

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: P776754

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

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776754
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-5000K
Description: 8 INCH ROUND SHALLOW-WIDE HAZE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5898.4 lumens
Efficiency: N/A
Efficacy: 122.9 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

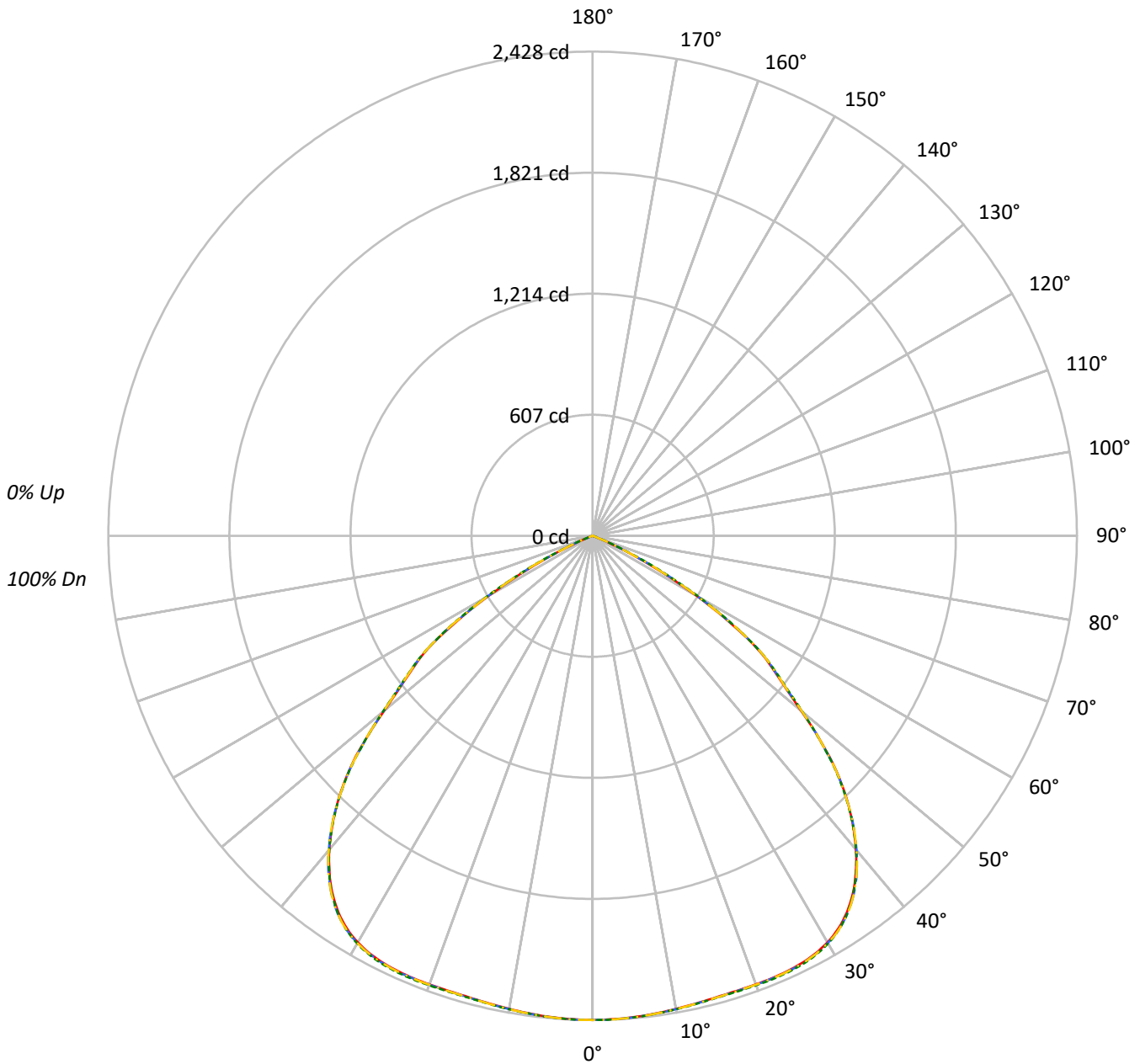
Input Watts (W): 48
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	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°	74143	74143	74143	74143
5°	74248	74276	74248	74276
10°	74685	74744	74685	74744
15°	75731	75838	75731	75838
20°	77764	77939	77764	77939
25°	80484	80713	80484	80713
30°	82993	83233	82993	83233
35°	83870	84049	83870	84049
40°	81825	81865	81825	81865
45°	76318	76215	76318	76215
50°	64766	65227	64766	65227
55°	55368	55676	55368	55676
60°	36410	37833	36410	37833
65°	12837	15474	12837	15474
70°	214	1169	214	1169
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: 76318 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	230.9	3.9
10°-20°	680.0	11.5
20°-30°	1104.6	18.7
30°-40°	1402.5	23.8
40°-50°	1345.1	22.8
50°-60°	905.3	15.3
60°-70°	229.0	3.9
70°-80°	1.0	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°	2015.5	34.2
0°-40°	3418.0	57.9
0°-60°	5668.4	96.1
0°-90°	5898.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5898.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2428	2428	2428	2428	2428	
5°	2423	2424	2423	2424	2423	231
15°	2396	2399	2396	2399	2396	679
25°	2389	2396	2389	2396	2389	1103
35°	2250	2255	2250	2255	2250	1400
45°	1768	1765	1768	1765	1768	1345
55°	1040	1046	1040	1046	1040	899
65°	178	214	178	214	178	213
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°	2428.5	2428.5	2428.5	2428.5	2428.5	2428.5	2428.5	2428.5	2428.5	2428.5	2428.5
0.5°	2428.0	2428.0	2428.5	2429.0	2428.5	2429.0	2428.5	2428.0	2428.0	2428.0	2428.5
1°	2428.0	2428.0	2428.5	2429.0	2428.0	2429.0	2428.5	2428.0	2428.0	2428.0	2428.5
1.5°	2427.5	2427.5	2428.0	2428.5	2428.0	2428.5	2428.0	2427.5	2427.5	2427.5	2428.0
2°	2427.0	2427.0	2428.0	2428.0	2427.5	2428.0	2428.0	2427.0	2427.0	2427.0	2428.0
2.5°	2426.5	2427.0	2427.5	2428.0	2427.0	2428.0	2427.5	2427.0	2426.5	2427.0	2427.5
3°	2426.1	2426.1	2427.0	2427.0	2426.5	2427.0	2427.0	2426.1	2426.1	2426.1	2427.0
3.5°	2425.1	2425.6	2426.1	2426.5	2426.1	2426.5	2426.1	2425.6	2425.1	2425.6	2426.1
4°	2424.6	2424.6	2425.1	2426.1	2425.1	2426.1	2425.1	2424.6	2424.6	2424.6	2425.1
4.5°	2423.6	2424.1	2424.6	2425.1	2424.6	2425.1	2424.6	2424.1	2423.6	2424.1	2424.6
5°	2422.7	2423.2	2423.6	2424.1	2423.6	2424.1	2423.6	2423.2	2422.7	2423.2	2423.6
