



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HETG-AR22-L38-830-A-DIM-UNV.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
[TEST] GEN FROM ORIG TEST  
[TESTLAB] Intertek  
[ISSUE DATE] 03/18/2019  
[MANUFAC] WILLIAMS INDOOR  
[OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.  
[LUMCAT] HETG-AR22-L38-830-A-DIM-UNV  
[LUMINAIRE] 2x2 RECESSED GRID LUMINAIRE  
[LAMP] LED  
[LAMPCAT] HLM 80 CRI 3000K CCT  
[ \_SEARCH\_APPLICATION] INDOOR  
[ \_SEARCH\_SOURCETYPE] LED  
[ \_SEARCH\_MOUNTING] RECESSED

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3755
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	125
Total Luminaire Watts	30.1
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.22
Spacing Criterion (90-270)	1.18
Spacing Criterion (Diagonal)	1.30
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	1.92 ft
Luminous Width (90-270)	1.92 ft
Luminous Height	0.00 ft

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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3802	3648	3462
55	3510	3276	2927
65	2737	2911	2414
75	1737	2231	1938
85	590	1113	1428

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HETG-AR22-L38-830-A-DIM-UNV.IES**

**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>	<u>202.5</u>
<b>0.0</b>	1550.610	1550.610	1550.610	1550.610	1550.610	1550.610	1550.610	1550.610	1550.610	1550.610
<b>2.5</b>	1548.820	1554.189	1551.457	1546.276	1541.754	1546.370	1551.552	1554.095	1548.160	1554.095
<b>5.0</b>	1543.167	1547.689	1544.863	1540.436	1535.914	1540.341	1545.617	1547.972	1541.754	1547.972
<b>7.5</b>	1533.370	1537.421	1534.312	1529.696	1524.798	1529.508	1535.254	1537.138	1530.732	1537.138
<b>10.0</b>	1518.203	1522.537	1519.334	1514.058	1508.594	1513.681	1520.653	1522.537	1516.602	1522.537
<b>12.5</b>	1498.985	1502.848	1498.891	1493.239	1487.869	1492.862	1501.341	1503.884	1497.384	1503.884
<b>15.0</b>	1475.905	1479.297	1474.492	1468.652	1462.246	1467.333	1477.413	1480.804	1474.115	1480.804
<b>17.5</b>	1449.057	1451.412	1446.137	1438.600	1431.818	1437.093	1448.963	1453.108	1447.173	1453.108
<b>20.0</b>	1418.252	1419.477	1412.977	1404.781	1396.962	1402.426	1415.426	1421.078	1416.556	1421.078
<b>22.5</b>	1383.679	1383.679	1375.012	1366.063	1358.055	1363.519	1378.403	1385.469	1381.512	1385.469
<b>25.0</b>	1344.490	1342.982	1332.808	1322.634	1314.438	1320.373	1336.859	1345.714	1342.511	1345.714
<b>27.5</b>	1300.873	1298.989	1287.213	1275.909	1266.865	1273.083	1291.641	1302.286	1299.742	1302.286
<b>30.0</b>	1253.488	1251.321	1236.908	1224.850	1215.052	1222.118	1242.466	1254.524	1253.676	1254.524
<b>32.5</b>	1202.994	1200.168	1183.400	1170.117	1159.472	1167.196	1189.335	1203.371	1203.748	1203.371
<b>35.0</b>	1149.957	1146.000	1127.254	1112.181	1099.934	1109.355	1133.189	1148.827	1149.298	1148.827
<b>37.5</b>	1094.847	1089.289	1068.847	1051.419	1037.665	1048.310	1074.687	1091.833	1092.963	1091.833
