

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: P585152

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

Issue Date: 10/21/2021

Test Information

Test Method: LM-41-14
Report Number: P585152
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-HM86080930-81WWWB
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, BLACK BAFFLE TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4600.2 lumens
Efficiency: N/A
Efficacy: 82.1 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

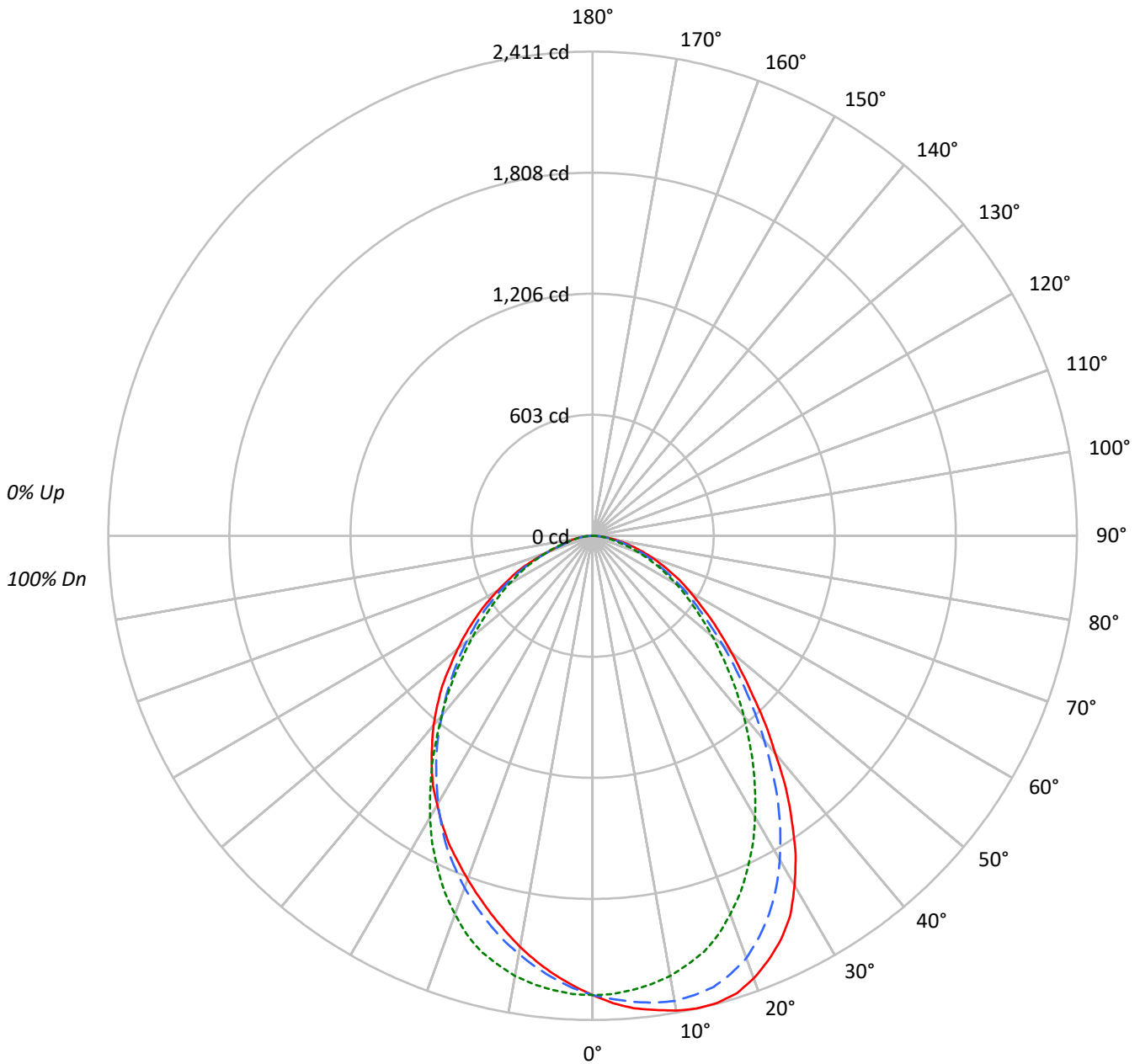
Input Watts (W): 56
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	70529	70529	70529
5°	73110	70294	67882
10°	75177	69685	65104
15°	76854	68455	62233
20°	76975	65782	59704
25°	75499	62121	57589
30°	71609	57612	55066
35°	65064	52468	52589
40°	56891	47077	49569
45°	49304	41939	46191
50°	43176	37251	42082
55°	38429	33015	38079
60°	34666	29658	33464
65°	31287	26070	29164
70°	28121	21972	21674
75°	24782	17431	16251
80°	20777	14419	15591
85°	16063	12666	13798



