

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: P593889

Luminaire Tested: **HC860D010-HM86080950-81WWWB**

Issue Date: 10/21/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P593889  
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-HM86080950-81WWWB  
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, BLACK BAFFLE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 5000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5395.2 lumens  
Efficiency: N/A  
Efficacy: 96.3 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

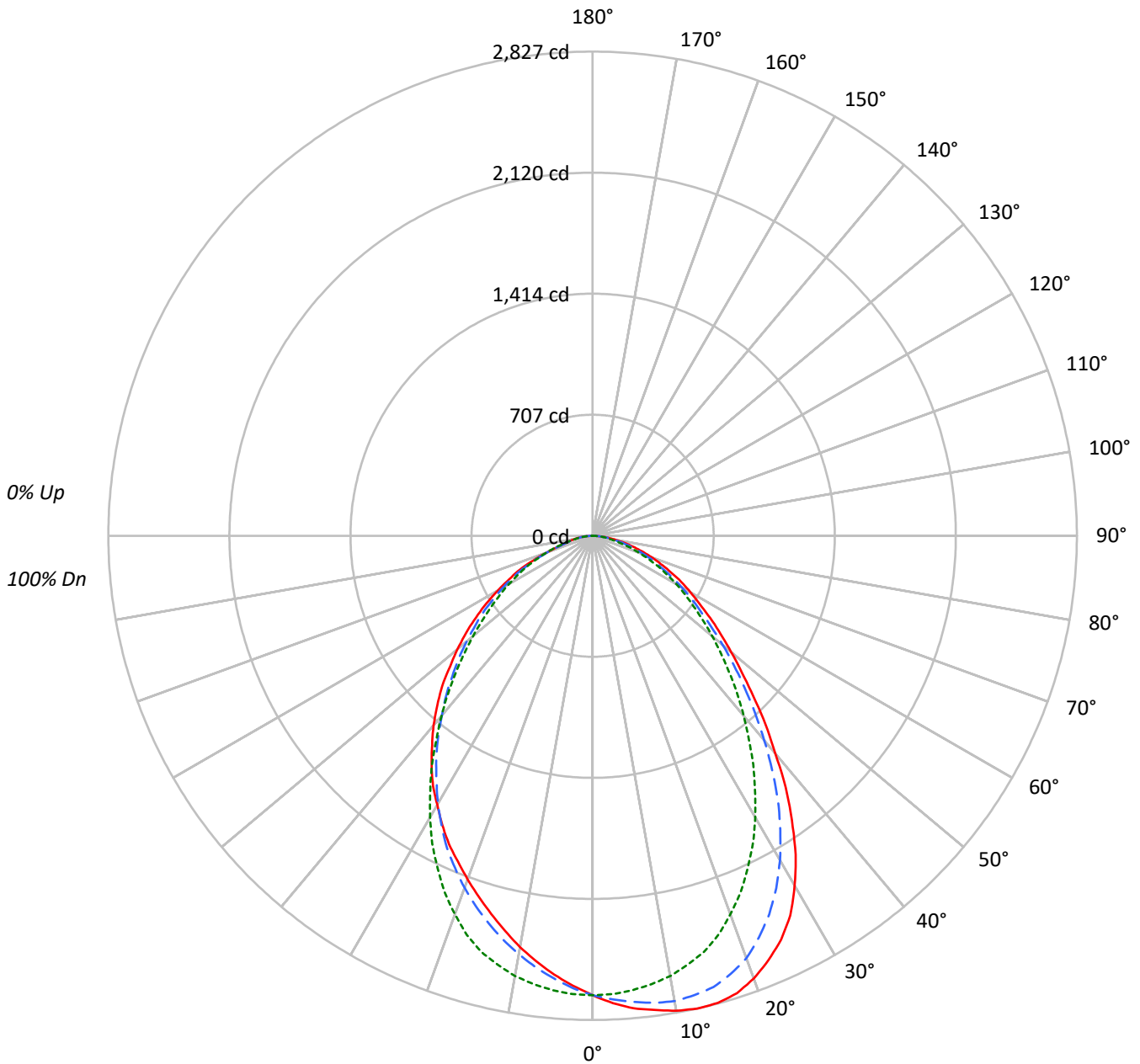
Input Watts (W): 56  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	82721	82721	82721
5°	85746	82443	79617
10°	88172	81727	76357
15°	90138	80286	72988
20°	90278	77149	70021
25°	88548	72859	67545
30°	83982	67567	64580
35°	76309	61537	61680
40°	66725	55216	58135
45°	57830	49187	54171
50°	50635	43689	49354
55°	45068	38719	44660
60°	40655	34777	39242
65°	36701	30580	34191
70°	32971	25768	25425
75°	29047	20433	19075
80°	24346	16923	18273
85°	18893	14825	16169



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	253.1	4.7
10°-20°	712.8	13.2
20°-30°	1018.7	18.9
30°-40°	1082.4	20.1
40°-50°	931.9	17.3
50°-60°	696.7	12.9
60°-70°	444.4	8.2
70°-80°	202.2	3.7
80°-90°	53.1	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°	1984.5	36.8
0°-40°	3066.9	56.8
0°-60°	4695.5	87.0
0°-90°	5395.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5395.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2683	2683	2683	2683	2683	
5°	2770	2732	2663	2595	2572	265
15°	2824	2728	2515	2343	2286	795
25°	2602	2439	2141	2012	1985	1191
35°	2027	1886	1635	1593	1638	1262
45°	1326	1254	1128	1158	1242	1031
55°	838	770	720	781	831	754
65°	503	446	419	438	469	502
75°	244	210	172	156	160	259
85°	53	46	42	46	46	64
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°	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6
2.5°	2732.1	2724.4	2728.3	2724.4	2728.3	2728.3	2720.6	2720.6	2720.6	2720.6	2709.2
5°	2770.1	2766.3	2766.3	2762.5	2758.7	2762.5	2758.7	2754.9	2747.3	2743.5	2732.1