5.5°	2421.7	2421.7	2422.7	2423.2	2422.7	2423.2	2422.7	2421.7	2421.7	2421.7	2422.7
6°	2420.2	2420.7	2421.2	2422.2	2421.7	2422.2	2421.2	2420.7	2420.2	2420.7	2421.2
6.5°	2419.3	2419.8	2420.2	2421.2	2420.2	2421.2	2420.2	2419.8	2419.3	2419.8	2420.2
7°	2417.8	2418.3	2419.3	2419.8	2419.3	2419.8	2419.3	2418.3	2417.8	2418.3	2419.3
7.5°	2416.4	2416.8	2417.8	2418.3	2417.8	2418.3	2417.8	2416.8	2416.4	2416.8	2417.8
8°	2415.4	2415.4	2416.4	2417.3	2416.8	2417.3	2416.4	2415.4	2415.4	2415.4	2416.4
8.5°	2413.9	2413.9	2414.9	2415.4	2415.4	2415.4	2414.9	2413.9	2413.9	2413.9	2414.9
9°	2412.0	2412.5	2413.4	2414.4	2413.9	2414.4	2413.4	2412.5	2412.0	2412.5	2413.4
9.5°	2410.5	2411.0	2412.0	2413.0	2412.5	2413.0	2412.0	2411.0	2410.5	2411.0	2412.0
10°	2409.1	2409.6	2410.5	2411.5	2411.0	2411.5	2410.5	2409.6	2409.1	2409.6	2410.5
10.5°	2407.6	2408.1	2408.6	2410.0	2409.6	2410.0	2408.6	2408.1	2407.6	2408.1	2408.6
11°	2406.2	2406.2	2407.1	2408.6	2408.1	2408.6	2407.1	2406.2	2406.2	2406.2	2407.1
11.5°	2404.7	2404.7	2405.7	2407.1	2406.6	2407.1	2405.7	2404.7	2404.7	2404.7	2405.7
12°	2403.2	2403.2	2404.2	2405.7	2405.7	2405.7	2404.2	2403.2	2403.2	2403.2	2404.2
12.5°	2401.8	2401.8	2403.2	2404.2	2404.2	2404.2	2403.2	2401.8	2401.8	2401.8	2403.2
13°	2400.3	2400.8	2401.8	2402.8	2403.2	2402.8	2401.8	2400.8	2400.3	2400.8	2401.8
13.5°	2398.9	2399.4	2400.8	2401.8	2401.8	2401.8	2400.8	2399.4	2398.9	2399.4	2400.8
14°	2397.9	2398.4	2399.4	2400.8	2400.8	2400.8	2399.4	2398.4	2397.9	2398.4	2399.4
14.5°	2396.9	2397.4	2398.4	2399.8	2400.3	2399.8	2398.4	2397.4	2396.9	2397.4	2398.4
15°	2396.0	2396.4	2397.4	2399.4	2399.4	2399.4	2397.4	2396.4	2396.0	2396.4	2397.4
15.5°	2395.0	2395.5	2396.9	2398.4	2398.9	2398.4	2396.9	2395.5	2395.0	2395.5	2396.9
16°	2394.5	2395.0	2396.0	2397.9	2398.4	2397.9	2396.0	2395.0	2394.5	2395.0	2396.0
16.5°	2394.0	2394.5	2395.5	2397.4	2397.9	2397.4	2395.5	2394.5	2394.0	2394.5	2395.5
17°	2393.5	2394.0	2395.5	2397.4	2397.9	2397.4	2395.5	2394.0	2393.5	2394.0	2395.5
17.5°	2393.5	2394.0	2395.0	2397.4	2397.9	2397.4	2395.0	2394.0	2393.5	2394.0	2395.0
18°	2393.0	2393.5	2395.0	2397.4	2397.9	2397.4	2395.0	2393.5	2393.0	2393.5	2395.0
18.5°	2393.0	2393.5	2395.0	2397.4	2397.9	2397.4	2395.0	2393.5	2393.0	2393.5	2395.0
19°	2393.5	2393.5	2395.0	2397.9	2398.4	2397.9	2395.0	2393.5	2393.5	2393.5	2395.0
19.5°	2393.5	2394.0	2395.5	2397.9	2398.9	2397.9	2395.5	2394.0	2393.5	2394.0	2395.5
20°	2393.5	2394.0	2395.5	2398.4	2398.9	2398.4	2395.5	2394.0	2393.5	2394.0	2395.5
20.5°	2394.0	2394.0	2396.0	2398.4	2399.4	2398.4	2396.0	2394.0	2394.0	2394.0	2396.0
21°	2394.0	2394.5	2396.0	2398.9	2399.4	2398.9	2396.0	2394.5	2394.0	2394.5	2396.0



