

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: P593871

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

Issue Date: 10/21/2021

Test Information

Test Method: LM-41-14
Report Number: P593871
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2109-368-16)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 10/21/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: HC860D010-HM86080850-81WWW
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, WHITE TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 5000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5929.2 lumens
Efficiency: N/A
Efficacy: 105.9 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.04 / 1.13
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

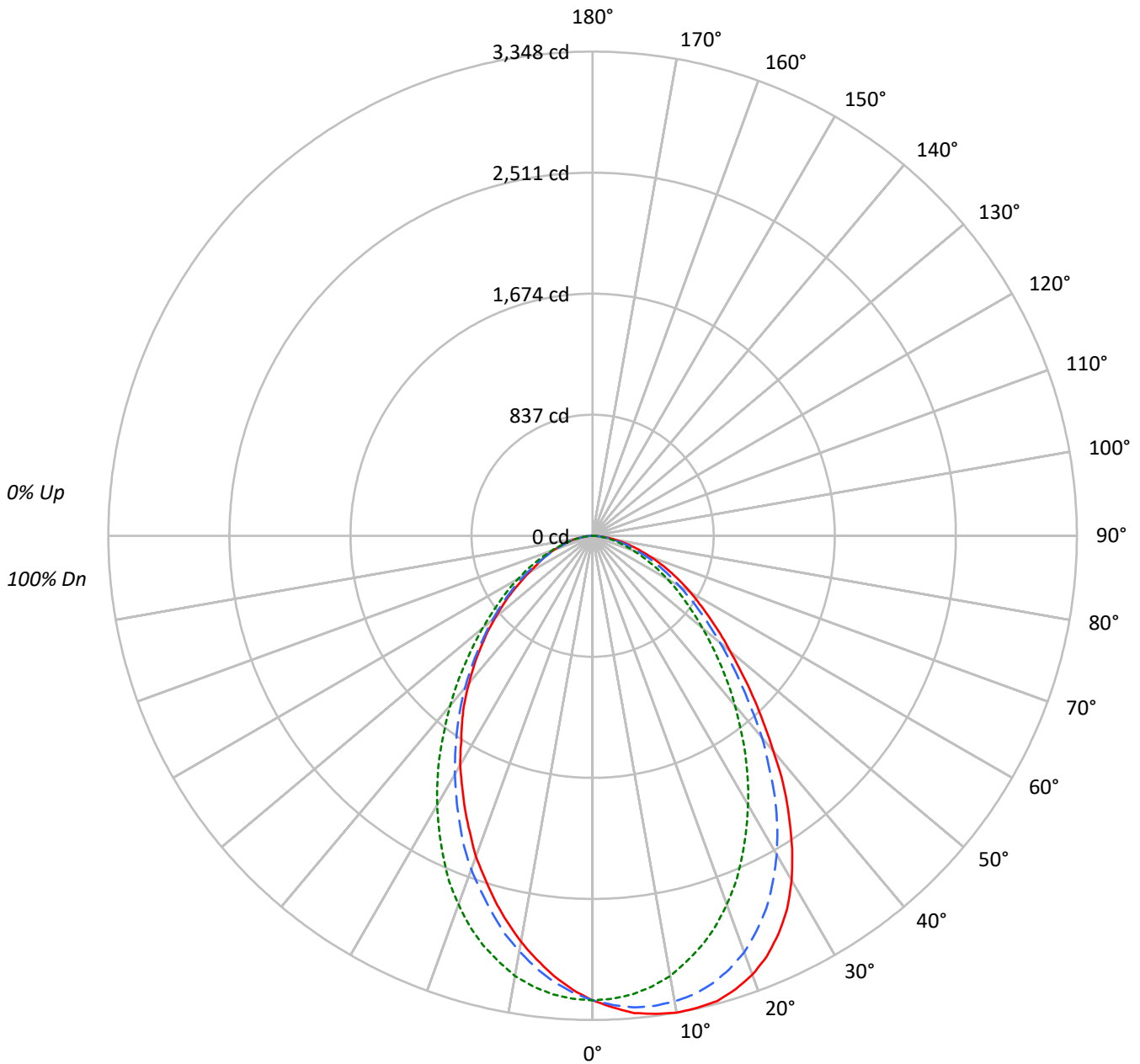
Input Watts (W): 56
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									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	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	110	106	103	99	108	104	101	98	100	97	95	96	94	92	93	91	89	87																			
2	102	95	89	84	99	93	88	83	90	85	81	86	83	79	83	80	78	76																			
3	94	85	78	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66																			
4	87	76	69	63	85	75	68	62	73	67	62	71	65	61	68	64	60	58																			
5	81	69	61	55	79	68	61	55	66	60	54	64	59	54	63	57	53	51																			
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46																			
7	70	58	50	44	69	57	50	44	56	49	44	54	48	44	53	48	43	41																			
8	66	53	46	40	64	53	45	40	51	45	40	50	44	40	49	44	39	38																			
9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34																			
10	58	46	39	34	57	45	38	34	44	38	33	44	38	33	43	37	33	32																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	99068	99068	99068
5°	102551	98502	94590
10°	104829	96776	89271
15°	106320	93518	83360
20°	106000	88975	77392
25°	103379	83209	71042
30°	97940	76522	65192
35°	89104	69250	59241
40°	78262	61593	53518
45°	68244	54176	47713
50°	59395	47469	42034
55°	52966	41714	36558
60°	48123	36560	31188
65°	43254	31805	28310
70°	38516	27120	25551
75°	33765	22852	21803
80°	28626	18575	19356
85°	21582	13869	15426



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.9	5.1
