

IES Report

ZipOne® | 707 | 100° Asymmetric | 90 CRI | SO

707-Z1-4-48-X-XX-X-0-Z-SO-359-A2-X-AL-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	98	101	103	105
Total Lumens, 4' rail length (1219mm)	2554	2634	2688	2742
Lumens per foot (305mm)	638	659	672	686
Input Power (W), 4' rail length (1219mm)	26.1	26.1	26.1	26.1
Watts per foot (305mm)	6.6	6.6	6.6	6.6
CRI	96	96	96	96

Due to the large number of options in Vode's product offering, most Vode IES reports are factored reports prepared from source reports. Source reports are the IES test reports prepared for Vode by an NVLAP accredited photometric test laboratory. Factored reports are based on data from the Vode source reports.

If the data above is in black, it is directly from a Vode source report. If it is in grey, it is factored from Vode source reports. Reference details on Vode source reports can be found on the [IES File Finder](#) page on [vode.com](#).

Report No: L101707606 **Issue Date:** 11/1/2017

Report Prepared For: Vode Lighting
21684 8th Street East, Suite 700, Sonoma, CA 95476

Model Number: 707-Z1-48-Z-SO-359-A2

Test: Photometric/Colorimetric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:
IESNA LM79: 2008 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products
ANSI C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 10/26/17

Date of Tests: 10/27/17 - 11/1/17

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	11/28/17
ITECH	IT6122	PS-DC03-S1	11/28/17
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/28/17
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

Test Summary

Manufacturer:	Vode Lighting
Model Number:	707-Z1-48-Z-SO-359-A2
Driver Model Number:	MEAN WELL HLG-40H-36A
Total Lumens:	2688.25
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.22
Input Power (W):	26.13
Input Power Factor:	0.99
Current ATHD @ 120V(%):	9%
Current ATHD @ 277V(%):	N/A
Efficacy:	103
Color Rendering Index (CRI):	95
Correlated Color Temperature (K):	3371
Chromaticity Coordinate x:	0.4110
Chromaticity Coordinate y:	0.3900
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:40

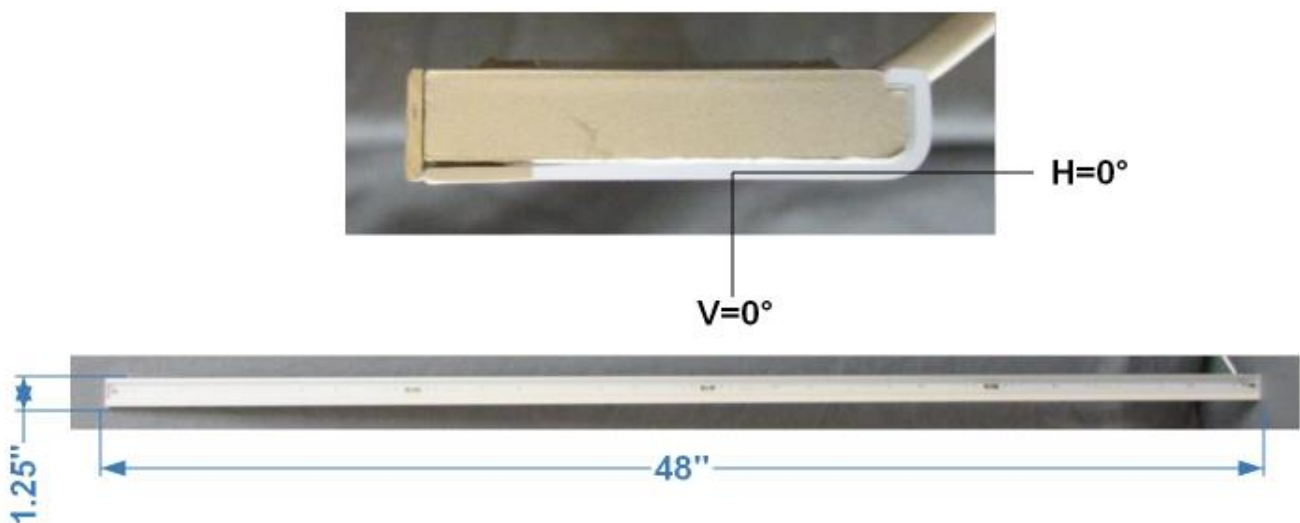
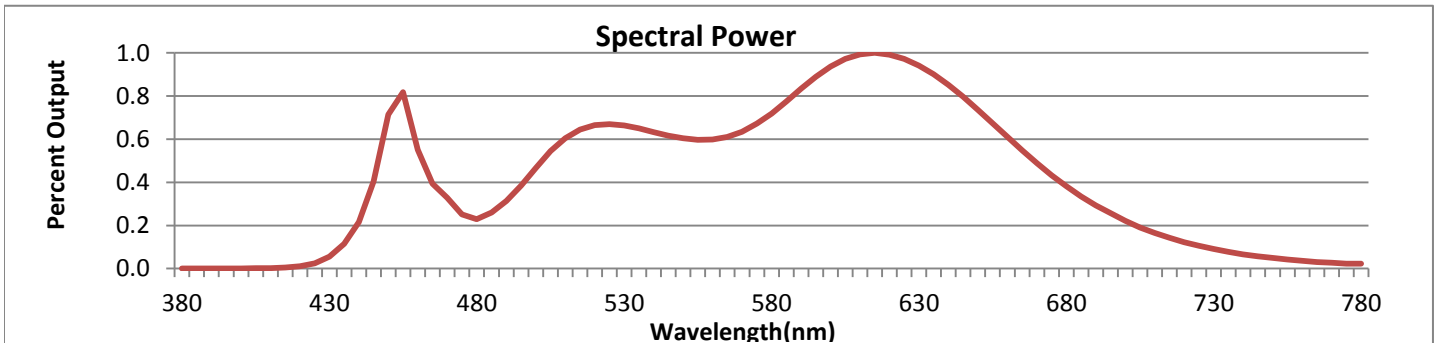