7.5°	2793.1	2793.1	2793.1	2793.1	2789.3	2785.5	2781.7	2773.9	2766.3	2758.7	2751.1
10°	2815.9	2819.7	2815.9	2812.1	2808.3	2800.7	2796.9	2789.3	2777.7	2766.3	2758.7
12.5°	2827.3	2827.3	2823.5	2823.5	2815.9	2812.1	2800.7	2789.3	2777.7	2766.3	2747.3
15°	2823.5	2823.5	2819.7	2815.9	2804.5	2800.7	2793.1	2781.7	2762.5	2747.3	2728.3
17.5°	2800.7	2796.9	2789.3	2789.3	2773.9	2770.1	2762.5	2747.3	2728.3	2705.4	2682.6
20°	2751.1	2751.1	2747.3	2743.5	2728.3	2716.8	2709.2	2690.2	2675.0	2648.2	2625.4
22.5°	2682.6	2690.2	2682.6	2675.0	2655.8	2652.0	2640.6	2617.8	2594.9	2564.4	2537.7
25°	2602.5	2598.7	2594.9	2587.3	2572.1	2564.4	2549.1	2526.3	2503.5	2469.2	2438.6
27.5°	2499.6	2484.4	2484.4	2469.2	2457.7	2446.2	2438.6	2415.8	2385.3	2358.6	2320.5
30°	2358.6	2362.5	2343.4	2339.6	2320.5	2312.9	2297.7	2274.9	2248.1	2217.6	2187.2
32.5°	2206.2	2194.8	2194.8	2179.6	2164.4	2152.9	2149.0	2122.4	2099.5	2069.1	2038.5
35°	2027.1	2027.1	2015.7	2011.9	1996.7	1989.0	1977.6	1962.4	1935.6	1909.0	1886.2
37.5°	1851.9	1844.3	1840.5	1832.8	1821.3	1809.9	1809.9	1783.3	1779.5	1749.0	1718.5
40°	1657.6	1665.2	1657.6	1646.1	1642.3	1634.7	1630.9	1615.6	1604.1	1577.5	1558.5
42.5°	1493.7	1486.0	1486.0	1482.2	1467.0	1467.0	1459.4	1451.8	1432.8	1425.1	1402.2
45°	1326.1	1333.7	1322.3	1326.1	1310.7	1310.7	1310.7	1295.5	1280.3	1268.9	1253.6
47.5°	1181.2	1185.0	1185.0	1173.6	1169.8	1169.8	1162.2	1154.6	1143.1	1127.9	1116.5
50°	1055.5	1059.3	1051.7	1047.9	1040.3	1036.4	1036.4	1021.2	1013.6	998.4	990.7
52.5°	941.2	941.2	937.4	937.4	925.9	925.9	918.3	906.9	899.3	891.7	872.5
55°	838.3	838.3	834.5	830.7	830.7	819.3	815.5	804.0	796.4	781.1	769.7
57.5°	739.2	743.0	739.2	735.4	731.6	727.8	720.2	708.8	701.2	689.7	682.1
60°	659.2	659.2	655.4	651.6	643.9	640.1	636.3	628.7	617.3	609.7	598.3
62.5°	583.0	579.2	575.3	571.5	563.9	563.9	556.3	548.7	537.3	529.6	522.0
65°	503.0	503.0	499.2	499.2	495.4	487.8	484.0	480.2	464.8	461.0	445.8
67.5°	430.6	434.4	426.8	426.8	419.1	419.1	415.3	403.9	400.1	392.5	384.9
70°	365.7	365.7	365.7	361.9	354.3	350.5	346.7	339.1	335.3	327.7	320.1
