

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: P593887

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

Issue Date: 10/21/2021

Test Information

Test Method: LM-41-14
Report Number: P593887
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2109-368-17)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 10/21/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: HC860D010-HM86080950-81WWBB
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, WHITE BAFFLE TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 5000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4747.5 lumens
Efficiency: N/A
Efficacy: 84.8 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.07 / 1.16
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

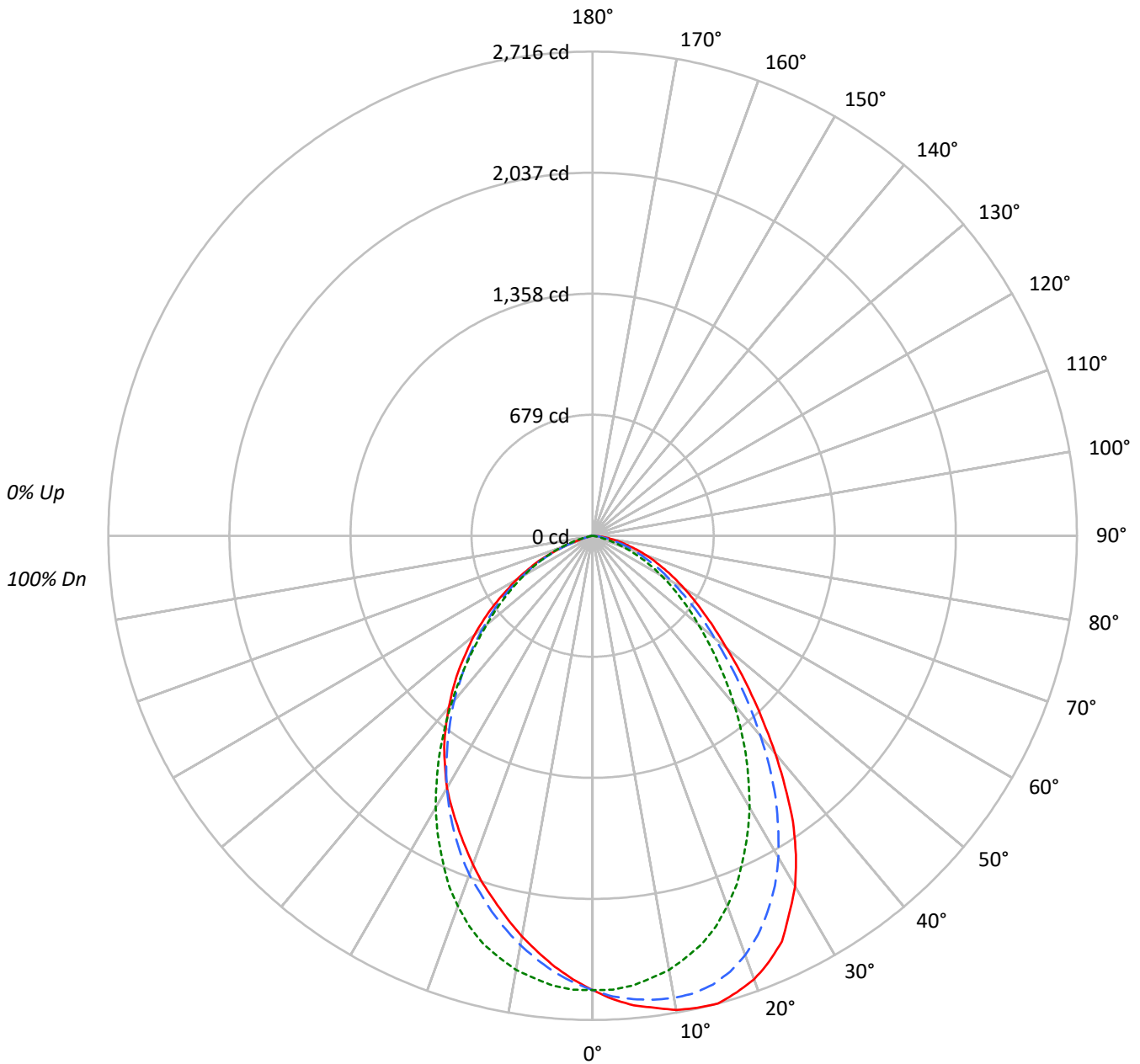
Input Watts (W): 56
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	111	107	104	101	108	105	102	99	101	98	96	97	95	93	93	92	90	88																			
2	103	96	90	86	100	94	89	85	91	86	83	88	84	81	85	82	79	77																			
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67																			
4	88	78	70	64	86	76	69	64	74	68	63	72	66	62	70	65	61	59																			
5	82	70	63	57	80	69	62	56	67	61	56	65	60	55	64	59	55	53																			
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	58	53	49	47																			
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	49	44	43																			
8	66	54	46	41	65	53	46	41	52	46	41	51	45	41	50	44	40	39																			
9	62	50	43	37	61	50	42	37	48	42	37	47	41	37	46	41	37	35																			
10	59	47	39	34	57	46	39	34	45	39	34	44	38	34	43	38	34	32																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	78596	78596	78596
5°	81840	78419	75123
10°	84577	77419	71454
15°	86719	75651	67743
20°	86885	72512	64384
25°	85421	67922	61049
30°	80849	62671	58196
35°	73715	56361	54644
40°	64104	49689	50454
45°	54991	43029	46191
50°	46970	37102	41487
55°	41165	31950	36047
60°	36652	27259	30312
65°	32528	22232	24188
70°	28860	16481	13740
75°	24067	8626	4087
80°	18948	2699	675
