



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

Report No: L101913201R01



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Issue Date: 11/6/2019

Report Prepared For: Airey-Thompson
 5310 Irwindale ave. Irwindale, CA 91706

Model Number: 20LN48-0-D10-AS1

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.

Special Test Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 10/28/19

Date of Tests: 10/29/19 - 10/30/19

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-S4	1/9/21
BK PRECISION	1747	PS-DC04	1/10/21
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/21
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

General Information

Manufacturer:	Airey-Thompson
Model Number:	20LN48-0-D10-AS1
Driver Model Number:	EVERLINE -D10CC30UNVPW-C

Test Summary

Total Lumens:	2743.57
Efficacy:	138.31
Color Redering Index:	84.6
Correlated Color Temperature:	3922
Input Voltage (VAC/60Hz):	119.98
Input Current (Amp):	0.1662
Input Power (W):	19.84
Input Power Factor:	0.9947
Current ATHD (%):	6.7%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:40
Total Operating Time (Hours):	2:15

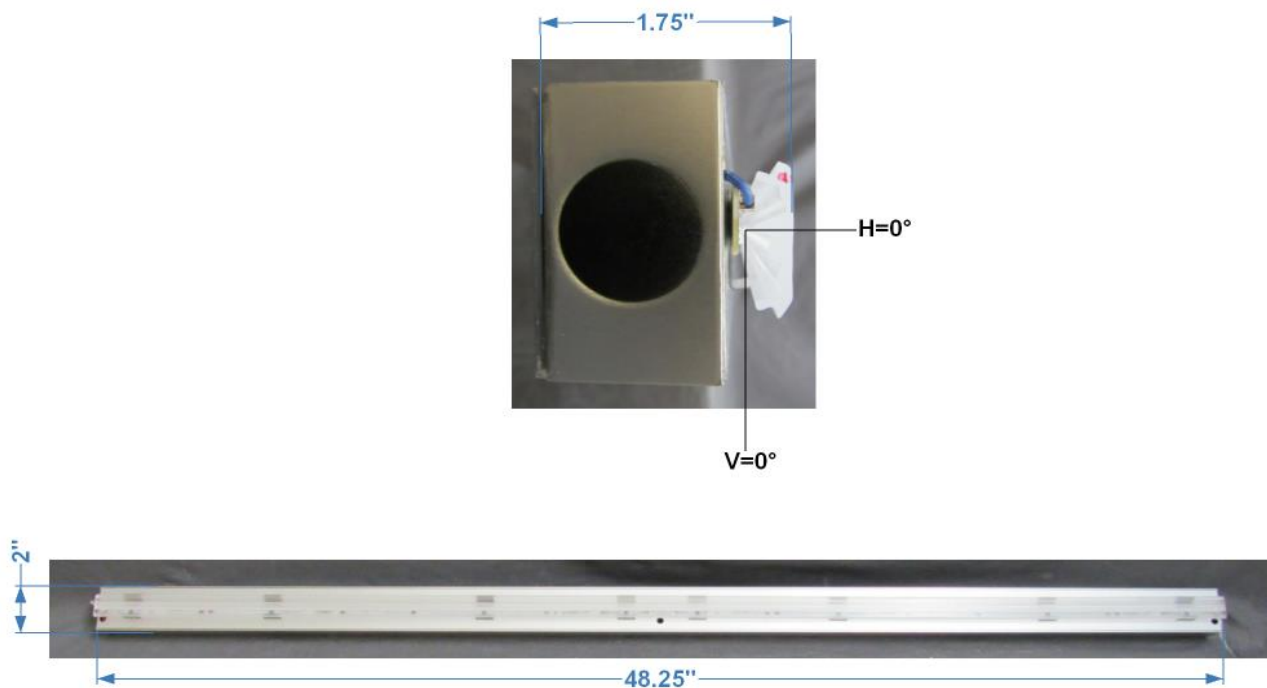
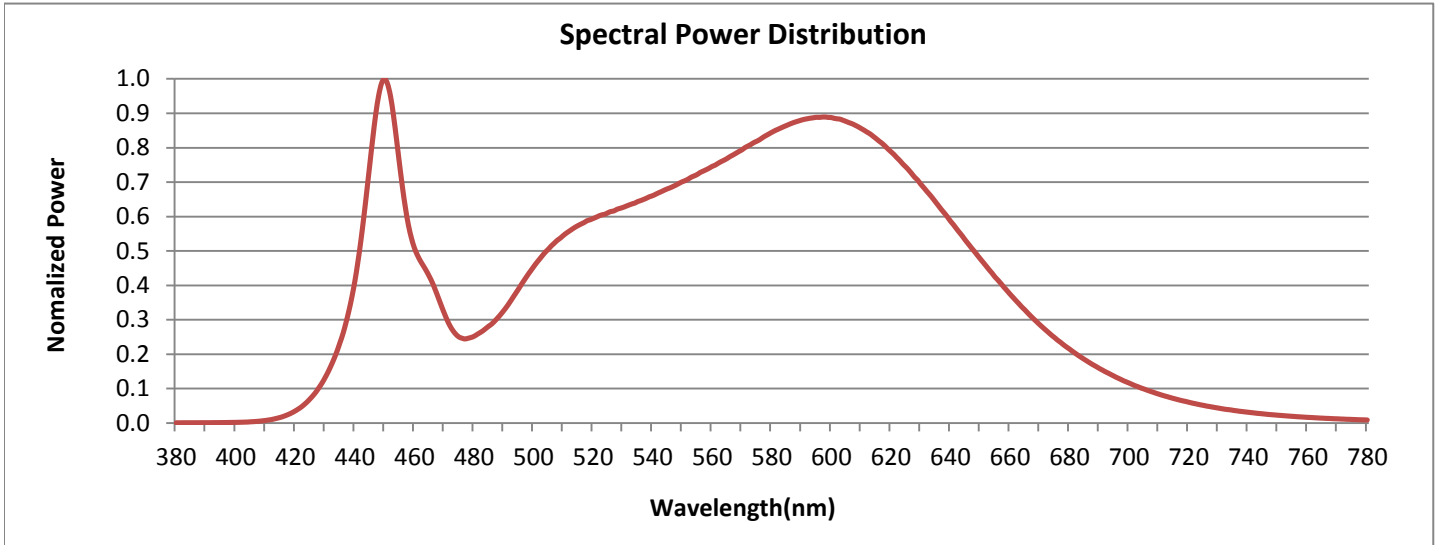


