

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: P585134

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

Issue Date: 10/21/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P585134  
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-HM86080927-81WWW  
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, WHITE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4129.9 lumens  
Efficiency: N/A  
Efficacy: 73.7 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

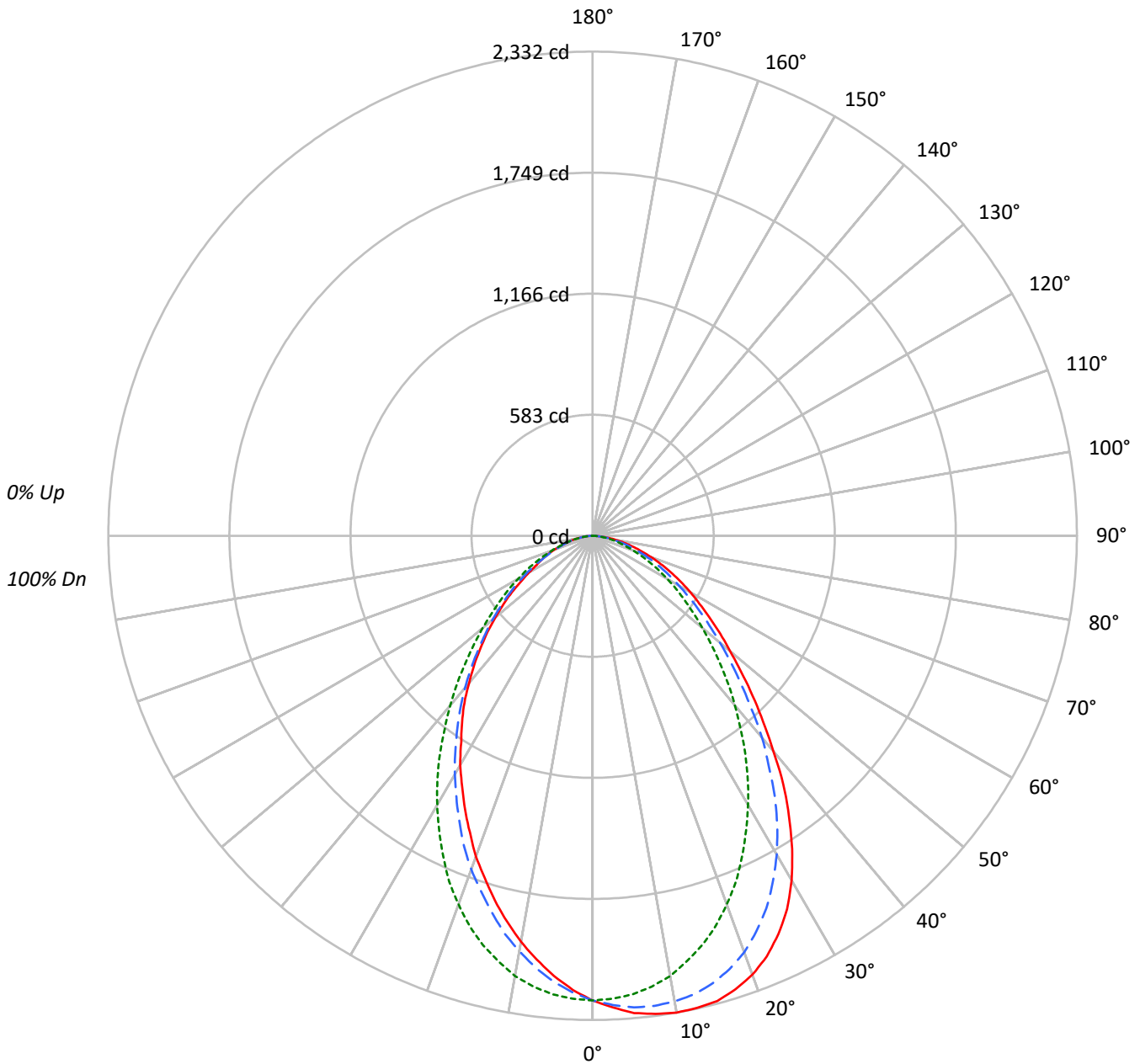
Input Watts (W): 56  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P585134

