

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: P130120

Luminaire Tested: **HL618TAT - HLM6930 - HL6WFL - 456P**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130120
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33490)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL618TAT - HLM6930 - HL6WFL - 456P
Description: HALO ALLSLOPE 6" 30W, Black Coilex Baffle, White Metal Trim Ring using 55 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: 2027.0 lumens
Efficiency: N/A
Efficacy: 73.4 lumens/watt
Spacing Criteria (0/90/45): 1.36 / 0.77 / 1.12
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

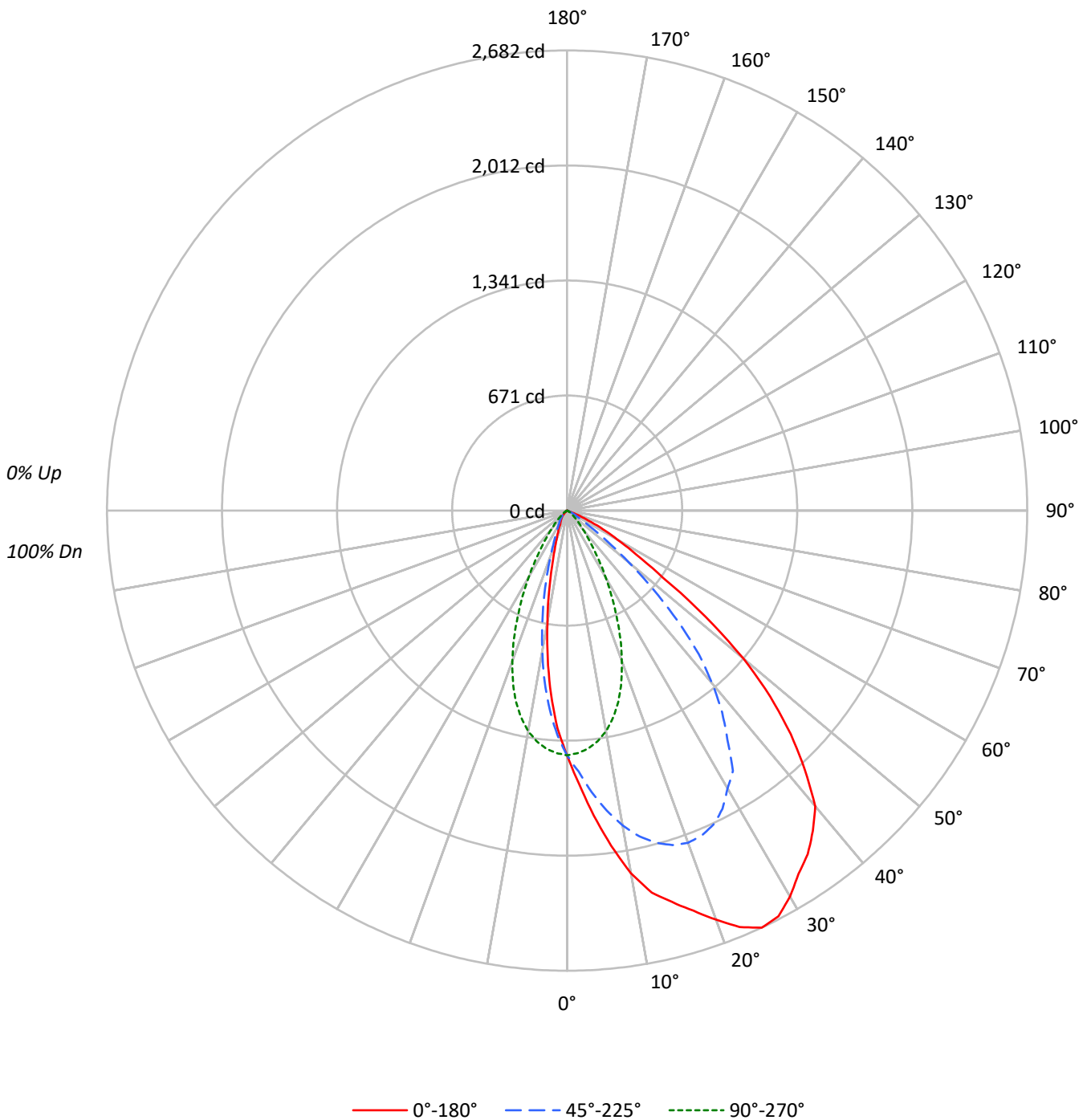
Input Watts (W): 27.6
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91					91			
2	105	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82					82			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74					74			
4	92	83	77	72	90	82	76	71	80	74	70	78	73	69	76	72	69	67					67			
5	86	76	69	64	85	75	69	64	73	68	63	72	67	63	70	66	62	60					60			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	57	55					55			
7	76	65	58	53	74	64	57	53	63	57	52	61	56	52	60	55	52	50					50			
8	71	60	53	48	70	60	53	48	58	52	48	57	52	48	56	51	47	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	41	62	52	45	41	51	45	41	50	44	41	49	44	40	39					39			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	85161	85161	85161
5°	104449	81559	63043
10°	124274	75587	38317
15°	136244	66486	19874
20°	146960	54022	10570
25°	157190	39913	6440
30°	155214	26747	4536
35°	150179	15943	3619
40°	143326	9315	2670
45°	122890	5516	1514
50°	94472	3435	719
55°	51548	2135	174
60°	27609	1112	188
65°	12335	405	207
70°	1947	232	111
75°	127	266	127
80°	0	315	0
85°	0	390	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	133.3	6.6
10°-20°	354.6	17.5
20°-30°	486.6	24.0
30°-40°	507.2	25.0
40°-50°	374.5	18.5
50°-60°	140.3	6.9
60°-70°	27.4	1.4
70°-80°	2.1	0.1
80°-90°	1.0	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°	974.5	48.1
0°-40°	1481.7	73.1
0°-60°	1996.5	98.5
0°-90°	2027.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2027.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1427	1427	1427	1427	1427	
5°	1784	1648	1393	1165	1077	181
15°	2362	2004	1152	517	344	674
25°	2682	2019	681	161	110	1221
35°	2444	1628	260	76	59	1524
45°	1843	913	83	35	23	1402
55°	683	162	28	7	2	667
65°	137	25	4	2	2	150
75°	1	1	2	1	1	4
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°	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7
2.5°	1594.5	1569.5	1559.3	1578.6	1578.6	1583.1	1574.1	1555.9	1562.7	1521.9	1537.8