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	215.8	4.7
10°-20°	607.7	13.2
20°-30°	868.5	18.9
30°-40°	922.9	20.1
40°-50°	794.6	17.3
50°-60°	594.1	12.9
60°-70°	378.9	8.2
70°-80°	172.4	3.7
80°-90°	45.3	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°	1692.0	36.8
0°-40°	2614.9	56.8
0°-60°	4003.5	87.0
0°-90°	4600.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4600.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2287	2287	2287	2287	2287	
5°	2362	2329	2271	2212	2193	226
15°	2407	2326	2144	1998	1949	678
25°	2219	2079	1826	1716	1693	1016
35°	1728	1608	1394	1358	1397	1076
45°	1131	1069	962	988	1059	879
55°	715	656	614	666	708	643
65°	429	380	357	374	400	428
75°	208	179	146	133	136	221
85°	45	39	36	39	39	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°	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2
2.5°	2329.4	2322.9	2326.2	2322.9	2326.2	2326.2	2319.7	2319.7	2319.7	2319.7	2309.9
5°	2361.9	2358.7	2358.7	2355.5	2352.2	2355.5	2352.2	2348.9	2342.4	2339.2	2329.4
7.5°	2381.4	2381.4	2381.4	2381.4	2378.2	2375.0	2371.7	2365.2	2358.7	2352.2	2345.7
10°	2400.9	2404.1	2400.9	2397.7	2394.5	2387.9	2384.7	2378.2	2368.4	2358.7	2352.2
12.5°	2410.7	2410.7	2407.4	2407.4	2400.9	2397.7	2387.9	2378.2	2368.4	2358.7	2342.4
15°	2407.4	2407.4	2404.1	2400.9	2391.2	2387.9	2381.4	2371.7	2355.5	2342.4	2326.2
17.5°	2387.9	2384.7	2378.2	2378.2	2365.2	2361.9	2355.5	2342.4	2326.2	2306.7	2287.2
20°	2345.7	2345.7	2342.4	2339.2	2326.2	2316.5	2309.9	2293.8	2280.7	2258.0	2238.5
22.5°	2287.2	2293.8	2287.2	2280.7	2264.5	2261.2	2251.4	2231.9	2212.5	2186.5	2163.8
25°	2219.0	2215.7	2212.5	2206.0	2193.0	2186.5	2173.5	2154.0	2134.5	2105.3	2079.2
27.5°	2131.3	2118.2	2118.2	2105.3	2095.5	2085.8	2079.2	2059.7	2033.8	2011.1	1978.5
30°	2011.1	2014.3	1998.0	1994.8	1978.5	1972.1	1959.0	1939.6	1916.8	1890.9	1864.8
32.5°	1881.1	1871.4	1871.4	1858.4	1845.3	1835.6	1832.4	1809.7	1790.1	1764.1	1738.2
35°	1728.4	1728.4	1718.7	1715.5	1702.4	1696.0	1686.2	1673.1	1650.4	1627.7	1608.2
37.5°	1579.0	1572.4	1569.2	1562.7	1552.9	1543.2	1543.2	1520.5	1517.2	1491.2	1465.3
40°	1413.3	1419.7	1413.3	1403.6	1400.2	1393.8	1390.5	1377.5	1367.8	1345.1	1328.8
42.5°	1273.6	1267.0	1267.0	1263.8	1250.9	1250.9	1244.3	1237.8	1221.6	1215.1	1195.6
