

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: P776243

Luminaire Tested: HCDJBL3040CSD-HCD41TRH-4000lm-4000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776243
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B029)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL3040CSD-HCD41TRH-4000lm-4000K
Description: 4 INCH ROUND SHALLOW-WIDE HAZE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT
Ballast/Driver: -

Summary

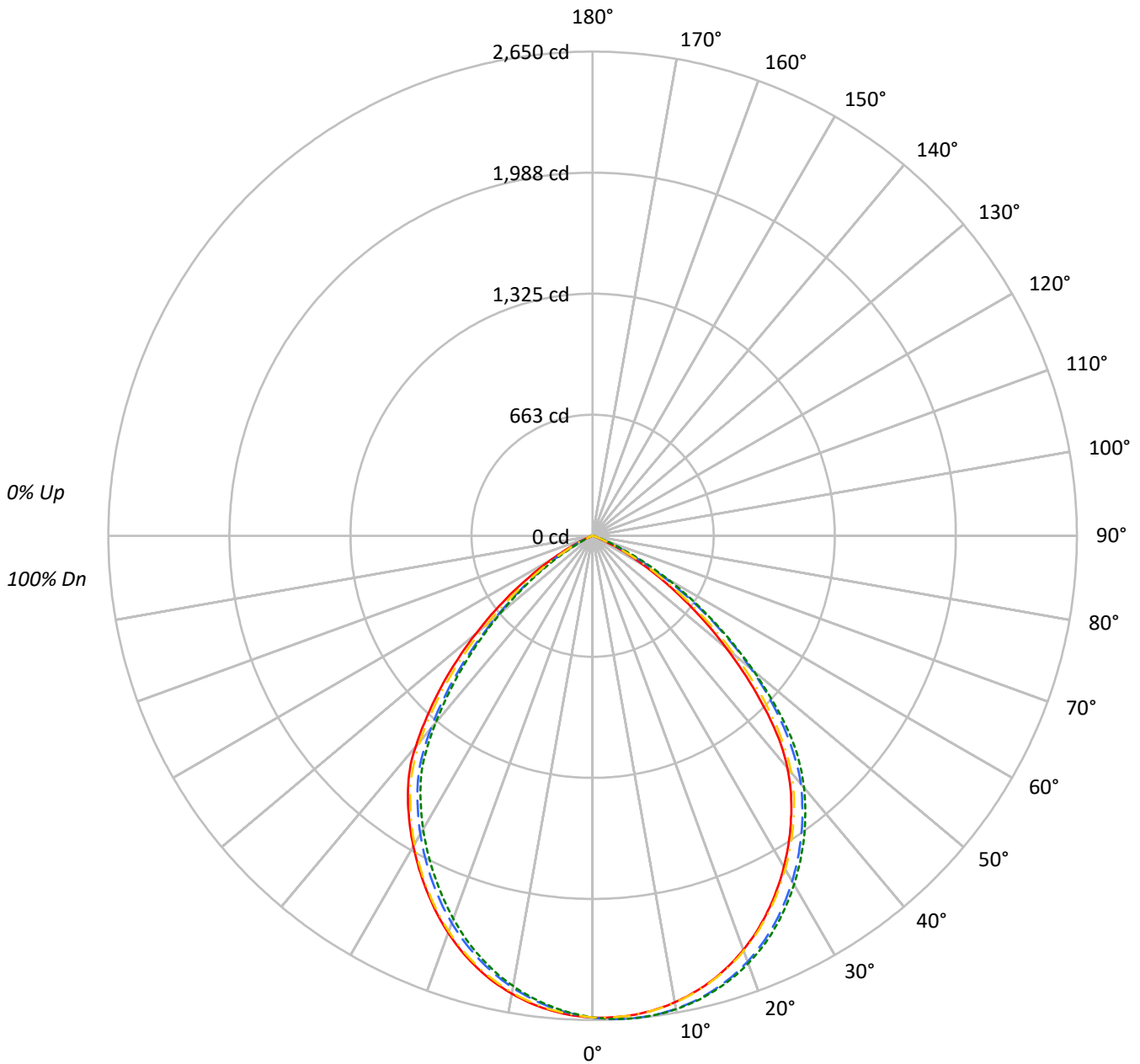
Lumens per Lamp: N/A
Luminaire Lumens: 4715.7 lumens
Efficiency: N/A
Efficacy: 122.5 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.15 / 1.22
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 38.5
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									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	109	105	103	109	106	104	101	102	100	98	98	97	95	95	94	92	90																			
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80																			
3	97	89	83	77	95	87	82	77	85	80	76	82	78	74	80	76	73	71																			
4	90	81	74	68	88	79	73	68	77	71	67	75	70	66	73	69	65	63																			
5	84	73	66	60	82	72	65	60	70	64	60	69	63	59	67	62	58	57																			
6	78	67	60	54	77	66	59	54	65	58	53	63	57	53	62	57	53	51																			
7	73	62	54	49	72	61	54	49	59	53	48	58	52	48	57	52	48	46																			
8	69	57	49	44	67	56	49	44	55	48	44	54	48	44	53	47	43	42																			
9	64	52	45	40	63	52	45	40	51	44	40	50	44	40	49	44	40	38																			
10	60	49	42	37	59	48	41	37	47	41	37	46	41	36	46	40	36	35																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	331765	331765	331765	331765
5°	332413	334763	329521	326716
10°	331312	336257	325293	319823
15°	328394	335951	318831	310584
20°	323031	333571	309652	298643
25°	314837	328390	298049	284621
30°	304123	320355	285203	269508
35°	290691	309819	270688	251914
40°	272434	295549	247529	219518
45°	236320	270029	208698	176128
50°	186879	224764	163443	128867
55°	134258	173709	114797	81819
60°	82079	118399	65744	39265
65°	34454	63250	24597	11643
70°	7727	18545	7102	5041
75°	5300	6856	4911	3355
80°	3769	5291	3479	2319
85°	1155	4621	578	578

