

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: P130035

Luminaire Tested: **HL618TAT - HLM6930 - HL6FL - 455TBZ**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P130035  
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 - HLM6930 - 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 / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1929.3 lumens  
Efficiency: N/A  
Efficacy: 69.9 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

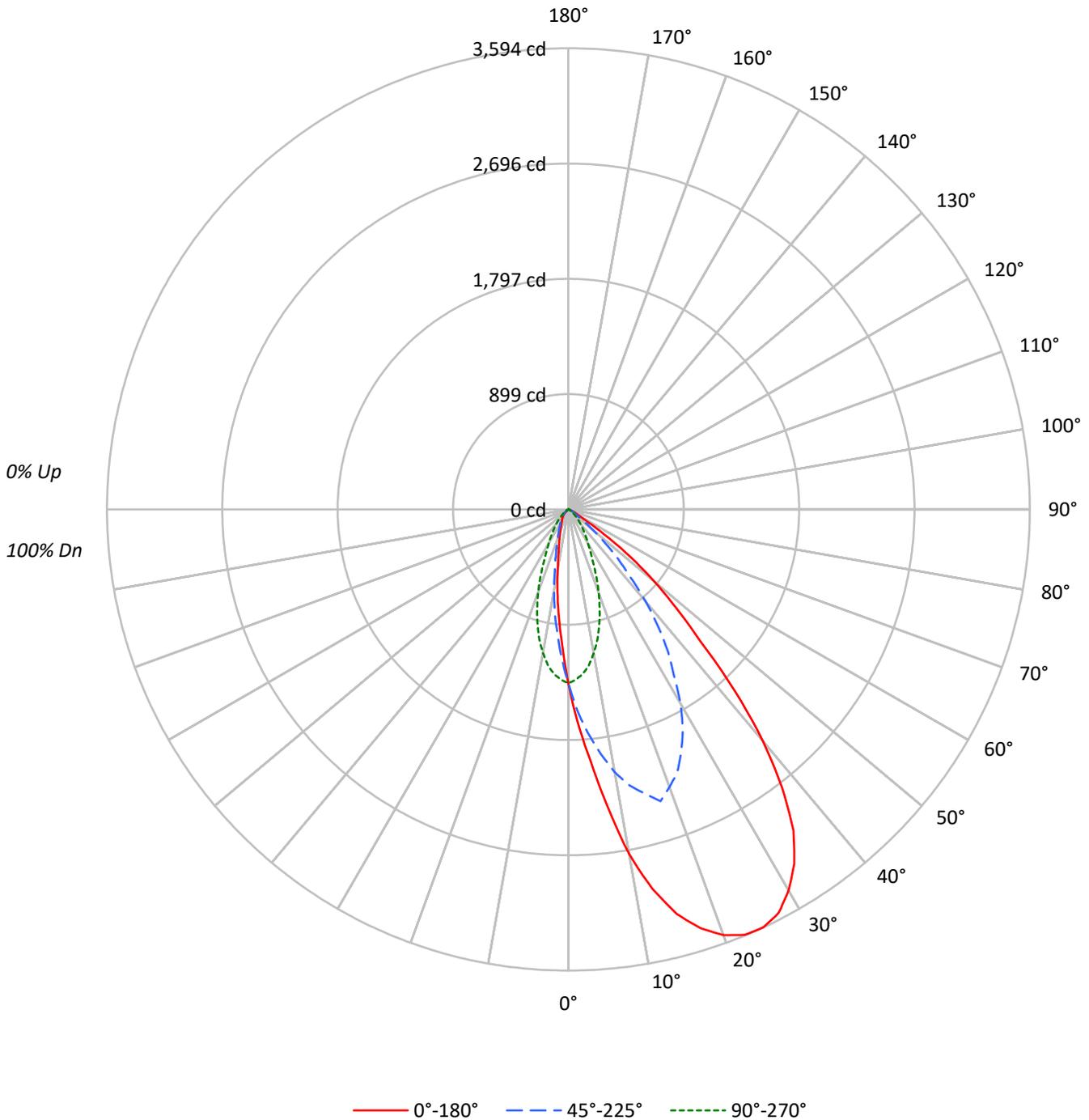
Input Watts (W): 27.6  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	80875	80875	80875
5°	115054	75410	49516
10°	158017	65802	27421
15°	188262	53460	16095
20°	204486	39895	10524
25°	210627	26616	7606
30°	204902	18220	5946
35°	187742	12754	4915
40°	150054	9162	3721
45°	96779	6203	2381
50°	61620	3964	1220
55°	25612	2693	324
60°	6982	1594	90
65°	4184	684	0
70°	1967	222	0
75°	371	255	0
80°	0	302	0
85°	0	373	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	130.2	6.8
10°-20°	379.8	19.7
20°-30°	534.3	27.7
30°-40°	500.1	25.9
40°-50°	285.8	14.8
50°-60°	80.2	4.2
60°-70°	15.5	0.8
70°-80°	2.4	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°	1044.3	54.1
0°-40°	1544.4	80.0
0°-60°	1910.5	99.0
0°-90°	1929.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1929.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1355	1355	1355	1355	1355	
5°	1965	1748	1288	973	846	211
15°	3263	2290	927	378	279	922
25°	3594	2080	454	169	130	1643
35°	3056	1352	208	97	80	1864
45°	1451	548	93	49	36	1170
55°	340	83	36	13	4	349
65°	46	27	8	1	0	47
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°	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9
2.5°	1656.6	1646.8	1670.6	1638.2	1607.9	1614.4	1610.1	1599.3	1593.9	1563.6	1521.4
5°	1964.8	1964.8	1979.9	1937.7	1894.5	1891.2	1901.0	1836.1	1811.2	1748.5	1684.7
7.5°	2334.6	2343.2	2349.7	2280.5	2225.3	2184.3	2120.5	2070.7	2014.5	1919.3	1827.4
10°	2729.2	2731.4	2735.7	2639.5	2568.1	2504.3	2405.9	2315.1	2208.0	2078.3	1941.0
12.5°	3028.8	3042.8	3050.4	2944.4	2854.7	2772.5	2660.0	2533.5	2396.2	2203.7	2017.7
15°	3263.4	3275.3	3289.4	3179.1	3067.7	2989.8	2855.8	2707.6	2518.4	2290.2	2062.1
17.5°	3421.3	3442.9	3455.9	3338.0	3223.4	3130.4	2985.5	2806.0	2598.4	2384.3	2063.2
20°	3530.5	3553.2	3558.6	3440.7	3314.2	3218.0	3051.5	2848.2	2606.0	2302.1	2012.3