FIG. 1 LUMINAIRE

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.



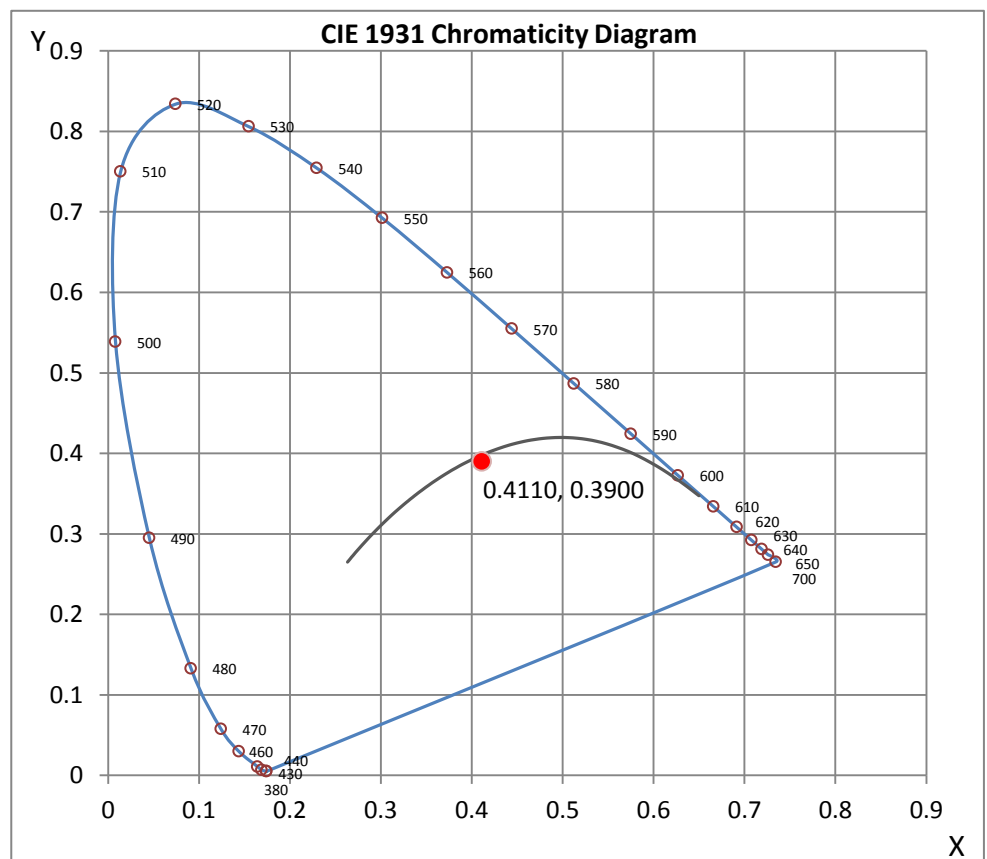
Wavelength	W/m ² nm	440	0.2164	510	0.6047	580	0.7191	650	0.7363	720	0.1228
380	0.0009	450	0.7139	520	0.6658	590	0.8339	660	0.6113	730	0.0904
390	0.0009	460	0.5504	530	0.6636	600	0.9374	670	0.4881	740	0.0663
400	0.0012	470	0.3286	540	0.6325	610	0.9932	680	0.3813	750	0.0490
410	0.0025	480	0.2287	550	0.6038	620	0.9919	690	0.2927	760	0.0360
420	0.0109	490	0.3141	560	0.5979	630	0.9407	700	0.2211	770	0.0269
430	0.0548	500	0.4670	570	0.6343	640	0.8523	710	0.1654	780	0.0230

