



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

Report No: L101913203R01



Report No: L101913203R01

Issue Date: 11/6/2019

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

Model Number: 20LN48-0-D10-SM1

Test: Photometric/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-SM1
Driver Model Number:	EVERLINE -D10CC30UNVPW-C

Photometric & Electrical Test Results

Total Lumens:	2719.33
Efficacy:	137.53
Input Voltage (VAC/60Hz):	119.98
Input Current (Amp):	0.1657
Input Power (W):	19.77
Input Power Factor:	0.9947
Current ATHD (%):	6.7%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	2:00

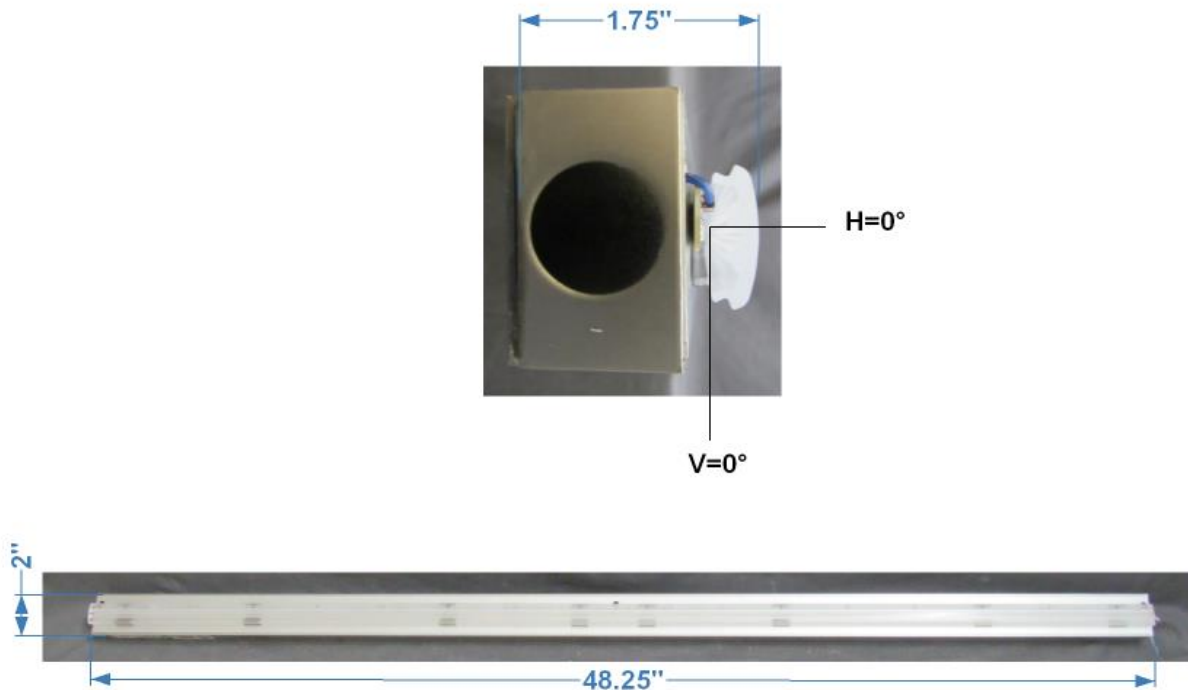


FIG. 1 LUMINAIRE

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: 9*



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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101913203R01.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L101913203R01
 [TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
 [ISSUEDATE] 11/6/2019
 [MANUFAC] Airey-Thompson
 [LUMCAT] 20LN48-0-D10-SM1
 [LUMINAIRE] Symmetric 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, 19.77W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2719
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	138
Total Luminaire Watts	19.77
Ballast Factor	1.00
CIE Type	General Diffuse
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	37856	6003
55	0	29102	3776
65	0	22995	2050
75	0	18920	984
85	0	16799	312