22.5°	3588.9	3607.3	3617.0	3486.2	3352.1	3243.9	3056.9	2820.1	2544.3	2216.7	1920.4
25°	3594.3	3617.0	3619.2	3475.4	3332.6	3208.3	2994.2	2722.8	2411.3	2080.5	1793.9
27.5°	3545.6	3568.3	3564.0	3415.9	3259.1	3113.1	2856.8	2560.6	2230.8	1928.0	1646.8
30°	3428.9	3510.0	3448.3	3299.1	3126.1	2952.0	2653.6	2328.1	2026.4	1748.5	1478.2
32.5°	3273.1	3294.8	3275.3	3110.9	2903.3	2704.4	2389.7	2068.6	1813.4	1524.7	1294.3
35°	3055.8	3063.4	3024.4	2835.2	2594.1	2362.7	2080.5	1824.2	1597.1	1351.6	1106.2
37.5°	2734.6	2745.5	2704.4	2485.9	2260.0	2042.6	1820.9	1585.2	1364.6	1141.9	935.3
40°	2355.1	2332.4	2264.3	2081.5	1898.8	1732.3	1540.9	1333.3	1127.8	934.3	731.0
42.5°	1920.4	1905.3	1846.9	1700.9	1529.0	1388.4	1220.8	1038.1	874.8	712.6	559.0
45°	1451.1	1463.0	1417.6	1316.0	1197.0	1075.9	949.4	813.1	683.4	548.2	415.2
47.5°	1140.8	1148.4	1125.7	1035.9	950.5	839.1	738.5	621.8	505.0	388.2	306.0
50°	873.7	886.7	869.4	798.0	716.9	638.0	537.4	419.6	329.8	254.1	202.2
52.5°	618.5	615.3	595.8	527.7	459.6	391.4	302.8	232.5	184.9	144.9	117.9
55°	339.5	338.5	309.3	270.3	217.3	177.3	141.7	112.5	96.2	83.3	72.4
57.5°	152.5	146.0	137.3	117.9	101.6	90.8	80.0	72.4	68.1	61.6	56.2
60°	85.4	85.4	83.3	75.7	71.4	66.0	61.6	57.3	53.0	48.7	44.3
62.5°	62.7	62.7	60.6	57.3	54.1	50.8	47.6	44.3	41.1	37.8	34.6
65°	46.5	45.4	45.4	42.2	40.0	37.8	35.7	33.5	30.3	27.0	24.9
67.5°	31.4	32.4	32.4	29.2	28.1	26.0	24.9	22.7	20.5	18.4	16.2
70°	19.5	19.5	18.4	18.4	16.2	15.1	14.1	13.0	10.8	9.7	8.7
72.5°	9.7	9.7	8.7	8.7	7.6	7.6	6.5	5.4	5.4	4.3	3.2
75°	3.2	3.2	3.2	2.2	2.2	2.2	2.2	2.2	2.2	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°	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9
2.5°	1518.2	1483.6	1471.7	1444.6	1420.8	1394.9	1383.0	1327.9	1321.4	1278.1	1258.7
5°	1659.8	1597.1	1558.2	1506.3	1455.5	1403.5	1386.2	1287.8	1258.7	1198.1	1159.2
7.5°	1778.8	1716.0	1614.4	1537.6	1458.7	1381.9	1321.4	1224.1	1175.4	1102.9	1044.6
10°	1859.9	1738.8	1640.4	1539.8	1432.7	1334.3	1246.8	1136.5	1073.7	989.4	919.1
12.5°	1904.2	1752.8	1628.5	1505.2	1377.6	1260.8	1155.9	1040.2	963.5	860.7	790.4
15°	1913.9	1736.6	1584.1	1440.3	1297.6	1166.7	1051.0	926.7	842.3	741.8	660.7
17.5°	1886.9	1687.9	1510.6	1356.0	1194.9	1059.7	939.7	808.8	716.9	623.9	535.3
20°	1817.7	1602.5	1416.5	1246.8	1078.1	939.7	816.4	688.8	593.6	502.8	431.4
22.5°	1710.6	1492.2	1297.6	1124.6	954.8	818.6	687.7	566.6	479.0	402.2	352.5
