LightLab INTERNATIONAL ALLENTOWN LLC

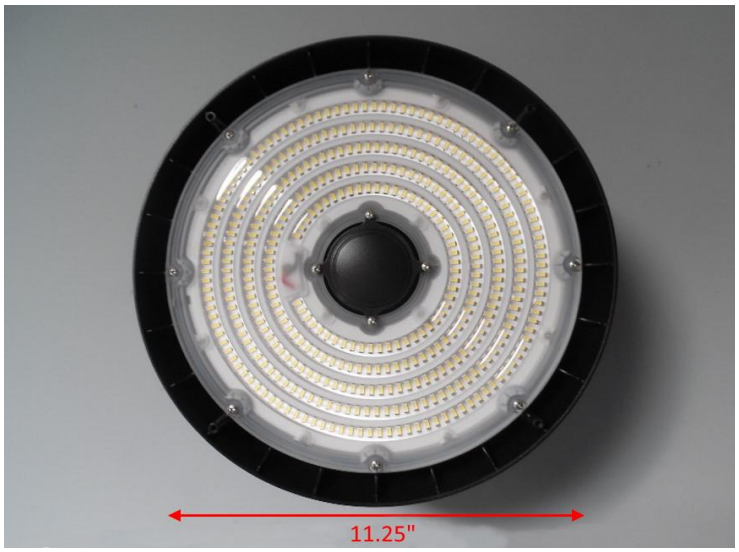
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001538-002

Indoor Distribution Photometry Test Report

Catalog Number: HBC/150W/50K/BL
Suspended downlight, cast aluminum luminaire and driver housings, clear plastic enclosure with concentric lenses.
409 white LEDs on white circuit board
One Sosen SS-150CNL-260BH LED driver



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

Performance Summary					
Input Voltage	120.0	V	Luminous Flux	23201.7	Lumens
Input Current	1.275	A	Total Efficacy	151.8	Lm/W
Input Power	152.8	W	Downward Flux	23201.7	Lumens
Frequency	60.01	Hz	Downward Flux	100.0	% of Total
Power Factor	0.998				
Current THD	4.3	%			

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

USA west coast LightLab International, LLC, 24825 N. 16th Avenue, Suite 125, Phoenix, AZ, 85085, Ph : +1 623-434-1499, Fx : +1 623-434-1492, www.lightlabint.com
USA east coast LightLab Int'l Allentown LLC, 905 Harrison Street, Suite 135, Allentown, PA 18103, Ph: +1 484-273-0705, www.lightlaballentown.com (issuing laboratory)
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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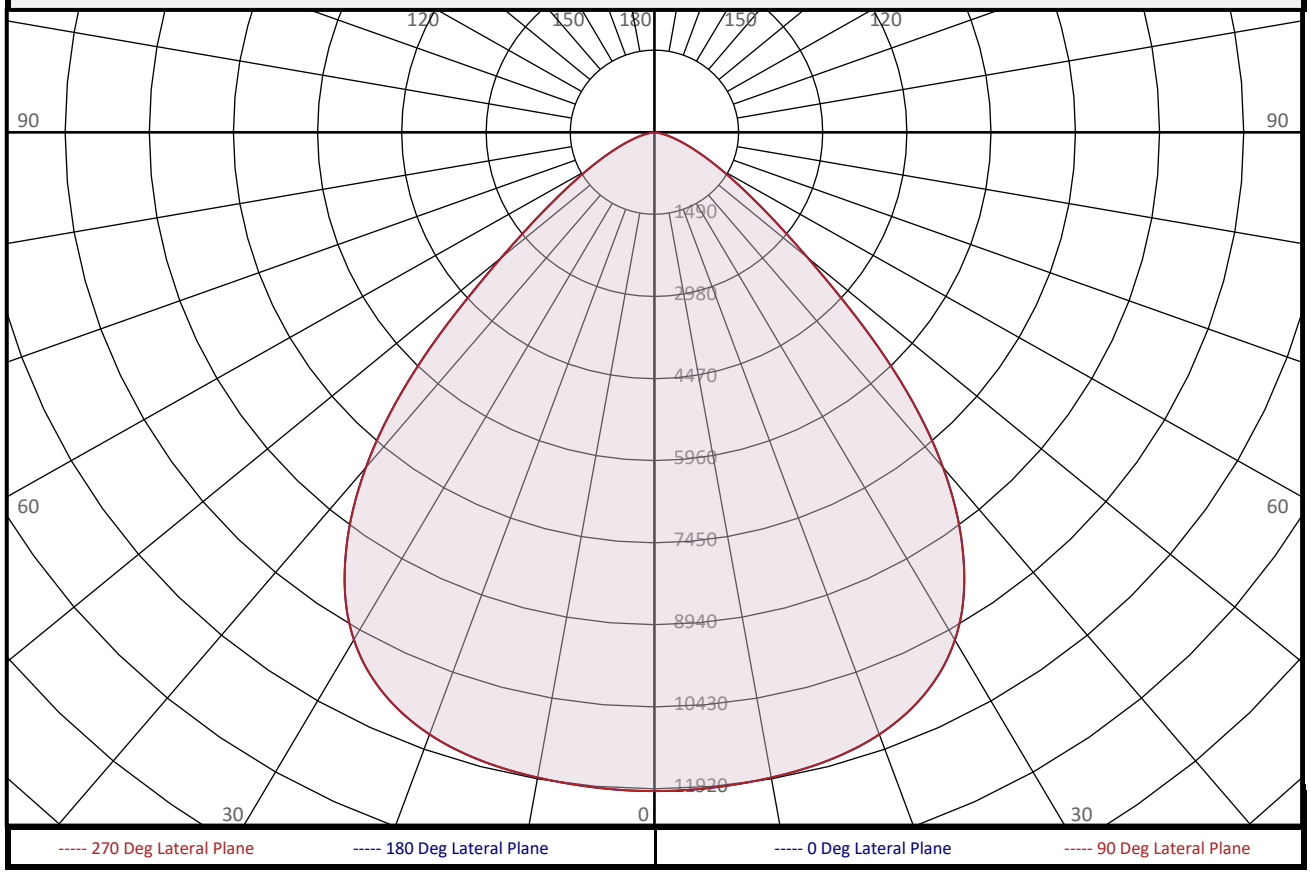
Polar Plot of Candela