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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°	2393.5	2394.0	2396.0	2398.9	2399.8	2398.9	2396.0	2394.0	2393.5	2394.0	2396.0
23°	2393.0	2393.5	2395.5	2398.4	2399.4	2398.4	2395.5	2393.5	2393.0	2393.5	2395.5
23.5°	2392.6	2393.0	2395.0	2397.9	2398.9	2397.9	2395.0	2393.0	2392.6	2393.0	2395.0
24°	2392.1	2392.1	2394.0	2397.4	2398.4	2397.4	2394.0	2392.1	2392.1	2392.1	2394.0
24.5°	2390.6	2391.1	2393.0	2396.4	2397.4	2396.4	2393.0	2391.1	2390.6	2391.1	2393.0
25°	2389.2	2389.6	2392.1	2395.5	2396.0	2395.5	2392.1	2389.6	2389.2	2389.6	2392.1
25.5°	2387.7	2388.2	2390.6	2394.0	2394.5	2394.0	2390.6	2388.2	2387.7	2388.2	2390.6
26°	2385.8	2386.2	2388.7	2392.1	2393.0	2392.1	2388.7	2386.2	2385.8	2386.2	2388.7
26.5°	2383.3	2383.8	2386.7	2390.1	2390.6	2390.1	2386.7	2383.8	2383.3	2383.8	2386.7
27°	2380.9	2381.4	2383.8	2387.2	2387.7	2387.2	2383.8	2381.4	2380.9	2381.4	2383.8
27.5°	2377.5	2378.5	2380.9	2384.3	2384.8	2384.3	2380.9	2378.5	2377.5	2378.5	2380.9
28°	2374.1	2374.6	2377.5	2380.9	2381.4	2380.9	2377.5	2374.6	2374.1	2374.6	2377.5
28.5°	2370.2	2370.7	2373.6	2377.0	2377.0	2377.0	2373.6	2370.7	2370.2	2370.7	2373.6
29°	2365.4	2366.3	2369.2	2372.2	2372.6	2372.2	2369.2	2366.3	2365.4	2366.3	2369.2
29.5°	2360.0	2361.0	2364.4	2367.3	2367.3	2367.3	2364.4	2361.0	2360.0	2361.0	2364.4
30°	2354.2	2355.2	2358.6	2361.5	2361.0	2361.5	2358.6	2355.2	2354.2	2355.2	2358.6
30.5°	2347.9	2348.9	2352.3	2355.2	2354.7	2355.2	2352.3	2348.9	2347.9	2348.9	2352.3
31°	2340.6	2341.6	2345.5	2347.9	2346.9	2347.9	2345.5	2341.6	2340.6	2341.6	2345.5
31.5°	2332.3	2333.8	2337.7	2339.6	2338.7	2339.6	2337.7	2333.8	2332.3	2333.8	2337.7
32°	2323.1	2325.1	2328.9	2330.9	2329.9	2330.9	2328.9	2325.1	2323.1	2325.1	2328.9
32.5°	2313.4	2315.3	2319.2	2320.7	2319.7	2320.7	2319.2	2315.3	2313.4	2315.3	2319.2
33°	2302.7	2304.7	2309.0	2310.0	2308.5	2310.0	2309.0	2304.7	2302.7	2304.7	2309.0
33.5°	2290.6	2293.0	2297.4	2298.4	2296.9	2298.4	2297.4	2293.0	2290.6	2293.0	2297.4
34°	2278.4	2280.9	2285.2	2285.7	2283.8	2285.7	2285.2	2280.9	2278.4	2280.9	2285.2
34.5°	2264.4	2267.3	2271.6	2271.6	2269.7	2271.6	2271.6	2267.3	2264.4	2267.3	2271.6
35°	2250.3	2252.7	2257.6	2257.1	2255.1	2257.1	2257.6	2252.7	2250.3	2252.7	2257.6
35.5°	2234.7	2237.2	2242.0	2241.5	2239.6	2241.5	2242.0	2237.2	2234.7	2237.2	2242.0
