LightLab INTERNATIONAL ALLENTOWN LLC

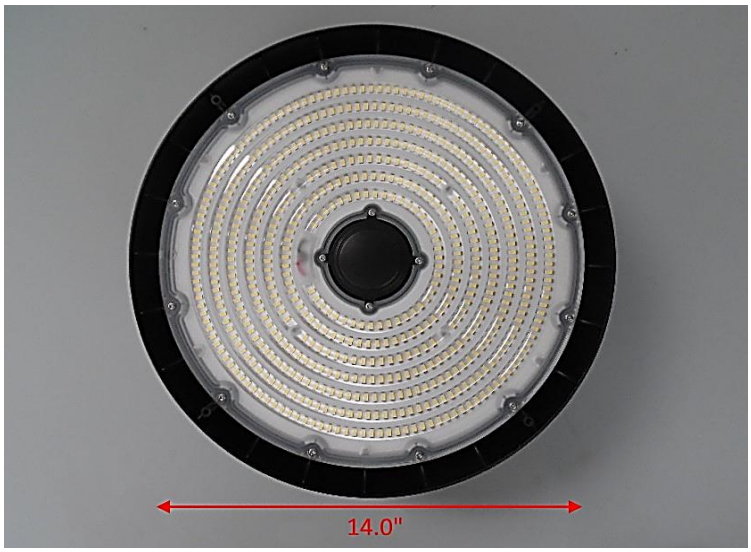
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001538-003

Indoor Distribution Photometry Test Report

Catalog Number: HBC/200W/50K/BL
Suspended downlight, cast aluminum luminaire and driver housings, clear plastic enclosure with concentric lenses.
600 white LEDs on white circuit board
One Sosen SS-200CNL-260BH LED driver



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

Performance Summary					
Input Voltage	120.0	V	Luminous Flux	30349.2	Lumens
Input Current	1.668	A	Total Efficacy	151.9	Lm/W
Input Power	199.8	W	Downward Flux	30349.2	Lumens
Frequency	60.01	Hz	Downward Flux	100.0	% of Total
Power Factor	0.999				
Current THD	3.3	%			