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	1139	4.9%	90-100	0.0	0.0%	0-20	4478	19.3%
10-20	3339	14.4%	100-110	0.0	0.0%	0-30	9661	41.6%
20-30	5183	22.3%	110-120	0.0	0.0%	0-40	15572	67.1%
30-40	5910	25.5%	120-130	0.0	0.0%	0-60	22003	94.8%
40-50	4405	19.0%	130-140	0.0	0.0%	0-80	23161	99.8%
50-60	2025	8.7%	140-150	0.0	0.0%	10-90	22063	95.1%
60-70	869.0	3.7%	150-160	0.0	0.0%	20-50	15499	66.8%
70-80	289.0	1.2%	160-170	0.0	0.0%	40-90	7630	32.9%
80-90	41.1	0.2%	170-180	0.0	0.0%	60-90	1199	5.2%
0-90	23202	100.0%	90-180	0.0	0.0%	0-180	23202	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	11957	11957	11957	11957	11957	11957	11957	11957	11957
2.5	11953	11953	11953	11953	11953	11953	11953	11953	11953
5	11939	11939	11939	11939	11939	11939	11939	11939	11939
7.5	11918	11918	11918	11918	11918	11918	11918	11918	11918
10	11893	11893	11893	11893	11893	11893	11893	11893	11893
12.5	11859	11859	11859	11859	11859	11859	11859	11859	11859
15	11811	11811	11811	11811	11811	11811	11811	11811	11811
17.5	11738	11738	11738	11738	11738	11738	11738	11738	11738
20	11631	11631	11631	11631	11631	11631	11631	11631	11631
22.5	11480	11480	11480	11480	11480	11480	11480	11480	11480
25	11276	11276	11276	11276	11276	11276	11276	11276	11276
27.5	11002	11002	11002	11002	11002	11002	11002	11002	11002
30	10637	10637	10637	10637	10637	10637	10637	10637	10637
32.5	10159	10159	10159	10159	10159	10159	10159	10159	10159
35	9548	9548	9548	9548	9548	9548	9548	9548	9548
37.5	8817	8817	8817	8817	8817	8817	8817	8817	8817
40	7949	7949	7949	7949	7949	7949	7949	7949	7949
42.5	6937	6937	6937	6937	6937	6937	6937	6937	6937
45	5781	5781	5781	5781	5781	5781	5781	5781	5781
47.5	4563	4563	4563	4563	4563	4563	4563	4563	4563
50	3540	3540	3540	3540	3540	3540	3540	3540	3540
52.5	2774	2774	2774	2774	2774	2774	2774	2774	2774
55	2188	2188	2188	2188	2188	2188	2188	2188	2188
57.5	1738	1738	1738	1738	1738	1738	1738	1738	1738
60	1381	1381	1381	1381	1381	1381	1381	1381	1381
62.5	1090	1090	1090	1090	1090	1090	1090	1090	1090
65	850	850	850	850	850	850	850	850	850
67.5	659	659	659	659	659	659	659	659	659
70	500	500	500	500	500	500	500	500	500
72.5	367	367	367	367	367	367	367	367	367
75	262	262	262	262	262	262	262	262	262
77.5	174	174	174	174	174	174	174	174	174
80	106	106	106	106	106	106	106	106	106
82.5	64	64	64	64	64	64	64	64	64
85	33	33	33	33	33	33	33	33	33
87.5	6	6	6	6	6	6	6	6	6
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	97		98	96	94		95	93	92	90
2	104	98	93	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		72	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	48		71	61	53	48		59	53	48		58	52	48		57	51	47	46
8	68	56	49	44		67	56	49	44		55	48	44		53	48	43		52	47	43	41
9	64	52	45	40		63	52	45	40		51	44	40		50	44	40		49	43	39	38
10	60	48	41	37		59	48	41	37		47	41	36		46	40	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	332.1	7.75	7.75
8.0	186.8	10.33	10.33
10.0	119.6	12.91	12.91
12.0	83.0	15.49	15.49
14.0	61.0	18.08	18.08
16.0	46.7	20.66	20.66

