

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 - 455H**

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 - 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2329.0 lumens
Efficiency: N/A
Efficacy: 84.4 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

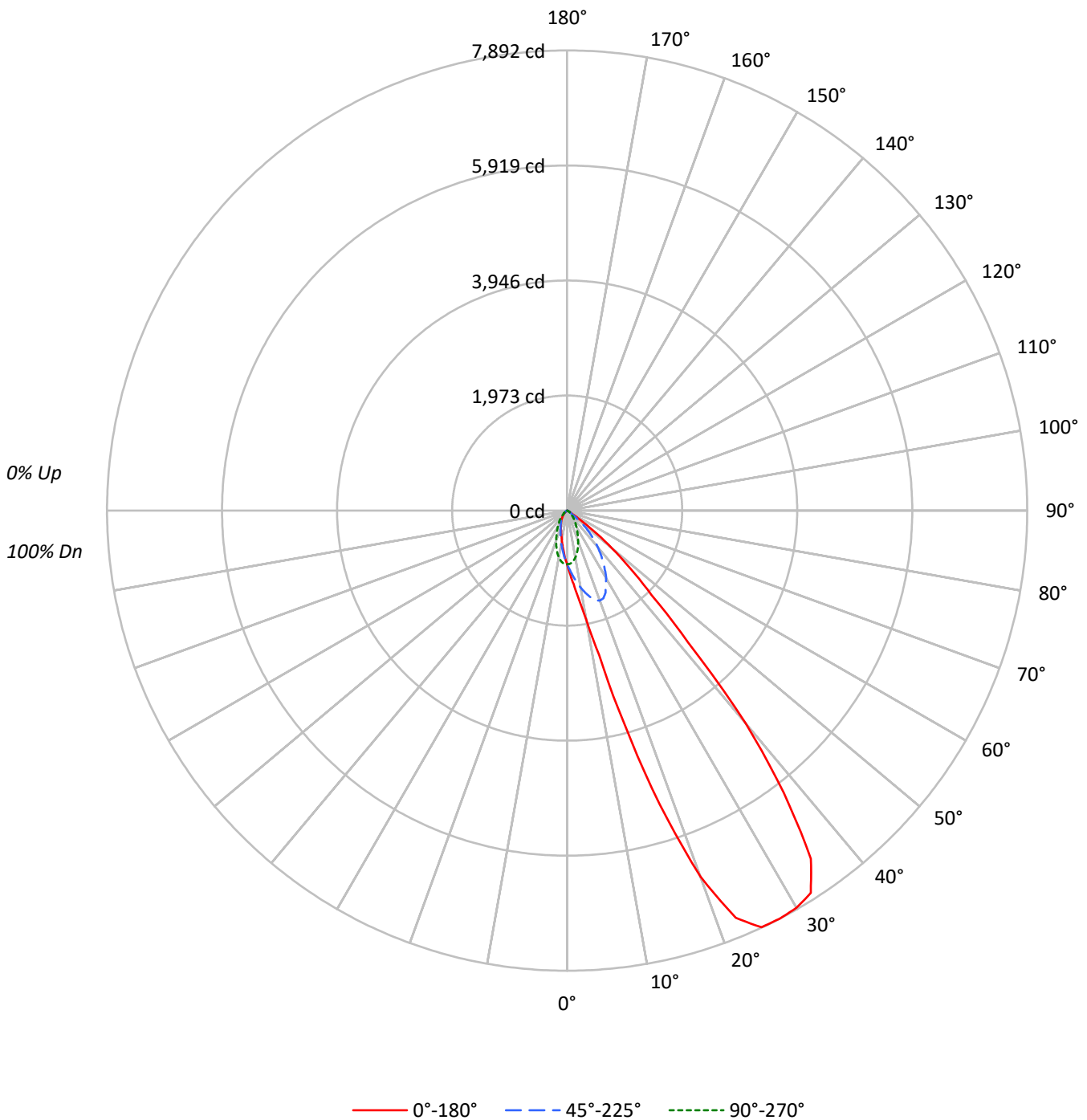
Input Watts (W): 27.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	54862	54862	54862
5°	74128	52643	40896
10°	110181	47199	29922
15°	217591	39950	22799
20°	386702	31914	18106
25°	462041	24612	14656
30°	470105	18895	11844
35°	447882	14499	9203
40°	303836	11048	6843
45°	136675	7710	4802
50°	71395	5240	2828
55°	16996	3561	1335
60°	5110	2314	580
65°	3293	1278	216
70°	1786	474	121
75°	544	278	0
80°	0	329	0
85°	0	407	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	90.0	3.9
10°-20°	342.4	14.7
20°-30°	722.4	31.0
30°-40°	727.1	31.2
40°-50°	345.2	14.8
50°-60°	79.9	3.4
60°-70°	16.9	0.7
70°-80°	3.5	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°	1154.8	49.6
0°-40°	1881.9	80.8
0°-60°	2307.1	99.1
0°-90°	2329.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2329.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	919	919	919	919	919	
5°	1266	1122	899	739	698	140
15°	3772	1538	692	432	395	1199
25°	7885	1555	420	261	250	3555
35°	7290	1069	236	163	150	4278
45°	2049	558	116	81	72	1798
55°	225	72	47	28	18	308
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°	919.1	919.1	919.1	919.1	919.1	919.1	919.1	919.1	919.1	919.1	919.1
2.5°	1077.2	1046.5	1059.5	1032.3	1061.8	1038.2	1038.2	1028.8	1022.9	1014.6	991.0
5°	1265.9	1227.0	1237.6	1221.1	1229.3	1199.9	1186.9	1160.9	1165.6	1122.0	1081.9
7.5°	1519.6	1464.1	1481.8	1433.5	1429.9	1392.2	1355.6	1308.4	1268.3	1231.7	1171.5
10°	1903.0	1829.9	1832.2	1750.8	1731.9	1645.8	1576.2	1483.0	1402.8	1342.6	1247.0
12.5°	2538.9	2404.4	2384.4	2233.4	2155.5	1978.5	1828.7	1681.2	1546.7	1442.9	1311.9
15°	3771.8	3579.5	3421.4	3054.5	2787.9	2450.4	2156.7	1912.4	1711.9	1538.5	1366.2
17.5°	5286.7	5024.8	4843.1	4348.7	3822.5	3080.4	2562.5	2143.7	1839.3	1610.4	1395.7
20°	6676.5	6339.0	6046.5	5470.7	4839.5	3993.6	2933.0	2346.6	1930.1	1642.3	1387.4
