

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 COMMERCIAL

Report Number: P593872

Luminaire Tested: **HC860D010-HM86080850-81WWWB**

Issue Date: 10/21/2021

Test Information

Test Method: LM-41-14
Report Number: P593872
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2109-368-18)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 10/21/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: HC860D010-HM86080850-81WWWB
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, BLACK BAFFLE TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 5000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6173.4 lumens
Efficiency: N/A
Efficacy: 110.2 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.09 / 1.18
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

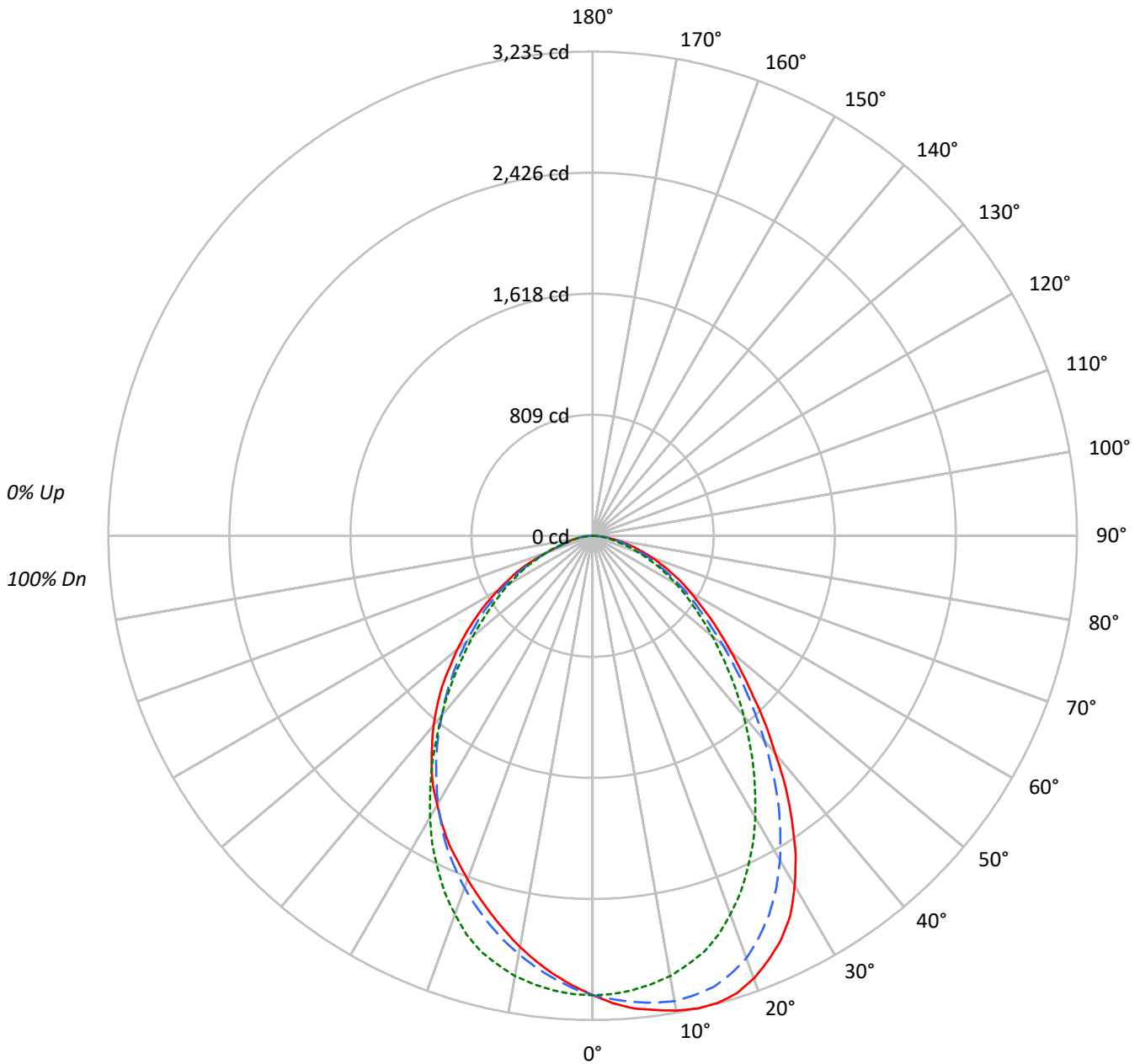
Input Watts (W): 56
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	110	106	103	99	108	104	101	98	100	97	95	96	94	92	92	91	89	87					87			
2	102	94	88	83	99	93	87	82	89	85	81	86	82	79	83	80	77	75					75			
3	94	84	77	71	91	83	76	71	80	74	69	77	72	68	75	71	67	65					65			
4	87	76	68	62	84	75	67	61	72	66	61	70	64	60	68	63	59	57					57			
5	80	69	60	54	78	67	60	54	65	59	54	64	58	53	62	57	52	50					50			
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45					45			
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42	40					40			
8	65	52	45	39	64	52	44	39	51	44	39	49	43	39	48	43	38	37					37			
9	61	48	41	36	60	48	41	36	47	40	35	46	40	35	45	39	35	33					33			
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	30					30			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	94649	94649	94649
5°	98115	94336	91098
10°	100887	93516	87373
15°	103140	91865	83513
20°	103299	88276	80122
25°	101317	83369	77286
30°	96095	77313	73895
35°	87316	70413	70572
40°	76342	63179	66520
45°	66168	56278	61982
50°	57937	49988	56474
55°	51568	44299	51100
60°	46520	39797	44904
65°	41991	34994	39131
70°	37741	29482	29085
75°	33241	23376	21827
80°	27880	19356	20919
85°	21582	16983	18539



