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## IES INDOOR REPORT

PHOTOMETRIC FILENAME : FSN OPAL 1 LIGHT.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] LLI-18097-3

[TESTLAB] LightLab International ([www.LightLabInternational.com](http://www.LightLabInternational.com))

[MANUFAC] Justice Design Group, Los Angeles, CA 90071

[LUMCAT] Artisan Glass (FSN) - Opal Glass (OPAL) 1-Light Wall Sconce

[LUMINAIRE] Justice Design Group - Wall mount bathroom luminaire. Product ID: FSN OPAL 1-Light

[MORE] Steel formed housing and frosted clear glass lens with white interior.

[MORE] 10 LEDs mounted in circular array with white plastic dome lens.

[MORE] No driver.

[MORE] Operating at 120 VAC and 60 Hz.

[OTHER] Absolute test - lamp lumens value set to -1

[MORE] NA conventions used for C0 plane alignment and C-plane rotation direction.

[MORE] The sample was tested at a distance of 8m.

[MORE] This IES file created by LightLab/LSA Report program version 3.820a.

[DATE] This file created: Wednesday, April 18, 2018 12:43:45 PM

[ISSUEDATE] Wednesday, April 18, 2018 12:43:45 PM

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	554
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	74
Total Luminaire Watts	7.48
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.56
Spacing Criterion (90-270)	1.74
Spacing Criterion (Diagonal)	1.54
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.08 m
Luminous Width (90-270)	0.17 m
Luminous Height	0.14 m

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**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	2963	2830	4878
55	2498	2187	3167
65	2235	1857	2366
75	2074	1646	2062
85	1997	1523	1851

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**CANDELA TABULATION**

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>	<u>112.5</u>	<u>135.0</u>	<u>157.5</u>	<u>180.0</u>
<b>0.0</b>	86.76	86.76	86.76	86.76	86.76	86.76	86.76	86.76	86.76
<b>0.5</b>	85.92	86.17	86.50	86.54	86.82	87.17	87.44	87.46	87.47
<b>1.0</b>	86.14	86.43	86.57	86.63	86.93	87.49	87.92	88.09	88.22
<b>1.5</b>	86.83	87.00	87.00	86.85	87.22	87.95	88.58	88.98	89.14
<b>2.0</b>	87.60	87.67	87.62	87.19	87.56	88.45	89.35	89.97	90.17
<b>2.5</b>	88.54	88.60	88.34	87.70	87.99	89.05	90.22	91.06	91.29
<b>3.0</b>	89.66	89.47	89.14	88.30	88.43	89.67	91.20	92.14	92.45
<b>3.5</b>	90.79	90.52	90.03	88.91	88.94	90.31	92.11	93.27	93.76
<b>4.0</b>	91.96	91.68	90.86	89.59	89.45	91.06	93.12	94.42	94.90
<b>4.5</b>	93.14	92.73	91.82	90.23	90.00	91.81	94.10	95.62	96.18
<b>5.0</b>	94.25	93.93	92.75	90.92	90.52	92.55	95.02	96.72	97.39
<b>5.5</b>	95.37	94.98	93.68	91.69	91.09	93.29	96.03	97.94	98.59
<b>6.0</b>	96.66	96.14	94.63	92.43	91.66	94.09	97.09	99.15	99.99
<b>6.5</b>	97.82	97.26	95.65	93.15	92.19	94.85	98.08	100.32	101.10
<b>7.0</b>	98.98	98.34	96.61	93.92	92.80	95.62	99.14	101.54	102.38
<b>7.5</b>	100.13	99.55	97.59	94.68	93.40	96.42	100.20	102.73	103.62
<b>8.0</b>	101.22	100.66	98.60	95.41	94.00	97.21	101.20	103.89	104.81
<b>8.5</b>	102.34	101.81	99.57	96.18	94.55	98.01	102.25	105.05	106.00
<b>9.0</b>	103.60	102.88	100.56	96.95	95.19	98.80	103.33	106.17	107.19
<b>9.5</b>	104.78	103.99	101.57	97.70	95.84	99.61	104.26	107.26	108.38
<b>10.0</b>	105.91	105.15	102.53	98.48	96.40	100.36	105.26	108.47	109.55
<b>10.5</b>	107.03	106.37	103.54	99.29	97.00	101.17	106.30	109.58	110.73
<b>11.0</b>	108.31	107.42	104.51	100.06	97.60	101.97	107.26	110.69	111.90
<b>11.5</b>	109.51	108.54	105.46	100.90	98.21	102.77	108.27	111.76	112.99
<b>12.0</b>	110.62	109.69	106.47	101.67	98.82	103.57	109.25	112.91	114.12
<b>12.5</b>	111.53	110.72	107.52	102.42	99.41	104.40	110.21	113.91	115.23
<b>13.0</b>	112.17	111.73	108.45	103.20	99.98	105.17	111.18	115.01	116.22
<b>13.5</b>	112.57	112.53	109.48	103.96	100.60	105.98	112.12	116.02	117.05
<b>14.0</b>	112.70	113.04	110.40	104.66	101.20	106.73	113.04	116.94	117.60
<b>14.5</b>	113.01	113.46	111.37	105.45	101.73	107.50	113.95	117.69	117.90
<b>15.0</b>	113.24	113.73	112.28	106.21	102.39	108.26	114.91	118.23	118.03
<b>15.5</b>	113.47	113.94	113.15	106.98	102.99	108.98	115.78	118.44	117.99
<b>16.0</b>	113.55	114.21	113.89	107.74	103.50	109.75	116.65	118.57	117.93
<b>16.5</b>	113.65	114.24	114.56	108.45	104.05	110.49	117.54	118.55	117.79
<b>17.0</b>	113.66	114.31	115.14	109.17	104.70	111.18	118.33	118.45	117.58
<b>17.5</b>	113.79	114.46	115.60	109.92	105.22	111.87	119.01	118.34	117.50
<b>18.0</b>	113.72	114.44	115.89	110.61	105.77	112.61	119.62	118.15	117.23
<b>18.5</b>	113.79	114.43	116.14	111.31	106.35	113.28	120.00	117.97	116.96
<b>19.0</b>	113.77	114.48	116.25	112.01	106.91	113.99	120.21	117.77	116.70
<b>19.5</b>	113.62	114.33	116.33	112.72	107.47	114.64	120.29	117.55	116.40
<b>20.0</b>	113.43	114.29	116.36	113.35	108.00	115.35	120.25	117.25	116.16
<b>20.5</b>	113.27	114.20	116.35	114.05	108.59	115.99	120.14	116.99	115.81
<b>21.0</b>	112.90	113.95	116.31	114.68	109.13	116.66	119.98	116.69	115.48
<b>21.5</b>	112.70	113.70	116.23	115.34	109.69	117.32	119.77	116.32	115.15
<b>22.0</b>	112.50	113.51	116.10	115.94	110.25	117.92	119.55	115.98	114.72
<b>22.5</b>	112.17	113.18	115.97	116.51	110.82	118.56	119.33	115.56	114.21
<b>23.0</b>	111.85	112.79	115.83	117.01	111.35	119.12	119.02	115.12	113.79
<b>23.5</b>	111.39	112.33	115.55	117.36	111.82	119.71	118.67	114.70	113.22
<b>24.0</b>	110.95	111.85	115.30	117.66	112.38	120.26	118.33	114.13	112.64
<b>24.5</b>	110.57	111.46	115.01	117.92	112.87	120.80	117.95	113.50	112.12
<b>25.0</b>	110.11	110.93	114.61	118.13	113.37	121.27	117.52	112.97	111.53
<b>25.5</b>	109.60	110.43	114.23	118.29	113.87	121.63	117.11	112.33	110.86
<b>26.0</b>	109.04	109.86	113.76	118.33	114.30	121.95	116.57	111.64	110.22
<b>26.5</b>	108.51	109.27	113.27	118.45	114.76	122.15	116.08	110.98	109.46