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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	138.56	138.56	138.56	138.56	138.56	138.56	138.56	138.56	138.56	138.56
5	254.74	254.80	254.86	250.95	247.95	244.11	239.48	234.07	227.94	221.13
10	356.67	356.66	353.54	349.66	344.29	337.48	329.28	319.84	309.20	297.47
15	414.68	414.75	412.10	408.79	404.16	398.20	391.02	382.68	373.24	362.60
20	506.80	506.72	500.84	493.56	483.48	470.79	455.55	437.85	418.07	402.58
25	609.82	607.38	600.82	589.81	575.00	556.27	534.21	509.52	483.34	455.45
30	691.55	688.52	681.02	668.58	652.08	632.14	609.62	580.85	546.59	509.90
35	737.99	734.61	726.65	714.83	698.26	679.26	657.35	624.81	593.01	554.85
40	751.73	748.55	739.94	727.32	711.88	694.24	668.64	640.20	609.15	571.31
45	726.34	724.30	717.85	707.84	694.98	679.51	654.83	631.09	596.99	563.24
50	682.24	680.35	675.84	668.31	657.32	641.92	623.29	599.45	569.74	533.39
55	643.10	641.60	637.98	630.48	618.53	604.25	585.00	561.87	534.41	501.61
60	618.37	617.04	612.65	603.63	590.87	574.71	553.99	530.22	501.57	467.31
65	607.22	605.36	599.17	588.40	573.61	554.26	531.42	504.19	473.03	438.52
70	601.35	598.81	591.34	579.06	561.31	539.01	512.46	482.02	447.89	409.72
75	595.15	592.04	583.76	569.76	549.93	524.82	495.33	461.77	425.23	384.53
80	586.43	583.45	574.75	559.34	538.00	511.17	480.08	445.64	406.57	364.81
85	578.55	576.21	567.48	552.19	530.25	502.88	470.52	435.49	395.36	352.12
90	576.65	574.53	566.40	551.31	529.27	501.44	469.00	432.70	391.38	347.28
95	578.55	576.21	567.48	552.19	530.25	502.88	470.52	435.49	395.36	352.12
100	586.43	583.45	574.75	559.34	538.00	511.17	480.08	445.64	406.57	364.81
105	595.15	592.04	583.76	569.76	549.93	524.82	495.33	461.77	425.23	384.53
110	601.35	598.81	591.34	579.06	561.31	539.01	512.46	482.02	447.89	409.72
115	607.22	605.36	599.17	588.40	573.61	554.26	531.42	504.19	473.03	438.52
120	618.37	617.04	612.65	603.63	590.87	574.71	553.99	530.22	501.57	467.31
125	643.10	641.60	637.98	630.48	618.53	604.25	585.00	561.87	534.41	501.61
130	682.24	680.35	675.84	668.31	657.32	641.92	623.29	599.45	569.74	533.39
135	726.34	724.30	717.85	707.84	694.98	679.51	654.83	631.09	596.99	563.24
140	751.73	748.55	739.94	727.32	711.88	694.24	668.64	640.20	609.15	571.31
145	737.99	734.61	726.65	714.83	698.26	679.26	657.35	624.81	593.01	554.85
150	691.55	688.52	681.02	668.58	652.08	632.14	609.62	580.85	546.59	509.90
155	609.82	607.38	600.82	589.81	575.00	556.27	534.21	509.52	483.34	455.45
160	506.80	506.72	500.84	493.56	483.48	470.79	455.55	437.85	418.07	402.58
165	414.68	414.75	412.10	408.79	404.16	398.20	391.02	382.68	373.24	362.60
170	356.67	356.66	353.54	349.66	344.29	337.48	329.28	319.84	309.20	297.47
175	254.74	254.80	254.86	250.94	247.95	244.11	239.48	234.07	227.94	221.13
180	138.00	138.00	138.00	138.00	138.00	138.00	138.00	138.00	138.00	138.00

