

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: P776242

Luminaire Tested: HCDJBL3040CSD-HCD41TRH-4000lm-3500K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776242
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-3500K
Description: 4 INCH ROUND SHALLOW-WIDE HAZE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

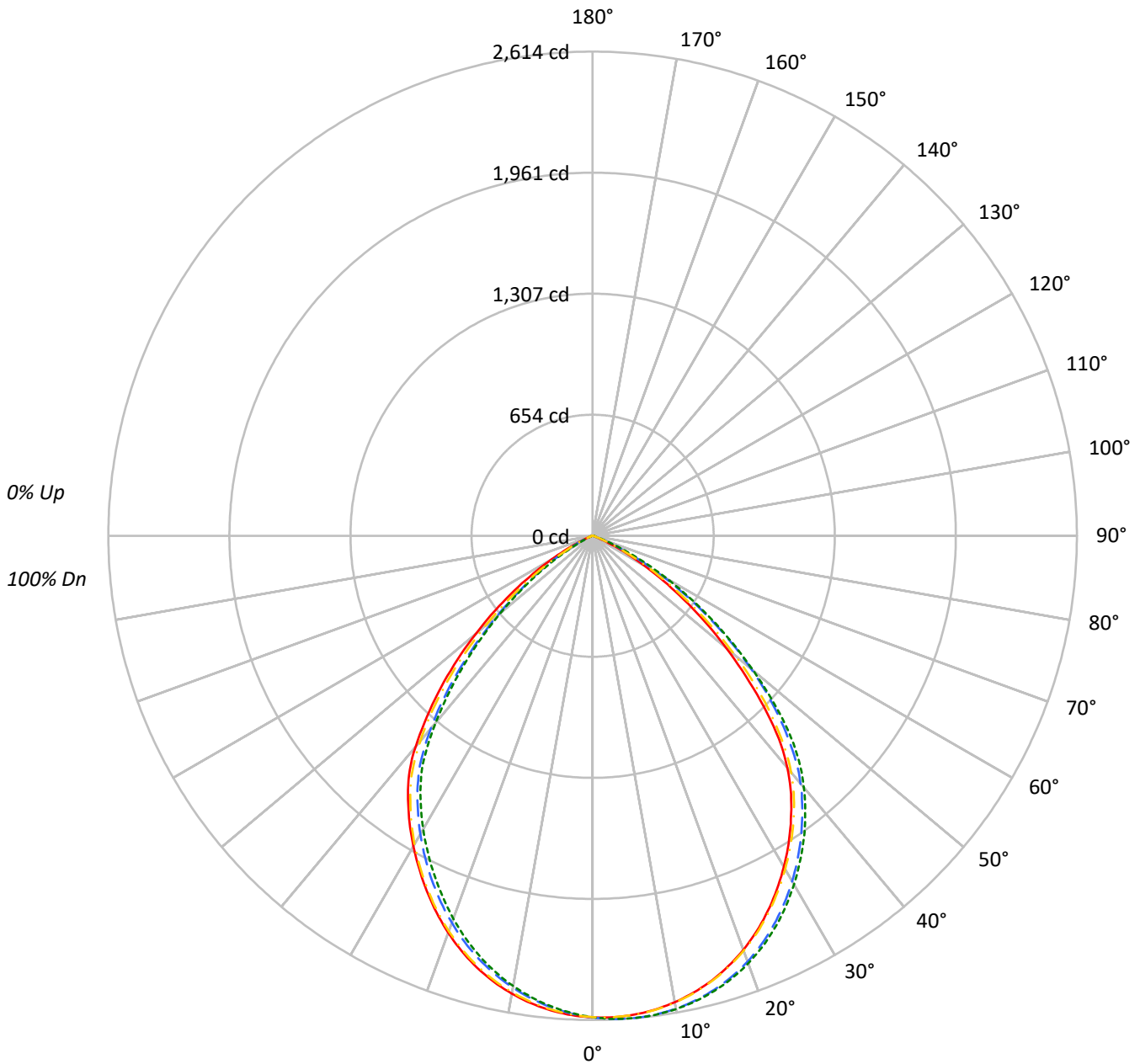
Lumens per Lamp: N/A
Luminaire Lumens: 4650.6 lumens
Efficiency: N/A
Efficacy: 120.8 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.15 / 1.22
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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					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	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°	327172	327172	327172	327172
5°	327828	330127	324960	322193
10°	326737	331618	320794	315414
15°	323847	331313	314427	306297
20°	318571	328950	305366	294504
25°	310491	323849	293939	280691
30°	299924	315923	281265	265788
35°	286666	305548	266939	248442
40°	268672	291458	244111	216495
45°	233045	266291	205814	173689
50°	184295	221651	161172	127086
55°	132393	171295	113217	80678
60°	80947	116763	64838	38711
65°	33977	62386	24270	11495
70°	7617	18288	7028	4967
75°	5203	6759	4814	3306
80°	3769	5218	3479	2319
85°	1155	4621	578	578

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 45°
 Luminance: 266291 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	245.0	5.3
10°-20°	689.3	14.8
20°-30°	1001.6	21.5
30°-40°	1122.0	24.1
40°-50°	944.7	20.3
50°-60°	508.6	10.9
60°-70°	125.4	2.7
70°-80°	12.0	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°	1935.9	41.6
0°-40°	3057.9	65.8
0°-60°	4511.2	97.0
0°-90°	4650.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4650.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2600	2600	2600	2600	2600	
5°	2595	2613	2572	2550	2595	246
15°	2486	2543	2413	2351	2486	700
25°	2236	2332	2117	2021	2236	1028
35°	1866	1989	1738	1617	1866	1164
45°	1309	1496	1156	976	1309	1001
55°	603	781	516	368	603	544
65°	114	210	82	39	114	128
