



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HETG-AR22-L38-835-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-L38-835-A-DIM-UNV  
 [LUMINAIRE] 2x2 RECESSED GRID LUMINAIRE  
 [LAMP] LED  
 [LAMPCAT] HLM 80 CRI 3500K 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	3793
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	126
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	3841	3685	3497
55	3546	3309	2957
65	2765	2941	2438
75	1755	2253	1957
85	596	1124	1443

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HETG-AR22-L38-835-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>	1566.302	1566.302	1566.302	1566.302	1566.302	1566.302	1566.302	1566.302	1566.302	1566.302
<b>2.5</b>	1564.494	1569.918	1567.158	1561.924	1557.357	1562.019	1567.253	1569.822	1563.827	1569.822
<b>5.0</b>	1558.784	1563.352	1560.497	1556.024	1551.457	1555.929	1561.258	1563.637	1557.357	1563.637
<b>7.5</b>	1548.888	1552.979	1549.839	1545.176	1540.228	1544.986	1550.791	1552.694	1546.223	1552.694
<b>10.0</b>	1533.567	1537.944	1534.709	1529.380	1523.861	1529.000	1536.041	1537.944	1531.949	1537.944
<b>12.5</b>	1514.155	1518.056	1514.060	1508.350	1502.926	1507.970	1516.534	1519.103	1512.537	1519.103
<b>15.0</b>	1490.841	1494.267	1489.414	1483.514	1477.043	1482.182	1492.364	1495.789	1489.033	1495.789
<b>17.5</b>	1463.721	1466.100	1460.771	1453.159	1446.307	1451.636	1463.626	1467.813	1461.818	1467.813
<b>20.0</b>	1432.604	1433.842	1427.276	1418.997	1411.099	1416.618	1429.750	1435.459	1430.892	1435.459
<b>22.5</b>	1397.681	1397.681	1388.927	1379.887	1371.798	1377.318	1392.353	1399.489	1395.493	1399.489
<b>25.0</b>	1358.096	1356.573	1346.296	1336.019	1327.740	1333.735	1350.388	1359.333	1356.097	1359.333
<b>27.5</b>	1314.038	1312.134	1300.240	1288.821	1279.685	1285.966	1304.712	1315.465	1312.896	1315.465
<b>30.0</b>	1266.173	1263.984	1249.425	1237.245	1227.349	1234.485	1255.040	1267.220	1266.363	1267.220
<b>32.5</b>	1215.168	1212.314	1195.375	1181.958	1171.205	1179.008	1201.370	1215.549	1215.930	1215.549
<b>35.0</b>	1161.594	1157.598	1138.661	1123.436	1111.065	1120.581	1144.656	1160.452	1160.928	1160.452
<b>37.5</b>	1105.927	1100.313	1079.663	1062.059	1048.166	1058.919	1085.563	1102.882	1104.024	1102.882
<b>40.0</b>	1048.832	1041.410	1018.572	998.113	982.221	995.068	1024.662	1043.123	1045.882	1043.123
<b>42.5</b>	990.215	981.746	956.624	932.834	915.230	929.694	961.762	982.317	987.170	982.317
<b>45.0</b>	930.931	921.606	893.249	866.604	847.573	862.893	897.911	920.940	927.315	920.940
<b>47.5</b>	872.504	861.180	831.681	802.278	779.820	793.904	832.728	859.087	868.412	859.087
<b>50.0</b>	815.695	803.515	770.304	736.333	712.258	727.959	768.211	796.378	807.416	796.378
<b>52.5</b>	757.839	744.802	709.594	671.530	645.838	662.776	705.882	736.428	748.037	736.428
<b>55.0</b>	697.223	686.375	650.691	608.726	581.416	599.210	644.791	676.764	685.519	676.764
<b>57.5</b>	625.759	625.284	593.215	547.920	519.848	537.928	585.793	614.816	612.818	614.816
<b>60.0</b>	549.062	555.057	537.643	489.588	461.517	479.597	529.079	544.494	540.403	544.494
<b>62.5</b>	477.027	483.117	482.737	434.301	405.849	424.595	473.982	476.456	466.084	476.456