CATALOG NUMBER: HC860D010-HM86080927-81WWW

### 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	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°	69006	69006	69006
5°	71430	68610	65886
10°	73016	67409	62179
15°	74058	65141	58064
20°	73831	61975	53906
25°	72009	57953	49485
30°	68219	53300	45409
35°	62068	48233	41262
40°	54512	42899	37279
45°	47538	37739	33239
50°	41367	33068	29278
55°	36896	29058	25467
60°	33519	25465	21721
65°	30127	22159	19715
70°	26831	18888	17788
75°	23507	15917	15203
80°	19942	12946	13478
85°	15072	9659	10720



TEST NUMBER: P585134

CATALOG NUMBER: HC860D010-HM86080927-81WWW

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	209.6	5.1
10°-20°	577.5	14.0
20°-30°	801.6	19.4
30°-40°	828.8	20.1
40°-50°	694.0	16.8
50°-60°	503.8	12.2
60°-70°	317.9	7.7
70°-80°	157.5	3.8
80°-90°	39.1	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°	1588.8	38.5
0°-40°	2417.6	58.5
0°-60°	3615.4	87.5
0°-90°	4129.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4129.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2238	2238	2238	2238	2238	
5°	2308	2280	2216	2156	2128	221
15°	2320	2232	2040	1876	1819	653
25°	2116	1980	1703	1518	1454	970
35°	1649	1527	1281	1136	1096	1027
45°	1090	1011	865	780	762	843
55°	686	626	540	495	474	619
65°	413	361	304	267	270	412
75°	197	164	134	128	128	212
85°	43	33	27	30	30	52
90°	0	0	0	0	0	