36°	2218.2	2221.1	2226.0	2225.0	2222.6	2225.0	2226.0	2221.1	2218.2	2221.1	2226.0
36.5°	2201.2	2203.7	2208.5	2207.5	2204.6	2207.5	2208.5	2203.7	2201.2	2203.7	2208.5
37°	2182.3	2185.2	2189.6	2189.1	2186.2	2189.1	2189.6	2185.2	2182.3	2185.2	2189.6
37.5°	2163.4	2165.8	2170.6	2169.2	2166.3	2169.2	2170.6	2165.8	2163.4	2165.8	2170.6
38°	2143.0	2145.9	2150.2	2148.8	2145.4	2148.8	2150.2	2145.9	2143.0	2145.9	2150.2
38.5°	2121.6	2124.5	2128.9	2126.9	2124.0	2126.9	2128.9	2124.5	2121.6	2124.5	2128.9
39°	2100.2	2102.7	2106.5	2105.1	2101.7	2105.1	2106.5	2102.7	2100.2	2102.7	2106.5
39.5°	2077.4	2079.3	2083.2	2081.8	2078.4	2081.8	2083.2	2079.3	2077.4	2079.3	2083.2
40°	2053.1	2055.1	2058.9	2057.5	2054.1	2057.5	2058.9	2055.1	2053.1	2055.1	2058.9
40.5°	2028.8	2030.3	2033.7	2032.2	2028.8	2032.2	2033.7	2030.3	2028.8	2030.3	2033.7
41°	2003.1	2004.6	2007.5	2006.5	2003.1	2006.5	2007.5	2004.6	2003.1	2004.6	2007.5
41.5°	1976.9	1977.9	1980.8	1978.8	1976.4	1978.8	1980.8	1977.9	1976.9	1977.9	1980.8
42°	1949.7	1950.7	1952.6	1951.6	1949.2	1951.6	1952.6	1950.7	1949.7	1950.7	1952.6
42.5°	1922.0	1922.0	1924.0	1923.0	1920.6	1923.0	1924.0	1922.0	1922.0	1922.0	1924.0
43°	1892.9	1892.9	1894.3	1893.4	1890.9	1893.4	1894.3	1892.9	1892.9	1892.9	1894.3
43.5°	1862.8	1862.8	1863.3	1862.3	1860.8	1862.3	1863.3	1862.8	1862.8	1862.8	1863.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1767.6	1766.1	1766.1	1765.6	1765.2	1765.6	1766.1	1766.1	1767.6	1766.1	1766.1
45.5°	1733.6	1732.1	1731.7	1731.2	1730.7	1731.2	1731.7	1732.1	1733.6	1732.1	1731.7
46°	1698.6	1696.7	1696.2	1696.2	1695.7	1696.2	1696.2	1696.7	1698.6	1696.7	1696.2
46.5°	1662.2	1660.3	1659.8	1659.3	1658.8	1659.3	1659.8	1660.3	1662.2	1660.3	1659.8
47°	1623.4	1621.4	1620.0	1619.0	1618.0	1619.0	1620.0	1621.4	1623.4	1621.4	1620.0
47.5°	1581.1	1579.2	1577.2	1577.7	1577.2	1577.7	1577.2	1579.2	1581.1	1579.2	1577.2
48°	1536.4	1536.0	1536.9	1537.4	1537.9	1537.4	1536.9	1536.0	1536.4	1536.0	1536.9
48.5°	1493.7	1493.7	1495.7	1496.1	1496.1	1496.1	1495.7	1493.7	1493.7	1493.7	1495.7
49°	1452.4	1451.9	1453.4	1453.9	1454.4	1453.9	1453.4	1451.9	1452.4	1451.9	1453.4
49.5°	1407.8	1408.2	1411.2	1413.1	1413.6	1413.1	1411.2	1408.2	1407.8	1408.2	1411.2
50°	1363.6	1365.5	1369.4	1371.8	1373.3	1371.8	1369.4	1365.5	1363.6	1365.5	1369.4
50.5°	1322.8	1325.2	1329.1	1331.5	1332.5	1331.5	1329.1	1325.2	1322.8	1325.2	1329.1
