

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: P130171

Luminaire Tested: **HL612ICAT - HLM6935 - HL6FL - 455TBZ**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130171
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33451)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6935 - HL6FL - 455TBZ
Description: HALO ALLSLOPE 6" 21W, Tuscan Bronze Reflector, Tuscan Bronze 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: 1567.7 lumens
Efficiency: N/A
Efficacy: 82.1 lumens/watt
Spacing Criteria (0/90/45): 1.55 / 0.65 / 1.05
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

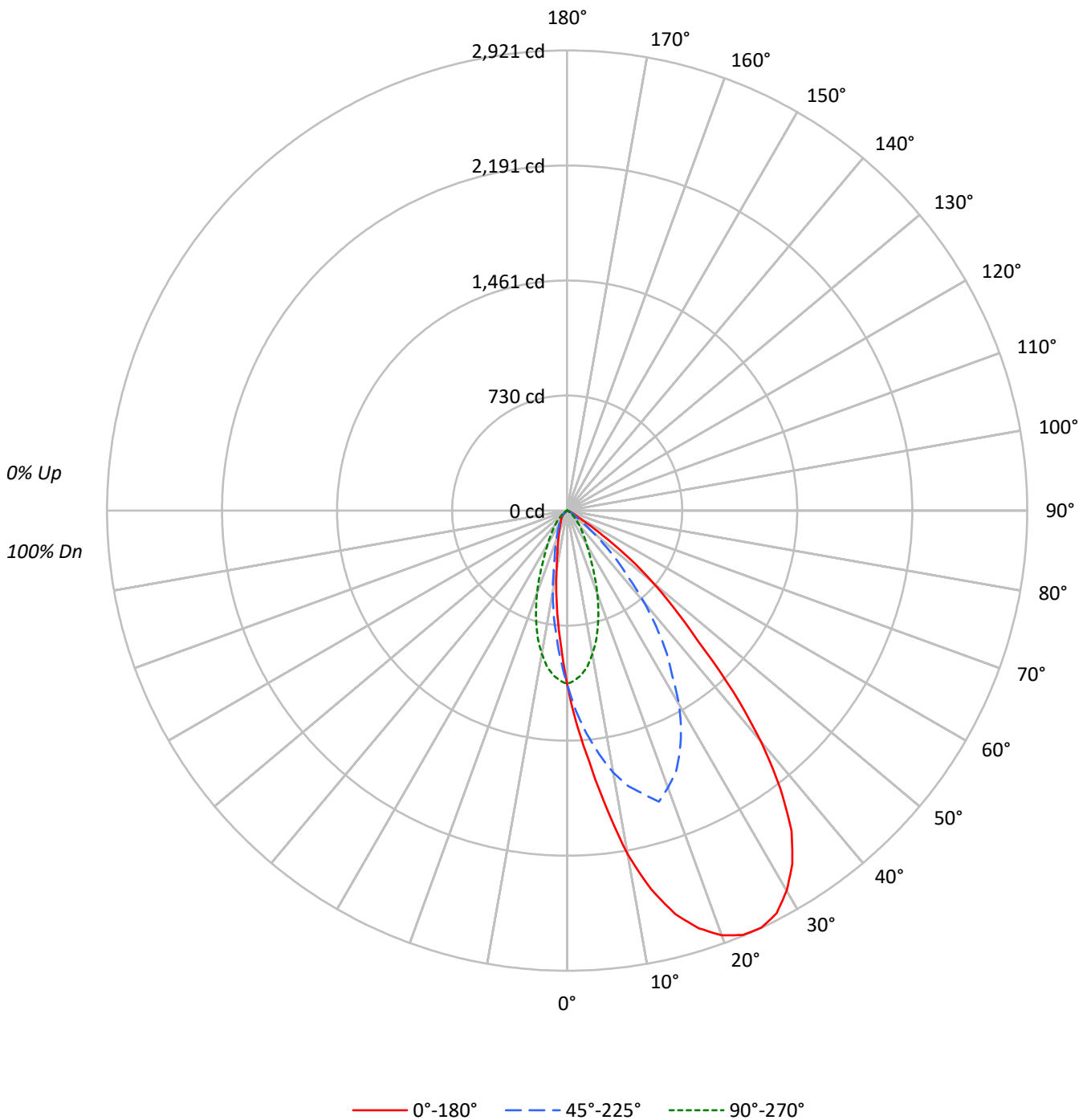
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P130171

