

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO

Report Number: P130045

Luminaire Tested: **HL618TAT - HLM6940 - HL6FL - 456P**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P130045  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33453)  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: HL618TAT - HLM6940 - HL6FL - 456P  
Description: HALO ALLSLOPE 6" 30W, Black Coilex Baffle, White Metal Trim Ring using 40 Degree Optic at a 6-12 Pitch  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2143.0 lumens  
Efficiency: N/A  
Efficacy: 77.6 lumens/watt  
Spacing Criteria (0/90/45): 1.62 / 0.66 / 1.08  
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')  
CIE Type: Direct

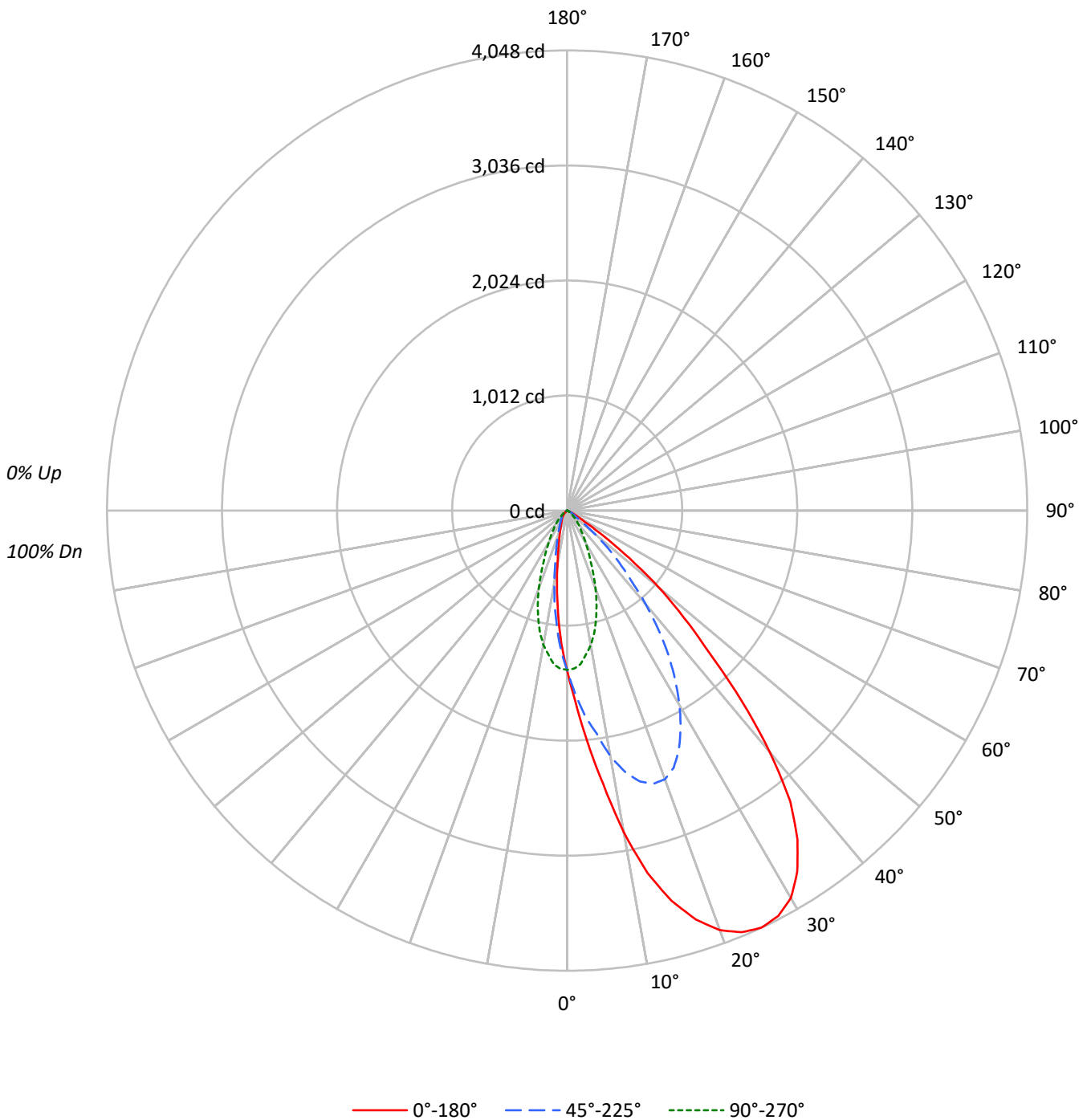
Input Watts (W): 27.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				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
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	113	110	107	104	110	107	105	103	103	101	99	100	98	96	96	95	94	92
2	106	101	96	92	104	99	95	91	95	92	89	92	90	87	90	87	85	83
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	77	76
4	93	85	78	74	92	84	78	73	81	76	72	79	75	71	77	74	70	69
5	88	78	71	66	86	77	71	66	75	70	66	73	69	65	72	68	64	63
6	82	72	65	60	81	71	65	60	70	64	60	68	63	59	67	62	59	57
7	77	67	60	55	76	66	60	55	65	59	55	63	58	54	62	58	54	52
8	73	62	55	51	72	61	55	50	60	54	50	59	54	50	58	53	50	48
9	69	58	51	47	68	57	51	46	56	50	46	55	50	46	54	49	46	44
10	65	54	47	43	64	54	47	43	53	47	43	52	46	43	51	46	43	41

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	83680	83680	83680
5°	119381	79328	53170
10°	166332	69461	28179
15°	205050	56570	15922
20°	227463	42212	9956
25°	237232	28304	7026
30°	235259	19314	5569
35°	216962	13314	4534
40°	176636	9640	3237
45°	117561	6216	2021
50°	74626	4013	938
55°	28954	2648	181
60°	8413	1586	98
65°	4571	549	216
70°	2078	242	242
75°	278	278	139
80°	0	329	165
85°	0	407	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	135.1	6.3
10°-20°	404.8	18.9
20°-30°	589.4	27.5
30°-40°	570.1	26.6
40°-50°	331.6	15.5
50°-60°	90.8	4.2
60°-70°	16.9	0.8
70°-80°	2.8	0.1
80°-90°	1.2	0.1
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	1129.4	52.7