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**CANDELA TABULATION - (Cont.)**

27.0	107.78	108.62	112.72	118.41	115.18	122.24	115.53	110.21	108.74
27.5	107.28	108.07	112.15	118.33	115.59	122.26	114.88	109.50	108.00
28.0	106.54	107.40	111.48	118.14	115.97	122.18	114.23	108.71	107.20
28.5	105.83	106.62	110.80	117.93	116.40	121.94	113.52	107.90	106.34
29.0	105.15	105.88	110.13	117.55	116.82	121.63	112.75	107.03	105.48
29.5	104.40	105.18	109.37	117.16	117.20	121.21	111.97	106.16	104.60
30.0	103.65	104.41	108.56	116.68	117.51	120.68	111.13	105.27	103.63
30.5	102.71	103.61	107.73	116.09	117.91	120.11	110.19	104.31	102.62
31.0	101.97	102.87	106.86	115.57	118.22	119.47	109.28	103.33	101.67
31.5	101.17	102.02	106.02	114.95	118.57	118.77	108.32	102.37	100.60
32.0	100.22	101.13	105.18	114.23	118.91	117.96	107.34	101.36	99.60
32.5	99.36	100.29	104.19	113.53	119.11	117.07	106.31	100.28	98.42
33.0	98.43	99.35	103.27	112.70	119.36	116.10	105.31	99.18	97.33
33.5	97.36	98.49	102.34	111.82	119.55	115.15	104.27	98.05	96.03
34.0	96.49	97.50	101.31	110.99	119.49	114.01	103.15	96.96	94.93
34.5	95.56	96.54	100.35	109.96	119.34	112.92	102.06	95.80	93.72
35.0	94.46	95.53	99.31	108.93	118.84	111.78	100.87	94.62	92.43
35.5	93.48	94.60	98.31	107.87	118.16	110.60	99.75	93.43	91.16
36.0	92.44	93.51	97.23	106.76	117.28	109.35	98.58	92.14	89.95
36.5	91.34	92.49	96.22	105.56	116.24	108.16	97.39	90.96	88.62
37.0	90.37	91.47	95.14	104.33	114.93	106.82	96.17	89.72	87.35
37.5	89.33	90.40	94.00	103.08	113.29	105.51	94.93	88.40	86.00
38.0	88.23	89.30	92.96	101.83	111.48	104.19	93.71	87.10	84.67
38.5	87.17	88.21	91.82	100.49	109.60	102.80	92.38	85.73	83.38
39.0	86.10	87.17	90.73	99.16	107.66	101.47	91.12	84.43	82.07
39.5	85.08	86.05	89.60	97.78	105.72	100.07	89.81	83.06	80.69
40.0	84.20	84.98	88.44	96.41	103.77	98.69	88.52	81.72	79.40
40.5	83.18	83.89	87.28	95.06	101.92	97.27	87.15	80.37	78.06
41.0	82.15	82.84	86.15	93.64	100.07	95.88	85.82	79.02	76.77
41.5	81.38	81.81	84.94	92.32	98.28	94.46	84.44	77.65	75.53
42.0	80.54	80.78	83.76	90.93	96.62	93.04	83.08	76.31	74.28
42.5	79.84	79.76	82.55	89.53	94.91	91.59	81.66	74.99	73.08
43.0	79.24	78.81	81.37	88.15	93.30	90.17	80.24	73.70	71.83
43.5	78.72	77.99	80.15	86.70	91.79	88.68	78.85	72.46	70.79
44.0	78.29	77.16	78.97	85.28	90.28	87.18	77.37	71.15	69.78
44.5	77.65	76.52	77.78	83.94	88.82	85.71	75.94	70.00	68.83
45.0	77.12	75.90	76.56	82.43	87.36	84.15	74.49	68.89	68.06
45.5	76.62	75.31	75.44	81.04	86.00	82.67	73.12	67.88	67.30
46.0	76.07	74.82	74.27	79.62	84.56	81.09	71.70	66.94	66.58
46.5	75.49	74.26	73.13	78.20	83.21	79.51	70.29	66.12	65.82
47.0	74.90	73.67	72.07	76.70	81.76	77.94	68.83	65.36	65.05
47.5	74.38	73.15	70.97	75.26	80.29	76.32	67.50	64.60	64.28
48.0	73.85	72.62	70.03	73.82	78.82	74.71	66.17	63.88	63.48
48.5	73.27	72.01	69.11	72.30	77.30	73.05	64.84	63.12	62.81
49.0	72.80	71.47	68.32	70.88	75.75	71.47	63.62	62.39	62.09
49.5	72.26	70.91	67.51	69.38	74.16	69.82	62.44	61.64	61.34
50.0	71.73	70.38	66.80	67.93	72.54	68.25	61.40	60.95	60.67
50.5	71.20	69.81	66.07	66.54	70.84	66.62	60.42	60.20	59.97
51.0	70.72	69.30	65.45	65.18	69.14	64.98	59.53	59.52	59.23
51.5	70.28	68.72	64.89	63.66	67.43	63.39	58.74	58.79	58.60
52.0	69.70	68.25	64.39	62.33	65.62	61.81	57.99	58.16	57.95
52.5	69.30	67.73	63.83	60.99	63.77	60.25	57.35	57.47	57.29
53.0	68.80	67.19	63.30	59.61	62.02	58.71	56.63	56.76	56.64
53.5	68.38	66.70	62.75	58.42	60.21	57.25	55.96	56.24	55.98
54.0	67.95	66.26	62.24	57.19	58.44	55.80	55.32	55.52	55.39
54.5	67.38	65.74	61.70	56.07	56.76	54.47	54.67	54.91	54.85

