

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: P130066

Luminaire Tested: **HL618TAT - HLM6940 - HL6NFL - 455SC**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P130066  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33467)  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: HL618TAT - HLM6940 - HL6NFL - 455SC  
Description: HALO ALLSLOPE 6" 30W, Specular Clear Reflector, White Metal Trim  
Ring using 25 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: 2355.0 lumens  
Efficiency: N/A  
Efficacy: 85.3 lumens/watt  
Spacing Criteria (0/90/45): 1.94 / 0.73 / 1.15  
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')  
CIE Type: Direct

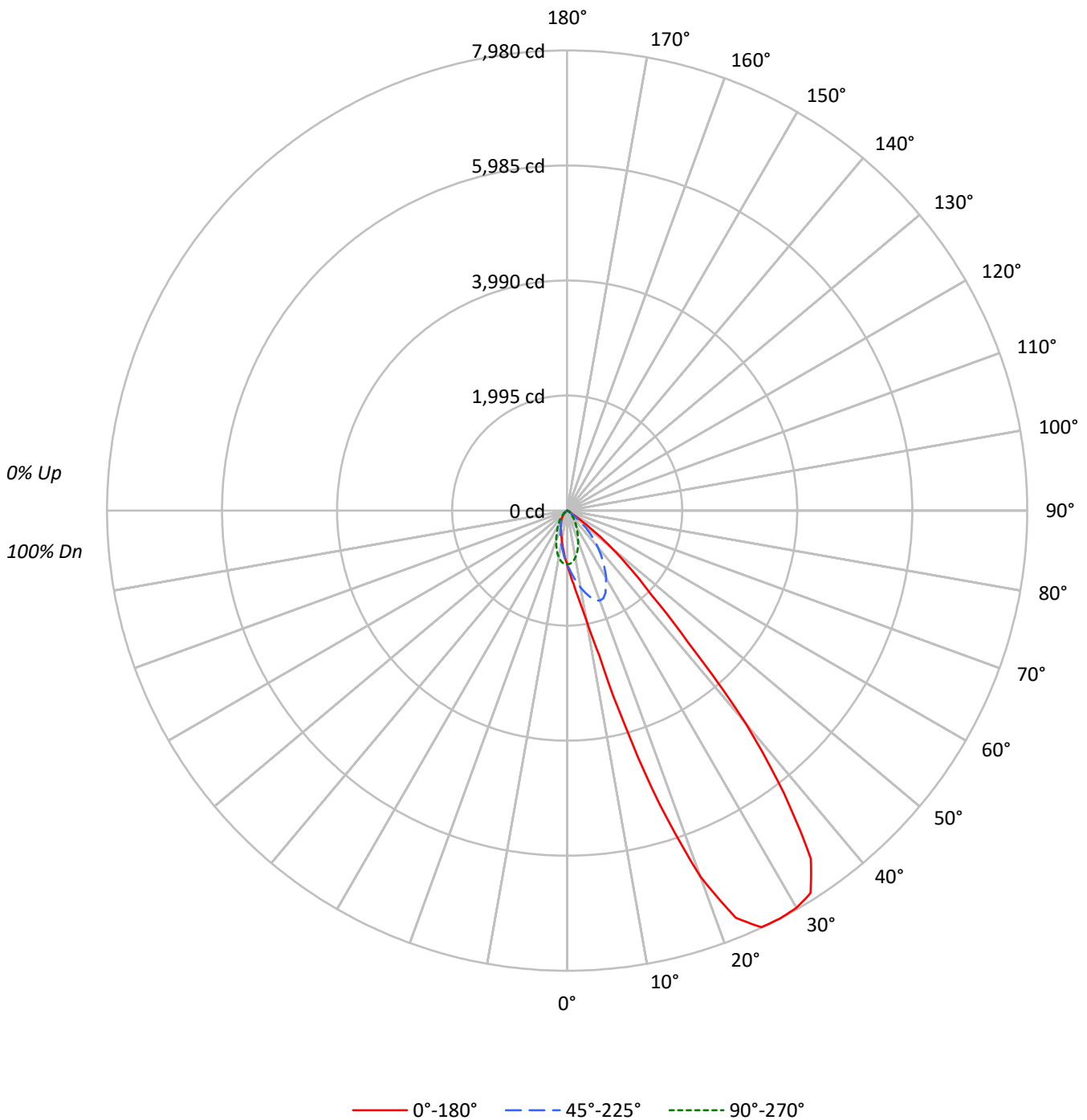
Input Watts (W): 27.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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	109	107	104	110	107	105	102	103	101	99	99	98	96	96	95	93	92					92			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	85	83					83			
3	99	92	86	81	97	90	85	80	87	83	79	85	81	78	83	79	77	75					75			
4	93	84	77	72	91	83	77	72	80	75	71	78	74	70	76	73	69	68					68			
5	87	77	70	65	85	76	70	65	74	68	64	72	67	63	71	66	63	61					61			
6	81	71	64	59	80	70	63	58	68	62	58	67	62	58	65	61	57	56					56			
7	76	65	58	53	75	65	58	53	63	57	53	62	56	52	61	56	52	50					50			
8	71	60	53	48	70	60	53	48	58	52	48	57	52	48	56	51	48	46					46			
9	67	56	49	44	66	55	49	44	54	48	44	53	48	44	52	47	44	42					42			
10	63	52	45	40	62	51	45	40	50	44	40	50	44	40	49	44	40	38					38			

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

	0°	90°	180°
0°	55471	55471	55471
5°	74953	53229	41353
10°	111409	47726	30252
15°	220014	40400	23052
20°	391011	32267	18308
25°	467186	24888	14820
30°	475346	19104	11975
35°	452871	14659	9308
40°	307225	11176	6919
45°	138196	7796	4855
50°	72185	5304	2863
55°	17193	3598	1350
60°	5167	2338	589
65°	3329	1287	216
70°	1806	484	121
75°	556	278	0
80°	0	329	0
85°	0	407	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	91.0	3.9
10°-20°	346.2	14.7
20°-30°	730.5	31.0
30°-40°	735.2	31.2
40°-50°	349.1	14.8
50°-60°	80.8	3.4
60°-70°	17.1	0.7
70°-80°	3.6	0.2
80°-90°	1.5	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°	1167.7	49.6