0°-40°	1699.5	79.3
0°-60°	2122.0	99.0
0°-90°	2143.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2143.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1402	1402	1402	1402	1402	
5°	2039	1812	1355	1028	908	220
15°	3554	2467	981	376	276	1006
25°	4048	2324	483	160	120	1853
35°	3531	1554	217	91	74	2165
45°	1763	646	93	42	30	1404
55°	384	91	35	11	2	405
65°	51	29	6	2	2	54
75°	2	1	2	1	1	6
85°	0	1	2	1	0	0
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9
2.5°	1685.2	1675.5	1663.4	1679.1	1652.5	1656.1	1635.5	1645.2	1599.2	1607.7	1592.0
5°	2038.7	2026.6	2012.0	1995.1	1968.5	1962.4	1915.2	1911.6	1841.3	1812.3	1784.5
7.5°	2424.9	2418.8	2391.0	2360.7	2314.7	2272.3	2198.5	2177.9	2071.4	1975.7	1945.5
10°	2872.8	2865.5	2802.6	2788.1	2713.0	2634.3	2502.3	2433.3	2284.4	2194.8	2089.5
12.5°	3263.8	3243.2	3196.0	3169.4	3062.9	2970.9	2812.3	2694.8	2491.5	2354.7	2190.0
15°	3554.4	3543.5	3505.9	3469.6	3365.5	3259.0	3062.9	2922.4	2656.1	2467.2	2257.8
17.5°	3772.3	3754.1	3723.9	3682.7	3577.4	3443.0	3225.1	3068.9	2765.1	2519.3	2272.3
20°	3927.2	3909.1	3955.1	3829.2	3708.1	3575.0	3326.8	3141.6	2798.9	2515.7	2238.4
22.5°	4014.4	3926.0	3962.4	3915.1	3780.8	3633.1	3366.7	3142.8	2760.2	2447.9	2157.3
25°	4048.3	3962.4	3991.4	3934.5	3790.4	3622.2	3329.2	3066.5	2651.3	2324.4	2036.3
27.5°	4020.5	4004.7	3956.3	3890.9	3736.0	3539.8	3283.2	2909.1	2480.6	2162.2	1882.5
30°	3936.9	3910.3	3858.2	3788.0	3619.7	3382.5	3010.8	2681.5	2273.5	1978.1	1705.8
32.5°	3766.2	3752.9	3702.1	3605.2	3407.9	3129.4	2744.5	2417.6	2047.2	1769.9	1509.6
35°	3531.4	3525.3	3459.9	3334.0	3087.1	2788.1	2410.3	2145.2	1807.5	1554.4	1297.8
37.5°	3223.9	3196.0	3112.5	2962.4	2693.6	2415.2	2096.8	1865.6	1567.7	1315.9	1089.6
40°	2772.3	2775.9	2676.7	2503.6	2274.8	2058.0	1784.5	1575.0	1295.4	1072.6	864.4
42.5°	2277.2	2256.6	2181.5	2039.9	1876.5	1664.6	1414.0	1238.5	1001.2	829.3	663.4
45°	1762.7	1725.1	1679.1	1576.2	1450.3	1308.7	1112.6	974.5	788.1	646.5	497.6
47.5°	1391.0	1363.2	1334.1	1245.7	1150.1	1016.9	868.0	754.2	599.3	473.4	358.3
50°	1058.1	1048.4	1023.0	955.2	855.9	756.6	638.0	524.2	394.7	299.0	233.6
52.5°	692.5	734.8	664.6	631.9	544.8	461.2	372.9	284.5	208.2	162.2	130.7