45°	1130.6	1137.1	1127.3	1130.6	1117.6	1117.6	1117.6	1104.6	1091.6	1081.9	1068.9
47.5°	1007.1	1010.4	1010.4	1000.7	997.5	997.5	990.9	984.4	974.6	961.7	951.9
50°	900.0	903.2	896.7	893.4	887.0	883.7	883.7	870.7	864.2	851.2	844.8
52.5°	802.4	802.4	799.2	799.2	789.5	789.5	782.9	773.2	766.8	760.2	743.9
55°	714.8	714.8	711.5	708.3	708.3	698.5	695.3	685.5	679.0	666.0	656.3
57.5°	630.3	633.6	630.3	627.0	623.8	620.5	614.1	604.3	597.8	588.0	581.5
60°	562.1	562.1	558.8	555.6	549.0	545.8	542.6	536.1	526.3	519.8	510.0
62.5°	497.1	493.9	490.5	487.3	480.9	480.9	474.4	467.8	458.1	451.6	445.1
65°	428.8	428.8	425.6	425.6	422.4	415.8	412.6	409.3	396.3	393.1	380.2
67.5°	367.1	370.4	363.9	363.9	357.3	357.3	354.1	344.4	341.2	334.6	328.1
70°	311.9	311.9	311.9	308.6	302.2	298.8	295.6	289.2	285.9	279.4	272.9
72.5°	256.6	256.6	253.4	253.4	250.2	246.9	243.7	237.1	237.1	230.7	224.2
75°	208.0	208.0	204.7	201.4	198.2	198.2	194.9	191.7	185.2	181.9	178.7
77.5°	159.2	159.2	159.2	155.9	152.7	152.7	152.7	146.3	139.7	139.7	136.4
80°	117.0	117.0	113.7	113.7	110.5	110.5	110.5	107.3	103.9	100.7	97.5
82.5°	78.0	78.0	78.0	78.0	74.7	74.7	74.7	71.5	68.3	68.3	68.3
85°	45.4	45.4	45.4	45.4	42.2	42.2	42.2	42.2	42.2	39.0	39.0
87.5°	19.5	16.3	19.5	16.3	19.5	16.3	19.5	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°	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2
2.5°	2313.3	2309.9	2306.7	2303.5	2303.5	2300.2	2293.8	2290.4	2287.2	2284.0	2284.0
5°	2326.2	2322.9	2316.5	2309.9	2306.7	2300.2	2293.8	2287.2	2280.7	2270.9	2267.7
7.5°	2336.0	2326.2	2319.7	2306.7	2303.5	2297.0	2287.2	2277.5	2264.5	2251.4	2241.7
10°	2336.0	2322.9	2313.3	2297.0	2290.4	2284.0	2270.9	2254.8	2238.5	2225.5	2209.2
12.5°	2329.4	2313.3	2297.0	2280.7	2270.9	2261.2	2241.7	2225.5	2206.0	2186.5	2173.5
15°	2306.7	2287.2	2267.7	2248.2	2238.5	2225.5	2206.0	2183.3	2163.8	2144.3	2121.6
17.5°	2264.5	2245.0	2222.3	2199.5	2186.5	2176.7	2147.5	2131.3	2102.1	2082.6	2063.1
20°	2209.2	2186.5	2157.2	2134.5	2118.2	2108.5	2085.8	2056.5	2033.8	2004.6	1985.1
22.5°	2137.7	2108.5	2079.2	2056.5	2040.2	2027.3	1998.0	1968.9	1949.4	1923.3	1900.6
25°	2053.3	2024.1	1994.8	1962.3	1946.1	1933.1	1907.1	1881.1	1855.1	1825.8	1806.3
27.5°	1952.6	1920.1	1894.1	1864.8	1848.7	1829.2	1799.9	1773.9	1747.9	1728.4	1702.4
