

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: P130036

Luminaire Tested: **HL618TAT - HLM6935 - HL6FL - 455TBZ**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P130036  
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: HL618TAT - HLM6935 - HL6FL - 455TBZ  
Description: HALO ALLSLOPE 6" 30W, 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: 2046.9 lumens  
Efficiency: N/A  
Efficacy: 74.2 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

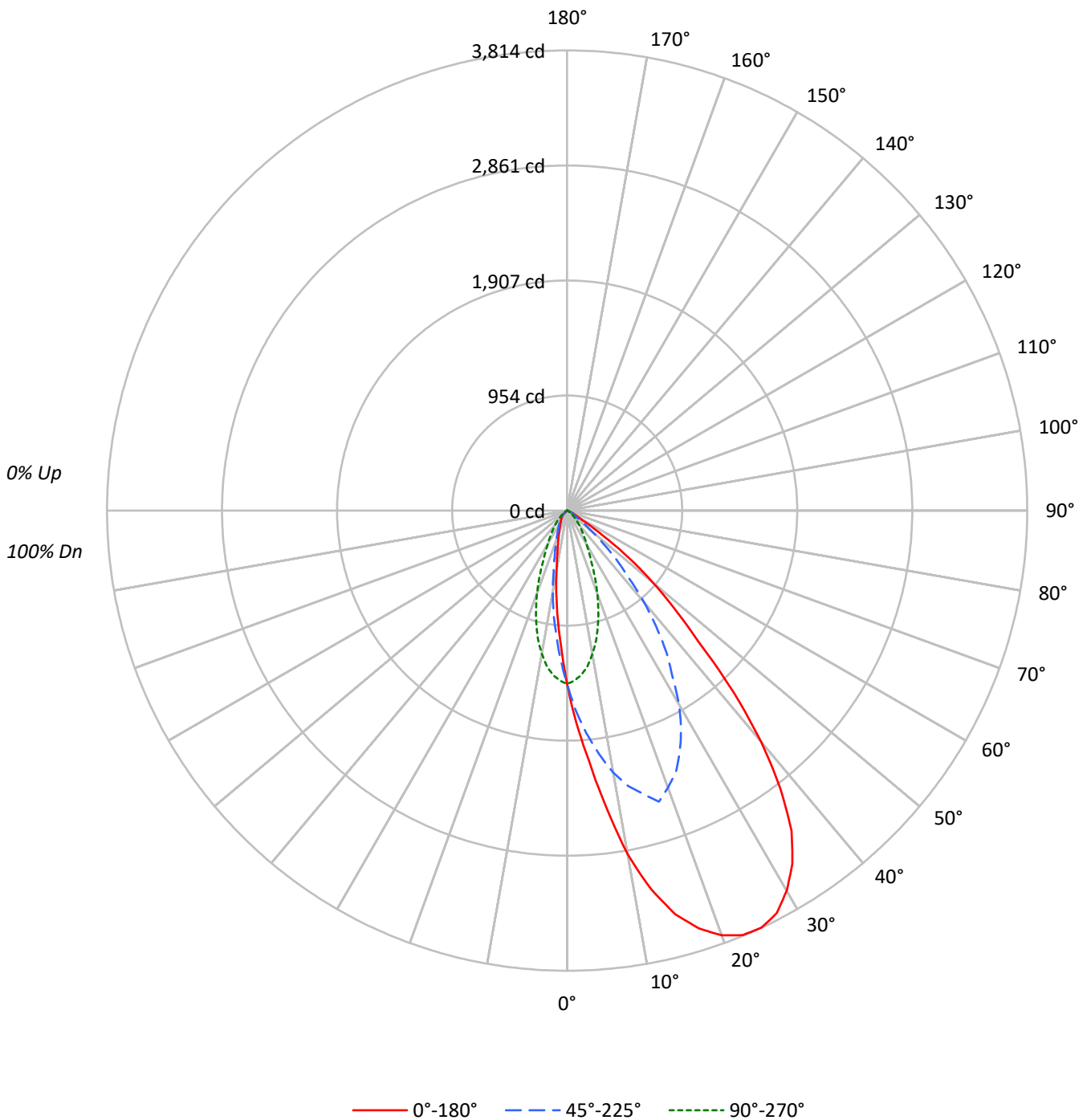
Input Watts (W): 27.6  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	85811	85811	85811
5°	122069	80013	52538
10°	167663	69814	29094
15°	199754	56720	17076
20°	216962	42328	11161
25°	223478	28240	8069
30°	217403	19331	6310
35°	199200	13535	5216
40°	159210	9723	3950
45°	102688	6583	2528
50°	65379	4211	1298
55°	27181	2859	347
60°	7407	1692	90
65°	4436	720	0
70°	2088	232	0
75°	394	266	0
80°	0	315	0
85°	0	390	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	138.2	6.8
10°-20°	402.9	19.7
20°-30°	566.9	27.7
30°-40°	530.6	25.9
40°-50°	303.3	14.8
50°-60°	85.1	4.2
60°-70°	16.4	0.8
70°-80°	2.5	0.1
80°-90°	1.0	0.0
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°	1108.1	54.1
0°-40°	1638.6	80.1
0°-60°	2027.1	99.0
0°-90°	2046.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2046.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1438	1438	1438	1438	1438	
5°	2085	1855	1366	1033	897	224
15°	3463	2430	983	402	296	978
25°	3814	2207	482	179	138	1743
35°	3242	1434	220	103	85	1978
45°	1540	582	99	52	38	1242
55°	360	88	38	14	5	371
65°	49	29	8	1	0	50
75°	3	1	2	1	0	6
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°	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6
2.5°	1757.7	1747.3	1772.6	1738.2	1706.0	1712.9	1708.3	1696.9	1691.1	1659.0	1614.3
5°	2084.6	2084.6	2100.7	2056.0	2010.1	2006.6	2017.0	1948.1	1921.7	1855.2	1787.5
7.5°	2477.0	2486.2	2493.1	2419.7	2361.1	2317.6	2249.9	2197.1	2137.4	2036.5	1938.9
10°	2895.8	2898.1	2902.7	2800.6	2724.8	2657.2	2552.7	2456.4	2342.8	2205.1	2059.4
12.5°	3213.6	3228.5	3236.5	3124.1	3028.9	2941.7	2822.4	2688.1	2542.4	2338.2	2140.9
15°	3462.6	3475.2	3490.1	3373.1	3254.9	3172.3	3030.0	2872.8	2672.1	2430.0	2187.9
17.5°	3630.1	3653.0	3666.8	3541.7	3420.1	3321.4	3167.7	2977.2	2757.0	2529.8	2189.1
20°	3745.9	3770.0	3775.8	3650.7	3516.5	3414.4	3237.7	3022.0	2765.0	2442.6	2135.1
