

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO COMMERCIAL

Report Number: P776752

Luminaire Tested: HCDJBS4050CSD-HCD81TRH-5000lm-3500K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776752
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B043-HCD81TRH)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBS4050CSD-HCD81TRH-5000lm-3500K
Description: 8 INCH ROUND SHALLOW-WIDE HAZE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5732.0 lumens
Efficiency: N/A
Efficacy: 119.4 lumens/watt
Spacing Criteria (0/90/45): 1.42 / 1.42 / 1.43
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

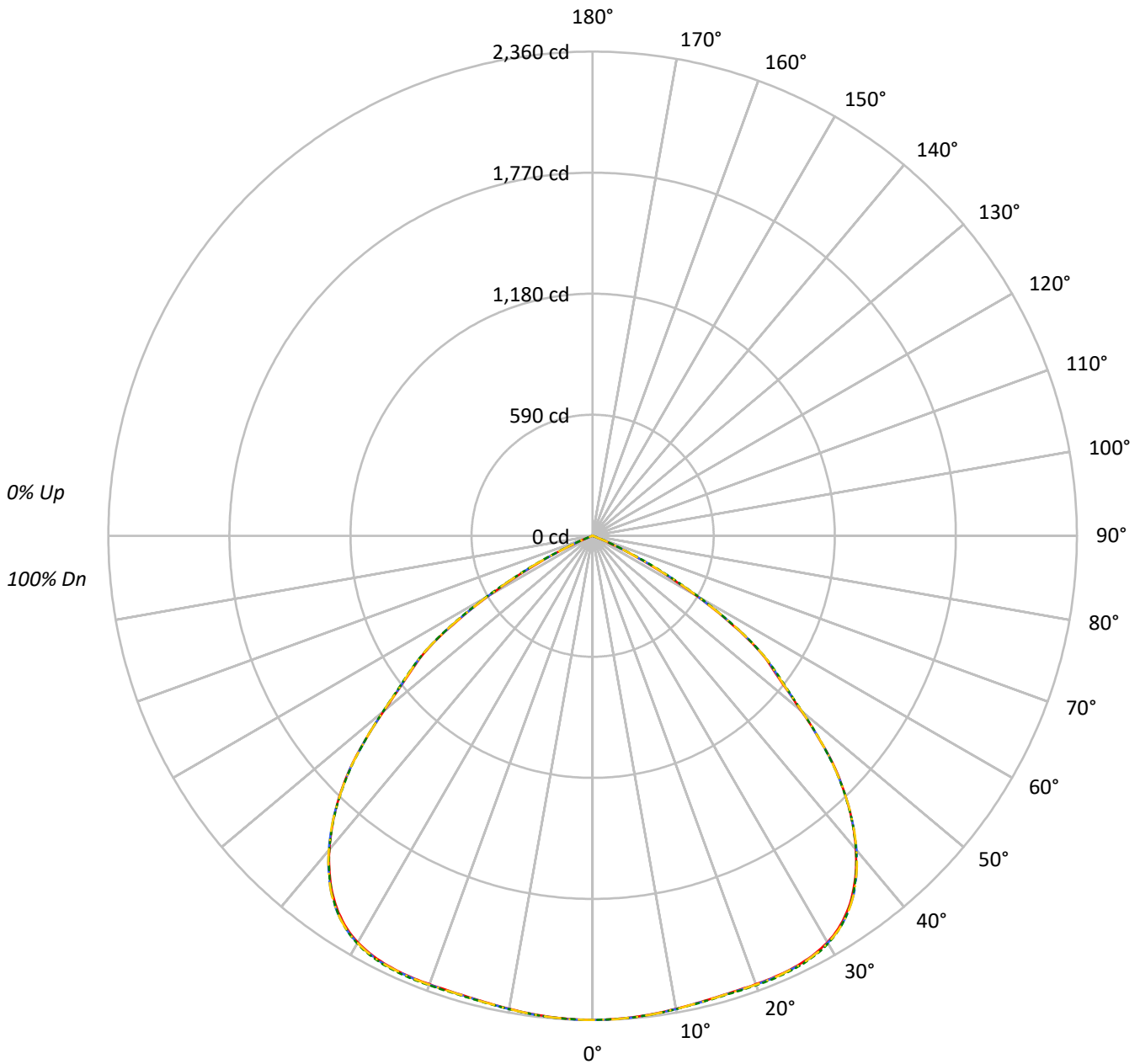
Input Watts (W): 48
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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					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	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	112	108	105	102	109	106	103	100	102	99	97	98	96	94	94	93	91	89								
2	103	97	91	87	101	95	90	86	92	87	84	88	85	82	86	83	80	78								
3	96	87	80	75	93	85	79	74	82	77	73	80	75	71	77	74	70	68								
4	88	78	70	65	86	77	70	64	74	68	63	72	67	63	70	66	62	60								
5	82	70	62	57	80	69	62	56	67	61	56	65	60	55	64	59	55	53								
6	76	64	56	50	74	63	55	50	61	54	49	59	53	49	58	53	48	47								
7	70	58	50	44	69	57	50	44	56	49	44	54	48	44	53	48	43	41								
8	65	53	45	40	64	52	45	40	51	44	39	50	44	39	49	43	39	37								
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	33								
10	57	45	37	32	56	44	37	32	43	37	32	42	36	32	42	36	32	30								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	72051	72051	72051	72051
5°	72152	72183	72152	72183
10°	72577	72636	72577	72636
15°	73594	73699	73594	73699
20°	75571	75740	75571	75740
25°	78213	78435	78213	78435
30°	80653	80885	80653	80885
35°	81503	81678	81503	81678
40°	79518	79553	79518	79553
45°	74164	74065	74164	74065
50°	62938	63384	62938	63384
55°	53803	54106	53803	54106
60°	35385	36765	35385	36765
65°	12476	15033	12476	15033
70°	214	1134	214	1134
75°	59	59	59	59
80°	0	88	0	88
85°	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 74164 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	224.4	3.9
10°-20°	660.8	11.5
20°-30°	1073.4	18.7
30°-40°	1363.0	23.8
40°-50°	1307.1	22.8
50°-60°	879.7	15.3
60°-70°	222.6	3.9
70°-80°	0.9	0.0
80°-90°	0.0	0.0
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°	1958.6	34.2
0°-40°	3321.6	57.9
0°-60°	5508.5	96.1
0°-90°	5732.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5732.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2360	2360	2360	2360	2360	
5°	2354	2355	2354	2355	2354	224
15°	2328	2332	2328	2332	2328	660
25°	2322	2328	2322	2328	2322	1072