25°	1557.1	1359.2	1166.7	991.6	825.0	695.3	566.6	454.2	387.1	329.8	289.8
27.5°	1430.6	1206.7	1026.2	853.2	711.5	572.0	454.2	368.7	322.2	274.7	240.1
30°	1276.0	1048.9	875.9	721.2	575.3	459.6	368.7	304.9	266.0	226.0	201.1
32.5°	1099.7	892.1	732.1	592.6	459.6	372.0	304.9	253.0	219.5	190.3	168.7
35°	919.1	742.9	609.9	465.0	363.3	301.7	248.7	207.6	182.7	159.0	142.7
37.5°	756.9	589.3	454.2	363.3	290.9	243.3	203.3	174.1	153.5	134.1	122.2
40°	591.5	446.6	346.0	286.5	232.5	194.6	168.7	143.8	128.7	113.5	103.8
42.5°	442.3	341.7	274.7	227.1	188.1	161.1	138.4	117.9	107.1	95.2	86.5
45°	328.7	258.4	213.0	178.4	149.2	126.5	108.1	93.0	84.3	75.7	69.2
47.5°	241.1	191.4	156.8	131.9	107.1	94.1	80.0	71.4	66.0	59.5	56.2
50°	160.0	126.5	104.9	89.7	76.8	69.2	61.6	56.2	53.0	48.7	44.3
52.5°	96.2	81.1	71.4	64.9	58.4	55.1	49.7	45.4	42.2	37.8	34.6
55°	66.0	60.6	55.1	51.9	47.6	43.3	38.9	35.7	32.4	30.3	27.0
57.5°	53.0	48.7	44.3	41.1	36.8	34.6	31.4	27.0	24.9	22.7	19.5
60°	41.1	37.8	33.5	32.4	28.1	26.0	22.7	19.5	18.4	15.1	13.0
62.5°	31.4	28.1	24.9	23.8	20.5	18.4	15.1	13.0	10.8	8.7	7.6
65°	22.7	20.5	17.3	15.1	13.0	10.8	9.7	7.6	6.5	4.3	3.2
67.5°	14.1	11.9	10.8	8.7	7.6	6.5	5.4	3.2	3.2	2.2	2.2
70°	7.6	6.5	5.4	4.3	3.2	3.2	2.2	2.2	2.2	2.2	2.2
72.5°	3.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
75°	1.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
77.5°	1.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
80°	1.1	1.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
82.5°	1.1	1.1	1.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.1
85°	1.1	1.1	1.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.1
87.5°	1.1	1.1	1.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	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°	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9	1354.9
2.5°	1251.1	1226.2	1220.8	1192.7	1185.1	1164.6	1131.1	1097.5	1122.4	1110.5	1115.9
5°	1128.9	1091.0	1073.7	1027.3	1002.4	973.2	954.8	921.3	905.1	901.8	880.2
7.5°	997.0	952.6	917.0	873.7	858.6	807.7	772.1	740.7	714.8	705.0	682.3
10°	869.4	808.8	766.7	714.8	678.0	640.1	604.5	568.8	548.2	529.8	505.0
12.5°	733.1	671.5	619.6	563.4	520.1	488.8	450.9	422.8	410.9	395.8	382.8
15°	598.0	529.8	486.6	443.3	408.7	378.5	356.8	337.4	323.3	309.3	298.4
17.5°	473.6	425.0	393.6	349.3	327.6	301.7	283.3	268.2	254.1	244.4	235.7
20°	381.7	341.7	314.7	286.5	263.8	242.2	227.1	216.3	207.6	200.0	194.6