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°	2599.7	2599.7	2599.7	2599.7	2599.7	2599.7	2599.7	2599.7	2599.7	2599.7	2599.7
0.5°	2601.3	2602.9	2603.7	2602.9	2602.1	2600.5	2599.7	2598.9	2598.9	2598.9	2598.1
1°	2601.7	2604.9	2606.1	2605.7	2604.5	2602.9	2600.5	2598.5	2597.3	2596.2	2594.6
1.5°	2602.1	2606.1	2608.5	2608.1	2606.9	2604.5	2601.3	2598.1	2595.4	2593.0	2591.0
2°	2602.1	2607.3	2610.1	2610.1	2608.9	2605.7	2601.3	2596.9	2593.4	2589.8	2587.0
2.5°	2601.7	2608.1	2611.7	2611.7	2610.5	2606.5	2601.3	2595.4	2590.6	2586.2	2582.2
3°	2600.9	2608.5	2612.5	2612.8	2611.7	2607.3	2600.5	2593.8	2587.8	2582.2	2577.9
3.5°	2599.7	2608.5	2613.2	2614.0	2612.5	2607.3	2599.7	2591.8	2584.2	2577.5	2572.7
4°	2598.5	2608.1	2613.6	2614.4	2613.2	2607.3	2598.9	2589.4	2580.6	2573.1	2567.5
4.5°	2596.9	2607.3	2613.6	2614.8	2613.6	2606.9	2597.3	2586.6	2576.7	2568.3	2561.6
5°	2595.0	2606.5	2613.2	2615.2	2613.2	2606.1	2595.4	2583.4	2572.3	2562.8	2555.6
5.5°	2592.6	2605.3	2612.5	2614.8	2613.2	2604.9	2593.4	2580.3	2567.5	2557.2	2549.6
6°	2589.8	2603.7	2612.1	2614.0	2612.5	2603.7	2590.6	2576.3	2562.8	2551.2	2542.9
6.5°	2586.6	2601.7	2610.5	2612.8	2611.3	2601.7	2587.8	2572.3	2557.2	2544.9	2535.7
7°	2583.8	2599.3	2608.9	2611.7	2610.1	2599.7	2584.6	2567.9	2551.6	2538.5	2528.2
7.5°	2579.9	2596.9	2606.9	2610.1	2608.1	2597.3	2581.4	2563.2	2545.7	2531.4	2520.6
8°	2575.9	2594.2	2604.5	2608.1	2606.1	2594.6	2577.5	2558.0	2539.3	2523.8	2512.7
8.5°	2571.5	2590.6	2602.1	2605.7	2603.7	2591.8	2573.1	2552.4	2532.2	2515.9	2504.3
9°	2567.1	2587.0	2599.3	2602.9	2600.9	2588.2	2568.7	2546.5	2525.4	2507.9	2495.6
9.5°	2562.0	2583.0	2595.8	2600.1	2598.1	2584.6	2564.0	2540.5	2517.8	2500.0	2486.8
10°	2556.8	2579.1	2592.2	2596.6	2595.0	2580.6	2558.8	2534.1	2510.3	2491.2	2477.7
10.5°	2551.2	2574.3	2588.2	2593.0	2591.0	2576.3	2553.2	2527.0	2501.9	2482.1	2467.8
11°	2545.3	2569.5	2583.8	2589.0	2587.0	2571.5	2547.3	2519.8	2493.6	2472.9	2457.8
11.5°	2538.9	2564.0	2579.5	2584.6	2582.6	2566.3	2541.3	2512.3	2484.8	2463.0	2447.9
12°	2532.6	2558.4	2574.3	2579.9	2578.3	2560.8	2534.9	2504.7	2475.7	2453.0	2437.1
12.5°	2525.4	2552.4	2568.7	2574.7	2573.1	2555.2	2527.8	2496.0	2466.2	2443.1	2426.0
