

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: P585135

Luminaire Tested: **HC860D010-HM86080927-81WWWB**

Issue Date: 10/21/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P585135  
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-HM86080927-81WWWB  
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, BLACK BAFFLE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4300.0 lumens  
Efficiency: N/A  
Efficacy: 76.8 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

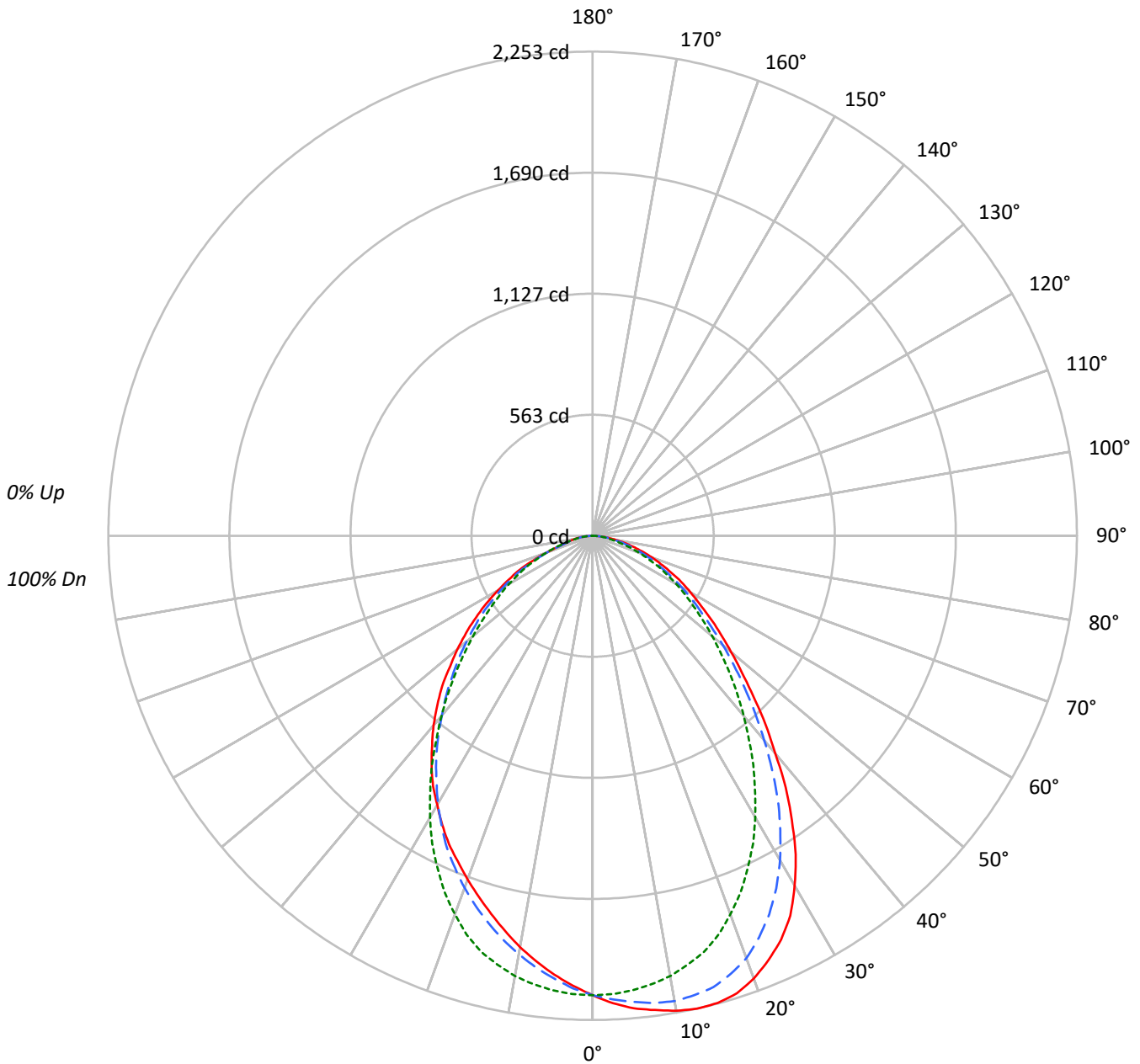
Input Watts (W): 56  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

RF	20									20									20									20									
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	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°	65925	65925	65925
5°	68340	65709	63453
10°	70274	65138	60858
15°	71842	63989	58169
20°	71951	61489	55809
25°	70573	58069	53833
30°	66933	53848	51473
35°	60822	49047	49160
40°	53179	44010	46332
45°	46090	39205	43177
50°	40355	34819	39338
55°	35923	30854	35595
60°	32403	27722	31274
65°	29252	24370	27260
70°	26290	20538	20259
75°	23149	16287	15203
80°	19409	13478	14561
85°	15072	11817	12879



