

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: P130044

Luminaire Tested: **HL618TAT - HLM6935 - HL6FL - 456P**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130044
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 - HLM6935 - 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2030.9 lumens
Efficiency: N/A
Efficacy: 73.6 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

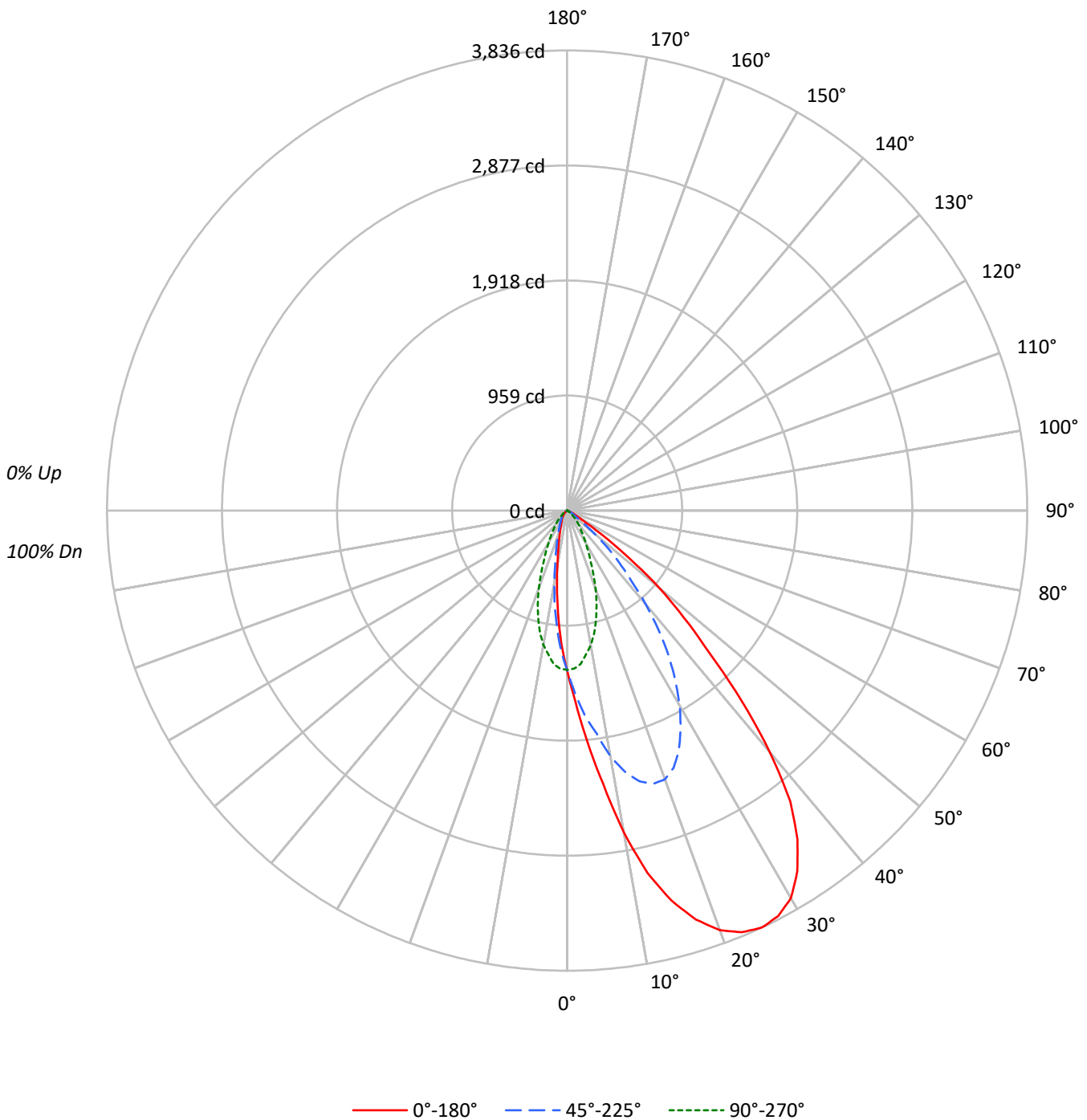
Input Watts (W): 27.6
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	83				83
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	77	76				76
4	93	85	78	74	92	84	78	73	81	76	72	79	75	71	77	74	70	69				69
5	88	78	71	66	86	77	71	66	75	70	66	73	69	65	72	68	64	63				63
6	82	72	65	60	81	71	65	60	70	64	60	68	63	59	67	62	59	57				57
7	77	67	60	55	76	66	60	55	65	59	55	63	58	54	62	58	54	52				52
8	73	62	55	51	72	61	55	50	60	54	50	59	54	50	58	53	50	48				48
9	69	58	51	47	68	57	51	46	56	50	46	55	50	46	54	49	46	44				44
10	65	54	47	43	64	54	47	43	53	47	43	52	46	43	51	46	43	41				41