CRI & CCT

x	0.4110
y	0.3900
u'	0.2397
v'	0.5118
CRI	95.40
CCT	3371
Duv	-0.00152

R Values

R1	97.02
R2	98.30
R3	98.93
R4	95.35
R5	97.04
R6	93.61
R7	94.19
R8	89.14
R9	74.60
R10	96.98
R11	88.17
R12	83.01
R13	96.56
R14	98.65



*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Keyur Patel

Test Report Released by:



Jeff Ahn
Engineering Manager

Test Report Reviewed by:



Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 11*



8165 E. Kaiser Blvd. Anaheim, CA 92808
 www.lightlaboratory.com

Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101707606.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L101707606
 [TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
 [ISSUEDATE] 11/1/2017
 [MANUFAC] Vode Lighting
 [LUMCAT] 707-Z1-48-Z-SO-359-A2
 [LUMINAIRE] ZipOne LED, 48", 3500K, 90 CRI, zipper board,
 [MORE] 100° asymmetric lens, standard output
 [BALLASTCAT] MEAN WELL HLG-40H-36A
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 120VAC, 26.13W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2688
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	103
Total Luminaire Watts	26.13
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.36
Spacing Criterion (90-270)	1.26
Spacing Criterion (Diagonal)	1.20
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.06 ft
Luminous Width (90-270)	3.98 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	57381	55916	48720
55	54252	51975	42632
65	48590	45606	34418
75	41758	37931	25403
85	36169	29968	13951

IES INDOOR REPORT
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CANDELA TABULATION

	<u>0</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>35</u>	<u>40</u>	<u>45</u>
0	1217	1217	1217	1217	1217	1217	1217	1217	1217	1217
5	1246	1245	1245	1245	1244	1243	1242	1240	1239	1237
10	1255	1254	1254	1253	1252	1251	1249	1247	1245	1242
15	1244	1244	1243	1243	1241	1240	1239	1236	1234	1231
20	1218	1218	1218	1217	1216	1215	1213	1211	1208	1205
25	1178	1178	1178	1177	1177	1175	1173	1171	1169	1166
30	1126	1126	1126	1125	1124	1123	1121	1119	1117	1114
35	1063	1062	1062	1061	1059	1058	1056	1053	1051	1048
40	988	988	987	986	984	982	979	976	973	970
45	901	900	899	898	895	892	889	886	882	878
50	802	801	800	798	795	792	788	784	780	775
55	691	690	689	687	684	681	677	672	667	662
60	574	574	573	571	568	564	560	555	550	544
65	456	456	455	453	450	446	443	438	433	428
70	343	343	342	340	338	335	331	328	324	319
75	240	240	239	237	235	233	230	226	222	218
80	147	146	146	144	143	140	138	136	133	129
85	70	69	69	68	67	66	64	62	60	58
90	19	18	18	18	17	17	16	15	14	13
95	16	16	16	15	15	14	14	13	12	12
100	15	15	15	15	14	14	13	13	12	11
105	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0

Vert. Angles **Horizontal Angles**

	<u>50</u>	<u>55</u>	<u>60</u>	<u>65</u>	<u>70</u>	<u>75</u>	<u>80</u>	<u>85</u>	<u>90</u>	<u>95</u>
0	1217	1217	1217	1217	1217	1217	1217	1217	1217	1217
5	1235	1233	1230	1228	1225	1222	1218	1215	1212	1208
10	1239	1235	1231	1227	1222	1216	1210	1203	1196	1189
15	1227	1222	1218	1212	1205	1198	1190	1180	1169	1157
20	1201	1197	1192	1186	1178	1169	1158	1146	1132	1116
25	1162	1158	1152	1146	1137	1127	1115	1100	1082	1061
30	1110	1106	1100	1093	1085	1074	1060	1042	1021	995
35	1044	1040	1034	1027	1019	1007	992	973	948	916
40	966	961	956	949	940	927	911	890	863	827
45	873	868	862	855	846	834	817	795	765	724
50	769	764	757	750	741	728	711	688	657	615
55	656	650	643	635	625	613	596	573	543	502
60	538	531	524	516	507	495	479	458	430	391

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CANDELA TABULATION - (Cont.)