13°	2518.2	2546.1	2563.2	2569.5	2567.9	2549.2	2520.6	2487.6	2456.2	2432.4	2415.3
13.5°	2510.3	2539.3	2556.8	2563.6	2562.0	2542.9	2513.1	2478.9	2446.3	2420.8	2403.4
14°	2502.3	2532.2	2550.8	2557.6	2556.0	2536.5	2505.5	2469.7	2435.2	2409.7	2391.4
14.5°	2494.0	2525.0	2544.1	2550.8	2549.6	2529.4	2497.2	2459.8	2424.4	2397.8	2379.5
15°	2485.6	2517.4	2536.9	2544.1	2542.9	2521.8	2488.8	2449.5	2413.3	2386.3	2367.2
15.5°	2476.5	2509.1	2529.4	2536.9	2535.7	2514.3	2479.7	2439.1	2401.4	2373.1	2353.7
16°	2467.0	2500.7	2521.8	2529.8	2528.2	2505.9	2470.9	2428.8	2389.4	2360.4	2340.6
16.5°	2457.0	2492.0	2513.5	2521.8	2520.6	2497.6	2461.0	2417.3	2376.7	2347.7	2327.0
17°	2447.1	2482.5	2505.1	2513.5	2512.7	2488.8	2451.1	2405.7	2364.4	2334.2	2313.5
17.5°	2436.4	2473.3	2496.0	2504.7	2503.9	2479.7	2440.7	2394.2	2350.9	2320.3	2298.8
18°	2425.6	2463.4	2486.8	2495.6	2495.2	2470.1	2430.0	2382.3	2337.4	2306.0	2284.5
18.5°	2414.5	2453.0	2477.3	2486.0	2486.0	2460.6	2419.3	2369.6	2323.5	2291.3	2269.4
19°	2403.0	2442.3	2467.0	2476.5	2476.5	2450.3	2407.7	2356.9	2309.1	2276.2	2254.7
19.5°	2391.0	2431.2	2456.6	2466.2	2466.6	2439.9	2396.2	2343.3	2294.8	2261.4	2238.8
20°	2378.7	2419.7	2445.9	2455.4	2456.2	2428.8	2383.9	2329.8	2280.1	2246.3	2223.3
20.5°	2366.0	2408.1	2434.4	2444.7	2445.5	2417.7	2372.0	2315.9	2265.0	2230.0	2207.4
21°	2352.9	2395.8	2422.8	2433.6	2434.4	2405.7	2359.2	2302.0	2249.1	2214.1	2191.1



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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°	2311.5	2357.2	2385.5	2397.0	2399.0	2368.8	2318.7	2257.5	2201.4	2164.1	2140.6
23°	2297.6	2343.3	2372.4	2383.9	2386.7	2355.7	2304.8	2242.4	2185.1	2147.4	2123.5
23.5°	2282.5	2329.4	2358.8	2371.2	2373.5	2342.5	2290.1	2226.5	2168.0	2129.9	2105.6
24°	2267.4	2315.1	2344.9	2357.2	2360.0	2328.6	2275.4	2211.0	2151.3	2112.4	2087.7
24.5°	2251.9	2300.0	2330.6	2343.3	2346.1	2314.3	2260.3	2194.3	2134.2	2094.9	2069.8
25°	2236.0	2285.3	2315.9	2329.0	2332.2	2300.0	2245.1	2178.4	2116.8	2077.4	2052.0
25.5°	2220.1	2270.2	2301.2	2314.7	2318.3	2285.7	2229.6	2161.7	2099.3	2058.7	2033.7
