



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

Report No: L072111301



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Issue Date: 7/22/2021

Report Prepared For: 1st Source Lighting
 1730 Industrial Dr. Auburn, CA 95603

Model Number: RSD-RCTB24-24000-50K-DAC-U-SF'MS

Test: Photometric/Colorimetric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:
IESNA LM79: 2019 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI NEMA ANSLG C78.377: 2017 Specification of the Chromaticity of Solid State Lighting Products
ANSI C82.77-10:2014: 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: 7/18/21

Date of Tests: 7/19/21 - 7/22/21

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	4/7/23
HP Power Supply	6032A	PS-DC05-S2	--
Fluke Digital Thermometer	52K/J	MT-TP05	3/17/23
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:	1st Source Lighting
Model Number:	RSD-RCTB24-24000-50K-DAC-U-SF'MS
Driver Model Number:	CUSTOM DRIVER

Test Summary

Total Lumens:	23987.36
Efficacy:	145.45
Color Redering Index:	86.1
Correlated Color Temperature:	4870
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	1.3765
Input Power (W):	164.92
Input Power Factor:	0.9984
Current ATHD (%):	5.4%

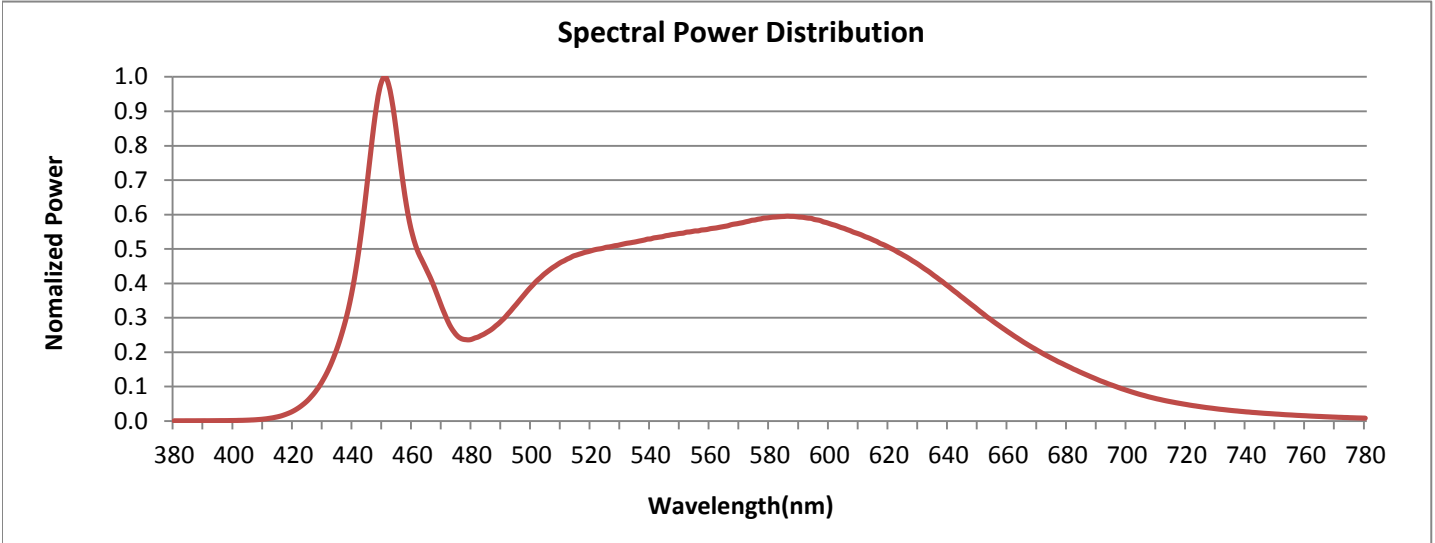
Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	1:25