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	138.56	138.56	138.56	138.56	138.56	138.56	138.56	138.56	138.56	138.56
5	213.69	205.68	197.16	188.20	178.86	169.21	159.34	149.30	139.19	134.94
10	284.72	271.07	256.99	238.71	220.11	200.89	181.19	161.16	140.95	132.37
15	347.67	327.32	306.01	283.87	261.03	232.69	203.34	173.52	143.42	130.43
20	386.68	369.30	349.86	321.14	291.92	262.27	224.06	184.92	145.48	128.28
25	425.71	398.93	374.78	349.53	315.83	280.62	240.91	193.81	146.53	125.38
30	472.89	434.43	396.22	364.12	330.56	291.78	253.98	199.80	145.98	121.38
35	510.54	466.63	418.97	374.54	335.50	295.96	256.66	202.48	143.21	116.06
40	530.67	481.75	431.30	378.36	331.81	288.37	252.04	200.89	137.09	109.18
45	520.08	475.89	426.51	372.16	319.72	272.08	237.20	191.62	126.32	99.87
50	494.43	450.96	403.59	353.61	299.45	250.47	213.04	172.65	110.19	88.00
55	461.42	417.51	371.28	324.10	271.73	222.75	183.39	148.09	92.04	75.15
60	428.70	385.56	338.70	290.11	240.60	192.95	151.89	118.79	72.97	61.24

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CANDELA TABULATION - (Cont.)

65	398.50	354.64	308.02	258.93	210.09	164.39	123.75	90.20	55.28	47.56
70	367.61	324.05	278.53	230.78	183.37	140.73	102.16	68.30	40.61	35.35
75	341.15	296.70	251.60	205.78	160.87	121.22	84.73	51.39	28.29	21.80
80	320.93	276.43	231.50	186.65	142.91	104.28	70.22	39.61	18.02	10.92
85	307.61	264.18	219.68	174.82	132.37	94.30	59.48	29.88	9.26	3.95
90	302.35	259.77	215.09	170.33	127.66	90.61	55.66	24.73	4.19	4.36
95	307.61	264.18	219.68	174.82	132.37	94.30	59.48	29.88	9.26	3.95
100	320.93	276.43	231.50	186.65	142.91	104.28	70.22	39.61	18.02	10.92
105	341.15	296.70	251.60	205.78	160.87	121.22	84.73	51.39	28.29	21.80
110	367.61	324.05	278.53	230.78	183.37	140.73	102.16	68.30	40.61	35.35
115	398.50	354.64	308.02	258.93	210.09	164.39	123.75	90.20	55.28	47.56
120	428.70	385.56	338.70	290.11	240.60	192.95	151.89	118.79	72.97	61.24
125	461.42	417.51	371.28	324.10	271.73	222.75	183.39	148.09	92.04	75.15
130	494.43	450.96	403.59	353.61	299.45	250.47	213.04	172.65	110.19	88.00
135	520.08	475.89	426.51	372.16	319.72	272.08	237.20	191.62	126.32	99.87
140	530.67	481.75	431.30	378.36	331.81	288.37	252.04	200.89	137.09	109.18
145	510.54	466.63	418.97	374.54	335.50	295.96	256.66	202.48	143.21	116.06
150	472.89	434.43	396.22	364.12	330.56	291.78	253.98	199.80	145.98	121.38
155	425.71	398.93	374.78	349.53	315.83	280.62	240.91	193.81	146.53	125.38
160	386.68	369.30	349.86	321.14	291.92	262.27	224.06	184.92	145.48	128.28
165	347.67	327.32	306.01	283.87	261.03	232.69	203.34	173.52	143.42	130.43
170	284.72	271.07	256.99	238.71	220.11	200.89	181.19	161.16	140.95	132.37
175	213.69	205.68	197.16	188.20	178.86	169.21	159.34	149.30	139.19	134.94
180	138.00	138.00	138.00	138.00	138.00	138.00	138.00	138.00	138.00	138.00