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**CANDELA TABULATION - (Cont.)**

55.0	66.93	65.34	61.18	55.06	55.05	53.12	54.03	54.27	54.21
55.5	66.63	64.89	60.65	54.22	53.44	51.86	53.39	53.69	53.68
56.0	66.22	64.43	60.16	53.36	51.82	50.80	52.75	53.10	53.08
56.5	65.81	63.97	59.61	52.67	50.31	49.79	52.13	52.53	52.50
57.0	65.46	63.60	59.12	51.93	48.90	49.02	51.55	51.94	51.96
57.5	65.04	63.10	58.63	51.23	47.50	48.41	50.95	51.37	51.42
58.0	64.71	62.70	58.11	50.72	46.20	47.91	50.31	50.83	50.87
58.5	64.25	62.33	57.67	50.33	45.06	47.38	49.74	50.27	50.29
59.0	63.94	61.91	57.21	49.86	44.09	46.89	49.18	49.70	49.78
59.5	63.55	61.51	56.73	49.45	43.29	46.41	48.58	49.21	49.32
60.0	63.13	61.14	56.29	49.02	42.69	45.91	48.06	48.67	48.74
60.5	62.76	60.76	55.86	48.58	42.19	45.38	47.50	48.11	48.29
61.0	62.43	60.37	55.41	48.12	41.78	44.86	46.93	47.62	47.71
61.5	62.16	60.03	54.90	47.71	41.41	44.37	46.43	47.10	47.28
62.0	61.76	59.63	54.52	47.20	41.06	43.89	45.88	46.60	46.73
62.5	61.39	59.25	54.09	46.79	40.65	43.37	45.39	46.11	46.21
63.0	61.07	58.88	53.64	46.34	40.26	42.87	44.89	45.55	45.78
63.5	60.65	58.51	53.24	45.90	39.86	42.37	44.38	45.12	45.25
64.0	60.32	58.19	52.87	45.48	39.45	41.92	43.85	44.64	44.80
64.5	60.08	57.83	52.43	45.01	39.03	41.41	43.39	44.18	44.31
65.0	59.74	57.47	52.10	44.59	38.63	40.95	42.90	43.68	43.85
65.5	59.36	57.12	51.65	44.19	38.21	40.42	42.36	43.27	43.38
66.0	59.03	56.81	51.29	43.75	37.80	39.97	41.91	42.79	42.93
66.5	58.74	56.43	50.89	43.29	37.40	39.51	41.41	42.32	42.51
67.0	58.43	56.14	50.50	42.95	36.92	39.01	40.90	41.85	42.04
67.5	58.06	55.79	50.10	42.53	36.55	38.52	40.49	41.41	41.58
68.0	57.74	55.43	49.75	42.05	36.16	38.13	40.04	40.95	41.17
68.5	57.46	55.10	49.39	41.68	35.72	37.61	39.57	40.55	40.78
69.0	57.17	54.81	49.00	41.27	35.29	37.21	39.16	40.10	40.26
69.5	56.85	54.47	48.65	40.83	34.89	36.78	38.70	39.67	39.86
70.0	56.57	54.18	48.26	40.47	34.46	36.29	38.29	39.25	39.48
70.5	56.20	53.84	47.87	40.08	34.04	35.86	37.85	38.85	38.96
71.0	55.88	53.52	47.59	39.63	33.63	35.43	37.41	38.39	38.61
71.5	55.63	53.27	47.24	39.28	33.23	35.00	36.98	38.00	38.20
72.0	55.34	52.94	46.87	38.87	32.84	34.54	36.58	37.57	37.80
72.5	55.07	52.63	46.56	38.45	32.43	34.14	36.16	37.19	37.38
73.0	54.74	52.33	46.22	38.12	32.03	33.71	35.77	36.76	36.99
73.5	54.43	52.05	45.87	37.71	31.63	33.28	35.34	36.39	36.58
74.0	54.22	51.72	45.55	37.31	31.25	32.87	34.96	35.99	36.21
74.5	53.99	51.41	45.19	36.98	30.82	32.45	34.56	35.60	35.80
75.0	53.66	51.16	44.88	36.63	30.47	32.08	34.19	35.24	35.39
75.5	53.33	50.85	44.60	36.23	30.09	31.70	33.79	34.81	35.02
76.0	53.06	50.57	44.29	35.89	29.68	31.27	33.39	34.44	34.62
76.5	52.74	50.29	43.94	35.55	29.29	30.92	33.01	34.06	34.27
77.0	52.42	49.99	43.69	35.19	28.95	30.54	32.61	33.71	33.91
77.5	52.26	49.75	43.36	34.82	28.55	30.12	32.25	33.31	33.58
78.0	51.96	49.45	43.01	34.50	28.22	29.78	31.89	32.94	33.18
78.5	51.62	49.15	42.76	34.10	27.83	29.41	31.53	32.58	32.83
79.0	51.44	48.87	42.46	33.81	27.47	29.01	31.15	32.23	32.40
79.5	51.09	48.60	42.12	33.51	27.11	28.64	30.79	31.85	32.07
80.0	50.93	48.32	41.87	33.12	26.77	28.28	30.43	31.50	31.72
80.5	50.64	48.08	41.55	32.82	26.45	27.93	30.05	31.18	31.41
81.0	50.35	47.82	41.26	32.50	26.10	27.57	29.75	30.81	31.00
81.5	50.16	47.51	41.00	32.18	25.81	27.27	29.41	30.48	30.67
82.0	49.83	47.25	40.69	31.90	25.48	26.91	29.03	30.18	30.36
82.5	49.61	47.04	40.38	31.61	25.14	26.54	28.71	29.84	30.03

