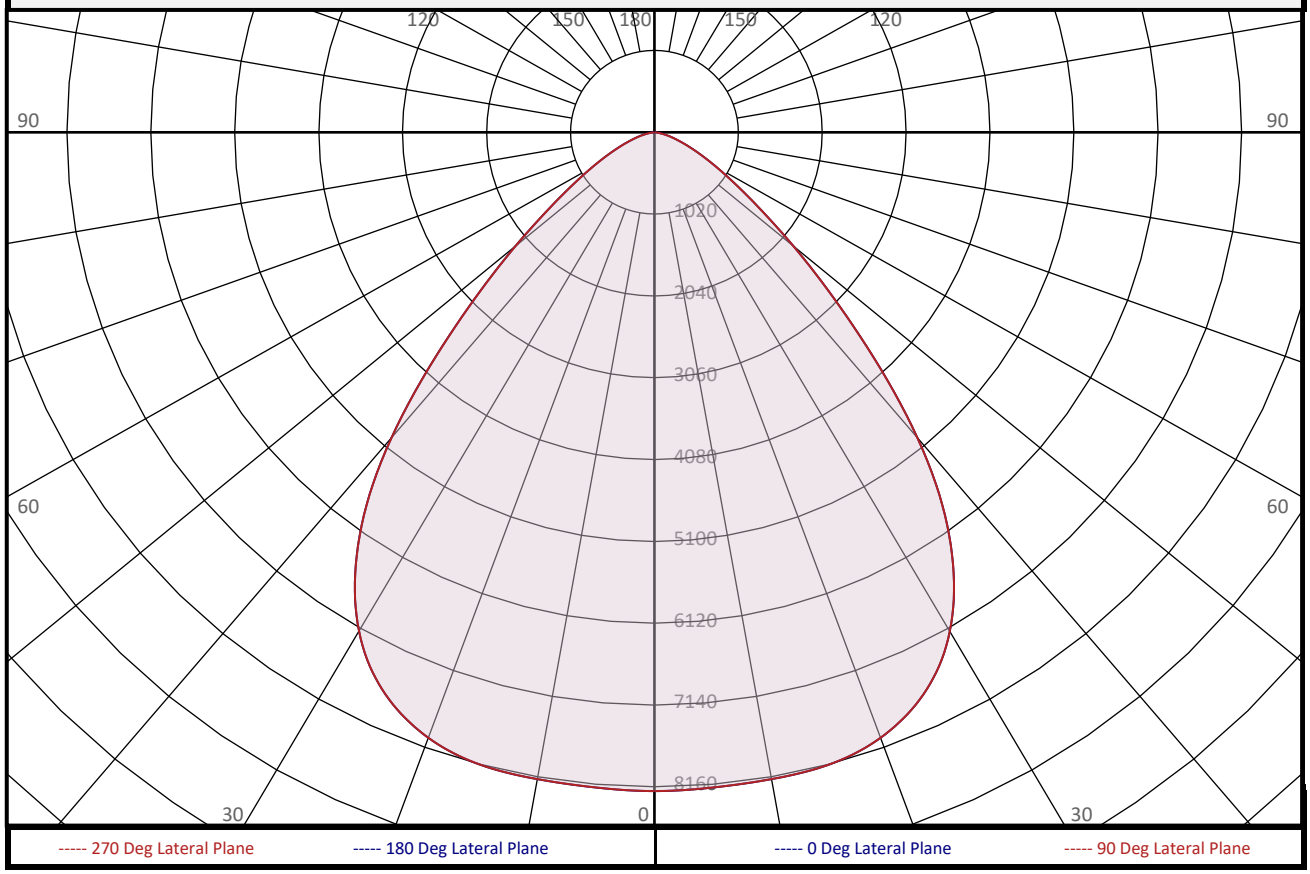
Polar Plot of Candela



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	782.7	5.1%	90-100	0.0	0.0%	0-20	3089	20.3%
10-20	2307	15.1%	100-110	0.0	0.0%	0-30	6637	43.5%
20-30	3548	23.3%	110-120	0.0	0.0%	0-40	10512	68.9%
30-40	3875	25.4%	120-130	0.0	0.0%	0-60	14451	94.8%
40-50	2667	17.5%	130-140	0.0	0.0%	0-80	15214	99.8%
50-60	1272	8.3%	140-150	0.0	0.0%	10-90	14463	94.9%
60-70	561.1	3.7%	150-160	0.0	0.0%	20-50	10089	66.2%
70-80	202.1	1.3%	160-170	0.0	0.0%	40-90	4734	31.1%
80-90	31.5	0.2%	170-180	0.0	0.0%	60-90	794.6	5.2%
0-90	15246	100.0%	90-180	0.0	0.0%	0-180	15246	100.0%