Vert. Angles **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	138.56	138.56	138.56	138.56	138.56	138.56	138.56	138.56	138.56	138.56
5	130.72	126.56	122.49	118.55	114.76	111.15	107.76	104.60	101.70	99.09
10	123.83	115.40	107.14	99.13	91.43	87.94	84.74	81.76	79.02	76.54
15	117.48	104.70	92.95	86.92	81.45	76.23	71.31	67.97	65.81	63.92
20	111.14	94.97	86.72	79.04	71.63	67.43	63.86	60.62	57.88	56.17
25	104.32	90.21	80.43	71.47	66.18	61.23	57.43	54.78	52.40	50.38
30	96.90	85.04	73.50	66.45	60.00	55.77	52.35	49.30	46.85	44.79
35	92.46	79.19	68.50	60.70	54.90	50.57	46.26	42.73	37.94	32.12
40	87.23	72.84	63.06	54.89	49.09	42.86	37.10	29.63	21.84	17.07
45	80.37	66.45	56.20	47.90	40.24	30.90	22.20	13.01	9.74	5.87
50	71.14	57.97	47.12	37.79	26.80	16.62	8.84	5.80	3.82	3.49
55	60.37	47.69	35.99	24.34	12.60	6.84	4.13	3.30	3.27	1.84
60	48.68	36.11	22.87	11.67	4.90	3.43	3.29	3.25	2.24	0.00
65	35.57	22.31	10.94	4.96	3.36	3.27	3.27	3.27	0.67	0.00
70	23.03	10.01	4.82	3.54	3.35	3.29	3.27	2.20	0.00	0.00
75	10.20	4.52	3.59	3.49	3.39	3.31	3.30	1.27	0.00	0.00
80	4.14	3.71	3.60	3.55	3.46	3.34	3.29	0.57	0.00	0.00
85	3.98	3.81	3.69	3.56	3.52	3.35	3.28	0.14	0.00	0.00
90	4.11	3.86	3.69	3.60	3.44	3.27	3.27	0.00	0.00	0.00
95	3.98	3.81	3.69	3.56	3.52	3.35	3.28	0.14	0.00	0.00
100	4.14	3.71	3.60	3.55	3.46	3.34	3.29	0.57	0.00	0.00
105	10.20	4.52	3.59	3.49	3.39	3.31	3.30	1.27	0.00	0.00
110	23.03	10.01	4.82	3.54	3.35	3.29	3.27	2.20	0.00	0.00
115	35.57	22.31	10.94	4.96	3.36	3.27	3.27	3.27	0.67	0.00
120	48.68	36.11	22.87	11.67	4.90	3.43	3.29	3.25	2.24	0.00
125	60.37	47.69	35.99	24.34	12.60	6.84	4.13	3.30	3.27	1.84
130	71.14	57.97	47.12	37.79	26.80	16.62	8.84	5.80	3.82	3.49
135	80.37	66.45	56.20	47.90	40.24	30.90	22.20	13.01	9.74	5.87

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CANDELA TABULATION - (Cont.)

140	87.23	72.84	63.06	54.89	49.09	42.85	37.10	29.63	21.84	17.07
145	92.46	79.19	68.50	60.70	54.90	50.57	46.26	42.73	37.94	32.12
150	96.90	85.04	73.50	66.45	60.00	55.77	52.35	49.30	46.85	44.79
155	104.32	90.21	80.43	71.47	66.18	61.23	57.43	54.78	52.40	50.38
160	111.14	94.97	86.72	79.04	71.63	67.43	63.86	60.62	57.88	56.17
165	117.48	104.70	92.95	86.92	81.45	76.23	71.31	67.97	65.81	63.92
170	123.83	115.40	107.14	99.13	91.43	87.94	84.74	81.76	79.02	76.54
175	130.72	126.56	122.49	118.55	114.76	111.15	107.76	104.60	101.70	99.09
180	138.00	138.00	138.00	138.00	138.00	138.00	138.00	138.00	138.00	138.00