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	289.6	4.7
10°-20°	815.6	13.2
20°-30°	1165.6	18.9
30°-40°	1238.5	20.1
40°-50°	1066.3	17.3
50°-60°	797.2	12.9
60°-70°	508.5	8.2
70°-80°	231.4	3.7
80°-90°	60.7	1.0
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°	2270.7	36.8
0°-40°	3509.2	56.8
0°-60°	5372.7	87.0
0°-90°	6173.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6173.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3069	3069	3069	3069	3069	
5°	3170	3126	3048	2969	2943	304
15°	3231	3122	2878	2681	2616	910
25°	2978	2790	2450	2302	2272	1363
35°	2320	2158	1870	1822	1875	1444
45°	1517	1434	1290	1326	1421	1179
55°	959	881	824	894	950	862
65°	576	510	480	501	536	574
75°	279	240	196	179	183	296
85°	61	52	48	52	52	74
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4
2.5°	3126.1	3117.4	3121.8	3117.4	3121.8	3121.8	3113.0	3113.0	3113.0	3113.0	3100.0
5°	3169.7	3165.4	3165.4	3161.0	3156.6	3161.0	3156.6	3152.2	3143.6	3139.2	3126.1
7.5°	3195.8	3195.8	3195.8	3195.8	3191.5	3187.2	3182.8	3174.0	3165.4	3156.6	3147.9
10°	3222.0	3226.4	3222.0	3217.6	3213.3	3204.6	3200.2	3191.5	3178.4	3165.4	3156.6
12.5°	3235.1	3235.1	3230.8	3230.8	3222.0	3217.6	3204.6	3191.5	3178.4	3165.4	3143.6
15°	3230.8	3230.8	3226.4	3222.0	3209.0	3204.6	3195.8	3182.8	3161.0	3143.6	3121.8
17.5°	3204.6	3200.2	3191.5	3191.5	3174.0	3169.7	3161.0	3143.6	3121.8	3095.6	3069.4
20°	3147.9	3147.9	3143.6	3139.2	3121.8	3108.6	3100.0	3078.2	3060.7	3030.2	3004.0
22.5°	3069.4	3078.2	3069.4	3060.7	3038.9	3034.6	3021.4	2995.3	2969.2	2934.2	2903.8
25°	2977.8	2973.5	2969.2	2960.4	2943.0	2934.2	2916.8	2890.7	2864.5	2825.3	2790.4
27.5°	2860.2	2842.7	2842.7	2825.3	2812.2	2799.1	2790.4	2764.2	2729.3	2698.8	2655.2
30°	2698.8	2703.2	2681.4	2677.0	2655.2	2646.5	2629.1	2602.9	2572.4	2537.5	2502.6
32.5°	2524.4	2511.3	2511.3	2493.9	2476.5	2463.4	2459.0	2428.5	2402.3	2367.5	2332.6
35°	2319.5	2319.5	2306.5	2302.1	2284.7	2275.9	2262.9	2245.4	2214.9	2184.3	2158.2
37.5°	2118.9	2110.3	2105.9	2097.1	2084.1	2071.0	2071.0	2040.5	2036.1	2001.3	1966.3
40°	1896.5	1905.3	1896.5	1883.5	1879.1	1870.5	1866.1	1848.7	1835.5	1805.1	1783.3
42.5°	1709.1	1700.3	1700.3	1696.1	1678.5	1678.5	1669.9	1661.1	1639.3	1630.7	1604.5
45°	1517.3	1525.9	1512.9	1517.3	1499.9	1499.9	1499.9	1482.3	1464.9	1451.9	1434.5
