

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: P585185

Luminaire Tested: **HC860D010-HM86080940-81WWW**

Issue Date: 10/21/2021

Test Information

Test Method: LM-41-14
Report Number: P585185
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-HM86080940-81WWW
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, WHITE TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5181.9 lumens
Efficiency: N/A
Efficacy: 92.5 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

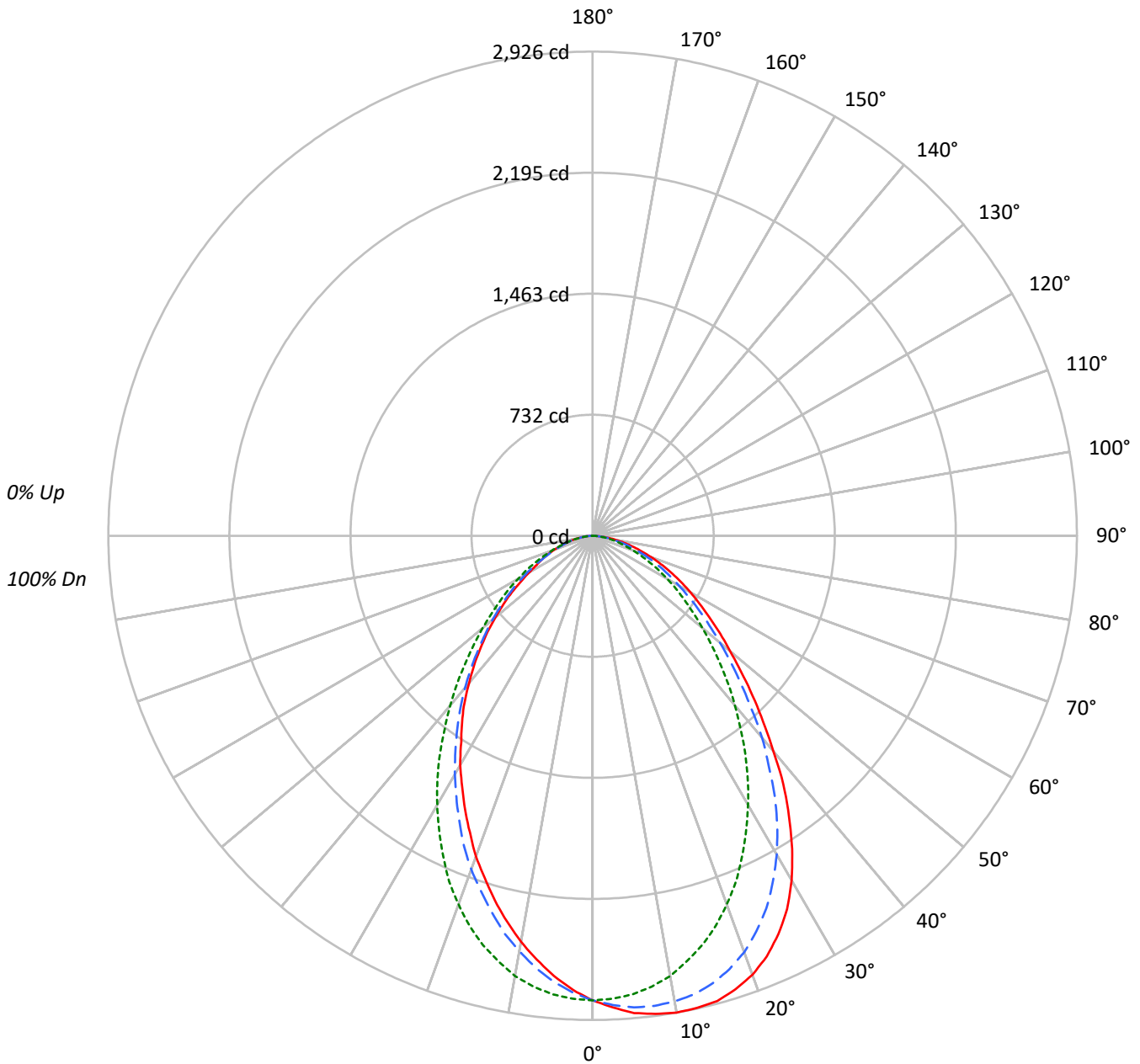
Input Watts (W): 56
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	86579	86579	86579
5°	89625	86086	82666
10°	91613	84577	78017
15°	92918	81729	72851
20°	92641	77762	67632
25°	90348	72720	62091
30°	85595	66877	56974
35°	77875	60521	51772
40°	68400	53832	46771
45°	59644	47351	41703
50°	51907	41487	36733
55°	46289	36456	31950
60°	42055	31953	27259
65°	37803	27800	24742
70°	33666	23703	22323
75°	29500	19968	19063
80°	25021	16249	16923
85°	18858	12136	13480



