

LIGHT LABORATORY, INC.

8165 E Kaiser Blvd. Anaheim, CA 92808

SHT 1 OF 1

Test #: L1110-1201

Date: 11/19/2010

Luminaire Photometric Performance LM-79-2008

Manufacturer:	ATEX CO., LTD
Model Number:	CV16-090AL-11

Total Lumens:	667.31
Input Power (W):	16.955
Input Current (Amp):	0.19
Input Power Factor:	0.90
Efficacy:	39.36
Color Rendering Index (CRI):	88.50
Correlated Color Temperature (CCT):	2640
Chromaticity Ordinate x:	0.462
Chromaticity Ordinate y:	0.407

*Test data documentation on file and available upon request.

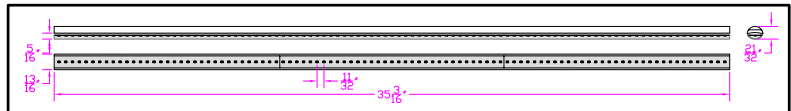
*All results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

REV.	LOG NUMBER	REVISION DESCRIPTION	REVISION BY	CHECKED BY	APPROVED BY	DATE
A					JS	11/19/10

**IES INDOOR REPORT
PHOTOMETRIC FILENAME : L11101201.IES**

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L1110-1201
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUE DATE] 11/19/2010
[MANUFAC] ATEX CO., LTD
[LUMCAT] CV16-090AL-11
[LUMINAIRE] 35-3/16"L. X 13/16"W. X 21/32"H. LED
[MORE] THREE MODULES, EACH MODULE HAS 33 WARM WHITE LEDS
[MORE] TOTAL 99 LEDS, CLEAR ACRYLIC LENS
[LAMP POSITION] 0,0
[LAMP CAT] WARM WHITE LED
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[_INPUT] 100VAC, 50Hz, 16.955W
[_TEST PROCEDURE] IESNA:LM-79-08



CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	667
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	39
Total Luminaire Watts	16.955
Ballast Factor	1.00
CIE Type	Direct
Spacing Criteria (0-180)	1.28
Spacing Criteria (90-270)	1.26
Spacing Criteria (Diagonal)	1.40
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	2.93 ft
Luminous Width (90-270)	0.07 ft
Luminous Height	0.02 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	12199	10253	9025
55	11227	8340	7943
65	9872	6760	5635
75	6906	3901	3835
85	2323	1712	1174

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L11101201.IES

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0.0	245.954	245.954	245.954	245.954	245.954
2.5	245.538	244.705	245.122	245.538	244.706
5.0	246.370	243.873	245.122	245.954	247.202
7.5	242.209	243.041	245.538	245.121	244.705
10.0	242.209	242.625	243.457	243.041	243.041
12.5	238.879	241.376	240.960	239.295	236.382
15.0	238.047	238.047	236.798	232.221	230.556
17.5	233.053	234.717	230.972	225.978	226.394
20.0	229.723	231.804	225.146	220.568	221.400
22.5	226.394	226.810	217.655	217.239	218.071
25.0	222.232	221.400	212.661	211.413	211.413
27.5	216.406	214.742	206.835	206.002	207.251
30.0	211.413	207.251	201.841	201.008	203.089
32.5	203.089	199.344	195.598	198.927	201.425
35.0	197.263	190.188	188.940	196.014	198.927
37.5	190.604	181.448	183.113	191.020	192.269
40.0	181.449	173.541	178.119	185.610	185.610
42.5	173.957	164.802	173.125	175.206	168.131
45.0	165.634	156.478	166.883	160.224	156.479
47.5	157.311	147.739	160.224	146.491	142.329
50.0	144.826	138.167	148.987	134.005	132.341
52.5	134.838	128.179	133.173	123.601	128.179
55.0	124.018	119.440	118.191	118.191	122.353
57.5	112.365	111.949	104.874	112.781	111.533
60.0	102.377	102.793	94.886	100.712	97.383
62.5	91.556	93.637	87.811	87.395	86.563
65.0	80.736	82.817	78.655	75.326	73.245
67.5	69.084	68.251	67.003	62.841	61.593
70.0	58.264	53.686	55.766	52.021	50.773
72.5	46.611	42.033	44.530	43.281	44.946
75.0	34.958	32.045	34.126	37.455	39.120
77.5	24.970	25.386	27.051	32.878	32.461
80.0	14.150	18.311	22.889	23.305	21.641
82.5	8.324	11.653	15.814	12.485	10.820
85.0	4.162	7.491	9.572	8.740	8.324
87.5	0.000	5.410	6.243	6.659	5.827
90.0	0.000	3.745	4.578	4.994	4.994
92.5	0.000	0.000	0.832	1.665	3.329
95.0	0.000	0.000	0.000	0.000	0.416
97.5	0.000	0.000	0.000	0.000	0.416
100.0	0.000	0.000	0.000	0.000	0.000
102.5	0.000	0.000	0.000	0.000	0.000
105.0	0.000	0.000	0.000	0.000	0.000
107.5	0.000	0.000	0.000	0.000	0.000
110.0	0.000	0.000	0.000	0.000	0.000
112.5	0.000	0.000	0.000	0.000	0.000
115.0	0.000	0.000	0.000	0.000	0.000
117.5	0.000	0.000	0.000	0.000	0.000
120.0	0.000	0.000	0.000	0.000	0.000
122.5	0.000	0.000	0.000	0.000	0.000
125.0	0.000	0.000	0.000	0.000	0.000
127.5	0.000	0.000	0.000	0.000	0.000
130.0	0.000	0.000	0.000	0.000	0.000
132.5	0.000	0.000	0.000	0.000	0.000