85°	13480	1344	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	240.2	5.1
10°-20°	673.1	14.2
20°-30°	952.7	20.1
30°-40°	996.8	21.0
40°-50°	831.4	17.5
50°-60°	589.5	12.4
60°-70°	339.6	7.2
70°-80°	109.3	2.3
80°-90°	15.0	0.3
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°	1866.0	39.3
0°-40°	2862.8	60.3
0°-60°	4283.7	90.2
0°-90°	4747.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4747.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2549	2549	2549	2549	2549	
5°	2644	2610	2533	2457	2427	254
15°	2716	2606	2370	2183	2122	764
25°	2511	2324	1996	1836	1794	1146
35°	1958	1787	1497	1417	1452	1214
45°	1261	1158	987	998	1059	977
55°	766	686	594	625	670	692
65°	446	373	305	305	332	445
75°	202	149	72	34	34	219
85°	38	19	4	0	0	48
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°	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8
2.5°	2602.1	2598.3	2594.5	2598.3	2594.5	2598.3	2594.5	2594.5	2590.7	2586.8	2586.8
5°	2643.9	2640.1	2640.1	2640.1	2636.3	2632.5	2632.5	2628.7	2621.1	2617.3	2609.7
7.5°	2670.7	2674.5	2674.5	2674.5	2666.8	2666.8	2659.2	2651.6	2643.9	2636.3	2624.9
10°	2701.1	2701.1	2697.3	2693.5	2685.9	2682.1	2678.3	2670.7	2659.2	2643.9	2632.5
12.5°	2712.6	2712.6	2708.8	2701.1	2697.3	2693.5	2689.7	2678.3	2663.0	2643.9	2628.7
15°	2716.4	2708.8	2705.0	2701.1	2693.5	2682.1	2682.1	2666.8	2647.7	2624.9	2605.9
17.5°	2685.9	2689.7	2682.1	2674.5	2663.0	2655.4	2643.9	2632.5	2609.7	2583.0	2564.0
20°	2647.7	2643.9	2640.1	2628.7	2613.5	2609.7	2598.3	2579.2	2560.2	2529.6	2503.0
22.5°	2586.8	2583.0	2575.4	2567.8	2552.6	2545.0	2533.4	2510.6	2484.0	2453.5	2423.1
25°	2510.6	2503.0	2491.6	2476.3	2464.9	2457.3	2442.1	2419.1	2388.7	2354.4	2324.0
27.5°	2388.7	2400.1	2392.5	2369.7	2358.2	2343.0	2339.2	2308.8	2282.0	2247.7	2213.5
30°	2270.6	2270.6	2259.2	2247.7	2228.7	2217.3	2202.1	2179.2	2152.5	2110.6	2084.0
32.5°	2122.0	2118.2	2103.0	2099.2	2084.0	2061.1	2057.3	2026.8	2000.1	1969.7	1935.4
35°	1958.2	1950.6	1935.4	1924.0	1916.3	1904.8	1893.4	1866.8	1840.1	1809.7	1786.7
37.5°	1771.5	1771.5	1767.7	1748.7	1741.1	1733.4	1722.0	1695.4	1680.2	1649.6	1626.8