47.5°	1351.6	1355.9	1355.9	1342.9	1338.5	1338.5	1329.8	1321.1	1308.0	1290.5	1277.5
50°	1207.7	1212.1	1203.3	1199.0	1190.3	1185.9	1185.9	1168.5	1159.7	1142.3	1133.6
52.5°	1076.9	1076.9	1072.5	1072.5	1059.5	1059.5	1050.7	1037.7	1028.9	1020.2	998.4
55°	959.2	959.2	954.8	950.5	950.5	937.4	933.0	920.0	911.2	893.8	880.7
57.5°	845.8	850.2	845.8	841.5	837.1	832.8	824.0	811.0	802.2	789.2	780.4
60°	754.3	754.3	749.9	745.6	736.8	732.5	728.1	719.4	706.3	697.6	684.5
62.5°	667.1	662.7	658.4	654.0	645.3	645.3	636.6	627.8	614.8	606.0	597.3
65°	575.5	575.5	571.2	571.2	566.8	558.1	553.7	549.4	531.9	527.6	510.1
67.5°	492.7	497.0	488.3	488.3	479.6	479.6	475.2	462.2	457.8	449.1	440.4
70°	418.6	418.6	418.6	414.2	405.4	401.2	396.8	388.0	383.6	375.0	366.2
72.5°	344.4	344.4	340.0	340.0	335.8	331.4	327.0	318.2	318.2	309.6	300.8
75°	279.0	279.0	274.6	270.4	266.0	266.0	261.6	257.2	248.6	244.2	239.8
77.5°	213.6	213.6	213.6	209.2	205.0	205.0	205.0	196.2	187.4	187.4	183.2
80°	157.0	157.0	152.6	152.6	148.2	148.2	148.2	143.8	139.6	135.2	130.8
82.5°	104.6	104.6	104.6	104.6	100.2	100.2	100.2	96.0	91.6	91.6	91.6
85°	61.0	61.0	61.0	61.0	56.6	56.6	56.6	56.6	56.6	52.4	52.4
87.5°	26.2	21.8	26.2	21.8	26.2	21.8	26.2	21.8	21.8	21.8	21.8
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4
2.5°	3104.3	3100.0	3095.6	3091.2	3091.2	3086.8	3078.2	3073.8	3069.4	3065.0	3065.0
5°	3121.8	3117.4	3108.6	3100.0	3095.6	3086.8	3078.2	3069.4	3060.7	3047.6	3043.2
7.5°	3134.8	3121.8	3113.0	3095.6	3091.2	3082.5	3069.4	3056.4	3038.9	3021.4	3008.4
10°	3134.8	3117.4	3104.3	3082.5	3073.8	3065.0	3047.6	3025.8	3004.0	2986.6	2964.8
12.5°	3126.1	3104.3	3082.5	3060.7	3047.6	3034.6	3008.4	2986.6	2960.4	2934.2	2916.8
15°	3095.6	3069.4	3043.2	3017.1	3004.0	2986.6	2960.4	2929.9	2903.8	2877.6	2847.1
17.5°	3038.9	3012.8	2982.2	2951.7	2934.2	2921.2	2882.0	2860.2	2820.9	2794.7	2768.6
20°	2964.8	2934.2	2895.0	2864.5	2842.7	2829.6	2799.1	2759.9	2729.3	2690.1	2663.9
22.5°	2868.9	2829.6	2790.4	2759.9	2738.1	2720.6	2681.4	2642.1	2616.0	2581.1	2550.6
25°	2755.5	2716.3	2677.0	2633.4	2611.6	2594.2	2559.3	2524.4	2489.5	2450.3	2424.1
27.5°	2620.3	2576.7	2541.9	2502.6	2480.8	2454.7	2415.5	2380.5	2345.7	2319.5	2284.7