**IES INDOOR REPORT**  
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**CANDELA TABULATION - (Cont.)**

<b>83.0</b>	49.28	46.73	40.14	31.28	24.81	26.24	28.39	29.50	29.68
<b>83.5</b>	49.04	46.51	39.87	30.98	24.51	25.93	28.05	29.15	29.33
<b>84.0</b>	48.83	46.27	39.57	30.73	24.20	25.59	27.75	28.86	29.00
<b>84.5</b>	48.57	45.98	39.35	30.41	23.91	25.27	27.41	28.50	28.66
<b>85.0</b>	48.36	45.72	39.09	30.15	23.64	24.95	27.12	28.21	28.42
<b>85.5</b>	48.13	45.48	38.80	29.88	23.32	24.61	26.84	27.89	28.07
<b>86.0</b>	47.89	45.23	38.55	29.59	23.06	24.34	26.48	27.51	27.82
<b>86.5</b>	47.64	45.03	38.35	29.34	22.77	24.03	26.18	27.23	27.41
<b>87.0</b>	47.37	44.78	38.06	29.15	22.51	23.74	25.91	26.97	27.13
<b>87.5</b>	47.15	44.52	37.85	28.85	22.31	23.47	25.61	26.64	26.87
<b>88.0</b>	46.94	44.37	37.64	28.66	22.01	23.20	25.35	26.37	26.54
<b>88.5</b>	46.71	44.14	37.41	28.45	21.83	22.93	25.07	26.10	26.25
<b>89.0</b>	46.67	44.01	37.24	28.22	21.62	22.74	24.80	25.79	25.92
<b>89.5</b>	46.69	44.00	37.24	28.20	21.47	22.54	24.55	25.54	25.67
<b>90.0</b>	46.60	44.06	37.31	28.24	21.55	22.49	24.45	25.39	25.50
<b>90.5</b>	46.75	44.12	37.32	28.27	21.55	22.51	24.39	25.31	25.45
<b>91.0</b>	46.88	44.16	37.38	28.33	21.53	22.51	24.34	25.27	25.40
<b>91.5</b>	46.92	44.28	37.43	28.39	21.60	22.52	24.33	25.25	25.31
<b>92.0</b>	47.00	44.27	37.53	28.37	21.61	22.52	24.28	25.17	25.28
<b>92.5</b>	47.06	44.35	37.57	28.45	21.67	22.49	24.24	25.09	25.21
<b>93.0</b>	47.14	44.42	37.57	28.52	21.65	22.43	24.24	25.06	25.17
<b>93.5</b>	47.26	44.47	37.71	28.55	21.75	22.44	24.24	25.02	25.10
<b>94.0</b>	47.31	44.57	37.75	28.63	21.73	22.42	24.15	24.98	25.02
<b>94.5</b>	47.38	44.60	37.81	28.65	21.78	22.37	24.18	24.91	24.90
<b>95.0</b>	47.53	44.67	37.85	28.70	21.78	22.37	24.11	24.77	24.83
<b>95.5</b>	47.51	44.78	37.90	28.76	21.81	22.36	24.06	24.73	24.80
<b>96.0</b>	47.63	44.83	37.97	28.80	21.83	22.34	24.01	24.68	24.67
<b>96.5</b>	47.69	44.88	38.09	28.83	21.89	22.31	23.95	24.57	24.61
<b>97.0</b>	47.76	44.95	38.07	28.90	21.88	22.29	23.92	24.50	24.48
<b>97.5</b>	47.81	45.01	38.13	28.98	21.89	22.24	23.89	24.48	24.43
<b>98.0</b>	47.92	45.02	38.20	28.97	21.97	22.26	23.80	24.38	24.35
<b>98.5</b>	47.93	45.11	38.25	29.06	21.98	22.20	23.77	24.31	24.25
<b>99.0</b>	47.99	45.17	38.25	29.14	22.01	22.14	23.75	24.23	24.17
<b>99.5</b>	48.06	45.19	38.32	29.11	22.03	22.14	23.64	24.15	24.03
<b>100.0</b>	48.08	45.24	38.35	29.17	22.08	22.10	23.62	24.08	23.97
<b>100.5</b>	48.16	45.25	38.36	29.22	22.09	22.07	23.59	23.98	23.87
<b>101.0</b>	48.15	45.28	38.40	29.28	22.14	22.03	23.53	23.87	23.77
<b>101.5</b>	48.26	45.30	38.44	29.30	22.16	21.96	23.46	23.81	23.63
<b>102.0</b>	48.22	45.33	38.43	29.35	22.24	21.94	23.39	23.70	23.59
<b>102.5</b>	48.25	45.33	38.44	29.36	22.24	21.91	23.30	23.60	23.49
<b>103.0</b>	48.26	45.36	38.46	29.40	22.30	21.83	23.22	23.52	23.40
<b>103.5</b>	48.26	45.37	38.44	29.46	22.28	21.80	23.16	23.46	23.22
<b>104.0</b>	48.34	45.38	38.40	29.40	22.30	21.75	23.07	23.36	23.18
<b>104.5</b>	48.36	45.42	38.41	29.46	22.32	21.69	22.95	23.24	23.02
<b>105.0</b>	48.27	45.43	38.39	29.49	22.38	21.63	22.84	23.17	22.91
<b>105.5</b>	48.32	45.37	38.38	29.43	22.40	21.58	22.73	23.04	22.78
<b>106.0</b>	48.36	45.38	38.41	29.45	22.37	21.54	22.62	22.90	22.70
<b>106.5</b>	48.34	45.40	38.39	29.45	22.40	21.49	22.52	22.80	22.57
<b>107.0</b>	48.37	45.40	38.36	29.44	22.37	21.45	22.40	22.65	22.47
<b>107.5</b>	48.34	45.37	38.35	29.43	22.37	21.39	22.30	22.53	22.30
<b>108.0</b>	48.34	45.36	38.33	29.48	22.40	21.27	22.19	22.33	22.13
<b>108.5</b>	48.36	45.35	38.35	29.43	22.36	21.25	22.09	22.21	21.95
<b>109.0</b>	48.27	45.34	38.30	29.43	22.38	21.14	21.98	22.04	21.84
<b>109.5</b>	48.30	45.27	38.25	29.39	22.33	21.11	21.87	21.91	21.59
<b>110.0</b>	48.25	45.28	38.22	29.39	22.36	21.06	21.76	21.71	21.51
<b>110.5</b>	48.26	45.20	38.22	29.38	22.32	21.00	21.62	21.61	21.26