40°	1592.5	1588.7	1577.3	1573.5	1565.9	1554.4	1546.7	1531.5	1508.6	1485.8	1463.0
42.5°	1417.2	1421.0	1405.8	1409.6	1394.3	1386.7	1382.9	1360.1	1348.7	1325.8	1306.8
45°	1261.0	1257.2	1249.6	1245.8	1238.2	1230.6	1223.0	1211.5	1192.5	1169.5	1158.1
47.5°	1116.3	1104.8	1104.8	1101.0	1097.2	1082.0	1078.2	1066.8	1055.4	1032.4	1017.2
50°	979.1	979.1	979.1	975.3	963.9	960.1	952.5	941.1	929.5	914.3	891.5
52.5°	868.6	868.6	868.6	864.8	849.6	845.8	842.0	826.8	811.5	800.0	784.8
55°	765.7	769.5	765.7	758.1	746.7	746.7	735.3	727.7	712.5	701.0	685.8
57.5°	678.1	678.1	670.5	666.7	659.1	655.2	647.6	640.0	621.0	609.6	590.5
60°	594.3	590.5	590.5	582.9	575.3	567.7	563.9	552.4	544.8	525.7	510.5
62.5°	518.1	518.1	510.5	510.5	495.3	495.3	491.5	480.0	468.6	449.6	442.0
65°	445.8	445.8	442.0	438.2	426.6	422.8	419.0	407.6	396.2	384.8	373.4
67.5°	381.0	381.0	373.4	369.5	361.9	358.1	350.5	342.9	331.5	320.1	308.5
70°	320.1	316.3	312.5	308.5	300.9	297.1	289.5	281.9	270.5	262.9	251.4
72.5°	259.1	259.1	255.2	247.6	243.8	240.0	236.2	228.6	217.2	205.8	198.2
75°	202.0	202.0	202.0	194.3	186.7	182.8	182.8	175.2	167.6	156.2	148.6
77.5°	156.2	152.4	148.6	148.6	140.9	137.1	133.3	129.5	118.1	114.3	106.7
80°	106.7	110.5	106.7	102.9	99.1	95.3	95.3	87.7	83.9	76.2	68.6
82.5°	72.4	68.6	68.6	64.8	64.8	60.9	60.9	53.3	49.5	45.7	41.9
85°	38.1	38.1	34.3	34.3	34.3	30.4	30.4	26.6	26.6	22.8	19.0
87.5°	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	7.6	7.6	7.6
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°	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8
2.5°	2583.0	2575.4	2571.6	2571.6	2567.8	2564.0	2560.2	2556.4	2548.8	2548.8	2541.1
5°	2602.1	2594.5	2590.7	2579.2	2571.6	2571.6	2556.4	2552.6	2541.1	2533.4	2525.8
7.5°	2617.3	2602.1	2590.7	2579.2	2571.6	2564.0	2548.8	2533.4	2518.2	2503.0	2495.4
10°	2617.3	2602.1	2583.0	2564.0	2556.4	2548.8	2529.6	2506.8	2487.8	2472.5	2453.5
12.5°	2609.7	2586.8	2564.0	2548.8	2533.4	2522.0	2499.2	2476.3	2453.5	2423.1	2407.7
15°	2586.8	2556.4	2533.4	2506.8	2495.4	2476.3	2457.3	2423.1	2396.3	2369.7	2350.6
17.5°	2541.1	2503.0	2476.3	2449.7	2430.7	2419.1	2388.7	2358.2	2327.8	2297.3	2274.4
