

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: P585151

Luminaire Tested: **HC860D010-HM86080930-81WWW**

Issue Date: 10/21/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P585151  
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-HM86080930-81WWW  
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, WHITE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4418.2 lumens  
Efficiency: N/A  
Efficacy: 78.9 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

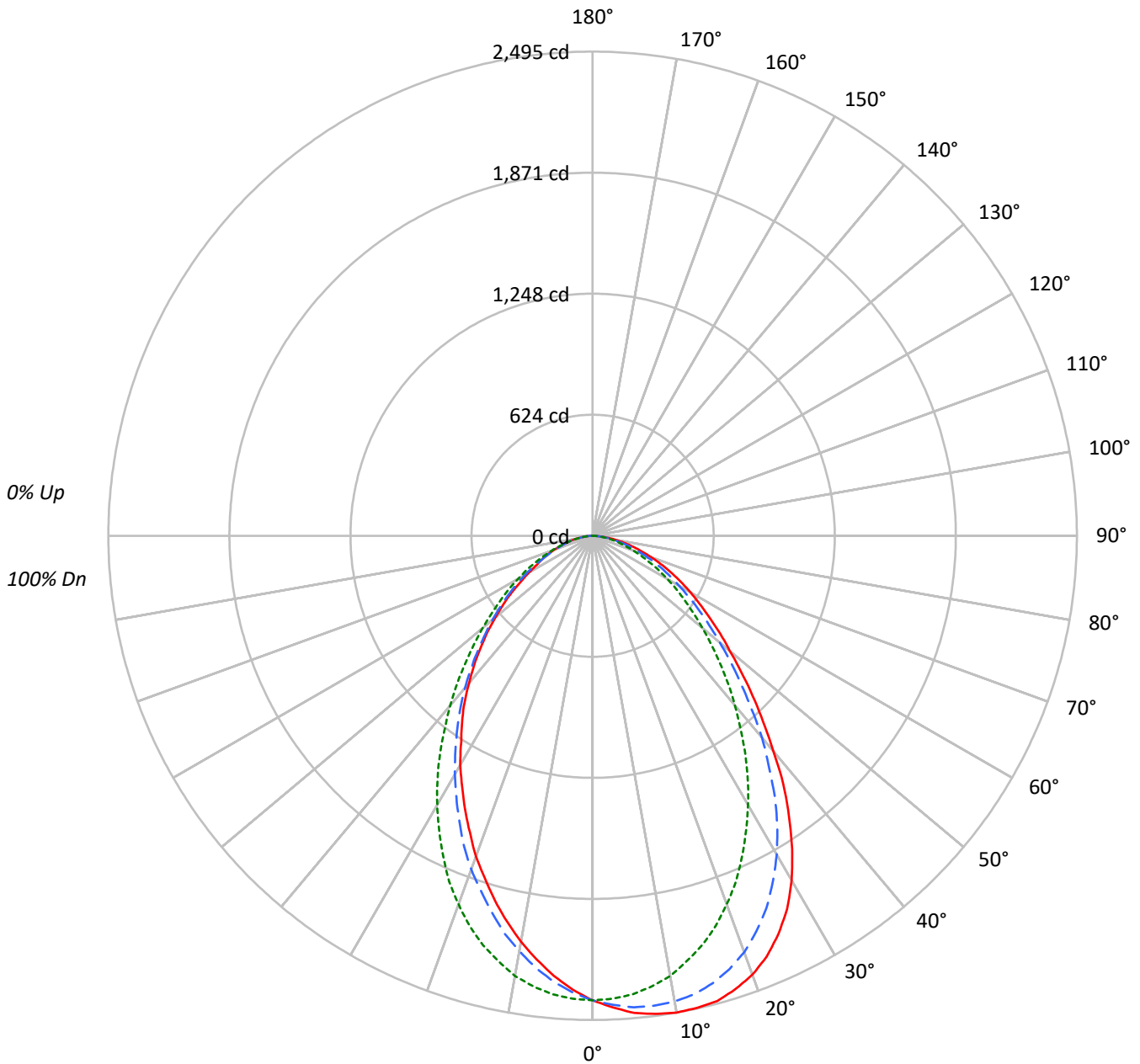
Input Watts (W): 56  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20									
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°	73822	73822	73822
5°	76416	73401	70482
10°	78114	72112	66519
15°	79226	69684	62118
20°	78986	66300	57666
25°	77034	62002	52938
30°	72983	57021	48575
35°	66397	51603	44145
40°	58320	45894	39884
45°	50853	40369	35555
50°	44255	35375	31321
55°	39466	31085	27241
60°	35856	27247	23238
65°	32236	23699	21087
70°	28698	20205	19042
75°	25163	17025	16251
80°	21345	13851	14419
85°	16063	10331	11499



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	224.2	5.1
10°-20°	617.8	14.0
20°-30°	857.6	19.4
30°-40°	886.7	20.1
40°-50°	742.4	16.8
50°-60°	539.0	12.2
60°-70°	340.1	7.7
70°-80°	168.5	3.8
80°-90°	41.9	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°	1699.7	38.5
0°-40°	2586.4	58.5
0°-60°	3867.7	87.5
0°-90°	4418.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4418.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2394	2394	2394	2394	2394	
5°	2469	2439	2371	2306	2277	236
15°	2482	2388	2183	2008	1946	698
25°	2264	2118	1822	1624	1556	1038
35°	1764	1634	1371	1215	1173	1098
45°	1166	1082	926	835	815	902
55°	734	669	578	530	507	663
65°	442	386	325	286	289	440
75°	211	175	143	136	136	226
85°	45	36	29	32	32	55
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°	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0
2.5°	2433.0	2433.0	2436.2	2433.0	2433.0	2433.0	2429.8	2429.8	2426.5	2426.5	2419.9
5°	2468.7	2462.2	2468.7	2462.2	2462.2	2462.2	2458.9	2452.5	2449.2	2442.7	2439.4
7.5°	2485.0	2481.7	2481.7	2478.4	2478.4	2475.2	2472.0	2468.7	2455.7	2452.5	2442.7
10°	2494.7	2491.5	2491.5	2488.2	2481.7	2481.7	2475.2	2472.0	2455.7	2449.2	2436.2
12.5°	2491.5	2491.5	2491.5	2488.2	2478.4	2475.2	2468.7	2458.9	2446.0	2433.0	2419.9
15°	2481.7	2481.7	2475.2	2472.0	2462.2	2455.7	2452.5	2436.2	2423.2	2407.0	2387.5
17.5°	2449.2	2449.2	2446.0	2439.4	2429.8	2423.2	2416.7	2400.5	2387.5	2361.5	2342.0