FIG. 1 LUMINAIRE

Colorimetry Test Results

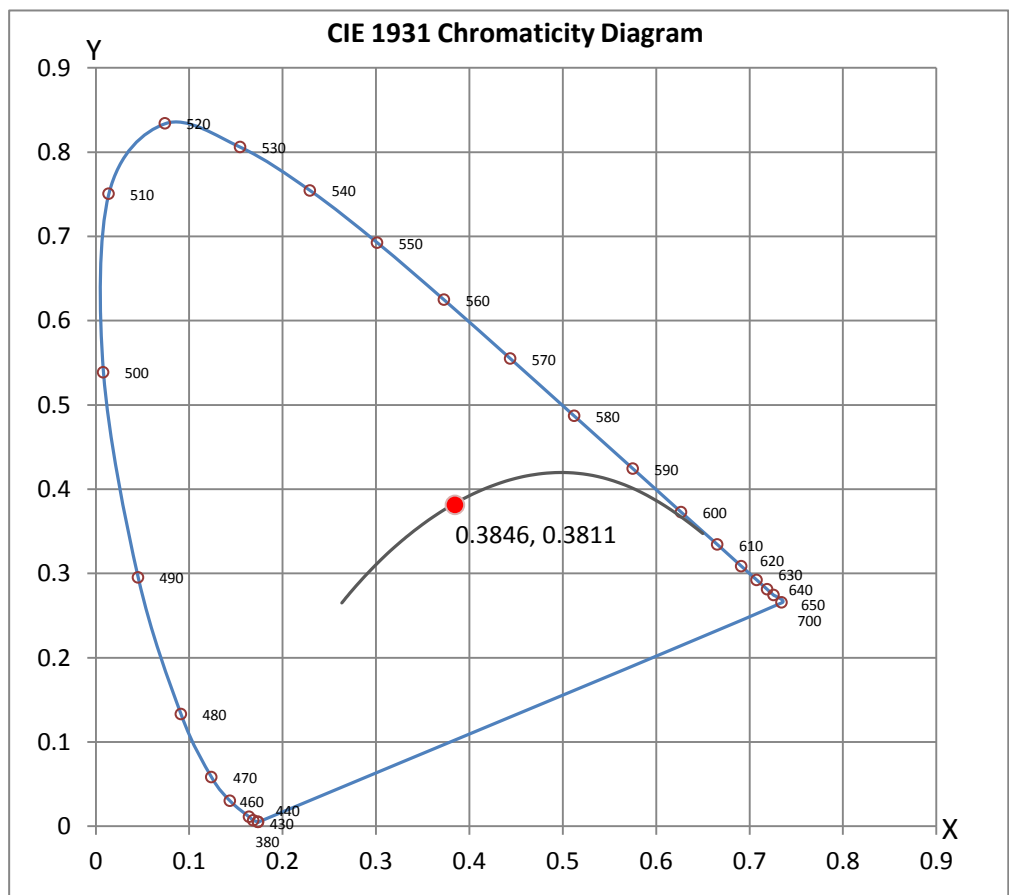


CRI & CCT

x	0.3846
y	0.3811
u'	0.2261
v'	0.5041
CRI	84.60
CCT	3922
Duv	0.00084

R Values

R1	82.94
R2	90.02
R3	95.58
R4	84.37
R5	83.45
R6	86.89
R7	86.90
R8	66.57
R9	14.66
R10	76.78
R11	84.15
R12	65.84
R13	84.64
R14	97.45
R15	76.77



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 Reviewed by:



Steve Kang
Quality Assurance

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



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 www.lightlaboratory.com

Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101913201R01.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L101913201R01
 [TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
 [ISSUEDATE] 11/6/2019
 [MANUFAC] Airey-Thompson
 [LUMCAT] 20LN48-0-D10-AS1
 [LUMINAIRE] Asymmetric cove light
 [BALLASTCAT] EVERLINE -D10CC30UNVPW-C
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 119.98VAC, 19.84W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2744
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	138
Total Luminaire Watts	19.84
Ballast Factor	1.00
CIE Type	Semi-Indirect
Spacing Criterion (0-180)	N.A.
Spacing Criterion (90-270)	N.A.
Spacing Criterion (Diagonal)	N.A.
Basic Luminous Shape	Vertical Rectangle
Luminous Length (0-180)	0.00 ft
Luminous Width (90-270)	4.00 ft
Luminous Height	0.08 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	0	11426	3327
55	0	10153	2215
65	0	10750	1261
75	0	13727	661
85	0	20991	270

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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	85	85	85	85	85	85	85	85	85	85