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 270029 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	248.4	5.3
10°-20°	699.0	14.8
20°-30°	1015.6	21.5
30°-40°	1137.7	24.1
40°-50°	957.9	20.3
50°-60°	515.8	10.9
60°-70°	127.1	2.7
70°-80°	12.1	0.3
80°-90°	2.1	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°	1963.0	41.6
0°-40°	3100.7	65.8
0°-60°	4574.4	97.0
0°-90°	4715.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4715.7	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2636	2636	2636	2636	2636	
5°	2631	2650	2608	2586	2631	250
15°	2520	2578	2447	2384	2520	710
25°	2267	2365	2146	2050	2267	1043
35°	1892	2017	1762	1640	1892	1180
45°	1328	1517	1173	990	1328	1015
55°	612	792	523	373	612	552
65°	116	212	83	39	116	130
75°	11	14	10	7	11	12
85°	1	3	0	0	1	2
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°	2636.2	2636.2	2636.2	2636.2	2636.2	2636.2	2636.2	2636.2	2636.2	2636.2	2636.2
0.5°	2637.8	2639.4	2640.2	2639.4	2638.6	2637.0	2636.2	2635.4	2635.4	2635.4	2634.6
1°	2638.2	2641.4	2642.6	2642.2	2641.0	2639.4	2637.0	2635.0	2633.7	2632.5	2630.9
1.5°	2638.6	2642.6	2645.0	2644.6	2643.4	2641.0	2637.8	2634.6	2631.7	2629.3	2627.3
2°	2638.6	2643.8	2646.6	2646.6	2645.4	2642.2	2637.8	2633.3	2629.7	2626.1	2623.3
2.5°	2638.2	2644.6	2648.3	2648.3	2647.0	2643.0	2637.8	2631.7	2626.9	2622.5	2618.4
3°	2637.4	2645.0	2649.1	2649.5	2648.3	2643.8	2637.0	2630.1	2624.1	2618.4	2614.0
3.5°	2636.2	2645.0	2649.9	2650.7	2649.1	2643.8	2636.2	2628.1	2620.4	2613.6	2608.8
4°	2635.0	2644.6	2650.3	2651.1	2649.9	2643.8	2635.4	2625.7	2616.8	2609.2	2603.5
4.5°	2633.3	2643.8	2650.3	2651.5	2650.3	2643.4	2633.7	2622.9	2612.8	2604.3	2597.5
5°	2631.3	2643.0	2649.9	2651.9	2649.9	2642.6	2631.7	2619.6	2608.4	2598.7	2591.4
5.5°	2628.9	2641.8	2649.1	2651.5	2649.9	2641.4	2629.7	2616.4	2603.5	2593.0	2585.4
6°	2626.1	2640.2	2648.7	2650.7	2649.1	2640.2	2626.9	2612.4	2598.7	2587.0	2578.5
6.5°	2622.9	2638.2	2647.0	2649.5	2647.9	2638.2	2624.1	2608.4	2593.0	2580.5	2571.3
7°	2620.0	2635.8	2645.4	2648.3	2646.6	2636.2	2620.8	2603.9	2587.4	2574.1	2563.6
7.5°	2616.0	2633.3	2643.4	2646.6	2644.6	2633.7	2617.6	2599.1	2581.3	2566.8	2555.9
8°	2612.0	2630.5	2641.0	2644.6	2642.6	2630.9	2613.6	2593.8	2574.9	2559.2	2547.9
8.5°	2607.5	2626.9	2638.6	2642.2	2640.2	2628.1	2609.2	2588.2	2567.6	2551.1	2539.4
9°	2603.1	2623.3	2635.8	2639.4	2637.4	2624.5	2604.7	2582.2	2560.8	2543.1	2530.6
9.5°	2597.9	2619.2	2632.1	2636.6	2634.6	2620.8	2599.9	2576.1	2553.1	2535.0	2521.7
10°	2592.6	2615.2	2628.5	2632.9	2631.3	2616.8	2594.6	2569.7	2545.5	2526.1	2512.4
10.5°	2587.0	2610.4	2624.5	2629.3	2627.3	2612.4	2589.0	2562.4	2537.0	2516.9	2502.3
11°	2580.9	2605.5	2620.0	2625.3	2623.3	2607.5	2583.0	2555.1	2528.5	2507.6	2492.3
11.5°	2574.5	2599.9	2615.6	2620.8	2618.8	2602.3	2576.9	2547.5	2519.7	2497.5	2482.2
12°	2568.0	2594.2	2610.4	2616.0	2614.4	2596.7	2570.5	2539.8	2510.4	2487.4	2471.3
12.5°	2560.8	2588.2	2604.7	2610.8	2609.2	2591.0	2563.2	2531.0	2500.7	2477.3	2460.0
13°	2553.5	2581.7	2599.1	2605.5	2603.9	2585.0	2555.9	2522.5	2490.7	2466.5	2449.1
13.5°	2545.5	2574.9	2592.6	2599.5	2597.9	2578.5	2548.3	2513.6	2480.6	2454.8	2437.0
14°	2537.4	2567.6	2586.6	2593.4	2591.8	2572.1	2540.6	2504.4	2469.3	2443.5	2424.9
14.5°	2528.9	2560.4	2579.7	2586.6	2585.4	2564.8	2532.2	2494.3	2458.4	2431.4	2412.9
15°	2520.5	2552.7	2572.5	2579.7	2578.5	2557.2	2523.7	2483.8	2447.1	2419.7	2400.4
15.5°	2511.2	2544.3	2564.8	2572.5	2571.3	2549.5	2514.4	2473.3	2435.0	2406.4	2386.7
16°	2501.5	2535.8	2557.2	2565.2	2563.6	2541.0	2505.6	2462.8	2422.9	2393.5	2373.4
16.5°	2491.5	2526.9	2548.7	2557.2	2555.9	2532.6	2495.5	2451.1	2410.0	2380.6	2359.6
17°	2481.4	2517.3	2540.2	2548.7	2547.9	2523.7	2485.4	2439.5	2397.5	2366.9	2345.9
17.5°	2470.5	2508.0	2531.0	2539.8	2539.0	2514.4	2474.9	2427.8	2383.8	2352.8	2331.0
18°	2459.6	2497.9	2521.7	2530.6	2530.2	2504.8	2464.0	2415.7	2370.1	2338.3	2316.5
18.5°	2448.3	2487.4	2512.0	2520.9	2520.9	2495.1	2453.2	2402.8	2356.0	2323.4	2301.2
19°	2436.6	2476.5	2501.5	2511.2	2511.2	2484.6	2441.5	2389.9	2341.5	2308.1	2286.3
19.5°	2424.5	2465.3	2491.1	2500.7	2501.1	2474.1	2429.8	2376.2	2327.0	2293.1	2270.2
20°	2412.0	2453.6	2480.2	2489.8	2490.7	2462.8	2417.3	2362.5	2312.1	2277.8	2254.4
20.5°	2399.2	2441.9	2468.5	2479.0	2479.8	2451.6	2405.2	2348.4	2296.8	2261.3	2238.3
21°	2385.8	2429.4	2456.8	2467.7	2468.5	2439.5	2392.3	2334.3	2280.6	2245.2	2221.8