CATALOG NUMBER: HL612ICAT - HLM6935 - HL6FL - 455TBZ

Luminous Intensity Polar Plot





TEST NUMBER: P130171

CATALOG NUMBER: HL612ICAT - HLM6935 - HL6FL - 455TBZ

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	100	100	98	97	96	95	94					92				
2	106	101	96	92	104	99	95	91	96	92	89	93	90	87	90	88	85					84				
3	100	93	87	82	98	91	86	82	88	84	80	86	82	79	84	80	78					76				
4	94	85	79	74	92	84	78	74	82	77	73	80	75	72	78	74	71					69				
5	88	79	72	67	86	78	71	67	76	70	66	74	69	65	72	68	65					63				
6	83	73	66	61	81	72	65	61	70	65	60	69	64	60	67	63	59					58				
7	78	67	61	56	76	67	60	56	65	60	55	64	59	55	63	58	55					53				
8	73	63	56	51	72	62	56	51	61	55	51	60	55	51	59	54	50					49				
9	69	58	52	47	68	58	52	47	57	51	47	56	51	47	55	50	47					45				
10	66	55	48	44	64	54	48	44	53	48	44	52	47	43	52	47	43					42				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	65713	65713	65713
5°	93487	61280	40235
10°	128402	53469	22279
15°	152974	43440	13078
20°	166160	32418	8549
25°	171148	21624	6176
30°	166496	14808	4828
35°	152550	10365	3993
40°	121931	7448	3020
45°	78638	5042	1934
50°	50068	3223	994
55°	20814	2188	264
60°	5674	1292	74
65°	3401	558	0
70°	1594	182	0
75°	301	208	0
80°	0	247	0
85°	0	305	0



TEST NUMBER: P130171

CATALOG NUMBER: HL612ICAT - HLM6935 - HL6FL - 455TBZ

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	105.8	6.8
10°-20°	308.6	19.7
20°-30°	434.2	27.7
30°-40°	406.3	25.9
40°-50°	232.3	14.8
50°-60°	65.2	4.2
60°-70°	12.6	0.8
70°-80°	2.0	0.1
80°-90°	0.8	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°	848.6	54.1
0°-40°	1254.9	80.0
0°-60°	1552.4	99.0
0°-90°	1567.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1567.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1101	1101	1101	1101	1101	
5°	1596	1421	1046	791	687	172
15°	2652	1861	753	308	227	749
25°	2921	1690	369	137	105	1335
35°	2483	1098	169	79	65	1515
45°	1179	446	76	40	29	951
55°	276	68	29	10	4	284
65°	38	22	6	1	0	39
75°	3	1	2	1	0	5
85°	0	1	2	1	0	0
90°	0	0	0	0	0	