<b>40.0</b>	1038.324	1030.976	1008.367	988.113	972.381	985.099	1014.396	1032.672	1035.404	1032.672
<b>42.5</b>	980.294	971.910	947.040	923.489	906.061	920.380	952.127	972.475	977.280	972.475
<b>45.0</b>	921.605	912.373	884.300	857.922	839.081	854.248	888.916	911.713	918.025	911.713
<b>47.5</b>	863.763	852.553	823.349	794.240	772.008	785.950	824.385	850.480	859.712	850.480
<b>50.0</b>	807.523	795.465	762.587	728.956	705.122	720.666	760.515	788.399	799.327	788.399
<b>52.5</b>	750.246	737.340	702.485	664.803	639.367	656.136	698.811	729.050	740.543	729.050
<b>55.0</b>	690.238	679.499	644.172	602.628	575.591	593.207	638.331	669.984	678.651	669.984
<b>57.5</b>	619.490	619.019	587.272	542.431	514.640	532.539	579.924	608.657	606.678	608.657
<b>60.0</b>	543.561	549.496	532.257	484.683	456.893	474.792	523.778	539.039	534.989	539.039
<b>62.5</b>	472.248	478.277	477.901	429.950	401.783	420.341	469.234	471.683	461.415	471.683
<b>65.0</b>	396.508	410.921	421.755	378.232	349.688	369.000	413.370	402.443	384.920	402.443
<b>67.5</b>	322.745	340.833	362.217	329.905	300.796	320.579	356.094	332.731	312.854	332.731
<b>70.0</b>	257.461	275.360	306.165	284.592	255.106	275.266	300.042	267.824	248.229	267.824
<b>72.5</b>	200.844	216.671	250.585	241.635	211.961	232.686	243.896	208.946	191.989	208.946
<b>75.0</b>	154.119	165.706	197.924	200.091	171.924	191.801	191.801	158.547	146.394	158.547
<b>77.5</b>	119.734	122.843	149.220	158.547	135.655	151.199	143.662	117.567	113.422	117.567
<b>80.0</b>	96.748	98.256	104.944	118.227	101.364	112.292	100.893	96.842	94.864	96.842
<b>82.5</b>	49.175	57.465	73.009	79.980	69.900	77.813	75.175	61.987	54.356	61.987
<b>85.0</b>	17.616	21.479	33.254	44.936	42.675	44.841	35.609	22.798	18.182	22.798
<b>87.5</b>	5.746	7.254	9.515	16.674	18.841	16.768	9.986	7.348	5.652	7.348
<b>90.0</b>	0.942	1.225	0.942	0.377	0.283	0.659	1.413	1.601	1.130	1.601
<b>92.5</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>95.0</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>97.5</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>100.0</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>102.5</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>105.0</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>107.5</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>110.0</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>112.5</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>115.0</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>117.5</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>120.0</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>122.5</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>125.0</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>127.5</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>130.0</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>132.5</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HETG-AR22-L38-830-A-DIM-UNV.IES**