5°	1783.7	1763.3	1763.3	1762.2	1752.0	1755.4	1739.5	1705.5	1697.6	1647.7	1651.1
7.5°	1970.7	1949.2	1946.9	1948.0	1920.8	1922.0	1895.9	1846.0	1829.0	1762.2	1749.7
10°	2146.4	2121.4	2120.3	2109.0	2085.2	2073.8	2036.4	1974.1	1950.3	1863.0	1830.2
12.5°	2281.2	2261.9	2247.2	2252.9	2215.5	2206.4	2153.2	2084.0	2045.5	1944.6	1895.9
15°	2361.7	2335.6	2341.3	2334.5	2319.7	2308.4	2257.4	2172.4	2120.3	2003.6	1941.2
17.5°	2445.5	2421.7	2407.0	2396.8	2371.9	2366.2	2326.5	2237.0	2173.6	2044.4	1966.2
20°	2537.3	2511.3	2496.5	2462.5	2426.3	2407.0	2366.2	2278.9	2203.0	2060.2	1963.9
22.5°	2626.8	2590.6	2561.1	2512.4	2465.9	2435.3	2390.0	2298.2	2206.4	2050.0	1939.0
25°	2682.4	2643.8	2594.0	2535.1	2482.9	2448.9	2402.5	2295.9	2191.7	2019.4	1890.2
27.5°	2666.5	2628.0	2582.7	2523.7	2477.3	2446.7	2390.0	2316.3	2149.8	1960.5	1813.2
30°	2597.4	2566.8	2532.8	2486.3	2447.8	2430.8	2344.7	2206.4	2068.2	1869.8	1682.9
32.5°	2510.1	2489.7	2469.3	2435.3	2409.3	2384.3	2267.6	2116.9	1960.5	1798.5	1597.9
35°	2444.4	2402.5	2397.9	2382.1	2349.2	2280.1	2157.7	2003.6	1835.8	1628.5	1466.4
37.5°	2352.6	2333.3	2324.3	2299.3	2230.2	2153.2	2017.2	1850.6	1690.8	1483.4	1313.4
40°	2249.5	2225.7	2205.3	2156.6	2079.5	1994.5	1842.6	1676.1	1517.4	1315.7	1145.7
42.5°	2051.2	2042.1	1999.0	1961.6	1886.8	1792.8	1643.2	1478.9	1319.1	1135.5	948.5
45°	1842.6	1823.4	1780.3	1745.2	1657.9	1568.4	1433.5	1267.0	1101.5	913.4	733.2
47.5°	1604.7	1593.3	1567.3	1510.6	1422.2	1331.6	1186.5	1022.2	855.6	681.1	539.4
50°	1339.5	1331.6	1296.4	1239.8	1153.6	1065.2	912.3	758.1	609.7	469.2	357.0
52.5°	1016.5	991.6	966.7	906.6	835.2	749.1	616.5	496.4	391.0	293.5	206.2
55°	683.3	665.2	635.7	601.8	546.2	473.7	381.9	308.2	241.4	162.1	113.3
57.5°	474.8	460.1	440.8	405.7	362.6	315.0	259.5	197.2	146.2	96.3	71.4
60°	337.7	333.2	319.6	292.4	257.2	216.4	163.2	120.1	83.9	60.1	48.7
62.5°	235.7	230.0	215.3	192.7	160.9	125.8	91.8	64.6	49.9	39.7	32.9
65°	137.1	131.5	121.3	103.1	81.6	62.3	47.6	36.3	30.6	24.9	21.5
67.5°	63.5	57.8	54.4	44.2	37.4	31.7	24.9	19.3	17.0	13.6	11.3
70°	19.3	18.1	18.1	15.9	14.7	12.5	10.2	7.9	7.9	6.8	5.7
72.5°	4.5	4.5	4.5	4.5	4.5	4.5	3.4	3.4	3.4	2.3	2.3
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1
80°	0.0	0.0	0.0	0.0	0.0	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°	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7
2.5°	1499.3	1514.0	1495.9	1472.1	1474.3	1450.5	1431.3	1414.3	1409.8	1389.4	1378.0
5°	1612.6	1589.9	1557.1	1517.4	1500.4	1460.7	1426.7	1392.8	1372.4	1337.2	1312.3
7.5°	1696.5	1656.8	1603.5	1545.7	1511.7	1457.3	1407.5	1356.5	1322.5	1271.5	1234.1