30°	2472.1	2424.1	2389.3	2350.1	2328.3	2306.5	2267.2	2232.3	2201.8	2171.3	2153.9
32.5°	2293.3	2258.5	2223.6	2184.3	2166.9	2153.9	2114.6	2079.7	2044.9	2018.7	2005.5
35°	2123.3	2084.1	2053.5	2018.7	1996.9	1983.7	1948.9	1918.3	1900.9	1870.5	1852.9
37.5°	1944.5	1914.1	1879.1	1844.3	1831.1	1818.1	1791.9	1761.5	1735.3	1713.5	1704.7
40°	1757.1	1730.9	1700.3	1678.5	1665.5	1652.5	1630.7	1608.9	1591.3	1569.5	1560.9
42.5°	1578.3	1560.9	1534.7	1508.5	1495.5	1491.1	1464.9	1447.5	1438.8	1430.1	1421.3
45°	1417.0	1390.9	1373.4	1355.9	1342.9	1334.1	1321.1	1308.0	1299.3	1290.5	1281.9
47.5°	1260.1	1238.3	1220.8	1207.7	1194.6	1190.3	1181.5	1168.5	1159.7	1159.7	1159.7
50°	1116.1	1098.7	1081.3	1072.5	1068.2	1059.5	1050.7	1046.4	1042.0	1042.0	1042.0
52.5°	989.7	972.3	959.2	950.5	950.5	941.8	933.0	928.7	928.7	928.7	928.7
55°	872.0	858.9	850.2	841.5	832.8	828.4	828.4	828.4	824.0	824.0	828.4
57.5°	767.4	758.6	745.6	736.8	732.5	732.5	728.1	723.8	728.1	732.5	736.8
60°	671.4	662.7	658.4	645.3	645.3	645.3	640.9	640.9	640.9	645.3	649.6
62.5°	584.2	579.9	571.2	566.8	562.4	562.4	558.1	558.1	558.1	558.1	562.4
65°	505.8	497.0	488.3	488.3	488.3	484.0	484.0	475.2	479.6	479.6	475.2
67.5°	431.6	423.0	418.6	414.2	409.8	409.8	405.4	401.2	396.8	396.8	396.8
70°	361.8	353.2	353.2	344.4	344.4	340.0	335.8	335.8	331.4	327.0	322.6
72.5°	292.2	287.8	283.4	279.0	279.0	279.0	274.6	270.4	266.0	261.6	252.8
75°	231.0	231.0	222.4	218.0	218.0	213.6	209.2	205.0	200.6	196.2	191.8
77.5°	178.8	174.4	165.6	161.4	161.4	161.4	157.0	152.6	148.2	143.8	139.6
80°	130.8	126.4	122.0	117.8	117.8	117.8	113.4	113.4	109.0	109.0	109.0
82.5°	87.2	87.2	82.8	82.8	82.8	82.8	78.4	78.4	78.4	78.4	78.4
85°	52.4	52.4	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0
87.5°	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4
2.5°	3056.4	3056.4	3047.6	3043.2	3038.9	3043.2	3034.6	3030.2	3025.8	3025.8	3021.4
5°	3030.2	3025.8	3008.4	3004.0	2999.6	2995.3	2986.6	2977.8	2969.2	2964.8	2960.4
7.5°	2995.3	2982.2	2964.8	2960.4	2956.0	2943.0	2929.9	2921.2	2908.1	2903.8	2895.0
10°	2947.4	2929.9	2916.8	2903.8	2895.0	2882.0	2868.9	2855.8	2838.3	2834.0	2820.9
12.5°	2890.7	2868.9	2842.7	2838.3	2825.3	2807.8	2790.4	2777.3	2764.2	2755.5	2742.4
15°	2820.9	2799.1	2772.9	2759.9	2746.8	2733.7	2711.9	2694.5	2681.4	2668.3	2655.2
