

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: P130031

Luminaire Tested: **HL618TAT - HLM6930 - HL6FL - 455SN**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P130031  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33450)  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: HL618TAT - HLM6930 - HL6FL - 455SN  
Description: HALO ALLSLOPE 6" 30W, Satin Nickel Reflector, Satin Nickel Metal Trim Ring using 40 Degree Optic at a 6-12 Pitch  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1976.9 lumens  
Efficiency: N/A  
Efficacy: 71.6 lumens/watt  
Spacing Criteria (0/90/45): 1.56 / 0.66 / 1.06  
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')  
CIE Type: Direct

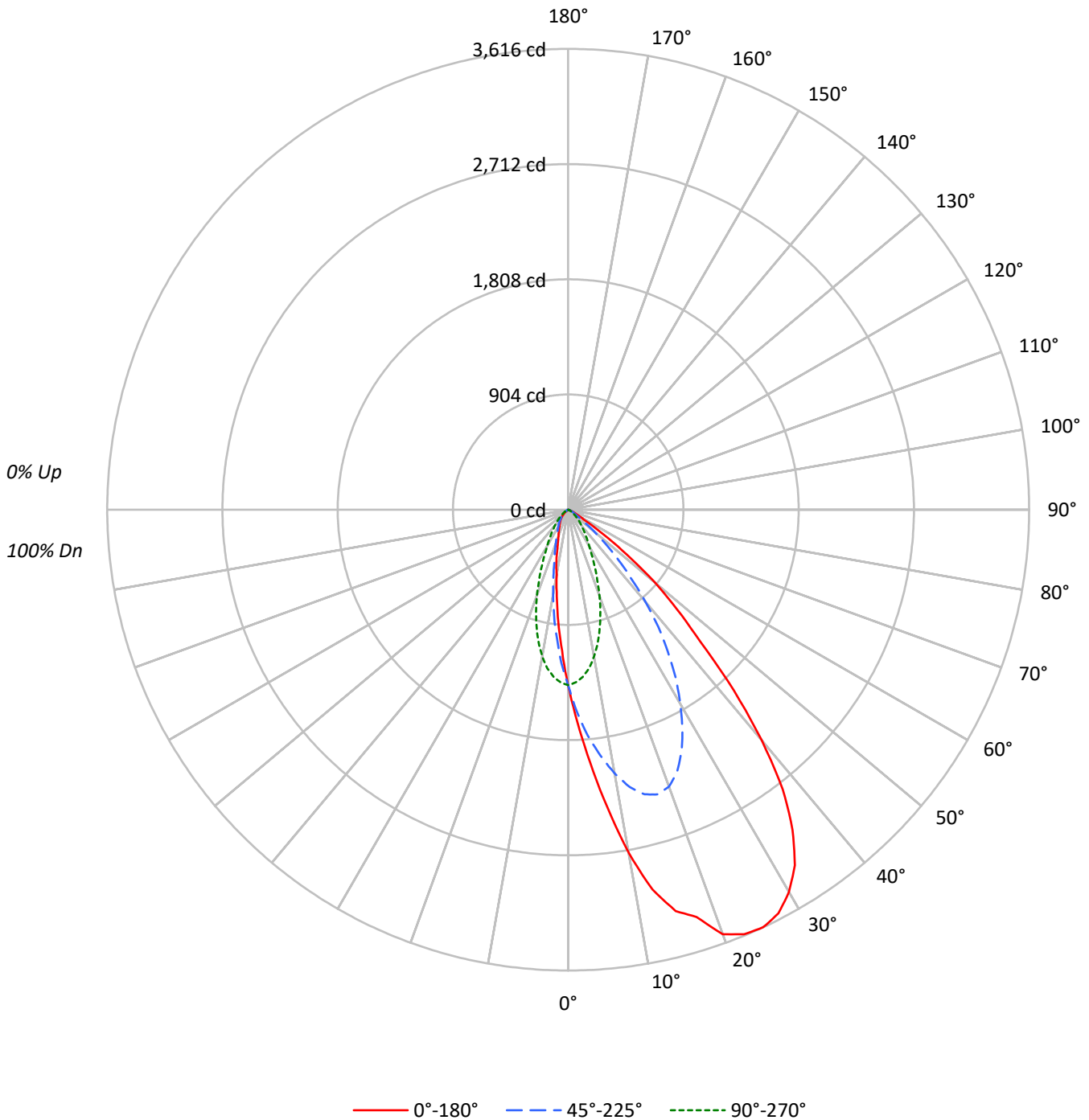
Input Watts (W): 27.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P130031