TEST NUMBER: P585134

CATALOG NUMBER: HC860D010-HM86080927-81WWW

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8
2.5°	2274.3	2274.3	2277.3	2274.3	2274.3	2274.3	2271.2	2271.2	2268.2	2268.2	2262.0
5°	2307.6	2301.6	2307.6	2301.6	2301.6	2301.6	2298.5	2292.5	2289.4	2283.4	2280.3
7.5°	2322.8	2319.8	2319.8	2316.7	2316.7	2313.7	2310.7	2307.6	2295.5	2292.5	2283.4
10°	2331.9	2328.8	2328.8	2325.8	2319.8	2319.8	2313.7	2310.7	2295.5	2289.4	2277.3
12.5°	2328.8	2328.8	2328.8	2325.8	2316.7	2313.7	2307.6	2298.5	2286.4	2274.3	2262.0
15°	2319.8	2319.8	2313.7	2310.7	2301.6	2295.5	2292.5	2277.3	2265.2	2249.9	2231.7
17.5°	2289.4	2289.4	2286.4	2280.3	2271.2	2265.2	2259.0	2243.8	2231.7	2207.4	2189.3
20°	2249.9	2246.9	2243.8	2234.7	2225.6	2222.6	2213.5	2192.3	2177.0	2158.8	2134.6
22.5°	2192.3	2189.3	2186.2	2180.2	2164.9	2158.8	2152.8	2137.6	2110.3	2092.0	2061.7
25°	2116.4	2116.4	2110.3	2101.1	2085.9	2079.9	2070.8	2055.6	2031.4	2004.0	1979.7
27.5°	2028.3	2025.3	2016.1	2010.0	1997.9	1988.8	1973.6	1955.4	1931.1	1909.9	1879.5
30°	1915.9	1915.9	1909.9	1900.8	1885.6	1879.5	1867.4	1846.1	1821.8	1794.5	1773.2
32.5°	1788.5	1788.5	1779.4	1773.2	1764.1	1748.9	1745.9	1721.6	1700.3	1679.1	1654.8
35°	1648.8	1651.8	1645.7	1633.6	1618.3	1618.3	1612.3	1591.0	1566.8	1545.6	1527.3
37.5°	1509.1	1500.0	1496.9	1490.9	1481.8	1469.5	1463.5	1454.4	1433.2	1418.0	1390.7
40°	1354.2	1357.2	1351.2	1345.1	1342.1	1333.0	1329.9	1314.8	1299.5	1281.3	1269.2
42.5°	1214.5	1214.5	1214.5	1208.4	1202.4	1193.3	1190.3	1181.2	1163.0	1150.7	1132.5
45°	1090.1	1081.0	1081.0	1077.9	1074.9	1068.7	1059.7	1053.6	1041.5	1032.4	1011.1
47.5°	968.6	971.6	968.6	965.5	956.4	953.4	950.4	938.3	926.1	917.0	901.8
50°	862.3	868.4	862.3	862.3	856.3	853.2	847.2	838.1	828.9	813.7	798.6
52.5°	774.3	774.3	771.3	768.2	759.1	753.1	749.9	746.9	731.7	719.6	707.5
55°	686.3	689.3	689.3	680.2	677.2	671.0	668.0	658.9	652.8	634.6	625.5
57.5°	610.3	607.3	610.3	604.3	598.2	592.0	589.0	582.9	573.8	561.7	549.6
60°	543.5	537.5	537.5	534.4	528.4	525.3	519.3	510.1	501.0	488.8	479.7
62.5°	476.7	473.7	470.6	467.6	461.5	458.5	455.5	446.4	437.3	428.1	419.0
65°	412.9	412.9	409.9	403.8	400.8	397.8	394.7	388.7	376.5	370.5	361.4
67.5°	355.2	352.2	352.2	346.1	340.0	337.0	337.0	330.9	321.8	312.8	306.7
70°	297.6	300.6	297.6	294.6	288.5	288.5	282.4	279.4	267.2	264.1	255.0
72.5°	245.9	245.9	242.9	242.9	236.8	233.8	233.8	227.7	221.7	215.6	209.5
75°	197.3	197.3	197.3	194.3	191.2	185.2	185.2	182.2	176.1	170.0	164.0
77.5°	154.9	151.8	151.8	148.8	145.8	142.7	142.7	139.7	133.6	130.6	124.5
80°	112.3	109.3	109.3	109.3	103.2	106.2	103.2	100.2	97.1	94.1	91.1
82.5°	72.9	75.9	75.9	72.9	69.8	69.8	69.8	66.8	66.8	63.8	60.8
85°	42.6	42.6	42.6	42.6	39.4	39.4	39.4	36.4	36.4	36.4	33.4
87.5°	18.2	18.2	18.2	18.2	18.2	18.2	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: P585134