**IES INDOOR REPORT
PHOTOMETRIC FILENAME : L11101201.IES**

CANDELA TABULATION - (Cont.)

135.0	0.000	0.000	0.000	0.000	0.000
137.5	0.000	0.000	0.000	0.000	0.000
140.0	0.000	0.000	0.000	0.000	0.000
142.5	0.000	0.000	0.000	0.000	0.000
145.0	0.000	0.000	0.000	0.000	0.000
147.5	0.000	0.000	0.000	0.000	0.000
150.0	0.000	0.000	0.000	0.000	0.000
152.5	0.000	0.000	0.000	0.000	0.000
155.0	0.000	0.000	0.000	0.000	0.000
157.5	0.000	0.000	0.000	0.000	0.000
160.0	0.000	0.000	0.000	0.000	0.000
162.5	0.000	0.000	0.000	0.000	0.000
165.0	0.000	0.000	0.000	0.000	0.000
167.5	0.000	0.000	0.000	0.000	0.000
170.0	0.000	0.000	0.000	0.000	0.000
172.5	0.000	0.000	0.000	0.000	0.000
175.0	0.000	0.000	0.000	0.000	0.000
177.5	0.000	0.000	0.000	0.000	0.000
180.0	0.000	0.000	0.000	0.000	0.000

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	189.07	N.A.	28.30
0-40	309.92	N.A.	46.40
0-60	541.15	N.A.	81.10
0-90	666.45	N.A.	99.90
90-120	0.85	N.A.	0.10
90-130	0.85	N.A.	0.10
90-150	0.85	N.A.	0.10
90-180	0.85	N.A.	0.10
0-180	667.31	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	23.33
10-20	66.35
20-30	99.39
30-40	120.85
40-50	124.13
50-60	107.10
60-70	76.78
70-80	38.19
80-90	10.34
90-100	0.85
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