FIG. 1 LUMINAIRE

Colorimetry Test Results

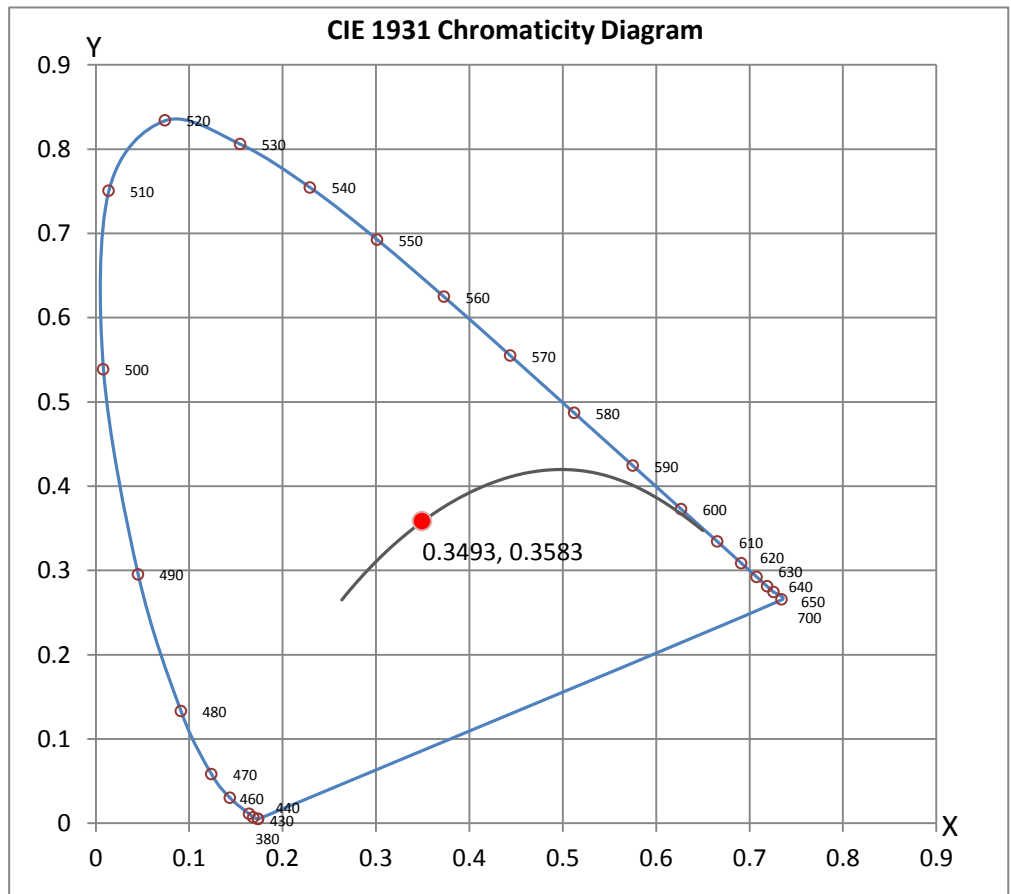


CRI & CCT

x	0.3493
y	0.3583
u'	0.2117
v'	0.4885
CRI	86.10
CCT	4870
Duv	0.00169

R Values

R1	84.57
R2	90.35
R3	94.15
R4	85.70
R5	84.69
R6	86.08
R7	89.86
R8	73.23
R9	25.85
R10	76.92
R11	85.32
R12	61.29
R13	86.19
R14	96.58
R15	80.05



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:

The results related only to the samples as received and tested. 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.

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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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L072111301.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L072111301
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 7/22/2021
[MANUFAC] 1st Source Lighting
[LUMCAT] RSD-RCTB24-24000-50K-DAC-U-SF'MS
[LUMINAIRE] RECESSED TROFFER 2X4 2400L
[BALLASTCAT] CUSTOM DRIVER
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120.0VAC, 164.92W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	23987
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	145
Total Luminaire Watts	164.92
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.18
Spacing Criterion (90-270)	1.18
Spacing Criterion (Diagonal)	1.26
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	3.67 ft
Luminous Width (90-270)	1.60 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	13929	13797	13737
55	12388	12162	12012
65	11284	10985	10764
75	10720	10430	10196
85	12019	11851	11662