20°	2407.0	2403.8	2400.5	2390.8	2381.0	2377.7	2368.0	2345.3	2329.1	2309.6	2283.5
22.5°	2345.3	2342.0	2338.7	2332.3	2316.0	2309.6	2303.0	2286.8	2257.5	2238.1	2205.6
25°	2264.1	2264.1	2257.5	2247.9	2231.6	2225.1	2215.3	2199.1	2173.1	2143.8	2117.9
27.5°	2169.9	2166.7	2156.9	2150.4	2137.4	2127.7	2111.4	2091.9	2066.0	2043.1	2010.7
30°	2049.7	2049.7	2043.1	2033.4	2017.2	2010.7	1997.7	1975.0	1949.0	1919.7	1897.0
32.5°	1913.3	1913.3	1903.5	1897.0	1887.3	1871.0	1867.8	1841.7	1819.0	1796.3	1770.4
35°	1763.8	1767.1	1760.5	1747.6	1731.4	1731.4	1724.8	1702.1	1676.1	1653.4	1633.9
37.5°	1614.4	1604.6	1601.4	1594.9	1585.1	1572.2	1565.7	1555.9	1533.2	1517.0	1487.8
40°	1448.8	1452.0	1445.4	1439.0	1435.8	1425.9	1422.7	1406.6	1390.3	1370.8	1357.8
42.5°	1299.3	1299.3	1299.3	1292.8	1286.3	1276.6	1273.4	1263.5	1244.1	1231.1	1211.6
45°	1166.1	1156.4	1156.4	1153.2	1149.9	1143.4	1133.7	1127.2	1114.2	1104.4	1081.7
47.5°	1036.2	1039.4	1036.2	1033.0	1023.2	1020.0	1016.7	1003.7	990.8	981.0	964.7
50°	922.5	929.1	922.5	922.5	916.0	912.8	906.2	896.5	886.7	870.6	854.3
52.5°	828.4	828.4	825.0	821.8	812.1	805.5	802.3	799.1	782.8	769.9	756.9
55°	734.1	737.4	737.4	727.6	724.3	717.9	714.6	704.8	698.4	678.9	669.2
57.5°	652.9	649.7	652.9	646.4	639.9	633.4	630.2	623.6	614.0	600.9	587.9
60°	581.4	575.0	575.0	571.7	565.2	561.9	555.5	545.7	536.0	523.0	513.3
62.5°	510.0	506.7	503.5	500.2	493.8	490.5	487.2	477.5	467.7	458.0	448.2
65°	441.8	441.8	438.5	432.1	428.7	425.5	422.3	415.8	402.8	396.3	386.5
67.5°	380.0	376.8	376.8	370.4	363.8	360.6	360.6	354.1	344.3	334.6	328.0
70°	318.3	321.6	318.3	315.1	308.5	308.5	302.1	298.8	285.8	282.6	272.9
72.5°	263.1	263.1	259.9	259.9	253.4	250.2	250.2	243.6	237.1	230.7	224.1
75°	211.2	211.2	211.2	207.8	204.6	198.2	198.2	194.9	188.4	181.9	175.4
77.5°	165.6	162.4	162.4	159.2	155.9	152.7	152.7	149.4	142.9	139.7	133.2
80°	120.2	117.0	117.0	117.0	110.5	113.7	110.5	107.2	103.9	100.7	97.5
82.5°	78.0	81.2	81.2	78.0	74.7	74.7	74.7	71.5	71.5	68.2	64.9
85°	45.4	45.4	45.4	45.4	42.2	42.2	42.2	39.0	39.0	39.0	35.8
87.5°	19.5	19.5	19.5	19.5	19.5	19.5	16.3	16.3	16.3	16.3	16.3
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°	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0
2.5°	2419.9	2413.5	2410.3	2407.0	2407.0	2403.8	2400.5	2394.0	2394.0	2387.5	2384.3
5°	2433.0	2423.2	2416.7	2410.3	2407.0	2400.5	2394.0	2384.3	2381.0	2371.3	2361.5
7.5°	2436.2	2419.9	2413.5	2400.5	2394.0	2387.5	2374.5	2364.8	2351.8	2342.0	2329.1