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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
	0	8212	8212	8212	8212	8212	8212	8212	8212	8212
	2.5	8208	8208	8208	8208	8208	8208	8208	8208	8208
	5	8198	8198	8198	8198	8198	8198	8198	8198	8198
	7.5	8191	8191	8191	8191	8191	8191	8191	8191	8191
	10	8187	8187	8187	8187	8187	8187	8187	8187	8187
	12.5	8182	8182	8182	8182	8182	8182	8182	8182	8182
	15	8163	8163	8163	8163	8163	8163	8163	8163	8163
	17.5	8116	8116	8116	8116	8116	8116	8116	8116	8116
	20	8033	8033	8033	8033	8033	8033	8033	8033	8033
	22.5	7907	7907	7907	7907	7907	7907	7907	7907	7907
	25	7734	7734	7734	7734	7734	7734	7734	7734	7734
	27.5	7498	7498	7498	7498	7498	7498	7498	7498	7498
	30	7181	7181	7181	7181	7181	7181	7181	7181	7181
	32.5	6777	6777	6777	6777	6777	6777	6777	6777	6777
	35	6281	6281	6281	6281	6281	6281	6281	6281	6281
	37.5	5687	5687	5687	5687	5687	5687	5687	5687	5687
	40	4974	4974	4974	4974	4974	4974	4974	4974	4974
	42.5	4189	4189	4189	4189	4189	4189	4189	4189	4189
	45	3421	3421	3421	3421	3421	3421	3421	3421	3421
	47.5	2760	2760	2760	2760	2760	2760	2760	2760	2760
	50	2203	2203	2203	2203	2203	2203	2203	2203	2203
	52.5	1734	1734	1734	1734	1734	1734	1734	1734	1734
	55	1377	1377	1377	1377	1377	1377	1377	1377	1377
	57.5	1100	1100	1100	1100	1100	1100	1100	1100	1100
	60	878	878	878	878	878	878	878	878	878
	62.5	699	699	699	699	699	699	699	699	699
	65	551	551	551	551	551	551	551	551	551
	67.5	430	430	430	430	430	430	430	430	430
	70	330	330	330	330	330	330	330	330	330
	72.5	251	251	251	251	251	251	251	251	251
	75	186	186	186	186	186	186	186	186	186
	77.5	128	128	128	128	128	128	128	128	128
	80	83	83	83	83	83	83	83	83	83
	82.5	50	50	50	50	50	50	50	50	50
	85	23	23	23	23	23	23	23	23	23
	87.5	4	4	4	4	4	4	4	4	4
	90	0	0	0	0	0	0	0	0	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
	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	112	108	105	102		109	106	103	101		102	100	98		98	96	95		95	93	92	90
2	104	98	93	88		102	96	91	87		93	89	85		90	86	84		87	84	82	80
3	97	89	82	77		95	87	81	77		85	80	75		82	78	74		80	76	73	71
4	90	81	74	68		88	79	73	68		77	71	67		75	70	66		73	69	65	63
5	84	74	66	61		82	73	66	60		71	65	60		69	64	59		67	62	59	57
6	79	67	60	55		77	67	59	54		65	59	54		63	58	54		62	57	53	51
7	74	62	55	49		72	61	54	49		60	53	49		59	53	49		57	52	48	47
8	69	57	50	45		68	57	50	45		55	49	44		54	48	44		53	48	44	42
9	65	53	46	41		64	52	46	41		51	45	41		50	45	40		49	44	40	39
10	61	49	42	38		60	49	42	37		48	42	37		47	41	37		46	41	37	36

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
6.0	228.1	7.60	7.60
8.0	128.3	10.13	10.13
10.0	82.1	12.66	12.66
12.0	57.0	15.19	15.19
14.0	41.9	17.73	17.73
16.0	32.1	20.26	20.26

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	162067	162067	162067
45	95486	95486	95486
55	47375	47375	47375
65	25745	25745	25745
75	14220	14220	14220
85	5212	5212	5212