5	170	170	170	167	165	162	159	155	150	145
10	237	237	234	231	228	223	217	211	203	196
15	241	241	240	240	239	237	236	234	232	230
20	255	254	253	251	248	244	241	236	232	228
25	238	237	238	237	237	237	237	238	233	226
30	210	210	211	212	213	214	215	215	216	217
35	198	198	198	197	196	195	194	194	194	194
40	193	192	192	191	190	188	185	183	179	178
45	196	196	195	194	192	188	185	180	175	170
50	209	209	207	205	201	196	191	185	178	171
55	231	231	229	225	219	213	204	196	186	175
60	264	263	261	255	245	237	226	213	201	187
65	313	313	309	299	287	272	257	240	223	205
70	389	388	382	365	351	330	306	282	258	235
75	504	502	492	469	443	415	384	349	315	279
80	670	667	645	618	584	542	495	446	395	347
85	895	881	852	814	767	712	648	582	511	440
90	1119	1111	1087	1045	987	916	834	744	648	552
95	1327	1321	1304	1263	1202	1120	1023	915	798	678
100	1483	1465	1444	1399	1334	1251	1151	1034	910	775
105	1498	1482	1452	1414	1356	1274	1178	1069	942	813
110	1386	1376	1350	1317	1261	1195	1113	1015	907	791
115	1209	1205	1188	1157	1116	1060	995	918	832	737
120	1042	1039	1027	1004	969	929	877	816	749	675
125	912	909	899	882	853	820	778	730	674	611
130	812	809	799	783	760	731	695	652	604	552
135	719	716	707	693	673	647	617	580	545	502
140	629	627	622	611	595	573	554	531	504	482
145	562	562	560	555	549	539	524	511	496	475
150	549	548	545	540	535	528	520	505	485	465
155	538	536	532	525	516	505	492	478	457	433
160	486	486	481	475	466	456	443	427	410	395
165	418	417	414	409	403	395	387	377	367	356
170	345	345	341	335	328	318	306	293	277	260
175	197	197	197	194	192	189	185	181	177	171
180	107	107	107	107	107	107	107	107	107	107