**CANDELA TABULATION - (Cont.)**

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

**Vert. Angles**      **Horizontal Angles**

	<u>225.0</u>	<u>247.5</u>	<u>270.0</u>	<u>292.5</u>	<u>315.0</u>	<u>337.5</u>	<u>360.0</u>
0.0	1550.610	1550.610	1550.610	1550.610	1550.610	1550.610	1550.610
2.5	1551.552	1546.370	1541.754	1546.276	1551.457	1554.189	1548.820
5.0	1545.617	1540.341	1535.914	1540.436	1544.863	1547.689	1543.167
7.5	1535.254	1529.508	1524.798	1529.696	1534.312	1537.421	1533.370
10.0	1520.653	1513.681	1508.594	1514.058	1519.334	1522.537	1518.203
12.5	1501.341	1492.862	1487.869	1493.239	1498.891	1502.848	1498.985
15.0	1477.413	1467.333	1462.246	1468.652	1474.492	1479.297	1475.905
17.5	1448.963	1437.093	1431.818	1438.600	1446.137	1451.412	1449.057
20.0	1415.426	1402.426	1396.962	1404.781	1412.977	1419.477	1418.252
22.5	1378.403	1363.519	1358.055	1366.063	1375.012	1383.679	1383.679
25.0	1336.859	1320.373	1314.438	1322.634	1332.808	1342.982	1344.490
27.5	1291.641	1273.083	1266.865	1275.909	1287.213	1298.989	1300.873
30.0	1242.466	1222.118	1215.052	1224.850	1236.908	1251.321	1253.488
32.5	1189.335	1167.196	1159.472	1170.117	1183.400	1200.168	1202.994
35.0	1133.189	1109.355	1099.934	1112.181	1127.254	1146.000	1149.957
37.5	1074.687	1048.310	1037.665	1051.419	1068.847	1089.289	1094.847
40.0	1014.396	985.099	972.381	988.113	1008.367	1030.976	1038.324
42.5	952.127	920.380	906.061	923.489	947.040	971.910	980.294
45.0	888.916	854.248	839.081	857.922	884.300	912.373	921.605
47.5	824.385	785.950	772.008	794.240	823.349	852.553	863.763
50.0	760.515	720.666	705.122	728.956	762.587	795.465	807.523
52.5	698.811	656.136	639.367	664.803	702.485	737.340	750.246
55.0	638.331	593.207	575.591	602.628	644.172	679.499	690.238
57.5	579.924	532.539	514.640	542.431	587.272	619.019	619.490
60.0	523.778	474.792	456.893	484.683	532.257	549.496	543.561
62.5	469.234	420.341	401.783	429.950	477.901	478.277	472.248
65.0	413.370	369.000	349.688	378.232	421.755	410.921	396.508
67.5	356.094	320.579	300.796	329.905	362.217	340.833	322.745
70.0	300.042	275.266	255.106	284.592	306.165	275.360	257.461
72.5	243.896	232.686	211.961	241.635	250.585	216.671	200.844
75.0	191.801	191.801	171.924	200.091	197.924	165.706	154.119
77.5	143.662	151.199	135.655	158.547	149.220	122.843	119.734
80.0	100.893	112.292	101.364	118.227	104.944	98.256	96.748

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HETG-AR22-L38-830-A-DIM-UNV.IES**

**CANDELA TABULATION - (Cont.)**

82.5	75.175	77.813	69.900	79.980	73.009	57.465	49.175
85.0	35.609	44.841	42.675	44.936	33.254	21.479	17.616
87.5	9.986	16.768	18.841	16.674	9.515	7.254	5.746
90.0	1.413	0.659	0.283	0.377	0.942	1.225	0.942
92.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
95.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
97.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
102.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
105.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
107.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
110.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
112.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
115.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
117.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
120.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
122.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
125.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
127.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
130.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
132.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
135.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
137.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
140.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
142.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
145.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
147.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
152.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
155.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
157.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
160.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
162.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
165.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
167.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
170.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
172.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
175.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
177.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
180.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HETG-AR22-L38-830-A-DIM-UNV.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	561.60	N.A.	15.00
0-30	1174.62	N.A.	31.30
0-40	1879.39	N.A.	50.00
0-60	3129.17	N.A.	83.30
0-80	3710.33	N.A.	98.80
0-90	3755.22	N.A.	100.00
10-90	3608.74	N.A.	96.10
20-40	1317.8	N.A.	35.10
20-50	1999.38	N.A.	53.20
40-70	1638.25	N.A.	43.60
60-80	581.16	N.A.	15.50
70-80	192.69	N.A.	5.10
80-90	44.89	N.A.	1.20
90-110	0.13	N.A.	0.00
90-120	0.13	N.A.	0.00
90-130	0.13	N.A.	0.00
90-150	0.13	N.A.	0.00
90-180	0.13	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	3755.35	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	146.48
10-20	415.12
20-30	613.03
30-40	704.77
40-50	681.58
50-60	568.20
60-70	388.47
70-80	192.69
80-90	44.89
90-100	0.13
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