0°-40°	1902.9	80.8
0°-60°	2332.8	99.1
0°-90°	2355.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2355.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	929	929	929	929	929	
5°	1280	1134	909	747	706	141
15°	3814	1556	700	437	400	1212
25°	7972	1572	425	264	253	3595
35°	7371	1081	239	165	152	4325
45°	2072	564	117	82	73	1818
55°	228	73	48	29	18	312
65°	37	27	14	6	2	37
75°	5	4	2	2	0	7
85°	0	2	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°	929.3	929.3	929.3	929.3	929.3	929.3	929.3	929.3	929.3	929.3	929.3
2.5°	1089.2	1058.1	1071.3	1043.8	1073.7	1049.8	1049.8	1040.2	1034.3	1025.9	1002.1
5°	1280.0	1240.7	1251.4	1234.7	1243.0	1213.2	1200.1	1173.9	1178.6	1134.5	1093.9
7.5°	1536.5	1480.4	1498.3	1449.4	1445.8	1407.7	1370.7	1323.0	1282.4	1245.4	1184.6
10°	1924.2	1850.3	1852.6	1770.3	1751.2	1664.2	1593.8	1499.5	1418.4	1357.6	1260.9
12.5°	2567.2	2431.2	2410.9	2258.2	2179.5	2000.6	1849.1	1699.9	1564.0	1459.0	1326.6
15°	3813.8	3619.4	3459.5	3088.5	2818.9	2477.7	2180.7	1933.8	1731.0	1555.6	1381.4
17.5°	5345.6	5080.8	4897.0	4397.2	3865.1	3114.8	2591.1	2167.6	1859.8	1628.4	1411.3
20°	6750.9	6409.7	6113.8	5531.7	4893.5	4038.1	2965.7	2372.8	1951.7	1660.6	1402.9
22.5°	7643.2	7381.9	7100.4	6410.9	5633.1	4592.8	3391.5	2505.2	1981.5	1643.9	1356.4
25°	7972.4	7737.4	7588.3	6896.4	6055.4	4953.1	3519.2	2511.1	1937.3	1572.3	1293.2
27.5°	7979.6	7769.6	7695.7	7025.3	6127.0	4817.1	3399.9	2382.3	1828.8	1444.7	1207.3
30°	7954.6	7743.4	7618.1	6848.7	5852.6	4486.7	3071.8	2155.7	1679.7	1354.0	1110.6
32.5°	7861.5	7600.3	7294.9	6359.6	5280.0	3838.9	2614.9	1903.9	1491.2	1219.2	1017.6
35°	7371.2	7038.4	6530.2	5536.5	4390.0	3039.6	2147.3	1637.9	1308.7	1080.8	887.6
37.5°	6171.1	5893.1	5410.0	4446.1	3267.5	2323.9	1784.6	1410.1	1139.3	953.2	776.6
40°	4821.9	4502.2	3937.9	3125.5	2384.7	1827.6	1456.6	1188.2	985.4	823.1	663.3
42.5°	3101.7	2962.1	2624.5	2162.8	1764.4	1443.5	1185.8	997.3	832.7	688.3	551.1
45°	2072.1	1973.1	1833.6	1585.4	1358.8	1163.1	979.4	821.9	688.3	564.3	450.9
47.5°	1488.8	1402.9	1346.8	1202.5	1058.1	924.5	786.2	651.3	529.7	430.7	337.6
50°	1023.5	957.9	934.1	845.8	732.5	633.5	523.7	431.8	341.2	270.8	206.4
52.5°	563.1	528.5	517.7	471.2	417.5	348.3	275.6	219.5	173.0	136.0	107.4