10°	1761.1	1703.3	1633.0	1557.1	1507.2	1436.9	1390.5	1305.5	1254.5	1188.8	1137.8
12.5°	1808.7	1732.7	1644.3	1552.5	1486.8	1400.7	1320.2	1236.4	1171.8	1094.7	1021.0
15°	1835.8	1742.9	1635.3	1527.6	1443.7	1348.6	1250.0	1152.5	1068.6	976.9	897.5
17.5°	1841.5	1728.2	1603.5	1485.7	1388.2	1276.0	1179.7	1050.5	949.7	848.8	755.9
20°	1823.4	1707.8	1557.1	1427.9	1315.7	1187.6	1081.1	932.7	823.9	718.5	630.1
22.5°	1783.7	1638.7	1494.7	1352.0	1220.5	1076.6	938.3	811.4	699.2	592.7	504.3
25°	1714.6	1566.1	1410.9	1256.8	1115.1	953.1	808.0	681.1	571.2	474.8	388.7
27.5°	1631.9	1470.9	1308.9	1175.2	981.4	825.0	679.9	561.0	456.7	361.5	294.6
30°	1529.9	1365.6	1192.2	1005.2	840.9	695.8	564.4	447.6	353.6	279.9	225.5
32.5°	1410.9	1229.6	1052.8	868.1	710.5	575.7	447.6	346.8	267.4	214.2	179.1
35°	1273.8	1086.8	899.8	726.4	583.6	451.0	344.5	259.5	208.5	171.1	145.1
37.5°	1121.9	927.0	744.5	589.3	460.1	344.5	252.7	196.1	158.7	131.5	111.1
40°	944.0	759.3	598.4	454.4	328.6	241.4	182.5	146.2	121.3	104.3	90.7
42.5°	749.1	590.4	449.9	320.7	223.2	170.0	134.9	111.1	95.2	81.6	72.5
45°	562.1	426.1	306.0	215.3	157.5	122.4	98.6	82.7	71.4	62.3	56.7
47.5°	401.2	282.2	192.7	134.9	104.3	82.7	70.3	60.1	53.3	49.9	45.3
50°	250.4	168.9	112.2	85.0	70.3	58.9	53.3	48.7	43.1	38.5	35.1
52.5°	133.7	92.9	70.3	60.1	53.3	47.6	41.9	37.4	32.9	30.6	26.1
55°	77.1	64.6	53.3	47.6	41.9	36.3	31.7	28.3	26.1	22.7	19.3
57.5°	56.7	48.7	40.8	35.1	31.7	27.2	23.8	21.5	18.1	14.7	12.5
60°	39.7	34.0	30.6	27.2	22.7	19.3	17.0	13.6	11.3	9.1	7.9
62.5°	28.3	23.8	20.4	17.0	14.7	12.5	10.2	7.9	6.8	5.7	4.5
65°	17.0	14.7	12.5	10.2	9.1	6.8	5.7	4.5	3.4	3.4	2.3
67.5°	9.1	7.9	6.8	5.7	4.5	3.4	2.3	2.3	2.3	2.3	2.3
70°	4.5	3.4	3.4	2.3	2.3	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	1.1	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3
77.5°	1.1	1.1	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
80°	1.1	1.1	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
82.5°	1.1	1.1	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
85°	1.1	1.1	1.1	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3
87.5°	1.1	1.1	1.1	1.1	2.3	2.3	2.3	2.3	2.3	2.3	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7	1426.7
2.5°	1373.5	1357.6	1354.2	1339.5	1341.8	1307.8	1303.2	1288.5	1291.9	1289.6	1290.8
5°	1270.4	1267.0	1244.3	1218.2	1206.9	1165.0	1150.2	1129.8	1119.6	1109.4	1107.2
7.5°	1195.6	1158.2	1116.2	1082.2	1058.4	1006.3	974.6	946.3	931.5	917.9	907.7
10°	1083.4	1031.2	976.9	936.1	907.7	835.2	798.9	758.1	741.1	715.1	706.0
12.5°	956.5	890.7	834.1	775.1	718.5	667.5	635.7	601.8	568.9	548.5	528.1
15°	813.7	743.4	681.1	622.1	576.8	516.8	481.6	443.1	412.5	389.8	370.6