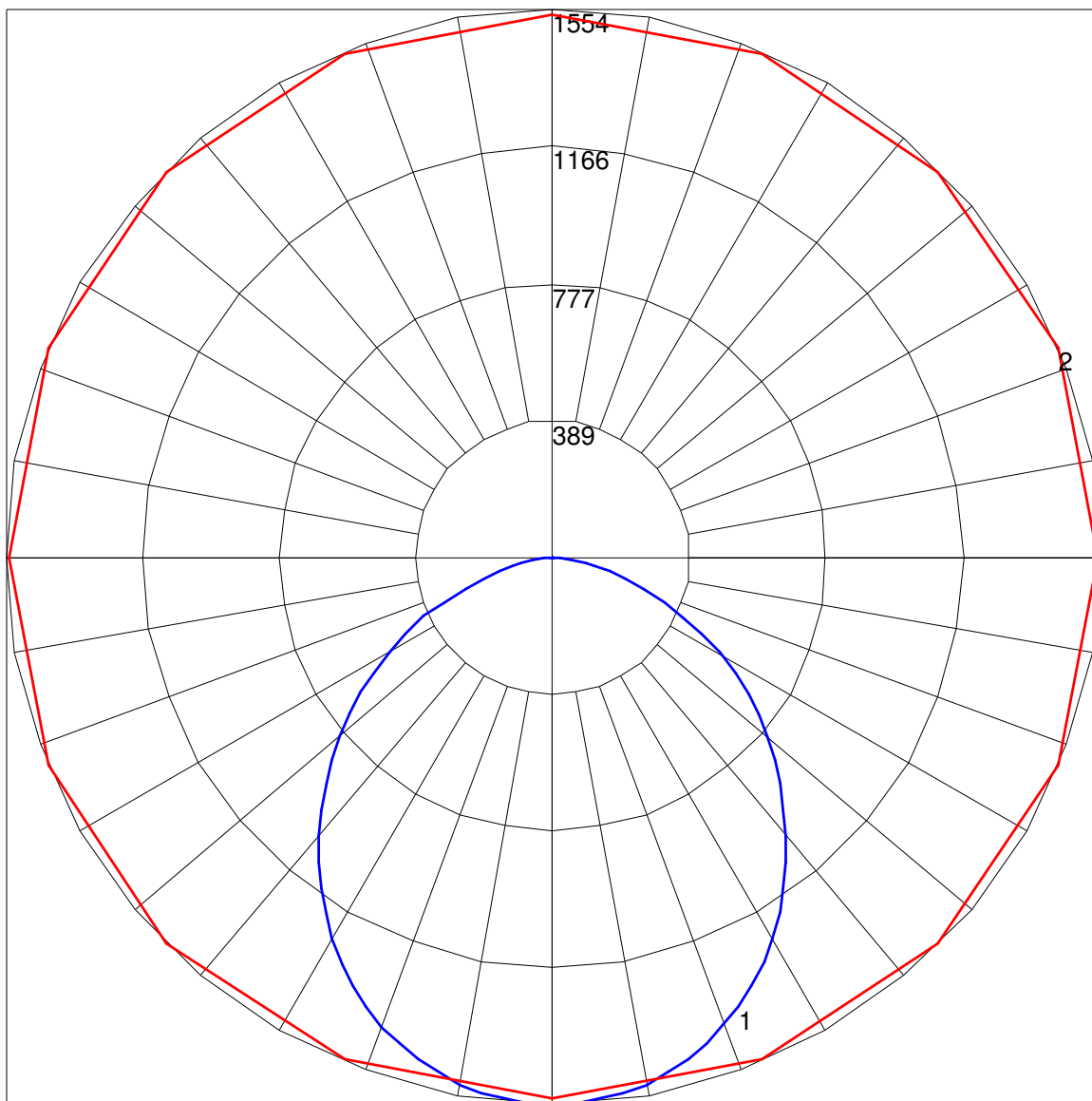
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HETG-AR22-L38-830-A-DIM-UNV.IES**

**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	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	88	85
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	74	72
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49	47
6	72	59	51	44	70	58	50	44	57	49	44	55	48	43	53	48	43	41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	37
8	62	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33
9	58	45	37	32	57	45	37	32	44	37	32	43	36	32	42	36	31	30
10	55	42	34	29	54	41	34	29	40	34	29	40	33	29	39	33	29	27

POLAR GRAPH



Maximum Candela = 1554.189 Located At Horizontal Angle = 22.5, Vertical Angle = 2.5  
# 1 - Vertical Plane Through Horizontal Angles (22.5 - 202.5) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (2.5) (Through Max. Cd.)