55°	383.8	378.9	368.0	319.6	267.5	219.1	165.9	133.2	105.3	90.8	79.9
57.5°	187.6	188.9	175.5	150.1	122.3	106.5	90.8	82.3	72.6	66.6	61.7
60°	102.9	102.9	99.3	90.8	81.1	76.3	67.8	63.0	56.9	53.3	48.4
62.5°	71.4	70.2	69.0	65.4	61.7	56.9	52.1	48.4	43.6	41.2	36.3
65°	50.8	50.8	49.6	47.2	44.8	41.2	37.5	35.1	31.5	29.1	26.6
67.5°	35.1	33.9	33.9	33.9	30.3	29.1	25.4	24.2	20.6	18.2	16.9
70°	20.6	20.6	19.4	19.4	18.2	15.7	14.5	13.3	10.9	9.7	8.5
72.5°	8.5	8.5	8.5	8.5	7.3	7.3	6.1	4.8	4.8	3.6	3.6
75°	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2
77.5°	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2
80°	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	1.2
85°	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	1.2
87.5°	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	1.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9
2.5°	1577.4	1536.3	1523.0	1472.1	1470.9	1443.1	1410.4	1392.2	1361.9	1336.5	1323.2
5°	1749.3	1669.4	1628.3	1544.7	1516.9	1460.0	1399.5	1354.7	1300.2	1250.6	1213.0
7.5°	1882.5	1782.0	1702.1	1587.1	1495.1	1445.5	1358.3	1274.8	1215.5	1146.5	1096.8
10°	1984.2	1852.2	1739.7	1594.4	1509.6	1400.7	1289.3	1199.7	1112.6	1025.4	962.4
12.5°	2053.2	1886.1	1743.3	1570.2	1460.0	1329.3	1200.9	1100.5	992.7	899.5	826.9
15°	2076.2	1881.3	1710.6	1513.3	1381.3	1237.3	1098.0	980.6	868.0	771.2	687.6
17.5°	2058.0	1836.5	1639.2	1434.6	1279.6	1123.5	979.4	858.3	742.1	636.8	552.0
20°	2003.6	1757.8	1542.3	1324.4	1167.0	1001.2	854.7	728.8	612.6	510.9	440.7
22.5°	1907.9	1648.9	1424.9	1198.5	1035.1	871.6	723.9	599.3	496.4	418.9	360.8
25°	1776.0	1507.2	1279.6	1054.4	898.3	734.8	596.8	483.0	400.7	342.6	299.0
27.5°	1622.2	1358.3	1131.9	916.4	765.1	618.6	472.1	398.3	331.7	279.7	243.3
30°	1441.8	1182.8	975.8	777.2	631.9	489.1	389.8	323.2	274.8	231.2	204.6
32.5°	1255.4	1020.6	828.1	644.0	504.8	394.7	320.8	267.5	225.2	193.7	170.7
35°	1065.3	855.9	671.9	510.9	400.7	323.2	260.3	216.7	187.6	161.0	142.9
37.5°	878.9	688.8	529.0	393.5	317.2	257.9	211.9	180.4	156.2	136.8	122.3
40°	677.9	518.1	399.5	306.3	250.6	207.0	175.5	151.3	130.7	115.0	102.9
42.5°	510.9	392.2	311.1	247.0	202.2	170.7	144.1	124.7	106.5	93.2	84.7