CATALOG NUMBER: HC860D010-HM86080927-81WWW

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8
2.5°	2262.0	2256.1	2252.9	2249.9	2249.9	2246.9	2243.8	2237.8	2237.8	2231.7	2228.7
5°	2274.3	2265.2	2259.0	2252.9	2249.9	2243.8	2237.8	2228.7	2225.6	2216.5	2207.4
7.5°	2277.3	2262.0	2256.1	2243.8	2237.8	2231.7	2219.6	2210.5	2198.4	2189.3	2177.0
10°	2265.2	2252.9	2237.8	2222.6	2219.6	2210.5	2192.3	2180.2	2164.9	2152.8	2134.6
12.5°	2246.9	2228.7	2213.5	2195.3	2186.2	2177.0	2158.8	2140.6	2119.4	2098.1	2079.9
15°	2216.5	2195.3	2174.0	2152.8	2140.6	2131.5	2110.3	2089.0	2067.8	2040.5	2022.3
17.5°	2171.0	2146.7	2125.5	2098.1	2085.9	2076.8	2049.6	2025.3	1997.9	1970.6	1952.4
20°	2113.3	2082.9	2058.7	2028.3	2019.1	2004.0	1976.7	1949.4	1919.0	1888.6	1867.4
22.5°	2037.4	2007.0	1979.7	1949.4	1934.1	1919.0	1891.7	1858.2	1827.9	1803.6	1782.3
25°	1949.4	1922.0	1888.6	1861.2	1843.0	1824.8	1794.5	1767.1	1739.8	1703.3	1682.1
27.5°	1852.1	1818.8	1794.5	1758.0	1739.8	1727.7	1694.3	1657.9	1633.6	1600.1	1575.9
30°	1742.9	1712.5	1685.2	1648.8	1630.6	1618.3	1588.0	1554.7	1530.3	1496.9	1472.7
32.5°	1627.4	1594.1	1560.7	1536.4	1515.1	1503.0	1469.5	1448.3	1418.0	1390.7	1363.3
35°	1503.0	1469.5	1445.3	1411.9	1399.8	1387.7	1360.3	1333.0	1305.6	1281.3	1260.1
37.5°	1369.4	1345.1	1317.8	1293.5	1284.4	1272.2	1238.9	1214.5	1193.3	1169.0	1150.7
40°	1238.9	1217.5	1199.3	1175.1	1159.9	1150.7	1126.5	1105.2	1081.0	1065.7	1047.5
42.5°	1120.4	1096.1	1077.9	1059.7	1044.5	1035.4	1014.2	999.0	980.7	965.5	944.3
45°	996.0	983.7	962.5	947.3	938.3	926.1	911.0	892.7	877.5	865.4	850.2
47.5°	886.6	874.5	859.3	841.1	834.9	825.8	810.7	798.6	786.4	774.3	759.1
50°	786.4	771.3	759.1	746.9	740.8	731.7	716.6	710.5	701.4	689.3	680.2
52.5°	695.3	683.2	671.0	655.8	652.8	646.7	637.6	625.5	616.4	610.3	604.3
55°	613.4	601.2	592.0	579.9	576.9	570.8	558.7	552.6	546.6	540.5	534.4
57.5°	540.5	528.4	516.1	510.1	504.0	497.9	494.9	485.8	479.7	476.7	470.6
60°	473.7	461.5	452.4	443.3	440.3	437.3	431.1	425.1	419.0	412.9	409.9
62.5°	409.9	397.8	391.7	385.6	379.6	379.6	373.5	367.4	361.4	358.2	352.2
65°	352.2	346.1	337.0	327.9	324.9	324.9	315.8	312.8	309.7	303.7	297.6
67.5°	297.6	291.5	282.4	279.4	276.4	273.2	270.2	264.1	258.1	255.0	249.0
70°	249.0	242.9	236.8	233.8	230.8	227.7	221.7	218.6	212.6	209.5	206.5
72.5°	200.3	197.3	191.2	188.2	185.2	182.2	179.1	176.1	170.0	167.0	164.0
75°	160.9	157.9	151.8	148.8	145.8	145.8	142.7	136.7	133.6	133.6	130.6
77.5°	121.5	118.5	115.3	112.3	109.3	109.3	106.2	103.2	100.2	100.2	97.1
80°	88.0	85.0	82.0	82.0	82.0	78.9	75.9	75.9	72.9	72.9	69.8
82.5°	57.7	57.7	54.7	54.7	54.7	51.7	51.7	48.6	48.6	48.6	48.6
85°	33.4	33.4	33.4	30.3	30.3	30.3	30.3	30.3	30.3	27.3	30.3
87.5°	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	12.1	12.1	12.1
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: P585134