<b>65.0</b>	400.520	415.079	426.023	382.060	353.227	372.734	417.554	406.515	388.816	406.515
<b>67.5</b>	326.011	344.282	365.883	333.243	303.840	323.823	359.697	336.098	316.020	336.098
<b>70.0</b>	260.067	278.147	309.264	287.472	257.688	278.052	303.078	270.534	250.741	270.534
<b>72.5</b>	202.877	218.864	253.120	244.080	214.106	235.040	246.364	211.061	193.932	211.061
<b>75.0</b>	155.679	167.383	199.927	202.116	173.663	193.742	193.742	160.151	147.876	160.151
<b>77.5</b>	120.946	124.086	150.730	160.151	137.028	152.729	145.116	118.757	114.570	118.757
<b>80.0</b>	97.727	99.250	106.006	119.423	102.390	113.428	101.914	97.822	95.824	97.822
<b>82.5</b>	49.673	58.046	73.747	80.789	70.607	78.601	75.936	62.614	54.906	62.614
<b>85.0</b>	17.795	21.696	33.591	45.390	43.107	45.295	35.970	23.028	18.366	23.028
<b>87.5</b>	5.805	7.327	9.611	16.843	19.032	16.938	10.087	7.422	5.709	7.422
<b>90.0</b>	0.952	1.237	0.952	0.381	0.285	0.666	1.427	1.618	1.142	1.618
<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-L38-835-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	1566.302	1566.302	1566.302	1566.302	1566.302	1566.302	1566.302
2.5	1567.253	1562.019	1557.357	1561.924	1567.158	1569.918	1564.494
5.0	1561.258	1555.929	1551.457	1556.024	1560.497	1563.352	1558.784
7.5	1550.791	1544.986	1540.228	1545.176	1549.839	1552.979	1548.888
10.0	1536.041	1529.000	1523.861	1529.380	1534.709	1537.944	1533.567
12.5	1516.534	1507.970	1502.926	1508.350	1514.060	1518.056	1514.155
15.0	1492.364	1482.182	1477.043	1483.514	1489.414	1494.267	1490.841
17.5	1463.626	1451.636	1446.307	1453.159	1460.771	1466.100	1463.721
20.0	1429.750	1416.618	1411.099	1418.997	1427.276	1433.842	1432.604
22.5	1392.353	1377.318	1371.798	1379.887	1388.927	1397.681	1397.681
25.0	1350.388	1333.735	1327.740	1336.019	1346.296	1356.573	1358.096
27.5	1304.712	1285.966	1279.685	1288.821	1300.240	1312.134	1314.038
30.0	1255.040	1234.485	1227.349	1237.245	1249.425	1263.984	1266.173
32.5	1201.370	1179.008	1171.205	1181.958	1195.375	1212.314	1215.168
35.0	1144.656	1120.581	1111.065	1123.436	1138.661	1157.598	1161.594
37.5	1085.563	1058.919	1048.166	1062.059	1079.663	1100.313	1105.927
40.0	1024.662	995.068	982.221	998.113	1018.572	1041.410	1048.832
42.5	961.762	929.694	915.230	932.834	956.624	981.746	990.215
45.0	897.911	862.893	847.573	866.604	893.249	921.606	930.931
47.5	832.728	793.904	779.820	802.278	831.681	861.180	872.504
50.0	768.211	727.959	712.258	736.333	770.304	803.515	815.695
52.5	705.882	662.776	645.838	671.530	709.594	744.802	757.839
55.0	644.791	599.210	581.416	608.726	650.691	686.375	697.223
57.5	585.793	537.928	519.848	547.920	593.215	625.284	625.759
60.0	529.079	479.597	461.517	489.588	537.643	555.057	549.062
62.5	473.982	424.595	405.849	434.301	482.737	483.117	477.027
65.0	417.554	372.734	353.227	382.060	426.023	415.079	400.520
67.5	359.697	323.823	303.840	333.243	365.883	344.282	326.011
70.0	303.078	278.052	257.688	287.472	309.264	278.147	260.067
72.5	246.364	235.040	214.106	244.080	253.120	218.864	202.877
75.0	193.742	193.742	173.663	202.116	199.927	167.383	155.679
77.5	145.116	152.729	137.028	160.151	150.730	124.086	120.946
80.0	101.914	113.428	102.390	119.423	106.006	99.250	97.727