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	201.7	4.7
10°-20°	568.1	13.2
20°-30°	811.9	18.9
30°-40°	862.7	20.1
40°-50°	742.7	17.3
50°-60°	555.3	12.9
60°-70°	354.2	8.2
70°-80°	161.2	3.7
80°-90°	42.3	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°	1581.7	36.8
0°-40°	2444.3	56.8
0°-60°	3742.3	87.0
0°-90°	4300.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4300.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2138	2138	2138	2138	2138	
5°	2208	2178	2123	2068	2050	212
15°	2250	2174	2004	1868	1822	634
25°	2074	1944	1707	1604	1582	949
35°	1616	1503	1303	1269	1306	1006
45°	1057	999	899	923	990	822
55°	668	614	574	623	662	601
65°	401	355	334	349	374	400
75°	194	167	137	125	128	206
85°	43	36	33	36	36	51
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°	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9
2.5°	2177.5	2171.4	2174.4	2171.4	2174.4	2174.4	2168.4	2168.4	2168.4	2168.4	2159.3
5°	2207.8	2204.8	2204.8	2201.7	2198.7	2201.7	2198.7	2195.7	2189.6	2186.6	2177.5
7.5°	2226.1	2226.1	2226.1	2226.1	2223.1	2219.9	2217.0	2210.8	2204.8	2198.7	2192.6
10°	2244.3	2247.3	2244.3	2241.3	2238.2	2232.2	2229.1	2223.1	2214.0	2204.8	2198.7
12.5°	2253.4	2253.4	2250.4	2250.4	2244.3	2241.3	2232.2	2223.1	2214.0	2204.8	2189.6
15°	2250.4	2250.4	2247.3	2244.3	2235.2	2232.2	2226.1	2217.0	2201.7	2189.6	2174.4
17.5°	2232.2	2229.1	2223.1	2223.1	2210.8	2207.8	2201.7	2189.6	2174.4	2156.2	2137.9
20°	2192.6	2192.6	2189.6	2186.6	2174.4	2165.3	2159.3	2144.1	2131.9	2110.6	2092.4
22.5°	2137.9	2144.1	2137.9	2131.9	2116.7	2113.7	2104.6	2086.4	2068.2	2043.8	2022.6
25°	2074.2	2071.2	2068.2	2062.0	2049.9	2043.8	2031.7	2013.5	1995.3	1967.9	1943.6
27.5°	1992.2	1980.0	1980.0	1967.9	1958.8	1949.7	1943.6	1925.4	1901.1	1879.8	1849.5
30°	1879.8	1882.9	1867.7	1864.7	1849.5	1843.4	1831.3	1813.0	1791.8	1767.5	1743.1
32.5°	1758.4	1749.2	1749.2	1737.1	1724.9	1715.8	1712.8	1691.6	1673.4	1649.0	1624.8
35°	1615.7	1615.7	1606.6	1603.5	1591.3	1585.2	1576.1	1564.0	1542.8	1521.4	1503.2
37.5°	1475.9	1469.9	1466.8	1460.8	1451.7	1442.6	1442.6	1421.2	1418.2	1393.9	1369.7
40°	1321.1	1327.1	1321.1	1312.0	1308.9	1302.9	1299.8	1287.7	1278.5	1257.3	1242.1
42.5°	1190.4	1184.4	1184.4	1181.3	1169.2	1169.2	1163.1	1157.1	1141.9	1135.8	1117.5
45°	1056.9	1062.9	1053.7	1056.9	1044.7	1044.7	1044.7	1032.5	1020.4	1011.3	999.2
47.5°	941.4	944.5	944.5	935.4	932.3	932.3	926.3	920.2	911.1	899.0	889.8
50°	841.2	844.3	838.2	835.2	829.1	826.1	826.1	813.8	807.8	795.6	789.6
52.5°	750.2	750.2	747.1	747.1	737.9	737.9	731.9	722.8	716.7	710.6	695.5
55°	668.2	668.2	665.1	662.1	662.1	652.9	649.9	640.8	634.7	622.6	613.5
57.5°	589.2	592.2	589.2	586.2	583.0	580.0	573.9	564.8	558.8	549.7	543.6
60°	525.4	525.4	522.4	519.3	513.3	510.1	507.1	501.0	491.9	485.9	476.8
62.5°	464.6	461.6	458.6	455.5	449.5	449.5	443.4	437.4	428.3	422.1	416.0
65°	400.9	400.9	397.8	397.8	394.8	388.7	385.7	382.7	370.5	367.5	355.4
67.5°	343.1	346.3	340.1	340.1	334.0	334.0	331.0	321.9	318.9	312.8	306.7
70°	291.6	291.6	291.6	288.5	282.5	279.4	276.4	270.2	267.2	261.1	255.1
72.5°	239.9	239.9	236.9	236.9	233.8	230.8	227.8	221.7	221.7	215.6	209.6
75°	194.3	194.3	191.3	188.2	185.2	185.2	182.2	179.1	173.1	170.0	167.0
77.5°	148.8	148.8	148.8	145.8	142.8	142.8	142.8	136.7	130.6	130.6	127.6
80°	109.3	109.3	106.3	106.3	103.2	103.2	103.2	100.2	97.2	94.1	91.1
82.5°	72.9	72.9	72.9	72.9	69.9	69.9	69.9	66.8	63.8	63.8	63.8
85°	42.6	42.6	42.6	42.6	39.4	39.4	39.4	39.4	39.4	36.4	36.4
87.5°	18.2	15.2	18.2	15.2	18.2	15.2	18.2	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