22.5°	7559.0	7300.6	7022.1	6340.2	5571.0	4542.2	3354.2	2477.6	1959.6	1625.8	1341.4
25°	7884.6	7652.2	7504.7	6820.4	5988.6	4898.5	3480.4	2483.5	1916.0	1555.0	1278.9
27.5°	7891.7	7684.0	7610.9	6947.8	6059.4	4764.0	3362.4	2356.1	1808.6	1428.7	1194.0
30°	7866.9	7658.1	7534.2	6773.2	5788.1	4437.2	3038.0	2131.9	1661.2	1339.1	1098.4
32.5°	7774.9	7516.5	7214.5	6289.5	5221.8	3796.6	2586.1	1883.0	1474.7	1205.8	1006.4
35°	7290.0	6960.8	6458.2	5475.4	4341.6	3006.1	2123.6	1619.9	1294.2	1068.9	877.8
37.5°	6103.1	5828.2	5350.4	4397.1	3231.5	2298.2	1765.0	1394.5	1126.7	942.7	768.0
40°	4768.7	4452.6	3894.5	3091.1	2358.4	1807.4	1440.5	1175.1	974.5	814.1	656.0
42.5°	3067.5	2929.4	2595.6	2139.0	1744.9	1427.6	1172.7	986.3	823.5	680.7	545.1
45°	2049.3	1951.4	1813.3	1567.9	1343.8	1150.3	968.6	812.9	680.7	558.0	446.0
47.5°	1472.4	1387.4	1332.0	1189.2	1046.5	914.3	777.5	644.2	523.8	425.9	333.9
50°	1012.3	947.4	923.8	836.5	724.4	626.5	517.9	427.1	337.4	267.8	204.1
52.5°	556.9	522.6	512.0	466.0	412.9	344.5	272.5	217.1	171.1	134.5	106.2
55°	225.3	218.3	207.6	191.1	166.4	133.3	114.4	94.4	80.2	72.0	66.1
57.5°	90.8	87.3	86.1	80.2	75.5	68.4	63.7	60.2	57.8	56.6	54.3
60°	62.5	60.2	59.0	56.6	55.5	53.1	50.7	49.6	47.2	46.0	43.7
62.5°	47.2	46.0	46.0	43.7	43.7	42.5	41.3	38.9	37.8	36.6	34.2
65°	36.6	35.4	34.2	34.2	33.0	33.0	31.9	30.7	28.3	27.1	24.8
67.5°	26.0	26.0	24.8	24.8	23.6	23.6	22.4	21.2	20.1	18.9	17.7
70°	17.7	16.5	16.5	16.5	16.5	15.3	15.3	14.2	13.0	13.0	11.8
72.5°	10.6	10.6	10.6	9.4	9.4	9.4	8.3	8.3	8.3	7.1	7.1
75°	4.7	4.7	4.7	4.7	4.7	3.5	3.5	3.5	3.5	3.5	3.5
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°	919.1	919.1	919.1	919.1	919.1	919.1	919.1	919.1	919.1	919.1	919.1
2.5°	981.6	979.2	955.6	945.0	942.7	933.2	929.7	917.9	875.4	877.8	882.5
5°	1059.5	1038.2	1000.5	975.7	959.2	937.9	920.2	899.0	863.6	836.5	830.6
7.5°	1126.7	1087.8	1033.5	994.6	961.5	927.3	895.5	862.4	821.1	786.9	770.4
10°	1182.2	1124.3	1048.8	994.6	948.6	901.4	858.9	815.2	764.5	724.4	704.3
12.5°	1217.5	1139.7	1046.5	976.9	917.9	856.5	809.3	759.8	703.2	657.1	633.6
15°	1238.8	1133.8	1027.6	941.5	871.9	802.3	748.0	692.5	633.6	586.4	560.4
17.5°	1237.6	1131.4	992.2	895.5	815.2	738.6	679.6	621.8	565.1	516.8	488.4