10°	2423.2	2410.3	2394.0	2377.7	2374.5	2364.8	2345.3	2332.3	2316.0	2303.0	2283.5
12.5°	2403.8	2384.3	2368.0	2348.6	2338.7	2329.1	2309.6	2290.1	2267.4	2244.6	2225.1
15°	2371.3	2348.6	2325.8	2303.0	2290.1	2280.3	2257.5	2234.8	2212.1	2182.8	2163.3
17.5°	2322.5	2296.5	2273.8	2244.6	2231.6	2221.8	2192.6	2166.7	2137.4	2108.2	2088.7
20°	2260.8	2228.4	2202.3	2169.9	2160.1	2143.8	2114.6	2085.5	2052.9	2020.4	1997.7
22.5°	2179.6	2147.2	2117.9	2085.5	2069.2	2052.9	2023.6	1988.0	1955.5	1929.5	1906.8
25°	2085.5	2056.2	2020.4	1991.2	1971.7	1952.2	1919.7	1890.5	1861.2	1822.3	1799.5
27.5°	1981.4	1945.8	1919.7	1880.7	1861.2	1848.3	1812.6	1773.6	1747.6	1711.9	1685.9
30°	1864.5	1832.1	1802.8	1763.8	1744.3	1731.4	1698.8	1663.1	1637.1	1601.4	1575.4
32.5°	1741.1	1705.4	1669.7	1643.6	1620.9	1608.0	1572.2	1549.5	1517.0	1487.8	1458.5
35°	1608.0	1572.2	1546.2	1510.5	1497.5	1484.4	1455.2	1425.9	1396.8	1370.8	1348.1
37.5°	1464.9	1439.0	1409.8	1383.7	1374.0	1361.0	1325.3	1299.3	1276.6	1250.6	1231.1
40°	1325.3	1302.5	1283.0	1257.1	1240.8	1231.1	1205.1	1182.4	1156.4	1140.1	1120.6
42.5°	1198.6	1172.7	1153.2	1133.7	1117.4	1107.7	1084.9	1068.7	1049.2	1033.0	1010.3
45°	1065.4	1052.5	1029.8	1013.5	1003.7	990.8	974.5	955.0	938.8	925.7	909.6
47.5°	948.6	935.5	919.3	899.8	893.3	883.5	867.2	854.3	841.3	828.4	812.1
50°	841.3	825.0	812.1	799.1	792.6	782.8	766.5	760.1	750.4	737.4	727.6
52.5°	743.8	730.9	717.9	701.6	698.4	691.9	682.1	669.2	659.4	652.9	646.4
55°	656.2	643.1	633.4	620.4	617.2	610.7	597.7	591.2	584.7	578.2	571.7
57.5°	578.2	565.2	552.2	545.7	539.2	532.8	529.5	519.7	513.3	510.0	503.5
60°	506.7	493.8	484.0	474.3	471.0	467.7	461.2	454.8	448.2	441.8	438.5
62.5°	438.5	425.5	419.0	412.6	406.0	406.0	399.5	393.1	386.5	383.3	376.8
65°	376.8	370.4	360.6	350.9	347.5	347.5	337.8	334.6	331.4	324.8	318.3
67.5°	318.3	311.9	302.1	298.8	295.6	292.4	289.0	282.6	276.1	272.9	266.3
70°	266.3	259.9	253.4	250.2	246.8	243.6	237.1	233.9	227.3	224.1	220.9
72.5°	214.4	211.2	204.6	201.4	198.2	194.9	191.7	188.4	181.9	178.7	175.4
75°	172.2	168.9	162.4	159.2	155.9	155.9	152.7	146.1	142.9	142.9	139.7
77.5°	130.0	126.6	123.4	120.2	117.0	117.0	113.7	110.5	107.2	107.2	103.9
80°	94.2	91.0	87.7	87.7	87.7	84.4	81.2	81.2	78.0	78.0	74.7
82.5°	61.7	61.7	58.5	58.5	58.5	55.2	55.2	52.0	52.0	52.0	52.0
85°	35.8	35.8	35.8	32.5	32.5	32.5	32.5	32.5	32.5	29.2	32.5
87.5°	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	13.0	13.0	13.0