30°	1842.1	1806.3	1780.4	1751.1	1734.9	1718.7	1689.4	1663.4	1640.7	1618.0	1605.0
32.5°	1708.9	1682.9	1657.0	1627.7	1614.6	1605.0	1575.7	1549.7	1523.8	1504.3	1494.5
35°	1582.2	1552.9	1530.2	1504.3	1488.0	1478.2	1452.2	1429.5	1416.5	1393.8	1380.7
37.5°	1449.0	1426.3	1400.2	1374.3	1364.6	1354.8	1335.3	1312.6	1293.1	1276.8	1270.4
40°	1309.3	1289.8	1267.0	1250.9	1241.1	1231.4	1215.1	1198.8	1185.8	1169.5	1163.1
42.5°	1176.1	1163.1	1143.6	1124.1	1114.4	1111.1	1091.6	1078.7	1072.1	1065.6	1059.2
45°	1055.9	1036.4	1023.4	1010.4	1000.7	994.1	984.4	974.6	968.2	961.7	955.1
47.5°	939.0	922.7	909.7	900.0	890.2	887.0	880.4	870.7	864.2	864.2	864.2
50°	831.7	818.7	805.8	799.2	796.0	789.5	782.9	779.7	776.5	776.5	776.5
52.5°	737.5	724.5	714.8	708.3	708.3	701.7	695.3	692.0	692.0	692.0	692.0
55°	649.8	640.0	633.6	627.0	620.5	617.3	617.3	617.3	614.1	614.1	617.3
57.5°	571.9	565.3	555.6	549.0	545.8	545.8	542.6	539.3	542.6	545.8	549.0
60°	500.3	493.9	490.5	480.9	480.9	480.9	477.6	477.6	477.6	480.9	484.1
62.5°	435.3	432.1	425.6	422.4	419.1	419.1	415.8	415.8	415.8	415.8	419.1
65°	376.8	370.4	363.9	363.9	363.9	360.7	360.7	354.1	357.3	357.3	354.1
67.5°	321.7	315.1	311.9	308.6	305.4	305.4	302.2	298.8	295.6	295.6	295.6
70°	269.7	263.2	263.2	256.6	256.6	253.4	250.2	250.2	246.9	243.7	240.4
72.5°	217.6	214.4	211.2	208.0	208.0	208.0	204.7	201.4	198.2	194.9	188.5
75°	172.2	172.2	165.7	162.4	162.4	159.2	155.9	152.7	149.5	146.3	142.9
77.5°	133.2	130.0	123.4	120.2	120.2	120.2	117.0	113.7	110.5	107.3	103.9
80°	97.5	94.2	91.0	87.8	87.8	87.8	84.4	84.4	81.2	81.2	81.2
82.5°	64.9	64.9	61.7	61.7	61.7	61.7	58.5	58.5	58.5	58.5	58.5
85°	39.0	39.0	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.8
87.5°	16.3	16.3	16.3	16.3	16.3	16.3	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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2
2.5°	2277.5	2277.5	2270.9	2267.7	2264.5	2267.7	2261.2	2258.0	2254.8	2254.8	2251.4
5°	2258.0	2254.8	2241.7	2238.5	2235.2	2231.9	2225.5	2219.0	2212.5	2209.2	2206.0
7.5°	2231.9	2222.3	2209.2	2206.0	2202.8	2193.0	2183.3	2176.7	2167.0	2163.8	2157.2
10°	2196.2	2183.3	2173.5	2163.8	2157.2	2147.5	2137.7	2128.0	2115.0	2111.8	2102.1
12.5°	2154.0	2137.7	2118.2	2115.0	2105.3	2092.3	2079.2	2069.5	2059.7	2053.3	2043.6