TEST NUMBER: P130171

CATALOG NUMBER: HL612ICAT - HLM6935 - HL6FL - 455TBZ

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9
2.5°	1346.1	1338.2	1357.5	1331.1	1306.5	1311.8	1308.3	1299.5	1295.1	1270.5	1236.2
5°	1596.5	1596.5	1608.8	1574.5	1539.4	1536.7	1544.7	1491.9	1471.7	1420.8	1368.9
7.5°	1897.0	1904.0	1909.3	1853.1	1808.2	1774.9	1723.0	1682.6	1636.9	1559.6	1484.9
10°	2217.7	2219.4	2223.0	2144.8	2086.8	2034.9	1955.0	1881.2	1794.2	1688.7	1577.2
12.5°	2461.1	2472.5	2478.6	2392.5	2319.6	2252.8	2161.5	2058.7	1947.1	1790.7	1639.5
15°	2651.7	2661.4	2672.8	2583.2	2492.7	2429.4	2320.5	2200.1	2046.4	1861.0	1675.6
17.5°	2780.0	2797.6	2808.1	2712.4	2619.2	2543.7	2425.9	2280.1	2111.4	1937.4	1676.4
20°	2868.8	2887.2	2891.6	2795.8	2693.0	2614.8	2479.5	2314.3	2117.5	1870.6	1635.2
22.5°	2916.2	2931.1	2939.1	2832.7	2723.8	2635.9	2483.9	2291.5	2067.4	1801.2	1560.5
25°	2920.6	2939.1	2940.8	2824.0	2708.0	2606.9	2433.0	2212.4	1959.4	1690.5	1457.7
27.5°	2881.1	2899.5	2896.0	2775.6	2648.2	2529.6	2321.4	2080.6	1812.6	1566.6	1338.2
30°	2786.2	2852.1	2802.0	2680.7	2540.2	2398.7	2156.2	1891.7	1646.6	1420.8	1201.1
32.5°	2659.6	2677.2	2661.4	2527.9	2359.2	2197.5	1941.8	1680.8	1473.5	1238.9	1051.7
35°	2483.0	2489.2	2457.6	2303.8	2107.9	1919.8	1690.5	1482.3	1297.8	1098.3	898.9
37.5°	2222.1	2230.9	2197.5	2020.0	1836.4	1659.8	1479.6	1288.1	1108.8	927.8	760.0
40°	1913.7	1895.2	1839.9	1691.4	1542.9	1407.6	1252.1	1083.4	916.4	759.1	594.0
42.5°	1560.5	1548.2	1500.7	1382.1	1242.4	1128.2	992.0	843.5	710.8	579.0	454.3
45°	1179.1	1188.8	1151.9	1069.3	972.7	874.2	771.4	660.7	555.3	445.5	337.4
47.5°	927.0	933.1	914.7	841.7	772.3	681.8	600.1	505.2	410.3	315.4	248.7
50°	709.9	720.5	706.4	648.4	582.5	518.4	436.7	340.9	268.0	206.5	164.3
52.5°	502.6	499.9	484.1	428.8	373.4	318.1	246.0	188.9	150.2	117.7	95.8
55°	275.9	275.0	251.3	219.7	176.6	144.1	115.1	91.4	78.2	67.7	58.9
57.5°	123.9	118.6	111.6	95.8	82.6	73.8	65.0	58.9	55.4	50.1	45.7
60°	69.4	69.4	67.7	61.5	58.0	53.6	50.1	46.6	43.1	39.5	36.0
62.5°	51.0	51.0	49.2	46.6	43.9	41.3	38.7	36.0	33.4	30.8	28.1
65°	37.8	36.9	36.9	34.3	32.5	30.8	29.0	27.2	24.6	22.0	20.2
67.5°	25.5	26.4	26.4	23.7	22.8	21.1	20.2	18.5	16.7	14.9	13.2
70°	15.8	15.8	14.9	14.9	13.2	12.3	11.4	10.5	8.8	7.9	7.0
72.5°	7.9	7.9	7.0	7.0	6.2	6.2	5.3	4.4	4.4	3.5	2.6
75°	2.6	2.6	2.6	1.8	1.8	1.8	1.8	1.8	1.8	0.9	0.9
77.5°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
80°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
82.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
85°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
87.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
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: P130171