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°	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0
2.5°	2381.0	2377.7	2371.3	2371.3	2364.8	2364.8	2361.5	2358.2	2355.0	2351.8	2348.6
5°	2358.2	2345.3	2338.7	2335.5	2329.1	2325.8	2316.0	2309.6	2306.3	2299.8	2293.3
7.5°	2316.0	2303.0	2290.1	2286.8	2283.5	2270.6	2260.8	2251.1	2244.6	2238.1	2231.6
10°	2267.4	2254.3	2238.1	2231.6	2225.1	2208.9	2195.8	2186.2	2173.1	2160.1	2156.9
12.5°	2208.9	2189.4	2169.9	2163.3	2153.6	2137.4	2124.4	2108.2	2098.4	2082.1	2078.9
15°	2140.6	2117.9	2101.6	2085.5	2078.9	2062.6	2039.9	2027.0	2007.5	2000.9	1984.8
17.5°	2059.4	2036.7	2014.0	2007.5	1997.7	1975.0	1952.2	1936.0	1916.5	1906.8	1897.0
20°	1975.0	1945.8	1922.9	1916.5	1903.5	1884.0	1861.2	1845.1	1828.8	1809.3	1799.5
22.5°	1877.5	1845.1	1825.6	1809.3	1806.1	1783.3	1757.3	1744.3	1731.4	1715.1	1702.1
25°	1770.4	1741.1	1718.3	1705.4	1698.8	1679.4	1659.9	1643.6	1624.1	1614.4	1598.2
27.5°	1659.9	1640.4	1611.2	1598.2	1588.5	1572.2	1549.5	1539.7	1520.2	1507.3	1497.5
30°	1552.7	1523.4	1507.3	1491.0	1481.2	1464.9	1445.4	1435.8	1419.5	1406.6	1396.8
32.5°	1435.8	1416.3	1393.5	1387.1	1374.0	1357.8	1344.7	1328.6	1315.6	1302.5	1299.3
35°	1328.6	1302.5	1279.8	1273.4	1263.5	1247.4	1240.8	1231.1	1214.9	1211.6	1198.6
37.5°	1211.6	1198.6	1172.7	1162.9	1159.6	1146.6	1133.7	1127.2	1117.4	1107.7	1104.4
40°	1101.2	1084.9	1072.0	1062.2	1055.7	1045.9	1033.0	1029.8	1023.2	1010.3	1006.9
42.5°	997.2	981.0	968.0	964.7	955.0	945.2	938.8	929.1	925.7	922.5	916.0
45°	896.5	886.7	873.8	870.6	867.2	854.3	847.9	841.3	834.8	831.6	825.0
47.5°	805.5	795.8	786.0	782.8	776.4	773.1	763.3	760.1	750.4	747.1	743.8
50°	717.9	711.4	704.8	701.6	695.2	691.9	685.4	678.9	672.4	669.2	665.9
52.5°	639.9	633.4	626.9	623.6	620.4	614.0	607.4	600.9	597.7	594.5	591.2
55°	565.2	558.7	555.5	552.2	549.0	545.7	536.0	532.8	529.5	526.2	519.7
57.5°	497.0	490.5	484.0	484.0	480.7	477.5	471.0	464.5	464.5	458.0	451.6
60°	435.3	428.7	422.3	419.0	415.8	409.3	406.0	402.8	399.5	396.3	389.8
62.5°	370.4	367.0	360.6	360.6	354.1	350.9	347.5	344.3	341.1	334.6	331.4
65°	315.1	311.9	305.3	302.1	302.1	298.8	292.4	289.0	285.8	285.8	282.6
67.5°	263.1	259.9	253.4	250.2	250.2	246.8	243.6	243.6	240.4	237.1	240.4
70°	217.6	211.2	211.2	207.8	207.8	204.6	201.4	201.4	201.4	204.6	204.6
72.5°	172.2	168.9	165.6	165.6	165.6	165.6	162.4	162.4	165.6	168.9	168.9
75°	136.4	133.2	133.2	133.2	130.0	130.0	133.2	133.2	136.4	136.4	136.4
77.5°	100.7	100.7	100.7	100.7	100.7	100.7	103.9	103.9	107.2	107.2	107.2
