LightLab INTERNATIONAL ALLENTOWN LLC

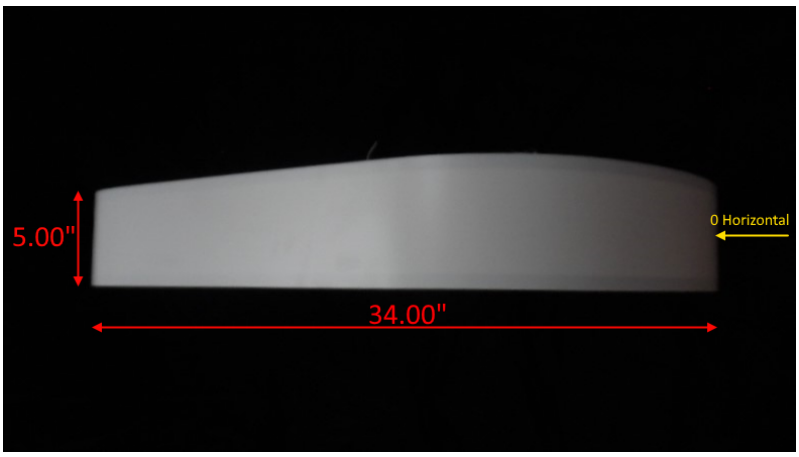
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001912-002-R01*

Indoor Distribution Photometry Test Report

Catalog Number: NEXUS 34" x 5" Drum Pendant
Suspended mounted, formed white painted steel housing, diffuse white plastic perimeter with diffuse white plastic bottom enclosure, frosted side down.
480 white LEDs on Q-Tran 3500K 5W/FT Light Strips. 473 LEDs visible.
One ERP VZM100W-24 LED driver



Prepared For:
Lumetta, Inc
33 Minnesota Avenue
Warwick, RI 02888, USA

Performance Summary					
Input Voltage	120.0	Vac	Luminous Flux	4498.7	Lumens
Input Current	0.6104	A	Total Efficacy	62.2	Lm/W
Input Power	72.34	W	Downward Flux	4228.3	Lumens
Frequency	60.00	Hz	Downward Flux	94.0	% of Total
Power Factor	0.988				
Current THD	13.8	%			

*This test report supersedes previous versions - see the end of this report for a list of revisions

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

Test date: 10/20/2022
Report date: 10/24/2022

Signed: Michael L. Grather

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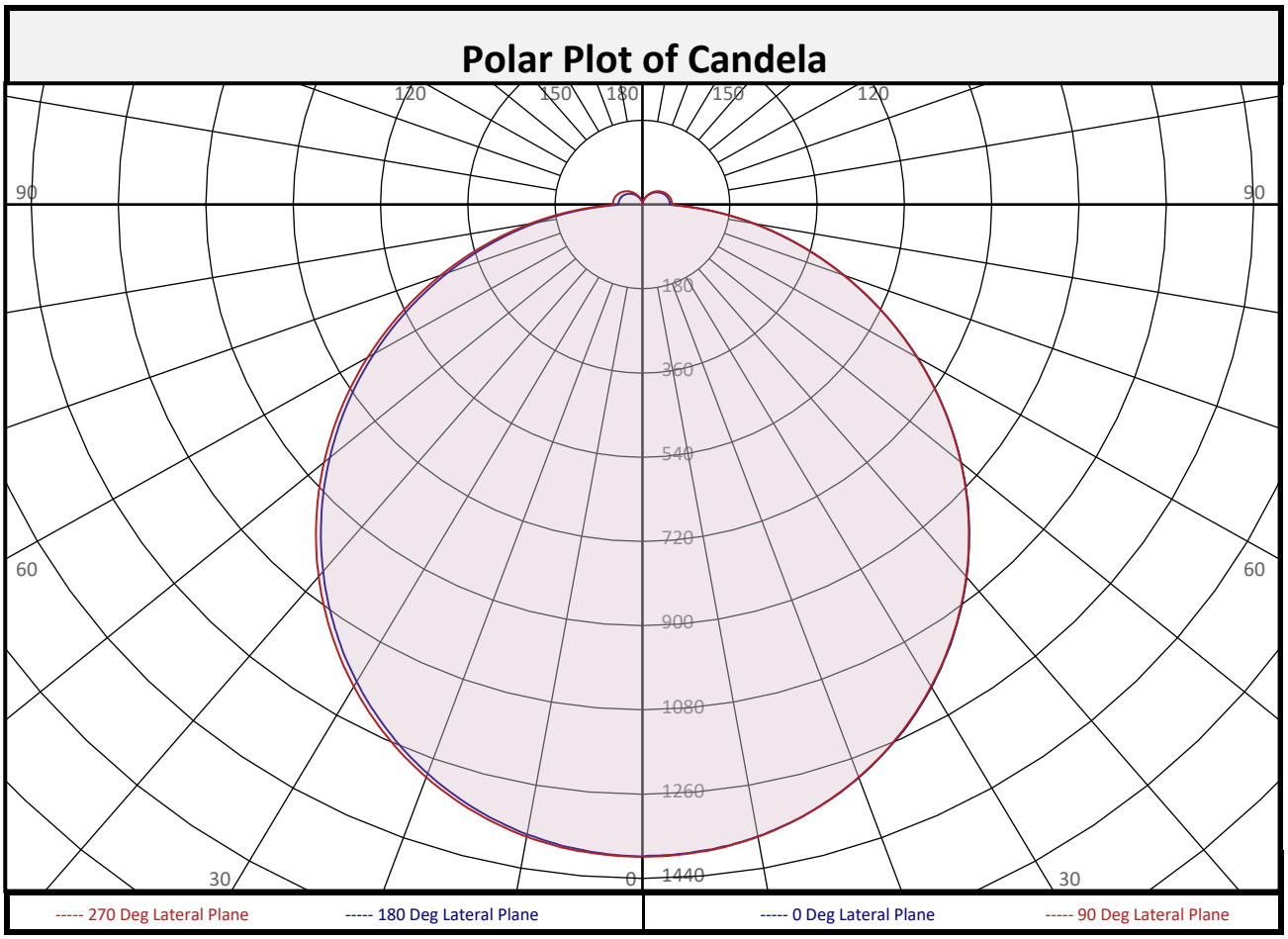