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

Test date: 09/09/2021
Report date: 09/09/2021

Signed: Michael L. Grather

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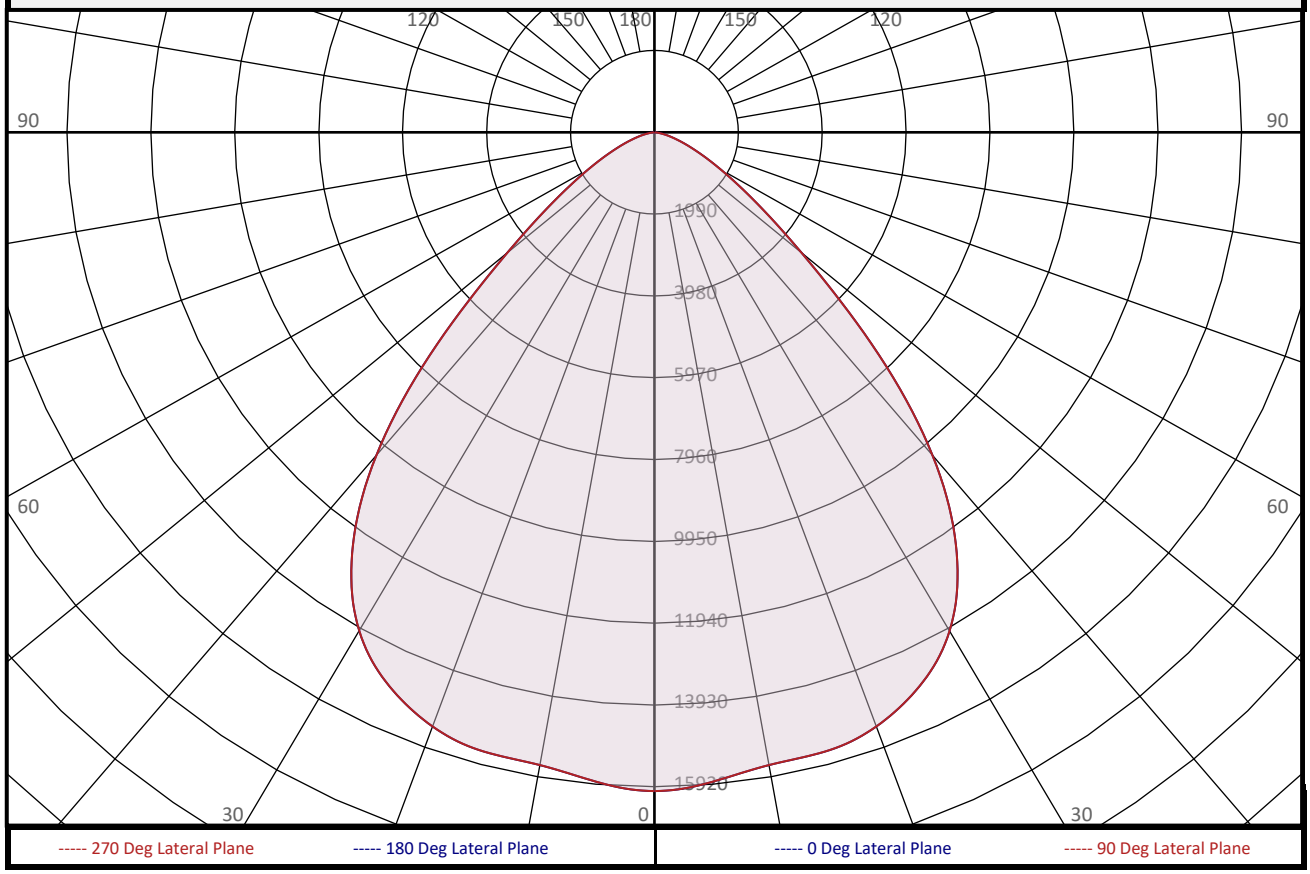
Polar Plot of Candela



