

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: P130064

Luminaire Tested: **HL618TAT - HLM6930 - HL6NFL - 455H**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P130064  
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 - HLM6930 - HL6NFL - 455H  
Description: HALO ALLSLOPE 6" 30W, Semi-Specular Haze Reflector, White Metal Trim Ring using 25 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: 2106.0 lumens  
Efficiency: N/A  
Efficacy: 76.3 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

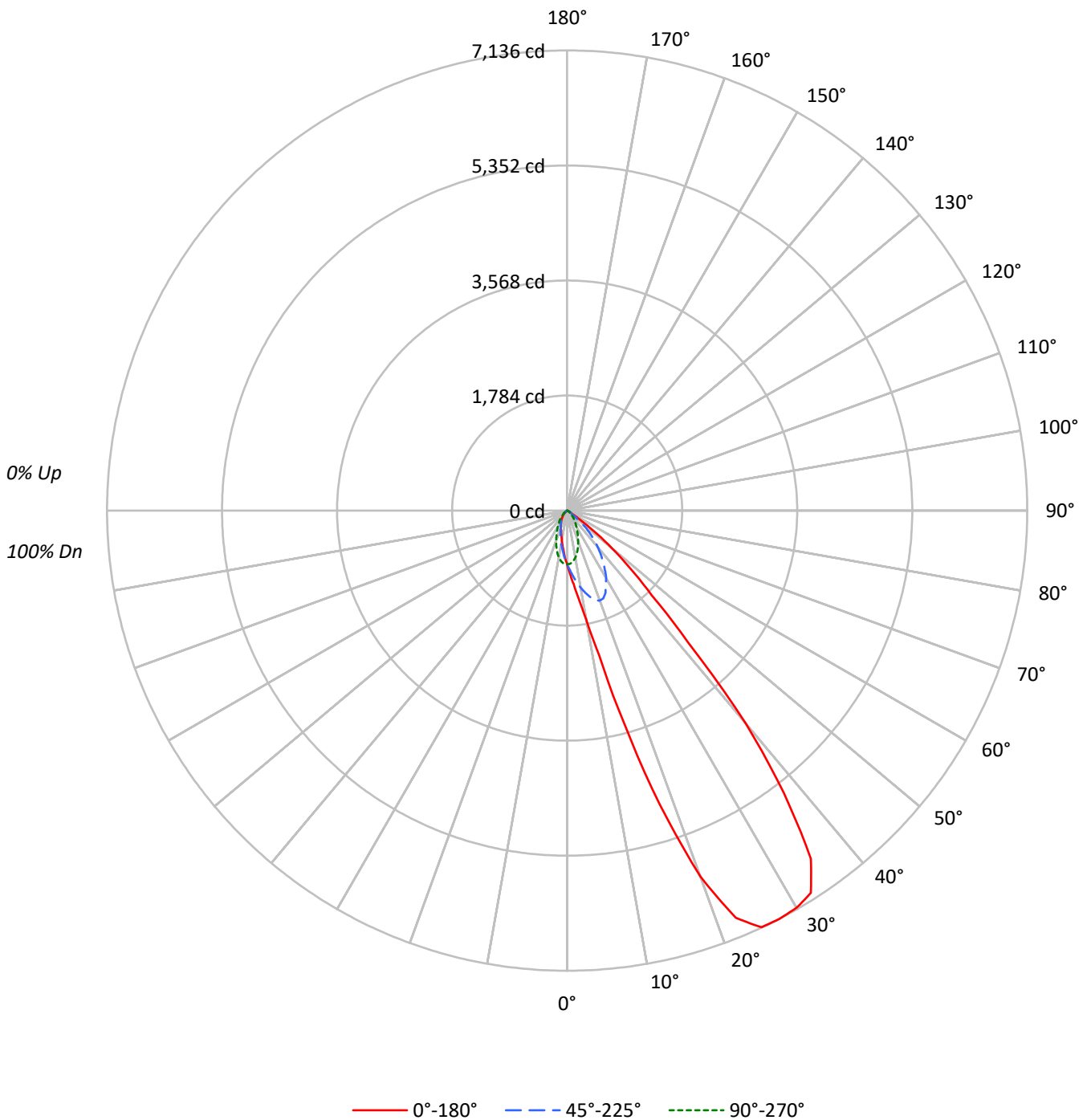
Input Watts (W): 27.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	49609	49609	49609
5°	67031	47601	36985
10°	99632	42683	27056
15°	196760	36125	20618
20°	349674	28856	16374
25°	417797	22256	13255
30°	425090	17085	10709
35°	404998	13111	8325
40°	274743	9990	6187
45°	123590	6969	4342
50°	64554	4739	2560
55°	15375	3221	1207
60°	4619	2093	523
65°	2978	1152	189
70°	1614	434	111
75°	498	243	0
80°	0	288	0
85°	0	356	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	81.4	3.9
10°-20°	309.6	14.7
20°-30°	653.3	31.0
30°-40°	657.5	31.2
40°-50°	312.2	14.8
50°-60°	72.3	3.4
60°-70°	15.3	0.7
70°-80°	3.2	0.2
80°-90°	1.3	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°	1044.2	49.6
0°-40°	1701.7	80.8
0°-60°	2086.2	99.1
0°-90°	2106.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2106.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	831	831	831	831	831	
5°	1145	1015	813	668	632	127
15°	3411	1391	626	390	357	1084
25°	7130	1406	380	236	226	3215
35°	6592	966	213	147	136	3868
45°	1853	505	104	74	65	1626
55°	204	65	43	26	16	279
65°	33	24	13	5	2	33
75°	4	3	2	2	0	6
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°	831.1	831.1	831.1	831.1	831.1	831.1	831.1	831.1	831.1	831.1	831.1
2.5°	974.0	946.3	958.0	933.5	960.1	938.8	938.8	930.3	924.9	917.5	896.1
5°	1144.7	1109.5	1119.1	1104.2	1111.6	1085.0	1073.2	1049.8	1054.0	1014.6	978.3
7.5°	1374.1	1323.9	1339.9	1296.2	1293.0	1258.9	1225.8	1183.1	1146.8	1113.8	1059.4
10°	1720.8	1654.7	1656.8	1583.2	1566.1	1488.2	1425.3	1341.0	1268.5	1214.1	1127.6
12.5°	2295.8	2174.2	2156.1	2019.5	1949.1	1789.1	1653.6	1520.2	1398.6	1304.7	1186.3
15°	3410.7	3236.8	3093.8	2762.0	2520.9	2215.8	1950.2	1729.3	1548.0	1391.1	1235.4
17.5°	4780.5	4543.6	4379.3	3932.3	3456.5	2785.5	2317.2	1938.4	1663.2	1456.2	1262.1
20°	6037.2	5732.1	5467.5	4946.9	4376.1	3611.2	2652.1	2121.9	1745.3	1485.0	1254.6
22.5°	6835.2	6601.6	6349.8	5733.2	5037.6	4107.3	3033.0	2240.3	1772.0	1470.1	1213.0