55°	227.9	220.7	210.0	193.3	168.2	134.8	115.7	95.4	81.1	72.8	66.8
57.5°	91.9	88.3	87.1	81.1	76.3	69.2	64.4	60.8	58.5	57.3	54.9
60°	63.2	60.8	59.6	57.3	56.1	53.7	51.3	50.1	47.7	46.5	44.1
62.5°	47.7	46.5	46.5	44.1	44.1	42.9	41.8	39.4	38.2	37.0	34.6
65°	37.0	35.8	34.6	34.6	33.4	33.4	32.2	31.0	28.6	27.4	25.1
67.5°	26.2	26.2	25.1	25.1	23.9	23.9	22.7	21.5	20.3	19.1	17.9
70°	17.9	16.7	16.7	16.7	16.7	15.5	15.5	14.3	13.1	13.1	11.9
72.5°	10.7	10.7	10.7	9.5	9.5	9.5	8.4	8.4	8.4	7.2	7.2
75°	4.8	4.8	4.8	4.8	4.8	3.6	3.6	3.6	3.6	3.6	3.6
77.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	2.4	2.4	2.4	2.4
80°	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	2.4	2.4	2.4
82.5°	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	2.4	2.4	2.4
85°	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	2.4	2.4	2.4
87.5°	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	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):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	929.3	929.3	929.3	929.3	929.3	929.3	929.3	929.3	929.3	929.3	929.3
2.5°	992.5	990.1	966.3	955.5	953.2	943.6	940.0	928.1	885.2	887.6	892.3
5°	1071.3	1049.8	1011.6	986.6	969.9	948.4	930.5	909.0	873.2	845.8	839.8
7.5°	1139.3	1099.9	1045.0	1005.7	972.2	937.7	905.4	872.0	830.3	795.7	779.0
10°	1195.3	1136.9	1060.5	1005.7	959.1	911.4	868.5	824.3	773.0	732.5	712.2
12.5°	1231.1	1152.4	1058.1	987.8	928.1	866.1	818.4	768.3	711.0	664.5	640.6
15°	1252.6	1146.4	1039.1	952.0	881.6	811.2	756.3	700.3	640.6	592.9	566.6
17.5°	1251.4	1144.0	1003.3	905.4	824.3	746.8	687.1	628.7	571.4	522.5	493.9
20°	1221.6	1085.6	949.6	847.0	763.5	678.8	614.4	557.1	499.8	455.7	428.3
22.5°	1166.7	1024.7	887.6	777.8	691.9	612.0	544.0	486.7	435.4	396.1	375.8
25°	1102.3	954.4	820.7	701.5	619.1	539.2	477.2	424.7	379.4	343.6	326.9
27.5°	1023.5	878.0	744.4	631.1	545.2	472.4	414.0	369.8	328.1	300.6	283.9
30°	928.1	794.5	658.5	558.3	476.0	410.4	356.7	319.7	285.1	260.1	250.5
32.5°	835.1	702.6	576.2	483.1	411.6	351.9	306.6	275.6	249.3	227.9	218.3
35°	739.6	608.4	499.8	411.6	351.9	299.4	264.8	238.6	215.9	199.2	192.1
37.5°	639.4	521.3	424.7	348.3	295.9	252.9	221.9	210.0	186.1	171.8	167.0
40°	535.6	435.4	355.5	293.5	248.1	213.5	190.9	175.4	158.7	150.3	145.5