35°	2187	2192	2187	2192	2187	1360
45°	1718	1715	1718	1715	1718	1307
55°	1011	1016	1011	1016	1011	874
65°	173	208	173	208	173	207
75°	0	0	0	0	0	1
85°	0	0	0	0	0	0
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2360.0	2360.0	2360.0	2360.0	2360.0	2360.0	2360.0	2360.0	2360.0	2360.0	2360.0
0.5°	2359.5	2359.5	2360.0	2360.5	2360.0	2360.5	2360.0	2359.5	2359.5	2359.5	2360.0
1°	2359.5	2359.5	2360.0	2360.5	2359.5	2360.5	2360.0	2359.5	2359.5	2359.5	2360.0
1.5°	2359.0	2359.0	2359.5	2360.0	2359.5	2360.0	2359.5	2359.0	2359.0	2359.0	2359.5
2°	2358.6	2358.6	2359.5	2359.5	2359.0	2359.5	2359.5	2358.6	2358.6	2358.6	2359.5
2.5°	2358.1	2358.6	2359.0	2359.5	2358.6	2359.5	2359.0	2358.6	2358.1	2358.6	2359.0
3°	2357.6	2357.6	2358.6	2358.6	2358.1	2358.6	2358.6	2357.6	2357.6	2357.6	2358.6
3.5°	2356.7	2357.2	2357.6	2358.1	2357.6	2358.1	2357.6	2357.2	2356.7	2357.2	2357.6
4°	2356.2	2356.2	2356.7	2357.6	2356.7	2357.6	2356.7	2356.2	2356.2	2356.2	2356.7
4.5°	2355.3	2355.7	2356.2	2356.7	2356.2	2356.7	2356.2	2355.7	2355.3	2355.7	2356.2
5°	2354.3	2354.8	2355.3	2355.7	2355.3	2355.7	2355.3	2354.8	2354.3	2354.8	2355.3
5.5°	2353.4	2353.4	2354.3	2354.8	2354.3	2354.8	2354.3	2353.4	2353.4	2353.4	2354.3
6°	2352.0	2352.4	2352.9	2353.8	2353.4	2353.8	2352.9	2352.4	2352.0	2352.4	2352.9
6.5°	2351.0	2351.5	2352.0	2352.9	2352.0	2352.9	2352.0	2351.5	2351.0	2351.5	2352.0
7°	2349.6	2350.1	2351.0	2351.5	2351.0	2351.5	2351.0	2350.1	2349.6	2350.1	2351.0
7.5°	2348.2	2348.7	2349.6	2350.1	2349.6	2350.1	2349.6	2348.7	2348.2	2348.7	2349.6
8°	2347.2	2347.2	2348.2	2349.1	2348.7	2349.1	2348.2	2347.2	2347.2	2347.2	2348.2
8.5°	2345.8	2345.8	2346.8	2347.2	2347.2	2347.2	2346.8	2345.8	2345.8	2345.8	2346.8
9°	2343.9	2344.4	2345.4	2346.3	2345.8	2346.3	2345.4	2344.4	2343.9	2344.4	2345.4
9.5°	2342.5	2343.0	2343.9	2344.9	2344.4	2344.9	2343.9	2343.0	2342.5	2343.0	2343.9
10°	2341.1	2341.6	2342.5	2343.5	2343.0	2343.5	2342.5	2341.6	2341.1	2341.6	2342.5
10.5°	2339.7	2340.2	2340.6	2342.1	2341.6	2342.1	2340.6	2340.2	2339.7	2340.2	2340.6
11°	2338.3	2338.3	2339.2	2340.6	2340.2	2340.6	2339.2	2338.3	2338.3	2338.3	2339.2
11.5°	2336.9	2336.9	2337.8	2339.2	2338.7	2339.2	2337.8	2336.9	2336.9	2336.9	2337.8
12°	2335.4	2335.4	2336.4	2337.8	2337.8	2337.8	2336.4	2335.4	2335.4	2335.4	2336.4
12.5°	2334.0	2334.0	2335.4	2336.4	2336.4	2336.4	2335.4	2334.0	2334.0	2334.0	2335.4
13°	2332.6	2333.1	2334.0	2335.0	2335.4	2335.0	2334.0	2333.1	2332.6	2333.1	2334.0
13.5°	2331.2	2331.7	2333.1	2334.0	2334.0	2334.0	2333.1	2331.7	2331.2	2331.7	2333.1
14°	2330.3	2330.7	2331.7	2333.1	2333.1	2333.1	2331.7	2330.7	2330.3	2330.7	2331.7
14.5°	2329.3	2329.8	2330.7	2332.1	2332.6	2332.1	2330.7	2329.8	2329.3	2329.8	2330.7