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CANDELA TABULATION

	0	5	10	15	20	25	30	35	40	45
0.0	9868	9868	9868	9868	9868	9868	9868	9868	9868	9868
2.5	9836	9838	9843	9845	9844	9841	9847	9849	9853	9861
5.0	9801	9803	9806	9810	9808	9806	9812	9814	9819	9827
7.5	9735	9737	9741	9743	9742	9739	9745	9747	9751	9759
10.0	9637	9639	9643	9646	9642	9640	9645	9647	9652	9662
12.5	9509	9511	9518	9518	9516	9512	9518	9520	9523	9533
15.0	9352	9353	9358	9359	9356	9353	9359	9359	9364	9373
17.5	9159	9160	9164	9165	9159	9157	9163	9162	9167	9177
20.0	8934	8931	8932	8935	8930	8930	8933	8932	8936	8945
22.5	8674	8676	8677	8674	8672	8669	8670	8673	8673	8678
25.0	8387	8389	8387	8385	8380	8380	8380	8382	8381	8386
27.5	8071	8070	8069	8065	8061	8058	8057	8057	8056	8059
30.0	7725	7724	7721	7715	7714	7709	7708	7710	7707	7705
32.5	7365	7361	7357	7353	7345	7344	7344	7337	7335	7337
35.0	6984	6980	6975	6973	6963	6962	6960	6951	6949	6948
37.5	6580	6594	6584	6571	6571	6569	6559	6559	6551	6547
40.0	6191	6186	6182	6176	6167	6164	6159	6150	6147	6145
42.5	5784	5782	5777	5770	5762	5760	5753	5744	5739	5733
45.0	5378	5382	5377	5366	5363	5355	5346	5342	5334	5327
47.5	4984	4981	4977	4971	4965	4956	4949	4941	4934	4930
50.0	4602	4598	4593	4587	4579	4573	4564	4554	4548	4542
52.5	4230	4229	4226	4217	4211	4202	4189	4182	4175	4167
55.0	3880	3878	3870	3866	3856	3844	3836	3823	3814	3809
57.5	3539	3536	3531	3526	3515	3504	3493	3481	3474	3465
60.0	3216	3213	3207	3198	3190	3179	3168	3158	3148	3138
62.5	2906	2900	2896	2884	2876	2867	2857	2849	2840	2827
65.0	2604	2601	2595	2586	2576	2568	2565	2556	2544	2535
67.5	2316	2314	2308	2300	2292	2285	2281	2275	2264	2253
70.0	2045	2043	2036	2029	2022	2016	2012	2006	1997	1987
72.5	1773	1771	1765	1762	1754	1749	1747	1740	1733	1725
75.0	1515	1512	1508	1504	1499	1496	1493	1488	1481	1474
77.5	1267	1266	1264	1260	1257	1255	1252	1248	1242	1237
80.0	1030	1028	1026	1025	1022	1021	1018	1014	1010	1007
82.5	797	796	795	794	793	792	790	787	784	783
85.0	572	572	571	571	570	570	569	567	566	564
87.5	353	354	354	353	353	353	352	351	350	348
90.0	0	0	0	0	0	0	0	0	0	0

Vert. Angles **Horizontal Angles**

	50	55	60	65	70	75	80	85	90
0.0	9868	9868	9868	9868	9868	9868	9868	9868	9868
2.5	9875	9885	9888	9888	9886	9886	9898	9913	9916
5.0	9841	9849	9852	9853	9852	9850	9863	9876	9877
7.5	9772	9777	9782	9784	9784	9783	9792	9804	9807
10.0	9673	9679	9683	9687	9686	9686	9695	9704	9707
12.5	9543	9549	9552	9555	9556	9555	9562	9570	9571
15.0	9382	9381	9388	9390	9390	9390	9395	9402	9404
17.5	9181	9184	9190	9191	9194	9192	9197	9203	9205
20.0	8948	8951	8955	8957	8957	8956	8959	8964	8966
22.5	8684	8683	8686	8691	8689	8688	8690	8695	8696
25.0	8387	8386	8389	8391	8391	8391	8391	8396	8397
27.5	8057	8058	8061	8062	8061	8059	8058	8064	8064
30.0	7707	7703	7706	7708	7704	7703	7703	7708	7707

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CANDELA TABULATION - (Cont.)

32.5	7330	7330	7333	7329	7330	7328	7325	7331	7331
35.0	6941	6942	6942	6936	6934	6931	6930	6934	6935
37.5	6545	6541	6538	6537	6532	6527	6528	6533	6535
40.0	6133	6135	6132	6122	6122	6116	6114	6123	6125
42.5	5727	5724	5719	5714	5709	5703	5705	5710	5713
45.0	5323	5317	5313	5306	5300	5295	5297	5302	5304
47.5	4923	4916	4911	4904	4898	4894	4895	4900	4901
50.0	4532	4526	4518	4510	4506	4502	4503	4506	4508
52.5	4159	4150	4141	4133	4128	4124	4126	4128	4129
55.0	3798	3788	3778	3768	3764	3761	3762	3763	3762
57.5	3453	3444	3433	3424	3419	3415	3415	3415	3416
60.0	3127	3117	3107	3098	3092	3089	3088	3088	3089
62.5	2817	2808	2799	2791	2784	2780	2778	2777	2778
65.0	2522	2513	2506	2497	2491	2487	2484	2484	2484
67.5	2242	2234	2226	2219	2213	2207	2204	2203	2204
70.0	1977	1969	1960	1953	1946	1942	1939	1939	1938
72.5	1715	1709	1702	1695	1691	1686	1685	1684	1682
75.0	1468	1461	1455	1450	1447	1444	1443	1441	1441
77.5	1233	1228	1223	1219	1216	1213	1212	1213	1213
80.0	1003	999	995	991	989	988	988	989	988
82.5	780	777	774	770	770	768	768	768	767
85.0	562	560	558	556	554	553	553	554	555
87.5	346	345	344	343	343	342	341	341	341
90.0	0	0	0	0	0	0	0	0	0