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**CANDELA TABULATION - (Cont.)**

111.0	48.20	45.21	38.18	29.41	22.33	20.94	21.53	21.44	21.08
111.5	48.17	45.18	38.18	29.37	22.28	20.89	21.37	21.30	20.99
112.0	48.05	45.16	38.14	29.36	22.27	20.79	21.27	21.12	20.77
112.5	48.08	45.12	38.06	29.33	22.29	20.76	21.18	20.98	20.57
113.0	48.06	45.06	38.06	29.30	22.28	20.67	21.07	20.83	20.39
113.5	48.00	45.01	38.01	29.26	22.25	20.63	20.91	20.62	20.25
114.0	47.92	44.98	37.94	29.26	22.24	20.58	20.81	20.51	20.09
114.5	47.94	44.92	37.91	29.21	22.23	20.48	20.71	20.28	19.89
115.0	47.82	44.85	37.82	29.17	22.18	20.42	20.50	20.06	19.66
115.5	47.78	44.86	37.78	29.14	22.19	20.34	20.45	19.86	19.48
116.0	47.68	44.72	37.70	29.07	22.11	20.33	20.28	19.59	19.27
116.5	47.69	44.68	37.65	29.06	22.14	20.21	20.11	19.38	19.06
117.0	47.56	44.61	37.57	29.01	22.09	20.17	20.04	19.19	18.70
117.5	47.45	44.51	37.54	28.96	22.04	20.10	19.93	18.92	18.51
118.0	47.39	44.44	37.42	28.88	22.00	20.01	19.77	18.72	18.19
118.5	47.30	44.40	37.36	28.84	21.94	19.94	19.63	18.50	17.96
119.0	47.18	44.27	37.29	28.82	21.91	19.88	19.55	18.27	17.68
119.5	47.08	44.21	37.22	28.77	21.91	19.82	19.37	18.01	17.38
120.0	46.99	44.15	37.16	28.69	21.84	19.75	19.29	17.74	17.11
120.5	46.92	43.99	37.08	28.59	21.79	19.65	19.14	17.50	16.85
121.0	46.82	43.92	36.96	28.59	21.71	19.58	18.98	17.28	16.58
121.5	46.64	43.85	36.86	28.54	21.71	19.48	18.91	17.06	16.30
122.0	46.56	43.70	36.79	28.42	21.68	19.40	18.77	16.81	16.01
122.5	46.42	43.60	36.72	28.35	21.60	19.37	18.64	16.60	15.77
123.0	46.31	43.51	36.59	28.32	21.55	19.25	18.53	16.37	15.50
123.5	46.16	43.32	36.48	28.19	21.51	19.19	18.42	16.17	15.17
124.0	46.14	43.18	36.41	28.15	21.49	19.13	18.24	15.93	14.95
124.5	45.89	43.08	36.30	28.08	21.41	19.03	18.15	15.73	14.71
125.0	45.72	42.92	36.20	28.00	21.34	19.01	18.06	15.51	14.46
125.5	45.55	42.79	36.05	27.89	21.29	18.92	17.95	15.32	14.27
126.0	45.35	42.61	35.94	27.83	21.27	18.88	17.88	15.15	14.06
126.5	45.27	42.44	35.81	27.73	21.22	18.83	17.75	14.95	13.85
127.0	44.97	42.31	35.70	27.68	21.19	18.78	17.60	14.79	13.64
127.5	44.77	42.11	35.55	27.59	21.15	18.70	17.52	14.65	13.48
128.0	44.63	41.93	35.42	27.48	21.08	18.68	17.43	14.43	13.30
128.5	44.41	41.73	35.28	27.42	21.08	18.66	17.30	14.25	13.13
129.0	44.19	41.62	35.16	27.31	20.99	18.57	17.20	14.05	12.96
129.5	44.04	41.40	34.99	27.24	20.95	18.51	17.13	13.88	12.85
130.0	43.75	41.26	34.85	27.10	20.91	18.40	16.95	13.72	12.69
130.5	43.58	41.06	34.69	27.03	20.91	18.37	16.88	13.57	12.48
131.0	43.38	40.86	34.54	26.97	20.81	18.31	16.78	13.43	12.39
131.5	43.21	40.69	34.41	26.84	20.77	18.27	16.66	13.24	12.30
132.0	42.92	40.49	34.22	26.81	20.74	18.23	16.56	13.10	12.13
132.5	42.66	40.23	34.08	26.66	20.68	18.17	16.49	12.95	11.98
133.0	42.48	40.04	33.92	26.54	20.59	18.11	16.37	12.82	11.95
133.5	42.21	39.84	33.75	26.46	20.58	18.06	16.28	12.72	11.80
134.0	41.99	39.60	33.59	26.34	20.49	18.04	16.17	12.58	11.75
134.5	41.78	39.38	33.42	26.21	20.48	17.98	16.10	12.43	11.62
135.0	41.53	39.17	33.21	26.09	20.40	17.90	16.00	12.34	11.52
135.5	41.29	38.90	33.08	25.99	20.34	17.91	15.90	12.23	11.42
136.0	41.02	38.76	32.88	25.87	20.27	17.80	15.78	12.05	11.29
136.5	40.77	38.53	32.71	25.79	20.22	17.75	15.67	11.97	11.16
137.0	40.49	38.26	32.53	25.64	20.17	17.69	15.63	11.85	11.02
137.5	40.21	38.03	32.35	25.53	20.07	17.64	15.48	11.71	10.97
138.0	39.91	37.79	32.16	25.43	20.05	17.55	15.43	11.65	10.94
138.5	39.68	37.53	32.00	25.30	19.99	17.55	15.39	11.55	10.81