15°	2328.4	2328.8	2329.8	2331.7	2331.7	2331.7	2329.8	2328.8	2328.4	2328.8	2329.8
15.5°	2327.4	2327.9	2329.3	2330.7	2331.2	2330.7	2329.3	2327.9	2327.4	2327.9	2329.3
16°	2327.0	2327.4	2328.4	2330.3	2330.7	2330.3	2328.4	2327.4	2327.0	2327.4	2328.4
16.5°	2326.5	2327.0	2327.9	2329.8	2330.3	2329.8	2327.9	2327.0	2326.5	2327.0	2327.9
17°	2326.0	2326.5	2327.9	2329.8	2330.3	2329.8	2327.9	2326.5	2326.0	2326.5	2327.9
17.5°	2326.0	2326.5	2327.4	2329.8	2330.3	2329.8	2327.4	2326.5	2326.0	2326.5	2327.4
18°	2325.5	2326.0	2327.4	2329.8	2330.3	2329.8	2327.4	2326.0	2325.5	2326.0	2327.4
18.5°	2325.5	2326.0	2327.4	2329.8	2330.3	2329.8	2327.4	2326.0	2325.5	2326.0	2327.4
19°	2326.0	2326.0	2327.4	2330.3	2330.7	2330.3	2327.4	2326.0	2326.0	2326.0	2327.4
19.5°	2326.0	2326.5	2327.9	2330.3	2331.2	2330.3	2327.9	2326.5	2326.0	2326.5	2327.9
20°	2326.0	2326.5	2327.9	2330.7	2331.2	2330.7	2327.9	2326.5	2326.0	2326.5	2327.9
20.5°	2326.5	2326.5	2328.4	2330.7	2331.7	2330.7	2328.4	2326.5	2326.5	2326.5	2328.4
21°	2326.5	2327.0	2328.4	2331.2	2331.7	2331.2	2328.4	2327.0	2326.5	2327.0	2328.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	2326.0	2326.5	2328.4	2331.2	2332.1	2331.2	2328.4	2326.5	2326.0	2326.5	2328.4
23°	2325.5	2326.0	2327.9	2330.7	2331.7	2330.7	2327.9	2326.0	2325.5	2326.0	2327.9
23.5°	2325.1	2325.5	2327.4	2330.3	2331.2	2330.3	2327.4	2325.5	2325.1	2325.5	2327.4
24°	2324.6	2324.6	2326.5	2329.8	2330.7	2329.8	2326.5	2324.6	2324.6	2324.6	2326.5
24.5°	2323.2	2323.6	2325.5	2328.8	2329.8	2328.8	2325.5	2323.6	2323.2	2323.6	2325.5
25°	2321.8	2322.2	2324.6	2327.9	2328.4	2327.9	2324.6	2322.2	2321.8	2322.2	2324.6
25.5°	2320.3	2320.8	2323.2	2326.5	2327.0	2326.5	2323.2	2320.8	2320.3	2320.8	2323.2
26°	2318.5	2318.9	2321.3	2324.6	2325.5	2324.6	2321.3	2318.9	2318.5	2318.9	2321.3
26.5°	2316.1	2316.6	2319.4	2322.7	2323.2	2322.7	2319.4	2316.6	2316.1	2316.6	2319.4
27°	2313.7	2314.2	2316.6	2319.9	2320.3	2319.9	2316.6	2314.2	2313.7	2314.2	2316.6
27.5°	2310.4	2311.4	2313.7	2317.0	2317.5	2317.0	2313.7	2311.4	2310.4	2311.4	2313.7
28°	2307.1	2307.6	2310.4	2313.7	2314.2	2313.7	2310.4	2307.6	2307.1	2307.6	2310.4
28.5°	2303.4	2303.8	2306.7	2310.0	2310.0	2310.0	2306.7	2303.8	2303.4	2303.8	2306.7
29°	2298.6	2299.6	2302.4	2305.2	2305.7	2305.2	2302.4	2299.6	2298.6	2299.6	2302.4
29.5°	2293.4	2294.4	2297.7	2300.5	2300.5	2300.5	2297.7	2294.4	2293.4	2294.4	2297.7
30°	2287.8	2288.7	2292.0	2294.9	2294.4	2294.9	2292.0	2288.7	2287.8	2288.7	2292.0
30.5°	2281.6	2282.6	2285.9	2288.7	2288.3	2288.7	2285.9	2282.6	2281.6	2282.6	2285.9
31°	2274.6	2275.5	2279.3	2281.6	2280.7	2281.6	2279.3	2275.5	2274.6	2275.5	2279.3
31.5°	2266.5	2268.0	2271.7	2273.6	2272.7	2273.6	2271.7	2268.0	2266.5	2268.0	2271.7