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	79305	79305	79305
5°	113133	75176	50389
10°	157629	65831	26703
15°	194325	53610	15091
20°	215566	40005	9435
25°	224820	26827	6657
30°	222955	18304	5277
35°	205614	12619	4301
40°	167397	9137	3071
45°	111412	5889	1914
50°	70718	3801	889
55°	27437	2512	174
60°	7971	1504	90
65°	4337	513	207
70°	1967	232	232
75°	266	266	127
80°	0	315	151
85°	0	390	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	128.1	6.3
10°-20°	383.7	18.9
20°-30°	558.6	27.5
30°-40°	540.3	26.6
40°-50°	314.3	15.5
50°-60°	86.1	4.2
60°-70°	16.1	0.8
70°-80°	2.6	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°	1070.4	52.7
0°-40°	1610.6	79.3
0°-60°	2011.0	99.0
0°-90°	2030.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2030.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1329	1329	1329	1329	1329	
5°	1932	1718	1284	974	860	208
15°	3368	2338	929	357	262	954
25°	3836	2203	458	151	114	1756
35°	3347	1473	205	86	70	2052
45°	1670	613	88	40	29	1330
55°	364	86	33	10	2	384
65°	48	28	6	2	2	51
75°	2	1	2	1	1	5
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°	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6
2.5°	1597.0	1587.9	1576.4	1591.3	1566.1	1569.5	1550.0	1559.2	1515.6	1523.6	1508.7
5°	1932.0	1920.6	1906.8	1890.7	1865.5	1859.8	1815.0	1811.6	1745.0	1717.5	1691.1
7.5°	2298.0	2292.3	2265.9	2237.2	2193.6	2153.5	2083.5	2064.0	1963.0	1872.4	1843.7
10°	2722.5	2715.6	2656.0	2642.2	2571.1	2496.5	2371.5	2306.1	2164.9	2080.0	1980.2
12.5°	3093.1	3073.6	3028.9	3003.6	2902.7	2815.5	2665.2	2553.9	2361.1	2231.5	2075.5
15°	3368.5	3358.1	3322.6	3288.1	3189.5	3088.5	2902.7	2769.6	2517.2	2338.2	2139.7
17.5°	3575.0	3557.8	3529.1	3490.1	3390.3	3262.9	3056.4	2908.4	2620.4	2387.5	2153.5
20°	3721.8	3704.6	3748.2	3628.9	3514.2	3388.0	3152.8	2977.2	2652.5	2384.1	2121.3
22.5°	3804.4	3720.7	3755.1	3710.3	3583.0	3443.0	3190.6	2978.4	2615.8	2319.8	2044.5
25°	3836.5	3755.1	3782.6	3728.7	3592.2	3432.7	3155.1	2906.1	2512.6	2202.8	1929.7
27.5°	3810.2	3795.2	3749.4	3687.4	3540.5	3354.7	3111.5	2756.9	2350.8	2049.1	1784.0
30°	3731.0	3705.8	3656.4	3589.9	3430.4	3205.5	2853.3	2541.3	2154.6	1874.7	1616.5
32.5°	3569.2	3556.6	3508.4	3416.6	3229.6	2965.8	2600.9	2291.1	1940.1	1677.3	1430.7
35°	3346.7	3340.9	3279.0	3159.6	2925.6	2642.2	2284.3	2033.0	1712.9	1473.1	1229.9
37.5°	3055.2	3028.9	2949.7	2807.4	2552.7	2288.8	1987.1	1768.0	1485.7	1247.1	1032.6
40°	2627.3	2630.7	2536.7	2372.6	2155.8	1950.4	1691.1	1492.6	1227.6	1016.5	819.2
42.5°	2158.1	2138.6	2067.4	1933.2	1778.3	1577.5	1340.0	1173.7	948.8	785.9	628.7
45°	1670.5	1634.9	1591.3	1493.8	1374.5	1240.2	1054.4	923.6	746.9	612.7	471.5
47.5°	1318.2	1291.9	1264.3	1180.6	1089.9	963.7	822.6	714.8	567.9	448.6	339.6
50°	1002.7	993.6	969.5	905.2	811.1	717.1	604.6	496.8	374.0	283.4	221.4
52.5°	656.3	696.4	629.9	598.9	516.3	437.1	353.4	269.6	197.3	153.7	123.9
55°	363.7	359.1	348.8	302.9	253.6	207.7	157.2	126.2	99.8	86.0	75.7
57.5°	177.8	179.0	166.4	142.3	115.9	101.0	86.0	78.0	68.8	63.1	58.5
60°	97.5	97.5	94.1	86.0	76.9	72.3	64.2	59.7	53.9	50.5	45.9
62.5°	67.7	66.5	65.4	62.0	58.5	53.9	49.3	45.9	41.3	39.0	34.4
65°	48.2	48.2	47.0	44.7	42.4	39.0	35.6	33.3	29.8	27.5	25.2
67.5°	33.3	32.1	32.1	32.1	28.7	27.5	24.1	22.9	19.5	17.2	16.1
70°	19.5	19.5	18.4	18.4	17.2	14.9	13.8	12.6	10.3	9.2	8.0
72.5°	8.0	8.0	8.0	8.0	6.9	6.9	5.7	4.6	4.6	3.4	3.4
75°	2.3	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1
80°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1
87.5°	0.0	0.0	0.0	0.0	0.0	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