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	85	85	85	85	85	85	85	85	85	85
5	140	134	127	121	114	107	100	92	85	83
10	187	178	169	156	142	128	114	100	85	82
15	222	209	196	183	169	149	128	106	85	80
20	224	220	214	197	181	166	139	111	83	77
25	220	214	206	198	184	169	148	115	82	74
30	213	206	198	188	177	165	155	118	80	72
35	195	193	186	178	165	156	152	120	78	70
40	176	175	172	166	154	143	145	121	75	67
45	165	160	157	151	142	129	132	116	70	64
50	162	154	146	138	129	115	114	105	63	58
55	165	153	141	128	117	103	96	90	54	52
60	172	157	141	125	109	93	79	68	43	43

IES INDOOR REPORT
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CANDELA TABULATION - (Cont.)

65	187	168	148	127	106	86	68	50	34	34
70	210	185	160	135	109	84	63	42	26	24
75	245	212	180	148	116	85	59	36	19	15
80	300	254	210	167	126	89	57	32	13	8
85	372	307	248	194	143	98	59	27	8	3
90	460	373	295	226	164	109	64	27	4	3
95	561	451	352	265	191	127	78	35	8	3
100	641	515	402	302	216	145	88	44	14	7
105	680	553	437	331	240	162	102	53	22	16
110	676	560	450	347	255	177	114	67	31	27
115	640	542	444	350	264	190	129	92	43	39
120	594	512	426	345	270	202	148	114	59	55
125	544	476	406	338	274	214	170	137	78	72
130	497	443	390	336	281	236	198	158	98	86
135	467	426	384	339	299	270	225	174	114	98
140	454	422	385	345	320	296	237	180	123	105
145	450	420	382	353	338	297	233	178	126	108
150	437	404	375	360	342	280	218	171	124	108
155	407	386	371	356	307	251	202	162	121	107
160	381	367	351	307	261	214	182	150	117	106
165	338	308	277	243	208	185	162	138	114	106
170	242	222	201	187	172	157	142	126	110	105
175	166	159	153	146	139	131	124	116	108	106
180	107	107	107	107	107	107	107	107	107	107

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	85	85	85	85	85	85	85	85	85	85
5	82	80	78	77	75	74	72	71	70	69
10	78	75	71	68	65	65	64	64	63	63
15	75	70	65	64	64	63	62	61	59	57
20	70	64	63	63	62	59	55	53	50	48
25	67	63	63	61	56	51	47	44	41	39
30	64	63	62	55	48	44	40	37	35	33
35	64	62	56	47	41	37	34	31	28	25
40	61	58	48	39	35	31	27	23	19	15
45	58	51	40	33	29	24	18	13	9	6
50	50	42	32	26	20	15	9	6	4	4
55	43	33	25	18	12	7	4	4	4	2
60	33	24	17	11	5	3	4	4	3	0
65	25	16	9	5	3	3	4	4	1	0
70	17	8	4	3	3	4	4	3	0	0
75	8	4	3	3	3	4	4	2	0	0
80	3	3	3	3	3	4	4	1	0	0
85	3	4	3	3	3	4	4	0	0	0
90	3	4	3	3	3	3	4	0	0	0
95	3	3	3	3	3	3	3	0	0	0
100	3	3	3	3	3	3	3	1	0	0
105	4	3	3	3	3	3	3	1	0	0
110	14	5	3	3	3	3	3	2	0	0
115	27	13	5	3	3	3	3	3	1	0
120	41	26	12	4	2	3	3	3	1	0
125	56	39	23	9	4	2	2	2	0	0
130	70	53	37	24	12	3	2	2	2	0
135	80	63	49	36	24	13	7	2	2	2

IES INDOOR REPORT
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CANDELA TABULATION - (Cont.)