32°	2257.6	2259.5	2263.2	2265.1	2264.2	2265.1	2263.2	2259.5	2257.6	2259.5	2263.2
32.5°	2248.1	2250.0	2253.8	2255.2	2254.3	2255.2	2253.8	2250.0	2248.1	2250.0	2253.8
33°	2237.8	2239.6	2243.9	2244.8	2243.4	2244.8	2243.9	2239.6	2237.8	2239.6	2243.9
33.5°	2226.0	2228.3	2232.6	2233.5	2232.1	2233.5	2232.6	2228.3	2226.0	2228.3	2232.6
34°	2214.2	2216.5	2220.8	2221.2	2219.4	2221.2	2220.8	2216.5	2214.2	2216.5	2220.8
34.5°	2200.5	2203.3	2207.6	2207.6	2205.7	2207.6	2207.6	2203.3	2200.5	2203.3	2207.6
35°	2186.8	2189.2	2193.9	2193.4	2191.5	2193.4	2193.9	2189.2	2186.8	2189.2	2193.9
35.5°	2171.7	2174.1	2178.8	2178.3	2176.4	2178.3	2178.8	2174.1	2171.7	2174.1	2178.8
36°	2155.7	2158.5	2163.2	2162.3	2159.9	2162.3	2163.2	2158.5	2155.7	2158.5	2163.2
36.5°	2139.1	2141.5	2146.2	2145.3	2142.4	2145.3	2146.2	2141.5	2139.1	2141.5	2146.2
37°	2120.7	2123.6	2127.8	2127.3	2124.5	2127.3	2127.8	2123.6	2120.7	2123.6	2127.8
37.5°	2102.3	2104.7	2109.4	2108.0	2105.2	2108.0	2109.4	2104.7	2102.3	2104.7	2109.4
38°	2082.5	2085.3	2089.6	2088.2	2084.9	2088.2	2089.6	2085.3	2082.5	2085.3	2089.6
38.5°	2061.7	2064.6	2068.8	2066.9	2064.1	2066.9	2068.8	2064.6	2061.7	2064.6	2068.8
39°	2041.0	2043.3	2047.1	2045.7	2042.4	2045.7	2047.1	2043.3	2041.0	2043.3	2047.1
39.5°	2018.8	2020.7	2024.5	2023.0	2019.7	2023.0	2024.5	2020.7	2018.8	2020.7	2024.5
40°	1995.2	1997.1	2000.9	1999.5	1996.1	1999.5	2000.9	1997.1	1995.2	1997.1	2000.9
40.5°	1971.6	1973.0	1976.3	1974.9	1971.6	1974.9	1976.3	1973.0	1971.6	1973.0	1976.3
41°	1946.6	1948.0	1950.8	1949.9	1946.6	1949.9	1950.8	1948.0	1946.6	1948.0	1950.8
41.5°	1921.1	1922.1	1924.9	1923.0	1920.6	1923.0	1924.9	1922.1	1921.1	1922.1	1924.9
42°	1894.7	1895.6	1897.5	1896.6	1894.2	1896.6	1897.5	1895.6	1894.7	1895.6	1897.5
42.5°	1867.8	1867.8	1869.7	1868.7	1866.4	1868.7	1869.7	1867.8	1867.8	1867.8	1869.7
43°	1839.5	1839.5	1840.9	1839.9	1837.6	1839.9	1840.9	1839.5	1839.5	1839.5	1840.9
43.5°	1810.2	1810.2	1810.7	1809.7	1808.3	1809.7	1810.7	1810.2	1810.2	1810.2	1810.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1717.7	1716.3	1716.3	1715.8	1715.4	1715.8	1716.3	1716.3	1717.7	1716.3	1716.3
45.5°	1684.7	1683.3	1682.8	1682.3	1681.9	1682.3	1682.8	1683.3	1684.7	1683.3	1682.8
46°	1650.7	1648.8	1648.4	1648.4	1647.9	1648.4	1648.4	1648.8	1650.7	1648.8	1648.4
46.5°	1615.3	1613.4	1613.0	1612.5	1612.0	1612.5	1613.0	1613.4	1615.3	1613.4	1613.0
47°	1577.6	1575.7	1574.3	1573.3	1572.4	1573.3	1574.3	1575.7	1577.6	1575.7	1574.3
47.5°	1536.5	1534.6	1532.7	1533.2	1532.7	1533.2	1532.7	1534.6	1536.5	1534.6	1532.7
48°	1493.1	1492.6	1493.6	1494.0	1494.5	1494.0	1493.6	1492.6	1493.1	1492.6	1493.6
48.5°	1451.6	1451.6	1453.5	1453.9	1453.9	1453.9	1453.5	1451.6	1451.6	1451.6	1453.5