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6
2.5°	1494.9	1455.9	1443.3	1395.1	1394.0	1367.6	1336.6	1319.4	1290.7	1266.6	1254.0
5°	1657.8	1582.1	1543.1	1463.9	1437.6	1383.6	1326.3	1283.8	1232.2	1185.2	1149.6
7.5°	1784.0	1688.8	1613.1	1504.1	1416.9	1369.9	1287.3	1208.1	1151.9	1086.5	1039.4
10°	1880.4	1755.4	1648.7	1511.0	1430.7	1327.4	1221.9	1137.0	1054.4	971.8	912.1
12.5°	1945.8	1787.5	1652.1	1488.0	1383.6	1259.7	1138.1	1042.9	940.8	852.4	783.6
15°	1967.6	1782.9	1621.1	1434.1	1309.1	1172.5	1040.6	929.3	822.6	730.8	651.7
17.5°	1950.4	1740.4	1553.4	1359.5	1212.7	1064.7	928.2	813.4	703.3	603.5	523.2
20°	1898.8	1665.9	1461.7	1255.1	1106.0	948.8	810.0	690.7	580.5	484.2	417.6
22.5°	1808.1	1562.6	1350.4	1135.8	980.9	826.1	686.1	567.9	470.4	397.0	341.9
25°	1683.1	1428.4	1212.7	999.3	851.3	696.4	565.6	457.8	379.8	324.7	283.4
27.5°	1537.4	1287.3	1072.7	868.5	725.1	586.3	447.4	377.5	314.4	265.0	230.6
30°	1366.4	1120.9	924.7	736.6	598.9	463.5	369.4	306.3	260.4	219.1	193.9
32.5°	1189.7	967.2	784.7	610.4	478.4	374.0	304.0	253.6	213.4	183.6	161.8
35°	1009.6	811.1	636.7	484.2	379.8	306.3	246.7	205.4	177.8	152.6	135.4
37.5°	832.9	652.8	501.4	372.9	300.6	244.4	200.8	170.9	148.0	129.6	115.9
40°	642.5	491.0	378.6	290.3	237.5	196.2	166.4	143.4	123.9	109.0	97.5
42.5°	484.2	371.7	294.9	234.0	191.6	161.8	136.5	118.2	101.0	88.3	80.3
45°	361.4	285.7	228.3	182.4	150.3	126.2	104.4	88.3	76.9	68.8	62.0
47.5°	263.9	210.0	168.7	129.6	106.7	89.5	75.7	66.5	60.8	55.1	50.5
50°	168.7	130.8	107.8	84.9	72.3	65.4	58.5	53.9	49.3	44.7	40.2
52.5°	96.4	80.3	70.0	62.0	56.2	52.8	47.0	42.4	37.9	34.4	31.0
55°	66.5	60.8	56.2	49.3	45.9	40.2	36.7	33.3	29.8	26.4	24.1
57.5°	53.9	49.3	43.6	39.0	34.4	32.1	29.8	25.2	22.9	19.5	17.2
60°	41.3	37.9	34.4	29.8	27.5	24.1	21.8	18.4	16.1	12.6	11.5
62.5°	31.0	28.7	25.2	21.8	19.5	16.1	13.8	11.5	10.3	8.0	5.7
65°	22.9	19.5	17.2	13.8	12.6	10.3	8.0	5.7	5.7	4.6	3.4
67.5°	13.8	11.5	10.3	8.0	6.9	5.7	4.6	3.4	2.3	2.3	2.3
70°	6.9	5.7	4.6	3.4	3.4	2.3	2.3	2.3	2.3	2.3	2.3
72.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
75°	1.1	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
77.5°	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
80°	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
82.5°	1.1	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
85°	1.1	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
87.5°	1.1	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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°	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6	1328.6
2.5°	1241.4	1213.8	1208.1	1179.4	1164.5	1165.6	1133.5	1134.7	1118.6	1111.7	1099.1
5°	1122.1	1081.9	1029.1	1017.6	982.1	974.1	931.6	916.7	891.4	874.2	866.2
7.5°	990.1	938.5	900.6	847.8	808.8	789.3	753.8	735.4	696.4	696.4	660.8
10°	847.8	789.3	745.7	688.4	642.5	613.8	578.2	545.0	520.9	494.5	483.0
12.5°	711.3	639.0	594.3	535.8	493.3	460.1	432.5	406.1	382.0	368.3	353.4
15°	578.2	507.1	465.8	417.6	382.0	356.8	328.1	310.9	293.7	282.2	276.5
17.5°	466.9	403.8	366.0	329.3	298.3	283.4	259.3	244.4	229.5	220.3	208.8
20°	370.6	324.7	294.9	263.9	239.8	223.7	207.7	193.9	185.9	176.7	172.1
22.5°	300.6	266.2	239.8	211.1	195.0	184.7	168.7	159.5	151.4	144.6	141.1
25°	245.5	215.7	196.2	176.7	160.6	151.4	143.4	133.1	127.3	121.6	118.2
27.5°	203.1	181.3	164.1	146.9	135.4	128.5	119.3	113.6	109.0	105.6	102.1
30°	170.9	151.4	138.8	126.2	115.9	111.3	104.4	99.8	95.2	92.9	90.6
32.5°	143.4	129.6	119.3	109.0	101.0	97.5	92.9	89.5	86.0	83.8	81.5
35°	121.6	109.0	103.3	96.4	89.5	86.0	81.5	79.2	76.9	73.4	72.3
37.5°	104.4	96.4	88.3	83.8	78.0	74.6	70.0	66.5	64.2	63.1	60.8
40°	88.3	81.5	75.7	70.0	64.2	62.0	57.4	55.1	53.9	51.6	49.3
42.5°	71.1	64.2	62.0	57.4	52.8	50.5	47.0	44.7	43.6	41.3	40.2
45°	57.4	52.8	50.5	45.9	42.4	40.2	36.7	34.4	33.3	31.0	29.8
47.5°	47.0	42.4	40.2	35.6	33.3	32.1	28.7	27.5	25.2	24.1	21.8
50°	35.6	33.3	31.0	27.5	26.4	24.1	21.8	19.5	17.2	16.1	14.9
52.5°	28.7	26.4	24.1	20.7	18.4	16.1	13.8	12.6	11.5	9.2	8.0
55°	21.8	19.5	16.1	13.8	12.6	10.3	8.0	6.9	5.7	4.6	3.4
57.5°	14.9	12.6	10.3	8.0	6.9	5.7	3.4	3.4	2.3	2.3	2.3
60°	9.2	6.9	5.7	4.6	3.4	2.3	2.3	2.3	2.3	1.1	1.1
62.5°	4.6	3.4	3.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
65°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
67.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
70°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.1
72.5°	2.3	2.3	2.3	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1
75°	2.3	2.3	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	2.3	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1
80°	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
85°	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
87.5°	2.3	1.1	1.1	1.1	1.1	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: P130044