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	186452	186452	186452
45	127484	127484	127484
55	59494	59494	59494
65	31376	31376	31376
75	15806	15806	15806
85	5854	5854	5854

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	22.5	23.8	22.8	24.1	24.4	22.5	23.8	22.8	24.1	24.4
	3H	23.1	24.2	23.4	24.6	24.9	23.1	24.2	23.4	24.6	24.9
	4H	23.1	24.2	23.5	24.6	25.0	23.1	24.2	23.5	24.6	25.0
	6H	23.2	24.2	23.6	24.5	24.9	23.2	24.2	23.6	24.5	24.9
	8H	23.1	24.1	23.6	24.5	24.9	23.1	24.1	23.6	24.5	24.9
	12H	23.1	24.0	23.5	24.4	24.8	23.1	24.0	23.5	24.4	24.8
4H	2H	22.6	23.7	23.0	24.1	24.5	22.6	23.7	23.0	24.1	24.5
	3H	23.4	24.2	23.8	24.7	25.1	23.4	24.2	23.8	24.7	25.1
	4H	23.5	24.3	23.9	24.7	25.2	23.5	24.3	23.9	24.7	25.2
	6H	23.6	24.2	24.0	24.7	25.2	23.6	24.2	24.0	24.7	25.2
	8H	23.5	24.2	24.0	24.6	25.1	23.5	24.2	24.0	24.6	25.1
	12H	23.5	24.1	24.0	24.5	25.0	23.5	24.1	24.0	24.5	25.0
8H	4H	23.5	24.1	24.0	24.6	25.0	23.5	24.1	24.0	24.6	25.0
	6H	23.5	24.1	24.0	24.6	25.0	23.5	24.1	24.0	24.6	25.0
	8H	23.5	24.0	24.1	24.5	25.0	23.5	24.0	24.1	24.5	25.0
	12H	23.5	23.9	24.0	24.4	25.0	23.5	23.9	24.0	24.4	25.0
12H	4H	23.4	24.0	23.9	24.5	25.0	23.4	24.0	23.9	24.5	25.0
	6H	23.5	24.0	24.0	24.4	25.0	23.5	24.0	24.0	24.4	25.0
	8H	23.5	23.9	24.0	24.4	25.0	23.5	23.9	24.0	24.4	25.0

Maximum UGR = 25.2

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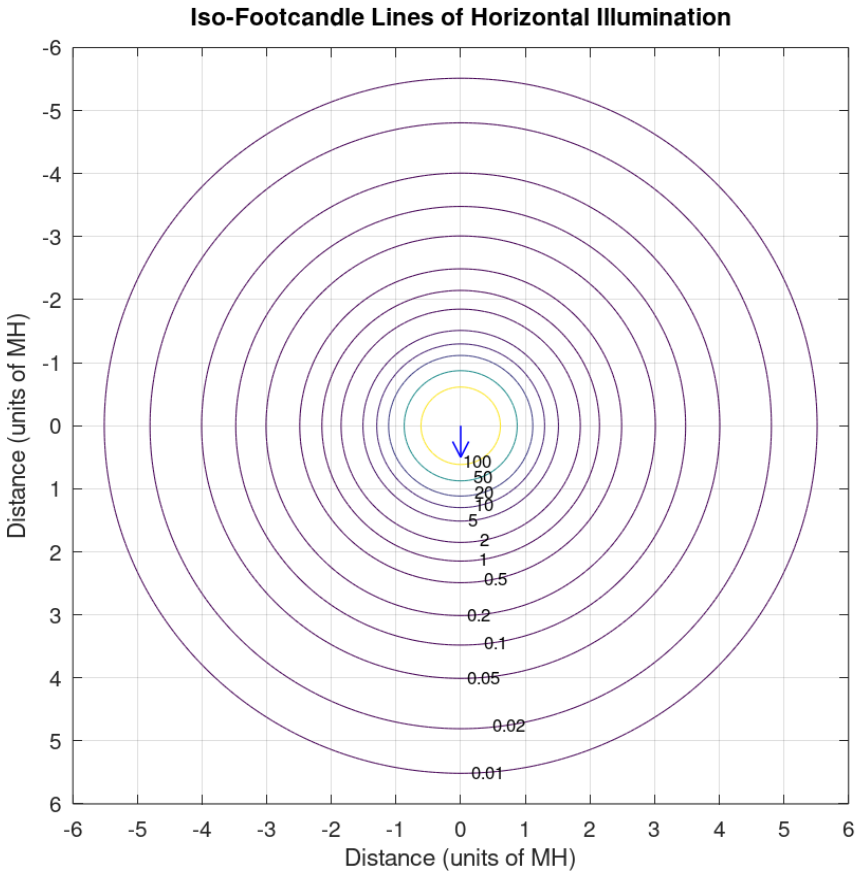
Iso-Illuminance Plot



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	25.5	°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.