Vert. Horizontal Angles

	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0	138.56	138.56	138.56	138.56	138.56	138.56	138.56
5	96.78	94.80	93.15	91.84	90.90	90.32	90.11
10	74.34	72.52	71.00	69.79	68.91	68.36	68.15
15	62.24	60.79	59.57	58.65	57.99	57.58	57.42
20	54.67	53.40	52.36	51.55	50.97	50.60	50.46
25	48.85	47.63	46.68	45.98	45.50	45.14	45.01
30	42.06	38.76	36.30	34.60	33.58	32.92	32.78
35	27.71	23.84	20.40	17.65	15.56	14.34	14.00
40	12.31	8.89	7.81	6.66	5.66	5.00	4.78
45	5.01	3.47	3.36	3.34	3.24	3.09	3.02
50	3.00	3.08	2.39	1.36	0.62	0.16	0.00
55	0.00	0.99	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125	0.00	0.99	0.00	0.00	0.00	0.00	0.00
130	3.00	3.08	2.39	1.36	0.62	0.16	0.00
135	5.01	3.47	3.36	3.34	3.24	3.09	3.02
140	12.31	8.89	7.81	6.66	5.66	5.00	4.78
145	27.71	23.84	20.40	17.65	15.56	14.34	14.00
150	42.06	38.76	36.30	34.60	33.58	32.92	32.78
155	48.85	47.63	46.68	45.98	45.50	45.14	45.01
160	54.67	53.40	52.36	51.55	50.97	50.60	50.46
165	62.24	60.79	59.57	58.65	57.99	57.58	57.42
170	74.34	72.52	71.00	69.79	68.91	68.36	68.15
175	96.78	94.80	93.15	91.84	90.90	90.32	90.11
180	138.00	138.00	138.00	138.00	138.00	138.00	138.00

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	74.70	N.A.	2.70
0-30	191.18	N.A.	7.00
0-40	366.98	N.A.	13.50
0-60	785.23	N.A.	28.90
0-80	1177.07	N.A.	43.30
0-90	1359.67	N.A.	50.00
10-90	1343.72	N.A.	49.40
20-40	292.28	N.A.	10.70
20-50	500.77	N.A.	18.40
40-70	619.18	N.A.	22.80
60-80	391.84	N.A.	14.40
70-80	190.91	N.A.	7.00
80-90	182.60	N.A.	6.70
90-110	373.51	N.A.	13.70
90-120	574.44	N.A.	21.10
90-130	784.20	N.A.	28.80
90-150	1168.49	N.A.	43.00
90-180	1359.66	N.A.	50.00
110-180	986.15	N.A.	36.30
0-180	2719.33	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	15.95
10-20	58.75
20-30	116.48
30-40	175.80
40-50	208.49
50-60	209.76
60-70	200.93
70-80	190.91
80-90	182.60
90-100	182.60
100-110	190.91
110-120	200.93
120-130	209.76
130-140	208.49
140-150	175.80
150-160	116.48
160-170	58.75
170-180	15.94