65	422	415	408	400	390	379	365	347	323	292
70	313	307	300	293	284	274	262	247	228	205
75	213	208	203	196	189	181	172	160	146	130
80	126	122	117	113	107	101	95	87	79	70
85	55	53	50	47	43	39	35	31	27	24
90	12	11	10	8	7	5	3	2	0	0
95	11	10	9	8	6	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0

Vert. Horizontal Angles

	<u>100</u>	<u>105</u>	<u>110</u>	<u>115</u>	<u>120</u>	<u>125</u>	<u>130</u>	<u>135</u>	<u>140</u>	<u>145</u>
0	1217	1217	1217	1217	1217	1217	1217	1217	1217	1217
5	1204	1200	1196	1193	1189	1185	1182	1178	1175	1172
10	1181	1172	1163	1154	1145	1136	1126	1117	1109	1101
15	1144	1130	1115	1099	1082	1065	1049	1032	1016	1001
20	1097	1076	1054	1030	1003	977	951	923	898	872
25	1037	1009	977	944	906	868	830	792	754	720
30	965	928	888	844	795	744	695	646	602	561
35	879	834	785	728	671	613	555	501	455	414
40	783	731	673	610	544	482	423	372	330	294
45	677	618	555	490	423	364	312	269	235	207
50	565	505	442	378	318	268	225	192	167	147
55	453	396	332	285	235	195	164	139	121	108
60	339	301	250	207	170	141	118	101	88	79
65	256	218	181	149	122	101	85	73	65	58
70	178	151	125	103	84	70	60	51	45	41
75	113	96	82	66	54	45	39	33	30	27
80	61	51	42	35	29	25	21	18	16	15
85	21	18	15	12	10	9	8	7	6	6
90	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0

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CANDELA TABULATION - (Cont.)

140	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0

Vert. Horizontal Angles
Angles

	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0	1217	1217	1217	1217	1217	1217	1217
5	1170	1167	1166	1164	1163	1162	1162
10	1094	1088	1082	1078	1075	1073	1072
15	987	975	964	955	949	945	944
20	850	830	813	799	789	783	781
25	689	662	640	622	609	601	599
30	525	495	471	453	439	431	429
35	379	352	330	314	303	297	295
40	266	244	227	215	207	202	200
45	186	170	159	150	145	142	141
50	132	122	114	108	105	103	102
55	97	90	85	81	79	77	77
60	72	67	63	61	59	58	58
65	53	50	47	45	44	43	43
70	37	35	33	32	31	31	30
75	25	23	22	21	20	20	20
80	14	13	12	12	11	11	11
85	5	5	5	5	4	4	4
90	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101707606.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	432.51	N.A.	16.10
0-30	884.11	N.A.	32.90
0-40	1381.54	N.A.	51.40
0-60	2236.18	N.A.	83.20
0-80	2642.05	N.A.	98.30
0-90	2681.97	N.A.	99.80
10-90	2567.58	N.A.	95.50
20-40	949.03	N.A.	35.30
20-50	1418.66	N.A.	52.80
40-70	1119.88	N.A.	41.70
60-80	405.87	N.A.	15.10
70-80	140.63	N.A.	5.20
80-90	39.92	N.A.	1.50
90-110	6.28	N.A.	0.20
90-120	6.28	N.A.	0.20
90-130	6.28	N.A.	0.20
90-150	6.28	N.A.	0.20
90-180	6.28	N.A.	0.20
110-180	0.00	N.A.	0.00
0-180	2688.25	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	114.39
10-20	318.12
20-30	451.60
30-40	497.43
40-50	469.63
50-60	385.01
60-70	265.24
70-80	140.63
80-90	39.92
90-100	5.31
100-110	0.96
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