51°	1285.4	1286.8	1290.7	1292.7	1293.6	1292.7	1290.7	1286.8	1285.4	1286.8	1290.7
51.5°	1249.5	1250.4	1254.8	1258.2	1259.6	1258.2	1254.8	1250.4	1249.5	1250.4	1254.8
52°	1214.0	1215.9	1220.3	1224.7	1226.6	1224.7	1220.3	1215.9	1214.0	1215.9	1220.3
52.5°	1182.0	1183.9	1188.8	1193.1	1196.0	1193.1	1188.8	1183.9	1182.0	1183.9	1188.8
53°	1152.3	1154.3	1159.6	1164.0	1165.9	1164.0	1159.6	1154.3	1152.3	1154.3	1159.6
53.5°	1124.7	1126.6	1131.5	1135.3	1137.3	1135.3	1131.5	1126.6	1124.7	1126.6	1131.5
54°	1098.4	1099.9	1104.3	1106.7	1107.7	1106.7	1104.3	1099.9	1098.4	1099.9	1104.3
54.5°	1070.8	1072.2	1075.6	1078.5	1079.0	1078.5	1075.6	1072.2	1070.8	1072.2	1075.6
55°	1040.2	1041.6	1045.0	1047.0	1046.0	1047.0	1045.0	1041.6	1040.2	1041.6	1045.0
55.5°	1004.7	1006.2	1010.1	1012.0	1011.5	1012.0	1010.1	1006.2	1004.7	1006.2	1010.1
56°	965.4	967.3	972.2	974.6	974.1	974.6	972.2	967.3	965.4	967.3	972.2
56.5°	923.6	926.5	930.9	934.8	934.3	934.8	930.9	926.5	923.6	926.5	930.9
57°	879.9	882.3	888.7	891.1	891.6	891.1	888.7	882.3	879.9	882.3	888.7
57.5°	834.3	837.2	844.0	846.9	847.4	846.9	844.0	837.2	834.3	837.2	844.0
58°	788.1	791.0	797.8	802.2	803.2	802.2	797.8	791.0	788.1	791.0	797.8
58.5°	741.0	743.5	750.7	756.1	757.5	756.1	750.7	743.5	741.0	743.5	750.7
59°	693.4	695.9	702.7	709.9	711.9	709.9	702.7	695.9	693.4	695.9	702.7
59.5°	644.9	647.8	655.6	663.8	665.8	663.8	655.6	647.8	644.9	647.8	655.6
60°	596.3	600.7	608.5	618.7	619.6	618.7	608.5	600.7	596.3	600.7	608.5
60.5°	548.7	552.6	563.3	572.5	574.5	572.5	563.3	552.6	548.7	552.6	563.3
61°	502.1	507.0	518.6	527.4	529.8	527.4	518.6	507.0	502.1	507.0	518.6
61.5°	457.4	461.8	474.4	482.2	486.6	482.2	474.4	461.8	457.4	461.8	474.4
62°	413.2	417.6	430.7	438.5	443.4	438.5	430.7	417.6	413.2	417.6	430.7
62.5°	369.1	374.9	388.5	396.3	401.6	396.3	388.5	374.9	369.1	374.9	388.5
63°	325.8	333.1	347.2	355.5	361.8	355.5	347.2	333.1	325.8	333.1	347.2
63.5°	286.0	292.3	307.4	316.1	322.4	316.1	307.4	292.3	286.0	292.3	307.4
64°	248.1	254.9	268.5	278.7	284.6	278.7	268.5	254.9	248.1	254.9	268.5
64.5°	212.2	218.5	231.6	243.3	249.1	243.3	231.6	218.5	212.2	218.5	231.6
65°	177.7	186.5	197.6	208.8	214.2	208.8	197.6	186.5	177.7	186.5	197.6
65.5°	147.6	155.9	165.6	176.8	181.6	176.8	165.6	155.9	147.6	155.9	165.6
66°	119.0	127.2	136.9	147.6	150.1	147.6	136.9	127.2	119.0	127.2	136.9