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**CANDELA TABULATION - (Cont.)**

139.0	39.38	37.32	31.79	25.15	19.88	17.52	15.25	11.41	10.73
139.5	39.12	37.05	31.59	25.03	19.83	17.45	15.18	11.33	10.63
140.0	38.92	36.81	31.32	24.93	19.80	17.43	15.11	11.22	10.53
140.5	38.64	36.52	31.18	24.74	19.68	17.34	14.98	11.14	10.44
141.0	38.36	36.33	30.96	24.67	19.64	17.27	14.94	11.00	10.32
141.5	38.12	36.01	30.78	24.51	19.56	17.26	14.84	10.90	10.22
142.0	37.83	35.77	30.55	24.35	19.46	17.20	14.76	10.78	10.10
142.5	37.48	35.52	30.36	24.23	19.40	17.13	14.71	10.73	9.98
143.0	37.20	35.23	30.14	24.07	19.33	17.11	14.64	10.57	9.95
143.5	36.90	34.94	29.90	23.91	19.25	17.02	14.52	10.48	9.86
144.0	36.62	34.67	29.69	23.79	19.14	16.95	14.50	10.40	9.80
144.5	36.32	34.39	29.48	23.66	19.07	16.97	14.48	10.34	9.73
145.0	36.00	34.15	29.29	23.46	18.98	16.89	14.37	10.21	9.68
145.5	35.71	33.87	29.07	23.35	18.92	16.82	14.30	10.16	9.67
146.0	35.38	33.57	28.83	23.20	18.82	16.74	14.27	10.09	9.73
146.5	35.09	33.26	28.58	23.04	18.71	16.71	14.18	9.94	9.72
147.0	34.80	32.99	28.39	22.88	18.61	16.65	14.19	9.87	9.69
147.5	34.50	32.65	28.16	22.72	18.58	16.60	14.10	9.81	9.72
148.0	34.14	32.37	27.91	22.57	18.45	16.53	14.04	9.73	9.74
148.5	33.80	32.10	27.70	22.40	18.40	16.47	13.99	9.64	9.76
149.0	33.44	31.83	27.45	22.26	18.28	16.43	13.97	9.55	9.81
149.5	33.19	31.52	27.21	22.06	18.17	16.40	13.91	9.51	9.86
150.0	32.85	31.18	26.97	21.92	18.05	16.30	13.86	9.44	9.85
150.5	32.52	30.92	26.72	21.76	17.99	16.28	13.83	9.40	9.91
151.0	32.20	30.56	26.50	21.56	17.88	16.20	13.77	9.39	9.98
151.5	31.91	30.27	26.27	21.42	17.78	16.16	13.72	9.31	9.94
152.0	31.49	30.00	26.00	21.28	17.69	16.08	13.68	9.22	9.92
152.5	31.15	29.65	25.78	21.07	17.57	16.04	13.60	9.21	9.96
153.0	30.89	29.32	25.48	20.86	17.49	15.99	13.61	9.17	9.95
153.5	30.49	29.03	25.27	20.70	17.37	15.91	13.59	9.16	9.99
154.0	30.15	28.71	25.00	20.54	17.27	15.84	13.51	9.14	9.96
154.5	29.78	28.37	24.72	20.34	17.18	15.77	13.51	9.14	9.94
155.0	29.41	28.02	24.48	20.15	17.09	15.69	13.45	9.13	9.94
155.5	29.08	27.68	24.23	19.95	16.97	15.63	13.37	9.15	10.00
156.0	28.76	27.38	23.96	19.81	16.85	15.59	13.37	9.16	10.00
156.5	28.32	27.05	23.67	19.59	16.78	15.50	13.37	9.12	10.06
157.0	28.05	26.74	23.44	19.38	16.62	15.44	13.31	9.04	10.04
157.5	27.66	26.40	23.15	19.19	16.49	15.34	13.29	9.00	9.99
158.0	27.31	26.03	22.92	19.03	16.40	15.29	13.28	8.93	9.99
158.5	27.00	25.74	22.68	18.81	16.25	15.21	13.23	8.80	9.98
159.0	26.61	25.42	22.37	18.61	16.13	15.10	13.21	8.75	9.99
159.5	26.25	25.06	22.11	18.44	16.01	15.07	13.19	8.63	10.00
160.0	25.88	24.70	21.83	18.19	15.88	14.96	13.12	8.62	9.99
160.5	25.55	24.37	21.57	18.00	15.77	14.92	13.06	8.57	9.98
161.0	25.16	24.01	21.27	17.82	15.66	14.82	13.00	8.55	10.06
161.5	24.74	23.67	21.02	17.56	15.51	14.74	12.91	8.43	10.10
162.0	24.35	23.33	20.68	17.34	15.39	14.64	12.82	8.35	10.15
162.5	23.98	22.98	20.42	17.17	15.32	14.57	12.68	8.26	10.15
163.0	23.61	22.61	20.14	16.94	15.13	14.47	12.37	8.20	10.17
163.5	23.21	22.28	19.83	16.74	15.05	14.37	12.04	8.05	10.23
164.0	22.88	21.91	19.56	16.55	14.93	14.34	11.63	7.80	10.20
164.5	22.47	21.53	19.27	16.28	14.78	14.22	11.12	7.58	10.01
165.0	22.08	21.15	18.98	16.07	14.64	14.03	10.65	7.47	9.71
165.5	21.66	20.81	18.68	15.83	14.51	13.81	10.15	7.42	9.31
166.0	21.30	20.44	18.37	15.64	14.34	13.46	9.55	7.38	8.85
166.5	20.87	20.05	18.02	15.43	14.15	12.98	9.05	7.28	8.20