10°-20°	829.1	14.0
20°-30°	1150.9	19.4
30°-40°	1189.9	20.1
40°-50°	996.3	16.8
50°-60°	723.3	12.2
60°-70°	456.4	7.7
70°-80°	226.1	3.8
80°-90°	56.2	0.9
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°	2281.0	38.5
0°-40°	3470.9	58.5
0°-60°	5190.5	87.5
0°-90°	5929.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5929.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3213	3213	3213	3213	3213	
5°	3313	3274	3182	3095	3056	317
15°	3330	3204	2929	2694	2611	937
25°	3038	2842	2446	2180	2088	1392
35°	2367	2193	1840	1630	1574	1474
45°	1565	1452	1242	1120	1094	1210
55°	985	898	776	710	680	889
65°	593	519	436	384	388	591
75°	283	235	192	183	183	304
85°	61	48	39	44	44	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°	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7
2.5°	3265.0	3265.0	3269.4	3265.0	3265.0	3265.0	3260.7	3260.7	3256.3	3256.3	3247.6
5°	3313.0	3304.3	3313.0	3304.3	3304.3	3304.3	3299.9	3291.2	3286.8	3278.1	3273.8
7.5°	3334.8	3330.4	3330.4	3326.1	3326.1	3321.7	3317.3	3313.0	3295.6	3291.2	3278.1
10°	3347.9	3343.5	3343.5	3339.1	3330.4	3330.4	3321.7	3317.3	3295.6	3286.8	3269.4
12.5°	3343.5	3343.5	3343.5	3339.1	3326.1	3321.7	3313.0	3299.9	3282.5	3265.0	3247.6
15°	3330.4	3330.4	3321.7	3317.3	3304.3	3295.6	3291.2	3269.4	3252.0	3230.2	3204.0
17.5°	3286.8	3286.8	3282.5	3273.8	3260.7	3252.0	3243.2	3221.4	3204.0	3169.1	3143.0
20°	3230.2	3225.8	3221.4	3208.4	3195.3	3190.9	3177.8	3147.4	3125.6	3099.4	3064.5
22.5°	3147.4	3143.0	3138.6	3129.9	3108.1	3099.4	3090.7	3068.9	3029.6	3003.5	2959.9
25°	3038.4	3038.4	3029.6	3016.6	2994.8	2986.0	2973.0	2951.2	2916.3	2877.0	2842.2
27.5°	2912.0	2907.6	2894.5	2885.8	2868.4	2855.2	2833.4	2807.4	2772.4	2742.0	2698.4
30°	2750.6	2750.6	2742.0	2728.8	2707.0	2698.4	2681.0	2650.4	2615.6	2576.2	2545.8
32.5°	2567.6	2567.6	2554.4	2545.8	2532.8	2511.0	2506.6	2471.6	2441.2	2410.6	2375.8
35°	2367.0	2371.4	2362.7	2345.2	2323.4	2323.4	2314.8	2284.2	2249.4	2218.8	2192.7
37.5°	2166.5	2153.4	2149.1	2140.4	2127.3	2109.8	2101.1	2088.0	2057.6	2035.8	1996.5
40°	1944.2	1948.6	1939.8	1931.1	1926.8	1913.7	1909.3	1887.5	1865.7	1839.6	1822.1
42.5°	1743.7	1743.7	1743.7	1734.9	1726.3	1713.1	1708.8	1695.7	1669.5	1652.1	1625.9
45°	1564.9	1551.9	1551.9	1547.5	1543.1	1534.5	1521.3	1512.7	1495.2	1482.1	1451.7