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	1506	5.0%	90-100	0.0	0.0%	0-20	5914	19.5%
10-20	4408	14.5%	100-110	0.0	0.0%	0-30	12749	42.0%
20-30	6835	22.5%	110-120	0.0	0.0%	0-40	20474	67.5%
30-40	7724	25.5%	120-130	0.0	0.0%	0-60	28718	94.6%
40-50	5599	18.4%	130-140	0.0	0.0%	0-80	30285	99.8%
50-60	2646	8.7%	140-150	0.0	0.0%	10-90	28843	95.0%
60-70	1160	3.8%	150-160	0.0	0.0%	20-50	20158	66.4%
70-80	407.2	1.3%	160-170	0.0	0.0%	40-90	9876	32.5%
80-90	64.2	0.2%	170-180	0.0	0.0%	60-90	1631	5.4%
0-90	30349	100.0%	90-180	0.0	0.0%	0-180	30349	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	16023	16023	16023	16023	16023	16023	16023	16023	16023
	2.5	15975	15975	15975	15975	15975	15975	15975	15975	15975
	5	15855	15855	15855	15855	15855	15855	15855	15855	15855
	7.5	15720	15720	15720	15720	15720	15720	15720	15720	15720
	10	15628	15628	15628	15628	15628	15628	15628	15628	15628
	12.5	15604	15604	15604	15604	15604	15604	15604	15604	15604
	15	15595	15595	15595	15595	15595	15595	15595	15595	15595
	17.5	15531	15531	15531	15531	15531	15531	15531	15531	15531
	20	15379	15379	15379	15379	15379	15379	15379	15379	15379
	22.5	15155	15155	15155	15155	15155	15155	15155	15155	15155
	25	14867	14867	14867	14867	14867	14867	14867	14867	14867
	27.5	14498	14498	14498	14498	14498	14498	14498	14498	14498
	30	13997	13997	13997	13997	13997	13997	13997	13997	13997
	32.5	13337	13337	13337	13337	13337	13337	13337	13337	13337
	35	12495	12495	12495	12495	12495	12495	12495	12495	12495
	37.5	11478	11478	11478	11478	11478	11478	11478	11478	11478
	40	10254	10254	10254	10254	10254	10254	10254	10254	10254
	42.5	8835	8835	8835	8835	8835	8835	8835	8835	8835
	45	7280	7280	7280	7280	7280	7280	7280	7280	7280
	47.5	5771	5771	5771	5771	5771	5771	5771	5771	5771
	50	4543	4543	4543	4543	4543	4543	4543	4543	4543
	52.5	3603	3603	3603	3603	3603	3603	3603	3603	3603
	55	2874	2874	2874	2874	2874	2874	2874	2874	2874
	57.5	2294	2294	2294	2294	2294	2294	2294	2294	2294
	60	1828	1828	1828	1828	1828	1828	1828	1828	1828
	62.5	1447	1447	1447	1447	1447	1447	1447	1447	1447
	65	1137	1137	1137	1137	1137	1137	1137	1137	1137
	67.5	885	885	885	885	885	885	885	885	885
	70	680	680	680	680	680	680	680	680	680
	72.5	508	508	508	508	508	508	508	508	508
	75	372	372	372	372	372	372	372	372	372
	77.5	257	257	257	257	257	257	257	257	257
	80	162	162	162	162	162	162	162	162	162
	82.5	97	97	97	97	97	97	97	97	97
	85	53	53	53	53	53	53	53	53	53
	87.5	12	12	12	12	12	12	12	12	12
	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	100		102	99	97		98	96	94		95	93	92	90
2	104	98	92	88		102	96	91	87		93	89	85		89	86	83		87	84	81	80
3	97	88	82	77		95	87	81	76		84	79	75		82	77	74		79	76	72	71
4	90	80	73	68		88	79	72	67		77	71	66		75	70	66		73	68	65	63
5	84	73	66	60		82	72	65	60		70	64	59		68	63	59		67	62	58	56
6	78	67	59	54		76	66	59	54		64	58	53		63	57	53		61	56	52	51
7	73	61	54	49		72	61	53	48		59	53	48		58	52	48		57	51	47	46
8	68	57	49	44		67	56	49	44		55	48	44		54	48	43		52	47	43	42
9	64	52	45	40		63	52	45	40		51	44	40		50	44	40		49	43	40	38
10	60	49	42	37		59	48	41	37		47	41	37		46	41	36		45	40	36	35

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	445.1	7.64	7.64
8.0	250.4	10.18	10.18
10.0	160.2	12.73	12.73
12.0	111.3	15.28	15.28
14.0	81.7	17.82	17.82
16.0	62.6	20.37	20.37

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	161333	161333	161333
45	103672	103672	103672
55	50444	50444	50444
65	27096	27096	27096
75	14478	14478	14478
85	6111	6111	6111