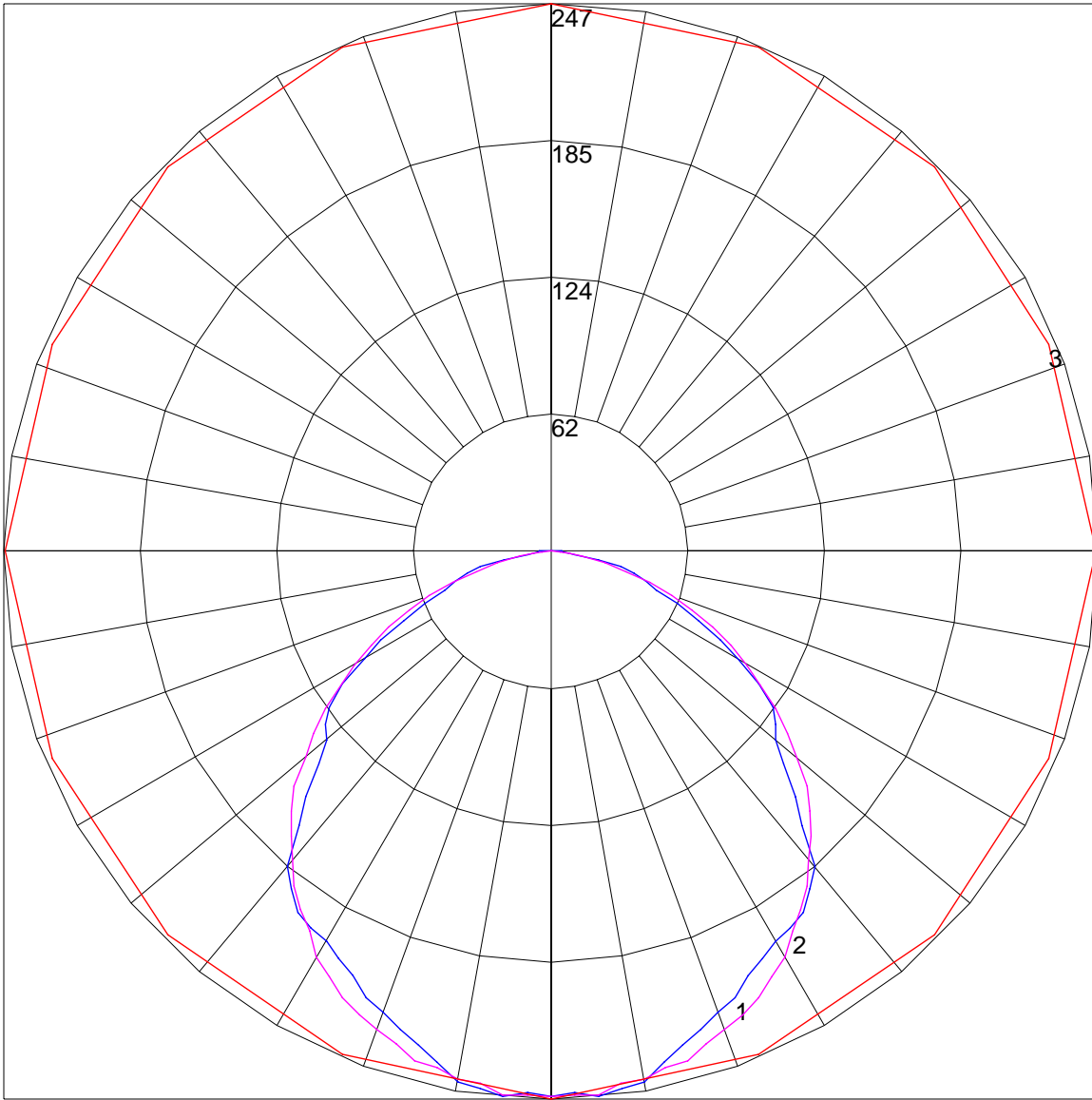
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L11101201.IES

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	109	105	100	97	106	102	98	95	98	95	92	94	92	89	90	88	87	84
2	99	91	85	79	97	90	83	78	86	81	76	83	78	75	80	76	73	71
3	91	81	72	66	88	79	71	66	76	70	64	73	68	63	71	66	62	60
4	83	71	63	56	81	70	62	56	68	61	55	65	59	54	63	58	53	51
5	77	64	55	48	74	63	54	48	61	53	48	59	52	47	57	51	47	44
6	71	58	49	42	69	57	48	42	55	47	42	53	46	41	51	46	41	39
7	66	52	44	37	64	51	43	37	50	42	37	48	42	37	47	41	36	34
8	61	48	39	33	60	47	39	33	46	38	33	44	38	33	43	37	33	31
9	57	44	36	30	56	43	35	30	42	35	30	41	34	30	40	34	29	28
10	54	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25

POLAR GRAPH



Maximum Candela = 247.202 Located At Horizontal Angle = 90, Vertical Angle = 5
1 - Vertical Plane Through Horizontal Angles (90 - 270) (Through Max. Cd.) : BLUE
2 - Vertical Plane Through Horizontal Angles (0 - 180) : MAGENTA
3 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.) : RED

LIGHT LABORATORY, INC.