72.5°	301.0	301.0	297.2	297.2	293.4	289.6	285.8	278.2	278.2	270.6	263.0
75°	243.8	243.8	240.0	236.2	232.4	232.4	228.6	224.8	217.2	213.4	209.6
77.5°	186.7	186.7	186.7	182.9	179.1	179.1	179.1	171.5	163.9	163.9	160.1
80°	137.1	137.1	133.3	133.3	129.5	129.5	129.5	125.7	121.9	118.1	114.3
82.5°	91.5	91.5	91.5	91.5	87.7	87.7	87.7	83.9	80.0	80.0	80.0
85°	53.4	53.4	53.4	53.4	49.5	49.5	49.5	49.5	49.5	45.7	45.7
87.5°	22.8	19.0	22.8	19.0	22.8	19.0	22.8	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°	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6
2.5°	2713.0	2709.2	2705.4	2701.6	2701.6	2697.8	2690.2	2686.4	2682.6	2678.8	2678.8
5°	2728.3	2724.4	2716.8	2709.2	2705.4	2697.8	2690.2	2682.6	2675.0	2663.4	2659.6
7.5°	2739.7	2728.3	2720.6	2705.4	2701.6	2694.0	2682.6	2671.0	2655.8	2640.6	2629.2
10°	2739.7	2724.4	2713.0	2694.0	2686.4	2678.8	2663.4	2644.4	2625.4	2610.1	2591.1
12.5°	2732.1	2713.0	2694.0	2675.0	2663.4	2652.0	2629.2	2610.1	2587.3	2564.4	2549.1
15°	2705.4	2682.6	2659.6	2636.8	2625.4	2610.1	2587.3	2560.5	2537.7	2514.9	2488.2
17.5°	2655.8	2633.0	2606.3	2579.7	2564.4	2552.9	2518.7	2499.6	2465.4	2442.4	2419.6
20°	2591.1	2564.4	2530.1	2503.5	2484.4	2473.0	2446.2	2412.0	2385.3	2351.0	2328.1
22.5°	2507.3	2473.0	2438.6	2412.0	2393.0	2377.7	2343.4	2309.1	2286.3	2255.8	2229.1
25°	2408.2	2373.9	2339.6	2301.5	2282.5	2267.2	2236.7	2206.2	2175.8	2141.4	2118.6
27.5°	2290.1	2251.9	2221.4	2187.2	2168.2	2145.2	2111.0	2080.5	2050.1	2027.1	1996.7
30°	2160.5	2118.6	2088.1	2053.9	2034.7	2015.7	1981.4	1951.0	1924.2	1897.6	1882.3
32.5°	2004.3	1973.8	1943.4	1909.0	1893.8	1882.3	1848.1	1817.5	1787.1	1764.2	1752.8
35°	1855.7	1821.3	1794.7	1764.2	1745.2	1733.8	1703.2	1676.6	1661.4	1634.7	1619.4
37.5°	1699.4	1672.8	1642.3	1611.8	1600.3	1588.9	1566.1	1539.4	1516.5	1497.5	1489.8
40°	1535.6	1512.7	1486.0	1467.0	1455.6	1444.2	1425.1	1406.0	1390.8	1371.7	1364.1
42.5°	1379.4	1364.1	1341.3	1318.5	1306.9	1303.1	1280.3	1265.0	1257.4	1249.8	1242.2
45°	1238.4	1215.6	1200.2	1185.0	1173.6	1166.0	1154.6	1143.1	1135.5	1127.9	1120.3