20°	1208.1	1073.6	939.1	837.7	755.1	671.3	607.6	551.0	494.3	450.7	423.5
22.5°	1153.8	1013.4	877.8	769.2	684.3	605.2	538.0	481.4	430.6	391.7	371.6
25°	1090.1	943.8	811.7	693.7	612.3	533.3	471.9	420.0	375.2	339.8	323.3
27.5°	1012.3	868.3	736.2	624.1	539.2	467.2	409.4	365.7	324.4	297.3	280.8
30°	917.9	785.7	651.2	552.1	470.7	405.8	352.8	316.2	282.0	257.2	247.8
32.5°	825.9	694.9	569.8	477.8	407.0	348.0	303.2	272.5	246.6	225.3	215.9
35°	731.5	601.7	494.3	407.0	348.0	296.1	261.9	236.0	213.5	197.0	189.9
37.5°	632.4	515.6	420.0	344.5	292.6	250.1	219.4	207.6	184.0	169.9	165.2
40°	529.7	430.6	351.6	290.2	245.4	211.2	188.8	173.4	156.9	148.7	143.9
42.5°	440.1	352.8	289.1	238.3	204.1	175.8	158.1	145.1	129.8	123.9	120.3
45°	353.9	282.0	227.7	188.8	160.5	139.2	125.1	115.6	106.2	100.3	97.9
47.5°	259.6	202.9	162.8	135.7	115.6	103.8	94.4	90.8	84.9	82.6	80.2
50°	158.1	126.2	105.0	90.8	82.6	79.0	75.5	74.3	69.6	67.2	63.7
52.5°	89.7	80.2	72.0	68.4	67.2	64.9	61.3	59.0	54.3	51.9	50.7
55°	62.5	61.3	59.0	56.6	54.3	50.7	48.4	47.2	43.7	42.5	40.1
57.5°	53.1	49.6	47.2	43.7	42.5	40.1	38.9	37.8	35.4	33.0	31.9
60°	41.3	38.9	36.6	35.4	34.2	31.9	29.5	28.3	26.0	24.8	23.6
62.5°	31.9	30.7	28.3	27.1	26.0	24.8	22.4	21.2	20.1	17.7	15.3
65°	23.6	22.4	21.2	20.1	18.9	17.7	15.3	14.2	13.0	11.8	10.6
67.5°	16.5	16.5	14.2	13.0	13.0	10.6	9.4	8.3	7.1	7.1	5.9
70°	10.6	10.6	9.4	8.3	7.1	5.9	5.9	4.7	4.7	4.7	3.5
72.5°	5.9	4.7	4.7	4.7	3.5	3.5	3.5	3.5	3.5	3.5	3.5
75°	3.5	2.4	2.4	3.5	3.5	3.5	3.5	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°	919.1	919.1	919.1	919.1	919.1	919.1	919.1	919.1	919.1	919.1	919.1
2.5°	876.6	858.9	849.5	840.0	840.0	832.9	836.5	820.0	823.5	814.1	812.9
5°	815.2	810.5	771.6	759.8	740.9	738.6	742.1	720.9	718.5	709.1	700.8
7.5°	750.4	720.9	697.3	678.4	666.6	653.6	634.7	630.0	624.1	617.0	608.8
10°	679.6	646.5	619.4	597.0	589.9	572.2	562.8	548.6	539.2	530.9	525.0
12.5°	605.2	571.0	546.2	522.6	513.2	496.7	489.6	475.5	467.2	458.9	456.6
15°	529.7	499.1	471.9	454.2	443.6	431.8	425.9	410.6	408.2	401.1	396.4
17.5°	462.5	434.2	410.6	396.4	387.0	375.2	372.8	361.0	358.7	355.1	350.4
20°	400.0	377.5	357.5	345.7	339.8	332.7	329.2	320.9	318.5	316.2	313.8