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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°	2343.9	2390.3	2418.9	2430.6	2432.6	2402.0	2351.2	2289.1	2232.3	2194.4	2170.6
23°	2329.8	2376.2	2405.6	2417.3	2420.1	2388.7	2337.1	2273.8	2215.7	2177.5	2153.3
23.5°	2314.5	2362.1	2391.9	2404.4	2406.8	2375.4	2322.2	2257.7	2198.4	2159.7	2135.1
24°	2299.2	2347.6	2377.8	2390.3	2393.1	2361.3	2307.2	2241.9	2181.5	2142.0	2117.0
24.5°	2283.5	2332.2	2363.3	2376.2	2379.0	2346.7	2291.9	2225.0	2164.2	2124.2	2098.9
25°	2267.3	2317.3	2348.4	2361.7	2364.9	2332.2	2276.6	2208.9	2146.4	2106.5	2080.7
25.5°	2251.2	2302.0	2333.4	2347.2	2350.8	2317.7	2260.9	2192.0	2128.7	2087.6	2062.2
26°	2234.7	2285.9	2317.7	2331.8	2335.5	2302.0	2245.2	2175.0	2111.3	2069.0	2043.2
26.5°	2217.8	2269.8	2302.4	2316.5	2319.7	2286.3	2228.6	2157.3	2092.8	2050.1	2024.3
27°	2201.2	2253.2	2286.3	2300.8	2304.4	2270.2	2212.1	2140.4	2074.3	2031.5	2004.9
27.5°	2183.5	2236.3	2269.8	2285.1	2288.3	2254.0	2194.8	2122.6	2056.1	2012.6	1985.6
28°	2165.8	2219.4	2252.8	2268.6	2272.2	2237.1	2178.3	2104.9	2037.6	1993.2	1966.2
28.5°	2148.0	2202.4	2235.9	2251.6	2255.7	2221.0	2160.9	2086.4	2018.6	1974.3	1946.1
29°	2129.9	2184.7	2218.6	2234.7	2238.7	2204.1	2143.2	2068.2	2000.1	1955.0	1926.3
29.5°	2111.3	2167.0	2201.2	2217.8	2221.8	2186.7	2125.1	2050.1	1981.2	1934.8	1906.6
30°	2092.8	2148.4	2183.1	2199.6	2204.5	2168.6	2107.7	2031.9	1962.6	1915.5	1886.0
30.5°	2074.3	2130.3	2165.4	2182.7	2186.7	2150.9	2089.2	2013.0	1942.9	1895.7	1865.5
31°	2054.9	2112.2	2146.8	2164.6	2169.0	2133.1	2070.6	1994.1	1923.5	1875.5	1844.5
31.5°	2036.0	2092.8	2128.7	2146.0	2150.4	2114.6	2051.7	1975.1	1904.2	1855.4	1823.5
32°	2016.2	2073.9	2109.3	2127.1	2131.9	2095.6	2033.6	1956.6	1884.8	1834.8	1802.2
32.5°	1996.9	2054.5	2090.8	2108.9	2113.4	2077.1	2014.2	1937.2	1865.1	1813.9	1780.4
33°	1975.9	2034.8	2071.4	2090.0	2094.4	2058.5	1995.3	1918.3	1844.5	1792.9	1759.1
33.5°	1956.2	2015.4	2051.7	2070.6	2075.1	2038.8	1975.9	1897.7	1824.0	1771.6	1736.5
34°	1934.8	1995.3	2031.5	2051.3	2056.1	2019.8	1956.2	1878.0	1803.4	1750.6	1714.3
34.5°	1914.2	1974.3	2012.2	2031.5	2036.0	2000.1	1936.4	1857.4	1782.8	1728.4	1692.1
35°	1892.1	1952.9	1991.6	2011.8	2016.6	1979.9	1915.9	1836.8	1761.9	1706.7	1668.8
35.5°	1871.9	1932.4	1970.7	1990.8	1996.5	1959.4	1894.9	1816.3	1740.5	1684.5	1645.0
36°	1849.7	1911.0	1949.3	1970.7	1975.9	1938.8	1874.3	1795.3	1718.7	1661.9	1622.0
36.5°	1828.0	1889.3	1928.8	1949.3	1954.5	1917.9	1853.0	1774.4	1697.0	1638.5	1596.6
37°	1804.6	1867.1	1907.0	1927.5	1932.8	1896.1	1831.2	1752.2	1674.4	1613.5	1568.8
37.5°	1783.2	1844.9	1885.2	1906.2	1911.4	1874.7	1809.8	1730.0	1651.0	1586.1	1539.4
38°	1758.7	1822.7	1862.6	1884.4	1890.1	1853.0	1787.3	1707.5	1625.6	1557.5	1508.3
38.5°	1734.5	1800.2	1840.9	1861.8	1867.9	1830.4	1764.3	1683.7	1598.6	1528.1	1476.1
39°	1709.1	1776.0	1818.7	1839.7	1845.7	1807.8	1741.3	1657.9	1570.0	1497.5	1443.4
39.5°	1684.9	1751.4	1795.3	1817.1	1823.1	1784.0	1717.1	1630.1	1539.8	1465.2	1410.8
40°	1658.3	1726.8	1771.1	1792.9	1799.0	1760.7	1690.9	1601.9	1506.7	1432.6	1377.7
40.5°	1630.5	1701.0	1746.2	1768.7	1775.2	1735.3	1663.1	1571.6	1474.1	1399.1	1343.1
41°	1601.9	1674.0	1720.4	1744.1	1750.6	1710.3	1634.5	1541.0	1441.4	1364.8	1308.8
41.5°	1572.0	1645.0	1692.1	1717.1	1725.2	1683.7	1605.5	1510.4	1408.4	1331.8	1275.4
42°	1541.4	1615.6	1663.1	1689.3	1699.0	1655.9	1574.8	1478.9	1374.5	1295.1	1239.5