45°	381.3	301.4	240.9	192.5	158.6	133.2	110.2	93.2	81.1	72.6	65.4
47.5°	278.4	221.5	178.0	136.8	112.6	94.4	79.9	70.2	64.2	58.1	53.3
50°	178.0	138.0	113.8	89.6	76.3	69.0	61.7	56.9	52.1	47.2	42.4
52.5°	101.7	84.7	73.8	65.4	59.3	55.7	49.6	44.8	40.0	36.3	32.7
55°	70.2	64.2	59.3	52.1	48.4	42.4	38.7	35.1	31.5	27.8	25.4
57.5°	56.9	52.1	46.0	41.2	36.3	33.9	31.5	26.6	24.2	20.6	18.2
60°	43.6	40.0	36.3	31.5	29.1	25.4	23.0	19.4	16.9	13.3	12.1
62.5°	32.7	30.3	26.6	23.0	20.6	16.9	14.5	12.1	10.9	8.5	6.1
65°	24.2	20.6	18.2	14.5	13.3	10.9	8.5	6.1	6.1	4.8	3.6
67.5°	14.5	12.1	10.9	8.5	7.3	6.1	4.8	3.6	2.4	2.4	2.4
70°	7.3	6.1	4.8	3.6	3.6	2.4	2.4	2.4	2.4	2.4	2.4
72.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
75°	1.2	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
77.5°	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
80°	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
82.5°	1.2	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
85°	1.2	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
87.5°	1.2	1.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9	1401.9
2.5°	1309.9	1280.8	1274.8	1244.5	1228.8	1230.0	1196.1	1197.3	1180.4	1173.1	1159.8
5°	1184.0	1141.6	1085.9	1073.8	1036.3	1027.8	983.0	967.3	940.6	922.5	914.0
7.5°	1044.8	990.3	950.3	894.6	853.5	832.9	795.4	776.0	734.8	734.8	697.3
10°	894.6	832.9	786.9	726.4	677.9	647.7	610.2	575.0	549.6	521.8	509.7
12.5°	750.6	674.3	627.1	565.4	520.6	485.5	456.4	428.6	403.1	388.6	372.9
15°	610.2	535.1	491.5	440.7	403.1	376.5	346.2	328.1	309.9	297.8	291.8
17.5°	492.7	426.1	386.2	347.4	314.8	299.0	273.6	257.9	242.1	232.4	220.3
20°	391.0	342.6	311.1	278.4	253.0	236.1	219.1	204.6	196.1	186.4	181.6
22.5°	317.2	280.9	253.0	222.8	205.8	194.9	178.0	168.3	159.8	152.5	148.9
25°	259.1	227.6	207.0	186.4	169.5	159.8	151.3	140.4	134.4	128.3	124.7
27.5°	214.3	191.3	173.1	155.0	142.9	135.6	125.9	119.9	115.0	111.4	107.7
30°	180.4	159.8	146.5	133.2	122.3	117.4	110.2	105.3	100.5	98.1	95.6
32.5°	151.3	136.8	125.9	115.0	106.5	102.9	98.1	94.4	90.8	88.4	86.0
35°	128.3	115.0	109.0	101.7	94.4	90.8	86.0	83.5	81.1	77.5	76.3
37.5°	110.2	101.7	93.2	88.4	82.3	78.7	73.8	70.2	67.8	66.6	64.2