17.5°	676.5	602.9	544.0	487.3	428.4	384.2	346.8	310.5	292.4	272.0	261.8
20°	545.1	476.0	408.0	349.0	313.9	276.5	243.6	223.2	213.0	200.6	193.8
22.5°	428.4	358.1	306.0	258.4	227.8	204.0	189.3	173.4	165.5	156.4	150.7
25°	321.8	266.3	226.6	201.7	182.5	160.9	148.5	136.0	128.1	122.4	117.9
27.5°	242.5	206.2	177.9	158.7	143.9	128.1	117.9	108.8	103.1	98.6	94.1
30°	192.7	165.5	142.8	129.2	116.7	104.3	96.3	88.4	85.0	82.7	80.5
32.5°	154.1	133.7	115.6	105.4	95.2	86.1	81.6	77.1	74.8	72.5	71.4
35°	123.5	107.7	94.1	86.1	81.6	75.9	71.4	68.0	65.7	64.6	62.3
37.5°	98.6	87.3	80.5	74.8	71.4	65.7	62.3	58.9	56.7	55.5	54.4
40°	80.5	73.7	68.0	63.5	58.9	55.5	51.0	48.7	47.6	45.3	44.2
42.5°	64.6	58.9	54.4	51.0	48.7	45.3	41.9	39.7	37.4	36.3	34.0
45°	52.1	47.6	43.1	40.8	38.5	35.1	31.7	28.3	28.3	26.1	24.9
47.5°	41.9	37.4	34.0	31.7	28.3	26.1	23.8	21.5	20.4	19.3	18.1
50°	30.6	28.3	24.9	23.8	21.5	18.1	17.0	14.7	13.6	12.5	11.3
52.5°	23.8	21.5	18.1	15.9	14.7	12.5	11.3	9.1	7.9	6.8	6.8
55°	17.0	14.7	12.5	10.2	9.1	6.8	5.7	4.5	4.5	3.4	3.4
57.5°	11.3	9.1	7.9	5.7	4.5	4.5	3.4	2.3	2.3	2.3	1.1
60°	6.8	5.7	4.5	3.4	2.3	2.3	2.3	2.3	1.1	1.1	2.3
62.5°	3.4	2.3	2.3	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	1.1	1.1	2.3	1.1
70°	2.3	2.3	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1
72.5°	2.3	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1
75°	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
80°	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
85°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
87.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	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: P130120

CATALOG NUMBER: HL618TAT - HLM6930 - HL6WFL - 456P

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1426.7	1426.7	1426.7	1426.7
2.5°	1256.8	1252.2	1267.0	1271.5
5°	1098.1	1064.1	1078.8	1076.6
7.5°	873.7	853.3	871.5	866.9
10°	672.0	652.7	665.2	661.8
12.5°	500.9	486.2	487.3	485.0
15°	351.3	343.4	338.8	344.5
17.5°	243.6	238.0	236.8	241.4
20°	183.6	177.9	177.9	182.5
22.5°	143.9	138.3	138.3	139.4
25°	111.1	109.9	107.7	109.9
27.5°	90.7	87.3	88.4	87.3
30°	77.1	74.8	75.9	75.9
32.5°	68.0	66.9	66.9	66.9
35°	60.1	58.9	58.9	58.9
37.5°	52.1	51.0	51.0	51.0
40°	41.9	40.8	40.8	41.9
42.5°	31.7	31.7	31.7	31.7
45°	23.8	22.7	22.7	22.7
47.5°	17.0	15.9	15.9	15.9
50°	10.2	9.1	9.1	10.2
52.5°	5.7	4.5	4.5	5.7
55°	2.3	2.3	2.3	2.3
57.5°	1.1	1.1	1.1	1.1
60°	1.1	1.1	1.1	2.3
62.5°	1.1	1.1	2.3	2.3
65°	1.1	1.1	2.3	2.3
67.5°	2.3	1.1	1.1	1.1
70°	1.1	1.1	1.1	1.1
72.5°	1.1	1.1	1.1	1.1
75°	1.1	1.1	1.1	1.1
77.5°	0.0	0.0	0.0	1.1
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)