42.5°	1508.7	1584.9	1633.3	1660.7	1671.6	1626.4	1544.2	1446.3	1340.7	1260.0	1204.4
43°	1474.1	1553.1	1603.1	1630.5	1643.4	1595.8	1512.8	1412.0	1307.6	1225.4	1168.1
43.5°	1438.2	1520.4	1572.4	1599.8	1613.1	1564.8	1480.5	1378.5	1274.5	1190.7	1133.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1327.8	1419.7	1476.9	1505.1	1517.2	1464.8	1380.2	1277.0	1172.6	1085.5	1025.8
45.5°	1289.5	1385.4	1445.1	1472.9	1481.7	1430.1	1345.5	1243.1	1139.5	1051.2	990.0
46°	1251.2	1349.9	1411.6	1439.8	1446.7	1394.3	1310.4	1208.8	1104.9	1016.6	953.7
46.5°	1213.7	1312.8	1378.1	1406.0	1410.4	1358.4	1275.0	1174.6	1071.0	982.3	918.6
47°	1175.8	1277.0	1344.7	1372.1	1372.9	1321.3	1238.3	1139.5	1037.1	948.1	883.2
47.5°	1138.3	1240.3	1309.2	1337.4	1335.8	1283.8	1202.0	1105.3	1003.3	915.8	848.1
48°	1100.4	1203.6	1274.5	1302.4	1297.5	1246.3	1165.3	1071.0	968.6	881.1	813.8
48.5°	1063.3	1166.5	1239.5	1266.9	1260.0	1208.4	1128.6	1036.7	935.2	847.7	780.8
49°	1027.1	1129.8	1205.2	1231.4	1222.1	1170.6	1091.5	1001.3	901.7	814.2	746.5
49.5°	990.0	1092.0	1168.9	1195.5	1185.1	1132.7	1054.9	967.4	868.6	782.0	713.9
50°	954.5	1054.9	1133.1	1158.5	1148.0	1094.4	1017.4	931.9	834.8	749.7	681.2
50.5°	917.4	1018.2	1096.8	1121.4	1112.5	1056.5	980.3	897.7	801.7	717.5	649.8
51°	882.3	981.9	1060.9	1085.1	1074.2	1019.4	943.2	862.2	769.5	686.0	618.7
51.5°	846.9	944.8	1023.8	1047.6	1037.9	983.5	907.3	829.1	737.6	655.0	589.3
52°	812.6	909.8	988.8	1012.1	1002.5	947.2	871.1	794.9	705.8	624.0	559.5
52.5°	777.5	874.3	951.7	974.7	967.8	909.8	835.6	760.6	674.0	593.3	530.9
53°	743.7	838.8	915.0	938.4	930.7	873.9	799.7	726.8	642.9	563.5	501.8
53.5°	709.8	803.3	877.9	900.5	894.8	838.8	765.5	694.5	612.3	534.5	474.4
54°	676.8	768.7	842.0	865.0	859.8	803.7	730.0	661.5	582.5	505.5	447.8
54.5°	643.7	735.2	806.2	828.7	826.7	769.1	696.9	628.4	552.2	477.3	421.6
55°	611.9	701.4	770.7	794.1	791.7	734.4	663.5	597.0	523.2	450.2	397.0
55.5°	579.6	667.9	735.2	757.8	757.0	701.4	631.2	565.9	494.2	423.2	374.1
56°	549.4	635.3	699.8	724.7	723.1	667.5	599.0	534.9	466.0	397.4	350.7
56.5°	518.4	603.4	665.5	690.1	690.9	634.9	567.1	504.3	438.2	373.3	327.3
57°	489.3	571.6	630.0	656.2	657.0	602.6	536.5	475.2	411.1	349.5	304.3
57.5°	459.9	540.1	597.0	622.0	624.4	571.6	506.7	446.6	384.5	325.3	280.9
58°	431.7	509.9	564.3	590.9	592.9	540.9	477.7	418.0	359.6	301.5	260.4
58.5°	404.3	480.5	532.1	558.3	560.7	511.1	449.4	391.0	334.6	277.3	240.6
59°	377.7	450.2	500.2	526.4	530.1	482.1	421.2	365.6	309.6	255.6	221.3
59.5°	351.9	421.6	469.2	494.6	500.2	453.5	394.2	339.8	284.6	235.0	202.8
60°	326.1	393.8	439.0	465.6	470.4	425.3	369.6	314.4	261.2	214.8	185.4
60.5°	301.5	366.0	409.5	435.7	441.4	398.6	345.0	289.0	239.0	195.9	168.1
61°	277.7	339.0	380.9	405.9	412.8	373.7	320.5	266.0	217.7	177.4	152.0
61.5°	255.2	313.6	353.9	378.1	386.2	349.1	295.9	244.3	197.1	160.4	137.0
62°	233.4	288.6	327.3	350.7	360.0	324.1	271.3	222.9	177.8	143.9	122.9
62.5°	211.6	264.4	301.1	323.7	333.8	299.5	249.1	202.8	158.4	128.6	109.2
63°	190.7	240.6	276.1	297.9	307.6	274.5	227.7	182.6	141.1	113.7	95.9
63.5°	170.1	218.1	252.3	272.1	281.4	252.3	207.6	164.5	124.6	100.4	84.2
64°	149.9	195.9	229.4	248.3	257.2	230.6	187.8	147.5	109.2	87.5	73.4
64.5°	132.6	174.5	207.6	224.9	234.2	209.2	170.1	131.4	95.5	75.8	62.9
65°	115.7	154.4	186.6	203.2	212.4	189.4	152.4	116.1	82.6	65.3	54.0
65.5°	98.8	137.0	166.5	182.2	191.1	170.1	136.2	102.0	70.1	55.6	47.6
66°	81.8	120.9	147.5	161.6	170.5	151.6	120.1	89.1	59.7	47.2	41.1