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	3572.63	N.A.	14.90
0-30	7427.26	N.A.	31.00
0-40	11769.28	N.A.	49.10
0-60	19303.46	N.A.	80.50
0-80	23389.63	N.A.	97.50
0-90	23987.36	N.A.	100.00
10-90	23054.21	N.A.	96.10
20-40	8196.65	N.A.	34.20
20-50	12312.93	N.A.	51.30
40-70	10054.84	N.A.	41.90
60-80	4086.17	N.A.	17.00
70-80	1565.51	N.A.	6.50
80-90	597.73	N.A.	2.50
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	23987.36	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	933.16
10-20	2639.48
20-30	3854.62
30-40	4342.02
40-50	4116.28
50-60	3417.9
60-70	2520.66
70-80	1565.51
80-90	597.73
90-100	0.00
100-110	0.00
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

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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	109	104	100	96	106	102	98	95	98	94	92	94	91	89	90	88	86	84
2	99	91	85	79	97	89	83	78	86	81	76	83	78	74	80	76	73	71
3	91	81	73	66	89	79	72	66	76	70	65	73	68	63	71	66	62	60
4	84	72	63	57	81	71	63	56	68	61	56	66	60	55	64	58	54	52
5	77	65	56	49	75	63	55	49	61	54	49	59	53	48	58	52	47	45
6	71	58	50	43	70	57	49	43	56	48	43	54	47	42	52	47	42	40
7	66	53	45	39	65	52	44	38	51	44	38	49	43	38	48	42	38	36
8	62	49	40	35	60	48	40	35	47	39	34	45	39	34	44	38	34	32
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	54	42	34	29	53	41	34	29	40	33	28	39	33	28	38	32	28	26

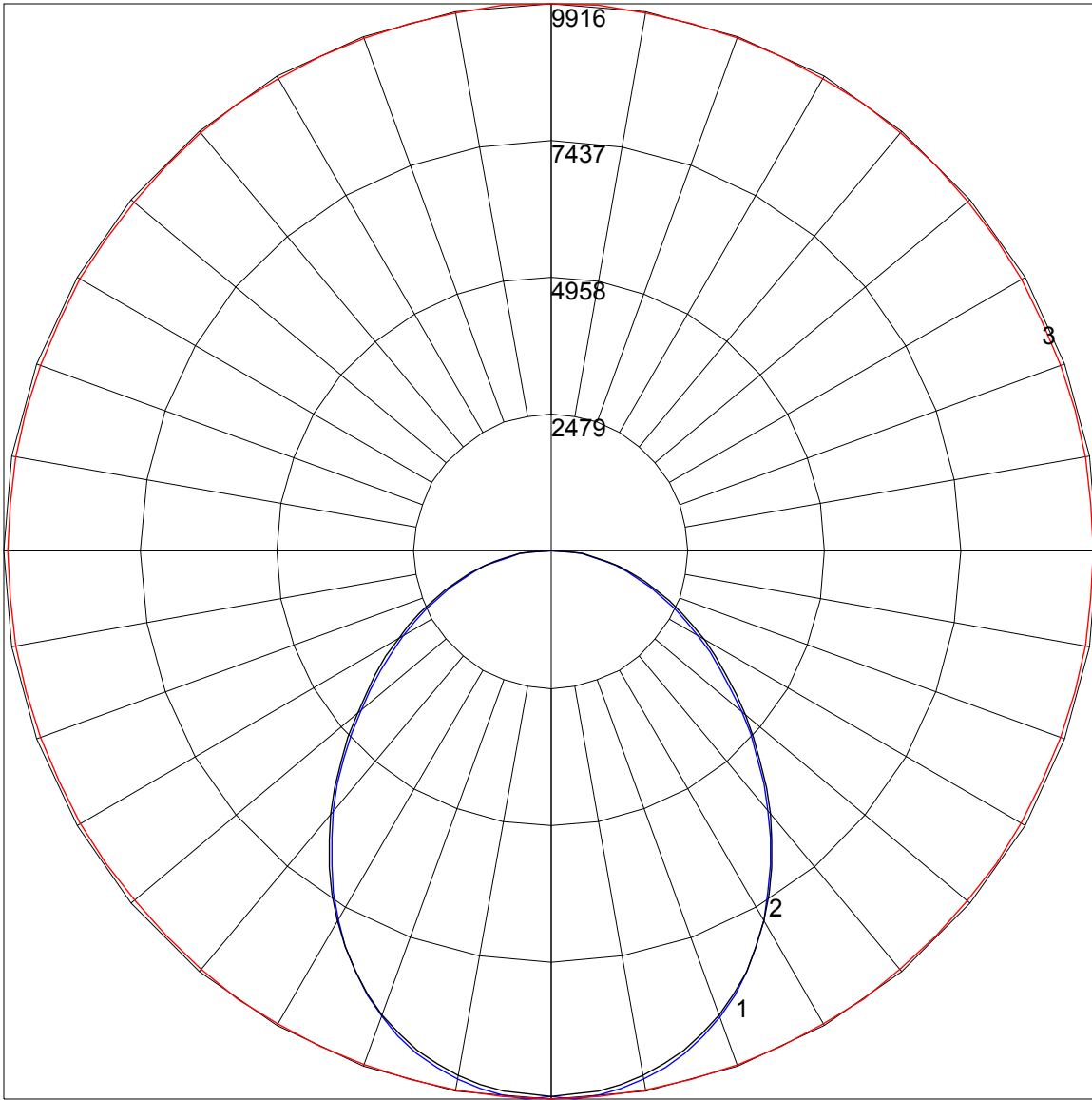
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L072111301.IES