49°	1411.5	1411.0	1412.4	1412.9	1413.3	1412.9	1412.4	1411.0	1411.5	1411.0	1412.4
49.5°	1368.0	1368.5	1371.3	1373.2	1373.7	1373.2	1371.3	1368.5	1368.0	1368.5	1371.3
50°	1325.1	1327.0	1330.8	1333.1	1334.5	1333.1	1330.8	1327.0	1325.1	1327.0	1330.8
50.5°	1285.5	1287.8	1291.6	1294.0	1294.9	1294.0	1291.6	1287.8	1285.5	1287.8	1291.6
51°	1249.1	1250.5	1254.3	1256.2	1257.1	1256.2	1254.3	1250.5	1249.1	1250.5	1254.3
51.5°	1214.2	1215.1	1219.4	1222.7	1224.1	1222.7	1219.4	1215.1	1214.2	1215.1	1219.4
52°	1179.8	1181.6	1185.9	1190.1	1192.0	1190.1	1185.9	1181.6	1179.8	1181.6	1185.9
52.5°	1148.6	1150.5	1155.2	1159.5	1162.3	1159.5	1155.2	1150.5	1148.6	1150.5	1155.2
53°	1119.8	1121.7	1126.9	1131.2	1133.0	1131.2	1126.9	1121.7	1119.8	1121.7	1126.9
53.5°	1092.9	1094.8	1099.5	1103.3	1105.2	1103.3	1099.5	1094.8	1092.9	1094.8	1099.5
54°	1067.4	1068.9	1073.1	1075.5	1076.4	1075.5	1073.1	1068.9	1067.4	1068.9	1073.1
54.5°	1040.5	1042.0	1045.3	1048.1	1048.6	1048.1	1045.3	1042.0	1040.5	1042.0	1045.3
55°	1010.8	1012.2	1015.5	1017.4	1016.5	1017.4	1015.5	1012.2	1010.8	1012.2	1015.5
55.5°	976.4	977.8	981.6	983.4	983.0	983.4	981.6	977.8	976.4	977.8	981.6
56°	938.1	940.0	944.7	947.1	946.6	947.1	944.7	940.0	938.1	940.0	944.7
56.5°	897.6	900.4	904.6	908.4	907.9	908.4	904.6	900.4	897.6	900.4	904.6
57°	855.1	857.4	863.6	865.9	866.4	865.9	863.6	857.4	855.1	857.4	863.6
57.5°	810.7	813.6	820.2	823.0	823.5	823.0	820.2	813.6	810.7	813.6	820.2
58°	765.9	768.7	775.3	779.6	780.5	779.6	775.3	768.7	765.9	768.7	775.3
58.5°	720.1	722.5	729.6	734.8	736.2	734.8	729.6	722.5	720.1	722.5	729.6
59°	673.9	676.2	682.8	689.9	691.8	689.9	682.8	676.2	673.9	676.2	682.8
59.5°	626.7	629.5	637.1	645.1	647.0	645.1	637.1	629.5	626.7	629.5	637.1
60°	579.5	583.7	591.3	601.2	602.1	601.2	591.3	583.7	579.5	583.7	591.3
60.5°	533.2	537.0	547.4	556.4	558.3	556.4	547.4	537.0	533.2	537.0	547.4
61°	487.9	492.7	504.0	512.5	514.8	512.5	504.0	492.7	487.9	492.7	504.0
61.5°	444.5	448.8	461.0	468.6	472.8	468.6	461.0	448.8	444.5	448.8	461.0
62°	401.6	405.8	418.6	426.1	430.8	426.1	418.6	405.8	401.6	405.8	418.6
62.5°	358.6	364.3	377.5	385.1	390.3	385.1	377.5	364.3	358.6	364.3	377.5
63°	316.6	323.7	337.4	345.4	351.6	345.4	337.4	323.7	316.6	323.7	337.4
63.5°	278.0	284.1	298.7	307.2	313.3	307.2	298.7	284.1	278.0	284.1	298.7
64°	241.1	247.7	261.0	270.9	276.5	270.9	261.0	247.7	241.1	247.7	261.0
64.5°	206.2	212.4	225.1	236.4	242.1	236.4	225.1	212.4	206.2	212.4	225.1
65°	172.7	181.2	192.1	202.9	208.1	202.9	192.1	181.2	172.7	181.2	192.1
65.5°	143.5	151.5	160.9	171.8	176.5	171.8	160.9	151.5	143.5	151.5	160.9
66°	115.6	123.6	133.1	143.5	145.8	143.5	133.1	123.6	115.6	123.6	133.1