140	87	70	58	47	37	27	18	12	5	3
145	91	76	64	55	46	39	32	26	20	14
150	92	80	68	61	54	48	42	37	32	28
155	94	83	74	65	60	55	51	46	43	39
160	96	86	78	71	65	61	58	55	52	49
165	98	90	83	77	73	68	64	61	59	57
170	100	95	90	85	81	78	75	73	70	68
175	103	101	98	96	94	92	90	88	86	85
180	107	107	107	107	107	107	107	107	107	107

Vert. Horizontal Angles

Angles	150	155	160	165	170	175	180
0	85	85	85	85	85	85	85
5	68	67	66	66	65	65	65
10	63	63	62	62	62	62	62
15	56	55	54	53	52	52	52
20	46	44	43	42	41	40	40
25	37	36	36	35	35	35	35
30	32	30	29	28	28	27	27
35	23	20	18	17	16	15	15
40	12	10	8	7	5	5	5
45	5	3	3	3	3	3	3
50	3	4	3	1	1	0	0
55	0	1	0	0	0	0	0
60	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0
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	1	0	0	0	0	0	0
140	2	1	1	0	0	0	0
145	8	6	5	3	2	1	1
150	24	20	17	14	13	11	11
155	36	34	32	31	30	29	29
160	47	45	43	42	41	40	40
165	56	55	54	53	52	51	51
170	66	65	63	62	62	61	61
175	83	82	81	80	80	79	79
180	107	107	107	107	107	107	107

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101913201R01.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	47.73	N.A.	1.70
0-30	106.34	N.A.	3.90
0-40	174.33	N.A.	6.40
0-60	328.74	N.A.	12.00
0-80	582.62	N.A.	21.20
0-90	831.71	N.A.	30.30
10-90	821.15	N.A.	29.90
20-40	126.61	N.A.	4.60
20-50	199.39	N.A.	7.30
40-70	256.60	N.A.	9.40
60-80	253.88	N.A.	9.30
70-80	151.69	N.A.	5.50
80-90	249.09	N.A.	9.10
90-110	784.36	N.A.	28.60
90-120	1132.08	N.A.	41.30
90-130	1394.46	N.A.	50.80
90-150	1739.53	N.A.	63.40
90-180	1911.86	N.A.	69.70
110-180	1127.5	N.A.	41.10
0-180	2743.57	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	10.56
10-20	37.17
20-30	58.61
30-40	67.99
40-50	72.79
50-60	81.61
60-70	102.19
70-80	151.69
80-90	249.09
90-100	370.33
100-110	414.03
110-120	347.72
120-130	262.38
130-140	197.07
140-150	148.00
150-160	104.81
160-170	54.34
170-180	13.19