47.5°	1390.5	1394.9	1390.5	1386.3	1373.1	1368.7	1364.5	1346.9	1329.5	1316.5	1294.7
50°	1238.1	1246.7	1238.1	1238.1	1229.3	1224.9	1216.3	1203.1	1190.1	1168.3	1146.5
52.5°	1111.6	1111.6	1107.3	1102.9	1089.8	1081.1	1076.7	1072.3	1050.5	1033.1	1015.7
55°	985.2	989.5	989.5	976.5	972.1	963.4	959.1	945.9	937.3	911.1	898.0
57.5°	876.2	871.9	876.2	867.5	858.7	850.1	845.7	837.0	823.9	806.5	789.0
60°	780.3	771.6	771.6	767.2	758.5	754.1	745.4	732.3	719.3	701.8	688.8
62.5°	684.4	680.0	675.7	671.3	662.6	658.2	653.9	640.8	627.7	614.6	601.6
65°	592.8	592.8	588.5	579.8	575.4	571.0	566.7	558.0	540.5	531.8	518.8
67.5°	510.0	505.7	505.7	497.0	488.2	483.9	483.9	475.2	462.1	449.0	440.3
70°	427.2	431.6	427.2	422.8	414.1	414.1	405.4	401.0	383.6	379.2	366.2
72.5°	353.1	353.1	348.8	348.8	340.0	335.6	335.6	327.0	318.2	309.5	300.8
75°	283.4	283.4	283.4	279.0	274.6	265.9	265.9	261.6	252.8	244.1	235.4
77.5°	222.4	218.0	218.0	213.6	209.2	204.8	204.8	200.6	191.8	187.4	178.8
80°	161.2	157.0	157.0	157.0	148.2	152.6	148.2	143.8	139.4	135.2	130.8
82.5°	104.6	109.0	109.0	104.6	100.2	100.2	100.2	95.8	95.8	91.6	87.2
85°	61.0	61.0	61.0	61.0	56.6	56.6	56.6	52.4	52.4	52.4	48.0
87.5°	26.2	26.2	26.2	26.2	26.2	26.2	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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7
2.5°	3247.6	3238.9	3234.5	3230.2	3230.2	3225.8	3221.4	3212.7	3212.7	3204.0	3199.6
5°	3265.0	3252.0	3243.2	3234.5	3230.2	3221.4	3212.7	3199.6	3195.3	3182.2	3169.1
7.5°	3269.4	3247.6	3238.9	3221.4	3212.7	3204.0	3186.6	3173.5	3156.0	3143.0	3125.6
10°	3252.0	3234.5	3212.7	3190.9	3186.6	3173.5	3147.4	3129.9	3108.1	3090.7	3064.5
12.5°	3225.8	3199.6	3177.8	3151.7	3138.6	3125.6	3099.4	3073.2	3042.7	3012.2	2986.0
15°	3182.2	3151.7	3121.2	3090.7	3073.2	3060.2	3029.6	2999.2	2968.6	2929.4	2903.2
17.5°	3116.8	3082.0	3051.4	3012.2	2994.8	2981.7	2942.4	2907.6	2868.4	2829.2	2803.0
20°	3034.0	2990.4	2955.6	2912.0	2898.8	2877.0	2837.8	2798.6	2755.0	2711.4	2681.0
22.5°	2925.0	2881.4	2842.2	2798.6	2776.8	2755.0	2715.8	2667.8	2624.2	2589.4	2558.8
25°	2798.6	2759.4	2711.4	2672.2	2646.0	2619.8	2576.2	2537.0	2497.8	2445.6	2415.0
27.5°	2659.2	2611.2	2576.2	2524.0	2497.8	2480.4	2432.4	2380.2	2345.2	2297.3	2262.4