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	20.4	22.0	20.8	22.3	22.6	20.2	21.8	20.6	22.1	22.4
	3H	22.2	23.7	22.6	24.0	24.4	22.0	23.4	22.4	23.7	24.1
	4H	23.0	24.3	23.4	24.7	25.1	22.7	24.1	23.1	24.4	24.8
	6H	23.6	24.9	24.0	25.2	25.6	23.4	24.6	23.8	25.0	25.4
	8H	23.9	25.1	24.3	25.5	25.9	23.6	24.8	24.0	25.2	25.6
	12H	24.1	25.3	24.5	25.6	26.1	23.8	25.0	24.3	25.4	25.8
4H	2H	21.0	22.3	21.4	22.7	23.1	20.8	22.2	21.2	22.5	22.9
	3H	23.1	24.2	23.5	24.6	25.0	22.8	24.0	23.3	24.4	24.8
	4H	23.9	25.0	24.4	25.4	25.8	23.7	24.8	24.1	25.2	25.6
	6H	24.8	25.7	25.2	26.1	26.6	24.5	25.4	25.0	25.9	26.3
	8H	25.1	25.9	25.5	26.4	26.8	24.8	25.7	25.3	26.1	26.6
	12H	25.4	26.2	25.9	26.6	27.1	25.1	25.9	25.6	26.4	26.9
8H	4H	24.3	25.1	24.7	25.6	26.0	24.1	24.9	24.5	25.4	25.8
	6H	25.3	26.0	25.8	26.5	26.9	25.1	25.8	25.6	26.3	26.7
	8H	25.7	26.3	26.2	26.9	27.3	25.5	26.1	26.0	26.6	27.1
	12H	26.1	26.7	26.6	27.2	27.7	25.9	26.5	26.4	27.0	27.5
12H	4H	24.3	25.1	24.8	25.6	26.1	24.1	24.9	24.6	25.4	25.9
	6H	25.4	26.0	25.9	26.5	27.0	25.2	25.8	25.7	26.3	26.8
	8H	25.9	26.4	26.4	26.9	27.5	25.7	26.2	26.2	26.7	27.3

Maximum UGR = 27.7

POLAR GRAPH



Maximum Candela = 9916 Located At Horizontal Angle = 90, Vertical Angle = 2.5

1 - Vertical Plane Through Horizontal Angles (90 - 270) (Through Max. Cd.)

2 - Vertical Plane Through Horizontal Angles (0 - 180)

3 - Horizontal Cone Through Vertical Angle (2.5) (Through Max. Cd.)