CATALOG NUMBER: HL618TAT - HLM6930 - HL6FL - 455SN

### Luminous Intensity Polar Plot





TEST NUMBER: P130031

CATALOG NUMBER: HL618TAT - HLM6930 - HL6FL - 455SN

**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	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					100			
1	113	110	107	104	110	107	105	103	103	101	99	100	98	96	96	95	94	92					92			
2	106	101	96	92	104	99	95	91	95	92	89	92	90	87	90	87	85	84					84			
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	78	76					76			
4	94	85	79	74	92	84	78	73	81	76	72	79	75	72	77	74	71	69					69			
5	88	78	72	67	86	77	71	66	75	70	66	74	69	65	72	68	65	63					63			
6	83	72	66	61	81	72	65	60	70	64	60	68	63	60	67	63	59	57					57			
7	78	67	60	55	76	66	60	55	65	59	55	64	59	55	63	58	54	53					53			
8	73	62	56	51	72	62	55	51	61	55	51	60	54	50	58	54	50	49					49			
9	69	58	51	47	68	58	51	47	57	51	47	56	50	47	55	50	46	45					45			
10	65	54	48	43	64	54	48	43	53	47	43	52	47	43	51	47	43	42					42			

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

	0°	90°	180°
0°	82176	82176	82176
5°	116646	77132	51800
10°	158347	67684	30119
15°	188095	55151	18905
20°	205320	41592	12968
25°	211917	28773	9886
30°	206987	19708	7948
35°	188559	14149	6580
40°	150347	10334	5237
45°	97726	7356	3608
50°	62311	4881	2363
55°	25046	3342	1139
60°	7252	2207	793
65°	4283	1170	486
70°	2068	545	323
75°	371	371	255
80°	151	302	151
85°	0	373	0



TEST NUMBER: P130031

CATALOG NUMBER: HL618TAT - HLM6930 - HL6FL - 455SN

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	132.1	6.7
10°-20°	385.3	19.5
20°-30°	542.5	27.4
30°-40°	511.0	25.8
40°-50°	295.5	14.9
50°-60°	85.8	4.3
60°-70°	19.6	1.0
70°-80°	3.8	0.2
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°	1059.9	53.6
0°-40°	1570.9	79.5
0°-60°	1952.2	98.8
0°-90°	1976.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1976.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1377	1377	1377	1377	1377	
5°	1992	1781	1317	1013	885	213
15°	3260	2312	956	421	328	918
25°	3616	2100	491	204	169	1653
35°	3069	1363	230	123	107	1880
45°	1465	559	110	66	54	1178
55°	332	88	44	24	15	341
65°	48	30	13	6	5	50
75°	3	3	3	2	2	6
85°	0	1	2	1	0	0
90°	0	0	0	0	0	