22.5°	3807.9	3827.4	3837.7	3698.9	3556.6	3441.9	3243.4	2992.2	2699.6	2352.0	2037.6
25°	3813.6	3837.7	3840.0	3687.4	3536.0	3404.0	3176.9	2888.9	2558.5	2207.4	1903.4
27.5°	3762.0	3786.1	3781.5	3624.3	3458.0	3303.1	3031.2	2716.8	2366.9	2045.6	1747.3
30°	3638.1	3724.1	3658.7	3500.4	3316.9	3132.1	2815.5	2470.1	2150.0	1855.2	1568.4
32.5°	3472.9	3495.8	3475.2	3300.8	3080.5	2869.4	2535.5	2194.8	1924.0	1617.7	1373.3
35°	3242.3	3250.3	3209.0	3008.2	2752.4	2506.9	2207.4	1935.5	1694.6	1434.1	1173.7
37.5°	2901.5	2913.0	2869.4	2637.6	2397.9	2167.3	1932.1	1681.9	1447.9	1211.6	992.4
40°	2498.8	2474.7	2402.5	2208.6	2014.7	1838.0	1634.9	1414.6	1196.6	991.3	775.6
42.5°	2037.6	2021.5	1959.6	1804.7	1622.3	1473.1	1295.3	1101.4	928.2	756.1	593.2
45°	1539.7	1552.3	1504.1	1396.3	1270.1	1141.6	1007.3	862.8	725.1	581.7	440.6
47.5°	1210.4	1218.4	1194.3	1099.1	1008.5	890.3	783.6	659.7	535.8	411.9	324.7
50°	927.0	940.8	922.4	846.7	760.7	676.9	570.2	445.2	349.9	269.6	214.5
52.5°	656.3	652.8	632.2	559.9	487.6	415.3	321.2	246.7	196.2	153.7	125.1
55°	360.3	359.1	328.1	286.8	230.6	188.2	150.3	119.3	102.1	88.3	76.9
57.5°	161.8	154.9	145.7	125.1	107.8	96.4	84.9	76.9	72.3	65.4	59.7
60°	90.6	90.6	88.3	80.3	75.7	70.0	65.4	60.8	56.2	51.6	47.0
62.5°	66.5	66.5	64.2	60.8	57.4	53.9	50.5	47.0	43.6	40.2	36.7
65°	49.3	48.2	48.2	44.7	42.5	40.2	37.9	35.6	32.1	28.7	26.4
67.5°	33.3	34.4	34.4	31.0	29.8	27.5	26.4	24.1	21.8	19.5	17.2
70°	20.7	20.7	19.5	19.5	17.2	16.1	14.9	13.8	11.5	10.3	9.2
72.5°	10.3	10.3	9.2	9.2	8.0	8.0	6.9	5.7	5.7	4.6	3.4
75°	3.4	3.4	3.4	2.3	2.3	2.3	2.3	2.3	2.3	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°	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6
2.5°	1610.8	1574.1	1561.5	1532.8	1507.6	1480.0	1467.4	1408.9	1402.0	1356.1	1335.5
5°	1761.1	1694.6	1653.3	1598.2	1544.3	1489.2	1470.8	1366.4	1335.5	1271.2	1229.9
7.5°	1887.3	1820.8	1712.9	1631.5	1547.7	1466.3	1402.0	1298.7	1247.1	1170.2	1108.3
10°	1973.4	1844.9	1740.5	1633.8	1520.2	1415.8	1322.8	1205.8	1139.3	1049.8	975.2
12.5°	2020.4	1859.8	1727.8	1597.0	1461.7	1337.8	1226.5	1103.7	1022.2	913.3	838.7
15°	2030.7	1842.6	1680.8	1528.2	1376.8	1237.9	1115.2	983.2	893.7	787.0	701.0
17.5°	2002.0	1790.9	1602.8	1438.7	1267.8	1124.4	997.0	858.2	760.7	662.0	567.9
20°	1928.6	1700.3	1503.0	1322.8	1143.9	997.0	866.2	730.8	629.9	533.5	457.8
22.5°	1815.0	1583.3	1376.8	1193.2	1013.1	868.5	729.7	601.2	508.3	426.8	374.0