8165 E Kaiser Blvd. Anaheim, CA 92808

SHT 1 OF 1

Test #: L1110-1202

Date: 11/19/2010

Luminaire Photometric Performance LM-79-2008

Manufacturer:	ATEX CO., LTD.
Model Number:	CV16-090AW-11

Total Lumens:	890.80
Input Power (W):	18.536
Input Current (Amp):	0.21
Input Power Factor:	0.90
Efficacy:	48.06
Color Rendering Index (CRI):	89.70
Correlated Color Temperature (CCT):	4258
Chromaticity Ordinate x:	0.368
Chromaticity Ordinate y:	0.365

*Test data documentation on file and available upon request.

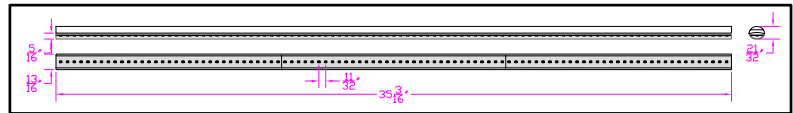
*All results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

REV.	LOG NUMBER	REVISION DESCRIPTION	REVISION BY	CHECKED BY	APPROVED BY	DATE
A					JS	11/19/10

**IES INDOOR REPORT
PHOTOMETRIC FILENAME : L11101202.IES**

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L1110-1202
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUE DATE] 11/19/2010
[MANUFAC] ATEX CO., LTD.
[LUMCAT] CV16-090AW-11
[LUMINAIRE] 35-3/16"L. X 13/16"W. X 21/32"H. LED
[MORE] THREE MODULES, EACH MODULE HAS 33 COOL WHITE LEDS
[MORE] TOTAL 99 LEDS, CLEAR ACRYLIC LENS
[LAMP POSITION] 0,0
[LAMP CAT] COOL WHITE LED
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[_INPUT] 100VAC, 50Hz, 18.536W
[_TEST PROCEDURE] IESNA:LM-79-08



CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	891
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	48
Total Luminaire Watts	18.536
Ballast Factor	1.00
CIE Type	Direct
Spacing Criteria (0-180)	1.28
Spacing Criteria (90-270)	1.26
Spacing Criteria (Diagonal)	1.38
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	2.93 ft
Luminous Width (90-270)	0.07 ft
Luminous Height	0.02 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	16183	13347	12145
55	15146	11394	10213
65	13332	9049	7684
75	9208	5376	5304
85	2787	2605	1761

**IES INDOOR REPORT
PHOTOMETRIC FILENAME : L11101202.IES**

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0.0	323.153	323.153	323.153	323.153	323.153
2.5	324.609	323.777	322.945	324.193	322.113
5.0	322.945	322.529	323.777	324.610	324.610
7.5	322.113	322.529	322.945	323.361	322.113
10.0	319.615	320.032	321.696	319.199	318.783
12.5	316.286	317.535	317.535	313.373	312.124
15.0	313.789	314.205	312.125	307.130	306.298
17.5	308.795	310.460	304.217	300.888	299.639
20.0	303.801	305.466	298.391	295.062	294.646
22.5	296.310	299.223	290.484	289.235	287.155
25.0	292.149	291.316	283.825	280.912	279.663
27.5	285.490	282.993	275.918	271.340	272.173
30.0	278.831	274.253	269.259	265.098	267.179
32.5	270.508	263.849	258.855	260.520	265.514
35.0	260.520	253.861	248.451	255.942	259.688
37.5	252.196	242.208	240.128	248.867	250.532
40.0	241.376	232.636	232.220	242.625	242.209
42.5	230.556	220.568	226.810	230.972	228.891
45.0	219.736	209.748	217.239	217.238	210.580
47.5	208.083	196.847	208.915	198.511	193.101
50.0	195.598	184.362	196.847	181.449	173.958
52.5	180.616	172.293	180.200	162.305	161.473
55.0	167.299	158.559	161.473	150.236	157.311
57.5	153.981	146.490	141.913	147.323	153.982
60.0	138.999	135.254	124.434	141.080	143.994
62.5	123.185	123.185	110.700	128.179	123.185
65.0	109.035	108.203	105.290	105.706	99.880
67.5	94.053	91.140	95.718	86.146	80.736
70.0	77.406	72.413	79.488	69.084	65.754
72.5	60.761	56.599	61.593	57.015	58.264
75.0	46.611	44.114	47.027	52.853	54.102
77.5	32.461	34.542	37.871	45.362	44.946
80.0	19.976	25.386	32.461	29.964	27.467
82.5	9.988	18.312	22.889	19.144	18.311
85.0	4.994	12.069	14.566	13.734	12.485
87.5	0.000	7.907	9.988	10.820	9.156
90.0	0.000	4.994	6.243	7.907	7.491
92.5	0.000	3.329	3.746	4.578	2.913
95.0	0.000	0.832	1.665	2.081	2.081
97.5	0.000	0.832	0.832	2.081	0.416
100.0	0.000	0.000	0.000	0.000	0.000
102.5	0.000	0.000	0.000	0.000	0.000
105.0	0.000	0.000	0.000	0.000	0.000
107.5	0.000	0.000	0.000	0.000	0.000
110.0	0.000	0.000	0.000	0.000	0.000
112.5	0.000	0.000	0.000	0.000	0.000
115.0	0.000	0.000	0.000	0.000	0.000
117.5	0.000	0.000	0.000	0.000	0.000
120.0	0.000	0.000	0.000	0.000	0.000
122.5	0.000	0.000	0.000	0.000	0.000
125.0	0.000	0.000	0.000	0.000	0.000
127.5	0.000	0.000	0.000	0.000	0.000
130.0	0.000	0.000	0.000	0.000	0.000
132.5	0.000	0.000	0.000	0.000	0.000