TEST NUMBER: P130031

CATALOG NUMBER: HL618TAT - HLM6930 - HL6FL - 455SN

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7
2.5°	1667.6	1653.5	1666.5	1636.2	1657.8	1614.6	1605.9	1598.3	1598.3	1590.8	1549.7
5°	1992.0	1959.5	1975.8	1941.2	1947.6	1880.6	1861.1	1828.7	1813.5	1781.1	1713.0
7.5°	2355.3	2317.5	2321.8	2259.1	2262.3	2172.6	2107.7	2068.8	2015.8	1946.6	1854.6
10°	2734.9	2699.2	2701.4	2644.1	2606.2	2484.0	2383.5	2303.4	2209.3	2101.2	1970.4
12.5°	3051.8	3028.0	3015.0	2942.6	2887.4	2754.4	2634.3	2513.2	2385.6	2229.9	2051.5
15°	3260.5	3259.4	3255.1	3166.4	3110.2	2955.5	2833.3	2679.8	2516.5	2312.1	2093.6
17.5°	3350.2	3420.5	3418.4	3323.2	3259.4	3097.2	2959.9	2782.5	2587.8	2342.4	2132.6
20°	3544.9	3528.7	3524.4	3419.5	3354.6	3180.5	3023.7	2820.3	2595.4	2311.0	2034.2
22.5°	3605.5	3587.1	3576.3	3464.9	3393.5	3210.7	3031.2	2797.6	2537.0	2229.9	1943.3
25°	3616.3	3592.5	3579.5	3460.6	3379.4	3178.3	2971.7	2702.5	2410.5	2100.1	1821.1
27.5°	3570.9	3546.0	3515.7	3400.0	3307.0	3085.3	2843.1	2544.6	2229.9	1942.2	1668.6
30°	3463.8	3442.2	3414.1	3292.9	3176.1	2925.2	2647.3	2305.6	1998.5	1757.3	1494.5
32.5°	3309.2	3278.9	3248.6	3099.4	2958.8	2685.2	2388.9	2062.3	1789.8	1571.3	1329.1
35°	3069.1	3055.0	2999.9	2827.9	2664.6	2360.7	2091.5	1821.1	1609.2	1362.6	1139.8
37.5°	2765.2	2794.4	2685.2	2492.7	2307.8	2028.7	1819.0	1571.3	1374.5	1161.4	953.8
40°	2359.7	2335.9	2263.4	2089.3	1939.0	1724.9	1543.2	1332.3	1130.1	941.9	759.2
42.5°	1921.7	1883.8	1846.0	1702.2	1573.5	1377.7	1213.4	1030.6	873.8	728.9	573.2
45°	1465.3	1461.0	1421.0	1306.4	1216.6	1074.9	947.3	819.7	687.8	559.1	425.0
47.5°	1156.0	1152.8	1106.3	1028.4	961.4	843.5	738.6	630.5	508.3	401.2	312.5
50°	883.5	885.7	850.0	793.8	720.2	628.3	533.1	434.7	334.2	263.9	208.7
52.5°	582.9	590.5	569.9	512.6	449.9	372.0	300.6	236.8	184.9	150.3	119.0
55°	332.0	317.9	294.1	267.1	219.5	167.6	139.5	116.8	101.7	87.6	77.9
57.5°	150.3	149.2	137.3	121.1	104.9	91.9	83.3	75.7	71.4	66.0	61.6
60°	88.7	87.6	85.4	80.0	74.6	69.2	63.8	59.5	57.3	53.0	48.7
62.5°	64.9	63.8	62.7	59.5	56.2	51.9	49.7	48.7	44.3	41.1	37.8
65°	47.6	46.5	46.5	44.3	42.2	40.0	37.8	35.7	32.4	30.3	28.1
67.5°	34.6	33.5	33.5	31.4	29.2	28.1	26.0	23.8	22.7	20.5	19.5
70°	20.5	20.5	20.5	19.5	18.4	16.2	15.1	14.1	13.0	11.9	10.8
72.5°	9.7	10.8	9.7	9.7	8.7	8.7	7.6	7.6	6.5	6.5	5.4
75°	3.2	4.3	4.3	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
77.5°	1.1	1.1	1.1	1.1	1.1	1.1	2.2	2.2	2.2	2.2	2.2
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.2	2.2
82.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.2
85°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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: P130031