42.5°	445.0	356.7	292.3	241.0	206.4	177.7	159.9	146.7	131.2	125.3	121.7
45°	357.9	285.1	230.2	190.9	162.2	140.8	126.5	116.9	107.4	101.4	99.0
47.5°	262.4	205.2	164.6	137.2	116.9	105.0	95.4	91.9	85.9	83.5	81.1
50°	159.9	127.6	106.2	91.9	83.5	79.9	76.3	75.2	70.4	68.0	64.4
52.5°	90.7	81.1	72.8	69.2	68.0	65.6	62.0	59.6	54.9	52.5	51.3
55°	63.2	62.0	59.6	57.3	54.9	51.3	48.9	47.7	44.1	42.9	40.6
57.5°	53.7	50.1	47.7	44.1	42.9	40.6	39.4	38.2	35.8	33.4	32.2
60°	41.8	39.4	37.0	35.8	34.6	32.2	29.8	28.6	26.2	25.1	23.9
62.5°	32.2	31.0	28.6	27.4	26.2	25.1	22.7	21.5	20.3	17.9	15.5
65°	23.9	22.7	21.5	20.3	19.1	17.9	15.5	14.3	13.1	11.9	10.7
67.5°	16.7	16.7	14.3	13.1	13.1	10.7	9.5	8.4	7.2	7.2	6.0
70°	10.7	10.7	9.5	8.4	7.2	6.0	6.0	4.8	4.8	4.8	3.6
72.5°	6.0	4.8	4.8	4.8	3.6	3.6	3.6	3.6	3.6	3.6	3.6
75°	3.6	2.4	2.4	3.6	3.6	3.6	3.6	2.4	2.4	2.4	2.4
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
80°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
82.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
85°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
87.5°	2.4	2.4	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°	929.3	929.3	929.3	929.3	929.3	929.3	929.3	929.3	929.3	929.3	929.3
2.5°	886.4	868.5	858.9	849.4	849.4	842.2	845.8	829.1	832.7	823.1	821.9
5°	824.3	819.6	780.2	768.3	749.2	746.8	750.4	728.9	726.5	717.0	708.6
7.5°	758.7	728.9	705.0	685.9	674.0	660.9	641.8	637.0	631.1	623.9	615.6
10°	687.1	653.7	626.3	603.6	596.5	578.6	569.0	554.7	545.2	536.8	530.9
12.5°	612.0	577.4	552.3	528.5	518.9	502.2	495.1	480.8	472.4	464.1	461.7
15°	535.6	504.6	477.2	459.3	448.5	436.6	430.7	415.1	412.8	405.6	400.8
17.5°	467.6	439.0	415.1	400.8	391.3	379.4	377.0	365.0	362.7	359.1	354.3
20°	404.4	381.7	361.5	349.5	343.6	336.4	332.8	324.5	322.1	319.7	317.3
22.5°	353.1	334.0	322.1	309.0	304.2	298.2	295.9	287.5	286.3	286.3	282.7
25°	307.8	293.5	282.7	272.0	269.6	263.6	263.6	256.5	257.7	255.3	254.1
27.5°	272.0	258.9	249.3	241.0	239.8	236.2	235.0	230.2	230.2	229.0	226.7
30°	238.6	229.0	220.7	214.7	214.7	211.2	211.2	206.4	205.2	204.0	204.0
32.5°	210.0	204.0	198.0	190.9	192.1	187.3	187.3	182.5	180.1	178.9	176.6
35°	183.7	180.1	174.2	169.4	169.4	164.6	162.2	157.5	156.3	155.1	153.9
37.5°	161.0	157.5	152.7	146.7	146.7	142.0	140.8	137.2	134.8	133.6	132.4