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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9
2.5°	2162.3	2159.3	2156.2	2153.2	2153.2	2150.2	2144.1	2141.1	2137.9	2134.9	2134.9
5°	2174.4	2171.4	2165.3	2159.3	2156.2	2150.2	2144.1	2137.9	2131.9	2122.8	2119.7
7.5°	2183.5	2174.4	2168.4	2156.2	2153.2	2147.1	2137.9	2128.8	2116.7	2104.6	2095.5
10°	2183.5	2171.4	2162.3	2147.1	2141.1	2134.9	2122.8	2107.6	2092.4	2080.3	2065.0
12.5°	2177.5	2162.3	2147.1	2131.9	2122.8	2113.7	2095.5	2080.3	2062.0	2043.8	2031.7
15°	2156.2	2137.9	2119.7	2101.5	2092.4	2080.3	2062.0	2040.8	2022.6	2004.4	1983.0
17.5°	2116.7	2098.5	2077.3	2055.9	2043.8	2034.7	2007.4	1992.2	1964.8	1946.7	1928.5
20°	2065.0	2043.8	2016.5	1995.3	1980.0	1970.9	1949.7	1922.4	1901.1	1873.8	1855.6
22.5°	1998.3	1970.9	1943.6	1922.4	1907.1	1895.0	1867.7	1840.4	1822.1	1797.8	1776.6
25°	1919.4	1892.0	1864.7	1834.3	1819.1	1806.9	1782.7	1758.4	1734.0	1706.7	1688.5
27.5°	1825.1	1794.8	1770.5	1743.1	1728.0	1709.8	1682.5	1658.1	1633.9	1615.7	1591.3
30°	1721.9	1688.5	1664.2	1636.9	1621.7	1606.6	1579.2	1554.9	1533.7	1512.3	1500.2
32.5°	1597.5	1573.1	1548.8	1521.4	1509.3	1500.2	1472.9	1448.6	1424.3	1406.1	1397.0
35°	1479.0	1451.7	1430.3	1406.1	1390.9	1381.8	1357.4	1336.2	1324.1	1302.9	1290.7
37.5°	1354.4	1333.2	1308.9	1284.7	1275.5	1266.4	1248.2	1226.9	1208.6	1193.5	1187.4
40°	1223.9	1205.6	1184.4	1169.2	1160.1	1151.0	1135.8	1120.6	1108.4	1093.3	1087.2
42.5°	1099.3	1087.2	1069.0	1050.7	1041.6	1038.6	1020.4	1008.3	1002.2	996.1	990.1
45°	987.0	968.7	956.6	944.5	935.4	929.3	920.2	911.1	905.0	899.0	892.8
47.5°	877.6	862.5	850.3	841.2	832.1	829.1	823.0	813.8	807.8	807.8	807.8
50°	777.4	765.3	753.2	747.1	744.1	737.9	731.9	728.8	725.8	725.8	725.8
52.5°	689.4	677.3	668.2	662.1	662.1	655.9	649.9	646.8	646.8	646.8	646.8
55°	607.4	598.3	592.2	586.2	580.0	577.0	577.0	577.0	573.9	573.9	577.0
57.5°	534.5	528.4	519.3	513.3	510.1	510.1	507.1	504.2	507.1	510.1	513.3
60°	467.7	461.6	458.6	449.5	449.5	449.5	446.5	446.5	446.5	449.5	452.5
62.5°	406.9	403.9	397.8	394.8	391.8	391.8	388.7	388.7	388.7	388.7	391.8
65°	352.2	346.3	340.1	340.1	340.1	337.1	337.1	331.0	334.0	334.0	331.0
67.5°	300.7	294.6	291.6	288.5	285.5	285.5	282.5	279.4	276.4	276.4	276.4
70°	252.0	246.0	246.0	239.9	239.9	236.9	233.8	233.8	230.8	227.8	224.7
72.5°	203.5	200.5	197.3	194.3	194.3	194.3	191.3	188.2	185.2	182.2	176.1
75°	160.9	160.9	154.9	151.8	151.8	148.8	145.8	142.8	139.7	136.7	133.7
77.5°	124.6	121.5	115.5	112.3	112.3	112.3	109.3	106.3	103.2	100.2	97.2
80°	91.1	88.1	85.0	82.0	82.0	82.0	79.0	79.0	75.9	75.9	75.9
82.5°	60.8	60.8	57.7	57.7	57.7	57.7	54.7	54.7	54.7	54.7	54.7
85°	36.4	36.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4
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