80°	74.7	74.7	74.7	74.7	74.7	78.0	78.0	78.0	78.0	78.0	81.2
82.5°	52.0	52.0	52.0	52.0	52.0	52.0	52.0	55.2	55.2	55.2	55.2
85°	29.2	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5
87.5°	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
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: P585151

CATALOG NUMBER: HC860D010-HM86080930-81WWW

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0	2394.0
2.5°	2345.3	2345.3	2345.3	2348.6	2342.0	2342.0	2342.0	2342.0
5°	2290.1	2286.8	2283.5	2286.8	2280.3	2280.3	2277.0	2277.0
7.5°	2221.8	2218.6	2215.3	2215.3	2208.9	2208.9	2205.6	2202.3
10°	2147.2	2140.6	2143.8	2137.4	2134.1	2130.9	2127.7	2124.4
12.5°	2066.0	2059.4	2056.2	2049.7	2043.1	2039.9	2043.1	2036.7
15°	1978.2	1968.5	1965.3	1958.7	1952.2	1949.0	1949.0	1945.8
17.5°	1880.7	1874.3	1871.0	1864.5	1861.2	1854.8	1851.6	1848.3
20°	1789.8	1773.6	1776.8	1770.4	1767.1	1754.1	1754.1	1757.3
22.5°	1689.2	1679.4	1672.9	1666.4	1663.1	1656.6	1656.6	1653.4
25°	1588.5	1578.7	1575.4	1569.0	1565.7	1559.2	1555.9	1555.9
27.5°	1491.0	1478.0	1478.0	1471.5	1464.9	1461.7	1458.5	1455.2
30°	1387.1	1377.3	1374.0	1374.0	1370.8	1370.8	1361.0	1364.2
32.5°	1289.6	1283.0	1279.8	1273.4	1273.4	1270.1	1270.1	1260.3
35°	1192.2	1182.4	1185.6	1179.1	1175.9	1172.7	1175.9	1172.7
37.5°	1097.9	1091.5	1091.5	1084.9	1084.9	1081.7	1078.4	1084.9
40°	1003.7	1000.5	997.2	994.0	997.2	994.0	987.5	990.8
42.5°	909.6	909.6	906.2	906.2	903.0	903.0	903.0	903.0
45°	825.0	821.8	821.8	818.6	818.6	818.6	818.6	815.3
47.5°	740.6	737.4	737.4	737.4	734.1	734.1	730.9	734.1
50°	659.4	659.4	656.2	656.2	659.4	656.2	652.9	652.9
52.5°	584.7	584.7	581.4	581.4	578.2	575.0	578.2	578.2
55°	516.5	513.3	510.0	510.0	506.7	503.5	503.5	506.7
57.5°	451.6	448.2	445.0	445.0	438.5	435.3	435.3	435.3
60°	389.8	383.3	383.3	380.0	380.0	376.8	376.8	376.8
62.5°	331.4	328.0	328.0	328.0	328.0	324.8	324.8	324.8
65°	282.6	282.6	282.6	285.8	285.8	289.0	289.0	289.0
67.5°	243.6	246.8	246.8	246.8	250.2	250.2	250.2	246.8
70°	207.8	207.8	207.8	211.2	211.2	211.2	211.2	211.2
72.5°	172.2	172.2	172.2	172.2	172.2	172.2	172.2	172.2
75°	136.4	139.7	139.7	139.7	136.4	139.7	139.7	136.4
77.5°	107.2	107.2	107.2	107.2	107.2	107.2	107.2	107.2
80°	81.2	81.2	81.2	81.2	81.2	81.2	81.2	81.2
82.5°	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2
85°	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5
87.5°	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
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)