47.5°	1101.2	1082.1	1066.9	1055.5	1044.1	1040.3	1032.6	1021.2	1013.6	1013.6	1013.6
50°	975.4	960.2	945.0	937.4	933.6	925.9	918.3	914.5	910.7	910.7	910.7
52.5°	864.9	849.7	838.3	830.7	830.7	823.1	815.5	811.6	811.6	811.6	811.6
55°	762.1	750.6	743.0	735.4	727.8	724.0	724.0	724.0	720.2	720.2	724.0
57.5°	670.6	663.0	651.6	643.9	640.1	640.1	636.3	632.5	636.3	640.1	643.9
60°	586.8	579.2	575.3	563.9	563.9	563.9	560.1	560.1	560.1	563.9	567.7
62.5°	510.6	506.8	499.2	495.4	491.6	491.6	487.8	487.8	487.8	487.8	491.6
65°	442.0	434.4	426.8	426.8	426.8	423.0	423.0	415.3	419.1	419.1	415.3
67.5°	377.3	369.7	365.7	361.9	358.1	358.1	354.3	350.5	346.7	346.7	346.7
70°	316.3	308.6	308.6	301.0	301.0	297.2	293.4	293.4	289.6	285.8	282.0
72.5°	255.2	251.4	247.6	243.8	243.8	243.8	240.0	236.2	232.4	228.6	221.0
75°	202.0	202.0	194.3	190.5	190.5	186.7	182.9	179.1	175.3	171.5	167.7
77.5°	156.2	152.4	144.8	140.9	140.9	140.9	137.1	133.3	129.5	125.7	121.9
80°	114.3	110.5	106.7	102.9	102.9	102.9	99.1	99.1	95.3	95.3	95.3
82.5°	76.2	76.2	72.4	72.4	72.4	72.4	68.6	68.6	68.6	68.6	68.6
85°	45.7	45.7	41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9
87.5°	19.0	19.0	19.0	19.0	19.0	19.0	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):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6
2.5°	2671.0	2671.0	2663.4	2659.6	2655.8	2659.6	2652.0	2648.2	2644.4	2644.4	2640.6
5°	2648.2	2644.4	2629.2	2625.4	2621.6	2617.8	2610.1	2602.5	2594.9	2591.1	2587.3
7.5°	2617.8	2606.3	2591.1	2587.3	2583.5	2572.1	2560.5	2552.9	2541.5	2537.7	2530.1
10°	2575.9	2560.5	2549.1	2537.7	2530.1	2518.7	2507.3	2495.8	2480.6	2476.8	2465.4
12.5°	2526.3	2507.3	2484.4	2480.6	2469.2	2453.9	2438.6	2427.2	2415.8	2408.2	2396.8
15°	2465.4	2446.2	2423.4	2412.0	2400.6	2389.2	2370.1	2354.8	2343.4	2331.9	2320.5
17.5°	2393.0	2370.1	2351.0	2339.6	2331.9	2312.9	2297.7	2278.7	2267.2	2255.8	2244.3
20°	2305.3	2286.3	2259.6	2248.1	2244.3	2229.1	2210.0	2202.4	2187.2	2175.8	2168.2
22.5°	2206.2	2187.2	2164.4	2156.7	2141.4	2133.8	2114.8	2107.1	2099.5	2088.1	2084.3
25°	2095.7	2076.7	2057.7	2053.9	2042.3	2034.7	2023.3	2011.9	2011.9	2000.5	2000.5