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	263.0	5.1
10°-20°	724.6	14.0
20°-30°	1005.8	19.4
30°-40°	1039.9	20.1
40°-50°	870.7	16.8
50°-60°	632.1	12.2
60°-70°	398.9	7.7
70°-80°	197.6	3.8
80°-90°	49.1	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°	1993.4	38.5
0°-40°	3033.4	58.5
0°-60°	4536.2	87.5
0°-90°	5181.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5181.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2808	2808	2808	2808	2808	
5°	2895	2861	2781	2705	2671	277
15°	2911	2800	2560	2354	2282	819
25°	2655	2484	2137	1905	1825	1217
35°	2069	1916	1608	1425	1375	1288
45°	1368	1269	1086	979	956	1058
55°	861	785	678	621	594	777
65°	518	453	381	335	339	517
75°	248	206	168	160	160	266
85°	53	42	34	38	38	65
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°	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7
2.5°	2853.5	2853.5	2857.3	2853.5	2853.5	2853.5	2849.7	2849.7	2845.9	2845.9	2838.3
5°	2895.4	2887.8	2895.4	2887.8	2887.8	2887.8	2884.0	2876.3	2872.5	2864.9	2861.1
7.5°	2914.4	2910.6	2910.6	2906.8	2906.8	2903.0	2899.2	2895.4	2880.2	2876.3	2864.9
10°	2925.8	2922.0	2922.0	2918.2	2910.6	2910.6	2903.0	2899.2	2880.2	2872.5	2857.3
12.5°	2922.0	2922.0	2922.0	2918.2	2906.8	2903.0	2895.4	2884.0	2868.7	2853.5	2838.3
15°	2910.6	2910.6	2903.0	2899.2	2887.8	2880.2	2876.3	2857.3	2842.1	2823.1	2800.1
17.5°	2872.5	2872.5	2868.7	2861.1	2849.7	2842.1	2834.5	2815.4	2800.1	2769.7	2746.8
20°	2823.1	2819.3	2815.4	2803.9	2792.5	2788.7	2777.3	2750.6	2731.6	2708.8	2678.2
22.5°	2750.6	2746.8	2743.0	2735.4	2716.4	2708.8	2701.1	2682.0	2647.7	2624.9	2586.8
25°	2655.4	2655.4	2647.7	2636.3	2617.3	2609.7	2598.3	2579.2	2548.7	2514.4	2484.0
27.5°	2544.9	2541.1	2529.6	2522.0	2506.8	2495.4	2476.3	2453.5	2422.9	2396.3	2358.2
30°	2403.9	2403.9	2396.3	2384.9	2365.9	2358.2	2343.0	2316.4	2285.8	2251.6	2224.9
32.5°	2243.9	2243.9	2232.5	2224.9	2213.5	2194.5	2190.7	2160.1	2133.4	2106.8	2076.4
35°	2068.7	2072.5	2064.9	2049.6	2030.6	2030.6	2022.9	1996.3	1965.9	1939.2	1916.3
37.5°	1893.4	1882.0	1878.2	1870.6	1859.2	1843.9	1836.3	1824.9	1798.2	1779.1	1744.9
40°	1699.2	1703.0	1695.4	1687.7	1683.8	1672.4	1668.6	1649.6	1630.6	1607.7	1592.5
42.5°	1523.9	1523.9	1523.9	1516.3	1508.6	1497.2	1493.4	1482.0	1459.2	1443.9	1421.0
45°	1367.7	1356.3	1356.3	1352.5	1348.7	1341.1	1329.6	1322.0	1306.7	1295.3	1268.6
47.5°	1215.3	1219.1	1215.3	1211.5	1200.1	1196.3	1192.5	1177.2	1161.9	1150.5	1131.5
50°	1082.0	1089.6	1082.0	1082.0	1074.4	1070.6	1062.9	1051.4	1040.0	1021.0	1002.0
52.5°	971.5	971.5	967.7	963.9	952.5	944.9	941.1	937.1	918.1	902.9	887.7
55°	861.0	864.8	864.8	853.4	849.6	842.0	838.2	826.8	819.1	796.2	784.8
57.5°	765.7	761.9	765.7	758.1	750.5	742.9	739.1	731.5	720.1	704.8	689.6
60°	681.9	674.3	674.3	670.5	662.9	659.1	651.4	640.0	628.6	613.4	602.0
62.5°	598.2	594.3	590.5	586.7	579.1	575.3	571.5	560.0	548.6	537.1	525.7
65°	518.1	518.1	514.3	506.7	502.9	499.1	495.3	487.7	472.4	464.8	453.4
67.5°	445.8	442.0	442.0	434.3	426.6	422.8	422.8	415.2	403.8	392.4	384.8
70°	373.4	377.2	373.4	369.5	361.9	361.9	354.3	350.5	335.3	331.5	320.1