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HETG-AR22-L38-835-A-DIM-UNV.IES**

**CANDELA TABULATION - (Cont.)**

82.5	75.936	78.601	70.607	80.789	73.747	58.046	49.673
85.0	35.970	45.295	43.107	45.390	33.591	21.696	17.795
87.5	10.087	16.938	19.032	16.843	9.611	7.327	5.805
90.0	1.427	0.666	0.285	0.381	0.952	1.237	0.952
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-L38-835-A-DIM-UNV.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	567.28	N.A.	15.00
0-30	1186.51	N.A.	31.30
0-40	1898.41	N.A.	50.00
0-60	3160.84	N.A.	83.30
0-80	3747.88	N.A.	98.80
0-90	3793.22	N.A.	100.00
10-90	3645.26	N.A.	96.10
20-40	1331.13	N.A.	35.10
20-50	2019.61	N.A.	53.20
40-70	1654.83	N.A.	43.60
60-80	587.04	N.A.	15.50
70-80	194.64	N.A.	5.10
80-90	45.34	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	3793.35	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	147.96
10-20	419.32
20-30	619.23
30-40	711.90
40-50	688.48
50-60	573.95
60-70	392.40
70-80	194.64
80-90	45.34
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

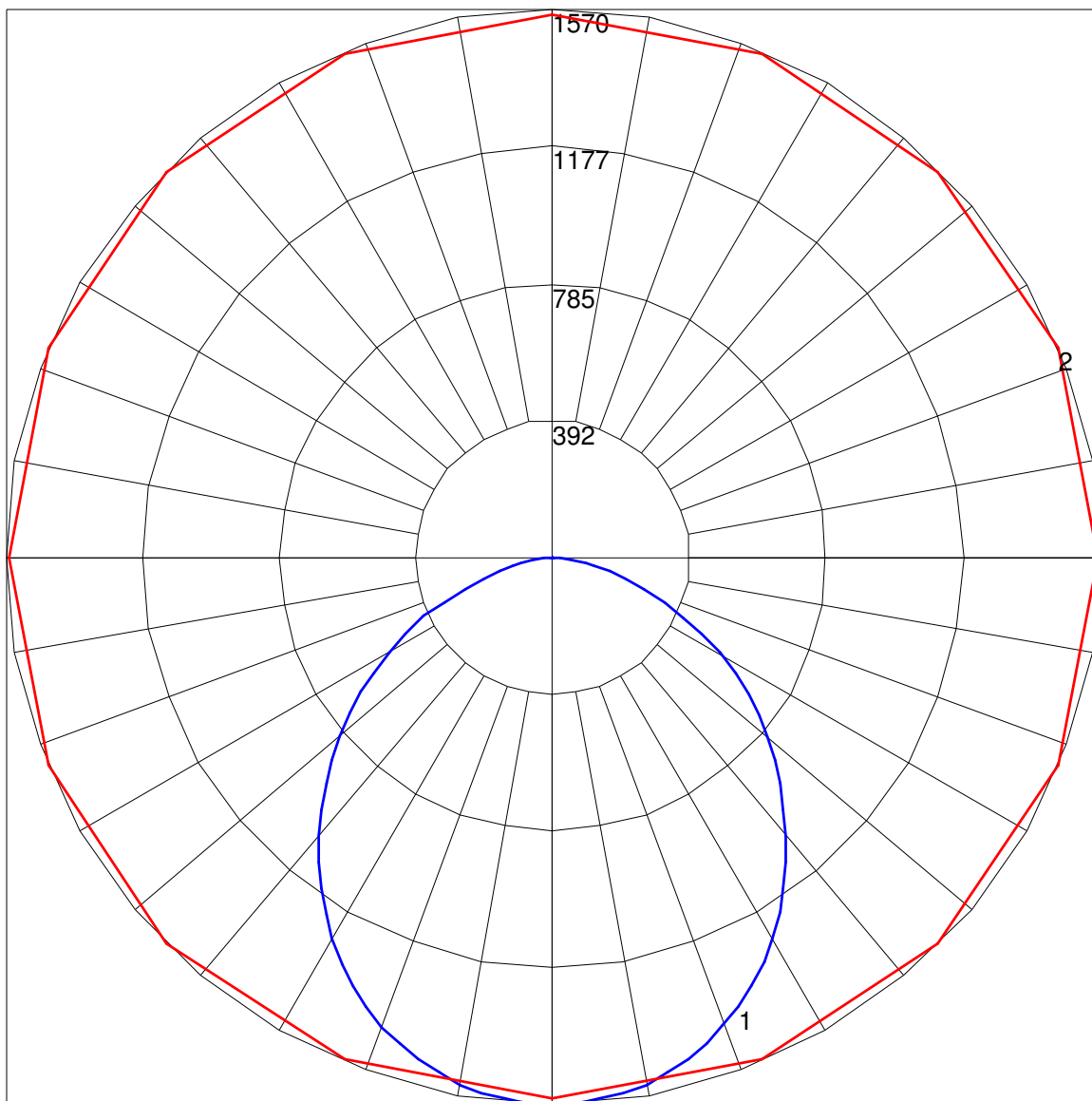
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : HETG-AR22-L38-835-A-DIM-UNV.IES**

**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 = 1569.918 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.)