25°	7129.6	6919.5	6786.1	6167.4	5415.2	4429.5	3147.2	2245.7	1732.5	1406.1	1156.4
27.5°	7136.0	6948.3	6882.1	6282.6	5479.2	4307.9	3040.5	2130.5	1635.5	1291.9	1079.6
30°	7113.6	6924.8	6812.8	6124.7	5233.9	4012.4	2747.1	1927.8	1502.1	1210.9	993.2
32.5°	7030.4	6796.8	6523.7	5687.3	4721.8	3433.1	2338.5	1702.7	1333.5	1090.3	910.0
35°	6592.0	6294.3	5839.8	4951.2	3925.9	2718.3	1920.3	1464.8	1170.3	966.5	793.7
37.5°	5518.7	5270.1	4838.1	3976.1	2922.1	2078.2	1596.0	1261.0	1018.8	852.4	694.5
40°	4312.1	4026.2	3521.6	2795.1	2132.6	1634.4	1302.6	1062.6	881.2	736.1	593.2
42.5°	2773.8	2648.9	2347.0	1934.2	1577.8	1290.9	1060.4	891.9	744.6	615.6	492.9
45°	1853.1	1764.5	1639.7	1417.8	1215.1	1040.2	875.9	735.0	615.6	504.6	403.3
47.5°	1331.4	1254.6	1204.5	1075.4	946.3	826.8	703.0	582.5	473.7	385.1	301.9
50°	915.3	856.7	835.3	756.4	655.0	566.5	468.3	386.2	305.1	242.2	184.6
52.5°	503.5	472.6	463.0	421.4	373.4	311.5	246.4	196.3	154.7	121.6	96.0
55°	203.8	197.4	187.8	172.8	150.4	120.6	103.5	85.3	72.5	65.1	59.7
57.5°	82.1	78.9	77.9	72.5	68.3	61.9	57.6	54.4	52.3	51.2	49.1
60°	56.5	54.4	53.3	51.2	50.1	48.0	45.9	44.8	42.7	41.6	39.5
62.5°	42.7	41.6	41.6	39.5	39.5	38.4	37.3	35.2	34.1	33.1	30.9
65°	33.1	32.0	30.9	30.9	29.9	29.9	28.8	27.7	25.6	24.5	22.4
67.5°	23.5	23.5	22.4	22.4	21.3	21.3	20.3	19.2	18.1	17.1	16.0
70°	16.0	14.9	14.9	14.9	14.9	13.9	13.9	12.8	11.7	11.7	10.7
72.5°	9.6	9.6	9.6	8.5	8.5	8.5	7.5	7.5	7.5	6.4	6.4
75°	4.3	4.3	4.3	4.3	4.3	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	1.1	2.1	2.1	2.1	2.1
80°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1
82.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1
85°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1
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°	831.1	831.1	831.1	831.1	831.1	831.1	831.1	831.1	831.1	831.1	831.1
2.5°	887.6	885.5	864.1	854.5	852.4	843.9	840.7	830.0	791.6	793.7	798.0
5°	958.0	938.8	904.7	882.3	867.3	848.1	832.1	812.9	780.9	756.4	751.0
7.5°	1018.8	983.6	934.5	899.3	869.5	838.5	809.7	779.9	742.5	711.6	696.6
10°	1069.0	1016.7	948.4	899.3	857.7	815.1	776.7	737.2	691.3	655.0	636.9
12.5°	1101.0	1030.6	946.3	883.3	830.0	774.5	731.8	687.0	635.8	594.2	572.9
15°	1120.2	1025.2	929.2	851.3	788.4	725.4	676.4	626.2	572.9	530.2	506.7
17.5°	1119.1	1023.1	897.2	809.7	737.2	667.8	614.5	562.2	511.0	467.3	441.7
20°	1092.4	970.8	849.2	757.5	682.8	607.0	549.4	498.2	447.0	407.5	383.0
22.5°	1043.4	916.4	793.7	695.6	618.8	547.3	486.5	435.3	389.4	354.2	336.1