40°	139.6	136.0	131.2	125.3	125.3	120.5	119.3	116.9	115.7	113.3	112.1
42.5°	115.7	112.1	108.6	106.2	105.0	101.4	100.2	94.2	96.6	95.4	91.9
45°	95.4	94.2	90.7	87.1	85.9	82.3	79.9	76.3	75.2	75.2	72.8
47.5°	78.7	75.2	72.8	69.2	68.0	65.6	63.2	60.8	60.8	59.6	57.3
50°	62.0	59.6	58.5	54.9	53.7	51.3	50.1	47.7	46.5	44.1	42.9
52.5°	50.1	47.7	45.3	44.1	41.8	40.6	38.2	34.6	34.6	32.2	29.8
55°	39.4	37.0	34.6	33.4	31.0	28.6	27.4	25.1	22.7	21.5	20.3
57.5°	29.8	27.4	26.2	23.9	21.5	20.3	17.9	15.5	14.3	13.1	11.9
60°	21.5	20.3	17.9	15.5	14.3	13.1	11.9	9.5	9.5	8.4	8.4
62.5°	15.5	13.1	11.9	9.5	9.5	8.4	7.2	7.2	6.0	6.0	4.8
65°	9.5	8.4	7.2	7.2	6.0	6.0	4.8	4.8	3.6	3.6	3.6
67.5°	6.0	4.8	4.8	4.8	3.6	3.6	3.6	2.4	2.4	2.4	1.2
70°	3.6	3.6	3.6	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2
72.5°	3.6	2.4	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2
75°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2
80°	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	0.0
82.5°	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	0.0
85°	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	0.0
87.5°	2.4	2.4	2.4	2.4	2.4	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: P130066

CATALOG NUMBER: HL618TAT - HLM6940 - HL6NFL - 455SC

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	929.3	929.3	929.3	929.3
2.5°	819.6	811.2	808.8	823.1
5°	711.0	701.5	699.1	706.2
7.5°	614.4	602.4	606.0	607.2
10°	528.5	520.1	518.9	522.5
12.5°	454.5	448.5	448.5	454.5
15°	398.4	394.9	393.7	399.6
17.5°	350.7	349.5	349.5	354.3
20°	313.7	312.6	312.6	316.1
22.5°	280.3	280.3	280.3	281.5
25°	251.7	252.9	251.7	252.9
27.5°	225.5	226.7	226.7	226.7
30°	205.2	200.4	201.6	200.4
32.5°	175.4	174.2	175.4	175.4
35°	151.5	151.5	151.5	151.5
37.5°	130.0	130.0	130.0	130.0
40°	109.8	109.8	109.8	108.6
42.5°	90.7	90.7	90.7	89.5
45°	71.6	71.6	71.6	72.8
47.5°	56.1	56.1	54.9	56.1
50°	41.8	40.6	40.6	40.6
52.5°	29.8	28.6	27.4	27.4
55°	19.1	17.9	17.9	17.9
57.5°	11.9	11.9	10.7	10.7
60°	7.2	7.2	7.2	7.2
62.5°	4.8	4.8	4.8	3.6
65°	2.4	2.4	2.4	2.4
67.5°	1.2	1.2	1.2	1.2
70°	1.2	1.2	1.2	1.2
72.5°	1.2	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0
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)