72.5°	308.5	308.5	304.7	304.7	297.1	293.3	293.3	285.7	278.1	270.5	262.9
75°	247.6	247.6	247.6	243.8	240.0	232.4	232.4	228.6	221.0	213.4	205.8
77.5°	194.3	190.5	190.5	186.6	182.8	179.0	179.0	175.2	167.6	163.8	156.2
80°	140.9	137.1	137.1	137.1	129.5	133.3	129.5	125.7	121.9	118.1	114.3
82.5°	91.5	95.3	95.3	91.5	87.7	87.7	87.7	83.9	83.9	80.0	76.2
85°	53.3	53.3	53.3	53.3	49.5	49.5	49.5	45.7	45.7	45.7	41.9
87.5°	22.8	22.8	22.8	22.8	22.8	22.8	19.0	19.0	19.0	19.0	19.0
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°	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7
2.5°	2838.3	2830.7	2826.9	2823.1	2823.1	2819.3	2815.4	2807.7	2807.7	2800.1	2796.3
5°	2853.5	2842.1	2834.5	2826.9	2823.1	2815.4	2807.7	2796.3	2792.5	2781.1	2769.7
7.5°	2857.3	2838.3	2830.7	2815.4	2807.7	2800.1	2784.9	2773.5	2758.2	2746.8	2731.6
10°	2842.1	2826.9	2807.7	2788.7	2784.9	2773.5	2750.6	2735.4	2716.4	2701.1	2678.2
12.5°	2819.3	2796.3	2777.3	2754.4	2743.0	2731.6	2708.8	2685.8	2659.2	2632.5	2609.7
15°	2781.1	2754.4	2727.8	2701.1	2685.8	2674.4	2647.7	2621.1	2594.5	2560.1	2537.2
17.5°	2724.0	2693.5	2666.8	2632.5	2617.3	2605.9	2571.6	2541.1	2506.8	2472.5	2449.7
20°	2651.6	2613.5	2583.0	2544.9	2533.4	2514.4	2480.2	2445.9	2407.7	2369.7	2343.0
22.5°	2556.3	2518.2	2484.0	2445.9	2426.8	2407.7	2373.5	2331.6	2293.4	2263.0	2236.3
25°	2445.9	2411.5	2369.7	2335.4	2312.5	2289.6	2251.6	2217.3	2182.9	2137.3	2110.6
27.5°	2324.0	2282.0	2251.6	2205.9	2182.9	2167.7	2125.8	2080.2	2049.6	2007.7	1977.3
30°	2186.7	2148.7	2114.4	2068.7	2045.8	2030.6	1992.5	1950.6	1920.1	1878.2	1847.7
32.5°	2042.0	2000.1	1958.2	1927.7	1901.0	1885.8	1843.9	1817.3	1779.1	1744.9	1710.6
35°	1885.8	1843.9	1813.4	1771.5	1756.3	1741.1	1706.8	1672.4	1638.2	1607.7	1581.1
37.5°	1718.2	1687.7	1653.4	1622.9	1611.5	1596.3	1554.3	1523.9	1497.2	1466.8	1443.9
40°	1554.3	1527.7	1504.8	1474.4	1455.4	1443.9	1413.4	1386.7	1356.3	1337.3	1314.4
42.5°	1405.8	1375.3	1352.5	1329.6	1310.5	1299.1	1272.4	1253.4	1230.6	1211.5	1184.8
45°	1249.6	1234.4	1207.7	1188.7	1177.2	1161.9	1142.9	1120.1	1101.0	1085.8	1066.8
47.5°	1112.5	1097.2	1078.2	1055.2	1047.6	1036.2	1017.2	1002.0	986.7	971.5	952.5
50°	986.7	967.7	952.5	937.1	929.5	918.1	899.1	891.5	880.0	864.8	853.4
52.5°	872.4	857.2	842.0	823.0	819.1	811.4	800.0	784.8	773.4	765.7	758.1
55°	769.5	754.3	742.9	727.7	723.9	716.3	701.0	693.4	685.7	678.1	670.5
57.5°	678.1	662.9	647.6	640.0	632.4	624.8	621.0	609.6	602.0	598.2	590.5
60°	594.3	579.1	567.7	556.2	552.4	548.6	540.9	533.3	525.7	518.1	514.3
62.5°	514.3	499.1	491.5	483.9	476.2	476.2	468.6	461.0	453.4	449.6	442.0
65°	442.0	434.3	422.8	411.4	407.6	407.6	396.2	392.4	388.6	381.0	373.4
67.5°	373.4	365.7	354.3	350.5	346.7	342.9	339.1	331.5	323.9	320.1	312.3
70°	312.3	304.7	297.1	293.3	289.5	285.7	278.1	274.3	266.7	262.9	259.1
72.5°	251.4	247.6	240.0	236.2	232.4	228.6	224.8	221.0	213.4	209.6	205.8
75°	202.0	198.2	190.5	186.6	182.8	182.8	179.0	171.4	167.6	167.6	163.8
77.5°	152.4	148.6	144.8	140.9	137.1	137.1	133.3	129.5	125.7	125.7	121.9
80°	110.5	106.7	102.9	102.9	102.9	99.1	95.3	95.3	91.5	91.5	87.7