30°	2502.2	2458.6	2419.4	2367.0	2340.9	2323.4	2279.8	2231.9	2197.0	2149.1	2114.2
32.5°	2336.6	2288.6	2240.6	2205.8	2175.2	2157.8	2109.8	2079.3	2035.8	1996.5	1957.3
35°	2157.8	2109.8	2075.0	2027.0	2009.6	1992.2	1952.9	1913.7	1874.5	1839.6	1809.1
37.5°	1966.0	1931.1	1891.9	1857.0	1843.9	1826.5	1778.5	1743.7	1713.1	1678.3	1652.1
40°	1778.5	1748.1	1721.9	1687.0	1665.2	1652.1	1617.3	1586.7	1551.9	1530.1	1503.9
42.5°	1608.5	1573.7	1547.5	1521.3	1499.5	1486.5	1455.9	1434.1	1408.1	1386.3	1355.7
45°	1429.9	1412.3	1381.9	1360.1	1346.9	1329.5	1307.7	1281.7	1259.9	1242.3	1220.5
47.5°	1272.9	1255.5	1233.7	1207.5	1198.7	1185.7	1163.9	1146.5	1129.1	1111.6	1089.8
50°	1129.1	1107.3	1089.8	1072.3	1063.7	1050.5	1028.7	1020.1	1006.9	989.5	976.5
52.5°	998.3	980.9	963.4	941.6	937.3	928.5	915.5	898.0	884.9	876.2	867.5
55°	880.5	863.1	850.1	832.6	828.3	819.5	802.1	793.4	784.7	775.9	767.2
57.5°	775.9	758.5	741.1	732.3	723.6	714.9	710.5	697.5	688.8	684.4	675.7
60°	680.0	662.6	649.5	636.4	632.1	627.7	619.0	610.3	601.6	592.8	588.5
62.5°	588.5	571.0	562.3	553.6	544.9	544.9	536.2	527.4	518.8	514.4	505.7
65°	505.7	497.0	483.9	470.8	466.4	466.4	453.4	449.0	444.6	435.9	427.2
67.5°	427.2	418.5	405.4	401.0	396.7	392.3	388.0	379.2	370.6	366.2	357.4
70°	357.4	348.8	340.0	335.6	331.3	327.0	318.2	313.8	305.2	300.8	296.4
72.5°	287.7	283.4	274.6	270.2	265.9	261.6	257.2	252.8	244.1	239.8	235.4
75°	231.0	226.6	218.0	213.6	209.2	209.2	204.8	196.2	191.8	191.8	187.4
77.5°	174.4	170.0	165.6	161.2	157.0	157.0	152.6	148.2	143.8	143.8	139.4
80°	126.4	122.0	117.6	117.6	117.6	113.4	109.0	109.0	104.6	104.6	100.2
82.5°	82.8	82.8	78.4	78.4	78.4	74.2	74.2	69.8	69.8	69.8	69.8
85°	48.0	48.0	48.0	43.6	43.6	43.6	43.6	43.6	43.6	39.2	43.6
87.5°	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	17.4	17.4	17.4
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°	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7
2.5°	3195.3	3190.9	3182.2	3182.2	3173.5	3173.5	3169.1	3164.8	3160.4	3156.0	3151.7
5°	3164.8	3147.4	3138.6	3134.2	3125.6	3121.2	3108.1	3099.4	3095.0	3086.3	3077.6
7.5°	3108.1	3090.7	3073.2	3068.9	3064.5	3047.1	3034.0	3020.9	3012.2	3003.5	2994.8
10°	3042.7	3025.3	3003.5	2994.8	2986.0	2964.2	2946.8	2933.8	2916.3	2898.8	2894.5
12.5°	2964.2	2938.1	2912.0	2903.2	2890.2	2868.4	2851.0	2829.2	2816.0	2794.2	2789.8