27.5°	1981.4	1962.4	1947.2	1939.4	1935.6	1928.0	1916.6	1912.8	1909.0	1905.2	1905.2
30°	1859.5	1836.7	1828.9	1825.1	1821.3	1813.7	1809.9	1802.3	1806.1	1809.9	1806.1
32.5°	1729.9	1722.3	1707.0	1699.4	1703.2	1699.4	1691.8	1699.4	1695.6	1703.2	1707.0
35°	1604.1	1596.5	1588.9	1588.9	1581.3	1581.3	1581.3	1585.1	1592.7	1596.5	1604.1
37.5°	1482.2	1470.8	1467.0	1463.2	1467.0	1467.0	1467.0	1474.6	1482.2	1489.8	1501.3
40°	1352.7	1345.1	1345.1	1345.1	1345.1	1356.5	1352.7	1360.3	1367.9	1379.4	1390.8
42.5°	1230.8	1230.8	1234.6	1234.6	1234.6	1234.6	1242.2	1253.6	1265.0	1276.5	1287.9
45°	1116.5	1116.5	1116.5	1124.1	1124.1	1127.9	1143.1	1150.7	1158.4	1169.8	1181.2
47.5°	1009.8	1009.8	1013.6	1017.4	1021.2	1028.8	1036.4	1047.9	1059.3	1066.9	1078.3
50°	910.7	914.5	922.1	929.8	929.8	933.6	945.0	952.6	960.2	971.6	975.4
52.5°	815.5	823.1	830.7	834.5	838.3	845.9	849.7	861.1	864.9	876.4	880.2
55°	727.8	731.6	743.0	746.8	746.8	754.4	762.1	769.7	781.1	781.1	788.8
57.5°	647.7	651.6	659.2	663.0	659.2	670.6	674.4	682.1	685.9	693.5	697.3
60°	567.7	575.3	579.2	579.2	583.0	586.8	594.5	594.5	602.1	609.7	609.7
62.5°	491.6	495.4	499.2	503.0	506.8	503.0	514.4	514.4	522.0	525.8	533.4
65°	419.1	423.0	423.0	426.8	426.8	430.6	430.6	434.4	438.2	445.8	449.6
67.5°	346.7	346.7	346.7	350.5	346.7	350.5	350.5	354.3	354.3	361.9	365.7
70°	282.0	278.2	274.4	274.4	274.4	274.4	270.6	274.4	274.4	278.2	278.2
72.5°	217.2	213.4	209.6	205.8	205.8	202.0	198.2	202.0	202.0	205.8	205.8
75°	163.9	156.2	156.2	156.2	152.4	152.4	152.4	156.2	156.2	156.2	160.1
77.5°	121.9	121.9	118.1	118.1	118.1	121.9	121.9	125.7	125.7	125.7	125.7
80°	91.5	95.3	95.3	95.3	95.3	99.1	99.1	99.1	99.1	102.9	102.9
82.5°	68.6	68.6	68.6	68.6	72.4	72.4	72.4	72.4	72.4	72.4	72.4
85°	41.9	45.7	45.7	41.9	45.7	45.7	45.7	45.7	45.7	45.7	45.7
87.5°	19.0	19.0	19.0	19.0	19.0	19.0	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





TEST NUMBER: P593889

CATALOG NUMBER: HC860D010-HM86080950-81WWWB

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6	2682.6
2.5°	2636.8	2636.8	2636.8	2636.8	2633.0	2633.0	2633.0	2629.2