26°	2203.8	2254.3	2285.7	2299.6	2303.2	2270.2	2214.1	2145.0	2082.2	2040.4	2015.0
26.5°	2187.1	2238.4	2270.6	2284.5	2287.7	2254.7	2197.8	2127.5	2063.9	2021.7	1996.3
27°	2170.8	2222.1	2254.7	2269.0	2272.6	2238.8	2181.5	2110.8	2045.6	2003.5	1977.2
27.5°	2153.3	2205.4	2238.4	2253.5	2256.7	2222.9	2164.5	2093.3	2027.7	1984.8	1958.1
28°	2135.8	2188.7	2221.7	2237.2	2240.8	2206.2	2148.2	2075.8	2009.4	1965.7	1939.1
28.5°	2118.3	2172.0	2205.0	2220.5	2224.5	2190.3	2131.1	2057.5	1990.7	1947.0	1919.2
29°	2100.5	2154.5	2187.9	2203.8	2207.8	2173.6	2113.6	2039.6	1972.5	1927.9	1899.7
29.5°	2082.2	2137.0	2170.8	2187.1	2191.1	2156.5	2095.7	2021.7	1953.8	1908.1	1880.2
30°	2063.9	2118.7	2152.9	2169.2	2174.0	2138.6	2078.6	2003.9	1935.5	1889.0	1860.0
30.5°	2045.6	2100.9	2135.4	2152.5	2156.5	2121.1	2060.3	1985.2	1916.0	1869.5	1839.7
31°	2026.5	2083.0	2117.2	2134.6	2139.0	2103.6	2042.0	1966.5	1896.9	1849.6	1819.0
31.5°	2007.8	2063.9	2099.3	2116.4	2120.7	2085.3	2023.3	1947.8	1877.8	1829.7	1798.3
32°	1988.4	2045.2	2080.2	2097.7	2102.4	2066.7	2005.4	1929.5	1858.8	1809.5	1777.3
32.5°	1969.3	2026.1	2061.9	2079.8	2084.2	2048.4	1986.4	1910.4	1839.3	1788.8	1755.8
33°	1948.6	2006.6	2042.8	2061.1	2065.5	2030.1	1967.7	1891.8	1819.0	1768.1	1734.7
33.5°	1929.1	1987.6	2023.3	2042.0	2046.4	2010.6	1948.6	1871.5	1798.7	1747.1	1712.5
34°	1908.1	1967.7	2003.5	2022.9	2027.7	1991.9	1929.1	1852.0	1778.5	1726.4	1690.6
34.5°	1887.8	1947.0	1984.4	2003.5	2007.8	1972.5	1909.6	1831.7	1758.2	1704.5	1668.8
35°	1865.9	1925.9	1964.1	1984.0	1988.8	1952.6	1889.4	1811.5	1737.5	1683.1	1645.7
35.5°	1846.0	1905.7	1943.4	1963.3	1968.9	1932.3	1868.7	1791.2	1716.5	1661.2	1622.2
36°	1824.2	1884.6	1922.4	1943.4	1948.6	1912.0	1848.4	1770.5	1695.0	1638.9	1599.6
36.5°	1802.7	1863.1	1902.1	1922.4	1927.5	1891.4	1827.4	1749.8	1673.5	1615.9	1574.5
37°	1779.7	1841.3	1880.6	1900.9	1906.1	1869.9	1805.9	1728.0	1651.3	1591.2	1547.1
37.5°	1758.6	1819.4	1859.2	1879.8	1885.0	1848.8	1784.8	1706.1	1628.2	1564.2	1518.1
38°	1734.3	1797.6	1836.9	1858.4	1863.9	1827.4	1762.6	1683.9	1603.2	1536.0	1487.5