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**CANDELA TABULATION - (Cont.)**

<b>167.0</b>	20.43	19.68	17.74	15.23	13.85	12.47	8.65	7.23	7.43
<b>167.5</b>	20.04	19.31	17.45	14.98	13.42	11.86	8.25	7.02	6.76
<b>168.0</b>	19.59	18.87	17.05	14.79	12.82	11.20	8.00	6.88	5.96
<b>168.5</b>	19.18	18.48	16.75	14.55	12.29	10.58	7.84	6.71	5.22
<b>169.0</b>	18.76	18.12	16.47	14.19	11.57	9.92	7.66	6.38	4.34
<b>169.5</b>	18.32	17.74	16.10	13.75	10.93	9.28	7.59	6.02	3.40
<b>170.0</b>	17.86	17.33	15.73	13.16	10.21	8.79	7.45	5.50	2.53
<b>170.5</b>	17.42	16.81	15.34	12.55	9.60	8.47	7.25	4.86	1.83
<b>171.0</b>	16.97	16.33	14.77	11.91	9.09	8.15	7.09	4.30	1.12
<b>171.5</b>	16.56	15.92	14.28	11.24	8.74	7.97	6.81	3.82	0.74
<b>172.0</b>	16.08	15.46	13.80	10.60	8.43	7.84	6.33	3.25	0.66
<b>172.5</b>	15.67	14.83	13.13	10.13	8.16	7.61	5.77	2.69	0.65
<b>173.0</b>	14.95	14.26	12.49	9.69	7.93	7.35	5.20	2.15	0.62
<b>173.5</b>	14.09	13.61	11.77	9.17	7.64	6.82	4.45	1.82	0.53
<b>174.0</b>	13.63	12.77	10.94	8.75	7.40	6.05	3.68	1.68	0.46
<b>174.5</b>	12.88	11.96	10.19	8.27	6.95	5.28	2.94	1.51	0.39
<b>175.0</b>	11.98	11.09	9.47	7.67	6.30	4.40	2.35	1.38	0.30
<b>175.5</b>	10.81	10.08	8.62	7.06	5.50	3.44	2.01	1.14	0.22
<b>176.0</b>	9.64	8.96	7.78	6.33	4.65	2.61	1.78	0.95	0.29
<b>176.5</b>	8.38	7.70	6.79	5.30	3.66	2.01	1.52	0.67	0.23
<b>177.0</b>	6.91	6.42	5.68	4.25	2.77	1.69	1.28	0.44	0.19
<b>177.5</b>	5.39	4.98	4.63	3.31	2.04	1.49	1.08	0.29	0.19
<b>178.0</b>	3.77	3.49	3.53	2.25	1.50	1.24	0.85	0.24	0.32
<b>178.5</b>	2.40	2.23	2.33	1.43	1.21	1.02	0.64	0.26	0.22
<b>179.0</b>	1.41	1.34	1.25	0.89	0.94	0.81	0.50	0.24	0.25
<b>179.5</b>	0.50	0.76	0.48	0.48	0.65	0.65	0.31	0.25	0.35
<b>180.0</b>	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : FSN OPAL 1 LIGHT.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	40.76	N.A.	7.40
0-30	93.61	N.A.	16.90
0-40	157.51	N.A.	28.50
0-60	269.52	N.A.	48.70
0-80	356.58	N.A.	64.40
0-90	391.76	N.A.	70.80
10-90	382.52	N.A.	69.10
20-40	116.75	N.A.	21.10
20-50	176.98	N.A.	32.00
40-70	158.17	N.A.	28.60
60-80	87.06	N.A.	15.70
70-80	40.90	N.A.	7.40
80-90	35.18	N.A.	6.40
90-110	64.32	N.A.	11.60
90-120	92.67	N.A.	16.70
90-130	116.37	N.A.	21.00
90-150	148.34	N.A.	26.80
90-180	161.88	N.A.	29.20
110-180	97.56	N.A.	17.60
0-180	553.64	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	9.24
10-20	31.53
20-30	52.84
30-40	63.90
40-50	60.23
50-60	51.78
60-70	46.16
70-80	40.90
80-90	35.18
90-100	32.78
100-110	31.54
110-120	28.35
120-130	23.70
130-140	18.57
140-150	13.40
150-160	8.58
160-170	4.22
170-180	0.73

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : FSN OPAL 1 LIGHT.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	112	112	112	112	106	106	106	106	95	95	95	85	85	85	75	75	75	71	71
1	100	94	89	85	94	89	85	81	80	76	73	71	68	66	63	60	59	54	54
2	90	81	74	68	85	77	70	65	69	63	59	61	57	53	54	51	48	44	44
3	82	71	63	56	77	67	60	54	60	54	49	54	49	44	47	43	40	37	37
4	75	63	54	47	70	59	51	45	53	47	41	48	42	38	42	38	34	31	31
5	69	56	47	40	65	53	45	39	48	41	36	43	37	33	38	33	30	27	27
6	63	50	41	35	60	48	39	34	43	36	31	38	33	28	34	30	26	23	23
7	59	45	37	31	55	43	35	29	39	32	27	35	29	25	31	27	23	21	21
8	54	41	33	27	51	39	31	26	35	29	24	32	26	22	29	24	21	18	18
9	51	38	30	24	48	36	28	23	33	26	22	29	24	20	27	22	18	16	16
10	47	35	27	22	45	33	26	21	30	24	20	27	22	18	25	20	17	15	15