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**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9
2.5°	2128.8	2128.8	2122.8	2119.7	2116.7	2119.7	2113.7	2110.6	2107.6	2107.6	2104.6
5°	2110.6	2107.6	2095.5	2092.4	2089.4	2086.4	2080.3	2074.2	2068.2	2065.0	2062.0
7.5°	2086.4	2077.3	2065.0	2062.0	2059.0	2049.9	2040.8	2034.7	2025.6	2022.6	2016.5
10°	2052.9	2040.8	2031.7	2022.6	2016.5	2007.4	1998.3	1989.2	1977.0	1973.9	1964.8
12.5°	2013.5	1998.3	1980.0	1977.0	1967.9	1955.7	1943.6	1934.5	1925.4	1919.4	1910.3
15°	1964.8	1949.7	1931.5	1922.4	1913.3	1904.1	1888.9	1876.8	1867.7	1858.6	1849.5
17.5°	1907.1	1888.9	1873.8	1864.7	1858.6	1843.4	1831.3	1816.0	1806.9	1797.8	1788.7
20°	1837.4	1822.1	1800.9	1791.8	1788.7	1776.6	1761.4	1755.4	1743.1	1734.0	1728.0
22.5°	1758.4	1743.1	1724.9	1718.9	1706.7	1700.7	1685.5	1679.4	1673.4	1664.2	1661.1
25°	1670.2	1655.1	1639.9	1636.9	1627.8	1621.7	1612.6	1603.5	1603.5	1594.3	1594.3
27.5°	1579.2	1564.0	1551.9	1545.8	1542.8	1536.7	1527.6	1524.6	1521.4	1518.5	1518.5
30°	1482.0	1463.8	1457.7	1454.7	1451.7	1445.6	1442.6	1436.4	1439.4	1442.6	1439.4
32.5°	1378.8	1372.7	1360.6	1354.4	1357.4	1354.4	1348.4	1354.4	1351.4	1357.4	1360.6
35°	1278.5	1272.4	1266.4	1266.4	1260.3	1260.3	1260.3	1263.3	1269.4	1272.4	1278.5
37.5°	1181.3	1172.2	1169.2	1166.2	1169.2	1169.2	1169.2	1175.3	1181.3	1187.4	1196.5
40°	1078.1	1072.0	1072.0	1072.0	1072.0	1081.1	1078.1	1084.2	1090.2	1099.3	1108.4
42.5°	981.0	981.0	984.0	984.0	984.0	984.0	990.1	999.2	1008.3	1017.4	1026.5
45°	889.8	889.8	889.8	895.8	895.8	899.0	911.1	917.2	923.2	932.3	941.4
47.5°	804.7	804.7	807.8	810.8	813.8	820.0	826.1	835.2	844.3	850.3	859.4
50°	725.8	728.8	734.9	741.1	741.1	744.1	753.2	759.2	765.3	774.4	777.4
52.5°	649.9	655.9	662.1	665.1	668.2	674.2	677.3	686.4	689.4	698.5	701.5
55°	580.0	583.0	592.2	595.3	595.3	601.3	607.4	613.5	622.6	622.6	628.6
57.5°	516.3	519.3	525.4	528.4	525.4	534.5	537.5	543.6	546.6	552.7	555.7
60°	452.5	458.6	461.6	461.6	464.6	467.7	473.7	473.7	479.8	485.9	485.9
62.5°	391.8	394.8	397.8	400.9	403.9	400.9	410.0	410.0	416.0	419.1	425.1
65°	334.0	337.1	337.1	340.1	340.1	343.1	343.1	346.3	349.2	355.4	358.4
67.5°	276.4	276.4	276.4	279.4	276.4	279.4	279.4	282.5	282.5	288.5	291.6
70°	224.7	221.7	218.7	218.7	218.7	218.7	215.6	218.7	218.7	221.7	221.7
72.5°	173.1	170.0	167.0	164.0	164.0	160.9	157.9	160.9	160.9	164.0	164.0
75°	130.6	124.6	124.6	124.6	121.5	121.5	121.5	124.6	124.6	124.6	127.6
77.5°	97.2	97.2	94.1	94.1	94.1	97.2	97.2	100.2	100.2	100.2	100.2
80°	72.9	75.9	75.9	75.9	75.9	79.0	79.0	79.0	79.0	82.0	82.0
82.5°	54.7	54.7	54.7	54.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7
85°	33.4	36.4	36.4	33.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4
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: P585135