38.5°	1710.5	1775.3	1815.4	1836.1	1842.1	1805.1	1739.9	1660.4	1576.5	1507.0	1455.7
39°	1685.5	1751.4	1793.6	1814.2	1820.2	1782.8	1717.3	1635.0	1548.3	1476.8	1423.5
39.5°	1661.6	1727.2	1770.5	1792.0	1797.9	1759.4	1693.4	1607.5	1518.5	1445.0	1391.3
40°	1635.4	1702.9	1746.7	1768.1	1774.1	1736.3	1667.6	1579.7	1485.9	1412.8	1358.7
40.5°	1607.9	1677.5	1722.0	1744.3	1750.6	1711.3	1640.1	1549.9	1453.7	1379.8	1324.5
41°	1579.7	1650.9	1696.6	1720.0	1726.4	1686.6	1611.9	1519.7	1421.5	1346.0	1290.7
41.5°	1550.3	1622.2	1668.8	1693.4	1701.4	1660.4	1583.3	1489.5	1388.9	1313.4	1257.7
42°	1520.1	1593.2	1640.1	1666.0	1675.5	1633.0	1553.1	1458.5	1355.5	1277.2	1222.4
42.5°	1487.9	1563.0	1610.7	1637.8	1648.5	1604.0	1522.9	1426.3	1322.1	1242.6	1187.8
43°	1453.7	1531.6	1580.9	1607.9	1620.7	1573.8	1491.9	1392.5	1289.5	1208.4	1152.0
43.5°	1418.3	1499.4	1550.7	1577.7	1590.8	1543.1	1460.1	1359.5	1256.9	1174.3	1117.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1309.4	1400.0	1456.5	1484.3	1496.2	1444.6	1361.1	1259.3	1156.4	1070.5	1011.7
45.5°	1271.6	1366.2	1425.1	1452.5	1461.3	1410.4	1326.9	1225.9	1123.8	1036.7	976.3
46°	1233.9	1331.3	1392.1	1419.9	1426.7	1375.0	1292.3	1192.1	1089.6	1002.5	940.5
46.5°	1196.9	1294.7	1359.1	1386.5	1390.9	1339.6	1257.3	1158.4	1056.2	968.7	905.9
47°	1159.5	1259.3	1326.1	1353.1	1353.9	1303.0	1221.2	1123.8	1022.8	934.9	870.9
47.5°	1122.6	1223.1	1291.1	1318.9	1317.4	1266.1	1185.4	1090.0	989.4	903.1	836.4
48°	1085.2	1187.0	1256.9	1284.4	1279.6	1229.1	1149.2	1056.2	955.2	869.0	802.6
48.5°	1048.6	1150.4	1222.4	1249.4	1242.6	1191.7	1113.0	1022.4	922.2	836.0	770.0
49°	1012.9	1114.2	1188.6	1214.4	1205.3	1154.4	1076.5	987.4	889.2	803.0	736.2
49.5°	976.3	1076.9	1152.8	1179.0	1168.7	1117.0	1040.3	954.0	856.6	771.2	704.0
50°	941.3	1040.3	1117.4	1142.5	1132.1	1079.2	1003.3	919.0	823.2	739.4	671.8
50.5°	904.7	1004.1	1081.6	1105.9	1097.1	1041.9	966.7	885.3	790.7	707.6	640.8
51°	870.2	968.3	1046.3	1070.1	1059.4	1005.3	930.2	850.3	758.9	676.6	610.2
51.5°	835.2	931.8	1009.7	1033.1	1023.6	969.9	894.8	817.7	727.4	646.0	581.2