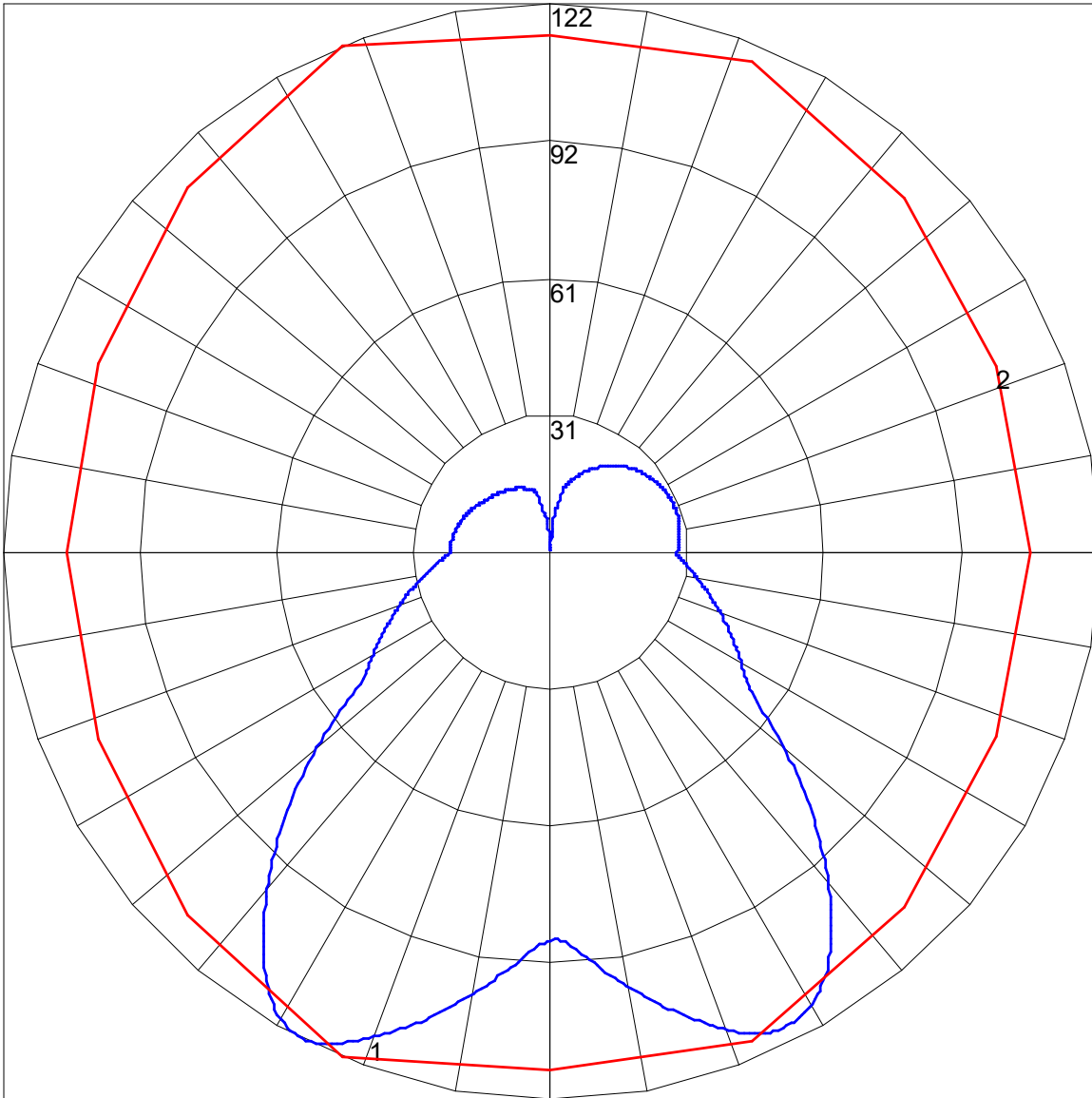
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : FSN OPAL 1 LIGHT.IES**

**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	12.6	13.8	13.4	14.6	15.5	10.9	12.0	11.6	12.8	13.8
	3H	15.0	16.0	15.7	16.8	17.8	12.7	13.8	13.5	14.6	15.5
	4H	16.1	17.1	16.9	17.9	18.9	13.6	14.6	14.3	15.4	16.3
	6H	17.2	18.2	18.0	19.0	19.9	14.3	15.2	15.1	16.0	17.0
	8H	17.7	18.6	18.5	19.5	20.4	14.7	15.5	15.4	16.4	17.4
	12H	18.3	19.1	19.1	19.9	20.9	15.0	15.8	15.8	16.6	17.7
4H	2H	13.2	14.2	14.0	15.0	16.0	11.7	12.7	12.5	13.5	14.5
	3H	15.8	16.6	16.6	17.5	18.5	13.8	14.7	14.6	15.5	16.5
	4H	17.1	17.9	17.9	18.7	19.7	14.8	15.6	15.6	16.4	17.4
	6H	18.4	19.1	19.2	19.9	21.0	15.7	16.4	16.5	17.2	18.2
	8H	19.0	19.7	19.8	20.5	21.6	16.1	16.7	16.9	17.6	18.6
	12H	19.6	20.2	20.5	21.1	22.1	16.5	17.1	17.3	17.9	19.0
8H	4H	17.4	18.1	18.3	18.9	20.0	15.4	16.0	16.2	16.9	17.9
	6H	19.0	19.5	19.8	20.4	21.4	16.5	17.0	17.3	17.9	19.0
	8H	19.7	20.2	20.6	21.1	22.2	17.0	17.5	17.9	18.4	19.5
	12H	20.5	21.0	21.4	21.9	23.0	17.6	18.0	18.4	18.9	20.0
12H	4H	17.5	18.1	18.3	19.0	20.0	15.5	16.1	16.4	17.0	18.0
	6H	19.1	19.6	19.9	20.4	21.5	16.7	17.2	17.6	18.1	19.2
	8H	19.9	20.4	20.8	21.3	22.4	17.3	17.8	18.2	18.7	19.8

Maximum UGR = 23.0

POLAR GRAPH



Maximum Candela = 122.26 Located At Horizontal Angle = 112.5, Vertical Angle = 27.5  
# 1 - Vertical Plane Through Horizontal Angles (112.5 - 292.5) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (27.5) (Through Max. Cd.)