22.5°	349.2	330.3	318.5	305.6	300.8	294.9	292.6	284.3	283.2	283.2	279.6
25°	304.4	290.2	279.6	269.0	266.6	260.7	260.7	253.7	254.8	252.5	251.3
27.5°	269.0	256.0	246.6	238.3	237.1	233.6	232.4	227.7	227.7	226.5	224.2
30°	236.0	226.5	218.3	212.4	212.4	208.8	208.8	204.1	202.9	201.7	201.7
32.5°	207.6	201.7	195.8	188.8	189.9	185.2	185.2	180.5	178.1	177.0	174.6
35°	181.7	178.1	172.3	167.5	167.5	162.8	160.5	155.7	154.6	153.4	152.2
37.5°	159.3	155.7	151.0	145.1	145.1	140.4	139.2	135.7	133.3	132.1	131.0
40°	138.0	134.5	129.8	123.9	123.9	119.2	118.0	115.6	114.4	112.1	110.9
42.5°	114.4	110.9	107.4	105.0	103.8	100.3	99.1	93.2	95.6	94.4	90.8
45°	94.4	93.2	89.7	86.1	84.9	81.4	79.0	75.5	74.3	74.3	72.0
47.5°	77.9	74.3	72.0	68.4	67.2	64.9	62.5	60.2	60.2	59.0	56.6
50°	61.3	59.0	57.8	54.3	53.1	50.7	49.6	47.2	46.0	43.7	42.5
52.5°	49.6	47.2	44.8	43.7	41.3	40.1	37.8	34.2	34.2	31.9	29.5
55°	38.9	36.6	34.2	33.0	30.7	28.3	27.1	24.8	22.4	21.2	20.1
57.5°	29.5	27.1	26.0	23.6	21.2	20.1	17.7	15.3	14.2	13.0	11.8
60°	21.2	20.1	17.7	15.3	14.2	13.0	11.8	9.4	9.4	8.3	8.3
62.5°	15.3	13.0	11.8	9.4	9.4	8.3	7.1	7.1	5.9	5.9	4.7
65°	9.4	8.3	7.1	7.1	5.9	5.9	4.7	4.7	3.5	3.5	3.5
67.5°	5.9	4.7	4.7	4.7	3.5	3.5	3.5	2.4	2.4	2.4	1.2
70°	3.5	3.5	3.5	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2
72.5°	3.5	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 - 455H

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	919.1	919.1	919.1	919.1
2.5°	810.5	802.3	799.9	814.1
5°	703.2	693.7	691.4	698.4
7.5°	607.6	595.8	599.3	600.5
10°	522.6	514.4	513.2	516.8
12.5°	449.5	443.6	443.6	449.5
15°	394.1	390.5	389.3	395.2
17.5°	346.9	345.7	345.7	350.4
20°	310.3	309.1	309.1	312.6
22.5°	277.3	277.3	277.3	278.4
25°	248.9	250.1	248.9	250.1
27.5°	223.0	224.2	224.2	224.2
30°	202.9	198.2	199.4	198.2
32.5°	173.4	172.3	173.4	173.4
35°	149.8	149.8	149.8	149.8
37.5°	128.6	128.6	128.6	128.6
40°	108.5	108.5	108.5	107.4
42.5°	89.7	89.7	89.7	88.5
45°	70.8	70.8	70.8	72.0
47.5°	55.5	55.5	54.3	55.5
50°	41.3	40.1	40.1	40.1
52.5°	29.5	28.3	27.1	27.1
55°	18.9	17.7	17.7	17.7
57.5°	11.8	11.8	10.6	10.6
60°	7.1	7.1	7.1	7.1
62.5°	4.7	4.7	4.7	3.5
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)