40°	93.2	86.0	79.9	73.8	67.8	65.4	60.5	58.1	56.9	54.5	52.1
42.5°	75.1	67.8	65.4	60.5	55.7	53.3	49.6	47.2	46.0	43.6	42.4
45°	60.5	55.7	53.3	48.4	44.8	42.4	38.7	36.3	35.1	32.7	31.5
47.5°	49.6	44.8	42.4	37.5	35.1	33.9	30.3	29.1	26.6	25.4	23.0
50°	37.5	35.1	32.7	29.1	27.8	25.4	23.0	20.6	18.2	16.9	15.7
52.5°	30.3	27.8	25.4	21.8	19.4	16.9	14.5	13.3	12.1	9.7	8.5
55°	23.0	20.6	16.9	14.5	13.3	10.9	8.5	7.3	6.1	4.8	3.6
57.5°	15.7	13.3	10.9	8.5	7.3	6.1	3.6	3.6	2.4	2.4	2.4
60°	9.7	7.3	6.1	4.8	3.6	2.4	2.4	2.4	2.4	1.2	1.2
62.5°	4.8	3.6	3.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
65°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
70°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.2
72.5°	2.4	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2
75°	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	1.2
77.5°	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2
80°	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	2.4	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
85°	2.4	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.0
87.5°	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0





TEST NUMBER: P130045

CATALOG NUMBER: HL618TAT - HLM6940 - HL6FL - 456P

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1401.9	1401.9	1401.9	1401.9
2.5°	1161.0	1151.3	1134.3	1171.9
5°	910.4	888.6	886.2	908.0
7.5°	688.8	667.1	663.4	679.2
10°	502.4	486.7	484.2	486.7
12.5°	364.4	360.8	354.7	358.3
15°	282.1	272.4	272.4	276.0
17.5°	216.7	213.1	209.4	211.9
20°	175.5	171.9	168.3	171.9
22.5°	144.1	141.6	139.2	141.6
25°	122.3	119.9	117.4	119.9
27.5°	106.5	104.1	102.9	104.1
30°	94.4	92.0	92.0	93.2
32.5°	84.7	83.5	82.3	83.5
35°	75.1	73.8	72.6	73.8
37.5°	63.0	61.7	60.5	61.7
40°	52.1	50.8	49.6	50.8
42.5°	41.2	38.7	38.7	40.0
45°	30.3	29.1	29.1	30.3
47.5°	21.8	21.8	21.8	21.8
50°	14.5	13.3	13.3	13.3
52.5°	8.5	7.3	7.3	7.3
55°	3.6	2.4	2.4	2.4
57.5°	1.2	1.2	1.2	1.2
60°	1.2	1.2	1.2	1.2
62.5°	2.4	2.4	1.2	2.4
65°	2.4	2.4	2.4	2.4
67.5°	2.4	2.4	2.4	2.4
70°	2.4	2.4	1.2	2.4
72.5°	1.2	1.2	1.2	1.2
75°	1.2	1.2	1.2	1.2
77.5°	1.2	1.2	1.2	1.2
80°	1.2	1.2	0.0	1.2
82.5°	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)