TEST NUMBER: P776754

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

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	47.6	60.7	65.6	74.8	75.3	74.8	65.6	60.7	47.6	60.7	65.6
68°	29.1	42.7	47.6	56.8	55.8	56.8	47.6	42.7	29.1	42.7	47.6
68.5°	12.6	27.7	33.5	40.3	44.7	40.3	33.5	27.7	12.6	27.7	33.5
69°	6.8	17.0	21.9	26.2	34.5	26.2	21.9	17.0	6.8	17.0	21.9
69.5°	4.4	8.3	12.1	15.5	23.8	15.5	12.1	8.3	4.4	8.3	12.1
70°	2.4	4.9	5.8	6.8	13.1	6.8	5.8	4.9	2.4	4.9	5.8
70.5°	1.0	2.4	3.4	2.9	3.9	2.9	3.4	2.4	1.0	2.4	3.4
71°	1.0	1.5	1.9	1.5	1.5	1.5	1.9	1.5	1.0	1.5	1.9
71.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
72°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
73°	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0
73.5°	0.5	0.5	1.0	1.0	1.0	1.0	1.0	0.5	0.5	0.5	1.0
74°	0.5	0.5	0.5	1.0	1.0	1.0	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: P776754

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

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: P776754

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

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2428.5	2428.5	2428.5	2428.5	2428.5	2428.5
0.5°	2429.0	2428.5	2429.0	2428.5	2428.0	2428.0
1°	2429.0	2428.0	2429.0	2428.5	2428.0	2428.0
1.5°	2428.5	2428.0	2428.5	2428.0	2427.5	2427.5
2°	2428.0	2427.5	2428.0	2428.0	2427.0	2427.0
2.5°	2428.0	2427.0	2428.0	2427.5	2427.0	2426.5
3°	2427.0	2426.5	2427.0	2427.0	2426.1	2426.1
3.5°	2426.5	2426.1	2426.5	2426.1	2425.6	2425.1
4°	2426.1	2425.1	2426.1	2425.1	2424.6	2424.6
4.5°	2425.1	2424.6	2425.1	2424.6	2424.1	2423.6
5°	2424.1	2423.6	2424.1	2423.6	2423.2	2422.7
5.5°	2423.2	2422.7	2423.2	2422.7	2421.7	2421.7
6°	2422.2	2421.7	2422.2	2421.2	2420.7	2420.2
6.5°	2421.2	2420.2	2421.2	2420.2	2419.8	2419.3
7°	2419.8	2419.3	2419.8	2419.3	2418.3	2417.8
7.5°	2418.3	2417.8	2418.3	2417.8	2416.8	2416.4
8°	2417.3	2416.8	2417.3	2416.4	2415.4	2415.4
8.5°	2415.4	2415.4	2415.4	2414.9	2413.9	2413.9
9°	2414.4	2413.9	2414.4	2413.4	2412.5	2412.0
9.5°	2413.0	2412.5	2413.0	2412.0	2411.0	2410.5
10°	2411.5	2411.0	2411.5	2410.5	2409.6	2409.1
10.5°	2410.0	2409.6	2410.0	2408.6	2408.1	2407.6
11°	2408.6	2408.1	2408.6	2407.1	2406.2	2406.2
11.5°	2407.1	2406.6	2407.1	2405.7	2404.7	2404.7
12°	2405.7	2405.7	2405.7	2404.2	2403.2	2403.2
12.5°	2404.2	2404.2	2404.2	2403.2	2401.8	2401.8
13°	2402.8	2403.2	2402.8	2401.8	2400.8	2400.3
13.5°	2401.8	2401.8	2401.8	2400.8	2399.4	2398.9
14°	2400.8	2400.8	2400.8	2399.4	2398.4	2397.9
14.5°	2399.8	2400.3	2399.8	2398.4	2397.4	2396.9
15°	2399.4	2399.4	2399.4	2397.4	2396.4	2396.0
15.5°	2398.4	2398.9	2398.4	2396.9	2395.5	2395.0
16°	2397.9	2398.4	2397.9	2396.0	2395.0	2394.5
16.5°	2397.4	2397.9	2397.4	2395.5	2394.5	2394.0
17°	2397.4	2397.9	2397.4	2395.5	2394.0	2393.5
17.5°	2397.4	2397.9	2397.4	2395.0	2394.0	2393.5
18°	2397.4	2397.9	2397.4	2395.0	2393.5	2393.0
18.5°	2397.4	2397.9	2397.4	2395.0	2393.5	2393.0
19°	2397.9	2398.4	2397.9	2395.0	2393.5	2393.5
19.5°	2397.9	2398.9	2397.9	2395.5	2394.0	2393.5
20°	2398.4	2398.9	2398.4	2395.5	2394.0	2393.5
20.5°	2398.4	2399.4	2398.4	2396.0	2394.0	2394.0
21°	2398.9	2399.4	2398.9	2396.0	2394.5	2394.0