TEST NUMBER: P776243

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	42.3	73.4	101.2	112.1	116.5	102.4	80.2	55.6	39.1	31.0	21.8
68°	33.9	61.7	85.5	97.1	100.8	88.3	68.5	47.2	33.5	25.4	18.9
68.5°	27.8	51.2	70.1	81.8	86.3	75.4	58.0	41.9	27.8	20.2	17.3
69°	24.2	42.3	58.0	66.5	72.6	63.7	49.2	37.1	22.2	18.1	16.1
69.5°	22.2	35.1	47.6	55.2	60.5	53.2	43.1	31.8	20.6	16.9	14.9
70°	21.0	29.0	38.7	45.5	50.4	46.8	37.5	26.6	19.3	15.7	14.1
70.5°	19.8	24.2	31.0	37.1	44.3	40.3	31.8	21.8	18.1	14.9	13.3
71°	18.5	20.6	25.4	30.2	38.3	33.9	26.2	19.8	16.9	14.1	12.1
71.5°	17.3	18.9	21.4	25.0	32.2	27.4	20.6	18.5	15.7	12.9	11.3
72°	16.1	17.7	18.9	21.0	26.2	21.0	18.9	17.3	14.9	12.1	10.9
72.5°	15.3	16.5	17.3	18.9	20.2	18.9	17.7	16.1	13.7	11.3	10.1
73°	14.5	15.3	16.1	17.7	18.5	17.7	16.5	15.3	12.9	10.5	9.3
73.5°	13.3	14.5	15.3	16.5	17.3	16.5	15.3	14.1	12.1	10.1	8.9
74°	12.5	13.7	14.5	15.3	16.1	15.3	14.5	13.3	11.3	9.3	8.1
74.5°	11.7	12.5	13.3	14.5	15.3	14.5	13.3	12.5	10.5	8.5	7.7
75°	10.9	11.7	12.5	13.3	14.1	13.3	12.5	11.7	10.1	8.1	6.9
75.5°	10.1	10.9	11.7	12.5	13.3	12.5	11.7	10.9	9.3	7.7	6.4
76°	9.7	10.5	10.9	11.7	12.5	11.7	10.9	10.1	8.5	6.9	6.0
76.5°	8.9	9.7	10.1	10.9	11.7	10.9	10.1	9.3	8.1	6.4	5.6
77°	8.5	8.9	9.7	10.1	10.9	10.1	9.7	8.9	7.7	6.0	5.2
77.5°	7.7	8.5	8.9	9.7	10.1	9.7	8.9	8.1	6.9	5.6	4.8
78°	7.3	8.1	8.5	8.9	9.3	8.9	8.1	7.7	6.4	5.2	4.4
78.5°	6.9	7.3	7.7	8.5	8.9	8.5	7.7	6.9	6.0	4.8	4.0
79°	6.0	6.9	7.3	7.7	8.1	7.7	7.3	6.4	5.6	4.4	3.6
79.5°	5.6	6.4	6.9	7.3	7.7	7.3	6.4	6.0	5.2	4.0	3.6
80°	5.2	5.6	6.0	6.9	7.3	6.9	6.0	5.6	4.8	3.6	3.2
80.5°	4.8	5.2	5.6	6.4	6.4	6.4	5.6	5.2	4.4	3.2	2.8
81°	4.4	4.8	5.2	6.0	6.0	5.6	5.2	4.8	4.0	2.8	2.4
81.5°	4.0	4.4	4.8	5.6	5.6	5.2	4.8	4.4	3.6	2.4	2.4
82°	3.2	4.0	4.4	5.2	5.2	4.8	4.4	4.0	3.2	2.0	2.0
82.5°	2.8	3.6	4.4	4.8	4.8	4.8	4.0	3.6	2.4	1.6	2.0
83°	2.4	3.2	4.0	4.4	4.4	4.4	4.0	3.2	2.0	1.6	1.6
83.5°	1.6	2.8	3.6	4.0	4.0	4.0	3.6	2.8	1.6	1.2	1.6
84°	1.2	2.4	3.2	3.6	4.0	3.6	3.2	2.4	1.2	0.8	1.2
84.5°	0.8	2.0	2.8	3.2	3.6	3.2	2.8	2.0	0.8	0.8	0.8
85°	0.8	1.6	2.8	3.2	3.2	3.2	2.8	1.6	0.4	0.8	0.8
85.5°	0.4	1.6	2.4	2.8	2.8	2.8	2.4	1.6	0.4	0.4	0.4
86°	0.4	1.2	2.4	2.4	2.8	2.4	2.0	1.2	0.4	0.4	0.4
86.5°	0.4	1.2	2.0	2.4	2.4	2.4	2.0	1.2	0.4	0.4	0.0
87°	0.4	1.2	1.6	2.0	2.0	2.0	1.6	0.8	0.0	0.0	0.0
87.5°	0.0	0.8	1.6	1.6	2.0	1.6	1.2	0.8	0.0	0.0	0.0
88°	0.0	0.4	1.2	1.6	1.6	1.6	1.2	0.4	0.0	0.0	0.0
88.5°	0.0	0.4	0.8	1.2	1.2	1.2	0.8	0.4	0.0	0.0	0.0