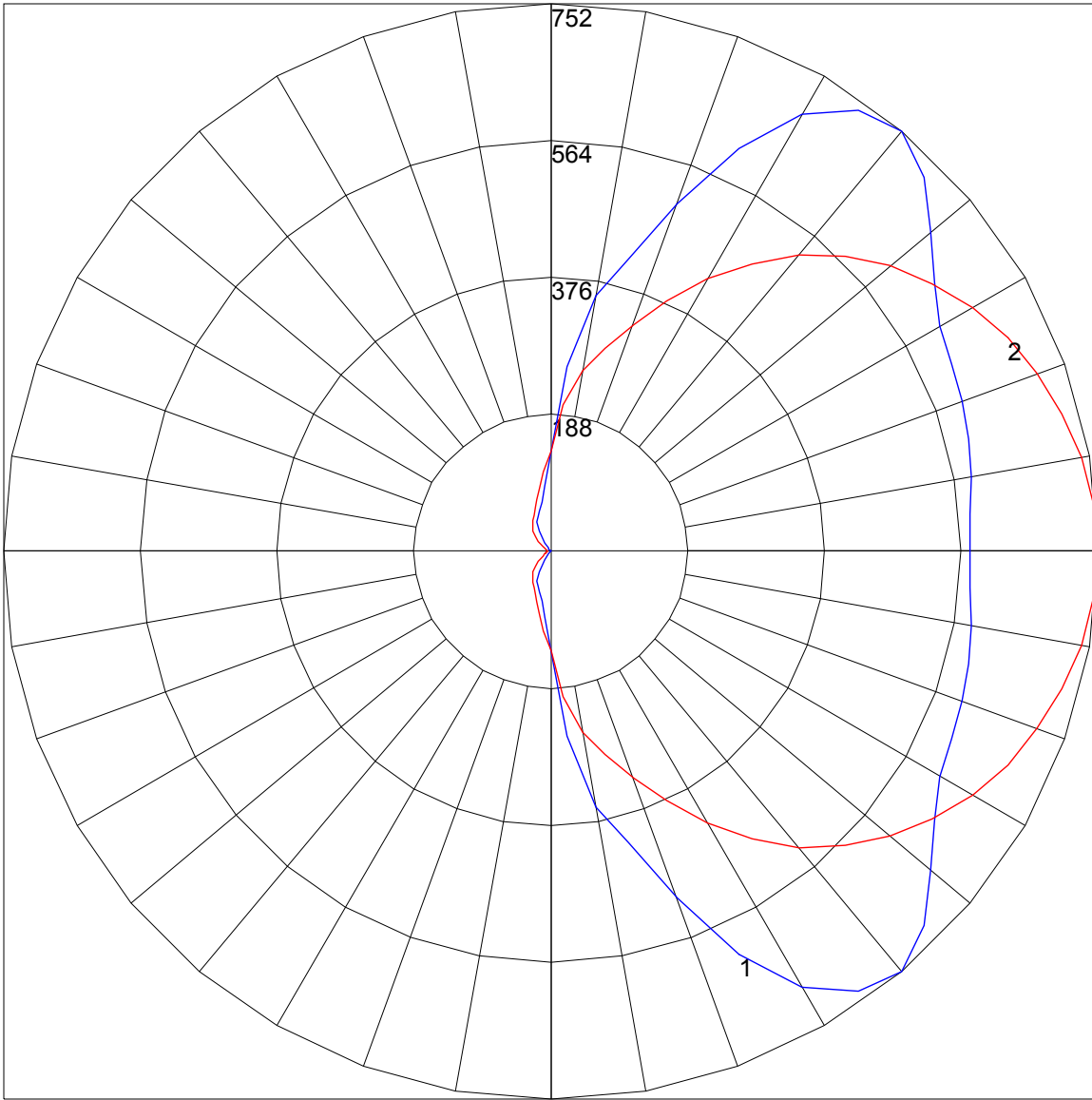
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101913203R01.IES

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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	95	89	84	79	87	82	77	73	68	65	62	56	53	51	45	43	41	35
2	85	76	68	62	77	70	63	58	58	53	49	47	44	40	37	35	32	27
3	77	66	57	50	70	60	53	47	50	44	39	41	36	33	32	29	26	22
4	70	57	48	41	63	53	45	38	44	38	33	36	31	27	28	24	21	18
5	64	51	42	35	58	46	38	32	39	32	27	32	27	23	25	21	18	15
6	58	45	36	30	53	41	33	28	35	28	23	28	23	19	22	18	15	12
7	54	40	32	26	49	37	29	24	31	25	20	25	20	17	20	16	13	11
8	50	36	28	22	45	33	26	21	28	22	18	23	18	15	18	14	12	9
9	46	33	25	20	42	30	23	18	26	20	16	21	16	13	17	13	10	8
10	43	30	22	17	39	28	21	16	23	18	14	19	15	11	15	12	9	7

POLAR GRAPH



Maximum Candela = 751.73 Located At Horizontal Angle = 0, Vertical Angle = 40
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (40) (Through Max. Cd.)