TEST NUMBER: P776754

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

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2398.9	2399.8	2398.9	2396.0	2394.0	2393.5
23°	2398.4	2399.4	2398.4	2395.5	2393.5	2393.0
23.5°	2397.9	2398.9	2397.9	2395.0	2393.0	2392.6
24°	2397.4	2398.4	2397.4	2394.0	2392.1	2392.1
24.5°	2396.4	2397.4	2396.4	2393.0	2391.1	2390.6
25°	2395.5	2396.0	2395.5	2392.1	2389.6	2389.2
25.5°	2394.0	2394.5	2394.0	2390.6	2388.2	2387.7
26°	2392.1	2393.0	2392.1	2388.7	2386.2	2385.8
26.5°	2390.1	2390.6	2390.1	2386.7	2383.8	2383.3
27°	2387.2	2387.7	2387.2	2383.8	2381.4	2380.9
27.5°	2384.3	2384.8	2384.3	2380.9	2378.5	2377.5
28°	2380.9	2381.4	2380.9	2377.5	2374.6	2374.1
28.5°	2377.0	2377.0	2377.0	2373.6	2370.7	2370.2
29°	2372.2	2372.6	2372.2	2369.2	2366.3	2365.4
29.5°	2367.3	2367.3	2367.3	2364.4	2361.0	2360.0
30°	2361.5	2361.0	2361.5	2358.6	2355.2	2354.2
30.5°	2355.2	2354.7	2355.2	2352.3	2348.9	2347.9
31°	2347.9	2346.9	2347.9	2345.5	2341.6	2340.6
31.5°	2339.6	2338.7	2339.6	2337.7	2333.8	2332.3
32°	2330.9	2329.9	2330.9	2328.9	2325.1	2323.1
32.5°	2320.7	2319.7	2320.7	2319.2	2315.3	2313.4
33°	2310.0	2308.5	2310.0	2309.0	2304.7	2302.7
33.5°	2298.4	2296.9	2298.4	2297.4	2293.0	2290.6
34°	2285.7	2283.8	2285.7	2285.2	2280.9	2278.4
34.5°	2271.6	2269.7	2271.6	2271.6	2267.3	2264.4
35°	2257.1	2255.1	2257.1	2257.6	2252.7	2250.3
35.5°	2241.5	2239.6	2241.5	2242.0	2237.2	2234.7
36°	2225.0	2222.6	2225.0	2226.0	2221.1	2218.2
36.5°	2207.5	2204.6	2207.5	2208.5	2203.7	2201.2
37°	2189.1	2186.2	2189.1	2189.6	2185.2	2182.3
37.5°	2169.2	2166.3	2169.2	2170.6	2165.8	2163.4
38°	2148.8	2145.4	2148.8	2150.2	2145.9	2143.0
38.5°	2126.9	2124.0	2126.9	2128.9	2124.5	2121.6
39°	2105.1	2101.7	2105.1	2106.5	2102.7	2100.2
39.5°	2081.8	2078.4	2081.8	2083.2	2079.3	2077.4
40°	2057.5	2054.1	2057.5	2058.9	2055.1	2053.1
40.5°	2032.2	2028.8	2032.2	2033.7	2030.3	2028.8
41°	2006.5	2003.1	2006.5	2007.5	2004.6	2003.1
41.5°	1978.8	1976.4	1978.8	1980.8	1977.9	1976.9
42°	1951.6	1949.2	1951.6	1952.6	1950.7	1949.7
42.5°	1923.0	1920.6	1923.0	1924.0	1922.0	1922.0
43°	1893.4	1890.9	1893.4	1894.3	1892.9	1892.9
43.5°	1862.3	1860.8	1862.3	1863.3	1862.8	1862.8