Zonal Flux Summary

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	132.0	2.9%	90-100	62.0	1.4%	0-20	510.7	11.4%
10-20	378.7	8.4%	100-110	58.2	1.3%	0-30	1087	24.2%
20-30	575.9	12.8%	110-120	50.7	1.1%	0-40	1785	39.7%
30-40	698.0	15.5%	120-130	40.4	0.9%	0-60	3190	70.9%
40-50	730.9	16.2%	130-140	29.0	0.6%	0-80	4082	90.7%
50-60	674.1	15.0%	140-150	17.9	0.4%	10-90	4096	91.1%
60-70	539.7	12.0%	150-160	8.8	0.2%	20-50	2005	44.6%
70-80	352.5	7.8%	160-170	2.9	0.1%	40-90	2444	54.3%
80-90	146.5	3.3%	170-180	0.4	0.0%	60-90	1039	23.1%
0-90	4228	94.0%	90-180	270.4	6.0%	0-180	4499	100.0%

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Luminous Intensity (Candela) Table

Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	Lateral (C-Plane) Angles									
	0	22.5	45	67.5	90	112.5	135	157.5	180
0	1394	1394	1394	1394	1394	1394	1394	1394	1394
2.5	1391	1392	1392	1392	1393	1392	1392	1391	1391
5	1387	1388	1388	1388	1388	1388	1387	1386	1385
7.5	1381	1381	1382	1382	1382	1381	1381	1379	1377
10	1371	1372	1372	1372	1372	1371	1369	1368	1367
12.5	1358	1359	1359	1359	1359	1358	1357	1354	1353
15	1343	1343	1344	1343	1343	1342	1340	1338	1337
17.5	1325	1325	1325	1325	1324	1323	1321	1319	1317
20	1303	1304	1303	1303	1303	1301	1300	1296	1294
22.5	1279	1279	1279	1279	1279	1277	1275	1271	1269
25	1253	1252	1253	1252	1251	1250	1247	1243	1241
27.5	1223	1223	1223	1223	1222	1220	1218	1214	1211
30	1191	1190	1190	1191	1189	1188	1185	1181	1178
32.5	1156	1156	1156	1156	1155	1153	1150	1145	1143
35	1120	1119	1119	1119	1118	1116	1113	1109	1106
37.5	1081	1080	1080	1080	1079	1077	1074	1069	1066
40	1039	1038	1039	1039	1038	1036	1033	1027	1024
42.5	996	995	996	996	995	994	990	984	981
45	951	951	951	951	951	949	945	939	936
47.5	905	904	904	905	904	903	899	893	890
50	858	856	857	857	857	855	851	845	841
52.5	808	807	807	808	807	806	802	795	792
55	758	756	757	758	757	756	752	745	742
57.5	706	705	706	707	706	705	701	694	692
60	654	653	654	655	655	653	650	642	640
62.5	601	600	601	602	602	601	597	589	587
65	548	547	547	549	549	548	544	537	534
67.5	495	493	494	495	496	495	492	484	481
70	441	439	440	442	443	442	439	431	428
72.5	388	386	388	389	390	390	386	378	376
75	335	333	335	337	337	337	334	326	324
77.5	283	281	283	285	286	286	282	275	272
80	232	230	231	233	235	235	231	224	222
82.5	182	180	181	183	185	185	182	174	172
85	133	131	132	134	136	136	133	126	123
87.5	86	84	85	88	89	90	87	79	77
90	56	54	56	59	61	62	59	52	49

16 lateral half-planes of data were acquired, 22.5 degree increments shown.