Spacing Criterion

Spacing Criterion: 1.2

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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	21.7	23.0	22.0	23.3	23.6	21.7	23.0	22.0	23.3	23.6
	3H	22.3	23.4	22.7	23.8	24.1	22.3	23.4	22.7	23.8	24.1
	4H	22.4	23.5	22.8	23.9	24.2	22.4	23.5	22.8	23.9	24.2
	6H	22.5	23.5	22.9	23.8	24.2	22.5	23.5	22.9	23.8	24.2
	8H	22.5	23.4	22.9	23.8	24.2	22.5	23.4	22.9	23.8	24.2
	12H	22.4	23.3	22.9	23.7	24.1	22.4	23.3	22.9	23.7	24.1
4H	2H	21.9	22.9	22.3	23.3	23.7	21.9	22.9	22.3	23.3	23.7
	3H	22.6	23.5	23.0	23.9	24.3	22.6	23.5	23.0	23.9	24.3
	4H	22.8	23.6	23.2	24.0	24.5	22.8	23.6	23.2	24.0	24.5
	6H	22.9	23.6	23.4	24.0	24.5	22.9	23.6	23.4	24.0	24.5
	8H	22.9	23.5	23.3	24.0	24.4	22.9	23.5	23.3	24.0	24.4
	12H	22.9	23.4	23.4	23.9	24.4	22.9	23.4	23.4	23.9	24.4
8H	4H	22.8	23.4	23.3	23.9	24.4	22.8	23.4	23.3	23.9	24.4
	6H	22.9	23.4	23.4	23.9	24.4	22.9	23.4	23.4	23.9	24.4
	8H	22.9	23.4	23.4	23.9	24.4	22.9	23.4	23.4	23.9	24.4
	12H	22.9	23.3	23.4	23.8	24.4	22.9	23.3	23.4	23.8	24.4
12H	4H	22.8	23.3	23.3	23.8	24.3	22.8	23.3	23.3	23.8	24.3
	6H	22.9	23.4	23.4	23.8	24.4	22.9	23.4	23.4	23.8	24.4
	8H	22.9	23.3	23.4	23.8	24.4	22.9	23.3	23.4	23.8	24.4

Maximum UGR = 24.5

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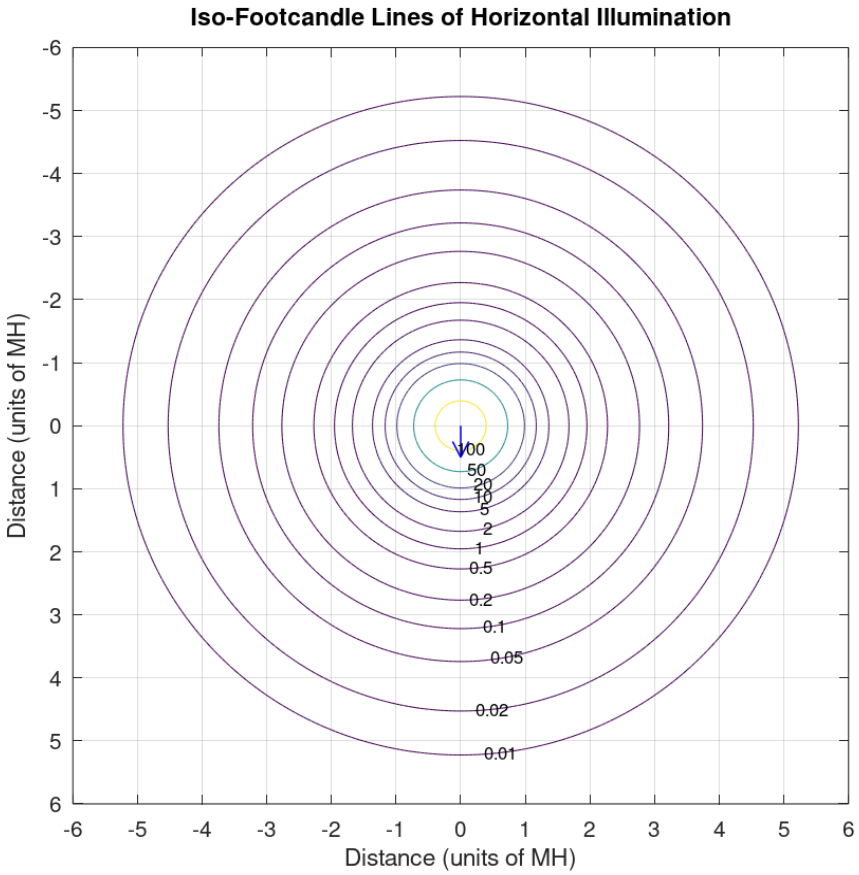
Iso-Illuminance Plot



The isofootcandle values shown in the plot above are based on a mounting height of h = 8.0 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	25.2	°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.