CATALOG NUMBER: HL612ICAT - HLM6935 - HL6FL - 455TBZ

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9
2.5°	1233.6	1205.5	1195.8	1173.9	1154.5	1133.4	1123.8	1079.0	1073.7	1038.6	1022.7
5°	1348.7	1297.8	1266.1	1223.9	1182.7	1140.5	1126.4	1046.5	1022.7	973.5	941.9
7.5°	1445.4	1394.4	1311.8	1249.4	1185.3	1122.9	1073.7	994.6	955.1	896.2	848.8
10°	1511.3	1412.9	1332.9	1251.2	1164.2	1084.2	1013.1	923.5	872.5	804.0	746.8
12.5°	1547.3	1424.3	1323.2	1223.1	1119.4	1024.5	939.3	845.3	782.9	699.4	642.3
15°	1555.2	1411.1	1287.2	1170.4	1054.4	948.1	854.0	753.0	684.5	602.7	536.9
17.5°	1533.2	1371.6	1227.5	1101.8	970.9	861.1	763.5	657.2	582.5	507.0	434.9
20°	1477.0	1302.1	1151.0	1013.1	876.0	763.5	663.4	559.7	482.4	408.6	350.6
22.5°	1390.0	1212.5	1054.4	913.8	775.8	665.1	558.8	460.4	389.2	326.9	286.4
25°	1265.2	1104.5	948.1	805.7	670.4	565.0	460.4	369.0	314.6	268.0	235.5
27.5°	1162.4	980.6	833.8	693.2	578.1	464.8	369.0	299.6	261.8	223.2	195.1
30°	1036.8	852.3	711.7	586.1	467.4	373.4	299.6	247.8	216.1	183.6	163.4
32.5°	893.6	724.9	594.8	481.5	373.4	302.3	247.8	205.6	178.4	154.6	137.1
35°	746.8	603.6	495.6	377.8	295.2	245.1	202.1	168.7	148.5	129.2	116.0
37.5°	615.0	478.9	369.0	295.2	236.4	197.7	165.2	141.5	124.8	109.0	99.3
40°	480.6	362.9	281.2	232.8	188.9	158.2	137.1	116.9	104.6	92.3	84.3
42.5°	359.4	277.7	223.2	184.5	152.9	130.9	112.5	95.8	87.0	77.3	70.3
45°	267.1	210.0	173.1	145.0	121.3	102.8	87.9	75.6	68.5	61.5	56.2
47.5°	195.9	155.5	127.4	107.2	87.0	76.4	65.0	58.0	53.6	48.3	45.7
50°	130.0	102.8	85.2	72.9	62.4	56.2	50.1	45.7	43.1	39.5	36.0
52.5°	78.2	65.9	58.0	52.7	47.4	44.8	40.4	36.9	34.3	30.8	28.1
55°	53.6	49.2	44.8	42.2	38.7	35.1	31.6	29.0	26.4	24.6	22.0
57.5°	43.1	39.5	36.0	33.4	29.9	28.1	25.5	22.0	20.2	18.5	15.8
60°	33.4	30.8	27.2	26.4	22.8	21.1	18.5	15.8	14.9	12.3	10.5
62.5°	25.5	22.8	20.2	19.3	16.7	14.9	12.3	10.5	8.8	7.0	6.2
65°	18.5	16.7	14.1	12.3	10.5	8.8	7.9	6.2	5.3	3.5	2.6
67.5°	11.4	9.7	8.8	7.0	6.2	5.3	4.4	2.6	2.6	1.8	1.8
70°	6.2	5.3	4.4	3.5	2.6	2.6	1.8	1.8	1.8	1.8	1.8
72.5°	2.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
75°	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
77.5°	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
80°	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
82.5°	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.9
85°	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.9
87.5°	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.9
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: P130171