CATALOG NUMBER: HL618TAT - HLM6930 - HL6FL - 455SN

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7
2.5°	1542.1	1498.9	1481.5	1468.6	1434.0	1418.8	1388.5	1356.1	1332.3	1317.2	1288.0
5°	1682.7	1611.3	1564.8	1528.1	1468.6	1429.6	1395.0	1317.2	1271.8	1237.1	1189.6
7.5°	1800.6	1700.0	1624.3	1558.3	1472.9	1410.2	1350.7	1254.5	1189.6	1140.9	1076.0
10°	1879.5	1751.9	1648.1	1555.1	1444.8	1361.5	1280.4	1169.0	1085.7	1023.0	954.9
12.5°	1929.3	1767.0	1638.4	1522.6	1389.6	1286.9	1188.5	1070.6	976.5	897.6	826.2
15°	1936.8	1748.7	1597.3	1457.8	1306.4	1191.7	1081.4	956.0	856.5	778.6	688.9
17.5°	1907.6	1694.6	1520.5	1364.8	1205.8	1082.5	962.5	839.2	739.7	645.6	565.6
20°	1838.4	1608.1	1422.1	1253.4	1092.2	963.5	841.3	718.1	618.6	528.8	462.8
22.5°	1740.0	1499.9	1303.1	1131.2	972.2	838.1	721.3	594.8	500.7	433.7	382.8
25°	1609.2	1366.9	1170.1	1000.3	839.2	709.4	598.0	491.0	409.9	361.2	319.0
27.5°	1426.4	1219.8	1027.4	864.1	719.1	586.1	485.6	400.1	343.9	302.8	268.2
30°	1289.1	1064.1	884.6	731.0	588.3	476.9	396.9	329.8	287.7	253.1	224.9
32.5°	1118.2	908.4	744.0	599.1	472.6	389.3	328.8	276.8	240.1	215.2	193.6
35°	943.0	760.2	603.4	475.8	381.7	321.2	273.6	230.3	202.2	181.7	165.5
37.5°	777.5	608.8	470.4	375.3	311.4	260.6	223.9	192.5	170.9	155.7	142.7
40°	609.9	468.3	364.4	297.4	247.6	212.0	184.9	162.2	144.9	133.0	124.4
42.5°	456.4	351.5	285.5	236.8	201.1	176.3	155.7	137.3	123.3	114.6	104.9
45°	342.8	272.5	226.0	191.4	162.2	142.7	125.4	110.3	99.5	91.9	85.4
47.5°	256.3	205.5	170.9	143.8	122.2	107.1	95.2	84.4	77.9	74.6	70.3
50°	171.9	138.4	116.8	99.5	87.6	78.9	73.5	69.2	64.9	61.6	58.4
52.5°	104.9	88.7	80.0	71.4	68.1	64.9	60.6	56.2	50.8	48.7	45.4
55°	72.5	66.0	62.7	58.4	55.2	51.9	47.6	44.3	41.1	40.0	36.8
57.5°	58.4	54.1	50.8	46.5	43.3	41.1	38.9	35.7	32.4	31.4	29.2
60°	45.4	42.2	40.0	36.8	34.6	32.4	30.3	27.0	24.9	22.7	20.5
62.5°	35.7	32.4	30.3	28.1	26.0	23.8	21.6	19.5	17.3	16.2	14.1
65°	27.0	23.8	21.6	19.5	17.3	16.2	14.1	13.0	10.8	10.8	8.7
67.5°	17.3	15.1	14.1	13.0	11.9	9.7	8.7	7.6	7.6	6.5	6.5
70°	9.7	8.7	7.6	7.6	6.5	6.5	5.4	5.4	4.3	4.3	4.3
72.5°	5.4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	3.2	3.2	3.2
75°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
77.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
80°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
82.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
85°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
87.5°	1.1	1.1	1.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
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: P130031