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L11101202.IES

CANDELA TABULATION - (Cont.)

135.0	0.000	0.000	0.000	0.000	0.000
137.5	0.000	0.000	0.000	0.000	0.000
140.0	0.000	0.000	0.000	0.000	0.000
142.5	0.000	0.000	0.000	0.000	0.000
145.0	0.000	0.000	0.000	0.000	0.000
147.5	0.000	0.000	0.000	0.000	0.000
150.0	0.000	0.000	0.000	0.000	0.000
152.5	0.000	0.000	0.000	0.000	0.000
155.0	0.000	0.000	0.000	0.000	0.000
157.5	0.000	0.000	0.000	0.000	0.000
160.0	0.000	0.000	0.000	0.000	0.000
162.5	0.000	0.000	0.000	0.000	0.000
165.0	0.000	0.000	0.000	0.000	0.000
167.5	0.000	0.000	0.000	0.000	0.000
170.0	0.000	0.000	0.000	0.000	0.000
172.5	0.000	0.000	0.000	0.000	0.000
175.0	0.000	0.000	0.000	0.000	0.000
177.5	0.000	0.000	0.000	0.000	0.000
180.0	0.000	0.000	0.000	0.000	0.000

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	250.01	N.A.	28.10
0-40	409.30	N.A.	45.90
0-60	717.06	N.A.	80.50
0-90	888.47	N.A.	99.70
90-120	2.33	N.A.	0.30
90-130	2.33	N.A.	0.30
90-150	2.33	N.A.	0.30
90-180	2.33	N.A.	0.30
0-180	890.80	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	30.78
10-20	87.66
20-30	131.56
30-40	159.29
40-50	165.03
50-60	142.72
60-70	104.25
70-80	51.91
80-90	15.25
90-100	2.33
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