15°	2102.1	2085.8	2066.3	2056.5	2046.8	2037.0	2020.8	2007.8	1998.0	1988.3	1978.5
17.5°	2040.2	2020.8	2004.6	1994.8	1988.3	1972.1	1959.0	1942.8	1933.1	1923.3	1913.6
20°	1965.6	1949.4	1926.6	1916.8	1913.6	1900.6	1884.3	1877.9	1864.8	1855.1	1848.7
22.5°	1881.1	1864.8	1845.3	1838.9	1825.8	1819.4	1803.1	1796.7	1790.1	1780.4	1777.2
25°	1786.8	1770.6	1754.4	1751.1	1741.4	1734.9	1725.1	1715.5	1715.5	1705.6	1705.6
27.5°	1689.4	1673.1	1660.2	1653.6	1650.4	1643.9	1634.1	1630.9	1627.7	1624.4	1624.4
30°	1585.5	1566.0	1559.5	1556.2	1552.9	1546.5	1543.2	1536.7	1540.0	1543.2	1540.0
32.5°	1475.0	1468.5	1455.5	1449.0	1452.2	1449.0	1442.6	1449.0	1445.8	1452.2	1455.5
35°	1367.8	1361.2	1354.8	1354.8	1348.3	1348.3	1348.3	1351.6	1358.0	1361.2	1367.8
37.5°	1263.8	1254.1	1250.9	1247.5	1250.9	1250.9	1250.9	1257.3	1263.8	1270.4	1280.0
40°	1153.4	1146.8	1146.8	1146.8	1146.8	1156.6	1153.4	1159.9	1166.3	1176.1	1185.8
42.5°	1049.4	1049.4	1052.6	1052.6	1052.6	1052.6	1059.2	1068.9	1078.7	1088.3	1098.2
45°	951.9	951.9	951.9	958.5	958.5	961.7	974.6	981.2	987.7	997.5	1007.1
47.5°	860.9	860.9	864.2	867.5	870.7	877.2	883.7	893.4	903.2	909.7	919.5
50°	776.5	779.7	786.3	792.7	792.7	796.0	805.8	812.2	818.7	828.5	831.7
52.5°	695.3	701.7	708.3	711.5	714.8	721.2	724.5	734.3	737.5	747.3	750.5
55°	620.5	623.8	633.6	636.8	636.8	643.3	649.8	656.3	666.0	666.0	672.5
57.5°	552.4	555.6	562.1	565.3	562.1	571.9	575.1	581.5	584.8	591.3	594.6
60°	484.1	490.5	493.9	493.9	497.1	500.3	506.8	506.8	513.4	519.8	519.8
62.5°	419.1	422.4	425.6	428.8	432.1	428.8	438.6	438.6	445.1	448.3	454.9
65°	357.3	360.7	360.7	363.9	363.9	367.1	367.1	370.4	373.6	380.2	383.4
67.5°	295.6	295.6	295.6	298.8	295.6	298.8	298.8	302.2	302.2	308.6	311.9
70°	240.4	237.1	233.9	233.9	233.9	233.9	230.7	233.9	233.9	237.1	237.1
72.5°	185.2	181.9	178.7	175.4	175.4	172.2	169.0	172.2	172.2	175.4	175.4
75°	139.7	133.2	133.2	133.2	130.0	130.0	130.0	133.2	133.2	133.2	136.4
77.5°	103.9	103.9	100.7	100.7	100.7	103.9	103.9	107.3	107.3	107.3	107.3
80°	78.0	81.2	81.2	81.2	81.2	84.4	84.4	84.4	84.4	87.8	87.8
82.5°	58.5	58.5	58.5	58.5	61.7	61.7	61.7	61.7	61.7	61.7	61.7
85°	35.8	39.0	39.0	35.8	39.0	39.0	39.0	39.0	39.0	39.0	39.0
87.5°	16.3	16.3	16.3	16.3	16.3	16.3	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