CATALOG NUMBER: HL618TAT - HLM6930 - HL6FL - 455SN

**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7	1376.7
2.5°	1285.8	1252.3	1223.1	1218.8	1201.5	1204.7	1179.8	1157.1	1178.8	1126.8	1126.8
5°	1167.9	1121.4	1073.9	1055.5	1025.2	1013.3	984.1	959.2	949.5	914.9	908.4
7.5°	1045.7	985.2	927.9	899.7	859.7	845.7	810.0	776.5	752.7	725.6	712.7
10°	904.1	840.3	780.8	748.3	701.8	675.9	641.3	601.3	593.7	549.4	539.6
12.5°	765.6	696.4	640.2	598.0	554.8	533.1	496.4	470.4	452.0	426.1	418.5
15°	631.6	566.7	510.4	478.0	440.1	420.7	396.9	376.3	362.3	343.9	337.4
17.5°	515.8	456.4	412.0	388.2	361.2	343.9	326.6	307.1	297.4	282.3	275.8
20°	416.3	376.3	337.4	317.9	298.5	284.4	270.4	254.1	248.7	237.9	232.5
22.5°	350.4	316.9	283.3	264.9	248.7	241.2	229.3	216.3	212.0	202.2	200.1
25°	292.0	260.6	239.0	226.0	213.0	204.4	194.7	184.9	181.7	174.1	173.0
27.5°	244.4	222.8	204.4	193.6	181.7	176.3	168.7	161.1	163.3	153.6	151.4
30°	205.5	190.3	175.2	167.6	157.9	154.6	149.2	142.7	139.5	136.3	136.3
32.5°	179.5	164.4	152.5	147.1	139.5	138.4	134.1	127.6	128.7	123.3	122.2
35°	155.7	142.7	135.2	129.8	125.4	123.3	120.0	114.6	113.5	110.3	109.2
37.5°	135.2	125.4	119.0	115.7	111.4	109.2	106.0	99.5	100.6	97.3	96.2
40°	117.9	110.3	103.8	101.7	96.2	95.2	91.9	86.5	86.5	83.3	83.3
42.5°	99.5	94.1	87.6	84.4	81.1	80.0	77.9	73.5	72.5	70.3	69.2
45°	82.2	76.8	73.5	70.3	68.1	66.0	63.8	60.6	59.5	57.3	56.2
47.5°	68.1	63.8	59.5	57.3	54.1	53.0	50.8	48.7	47.6	45.4	44.3
50°	55.2	50.8	47.6	45.4	43.3	43.3	41.1	37.8	36.8	35.7	34.6
52.5°	43.3	41.1	38.9	36.8	34.6	33.5	31.4	28.1	27.0	26.0	24.9
55°	34.6	32.4	29.2	28.1	24.9	23.8	21.6	20.5	18.4	17.3	17.3
57.5°	27.0	23.8	21.6	19.5	17.3	17.3	15.1	14.1	13.0	11.9	11.9
60°	19.5	16.2	15.1	13.0	11.9	10.8	10.8	9.7	9.7	8.7	8.7
62.5°	13.0	10.8	9.7	9.7	8.7	8.7	7.6	7.6	7.6	7.6	7.6
65°	8.7	7.6	7.6	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
67.5°	6.5	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	4.3	4.3
70°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	3.2	3.2	3.2	3.2
72.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.2	2.2
75°	3.2	3.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
77.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.1	1.1	1.1	1.1
80°	2.2	2.2	2.2	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	2.2	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
85°	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
87.5°	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	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: P130031

CATALOG NUMBER: HL618TAT - HLM6930 - HL6FL - 455SN

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1376.7	1376.7	1376.7	1376.7
2.5°	1135.5	1129.0	1120.4	1107.4
5°	912.7	884.6	893.3	884.6
7.5°	721.3	696.4	694.3	684.5
10°	537.5	525.6	519.1	520.2
12.5°	420.7	407.7	402.3	430.4
15°	338.5	325.5	325.5	327.7
17.5°	273.6	268.2	266.0	263.9
20°	231.4	227.1	223.9	223.9
22.5°	197.9	194.7	191.4	193.6
25°	171.9	168.7	167.6	168.7
27.5°	152.5	149.2	146.0	148.2
30°	136.3	134.1	133.0	133.0
32.5°	123.3	121.1	120.0	120.0
35°	110.3	107.1	107.1	107.1
37.5°	96.2	94.1	94.1	95.2
40°	83.3	77.9	81.1	82.2
42.5°	69.2	67.0	67.0	68.1
45°	55.2	54.1	54.1	54.1
47.5°	44.3	43.3	42.2	43.3
50°	33.5	32.4	32.4	33.5
52.5°	23.8	22.7	22.7	22.7
55°	16.2	16.2	15.1	15.1
57.5°	11.9	10.8	10.8	10.8
60°	8.7	8.7	8.7	9.7
62.5°	7.6	7.6	7.6	7.6
65°	6.5	6.5	5.4	5.4
67.5°	4.3	4.3	4.3	4.3
70°	3.2	3.2	3.2	3.2
72.5°	2.2	2.2	2.2	2.2
75°	2.2	2.2	2.2	2.2
77.5°	1.1	1.1	1.1	1.1
80°	1.1	1.1	1.1	1.1
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)