25°	1652.1	1442.2	1237.9	1052.1	875.4	737.7	601.2	481.9	410.7	349.9	307.5
27.5°	1517.9	1280.4	1088.8	905.2	754.9	606.9	481.9	391.2	341.9	291.4	254.7
30°	1353.8	1112.9	929.3	765.3	610.4	487.6	391.2	323.5	282.2	239.8	213.4
32.5°	1166.8	946.5	776.7	628.7	487.6	394.7	323.5	268.5	232.9	201.9	179.0
35°	975.2	788.2	647.1	493.3	385.5	320.1	263.9	220.3	193.9	168.7	151.4
37.5°	803.1	625.3	481.9	385.5	308.6	258.1	215.7	184.7	162.9	142.3	129.6
40°	627.6	473.8	367.1	304.0	246.7	206.5	179.0	152.6	136.5	120.5	110.1
42.5°	469.2	362.5	291.4	240.9	199.6	170.9	146.9	125.1	113.6	101.0	91.8
45°	348.8	274.2	226.0	189.3	158.3	134.2	114.7	98.7	89.5	80.3	73.4
47.5°	255.8	203.1	166.4	140.0	113.6	99.8	84.9	75.7	70.0	63.1	59.7
50°	169.8	134.2	111.3	95.2	81.5	73.4	65.4	59.7	56.2	51.6	47.0
52.5°	102.1	86.0	75.7	68.8	62.0	58.5	52.8	48.2	44.7	40.2	36.7
55°	70.0	64.2	58.5	55.1	50.5	45.9	41.3	37.9	34.4	32.1	28.7
57.5°	56.2	51.6	47.0	43.6	39.0	36.7	33.3	28.7	26.4	24.1	20.7
60°	43.6	40.2	35.6	34.4	29.8	27.5	24.1	20.7	19.5	16.1	13.8
62.5°	33.3	29.8	26.4	25.2	21.8	19.5	16.1	13.8	11.5	9.2	8.0
65°	24.1	21.8	18.4	16.1	13.8	11.5	10.3	8.0	6.9	4.6	3.4
67.5°	14.9	12.6	11.5	9.2	8.0	6.9	5.7	3.4	3.4	2.3	2.3
70°	8.0	6.9	5.7	4.6	3.4	3.4	2.3	2.3	2.3	2.3	2.3
72.5°	3.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
75°	1.1	2.3	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	1.1	2.3	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	1.1
85°	1.1	1.1	1.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.1
87.5°	1.1	1.1	1.1	2.3	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°	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6	1437.6
2.5°	1327.4	1301.0	1295.3	1265.5	1257.4	1235.6	1200.1	1164.5	1190.9	1178.3	1184.0
5°	1197.8	1157.6	1139.3	1089.9	1063.5	1032.6	1013.1	977.5	960.3	956.9	933.9
7.5°	1057.8	1010.8	972.9	927.0	911.0	857.0	819.2	785.9	758.4	748.0	723.9
10°	922.4	858.2	813.4	758.4	719.4	679.2	641.3	603.5	581.7	562.2	535.8
12.5°	777.9	712.5	657.4	597.7	551.9	518.6	478.4	448.6	436.0	419.9	406.1
15°	634.5	562.2	516.3	470.4	433.7	401.6	378.6	358.0	343.0	328.1	316.7
17.5°	502.5	450.9	417.6	370.6	347.6	320.1	300.6	284.5	269.6	259.3	250.1
20°	405.0	362.5	333.9	304.0	279.9	257.0	240.9	229.5	220.3	212.3	206.5
22.5°	336.2	300.6	270.8	246.7	229.5	215.7	203.1	190.5	181.3	176.7	172.1
25°	273.1	244.4	223.7	206.5	192.7	179.0	165.2	158.3	153.7	148.0	145.7
27.5°	227.2	205.4	189.3	173.2	161.8	151.4	145.7	136.5	131.9	128.5	127.4