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	22.0	23.4	22.4	23.7	24.0	22.0	23.4	22.4	23.7	24.0
	3H	22.6	23.8	23.0	24.1	24.5	22.6	23.8	23.0	24.1	24.5
	4H	22.7	23.8	23.1	24.2	24.6	22.7	23.8	23.1	24.2	24.6
	6H	22.8	23.8	23.2	24.2	24.6	22.8	23.8	23.2	24.2	24.6
	8H	22.8	23.7	23.2	24.1	24.5	22.8	23.7	23.2	24.1	24.5
	12H	22.7	23.6	23.2	24.0	24.5	22.7	23.6	23.2	24.0	24.5
4H	2H	22.2	23.3	22.6	23.7	24.0	22.2	23.3	22.6	23.7	24.0
	3H	23.0	23.8	23.4	24.2	24.6	23.0	23.8	23.4	24.2	24.6
	4H	23.1	23.9	23.6	24.3	24.8	23.1	23.9	23.6	24.3	24.8
	6H	23.2	23.9	23.7	24.3	24.8	23.2	23.9	23.7	24.3	24.8
	8H	23.2	23.8	23.7	24.3	24.7	23.2	23.8	23.7	24.3	24.7
	12H	23.2	23.7	23.6	24.2	24.7	23.2	23.7	23.6	24.2	24.7
8H	4H	23.1	23.8	23.6	24.2	24.7	23.1	23.8	23.6	24.2	24.7
	6H	23.2	23.7	23.7	24.2	24.7	23.2	23.7	23.7	24.2	24.7
	8H	23.2	23.7	23.7	24.2	24.7	23.2	23.7	23.7	24.2	24.7
	12H	23.2	23.6	23.7	24.1	24.7	23.2	23.6	23.7	24.1	24.7
12H	4H	23.1	23.7	23.6	24.1	24.6	23.1	23.7	23.6	24.1	24.6
	6H	23.2	23.7	23.7	24.1	24.7	23.2	23.7	23.7	24.1	24.7
	8H	23.2	23.6	23.7	24.1	24.7	23.2	23.6	23.7	24.1	24.7

Maximum UGR = 24.8

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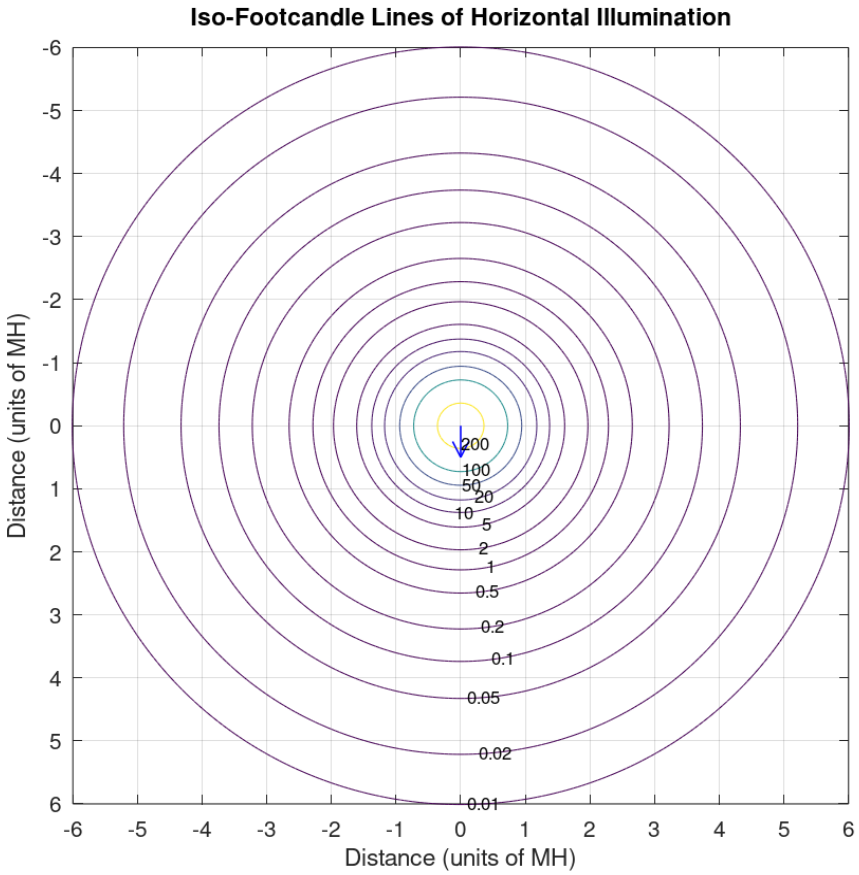
Iso-Illuminance Plot



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	25.4	°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.