25°	985.8	853.5	734.0	627.3	553.7	482.2	426.7	379.8	339.3	307.2	292.3
27.5°	915.3	785.2	665.7	564.4	487.5	422.5	370.2	330.7	293.4	268.8	253.9
30°	830.0	710.5	588.9	499.3	425.7	367.0	319.0	285.9	255.0	232.6	224.0
32.5°	746.8	628.4	515.3	432.1	368.1	314.7	274.2	246.4	223.0	203.8	195.2
35°	661.4	544.1	447.0	368.1	314.7	267.8	236.8	213.4	193.1	178.2	171.8
37.5°	571.8	466.2	379.8	311.5	264.6	226.2	198.4	187.8	166.4	153.6	149.4
40°	479.0	389.4	317.9	262.4	221.9	191.0	170.7	156.8	141.9	134.4	130.2
42.5°	397.9	319.0	261.4	215.5	184.6	159.0	143.0	131.2	117.4	112.0	108.8
45°	320.0	255.0	205.9	170.7	145.1	125.9	113.1	104.5	96.0	90.7	88.5
47.5°	234.7	183.5	147.2	122.7	104.5	93.9	85.3	82.1	76.8	74.7	72.5
50°	143.0	114.2	94.9	82.1	74.7	71.5	68.3	67.2	62.9	60.8	57.6
52.5°	81.1	72.5	65.1	61.9	60.8	58.7	55.5	53.3	49.1	46.9	45.9
55°	56.5	55.5	53.3	51.2	49.1	45.9	43.7	42.7	39.5	38.4	36.3
57.5°	48.0	44.8	42.7	39.5	38.4	36.3	35.2	34.1	32.0	29.9	28.8
60°	37.3	35.2	33.1	32.0	30.9	28.8	26.7	25.6	23.5	22.4	21.3
62.5°	28.8	27.7	25.6	24.5	23.5	22.4	20.3	19.2	18.1	16.0	13.9
65°	21.3	20.3	19.2	18.1	17.1	16.0	13.9	12.8	11.7	10.7	9.6
67.5°	14.9	14.9	12.8	11.7	11.7	9.6	8.5	7.5	6.4	6.4	5.3
70°	9.6	9.6	8.5	7.5	6.4	5.3	5.3	4.3	4.3	4.3	3.2
72.5°	5.3	4.3	4.3	4.3	3.2	3.2	3.2	3.2	3.2	3.2	3.2
75°	3.2	2.1	2.1	3.2	3.2	3.2	3.2	2.1	2.1	2.1	2.1
77.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
80°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
82.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
85°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
87.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
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°	831.1	831.1	831.1	831.1	831.1	831.1	831.1	831.1	831.1	831.1	831.1
2.5°	792.7	776.7	768.1	759.6	759.6	753.2	756.4	741.4	744.6	736.1	735.0
5°	737.2	732.9	697.7	687.0	670.0	667.8	671.0	651.8	649.7	641.2	633.7
7.5°	678.5	651.8	630.5	613.4	602.8	591.0	574.0	569.7	564.4	558.0	550.5
10°	614.5	584.6	560.1	539.8	533.4	517.4	508.9	496.1	487.5	480.1	474.7
12.5°	547.3	516.3	493.9	472.6	464.1	449.1	442.7	429.9	422.5	415.0	412.9
15°	479.0	451.3	426.7	410.7	401.1	390.5	385.1	371.3	369.1	362.7	358.5
17.5°	418.2	392.6	371.3	358.5	349.9	339.3	337.1	326.5	324.3	321.1	316.8
20°	361.7	341.4	323.2	312.6	307.2	300.8	297.6	290.2	288.0	285.9	283.8
22.5°	315.8	298.7	288.0	276.3	272.0	266.7	264.6	257.1	256.0	256.0	252.8
25°	275.2	262.4	252.8	243.2	241.1	235.8	235.8	229.4	230.4	228.3	227.2
27.5°	243.2	231.5	223.0	215.5	214.4	211.2	210.2	205.9	205.9	204.8	202.7