TEST NUMBER: P776243

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-4000K

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	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.4



TEST NUMBER: P776243

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2636.2	2636.2	2636.2	2636.2	2636.2	2636.2
0.5°	2632.9	2631.7	2631.7	2633.3	2635.0	2637.8
1°	2629.3	2628.1	2628.9	2631.3	2634.6	2638.2
1.5°	2625.3	2624.1	2625.3	2628.9	2633.7	2638.6
2°	2620.8	2619.6	2621.7	2626.5	2632.1	2638.6
2.5°	2616.4	2615.2	2617.6	2623.3	2630.5	2638.2
3°	2611.2	2610.0	2613.6	2620.0	2628.5	2637.4
3.5°	2605.5	2604.7	2608.8	2616.4	2626.1	2636.2
4°	2599.9	2598.7	2603.9	2612.4	2623.3	2635.0
4.5°	2593.8	2592.6	2598.3	2607.9	2620.4	2633.3
5°	2587.4	2586.2	2592.6	2603.5	2617.2	2631.3
5.5°	2580.5	2579.3	2586.6	2598.7	2613.2	2628.9
6°	2573.3	2572.5	2580.1	2593.4	2609.2	2626.1
6.5°	2566.0	2565.2	2573.3	2587.8	2604.7	2622.9
7°	2558.4	2557.2	2566.0	2581.3	2600.3	2620.0
7.5°	2550.3	2549.1	2558.8	2574.9	2595.0	2616.0
8°	2541.8	2540.2	2550.7	2568.0	2590.2	2612.0
8.5°	2533.0	2531.8	2542.6	2561.2	2584.6	2607.5
9°	2524.1	2522.5	2533.8	2553.9	2578.5	2603.1
9.5°	2514.8	2512.8	2524.9	2545.9	2571.7	2597.9
10°	2505.2	2502.7	2515.6	2537.8	2565.2	2592.6
10.5°	2495.1	2492.7	2506.0	2529.7	2558.4	2587.0
11°	2484.6	2482.2	2496.3	2521.3	2551.1	2580.9
11.5°	2473.7	2471.3	2485.8	2512.0	2543.5	2574.5
12°	2462.8	2460.0	2475.3	2502.3	2535.4	2568.0
12.5°	2451.1	2447.9	2464.0	2492.3	2526.5	2560.8
13°	2439.5	2436.2	2452.4	2482.6	2518.1	2553.5
13.5°	2427.4	2423.7	2440.7	2471.7	2509.2	2545.5
14°	2414.9	2410.8	2428.6	2460.8	2499.9	2537.4
14.5°	2402.0	2397.9	2415.7	2449.5	2489.8	2528.9
15°	2388.7	2383.8	2402.8	2438.2	2479.8	2520.5
15.5°	2375.4	2369.7	2389.1	2426.2	2468.9	2511.2
16°	2361.3	2355.6	2375.8	2413.7	2458.0	2501.5
16.5°	2346.7	2341.1	2361.3	2401.2	2447.1	2491.5
17°	2332.2	2326.2	2347.2	2388.3	2435.8	2481.4
17.5°	2317.3	2310.9	2332.2	2375.0	2423.3	2470.5
18°	2302.4	2295.2	2317.3	2360.9	2411.2	2459.6
18.5°	2286.7	2279.0	2301.6	2346.7	2398.3	2448.3
19°	2271.0	2262.9	2285.9	2332.2	2385.4	2436.6
19.5°	2254.4	2246.8	2270.2	2317.7	2372.1	2424.5
20°	2237.9	2229.9	2254.0	2302.4	2358.4	2412.0
20.5°	2221.4	2212.5	2237.5	2287.1	2344.3	2399.2
21°	2204.5	2195.2	2220.2	2271.4	2329.8	2385.8