CATALOG NUMBER: HL612ICAT - HLM6935 - HL6FL - 455TBZ

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9	1100.9
2.5°	1016.6	996.4	992.0	969.1	963.0	946.3	919.1	891.8	912.0	902.4	906.8
5°	917.3	886.5	872.5	834.7	814.5	790.8	775.8	748.6	735.4	732.8	715.2
7.5°	810.1	774.1	745.1	709.9	697.6	656.3	627.4	601.9	580.8	572.9	554.4
10°	706.4	657.2	623.0	580.8	550.9	520.2	491.2	462.2	445.5	430.5	410.3
12.5°	595.7	545.6	503.5	457.8	422.6	397.1	366.4	343.5	333.9	321.6	311.0
15°	485.9	430.5	395.4	360.2	332.1	307.5	290.0	274.1	262.7	251.3	242.5
17.5°	384.8	345.3	319.8	283.8	266.2	245.1	230.2	217.9	206.5	198.6	191.5
20°	310.2	277.7	255.7	232.8	214.4	196.8	184.5	175.7	168.7	162.5	158.2
22.5°	257.4	230.2	207.4	188.9	175.7	165.2	155.5	145.9	138.8	135.3	131.8
25°	209.1	187.2	171.3	158.2	147.6	137.1	126.5	121.3	117.7	113.3	111.6
27.5°	174.0	157.3	145.0	132.7	123.9	116.0	111.6	104.6	101.0	98.4	97.5
30°	146.7	132.7	122.1	113.3	106.3	101.0	96.7	92.3	89.6	87.9	86.1
32.5°	123.9	113.3	105.4	98.4	93.1	89.6	86.1	82.6	80.8	78.2	77.3
35°	106.3	97.5	92.3	86.1	82.6	79.1	76.4	73.8	72.0	69.4	68.5
37.5°	91.4	85.2	80.8	75.6	72.0	69.4	66.8	64.1	62.4	60.6	59.7
40°	80.0	73.8	69.4	65.0	62.4	58.9	56.2	53.6	52.7	51.0	50.1
42.5°	65.9	60.6	57.1	53.6	51.0	49.2	46.6	43.9	43.1	41.3	41.3
45°	52.7	49.2	46.6	43.9	42.2	39.5	36.9	35.1	33.4	32.5	30.8
47.5°	43.1	40.4	37.8	34.3	32.5	29.9	28.1	27.2	25.5	24.6	23.7
50°	34.3	30.8	29.0	26.4	24.6	22.8	22.0	19.3	18.5	17.6	16.7
52.5°	26.4	24.6	22.8	20.2	18.5	16.7	14.9	13.2	12.3	10.5	9.7
55°	20.2	18.5	15.8	14.1	12.3	10.5	9.7	7.9	6.2	5.3	5.3
57.5°	14.1	12.3	10.5	8.8	7.0	6.2	4.4	3.5	2.6	2.6	1.8
60°	8.8	7.0	6.2	4.4	3.5	2.6	1.8	1.8	0.9	0.9	0.9
62.5°	5.3	3.5	2.6	1.8	1.8	0.9	0.9	0.9	0.9	0.9	0.9
65°	2.6	1.8	1.8	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
67.5°	1.8	1.8	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
70°	1.8	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0
72.5°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0
75°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0
77.5°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0
80°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0
82.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
85°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
87.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	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: P130171

CATALOG NUMBER: HL612ICAT - HLM6935 - HL6FL - 455TBZ

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1100.9	1100.9	1100.9	1100.9
2.5°	895.3	878.6	878.6	865.5
5°	713.5	690.6	700.3	687.1
7.5°	550.0	535.1	542.1	525.4
10°	407.7	396.3	393.6	384.8
12.5°	305.8	297.0	294.3	286.4
15°	237.2	230.2	230.2	226.7
17.5°	187.2	181.9	182.8	181.9
20°	154.6	150.2	149.4	147.6
22.5°	129.2	124.8	124.8	123.9
25°	109.0	106.3	106.3	105.4
27.5°	94.9	93.1	93.1	92.3
30°	84.3	82.6	82.6	80.8
32.5°	75.6	73.8	74.7	73.8
35°	66.8	65.9	65.9	65.0
37.5°	58.9	57.1	57.1	56.2
40°	49.2	48.3	49.2	47.4
42.5°	39.5	38.7	39.5	38.7
45°	29.9	29.0	29.9	29.0
47.5°	22.8	22.0	21.1	21.1
50°	15.8	14.9	14.9	14.1
52.5°	9.7	8.8	8.8	7.9
55°	4.4	4.4	3.5	3.5
57.5°	1.8	1.8	0.9	0.9
60°	0.9	0.9	0.9	0.9
62.5°	0.9	0.9	0.9	0.0
65°	0.0	0.0	0.0	0.0
67.5°	0.0	0.0	0.0	0.0
70°	0.0	0.0	0.0	0.0
72.5°	0.0	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)