TEST NUMBER: P776754

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

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1765.6	1765.2	1765.6	1766.1	1766.1	1767.6
45.5°	1731.2	1730.7	1731.2	1731.7	1732.1	1733.6
46°	1696.2	1695.7	1696.2	1696.2	1696.7	1698.6
46.5°	1659.3	1658.8	1659.3	1659.8	1660.3	1662.2
47°	1619.0	1618.0	1619.0	1620.0	1621.4	1623.4
47.5°	1577.7	1577.2	1577.7	1577.2	1579.2	1581.1
48°	1537.4	1537.9	1537.4	1536.9	1536.0	1536.4
48.5°	1496.1	1496.1	1496.1	1495.7	1493.7	1493.7
49°	1453.9	1454.4	1453.9	1453.4	1451.9	1452.4
49.5°	1413.1	1413.6	1413.1	1411.2	1408.2	1407.8
50°	1371.8	1373.3	1371.8	1369.4	1365.5	1363.6
50.5°	1331.5	1332.5	1331.5	1329.1	1325.2	1322.8
51°	1292.7	1293.6	1292.7	1290.7	1286.8	1285.4
51.5°	1258.2	1259.6	1258.2	1254.8	1250.4	1249.5
52°	1224.7	1226.6	1224.7	1220.3	1215.9	1214.0
52.5°	1193.1	1196.0	1193.1	1188.8	1183.9	1182.0
53°	1164.0	1165.9	1164.0	1159.6	1154.3	1152.3
53.5°	1135.3	1137.3	1135.3	1131.5	1126.6	1124.7
54°	1106.7	1107.7	1106.7	1104.3	1099.9	1098.4
54.5°	1078.5	1079.0	1078.5	1075.6	1072.2	1070.8
55°	1047.0	1046.0	1047.0	1045.0	1041.6	1040.2
55.5°	1012.0	1011.5	1012.0	1010.1	1006.2	1004.7
56°	974.6	974.1	974.6	972.2	967.3	965.4
56.5°	934.8	934.3	934.8	930.9	926.5	923.6
57°	891.1	891.6	891.1	888.7	882.3	879.9
57.5°	846.9	847.4	846.9	844.0	837.2	834.3
58°	802.2	803.2	802.2	797.8	791.0	788.1
58.5°	756.1	757.5	756.1	750.7	743.5	741.0
59°	709.9	711.9	709.9	702.7	695.9	693.4
59.5°	663.8	665.8	663.8	655.6	647.8	644.9
60°	618.7	619.6	618.7	608.5	600.7	596.3
60.5°	572.5	574.5	572.5	563.3	552.6	548.7
61°	527.4	529.8	527.4	518.6	507.0	502.1
61.5°	482.2	486.6	482.2	474.4	461.8	457.4
62°	438.5	443.4	438.5	430.7	417.6	413.2
62.5°	396.3	401.6	396.3	388.5	374.9	369.1
63°	355.5	361.8	355.5	347.2	333.1	325.8
63.5°	316.1	322.4	316.1	307.4	292.3	286.0
64°	278.7	284.6	278.7	268.5	254.9	248.1
64.5°	243.3	249.1	243.3	231.6	218.5	212.2
65°	208.8	214.2	208.8	197.6	186.5	177.7
65.5°	176.8	181.6	176.8	165.6	155.9	147.6
66°	147.6	150.1	147.6	136.9	127.2	119.0



TEST NUMBER: P776754

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

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	74.8	75.3	74.8	65.6	60.7	47.6
68°	56.8	55.8	56.8	47.6	42.7	29.1
68.5°	40.3	44.7	40.3	33.5	27.7	12.6
69°	26.2	34.5	26.2	21.9	17.0	6.8
69.5°	15.5	23.8	15.5	12.1	8.3	4.4
70°	6.8	13.1	6.8	5.8	4.9	2.4
70.5°	2.9	3.9	2.9	3.4	2.4	1.0
71°	1.5	1.5	1.5	1.9	1.5	1.0
71.5°	1.0	1.0	1.0	1.0	1.0	1.0
72°	1.0	1.0	1.0	1.0	1.0	1.0
72.5°	1.0	1.0	1.0	1.0	1.0	1.0
73°	1.0	1.0	1.0	1.0	1.0	0.5
73.5°	1.0	1.0	1.0	1.0	0.5	0.5
74°	1.0	1.0	1.0	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: P776754

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

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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Scaled Data Report





21.5°	2394.0	2394.5	2396.0	2398.9	2399.8	2398.9	2396.0	2394.5	2394.0	2394.5	2396.0
22°	2394.0	2394.0	2396.0	2398.9	2399.8	2398.9	2396.0	2394.0	2394.0	2394.0	2396.0



44°	1832.2	1831.2	1831.7	1830.7	1829.7	1830.7	1831.7	1831.2	1832.2	1831.2	1831.7
44.5°	1800.6	1799.2	1799.6	1799.2	1797.7	1799.2	1799.6	1799.2	1800.6	1799.2	1799.6



66.5°	95.2	102.9	109.7	119.9	122.9	119.9	109.7	102.9	95.2	102.9	109.7
67°	71.4	79.6	86.9	96.6	97.6	96.6	86.9	79.6	71.4	79.6	86.9



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°	2398.9	2399.8	2398.9	2396.0	2394.5	2394.0
22°	2398.9	2399.8	2398.9	2396.0	2394.0	2394.0



44°	1830.7	1829.7	1830.7	1831.7	1831.2	1832.2
44.5°	1799.2	1797.7	1799.2	1799.6	1799.2	1800.6

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66.5°	119.9	122.9	119.9	109.7	102.9	95.2
67°	96.6	97.6	96.6	86.9	79.6	71.4

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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)