CATALOG NUMBER: HC860D010-HM86080927-81WWW

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8
2.5°	2225.6	2222.6	2216.5	2216.5	2210.5	2210.5	2207.4	2204.4	2201.4	2198.4	2195.3
5°	2204.4	2192.3	2186.2	2183.2	2177.0	2174.0	2164.9	2158.8	2155.8	2149.7	2143.7
7.5°	2164.9	2152.8	2140.6	2137.6	2134.6	2122.4	2113.3	2104.1	2098.1	2092.0	2085.9
10°	2119.4	2107.3	2092.0	2085.9	2079.9	2064.7	2052.6	2043.5	2031.4	2019.1	2016.1
12.5°	2064.7	2046.5	2028.3	2022.3	2013.1	1997.9	1985.8	1970.6	1961.5	1946.4	1943.2
15°	2000.9	1979.7	1964.5	1949.4	1943.2	1928.1	1906.8	1894.7	1876.5	1870.4	1855.2
17.5°	1925.0	1903.8	1882.6	1876.5	1867.4	1846.1	1824.8	1809.7	1791.5	1782.3	1773.2
20°	1846.1	1818.8	1797.6	1791.5	1779.4	1761.1	1739.8	1724.7	1709.5	1691.2	1682.1
22.5°	1755.0	1724.7	1706.5	1691.2	1688.2	1667.0	1642.7	1630.6	1618.3	1603.2	1591.0
25°	1654.8	1627.4	1606.2	1594.1	1588.0	1569.8	1551.6	1536.4	1518.2	1509.1	1493.9
27.5°	1551.6	1533.3	1506.0	1493.9	1484.8	1469.5	1448.3	1439.2	1421.0	1408.9	1399.8
30°	1451.3	1424.1	1408.9	1393.7	1384.5	1369.4	1351.2	1342.1	1326.9	1314.8	1305.6
32.5°	1342.1	1323.9	1302.6	1296.5	1284.4	1269.2	1257.1	1241.9	1229.8	1217.5	1214.5
35°	1241.9	1217.5	1196.3	1190.3	1181.2	1166.0	1159.9	1150.7	1135.6	1132.5	1120.4
37.5°	1132.5	1120.4	1096.1	1087.0	1084.0	1071.9	1059.7	1053.6	1044.5	1035.4	1032.4
40°	1029.3	1014.2	1002.0	992.8	986.8	977.7	965.5	962.5	956.4	944.3	941.3
42.5°	932.2	917.0	904.8	901.8	892.7	883.6	877.5	868.4	865.4	862.3	856.3
45°	838.1	828.9	816.8	813.7	810.7	798.6	792.5	786.4	780.4	777.3	771.3
47.5°	753.1	743.9	734.8	731.7	725.7	722.6	713.5	710.5	701.4	698.4	695.3
50°	671.0	664.9	658.9	655.8	649.8	646.7	640.7	634.6	628.5	625.5	622.5
52.5°	598.2	592.0	586.0	582.9	579.9	573.8	567.8	561.7	558.7	555.7	552.6
55°	528.4	522.3	519.3	516.1	513.1	510.1	501.0	497.9	494.9	491.9	485.8
57.5°	464.6	458.5	452.4	452.4	449.4	446.4	440.3	434.3	434.3	428.1	422.0
60°	406.9	400.8	394.7	391.7	388.7	382.6	379.6	376.5	373.5	370.5	364.4
62.5°	346.1	343.1	337.0	337.0	330.9	327.9	324.9	321.8	318.8	312.8	309.7
65°	294.6	291.5	285.5	282.4	282.4	279.4	273.2	270.2	267.2	267.2	264.1
67.5°	245.9	242.9	236.8	233.8	233.8	230.8	227.7	227.7	224.7	221.7	224.7
70°	203.5	197.3	197.3	194.3	194.3	191.2	188.2	188.2	188.2	191.2	191.2
72.5°	160.9	157.9	154.9	154.9	154.9	154.9	151.8	151.8	154.9	157.9	157.9
75°	127.6	124.5	124.5	124.5	121.5	121.5	124.5	124.5	127.6	127.6	127.6
77.5°	94.1	94.1	94.1	94.1	94.1	94.1	97.1	97.1	100.2	100.2	100.2
80°	69.8	69.8	69.8	69.8	69.8	72.9	72.9	72.9	72.9	72.9	75.9
82.5°	48.6	48.6	48.6	48.6	48.6	48.6	48.6	51.7	51.7	51.7	51.7
85°	27.3	30.3	30.3	30.3	30.3	30.3	30.3	30.3	30.3	30.3	30.3
87.5°	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
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: P585134