TEST NUMBER: P776752

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRH-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	46.2	59.0	63.7	72.7	73.1	72.7	63.7	59.0	46.2	59.0	63.7
68°	28.3	41.5	46.2	55.2	54.3	55.2	46.2	41.5	28.3	41.5	46.2
68.5°	12.3	26.9	32.6	39.2	43.4	39.2	32.6	26.9	12.3	26.9	32.6
69°	6.6	16.5	21.2	25.5	33.5	25.5	21.2	16.5	6.6	16.5	21.2
69.5°	4.2	8.0	11.8	15.1	23.1	15.1	11.8	8.0	4.2	8.0	11.8
70°	2.4	4.7	5.7	6.6	12.7	6.6	5.7	4.7	2.4	4.7	5.7
70.5°	0.9	2.4	3.3	2.8	3.8	2.8	3.3	2.4	0.9	2.4	3.3
71°	0.9	1.4	1.9	1.4	1.4	1.4	1.9	1.4	0.9	1.4	1.9
71.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
72°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
73°	0.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.5	0.9	0.9
73.5°	0.5	0.5	0.9	0.9	0.9	0.9	0.9	0.5	0.5	0.5	0.9
74°	0.5	0.5	0.5	0.9	0.9	0.9	0.5	0.5	0.5	0.5	0.5
74.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
75°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
75.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
76°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
76.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
77°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
77.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
78°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
78.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
79°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
79.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80°	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.5
80.5°	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.5
81°	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
81.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776752

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRH-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
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: P776752

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRH-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2360.0	2360.0	2360.0	2360.0	2360.0	2360.0
0.5°	2360.5	2360.0	2360.5	2360.0	2359.5	2359.5
1°	2360.5	2359.5	2360.5	2360.0	2359.5	2359.5
1.5°	2360.0	2359.5	2360.0	2359.5	2359.0	2359.0
2°	2359.5	2359.0	2359.5	2359.5	2358.6	2358.6
2.5°	2359.5	2358.6	2359.5	2359.0	2358.6	2358.1
3°	2358.6	2358.1	2358.6	2358.6	2357.6	2357.6
3.5°	2358.1	2357.6	2358.1	2357.6	2357.2	2356.7
4°	2357.6	2356.7	2357.6	2356.7	2356.2	2356.2
4.5°	2356.7	2356.2	2356.7	2356.2	2355.7	2355.3
5°	2355.7	2355.3	2355.7	2355.3	2354.8	2354.3
5.5°	2354.8	2354.3	2354.8	2354.3	2353.4	2353.4
6°	2353.8	2353.4	2353.8	2352.9	2352.4	2352.0
6.5°	2352.9	2352.0	2352.9	2352.0	2351.5	2351.0
7°	2351.5	2351.0	2351.5	2351.0	2350.1	2349.6
7.5°	2350.1	2349.6	2350.1	2349.6	2348.7	2348.2
8°	2349.1	2348.7	2349.1	2348.2	2347.2	2347.2
8.5°	2347.2	2347.2	2347.2	2346.8	2345.8	2345.8
9°	2346.3	2345.8	2346.3	2345.4	2344.4	2343.9
9.5°	2344.9	2344.4	2344.9	2343.9	2343.0	2342.5
10°	2343.5	2343.0	2343.5	2342.5	2341.6	2341.1
10.5°	2342.1	2341.6	2342.1	2340.6	2340.2	2339.7
11°	2340.6	2340.2	2340.6	2339.2	2338.3	2338.3
11.5°	2339.2	2338.7	2339.2	2337.8	2336.9	2336.9
12°	2337.8	2337.8	2337.8	2336.4	2335.4	2335.4
12.5°	2336.4	2336.4	2336.4	2335.4	2334.0	2334.0
13°	2335.0	2335.4	2335.0	2334.0	2333.1	2332.6
13.5°	2334.0	2334.0	2334.0	2333.1	2331.7	2331.2
14°	2333.1	2333.1	2333.1	2331.7	2330.7	2330.3
14.5°	2332.1	2332.6	2332.1	2330.7	2329.8	2329.3
15°	2331.7	2331.7	2331.7	2329.8	2328.8	2328.4
15.5°	2330.7	2331.2	2330.7	2329.3	2327.9	2327.4
16°	2330.3	2330.7	2330.3	2328.4	2327.4	2327.0
16.5°	2329.8	2330.3	2329.8	2327.9	2327.0	2326.5
17°	2329.8	2330.3	2329.8	2327.9	2326.5	2326.0
17.5°	2329.8	2330.3	2329.8	2327.4	2326.5	2326.0
18°	2329.8	2330.3	2329.8	2327.4	2326.0	2325.5
18.5°	2329.8	2330.3	2329.8	2327.4	2326.0	2325.5
19°	2330.3	2330.7	2330.3	2327.4	2326.0	2326.0
19.5°	2330.3	2331.2	2330.3	2327.9	2326.5	2326.0
20°	2330.7	2331.2	2330.7	2327.9	2326.5	2326.0
20.5°	2330.7	2331.7	2330.7	2328.4	2326.5	2326.5
21°	2331.2	2331.7	2331.2	2328.4	2327.0	2326.5