TEST NUMBER: P585152

CATALOG NUMBER: HC860D010-HM86080930-81WWWB

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2	2287.2
2.5°	2248.2	2248.2	2248.2	2248.2	2245.0	2245.0	2245.0	2241.7
5°	2199.5	2199.5	2199.5	2193.0	2196.2	2196.2	2189.7	2193.0
7.5°	2150.7	2147.5	2144.3	2144.3	2141.1	2137.7	2134.5	2137.7
10°	2095.5	2085.8	2085.8	2082.6	2082.6	2076.0	2076.0	2079.2
12.5°	2033.8	2027.3	2027.3	2024.1	2020.8	2017.5	2014.3	2014.3
15°	1972.1	1965.6	1962.3	1959.0	1955.8	1949.4	1952.6	1949.4
17.5°	1910.4	1900.6	1900.6	1897.3	1894.1	1887.7	1887.7	1884.3
20°	1838.9	1835.6	1829.2	1832.4	1829.2	1822.6	1819.4	1819.4
22.5°	1767.4	1767.4	1764.1	1764.1	1760.9	1757.7	1754.4	1754.4
25°	1699.2	1696.0	1699.2	1699.2	1689.4	1689.4	1689.4	1692.6
27.5°	1621.2	1624.4	1621.2	1621.2	1621.2	1621.2	1624.4	1621.2
30°	1543.2	1543.2	1543.2	1546.5	1552.9	1549.7	1549.7	1546.5
32.5°	1458.7	1462.0	1462.0	1465.3	1468.5	1475.0	1475.0	1478.2
35°	1374.3	1380.7	1384.1	1380.7	1390.5	1390.5	1397.0	1397.0
37.5°	1286.5	1289.8	1296.3	1299.5	1306.0	1309.3	1312.6	1312.6
40°	1192.4	1205.3	1208.5	1211.9	1221.6	1221.6	1224.8	1231.4
42.5°	1104.6	1117.6	1120.9	1124.1	1130.6	1140.4	1137.1	1143.6
45°	1020.2	1029.9	1033.1	1036.4	1046.1	1049.4	1049.4	1059.2
47.5°	929.2	935.6	939.0	945.4	951.9	958.5	964.9	961.7
50°	838.2	848.0	854.4	857.7	867.5	870.7	873.9	877.2
52.5°	757.0	763.4	766.8	770.0	779.7	782.9	786.3	792.7
55°	679.0	682.2	688.8	685.5	695.3	698.5	701.7	708.3
57.5°	601.0	604.3	607.5	607.5	614.1	620.5	623.8	627.0
60°	526.3	532.9	536.1	536.1	536.1	542.6	542.6	542.6
62.5°	458.1	458.1	461.4	461.4	467.8	467.8	467.8	467.8
65°	386.6	389.8	393.1	393.1	399.7	396.3	402.9	399.7
67.5°	311.9	311.9	318.3	318.3	315.1	318.3	318.3	318.3
70°	237.1	237.1	240.4	240.4	240.4	240.4	240.4	240.4
72.5°	175.4	175.4	175.4	178.7	175.4	175.4	178.7	175.4
75°	136.4	136.4	136.4	136.4	136.4	136.4	136.4	136.4
77.5°	107.3	107.3	110.5	110.5	110.5	110.5	110.5	110.5
80°	87.8	87.8	87.8	87.8	91.0	87.8	87.8	87.8
82.5°	64.9	61.7	64.9	61.7	64.9	64.9	64.9	64.9
85°	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0
87.5°	16.3	16.3	16.3	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



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













(END OF REPORT)