52°	801.4	897.2	975.1	998.2	988.6	934.2	859.0	783.9	696.0	615.3	551.7
52.5°	766.8	862.2	938.5	961.2	954.4	897.2	824.0	750.1	664.6	585.1	523.5
53°	733.4	827.2	902.4	925.4	917.9	861.8	788.7	716.7	634.0	555.7	494.9
53.5°	700.0	792.2	865.8	888.0	882.5	827.2	754.9	684.9	603.8	527.1	467.9
54°	667.4	758.1	830.4	853.1	847.9	792.6	719.9	652.3	574.4	498.5	441.6
54.5°	634.8	725.1	795.0	817.3	815.3	758.5	687.3	619.7	544.6	470.7	415.8
55°	603.4	691.7	760.0	783.1	780.7	724.3	654.3	588.7	516.0	444.0	391.5
55.5°	571.6	658.7	725.1	747.3	746.5	691.7	622.5	558.1	487.4	417.4	368.9
56°	541.8	626.5	690.1	714.7	713.1	658.3	590.7	527.5	459.5	391.9	345.8
56.5°	511.2	595.1	656.3	680.5	681.3	626.1	559.3	497.3	432.1	368.1	322.8
57°	482.6	563.7	621.3	647.2	647.9	594.3	529.1	468.7	405.5	344.6	300.1
57.5°	453.6	532.7	588.7	613.4	615.7	563.7	499.7	440.4	379.2	320.8	277.1
58°	425.7	502.9	556.5	582.8	584.7	533.5	471.1	412.2	354.6	297.3	256.8
58.5°	398.7	473.8	524.7	550.6	552.9	504.0	443.2	385.6	329.9	273.5	237.3
59°	372.5	444.0	493.3	519.2	522.7	475.4	415.4	360.5	305.3	252.0	218.2
59.5°	347.0	415.8	462.7	487.7	493.3	447.2	388.8	335.1	280.6	231.7	199.9
60°	321.6	388.4	432.9	459.1	463.9	419.4	364.5	310.1	257.6	211.9	182.9
60.5°	297.3	360.9	403.9	429.7	435.3	393.1	340.3	285.0	235.7	193.2	165.8
61°	273.9	334.3	375.6	400.3	407.1	368.5	316.0	262.4	214.7	174.9	149.9
61.5°	251.6	309.3	349.0	372.9	380.8	344.2	291.8	240.9	194.4	158.2	135.2
62°	230.2	284.6	322.8	345.8	355.0	319.6	267.5	219.8	175.3	141.9	121.2
62.5°	208.7	260.8	296.9	319.2	329.1	295.4	245.7	199.9	156.2	126.8	107.7
63°	188.0	237.3	272.3	293.8	303.3	270.7	224.6	180.1	139.1	112.1	94.6
63.5°	167.8	215.1	248.8	268.3	277.5	248.8	204.7	162.2	122.8	99.0	83.1
64°	147.9	193.2	226.2	244.9	253.6	227.4	185.2	145.5	107.7	86.3	72.3
64.5°	130.8	172.1	204.7	221.8	231.0	206.3	167.8	129.6	94.2	74.7	62.0
65°	114.1	152.2	184.0	200.3	209.5	186.8	150.3	114.5	81.5	64.4	53.3
65.5°	97.4	135.2	164.2	179.7	188.4	167.8	134.4	100.6	69.2	54.9	46.9
66°	80.7	119.3	145.5	159.4	168.1	149.5	118.5	87.9	58.8	46.5	40.5



TEST NUMBER: P776242