TEST NUMBER: P776752

CATALOG NUMBER: HCDJBLS4050CSD-HCD81TRH-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2331.2	2332.1	2331.2	2328.4	2326.5	2326.0
23°	2330.7	2331.7	2330.7	2327.9	2326.0	2325.5
23.5°	2330.3	2331.2	2330.3	2327.4	2325.5	2325.1
24°	2329.8	2330.7	2329.8	2326.5	2324.6	2324.6
24.5°	2328.8	2329.8	2328.8	2325.5	2323.6	2323.2
25°	2327.9	2328.4	2327.9	2324.6	2322.2	2321.8
25.5°	2326.5	2327.0	2326.5	2323.2	2320.8	2320.3
26°	2324.6	2325.5	2324.6	2321.3	2318.9	2318.5
26.5°	2322.7	2323.2	2322.7	2319.4	2316.6	2316.1
27°	2319.9	2320.3	2319.9	2316.6	2314.2	2313.7
27.5°	2317.0	2317.5	2317.0	2313.7	2311.4	2310.4
28°	2313.7	2314.2	2313.7	2310.4	2307.6	2307.1
28.5°	2310.0	2310.0	2310.0	2306.7	2303.8	2303.4
29°	2305.2	2305.7	2305.2	2302.4	2299.6	2298.6
29.5°	2300.5	2300.5	2300.5	2297.7	2294.4	2293.4
30°	2294.9	2294.4	2294.9	2292.0	2288.7	2287.8
30.5°	2288.7	2288.3	2288.7	2285.9	2282.6	2281.6
31°	2281.6	2280.7	2281.6	2279.3	2275.5	2274.6
31.5°	2273.6	2272.7	2273.6	2271.7	2268.0	2266.5
32°	2265.1	2264.2	2265.1	2263.2	2259.5	2257.6
32.5°	2255.2	2254.3	2255.2	2253.8	2250.0	2248.1
33°	2244.8	2243.4	2244.8	2243.9	2239.6	2237.8
33.5°	2233.5	2232.1	2233.5	2232.6	2228.3	2226.0
34°	2221.2	2219.4	2221.2	2220.8	2216.5	2214.2
34.5°	2207.6	2205.7	2207.6	2207.6	2203.3	2200.5
35°	2193.4	2191.5	2193.4	2193.9	2189.2	2186.8
35.5°	2178.3	2176.4	2178.3	2178.8	2174.1	2171.7
36°	2162.3	2159.9	2162.3	2163.2	2158.5	2155.7
36.5°	2145.3	2142.4	2145.3	2146.2	2141.5	2139.1
37°	2127.3	2124.5	2127.3	2127.8	2123.6	2120.7
37.5°	2108.0	2105.2	2108.0	2109.4	2104.7	2102.3
38°	2088.2	2084.9	2088.2	2089.6	2085.3	2082.5
38.5°	2066.9	2064.1	2066.9	2068.8	2064.6	2061.7
39°	2045.7	2042.4	2045.7	2047.1	2043.3	2041.0
39.5°	2023.0	2019.7	2023.0	2024.5	2020.7	2018.8
40°	1999.5	1996.1	1999.5	2000.9	1997.1	1995.2
40.5°	1974.9	1971.6	1974.9	1976.3	1973.0	1971.6
41°	1949.9	1946.6	1949.9	1950.8	1948.0	1946.6
41.5°	1923.0	1920.6	1923.0	1924.9	1922.1	1921.1
42°	1896.6	1894.2	1896.6	1897.5	1895.6	1894.7
42.5°	1868.7	1866.4	1868.7	1869.7	1867.8	1867.8
43°	1839.9	1837.6	1839.9	1840.9	1839.5	1839.5
43.5°	1809.7	1808.3	1809.7	1810.7	1810.2	1810.2



TEST NUMBER: P776752

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRH-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1715.8	1715.4	1715.8	1716.3	1716.3	1717.7
45.5°	1682.3	1681.9	1682.3	1682.8	1683.3	1684.7
46°	1648.4	1647.9	1648.4	1648.4	1648.8	1650.7
46.5°	1612.5	1612.0	1612.5	1613.0	1613.4	1615.3
47°	1573.3	1572.4	1573.3	1574.3	1575.7	1577.6
47.5°	1533.2	1532.7	1533.2	1532.7	1534.6	1536.5
48°	1494.0	1494.5	1494.0	1493.6	1492.6	1493.1
48.5°	1453.9	1453.9	1453.9	1453.5	1451.6	1451.6
49°	1412.9	1413.3	1412.9	1412.4	1411.0	1411.5
49.5°	1373.2	1373.7	1373.2	1371.3	1368.5	1368.0
50°	1333.1	1334.5	1333.1	1330.8	1327.0	1325.1
50.5°	1294.0	1294.9	1294.0	1291.6	1287.8	1285.5
51°	1256.2	1257.1	1256.2	1254.3	1250.5	1249.1
51.5°	1222.7	1224.1	1222.7	1219.4	1215.1	1214.2
52°	1190.1	1192.0	1190.1	1185.9	1181.6	1179.8
52.5°	1159.5	1162.3	1159.5	1155.2	1150.5	1148.6
53°	1131.2	1133.0	1131.2	1126.9	1121.7	1119.8
53.5°	1103.3	1105.2	1103.3	1099.5	1094.8	1092.9
54°	1075.5	1076.4	1075.5	1073.1	1068.9	1067.4
54.5°	1048.1	1048.6	1048.1	1045.3	1042.0	1040.5
55°	1017.4	1016.5	1017.4	1015.5	1012.2	1010.8
55.5°	983.4	983.0	983.4	981.6	977.8	976.4
56°	947.1	946.6	947.1	944.7	940.0	938.1
56.5°	908.4	907.9	908.4	904.6	900.4	897.6
57°	865.9	866.4	865.9	863.6	857.4	855.1
57.5°	823.0	823.5	823.0	820.2	813.6	810.7
58°	779.6	780.5	779.6	775.3	768.7	765.9
58.5°	734.8	736.2	734.8	729.6	722.5	720.1
59°	689.9	691.8	689.9	682.8	676.2	673.9
59.5°	645.1	647.0	645.1	637.1	629.5	626.7
60°	601.2	602.1	601.2	591.3	583.7	579.5
60.5°	556.4	558.3	556.4	547.4	537.0	533.2
61°	512.5	514.8	512.5	504.0	492.7	487.9
61.5°	468.6	472.8	468.6	461.0	448.8	444.5
62°	426.1	430.8	426.1	418.6	405.8	401.6
62.5°	385.1	390.3	385.1	377.5	364.3	358.6
63°	345.4	351.6	345.4	337.4	323.7	316.6
63.5°	307.2	313.3	307.2	298.7	284.1	278.0
64°	270.9	276.5	270.9	261.0	247.7	241.1
64.5°	236.4	242.1	236.4	225.1	212.4	206.2
65°	202.9	208.1	202.9	192.1	181.2	172.7
65.5°	171.8	176.5	171.8	160.9	151.5	143.5
66°	143.5	145.8	143.5	133.1	123.6	115.6