17.5°	2738.1	2711.9	2690.1	2677.0	2668.3	2646.5	2629.1	2607.3	2594.2	2581.1	2568.0
20°	2637.8	2616.0	2585.5	2572.4	2568.0	2550.6	2528.8	2520.1	2502.6	2489.5	2480.8
22.5°	2524.4	2502.6	2476.5	2467.7	2450.3	2441.6	2419.8	2411.1	2402.3	2389.3	2384.9
25°	2398.0	2376.2	2354.4	2350.1	2336.9	2328.3	2315.1	2302.1	2302.1	2289.0	2289.0
27.5°	2267.2	2245.4	2227.9	2219.3	2214.9	2206.1	2193.1	2188.7	2184.3	2180.0	2180.0
30°	2127.7	2101.5	2092.8	2088.5	2084.1	2075.3	2071.0	2062.3	2066.7	2071.0	2066.7
32.5°	1979.5	1970.7	1953.3	1944.5	1948.9	1944.5	1935.9	1944.5	1940.1	1948.9	1953.3
35°	1835.5	1826.9	1818.1	1818.1	1809.3	1809.3	1809.3	1813.7	1822.5	1826.9	1835.5
37.5°	1696.1	1682.9	1678.5	1674.3	1678.5	1678.5	1678.5	1687.3	1696.1	1704.7	1717.9
40°	1547.7	1539.1	1539.1	1539.1	1539.1	1552.1	1547.7	1556.5	1565.3	1578.3	1591.3
42.5°	1408.3	1408.3	1412.7	1412.7	1412.7	1412.7	1421.3	1434.5	1447.5	1460.6	1473.7
45°	1277.5	1277.5	1277.5	1286.2	1286.2	1290.5	1308.0	1316.7	1325.5	1338.5	1351.6
47.5°	1155.4	1155.4	1159.7	1164.1	1168.5	1177.2	1185.9	1199.0	1212.1	1220.8	1233.9
50°	1042.0	1046.4	1055.1	1063.8	1063.8	1068.2	1081.3	1090.0	1098.7	1111.8	1116.1
52.5°	933.0	941.8	950.5	954.8	959.2	967.9	972.3	985.3	989.7	1002.8	1007.1
55°	832.8	837.1	850.2	854.6	854.6	863.3	872.0	880.7	893.8	893.8	902.5
57.5°	741.2	745.6	754.3	758.6	754.3	767.4	771.7	780.4	784.8	793.5	797.9
60°	649.6	658.4	662.7	662.7	667.1	671.4	680.2	680.2	688.9	697.6	697.6
62.5°	562.4	566.8	571.2	575.5	579.9	575.5	588.6	588.6	597.3	601.7	610.4
65°	479.6	484.0	484.0	488.3	488.3	492.7	492.7	497.0	501.4	510.1	514.5
67.5°	396.8	396.8	396.8	401.2	396.8	401.2	401.2	405.4	405.4	414.2	418.6
70°	322.6	318.2	314.0	314.0	314.0	314.0	309.6	314.0	314.0	318.2	318.2
72.5°	248.6	244.2	239.8	235.4	235.4	231.0	226.8	231.0	231.0	235.4	235.4
75°	187.4	178.8	178.8	178.8	174.4	174.4	174.4	178.8	178.8	178.8	183.2
77.5°	139.6	139.6	135.2	135.2	135.2	139.6	139.6	143.8	143.8	143.8	143.8
80°	104.6	109.0	109.0	109.0	109.0	113.4	113.4	113.4	113.4	117.8	117.8
82.5°	78.4	78.4	78.4	78.4	82.8	82.8	82.8	82.8	82.8	82.8	82.8
85°	48.0	52.4	52.4	48.0	52.4	52.4	52.4	52.4	52.4	52.4	52.4
87.5°	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8
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: P593872