82.5°	72.4	72.4	68.6	68.6	68.6	64.8	64.8	60.9	60.9	60.9	60.9
85°	41.9	41.9	41.9	38.1	38.1	38.1	38.1	38.1	38.1	34.3	38.1
87.5°	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	15.2	15.2	15.2
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°	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7
2.5°	2792.5	2788.7	2781.1	2781.1	2773.5	2773.5	2769.7	2765.9	2762.0	2758.2	2754.4
5°	2765.9	2750.6	2743.0	2739.2	2731.6	2727.8	2716.4	2708.8	2705.0	2697.3	2689.6
7.5°	2716.4	2701.1	2685.8	2682.0	2678.2	2663.0	2651.6	2640.1	2632.5	2624.9	2617.3
10°	2659.2	2643.9	2624.9	2617.3	2609.7	2590.7	2575.4	2563.9	2548.7	2533.4	2529.6
12.5°	2590.7	2567.8	2544.9	2537.2	2525.8	2506.8	2491.6	2472.5	2461.1	2442.1	2438.2
15°	2510.6	2484.0	2464.9	2445.9	2438.2	2419.1	2392.5	2377.3	2354.4	2346.8	2327.8
17.5°	2415.3	2388.7	2362.0	2354.4	2343.0	2316.4	2289.6	2270.6	2247.7	2236.3	2224.9
20°	2316.4	2282.0	2255.4	2247.7	2232.5	2209.7	2182.9	2163.9	2144.9	2122.0	2110.6
22.5°	2202.1	2163.9	2141.1	2122.0	2118.2	2091.6	2061.0	2045.8	2030.6	2011.5	1996.3
25°	2076.4	2042.0	2015.3	2000.1	1992.5	1969.7	1946.8	1927.7	1904.8	1893.4	1874.4
27.5°	1946.8	1923.9	1889.6	1874.4	1863.0	1843.9	1817.3	1805.8	1782.9	1767.7	1756.3
30°	1821.1	1786.7	1767.7	1748.7	1737.3	1718.2	1695.4	1683.8	1664.8	1649.6	1638.2
32.5°	1683.8	1661.0	1634.4	1626.8	1611.5	1592.5	1577.3	1558.1	1542.9	1527.7	1523.9
35°	1558.1	1527.7	1501.0	1493.4	1482.0	1463.0	1455.4	1443.9	1424.8	1421.0	1405.8
37.5°	1421.0	1405.8	1375.3	1363.9	1360.1	1344.9	1329.6	1322.0	1310.5	1299.1	1295.3
40°	1291.5	1272.4	1257.2	1245.8	1238.2	1226.8	1211.5	1207.7	1200.1	1184.8	1181.0
42.5°	1169.5	1150.5	1135.3	1131.5	1120.1	1108.6	1101.0	1089.6	1085.8	1082.0	1074.4
45°	1051.4	1040.0	1024.8	1021.0	1017.2	1002.0	994.3	986.7	979.1	975.3	967.7
47.5°	944.9	933.3	921.9	918.1	910.5	906.7	895.3	891.5	880.0	876.2	872.4
50°	842.0	834.4	826.8	823.0	815.3	811.4	803.8	796.2	788.6	784.8	781.0
52.5°	750.5	742.9	735.3	731.5	727.7	720.1	712.5	704.8	701.0	697.2	693.4
55°	662.9	655.2	651.4	647.6	643.8	640.0	628.6	624.8	621.0	617.2	609.6
57.5°	582.9	575.3	567.7	567.7	563.9	560.0	552.4	544.8	544.8	537.1	529.5
60°	510.5	502.9	495.3	491.5	487.7	480.0	476.2	472.4	468.6	464.8	457.2
62.5°	434.3	430.4	422.8	422.8	415.2	411.4	407.6	403.8	400.0	392.4	388.6
65°	369.5	365.7	358.1	354.3	354.3	350.5	342.9	339.1	335.3	335.3	331.5
67.5°	308.5	304.7	297.1	293.3	293.3	289.5	285.7	285.7	281.9	278.1	281.9
70°	255.2	247.6	247.6	243.8	243.8	240.0	236.2	236.2	236.2	240.0	240.0
72.5°	202.0	198.2	194.3	194.3	194.3	194.3	190.5	190.5	194.3	198.2	198.2
75°	160.0	156.2	156.2	156.2	152.4	152.4	156.2	156.2	160.0	160.0	160.0
77.5°	118.1	118.1	118.1	118.1	118.1	118.1	121.9	121.9	125.7	125.7	125.7
80°	87.7	87.7	87.7	87.7	87.7	91.5	91.5	91.5	91.5	91.5	95.3
82.5°	60.9	60.9	60.9	60.9	60.9	60.9	60.9	64.8	64.8	64.8	64.8
85°	34.3	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1
87.5°	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
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: P585185