Report of Test

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Luminous Intensity (Candela) Table

Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	Lateral (C-Plane) Angles									
		0	22.5	45	67.5	90	112.5	135	157.5	180
	90	56	54	56	59	61	62	59	52	49
	92.5	56	54	56	59	61	62	59	52	50
	95	56	54	56	59	61	62	59	52	49
	97.5	56	54	56	59	60	61	59	52	49
	100	55	54	55	58	60	61	58	51	49
	102.5	55	53	55	58	59	60	58	51	48
	105	54	52	54	57	59	60	57	50	48
	107.5	54	52	53	56	58	59	56	50	47
	110	53	51	52	55	57	58	56	49	47
	112.5	52	50	51	54	56	57	54	48	46
	115	50	49	50	53	55	55	53	47	45
	117.5	49	47	49	52	53	54	52	46	43
	120	48	46	47	50	52	52	50	45	42
	122.5	46	44	46	48	50	50	49	43	41
	125	44	43	44	47	48	49	47	42	39
	127.5	42	41	42	45	46	47	45	40	38
	130	41	39	40	43	44	45	43	38	36
	132.5	39	37	38	41	42	43	41	37	34
	135	37	35	36	39	40	40	39	35	33
	137.5	35	33	34	37	38	38	37	33	31
	140	32	31	32	34	35	36	35	31	29
	142.5	30	29	30	32	33	33	32	29	27
	145	28	27	27	29	30	31	30	26	24
	147.5	25	24	25	27	28	28	27	24	23
	150	23	22	23	24	25	25	25	22	20
	152.5	21	20	20	22	23	23	22	20	18
	155	18	17	18	19	20	20	20	18	16
	157.5	16	15	16	17	18	18	17	15	14
	160	14	13	13	15	15	15	15	13	12
	162.5	11	11	11	12	13	13	13	11	11
	165	9	9	9	10	11	11	10	10	9
	167.5	7	7	7	8	9	9	9	8	7
	170	6	6	6	6	7	7	7	6	6
	172.5	4	5	4	5	5	5	5	5	5
	175	3	3	3	3	3	4	4	3	3
	177.5	3	3	3	3	3	3	3	3	3
	180	0	0	0	0	0	0	0	0	0

16 lateral half-planes of data were acquired, 22.5 degree increments shown.

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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	118	118	118	118		114	114	114	114		108	108	108		102	102	102		97	97	97	94
1	107	101	97	93		103	99	94	91		93	90	87		88	85	83		84	81	79	77
2	96	88	81	75		93	85	79	73		81	75	71		77	72	68		73	69	66	63
3	88	77	68	62		85	75	67	61		71	64	59		67	62	57		64	59	55	53
4	80	68	59	52		77	66	58	51		63	56	50		60	54	49		57	52	47	45
5	74	60	51	45		71	59	50	44		56	49	43		54	47	42		51	45	41	39
6	68	54	45	39		66	53	45	38		51	43	37		48	42	37		46	40	36	34
7	63	49	40	34		61	48	40	34		46	39	33		44	37	32		42	36	32	30
8	58	45	36	30		57	44	36	30		42	35	29		40	34	29		39	33	28	26
9	55	41	33	27		53	40	32	27		39	32	27		37	31	26		36	30	26	24
10	51	38	30	25		50	37	30	24		36	29	24		34	28	24		33	27	23	21

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	38.7	7.58	7.61
8.0	21.8	10.10	10.15
10.0	13.9	12.63	12.68
12.0	9.7	15.16	15.22
14.0	7.1	17.68	17.76
16.0	5.4	20.21	20.29

Spacing Criterion

0 deg:	1.3
90 deg:	1.3
180 deg:	1.3
270 deg:	1.3

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	3050	3050	3050
45	2427	2399	2373
55	2215	2182	2152
65	1947	1906	1877
75	1578	1532	1505
85	969	923	911