20°	2472.5	2438.3	2407.7	2373.5	2358.2	2343.0	2305.0	2274.4	2243.9	2209.7	2186.8
22.5°	2388.7	2354.4	2312.6	2285.8	2263.0	2243.9	2209.7	2175.4	2144.9	2114.4	2084.0
25°	2285.8	2251.6	2213.5	2171.6	2156.3	2137.3	2099.2	2064.9	2030.6	1996.3	1969.7
27.5°	2175.4	2129.6	2099.2	2053.5	2038.2	2019.1	1977.3	1939.2	1908.6	1882.0	1851.6
30°	2042.0	2007.7	1965.9	1924.0	1908.6	1889.6	1855.4	1821.1	1790.5	1760.1	1729.6
32.5°	1897.2	1863.0	1821.1	1790.5	1767.7	1752.5	1718.2	1687.8	1657.2	1626.8	1600.1
35°	1744.9	1706.8	1676.4	1645.8	1626.8	1607.7	1573.5	1546.7	1523.9	1497.2	1470.6
37.5°	1588.7	1562.0	1531.5	1497.2	1478.2	1463.0	1436.3	1405.8	1386.7	1363.9	1344.9
40°	1436.3	1405.8	1379.1	1348.7	1333.4	1322.0	1295.3	1272.4	1253.4	1234.4	1223.0
42.5°	1280.0	1253.4	1226.8	1207.7	1196.3	1184.9	1165.7	1139.1	1127.7	1108.6	1097.2
45°	1135.3	1112.5	1093.4	1066.8	1059.2	1051.4	1028.6	1009.6	998.2	986.7	979.1
47.5°	998.2	982.9	960.1	944.9	933.4	925.7	910.5	895.3	883.9	876.2	868.6
50°	880.0	861.0	845.8	830.6	823.0	811.5	796.2	788.6	781.0	773.4	773.4
52.5°	769.5	750.5	735.3	723.9	716.3	708.6	697.2	693.4	685.8	685.8	681.9
55°	666.7	655.2	640.0	624.8	621.0	617.2	609.6	602.0	598.2	594.3	598.2
57.5°	579.1	567.7	552.4	540.9	537.1	533.3	529.5	521.9	518.1	518.1	518.1
60°	499.1	487.7	476.2	464.8	464.8	457.2	453.4	449.6	445.8	442.0	442.0
62.5°	426.6	415.2	403.8	396.2	392.4	388.6	381.0	377.2	373.4	373.4	369.5
65°	361.9	346.7	342.9	331.5	327.7	323.9	320.1	312.5	308.5	304.7	300.9
67.5°	297.1	289.5	278.1	270.5	266.7	262.9	259.1	251.4	247.6	243.8	236.2
70°	240.0	232.4	224.8	217.2	213.4	209.6	202.0	194.3	190.5	182.8	171.4
72.5°	186.7	179.0	171.4	163.8	160.0	156.2	148.6	140.9	133.3	125.7	118.1
75°	140.9	133.3	121.9	114.3	110.5	110.5	99.1	91.5	83.9	72.4	64.8
77.5°	99.1	87.7	83.9	76.2	72.4	64.8	57.1	49.5	41.9	38.1	30.4
80°	64.8	57.1	49.5	45.7	41.9	38.1	34.3	26.6	19.0	15.2	11.4
82.5°	38.1	34.3	30.4	26.6	22.8	19.0	15.2	15.2	11.4	7.6	3.8
85°	19.0	15.2	11.4	11.4	7.6	7.6	7.6	3.8	3.8	3.8	3.8
87.5°	7.6	3.8	3.8	3.8	3.8	3.8	3.8	0.0	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