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	41.7	72.3	99.8	110.5	114.9	101.0	79.1	54.9	38.6	30.6	21.5
68°	33.4	60.8	84.3	95.8	99.4	87.1	67.6	46.5	33.0	25.0	18.7
68.5°	27.4	50.5	69.2	80.7	85.1	74.3	57.2	41.3	27.4	19.9	17.1
69°	23.9	41.7	57.2	65.6	71.6	62.8	48.5	36.6	21.9	17.9	15.9
69.5°	21.9	34.6	46.9	54.5	59.6	52.5	42.5	31.4	20.3	16.7	14.7
70°	20.7	28.6	38.2	44.9	49.7	46.1	37.0	26.2	19.1	15.5	13.9
70.5°	19.5	23.9	30.6	36.6	43.7	39.8	31.4	21.5	17.9	14.7	13.1
71°	18.3	20.3	25.0	29.8	37.8	33.4	25.8	19.5	16.7	13.9	11.9
71.5°	17.1	18.7	21.1	24.6	31.8	27.0	20.3	18.3	15.5	12.7	11.1
72°	15.9	17.5	18.7	20.7	25.8	20.7	18.7	17.1	14.7	11.9	10.7
72.5°	15.1	16.3	17.1	18.7	19.9	18.7	17.5	15.9	13.5	11.1	9.9
73°	14.3	15.1	15.9	17.5	18.3	17.5	16.3	15.1	12.7	10.3	9.1
73.5°	13.1	14.3	15.1	16.3	17.1	16.3	15.1	13.9	11.9	9.9	8.7
74°	12.3	13.5	14.3	15.1	15.9	15.1	14.3	13.1	11.1	9.1	8.0
74.5°	11.5	12.3	13.1	14.3	15.1	14.3	13.1	12.3	10.3	8.3	7.6
75°	10.7	11.5	12.3	13.1	13.9	13.1	12.3	11.5	9.9	8.0	6.8
75.5°	9.9	10.7	11.5	12.3	13.1	12.3	11.5	10.7	9.1	7.6	6.4
76°	9.5	10.3	10.7	11.5	12.3	11.5	10.7	9.9	8.3	6.8	6.0
76.5°	8.7	9.5	9.9	10.7	11.5	10.7	9.9	9.1	8.0	6.4	5.6
77°	8.3	8.7	9.5	9.9	10.7	9.9	9.5	8.7	7.6	6.0	5.2
77.5°	7.6	8.3	8.7	9.5	9.9	9.5	8.7	8.0	6.8	5.6	4.8
78°	7.2	8.0	8.3	8.7	9.1	8.7	8.0	7.6	6.4	5.2	4.4
78.5°	6.8	7.2	7.6	8.3	8.7	8.3	7.6	6.8	6.0	4.8	4.0
79°	6.0	6.8	7.2	7.6	8.0	7.6	7.2	6.4	5.6	4.4	3.6
79.5°	5.6	6.4	6.8	7.2	7.6	7.2	6.4	6.0	5.2	4.0	3.6
80°	5.2	5.6	6.0	6.8	7.2	6.8	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: P776242

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-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	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.4



TEST NUMBER: P776242

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2599.7	2599.7	2599.7	2599.7	2599.7	2599.7
0.5°	2596.6	2595.4	2595.4	2596.9	2598.5	2601.3
1°	2593.0	2591.8	2592.6	2595.0	2598.1	2601.7
1.5°	2589.0	2587.8	2589.0	2592.6	2597.3	2602.1
2°	2584.6	2583.4	2585.4	2590.2	2595.8	2602.1
2.5°	2580.3	2579.1	2581.4	2587.0	2594.2	2601.7
3°	2575.1	2573.9	2577.5	2583.8	2592.2	2600.9