15°	2872.7	2842.2	2820.4	2798.6	2789.8	2768.0	2737.6	2720.2	2694.0	2685.2	2663.4
17.5°	2763.8	2733.2	2702.6	2694.0	2681.0	2650.4	2619.8	2598.0	2572.0	2558.8	2545.8
20°	2650.4	2611.2	2580.6	2572.0	2554.4	2528.4	2497.8	2476.0	2454.2	2428.0	2415.0
22.5°	2519.6	2476.0	2449.8	2428.0	2423.8	2393.2	2358.4	2340.9	2323.4	2301.6	2284.2
25°	2375.8	2336.6	2306.0	2288.6	2279.8	2253.7	2227.6	2205.8	2179.6	2166.5	2144.7
27.5°	2227.6	2201.4	2162.2	2144.7	2131.6	2109.8	2079.3	2066.3	2040.1	2022.7	2009.6
30°	2083.7	2044.5	2022.7	2000.9	1987.8	1966.0	1939.8	1926.8	1905.0	1887.5	1874.5
32.5°	1926.8	1900.6	1870.1	1861.4	1843.9	1822.1	1804.7	1782.9	1765.5	1748.1	1743.7
35°	1782.9	1748.1	1717.5	1708.8	1695.7	1673.9	1665.2	1652.1	1630.3	1625.9	1608.5
37.5°	1625.9	1608.5	1573.7	1560.6	1556.3	1538.8	1521.3	1512.7	1499.5	1486.5	1482.1
40°	1477.7	1455.9	1438.5	1425.5	1416.7	1403.7	1386.3	1381.9	1373.1	1355.7	1351.3
42.5°	1338.3	1316.5	1299.1	1294.7	1281.7	1268.5	1259.9	1246.7	1242.3	1238.1	1229.3
45°	1203.1	1190.1	1172.7	1168.3	1163.9	1146.5	1137.7	1129.1	1120.3	1115.9	1107.3
47.5°	1081.1	1068.0	1054.9	1050.5	1041.9	1037.5	1024.4	1020.1	1006.9	1002.7	998.3
50°	963.4	954.7	945.9	941.6	932.9	928.5	919.8	911.1	902.3	898.0	893.7
52.5°	858.7	850.1	841.3	837.0	832.6	823.9	815.2	806.5	802.1	797.7	793.4
55°	758.5	749.8	745.4	741.1	736.7	732.3	719.3	714.9	710.5	706.2	697.5
57.5°	667.0	658.2	649.5	649.5	645.2	640.8	632.1	623.4	623.4	614.6	605.9
60°	584.1	575.4	566.7	562.3	558.0	549.2	544.9	540.5	536.2	531.8	523.1
62.5°	497.0	492.6	483.9	483.9	475.2	470.8	466.4	462.1	457.7	449.0	444.6
65°	422.8	418.5	409.8	405.4	405.4	401.0	392.3	388.0	383.6	383.6	379.2
67.5°	353.1	348.8	340.0	335.6	335.6	331.3	327.0	327.0	322.6	318.2	322.6
70°	292.0	283.4	283.4	279.0	279.0	274.6	270.2	270.2	270.2	274.6	274.6
72.5°	231.0	226.6	222.4	222.4	222.4	222.4	218.0	218.0	222.4	226.6	226.6
75°	183.0	178.8	178.8	178.8	174.4	174.4	178.8	178.8	183.0	183.0	183.0
77.5°	135.2	135.2	135.2	135.2	135.2	135.2	139.4	139.4	143.8	143.8	143.8
80°	100.2	100.2	100.2	100.2	100.2	104.6	104.6	104.6	104.6	104.6	109.0
82.5°	69.8	69.8	69.8	69.8	69.8	69.8	69.8	74.2	74.2	74.2	74.2
85°	39.2	43.6	43.6	43.6	43.6	43.6	43.6	43.6	43.6	43.6	43.6
87.5°	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4