CATALOG NUMBER: HC860D010-HM86080940-81WWW

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7	2807.7
2.5°	2750.6	2750.6	2750.6	2754.4	2746.8	2746.8	2746.8	2746.8
5°	2685.8	2682.0	2678.2	2682.0	2674.4	2674.4	2670.6	2670.6
7.5°	2605.9	2602.1	2598.3	2598.3	2590.7	2590.7	2586.8	2583.0
10°	2518.2	2510.6	2514.4	2506.8	2503.0	2499.2	2495.4	2491.6
12.5°	2422.9	2415.3	2411.5	2403.9	2396.3	2392.5	2396.3	2388.7
15°	2320.2	2308.6	2304.8	2297.2	2289.6	2285.8	2285.8	2282.0
17.5°	2205.9	2198.3	2194.5	2186.7	2182.9	2175.3	2171.5	2167.7
20°	2099.2	2080.2	2084.0	2076.4	2072.5	2057.2	2057.2	2061.0
22.5°	1981.1	1969.7	1962.0	1954.4	1950.6	1943.0	1943.0	1939.2
25°	1863.0	1851.6	1847.7	1840.1	1836.3	1828.7	1824.9	1824.9
27.5°	1748.7	1733.4	1733.4	1725.8	1718.2	1714.4	1710.6	1706.8
30°	1626.8	1615.3	1611.5	1611.5	1607.7	1607.7	1596.3	1600.1
32.5°	1512.5	1504.8	1501.0	1493.4	1493.4	1489.6	1489.6	1478.2
35°	1398.2	1386.7	1390.5	1382.9	1379.1	1375.3	1379.1	1375.3
37.5°	1287.7	1280.0	1280.0	1272.4	1272.4	1268.6	1264.8	1272.4
40°	1177.2	1173.4	1169.5	1165.7	1169.5	1165.7	1158.1	1161.9
42.5°	1066.8	1066.8	1062.9	1062.9	1059.1	1059.1	1059.1	1059.1
45°	967.7	963.9	963.9	960.1	960.1	960.1	960.1	956.3
47.5°	868.6	864.8	864.8	864.8	861.0	861.0	857.2	861.0
50°	773.4	773.4	769.5	769.5	773.4	769.5	765.7	765.7
52.5°	685.7	685.7	681.9	681.9	678.1	674.3	678.1	678.1
55°	605.8	602.0	598.2	598.2	594.3	590.5	590.5	594.3
57.5°	529.5	525.7	521.9	521.9	514.3	510.5	510.5	510.5
60°	457.2	449.6	449.6	445.8	445.8	442.0	442.0	442.0
62.5°	388.6	384.8	384.8	384.8	384.8	381.0	381.0	381.0
65°	331.5	331.5	331.5	335.3	335.3	339.1	339.1	339.1
67.5°	285.7	289.5	289.5	289.5	293.3	293.3	293.3	289.5
70°	243.8	243.8	243.8	247.6	247.6	247.6	247.6	247.6
72.5°	202.0	202.0	202.0	202.0	202.0	202.0	202.0	202.0
75°	160.0	163.8	163.8	163.8	160.0	163.8	163.8	160.0
77.5°	125.7	125.7	125.7	125.7	125.7	125.7	125.7	125.7
80°	95.3	95.3	95.3	95.3	95.3	95.3	95.3	95.3
82.5°	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8
85°	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1
87.5°	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
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)