TEST NUMBER: P776243

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2152.1	2142.0	2169.0	2222.6	2285.1	2343.9
23°	2133.9	2123.8	2150.9	2206.1	2269.4	2329.8
23.5°	2116.2	2105.7	2133.5	2189.1	2253.6	2314.5
24°	2097.6	2087.2	2115.4	2171.4	2237.1	2299.2
24.5°	2079.1	2068.6	2097.2	2154.1	2221.0	2283.5
25°	2060.6	2049.7	2078.3	2136.3	2204.1	2267.3
25.5°	2041.2	2030.7	2060.2	2118.6	2187.1	2251.2
26°	2022.3	2012.2	2041.2	2100.5	2170.2	2234.7
26.5°	2002.9	1992.8	2022.7	2082.3	2152.9	2217.8
27°	1983.6	1973.9	2003.7	2063.8	2135.1	2201.2
27.5°	1964.2	1954.1	1984.8	2045.2	2117.4	2183.5
28°	1944.5	1934.4	1965.4	2026.3	2098.9	2165.8
28.5°	1924.3	1914.6	1945.7	2007.4	2080.7	2148.0
29°	1905.0	1895.3	1926.7	1988.0	2061.8	2129.9
29.5°	1884.8	1875.1	1907.0	1968.7	2043.2	2111.3
30°	1864.3	1854.6	1887.2	1949.3	2024.3	2092.8
30.5°	1843.3	1834.0	1867.1	1929.2	2004.5	2074.3
31°	1822.3	1813.5	1846.1	1909.4	1984.8	2054.9
31.5°	1801.4	1792.5	1825.6	1888.8	1965.4	2036.0
32°	1779.6	1771.6	1805.0	1868.3	1945.3	2016.2
32.5°	1758.7	1750.2	1784.0	1847.3	1925.1	1996.9
33°	1736.9	1728.4	1762.7	1826.8	1903.8	1975.9
33.5°	1715.1	1707.5	1741.7	1805.4	1882.8	1956.2
34°	1692.9	1685.3	1720.4	1784.0	1861.8	1934.8
34.5°	1670.4	1662.7	1697.8	1761.9	1839.7	1914.2
35°	1647.0	1639.7	1675.2	1740.5	1818.3	1892.1
35.5°	1624.0	1616.4	1652.6	1717.9	1796.1	1871.9
36°	1600.2	1591.0	1629.3	1695.4	1774.0	1849.7
36.5°	1573.2	1564.4	1603.9	1670.8	1751.4	1828.0
37°	1544.2	1534.9	1575.7	1646.6	1727.2	1804.6
37.5°	1514.4	1503.5	1546.2	1619.6	1702.6	1783.2
38°	1482.5	1471.3	1514.8	1591.0	1677.6	1758.7
38.5°	1450.3	1438.2	1482.5	1561.1	1651.8	1734.5
39°	1417.2	1405.1	1449.9	1530.9	1624.4	1709.1
39.5°	1383.4	1371.3	1416.4	1500.3	1595.4	1684.9
40°	1348.3	1336.2	1383.4	1468.0	1564.4	1658.3
40.5°	1314.5	1301.2	1349.1	1435.4	1533.7	1630.5
41°	1278.6	1266.5	1316.1	1402.3	1501.9	1601.9
41.5°	1243.5	1231.8	1281.8	1368.1	1469.6	1572.0
42°	1207.6	1197.6	1247.9	1333.8	1437.0	1541.4
42.5°	1172.6	1162.5	1214.1	1299.5	1402.3	1508.7
43°	1135.9	1127.4	1180.6	1264.1	1367.7	1474.1
43.5°	1100.8	1093.2	1146.4	1228.2	1331.8	1438.2



TEST NUMBER: P776243

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	994.8	989.6	1042.4	1121.4	1222.6	1327.8
45.5°	959.7	955.3	1007.7	1084.3	1185.5	1289.5
46°	925.1	921.0	971.8	1050.0	1148.0	1251.2
46.5°	891.2	886.8	936.0	1013.8	1109.3	1213.7
47°	856.1	852.9	902.1	977.9	1071.4	1175.8
47.5°	822.7	819.5	866.6	941.2	1033.5	1138.3
48°	790.0	786.4	833.2	906.5	996.0	1100.4
48.5°	757.0	753.8	798.9	869.9	957.7	1063.3
49°	724.3	721.9	765.1	835.6	921.0	1027.1
49.5°	691.7	689.7	732.4	800.1	884.4	990.0
50°	660.3	658.2	699.3	765.5	847.3	954.5
50.5°	628.8	626.8	666.7	728.8	811.0	917.4
51°	598.6	596.6	634.0	696.9	775.9	882.3
51.5°	569.2	566.7	603.0	662.7	741.3	846.9
52°	538.9	537.3	572.0	629.6	707.4	812.6
52.5°	510.3	508.7	541.7	595.0	673.6	777.5
53°	482.1	480.1	511.5	564.7	640.5	743.7
53.5°	454.7	452.3	481.7	533.3	608.7	709.8
54°	428.1	425.3	452.7	501.4	576.8	676.8
54.5°	401.9	399.1	425.3	471.6	546.6	643.7
55°	378.5	372.9	397.8	442.6	516.3	611.9
55.5°	354.7	347.9	370.4	414.4	486.9	579.6
56°	331.3	322.9	344.6	387.0	458.3	549.4
56.5°	307.6	299.1	319.2	360.0	430.9	518.4
57°	283.8	276.1	295.1	334.2	403.5	489.3
57.5°	262.8	253.5	271.3	310.0	376.9	459.9
58°	242.7	232.2	248.3	286.2	351.1	431.7
58.5°	222.9	211.6	226.9	263.6	326.5	404.3
59°	204.8	192.3	206.0	241.4	302.3	377.7
59.5°	186.2	173.7	186.6	220.9	278.9	351.9
60°	168.9	156.0	168.1	201.5	256.4	326.1
60.5°	152.4	139.5	150.3	182.2	234.6	301.5
61°	137.5	125.4	135.8	164.1	213.6	277.7
61.5°	122.1	111.3	121.7	147.5	193.9	255.2
62°	108.4	97.5	107.6	133.8	175.3	233.4
62.5°	95.9	83.4	93.5	119.7	156.8	211.6
63°	84.2	72.2	79.4	106.0	139.5	190.7
63.5°	72.6	62.5	68.5	92.3	125.0	170.1
64°	62.5	53.2	58.9	78.6	110.8	149.9
64.5°	53.2	46.0	50.8	67.7	96.7	132.6
65°	47.6	39.1	43.5	58.0	82.6	115.7
65.5°	41.9	33.5	37.5	49.2	70.9	98.8
66°	36.3	28.2	31.8	41.5	60.1	81.8