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: P593871

CATALOG NUMBER: HC860D010-HM86080850-81WWW

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7	3212.7
2.5°	3147.4	3147.4	3147.4	3151.7	3143.0	3143.0	3143.0	3143.0
5°	3073.2	3068.9	3064.5	3068.9	3060.2	3060.2	3055.8	3055.8
7.5°	2981.7	2977.4	2973.0	2973.0	2964.2	2964.2	2959.9	2955.6
10°	2881.4	2872.7	2877.0	2868.4	2864.0	2859.6	2855.2	2851.0
12.5°	2772.4	2763.8	2759.4	2750.6	2742.0	2737.6	2742.0	2733.2
15°	2654.8	2641.6	2637.4	2628.6	2619.8	2615.6	2615.6	2611.2
17.5°	2524.0	2515.2	2511.0	2502.2	2497.8	2489.2	2484.8	2480.4
20°	2402.0	2380.2	2384.5	2375.8	2371.4	2354.0	2354.0	2358.4
22.5°	2266.8	2253.7	2245.0	2236.3	2231.9	2223.2	2223.2	2218.8
25°	2131.6	2118.6	2114.2	2105.5	2101.1	2092.4	2088.0	2088.0
27.5°	2000.9	1983.4	1983.4	1974.7	1966.0	1961.6	1957.3	1952.9
30°	1861.4	1848.3	1843.9	1843.9	1839.6	1839.6	1826.5	1830.9
32.5°	1730.6	1721.9	1717.5	1708.8	1708.8	1704.5	1704.5	1691.3
35°	1599.9	1586.7	1591.1	1582.3	1578.1	1573.7	1578.1	1573.7
37.5°	1473.4	1464.7	1464.7	1455.9	1455.9	1451.7	1447.3	1455.9
40°	1346.9	1342.7	1338.3	1333.9	1338.3	1333.9	1325.1	1329.5
42.5°	1220.5	1220.5	1216.3	1216.3	1211.9	1211.9	1211.9	1211.9
45°	1107.3	1102.9	1102.9	1098.5	1098.5	1098.5	1098.5	1094.1
47.5°	993.9	989.5	989.5	989.5	985.2	985.2	980.9	985.2
50°	884.9	884.9	880.5	880.5	884.9	880.5	876.2	876.2
52.5°	784.7	784.7	780.3	780.3	775.9	771.6	775.9	775.9
55°	693.1	688.8	684.4	684.4	680.0	675.7	675.7	680.0
57.5°	605.9	601.6	597.2	597.2	588.5	584.1	584.1	584.1
60°	523.1	514.4	514.4	510.0	510.0	505.7	505.7	505.7
62.5°	444.6	440.3	440.3	440.3	440.3	435.9	435.9	435.9
65°	379.2	379.2	379.2	383.6	383.6	388.0	388.0	388.0
67.5°	327.0	331.3	331.3	331.3	335.6	335.6	335.6	331.3
70°	279.0	279.0	279.0	283.4	283.4	283.4	283.4	283.4
72.5°	231.0	231.0	231.0	231.0	231.0	231.0	231.0	231.0
75°	183.0	187.4	187.4	187.4	183.0	187.4	187.4	183.0
77.5°	143.8	143.8	143.8	143.8	143.8	143.8	143.8	143.8
80°	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
82.5°	74.2	74.2	74.2	74.2	74.2	74.2	74.2	74.2
85°	43.6	43.6	43.6	43.6	43.6	43.6	43.6	43.6
87.5°	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4
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)