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8
2.5°	2537.2	2533.4	2529.6	2525.8	2525.8	2518.2	2518.2	2514.4	2506.8	2503.0	2503.0
5°	2514.4	2503.0	2495.4	2491.6	2487.8	2476.3	2472.5	2464.9	2457.3	2449.7	2445.9
7.5°	2480.2	2461.1	2453.5	2449.7	2438.3	2426.9	2419.1	2407.7	2396.3	2384.9	2381.1
10°	2438.3	2419.1	2400.1	2392.5	2381.1	2373.5	2358.2	2343.0	2331.6	2320.2	2308.8
12.5°	2384.9	2362.0	2343.0	2335.4	2324.0	2308.8	2285.8	2278.2	2259.2	2251.6	2236.3
15°	2324.0	2297.3	2278.2	2266.8	2255.4	2232.5	2217.3	2202.1	2183.0	2175.4	2160.1
17.5°	2247.7	2217.3	2198.3	2186.8	2179.2	2160.1	2137.3	2118.2	2099.2	2091.6	2080.2
20°	2156.3	2137.3	2110.6	2099.2	2091.6	2068.7	2045.8	2038.2	2022.9	2007.7	1996.3
22.5°	2053.5	2034.4	2007.7	1996.3	1992.5	1973.5	1954.4	1943.0	1931.6	1920.1	1908.6
25°	1946.8	1924.0	1901.0	1893.4	1885.8	1870.6	1855.4	1847.7	1836.3	1828.7	1821.1
27.5°	1832.5	1809.7	1790.5	1779.1	1771.5	1760.1	1752.5	1744.9	1737.3	1729.6	1725.8
30°	1710.6	1687.8	1672.4	1664.8	1657.2	1653.4	1642.0	1638.2	1634.4	1626.8	1630.6
32.5°	1588.7	1569.7	1554.4	1542.9	1542.9	1535.3	1531.5	1531.5	1527.7	1527.7	1527.7
35°	1455.4	1443.9	1432.5	1428.7	1424.8	1421.0	1417.2	1421.0	1417.2	1421.0	1424.8
37.5°	1333.4	1322.0	1314.4	1310.6	1306.8	1310.6	1306.8	1306.8	1310.6	1318.2	1322.0
40°	1207.7	1200.1	1192.5	1196.3	1192.5	1192.5	1192.5	1203.9	1207.7	1211.5	1215.3
42.5°	1089.6	1082.0	1078.2	1078.2	1082.0	1078.2	1085.8	1089.6	1097.2	1108.6	1116.3
45°	975.3	971.5	971.5	975.3	971.5	979.1	979.1	986.7	998.2	1005.8	1013.4
47.5°	868.6	868.6	868.6	872.4	872.4	876.2	883.9	887.7	895.3	902.9	910.5
50°	769.5	773.4	777.2	777.2	777.2	784.8	792.4	796.2	800.0	803.8	815.3
52.5°	681.9	685.8	685.8	689.6	693.4	697.2	701.0	708.6	712.5	720.1	723.9
55°	598.2	598.2	605.8	609.6	609.6	609.6	617.2	617.2	624.8	628.6	636.2
57.5°	518.1	521.9	521.9	525.7	525.7	529.5	533.3	537.1	540.9	544.8	548.6
60°	442.0	442.0	442.0	445.8	449.6	453.4	449.6	457.2	457.2	464.8	468.6
62.5°	369.5	373.4	373.4	373.4	373.4	373.4	373.4	377.2	381.0	384.8	388.6
65°	300.9	300.9	300.9	297.1	300.9	297.1	300.9	304.7	304.7	308.5	312.5
67.5°	232.4	232.4	224.8	224.8	228.6	228.6	228.6	228.6	224.8	232.4	232.4
70°	167.6	163.8	160.0	156.2	156.2	152.4	152.4	148.6	148.6	148.6	148.6
72.5°	110.5	102.9	95.3	91.5	87.7	87.7	80.0	76.2	80.0	80.0	80.0
75°	57.1	49.5	45.7	41.9	38.1	38.1	34.3	34.3	34.3	34.3	34.3
77.5°	22.8	19.0	15.2	15.2	11.4	11.4	11.4	11.4	11.4	11.4	11.4
80°	7.6	7.6	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
82.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
85°	3.8	0.0	0.0	3.8	0.0	3.8	3.8	3.8	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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: P593887