TEST NUMBER: P776752

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRH-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	72.7	73.1	72.7	63.7	59.0	46.2
68°	55.2	54.3	55.2	46.2	41.5	28.3
68.5°	39.2	43.4	39.2	32.6	26.9	12.3
69°	25.5	33.5	25.5	21.2	16.5	6.6
69.5°	15.1	23.1	15.1	11.8	8.0	4.2
70°	6.6	12.7	6.6	5.7	4.7	2.4
70.5°	2.8	3.8	2.8	3.3	2.4	0.9
71°	1.4	1.4	1.4	1.9	1.4	0.9
71.5°	0.9	0.9	0.9	0.9	0.9	0.9
72°	0.9	0.9	0.9	0.9	0.9	0.9
72.5°	0.9	0.9	0.9	0.9	0.9	0.9
73°	0.9	0.9	0.9	0.9	0.9	0.5
73.5°	0.9	0.9	0.9	0.9	0.5	0.5
74°	0.9	0.9	0.9	0.5	0.5	0.5
74.5°	0.5	0.5	0.5	0.5	0.5	0.5
75°	0.5	0.5	0.5	0.5	0.5	0.5
75.5°	0.5	0.5	0.5	0.5	0.5	0.5
76°	0.5	0.5	0.5	0.5	0.5	0.5
76.5°	0.5	0.5	0.5	0.5	0.5	0.5
77°	0.5	0.5	0.5	0.5	0.5	0.5
77.5°	0.5	0.5	0.5	0.5	0.5	0.5
78°	0.5	0.5	0.5	0.5	0.5	0.5
78.5°	0.5	0.5	0.5	0.5	0.5	0.5
79°	0.5	0.5	0.5	0.5	0.5	0.5
79.5°	0.5	0.5	0.5	0.5	0.5	0.5
80°	0.5	0.5	0.5	0.5	0.0	0.0
80.5°	0.5	0.5	0.5	0.5	0.0	0.0
81°	0.0	0.5	0.0	0.0	0.0	0.0
81.5°	0.0	0.0	0.0	0.0	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0
87°	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
88°	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776752

CATALOG NUMBER: HCDJBL54050CSD-HCD81TRH-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.0	0.0	0.0



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Scaled Data Report





— 0°-180° - - 45°-225° - - - - 90°-270° - · - · 135°-315°

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Scaled Data Report



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21.5°	2326.5	2327.0	2328.4	2331.2	2332.1	2331.2	2328.4	2327.0	2326.5	2327.0	2328.4
22°	2326.5	2326.5	2328.4	2331.2	2332.1	2331.2	2328.4	2326.5	2326.5	2326.5	2328.4



44°	1780.5	1779.5	1780.0	1779.1	1778.1	1779.1	1780.0	1779.5	1780.5	1779.5	1780.0
44.5°	1749.8	1748.4	1748.9	1748.4	1747.0	1748.4	1748.9	1748.4	1749.8	1748.4	1748.9



66.5°	92.5	100.0	106.6	116.6	119.4	116.6	106.6	100.0	92.5	100.0	106.6
67°	69.4	77.4	84.5	93.9	94.9	93.9	84.5	77.4	69.4	77.4	84.5



89°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89.5°	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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21.5°	2331.2	2332.1	2331.2	2328.4	2327.0	2326.5
22°	2331.2	2332.1	2331.2	2328.4	2326.5	2326.5



44°	1779.1	1778.1	1779.1	1780.0	1779.5	1780.5
44.5°	1748.4	1747.0	1748.4	1748.9	1748.4	1749.8

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66.5°	116.6	119.4	116.6	106.6	100.0	92.5
67°	93.9	94.9	93.9	84.5	77.4	69.4

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89°	0.0	0.0	0.0	0.0	0.0	0.0
89.5°	0.0	0.0	0.0	0.0	0.0	0.0

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Scaled Data Report



(END OF REPORT)