TEST NUMBER: P776243

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	19.8	18.9	20.6	24.6	35.1	42.3
68°	17.7	17.7	18.5	21.4	29.4	33.9
68.5°	16.5	16.5	17.3	18.9	24.6	27.8
69°	15.7	15.3	16.1	17.7	21.4	24.2
69.5°	14.5	14.5	15.3	16.5	19.3	22.2
70°	13.7	13.7	14.5	15.7	18.1	21.0
70.5°	12.9	12.9	13.3	14.5	16.9	19.8
71°	11.7	11.7	12.5	13.7	15.7	18.5
71.5°	10.9	10.9	11.7	12.9	14.9	17.3
72°	10.5	10.5	10.9	12.1	14.1	16.1
72.5°	9.7	9.7	10.1	11.3	12.9	15.3
73°	8.9	8.9	9.3	10.5	12.1	14.5
73.5°	8.5	8.5	8.9	9.7	11.3	13.3
74°	7.7	7.7	8.1	8.9	10.5	12.5
74.5°	7.3	7.3	7.7	8.5	9.7	11.7
75°	6.9	6.9	7.3	8.1	9.3	10.9
75.5°	6.4	6.4	6.9	7.3	8.5	10.1
76°	6.0	6.0	6.0	6.9	8.1	9.7
76.5°	5.6	5.6	5.6	6.4	7.3	8.9
77°	5.2	5.2	5.2	6.0	6.9	8.5
77.5°	4.8	4.8	4.8	5.6	6.4	7.7
78°	4.4	4.4	4.8	5.2	6.0	7.3
78.5°	4.0	4.0	4.4	4.8	5.2	6.9
79°	3.6	3.6	4.0	4.4	4.8	6.0
79.5°	3.6	3.6	3.6	4.0	4.4	5.6
80°	3.2	3.2	3.2	3.6	4.0	5.2
80.5°	2.8	2.8	3.2	3.2	3.6	4.8
81°	2.8	2.8	2.8	2.8	3.2	4.4
81.5°	2.4	2.4	2.4	2.8	2.8	4.0
82°	2.0	2.0	2.4	2.4	2.4	3.2
82.5°	2.0	2.0	2.0	2.0	2.0	2.8
83°	1.6	1.6	1.6	2.0	1.6	2.4
83.5°	1.6	1.2	1.6	1.6	1.6	1.6
84°	1.2	1.2	1.2	1.6	1.2	1.2
84.5°	0.8	0.8	0.8	1.2	1.2	0.8
85°	0.8	0.4	0.8	0.8	0.8	0.8
85.5°	0.4	0.4	0.4	0.8	0.8	0.4
86°	0.0	0.0	0.0	0.4	0.4	0.4
86.5°	0.0	0.0	0.0	0.0	0.4	0.4
87°	0.0	0.0	0.0	0.0	0.0	0.4
87.5°	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.4	0.0	0.0	0.0	0.0
88.5°	0.4	0.4	0.4	0.0	0.0	0.0



TEST NUMBER: P776243

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.0	0.4	0.0



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Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

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°	2372.1	2416.9	2444.7	2455.2	2457.2	2427.4	2378.6	2319.3	2264.9	2228.2	2204.9
22°	2358.4	2403.6	2432.2	2443.1	2444.7	2414.9	2364.9	2304.0	2248.8	2211.7	2187.9



44°	1401.9	1487.4	1541.4	1568.8	1582.1	1532.1	1447.9	1345.5	1240.3	1154.8	1096.8
44.5°	1365.6	1453.9	1509.5	1537.0	1550.7	1498.7	1414.0	1311.6	1206.4	1120.6	1060.9



66.5°	64.9	105.2	132.2	142.7	151.6	134.2	105.6	76.6	50.4	41.5	34.7
67°	52.4	89.1	116.5	127.4	133.4	117.7	92.3	65.3	44.7	36.3	28.2



89°	0.0	0.0	0.8	0.8	1.2	0.8	0.4	0.0	0.0	0.0	0.4
89.5°	0.0	0.0	0.4	0.4	0.8	0.4	0.4	0.0	0.0	0.0	0.4

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21.5°	2186.7	2177.9	2203.3	2255.7	2315.3	2372.1
22°	2169.4	2159.7	2186.3	2239.1	2300.0	2358.4



44°	1065.3	1058.9	1111.7	1192.7	1296.3	1401.9
44.5°	1030.3	1023.8	1076.2	1156.0	1260.4	1365.6



66.5°	31.0	24.6	27.0	34.7	50.8	64.9
67°	25.4	21.0	23.4	29.0	42.3	52.4

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89°	0.4	0.4	0.0	0.4	0.0	0.0
89.5°	0.4	0.0	0.0	0.4	0.0	0.0

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Scaled Data Report



(END OF REPORT)