CATALOG NUMBER: HC860D010-HM86080927-81WWWB

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9	2137.9
2.5°	2101.5	2101.5	2101.5	2101.5	2098.5	2098.5	2098.5	2095.5
5°	2055.9	2055.9	2055.9	2049.9	2052.9	2052.9	2046.8	2049.9
7.5°	2010.4	2007.4	2004.4	2004.4	2001.3	1998.3	1995.3	1998.3
10°	1958.8	1949.7	1949.7	1946.7	1946.7	1940.6	1940.6	1943.6
12.5°	1901.1	1895.0	1895.0	1892.0	1888.9	1885.9	1882.9	1882.9
15°	1843.4	1837.4	1834.3	1831.3	1828.3	1822.1	1825.1	1822.1
17.5°	1785.7	1776.6	1776.6	1773.6	1770.5	1764.5	1764.5	1761.4
20°	1718.9	1715.8	1709.8	1712.8	1709.8	1703.7	1700.7	1700.7
22.5°	1652.1	1652.1	1649.0	1649.0	1646.0	1643.0	1639.9	1639.9
25°	1588.3	1585.2	1588.3	1588.3	1579.2	1579.2	1579.2	1582.2
27.5°	1515.5	1518.5	1515.5	1515.5	1515.5	1515.5	1518.5	1515.5
30°	1442.6	1442.6	1442.6	1445.6	1451.7	1448.6	1448.6	1445.6
32.5°	1363.5	1366.5	1366.5	1369.7	1372.7	1378.8	1378.8	1381.8
35°	1284.7	1290.7	1293.8	1290.7	1299.8	1299.8	1305.9	1305.9
37.5°	1202.7	1205.6	1211.8	1214.8	1220.9	1223.9	1226.9	1226.9
40°	1114.5	1126.6	1129.8	1132.8	1141.9	1141.9	1144.9	1151.0
42.5°	1032.5	1044.7	1047.7	1050.7	1056.9	1066.0	1062.9	1069.0
45°	953.6	962.7	965.7	968.7	977.9	981.0	981.0	990.1
47.5°	868.5	874.6	877.6	883.7	889.8	895.8	902.0	899.0
50°	783.5	792.6	798.7	801.7	810.8	813.8	817.0	820.0
52.5°	707.6	713.7	716.7	719.7	728.8	731.9	734.9	741.1
55°	634.7	637.7	643.8	640.8	649.9	652.9	655.9	662.1
57.5°	561.8	564.8	567.9	567.9	573.9	580.0	583.0	586.2
60°	491.9	498.0	501.0	501.0	501.0	507.1	507.1	507.1
62.5°	428.3	428.3	431.3	431.3	437.4	437.4	437.4	437.4
65°	361.4	364.5	367.5	367.5	373.6	370.5	376.6	373.6
67.5°	291.6	291.6	297.6	297.6	294.6	297.6	297.6	297.6
70°	221.7	221.7	224.7	224.7	224.7	224.7	224.7	224.7
72.5°	164.0	164.0	164.0	167.0	164.0	164.0	167.0	164.0
75°	127.6	127.6	127.6	127.6	127.6	127.6	127.6	127.6
77.5°	100.2	100.2	103.2	103.2	103.2	103.2	103.2	103.2
80°	82.0	82.0	82.0	82.0	85.0	82.0	82.0	82.0
82.5°	60.8	57.7	60.8	57.7	60.8	60.8	60.8	60.8
85°	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4
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)