30°	213.4	204.8	197.4	192.0	192.0	188.8	188.8	184.6	183.5	182.4	182.4
32.5°	187.8	182.4	177.1	170.7	171.8	167.5	167.5	163.2	161.1	160.0	157.9
35°	164.3	161.1	155.8	151.5	151.5	147.2	145.1	140.8	139.8	138.7	137.6
37.5°	144.0	140.8	136.6	131.2	131.2	127.0	125.9	122.7	120.6	119.5	118.4
40°	124.8	121.6	117.4	112.0	112.0	107.7	106.7	104.5	103.5	101.3	100.3
42.5°	103.5	100.3	97.1	94.9	93.9	90.7	89.6	84.3	86.4	85.3	82.1
45°	85.3	84.3	81.1	77.9	76.8	73.6	71.5	68.3	67.2	67.2	65.1
47.5°	70.4	67.2	65.1	61.9	60.8	58.7	56.5	54.4	54.4	53.3	51.2
50°	55.5	53.3	52.3	49.1	48.0	45.9	44.8	42.7	41.6	39.5	38.4
52.5°	44.8	42.7	40.5	39.5	37.3	36.3	34.1	30.9	30.9	28.8	26.7
55°	35.2	33.1	30.9	29.9	27.7	25.6	24.5	22.4	20.3	19.2	18.1
57.5°	26.7	24.5	23.5	21.3	19.2	18.1	16.0	13.9	12.8	11.7	10.7
60°	19.2	18.1	16.0	13.9	12.8	11.7	10.7	8.5	8.5	7.5	7.5
62.5°	13.9	11.7	10.7	8.5	8.5	7.5	6.4	6.4	5.3	5.3	4.3
65°	8.5	7.5	6.4	6.4	5.3	5.3	4.3	4.3	3.2	3.2	3.2
67.5°	5.3	4.3	4.3	4.3	3.2	3.2	3.2	2.1	2.1	2.1	1.1
70°	3.2	3.2	3.2	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1
72.5°	3.2	2.1	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1
75°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1
77.5°	2.1	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1
80°	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	0.0
82.5°	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	0.0
85°	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	0.0
87.5°	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1	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: P130064

CATALOG NUMBER: HL618TAT - HLM6930 - HL6NFL - 455H

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	831.1	831.1	831.1	831.1
2.5°	732.9	725.4	723.3	736.1
5°	635.8	627.3	625.2	631.6
7.5°	549.4	538.7	542.0	543.0
10°	472.6	465.1	464.1	467.3
12.5°	406.5	401.1	401.1	406.5
15°	356.3	353.1	352.1	357.4
17.5°	313.6	312.6	312.6	316.8
20°	280.6	279.5	279.5	282.7
22.5°	250.7	250.7	250.7	251.8
25°	225.1	226.2	225.1	226.2
27.5°	201.6	202.7	202.7	202.7
30°	183.5	179.2	180.3	179.2
32.5°	156.8	155.8	156.8	156.8
35°	135.5	135.5	135.5	135.5
37.5°	116.3	116.3	116.3	116.3
40°	98.1	98.1	98.1	97.1
42.5°	81.1	81.1	81.1	80.0
45°	64.0	64.0	64.0	65.1
47.5°	50.1	50.1	49.1	50.1
50°	37.3	36.3	36.3	36.3
52.5°	26.7	25.6	24.5	24.5
55°	17.1	16.0	16.0	16.0
57.5°	10.7	10.7	9.6	9.6
60°	6.4	6.4	6.4	6.4
62.5°	4.3	4.3	4.3	3.2
65°	2.1	2.1	2.1	2.1
67.5°	1.1	1.1	1.1	1.1
70°	1.1	1.1	1.1	1.1
72.5°	1.1	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)