30°	191.6	173.2	159.5	148.0	138.8	131.9	126.2	120.5	117.0	114.7	112.4
32.5°	161.8	148.0	137.7	128.5	121.6	117.0	112.4	107.8	105.6	102.1	101.0
35°	138.8	127.4	120.5	112.4	107.8	103.3	99.8	96.4	94.1	90.6	89.5
37.5°	119.3	111.3	105.6	98.7	94.1	90.6	87.2	83.8	81.5	79.2	78.0
40°	104.4	96.4	90.6	84.9	81.5	76.9	73.4	70.0	68.8	66.5	65.4
42.5°	86.0	79.2	74.6	70.0	66.5	64.2	60.8	57.4	56.2	53.9	53.9
45°	68.8	64.2	60.8	57.4	55.1	51.6	48.2	45.9	43.6	42.5	40.2
47.5°	56.2	52.8	49.3	44.7	42.5	39.0	36.7	35.6	33.3	32.1	31.0
50°	44.7	40.2	37.9	34.4	32.1	29.8	28.7	25.2	24.1	22.9	21.8
52.5°	34.4	32.1	29.8	26.4	24.1	21.8	19.5	17.2	16.1	13.8	12.6
55°	26.4	24.1	20.7	18.4	16.1	13.8	12.6	10.3	8.0	6.9	6.9
57.5°	18.4	16.1	13.8	11.5	9.2	8.0	5.7	4.6	3.4	3.4	2.3
60°	11.5	9.2	8.0	5.7	4.6	3.4	2.3	2.3	1.1	1.1	1.1
62.5°	6.9	4.6	3.4	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1
65°	3.4	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1
67.5°	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
70°	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
72.5°	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
75°	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
77.5°	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
80°	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
82.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0
85°	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0
87.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	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: P130036

CATALOG NUMBER: HL618TAT - HLM6935 - HL6FL - 455TBZ

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1437.6	1437.6	1437.6	1437.6
2.5°	1169.1	1147.3	1147.3	1130.1
5°	931.6	901.8	914.4	897.2
7.5°	718.2	698.7	707.9	686.1
10°	532.3	517.4	514.0	502.5
12.5°	399.3	387.8	384.3	374.0
15°	309.8	300.6	300.6	296.0
17.5°	244.4	237.5	238.6	237.5
20°	201.9	196.2	195.0	192.7
22.5°	168.7	162.9	162.9	161.8
25°	142.3	138.8	138.8	137.7
27.5°	123.9	121.6	121.6	120.5
30°	110.1	107.8	107.8	105.6
32.5°	98.7	96.4	97.5	96.4
35°	87.2	86.0	86.0	84.9
37.5°	76.9	74.6	74.6	73.4
40°	64.2	63.1	64.2	62.0
42.5°	51.6	50.5	51.6	50.5
45°	39.0	37.9	39.0	37.9
47.5°	29.8	28.7	27.5	27.5
50°	20.7	19.5	19.5	18.4
52.5°	12.6	11.5	11.5	10.3
55°	5.7	5.7	4.6	4.6
57.5°	2.3	2.3	1.1	1.1
60°	1.1	1.1	1.1	1.1
62.5°	1.1	1.1	1.1	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)