CATALOG NUMBER: HC860D010-HM86080950-81WWBB

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8	2548.8
2.5°	2499.2	2499.2	2495.4	2499.2	2491.6	2495.4	2491.6	2491.6
5°	2442.1	2434.5	2434.5	2434.5	2430.7	2430.7	2426.9	2426.9
7.5°	2373.5	2369.7	2365.9	2362.0	2358.2	2354.4	2354.4	2354.4
10°	2305.0	2297.3	2297.3	2293.4	2285.8	2282.0	2282.0	2282.0
12.5°	2224.9	2221.1	2217.3	2217.3	2202.1	2205.9	2202.1	2202.1
15°	2148.7	2144.9	2144.9	2133.4	2125.8	2125.8	2125.8	2122.0
17.5°	2068.7	2064.9	2061.1	2053.5	2045.8	2045.8	2042.0	2045.8
20°	1984.9	1981.1	1973.5	1973.5	1969.7	1965.9	1958.2	1962.0
22.5°	1901.0	1893.4	1889.6	1889.6	1885.8	1885.8	1878.2	1878.2
25°	1813.5	1809.7	1805.9	1809.7	1802.1	1802.1	1794.3	1794.3
27.5°	1722.0	1718.2	1718.2	1718.2	1714.4	1718.2	1714.4	1714.4
30°	1630.6	1630.6	1626.8	1626.8	1630.6	1626.8	1630.6	1634.4
32.5°	1531.5	1531.5	1535.3	1535.3	1539.1	1539.1	1539.1	1539.1
35°	1428.7	1436.3	1436.3	1440.1	1443.9	1447.7	1447.7	1451.6
37.5°	1333.4	1337.3	1341.1	1344.9	1352.5	1352.5	1352.5	1352.5
40°	1230.6	1234.4	1242.0	1238.2	1253.4	1257.2	1253.4	1253.4
42.5°	1123.9	1131.5	1135.3	1142.9	1146.7	1154.3	1158.1	1158.1
45°	1024.8	1028.6	1036.2	1043.8	1047.6	1059.2	1059.2	1059.2
47.5°	921.9	929.5	933.4	941.1	944.9	956.3	960.1	956.3
50°	823.0	830.6	838.2	838.2	849.6	853.4	861.0	864.8
52.5°	727.7	731.5	739.1	742.9	750.5	758.1	761.9	765.7
55°	636.2	640.0	647.6	647.6	659.1	662.9	670.5	670.5
57.5°	552.4	556.2	563.9	560.1	567.7	575.3	575.3	571.5
60°	472.4	472.4	472.4	480.0	483.9	487.7	491.5	491.5
62.5°	388.6	396.2	400.0	400.0	403.8	407.6	407.6	403.8
65°	312.5	320.1	323.9	323.9	327.7	327.7	327.7	331.5
67.5°	236.2	236.2	236.2	240.0	236.2	236.2	236.2	236.2
70°	148.6	148.6	148.6	148.6	144.8	148.6	148.6	152.4
72.5°	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
75°	34.3	34.3	34.3	38.1	34.3	34.3	34.3	34.3
77.5°	15.2	11.4	15.2	15.2	11.4	11.4	11.4	11.4
80°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
82.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
85°	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Report Generated By 670245859 / DESKTOP-HRDQ47P





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













(END OF REPORT)