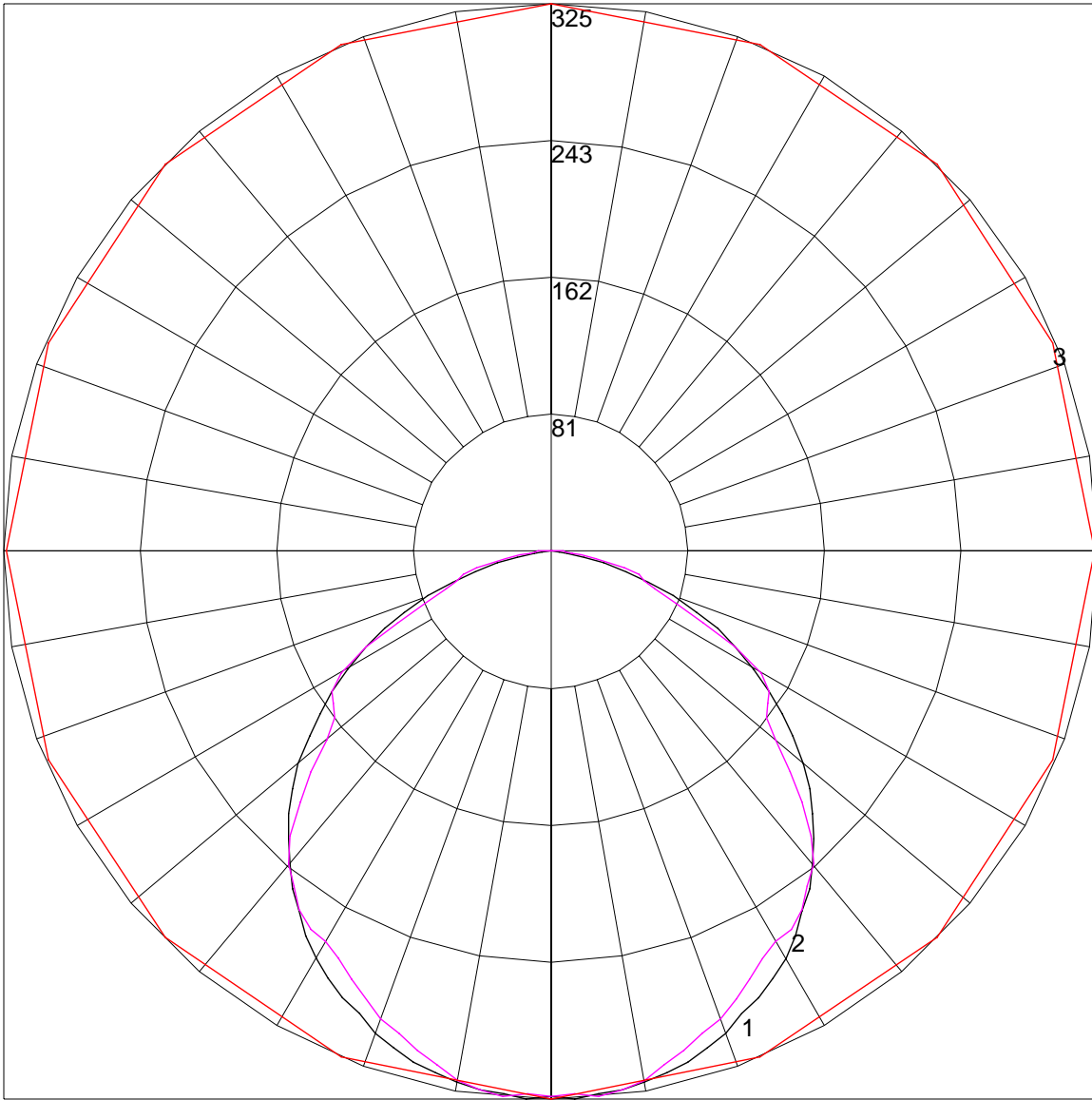
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L11101202.IES

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	109	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	84
2	99	91	84	79	97	89	83	78	86	80	76	82	78	74	79	76	73	70
3	91	80	72	66	88	79	71	65	76	69	64	73	67	63	70	66	62	60
4	83	71	62	56	81	70	62	55	67	60	55	65	59	54	63	57	53	51
5	76	64	55	48	74	62	54	48	60	53	47	58	52	47	56	51	46	44
6	71	57	48	42	69	56	48	42	54	47	41	53	46	41	51	45	41	39
7	65	52	43	37	64	51	43	37	50	42	37	48	41	36	47	41	36	34
8	61	47	39	33	59	47	39	33	45	38	33	44	37	33	43	37	32	30
9	57	44	35	30	55	43	35	30	42	35	30	41	34	29	40	34	29	27
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25

POLAR GRAPH



Maximum Candela = 324.61 Located At Horizontal Angle = 67.5, Vertical Angle = 5

1 - Vertical Plane Through Horizontal Angles (0 - 180) : BLACK

2 - Vertical Plane Through Horizontal Angles (90 - 270) : MAGENTA

3 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.) : RED