22.5°	316.8	283.3	255.2	232.5	216.3	203.3	191.4	179.5	170.8	166.5	162.2
25°	257.4	230.3	210.9	194.6	181.7	168.7	155.7	149.2	144.9	139.5	137.3
27.5°	214.1	193.6	178.4	163.3	152.5	142.7	137.3	128.7	124.4	121.1	120.0
30°	180.6	163.3	150.3	139.5	130.8	124.4	118.9	113.5	110.3	108.1	106.0
32.5°	152.5	139.5	129.8	121.1	114.6	110.3	106.0	101.6	99.5	96.2	95.2
35°	130.8	120.0	113.5	106.0	101.6	97.3	94.1	90.8	88.7	85.4	84.3
37.5°	112.5	104.9	99.5	93.0	88.7	85.4	82.2	78.9	76.8	74.6	73.5
40°	98.4	90.8	85.4	80.0	76.8	72.4	69.2	66.0	64.9	62.7	61.6
42.5°	81.1	74.6	70.3	66.0	62.7	60.6	57.3	54.1	53.0	50.8	50.8
45°	64.9	60.6	57.3	54.1	51.9	48.7	45.4	43.3	41.1	40.0	37.8
47.5°	53.0	49.7	46.5	42.2	40.0	36.8	34.6	33.5	31.4	30.3	29.2
50°	42.2	37.8	35.7	32.4	30.3	28.1	27.0	23.8	22.7	21.6	20.5
52.5°	32.4	30.3	28.1	24.9	22.7	20.5	18.4	16.2	15.1	13.0	11.9
55°	24.9	22.7	19.5	17.3	15.1	13.0	11.9	9.7	7.6	6.5	6.5
57.5°	17.3	15.1	13.0	10.8	8.7	7.6	5.4	4.3	3.2	3.2	2.2
60°	10.8	8.7	7.6	5.4	4.3	3.2	2.2	2.2	1.1	1.1	1.1
62.5°	6.5	4.3	3.2	2.2	2.2	1.1	1.1	1.1	1.1	1.1	1.1
65°	3.2	2.2	2.2	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
67.5°	2.2	2.2	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
70°	2.2	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0
72.5°	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
75°	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
77.5°	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
80°	2.2	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°	2.2	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: P130035

CATALOG NUMBER: HL618TAT - HLM6930 - HL6FL - 455TBZ

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1354.9	1354.9	1354.9	1354.9
2.5°	1101.9	1081.3	1081.3	1065.1
5°	878.0	849.9	861.8	845.6
7.5°	676.9	658.5	667.2	646.6
10°	501.7	487.7	484.4	473.6
12.5°	376.3	365.5	362.2	352.5
15°	292.0	283.3	283.3	279.0
17.5°	230.3	223.8	224.9	223.8
20°	190.3	184.9	183.8	181.7
22.5°	159.0	153.5	153.5	152.5
25°	134.1	130.8	130.8	129.8
27.5°	116.8	114.6	114.6	113.5
30°	103.8	101.6	101.6	99.5
32.5°	93.0	90.8	91.9	90.8
35°	82.2	81.1	81.1	80.0
37.5°	72.4	70.3	70.3	69.2
40°	60.6	59.5	60.6	58.4
42.5°	48.7	47.6	48.7	47.6
45°	36.8	35.7	36.8	35.7
47.5°	28.1	27.0	26.0	26.0
50°	19.5	18.4	18.4	17.3
52.5°	11.9	10.8	10.8	9.7
55°	5.4	5.4	4.3	4.3
57.5°	2.2	2.2	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)