CATALOG NUMBER: HC860D010-HM86080927-81WWW

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8	2237.8
2.5°	2192.3	2192.3	2192.3	2195.3	2189.3	2189.3	2189.3	2189.3
5°	2140.6	2137.6	2134.6	2137.6	2131.5	2131.5	2128.5	2128.5
7.5°	2076.8	2073.8	2070.8	2070.8	2064.7	2064.7	2061.7	2058.7
10°	2007.0	2000.9	2004.0	1997.9	1994.9	1991.8	1988.8	1985.8
12.5°	1931.1	1925.0	1922.0	1915.9	1909.9	1906.8	1909.9	1903.8
15°	1849.1	1840.0	1837.0	1830.9	1824.8	1821.8	1821.8	1818.8
17.5°	1758.0	1752.0	1748.9	1742.9	1739.8	1733.8	1730.7	1727.7
20°	1673.0	1657.9	1660.9	1654.8	1651.8	1639.7	1639.7	1642.7
22.5°	1578.9	1569.8	1563.8	1557.7	1554.7	1548.6	1548.6	1545.6
25°	1484.8	1475.7	1472.7	1466.5	1463.5	1457.4	1454.4	1454.4
27.5°	1393.7	1381.5	1381.5	1375.4	1369.4	1366.3	1363.3	1360.3
30°	1296.5	1287.4	1284.4	1284.4	1281.3	1281.3	1272.2	1275.3
32.5°	1205.4	1199.3	1196.3	1190.3	1190.3	1187.2	1187.2	1178.1
35°	1114.3	1105.2	1108.3	1102.2	1099.2	1096.1	1099.2	1096.1
37.5°	1026.3	1020.2	1020.2	1014.2	1014.2	1011.1	1008.1	1014.2
40°	938.3	935.2	932.2	929.2	932.2	929.2	923.1	926.1
42.5°	850.2	850.2	847.2	847.2	844.1	844.1	844.1	844.1
45°	771.3	768.2	768.2	765.2	765.2	765.2	765.2	762.2
47.5°	692.3	689.3	689.3	689.3	686.3	686.3	683.2	686.3
50°	616.4	616.4	613.4	613.4	616.4	613.4	610.3	610.3
52.5°	546.6	546.6	543.5	543.5	540.5	537.5	540.5	540.5
55°	482.8	479.7	476.7	476.7	473.7	470.6	470.6	473.7
57.5°	422.0	419.0	416.0	416.0	409.9	406.9	406.9	406.9
60°	364.4	358.2	358.2	355.2	355.2	352.2	352.2	352.2
62.5°	309.7	306.7	306.7	306.7	306.7	303.7	303.7	303.7
65°	264.1	264.1	264.1	267.2	267.2	270.2	270.2	270.2
67.5°	227.7	230.8	230.8	230.8	233.8	233.8	233.8	230.8
70°	194.3	194.3	194.3	197.3	197.3	197.3	197.3	197.3
72.5°	160.9	160.9	160.9	160.9	160.9	160.9	160.9	160.9
75°	127.6	130.6	130.6	130.6	127.6	130.6	130.6	127.6
77.5°	100.2	100.2	100.2	100.2	100.2	100.2	100.2	100.2
80°	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9
82.5°	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7
85°	30.3	30.3	30.3	30.3	30.3	30.3	30.3	30.3
87.5°	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
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)