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 115.2°

Field Angle: 168.8°

90-270 Degree Plane

Beam Angle: 115.9°

Field Angle: 169.6°

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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	13.1	14.6	13.6	15.1	15.5	13.2	14.7	13.6	15.1	15.6
	3H	15.0	16.4	15.4	16.8	17.3	15.1	16.4	15.5	16.9	17.4
	4H	15.7	17.0	16.2	17.5	18.0	15.8	17.1	16.3	17.6	18.1
	6H	16.3	17.5	16.8	18.0	18.5	16.4	17.6	16.9	18.1	18.6
	8H	16.4	17.6	17.0	18.1	18.7	16.6	17.8	17.1	18.3	18.8
	12H	16.6	17.7	17.1	18.2	18.8	16.7	17.9	17.3	18.4	18.9
4H	2H	13.7	15.0	14.2	15.5	16.0	13.8	15.1	14.3	15.5	16.1
	3H	15.8	16.9	16.3	17.4	17.9	15.8	17.0	16.3	17.5	18.0
	4H	16.6	17.6	17.1	18.2	18.7	16.7	17.7	17.2	18.2	18.8
	6H	17.3	18.2	17.9	18.8	19.3	17.4	18.3	18.0	18.9	19.5
	8H	17.6	18.4	18.1	19.0	19.6	17.7	18.5	18.2	19.1	19.7
	12H	17.8	18.5	18.4	19.1	19.7	17.9	18.7	18.5	19.3	19.9
8H	4H	16.9	17.8	17.5	18.3	18.9	17.0	17.8	17.6	18.4	19.0
	6H	17.8	18.5	18.3	19.1	19.7	17.9	18.6	18.4	19.2	19.8
	8H	18.1	18.7	18.7	19.3	19.9	18.2	18.8	18.8	19.5	20.1
	12H	18.4	18.9	19.0	19.5	20.2	18.5	19.1	19.1	19.7	20.3
12H	4H	17.0	17.7	17.6	18.3	18.9	17.1	17.8	17.6	18.4	19.0
	6H	17.8	18.5	18.5	19.0	19.7	17.9	18.6	18.6	19.1	19.8
	8H	18.2	18.8	18.8	19.4	20.0	18.3	18.9	18.9	19.5	20.2

Maximum UGR = 20.3

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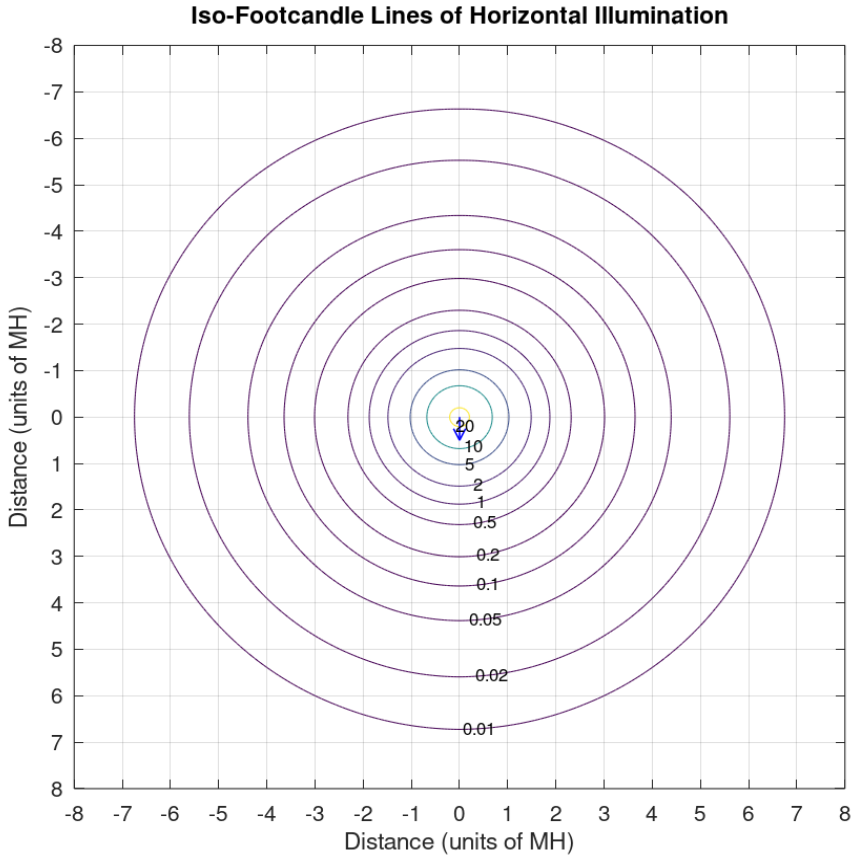
Iso-Illuminance Plot



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

Report of Test

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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-41-20 and LM-46-20.

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.

Revision History: R01 - 10/24/2022 - Revised dimension on luminaire photo