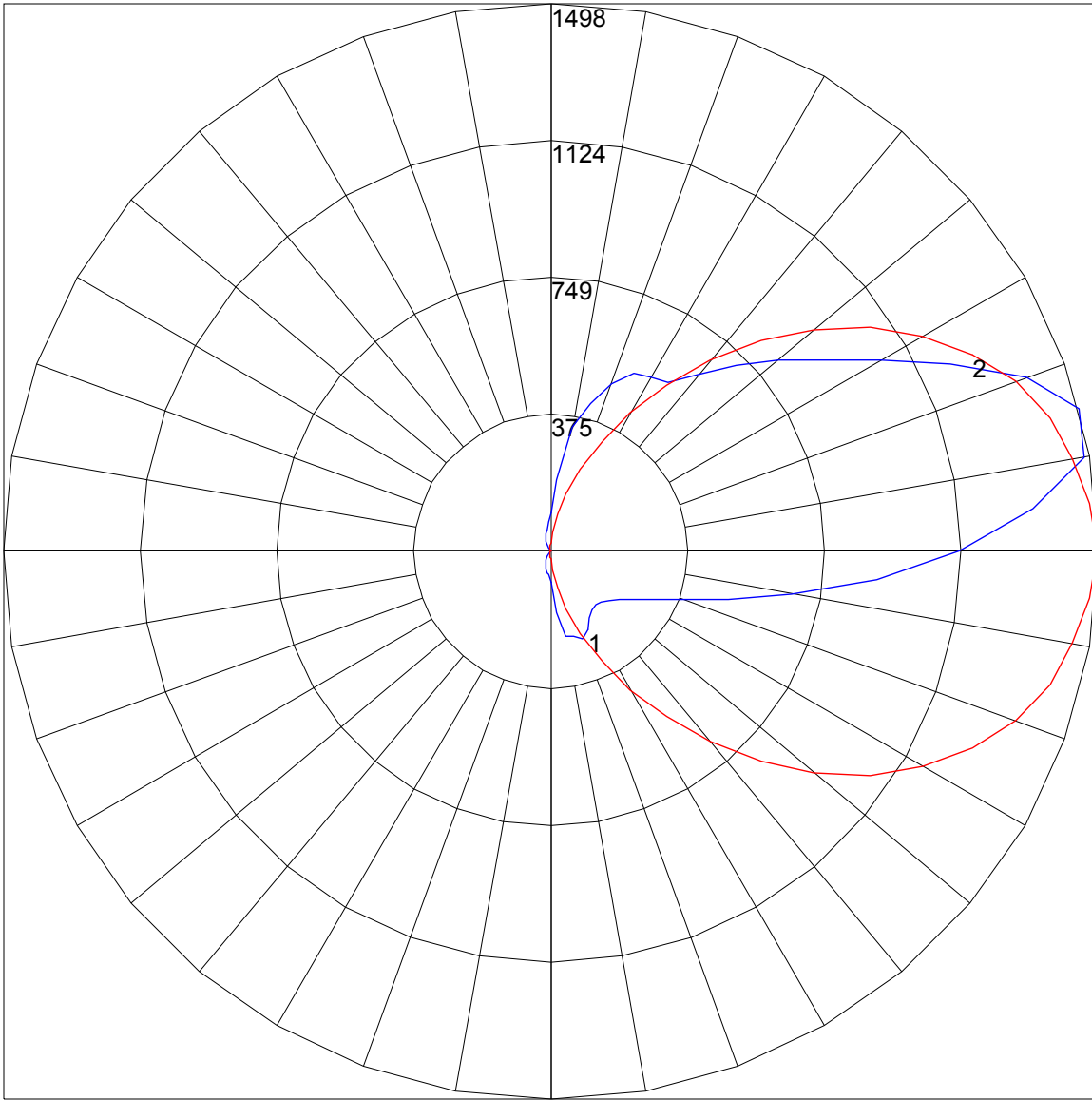
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101913201R01.IES

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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38	30
1	89	84	78	74	79	74	70	66	57	54	51	42	39	37	27	26	24	17
2	80	71	64	58	71	64	57	52	49	44	40	35	32	29	23	20	18	13
3	73	62	54	47	64	55	48	42	42	37	33	30	27	24	19	17	15	10
4	66	54	46	39	59	48	41	35	37	32	27	27	23	20	17	14	12	8
5	61	48	40	33	54	43	35	30	33	27	23	24	20	17	15	13	10	7
6	56	43	34	28	49	38	31	26	30	24	20	21	17	14	14	11	9	6
7	51	39	30	25	45	34	27	22	27	21	17	19	15	13	13	10	8	5
8	47	35	27	21	42	31	24	19	24	19	15	18	14	11	12	9	7	4
9	44	32	24	19	39	28	22	17	22	17	13	16	12	10	11	8	6	4
10	41	29	22	17	37	26	19	15	20	15	12	15	11	9	10	7	6	3

POLAR GRAPH



Maximum Candela = 1498 Located At Horizontal Angle = 0, Vertical Angle = 105
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (105) (Through Max. Cd.)