CATALOG NUMBER: HL618TAT - HLM6935 - HL6FL - 456P

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1328.6	1328.6	1328.6	1328.6
2.5°	1100.3	1091.1	1075.0	1110.6
5°	862.8	842.1	839.8	860.5
7.5°	652.8	632.2	628.7	643.6
10°	476.1	461.2	458.9	461.2
12.5°	345.3	341.9	336.2	339.6
15°	267.3	258.1	258.1	261.6
17.5°	205.4	201.9	198.5	200.8
20°	166.4	162.9	159.5	162.9
22.5°	136.5	134.2	131.9	134.2
25°	115.9	113.6	111.3	113.6
27.5°	101.0	98.7	97.5	98.7
30°	89.5	87.2	87.2	88.3
32.5°	80.3	79.2	78.0	79.2
35°	71.1	70.0	68.8	70.0
37.5°	59.7	58.5	57.4	58.5
40°	49.3	48.2	47.0	48.2
42.5°	39.0	36.7	36.7	37.9
45°	28.7	27.5	27.5	28.7
47.5°	20.7	20.7	20.7	20.7
50°	13.8	12.6	12.6	12.6
52.5°	8.0	6.9	6.9	6.9
55°	3.4	2.3	2.3	2.3
57.5°	1.1	1.1	1.1	1.1
60°	1.1	1.1	1.1	1.1
62.5°	2.3	2.3	1.1	2.3
65°	2.3	2.3	2.3	2.3
67.5°	2.3	2.3	2.3	2.3
70°	2.3	2.3	1.1	2.3
72.5°	1.1	1.1	1.1	1.1
75°	1.1	1.1	1.1	1.1
77.5°	1.1	1.1	1.1	1.1
80°	1.1	1.1	0.0	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)