CATALOG NUMBER: HC860D010-HM86080850-81WWWB

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4	3069.4
2.5°	3017.1	3017.1	3017.1	3017.1	3012.8	3012.8	3012.8	3008.4
5°	2951.7	2951.7	2951.7	2943.0	2947.4	2947.4	2938.6	2943.0
7.5°	2886.3	2882.0	2877.6	2877.6	2873.2	2868.9	2864.5	2868.9
10°	2812.2	2799.1	2799.1	2794.7	2794.7	2786.0	2786.0	2790.4
12.5°	2729.3	2720.6	2720.6	2716.3	2711.9	2707.5	2703.2	2703.2
15°	2646.5	2637.8	2633.4	2629.1	2624.7	2616.0	2620.3	2616.0
17.5°	2563.7	2550.6	2550.6	2546.2	2541.9	2533.1	2533.1	2528.8
20°	2467.7	2463.4	2454.7	2459.0	2454.7	2445.9	2441.6	2441.6
22.5°	2371.9	2371.9	2367.5	2367.5	2363.1	2358.7	2354.4	2354.4
25°	2280.3	2275.9	2280.3	2280.3	2267.2	2267.2	2267.2	2271.5
27.5°	2175.7	2180.0	2175.7	2175.7	2175.7	2175.7	2180.0	2175.7
30°	2071.0	2071.0	2071.0	2075.3	2084.1	2079.7	2079.7	2075.3
32.5°	1957.7	1961.9	1961.9	1966.3	1970.7	1979.5	1979.5	1983.7
35°	1844.3	1852.9	1857.3	1852.9	1866.1	1866.1	1874.7	1874.7
37.5°	1726.5	1730.9	1739.7	1743.9	1752.7	1757.1	1761.5	1761.5
40°	1600.1	1617.5	1621.9	1626.3	1639.3	1639.3	1643.7	1652.5
42.5°	1482.3	1499.9	1504.1	1508.5	1517.3	1530.3	1525.9	1534.7
45°	1369.1	1382.1	1386.5	1390.9	1403.9	1408.3	1408.3	1421.3
47.5°	1246.9	1255.7	1260.1	1268.7	1277.5	1286.2	1294.9	1290.5
50°	1124.9	1137.9	1146.7	1151.0	1164.1	1168.5	1172.8	1177.2
52.5°	1015.9	1024.6	1028.9	1033.3	1046.4	1050.7	1055.1	1063.8
55°	911.2	915.6	924.3	920.0	933.0	937.4	941.8	950.5
57.5°	806.6	811.0	815.3	815.3	824.0	832.8	837.1	841.5
60°	706.3	715.0	719.4	719.4	719.4	728.1	728.1	728.1
62.5°	614.8	614.8	619.1	619.1	627.8	627.8	627.8	627.8
65°	518.8	523.2	527.6	527.6	536.3	531.9	540.6	536.3
67.5°	418.6	418.6	427.3	427.3	423.0	427.3	427.3	427.3
70°	318.2	318.2	322.6	322.6	322.6	322.6	322.6	322.6
72.5°	235.4	235.4	235.4	239.8	235.4	235.4	239.8	235.4
75°	183.2	183.2	183.2	183.2	183.2	183.2	183.2	183.2
77.5°	143.8	143.8	148.2	148.2	148.2	148.2	148.2	148.2
80°	117.8	117.8	117.8	117.8	122.0	117.8	117.8	117.8
82.5°	87.2	82.8	87.2	82.8	87.2	87.2	87.2	87.2
85°	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4
87.5°	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - - 90°-270°













(END OF REPORT)