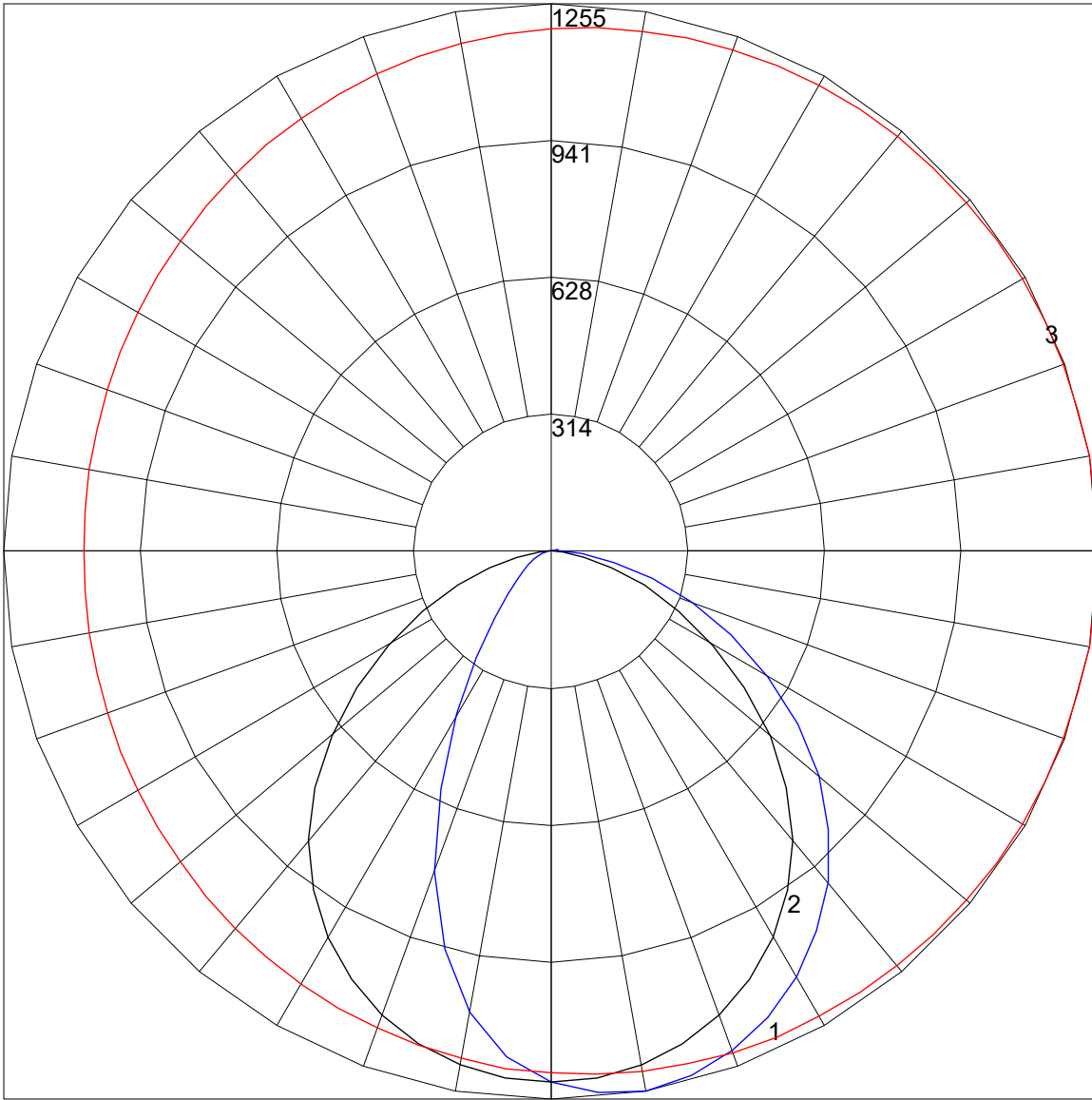
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101707606.IES

COEFFICIENTS OF 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
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	75	72
3	92	82	74	68	90	81	73	68	78	72	67	75	70	65	72	68	64	62
4	85	73	65	59	82	72	64	58	70	63	58	67	61	57	65	60	56	54
5	78	66	58	51	76	65	57	51	63	56	50	61	55	50	59	54	49	47
6	73	60	51	45	71	59	51	45	57	50	45	55	49	44	54	48	44	42
7	68	55	46	40	66	54	46	40	52	45	40	51	44	40	49	44	39	37
8	63	50	42	36	62	49	42	36	48	41	36	47	40	36	46	40	35	34
9	59	46	38	33	58	46	38	33	44	37	33	43	37	32	42	37	32	31
10	55	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	30	28

POLAR GRAPH



Maximum Candela = 1255 Located At Horizontal Angle = 0, Vertical Angle = 10
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Vertical Plane Through Horizontal Angles (90 - 270)
3 - Horizontal Cone Through Vertical Angle (10) (Through Max. Cd.)