5°	2579.7	2579.7	2579.7	2572.1	2575.9	2575.9	2568.2	2572.1
7.5°	2522.5	2518.7	2514.9	2514.9	2511.1	2507.3	2503.5	2507.3
10°	2457.7	2446.2	2446.2	2442.4	2442.4	2434.8	2434.8	2438.6
12.5°	2385.3	2377.7	2377.7	2373.9	2370.1	2366.3	2362.5	2362.5
15°	2312.9	2305.3	2301.5	2297.7	2293.9	2286.3	2290.1	2286.3
17.5°	2240.5	2229.1	2229.1	2225.3	2221.4	2213.8	2213.8	2210.0
20°	2156.7	2152.9	2145.2	2149.0	2145.2	2137.6	2133.8	2133.8
22.5°	2072.9	2072.9	2069.1	2069.1	2065.3	2061.5	2057.7	2057.7
25°	1992.8	1989.0	1992.8	1992.8	1981.4	1981.4	1981.4	1985.2
27.5°	1901.4	1905.2	1901.4	1901.4	1901.4	1901.4	1905.2	1901.4
30°	1809.9	1809.9	1809.9	1813.7	1821.3	1817.5	1817.5	1813.7
32.5°	1710.8	1714.6	1714.6	1718.5	1722.3	1729.9	1729.9	1733.8
35°	1611.8	1619.4	1623.2	1619.4	1630.9	1630.9	1638.5	1638.5
37.5°	1508.9	1512.7	1520.3	1524.2	1531.8	1535.6	1539.4	1539.4
40°	1398.4	1413.6	1417.5	1421.3	1432.8	1432.8	1436.6	1444.2
42.5°	1295.5	1310.7	1314.6	1318.5	1326.1	1337.5	1333.7	1341.3
45°	1196.4	1208.0	1211.8	1215.6	1227.0	1230.8	1230.8	1242.2
47.5°	1089.7	1097.3	1101.2	1108.9	1116.5	1124.1	1131.7	1127.9
50°	983.0	994.5	1002.2	1006.0	1017.4	1021.2	1025.0	1028.8
52.5°	887.8	895.5	899.3	903.1	914.5	918.3	922.1	929.8
55°	796.4	800.2	807.8	804.0	815.5	819.3	823.1	830.7
57.5°	705.0	708.8	712.6	712.6	720.2	727.8	731.6	735.4
60°	617.3	624.9	628.7	628.7	628.7	636.3	636.3	636.3
62.5°	537.3	537.3	541.1	541.1	548.7	548.7	548.7	548.7
65°	453.4	457.2	461.0	461.0	468.6	464.8	472.5	468.6
67.5°	365.7	365.7	373.5	373.5	369.7	373.5	373.5	373.5
70°	278.2	278.2	282.0	282.0	282.0	282.0	282.0	282.0
72.5°	205.8	205.8	205.8	209.6	205.8	205.8	209.6	205.8
75°	160.1	160.1	160.1	160.1	160.1	160.1	160.1	160.1
77.5°	125.7	125.7	129.5	129.5	129.5	129.5	129.5	129.5
80°	102.9	102.9	102.9	102.9	106.7	102.9	102.9	102.9
82.5°	76.2	72.4	76.2	72.4	76.2	76.2	76.2	76.2
85°	45.7	45.7	45.7	45.7	45.7	45.7	45.7	45.7
87.5°	19.0	19.0	19.0	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



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















(END OF REPORT)