3.5°	2569.5	2568.7	2572.7	2580.3	2589.8	2599.7
4°	2564.0	2562.8	2567.9	2576.3	2587.0	2598.5
4.5°	2558.0	2556.8	2562.4	2571.9	2584.2	2596.9
5°	2551.6	2550.4	2556.8	2567.5	2581.0	2595.0
5.5°	2544.9	2543.7	2550.8	2562.8	2577.1	2592.6
6°	2537.7	2536.9	2544.5	2557.6	2573.1	2589.8
6.5°	2530.6	2529.8	2537.7	2552.0	2568.7	2586.6
7°	2523.0	2521.8	2530.6	2545.7	2564.4	2583.8
7.5°	2515.1	2513.9	2523.4	2539.3	2559.2	2579.9
8°	2506.7	2505.1	2515.5	2532.6	2554.4	2575.9
8.5°	2498.0	2496.8	2507.5	2525.8	2548.8	2571.5
9°	2489.2	2487.6	2498.8	2518.6	2542.9	2567.1
9.5°	2480.1	2478.1	2490.0	2510.7	2536.1	2562.0
10°	2470.5	2468.2	2480.9	2502.7	2529.8	2556.8
10.5°	2460.6	2458.2	2471.3	2494.8	2523.0	2551.2
11°	2450.3	2447.9	2461.8	2486.4	2515.9	2545.3
11.5°	2439.5	2437.1	2451.5	2477.3	2508.3	2538.9
12°	2428.8	2426.0	2441.1	2467.8	2500.4	2532.6
12.5°	2417.3	2414.1	2430.0	2457.8	2491.6	2525.4
13°	2405.7	2402.6	2418.5	2448.3	2483.3	2518.2
13.5°	2393.8	2390.2	2406.9	2437.5	2474.5	2510.3
14°	2381.5	2377.5	2395.0	2426.8	2465.4	2502.3
14.5°	2368.8	2364.8	2382.3	2415.7	2455.4	2494.0
15°	2355.7	2350.9	2369.6	2404.6	2445.5	2485.6
15.5°	2342.5	2337.0	2356.1	2392.6	2434.8	2476.5
16°	2328.6	2323.1	2342.9	2380.3	2424.0	2467.0
16.5°	2314.3	2308.8	2328.6	2368.0	2413.3	2457.0
17°	2300.0	2294.0	2314.7	2355.3	2402.2	2447.1
17.5°	2285.3	2278.9	2300.0	2342.1	2389.8	2436.4
18°	2270.6	2263.4	2285.3	2328.2	2377.9	2425.6
18.5°	2255.1	2247.5	2269.8	2314.3	2365.2	2414.5
19°	2239.6	2231.6	2254.3	2300.0	2352.5	2403.0
19.5°	2223.3	2215.7	2238.8	2285.7	2339.4	2391.0
20°	2207.0	2199.0	2222.9	2270.6	2325.8	2378.7
20.5°	2190.7	2181.9	2206.6	2255.5	2311.9	2366.0
21°	2174.0	2164.9	2189.5	2240.0	2297.6	2352.9



TEST NUMBER: P776242

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2122.3	2112.4	2139.0	2191.9	2253.5	2311.5
23°	2104.4	2094.5	2121.1	2175.6	2238.0	2297.6
23.5°	2086.9	2076.6	2104.0	2158.9	2222.5	2282.5
24°	2068.7	2058.3	2086.1	2141.4	2206.2	2267.4
24.5°	2050.4	2040.0	2068.3	2124.3	2190.3	2251.9
25°	2032.1	2021.4	2049.6	2106.8	2173.6	2236.0
25.5°	2013.0	2002.7	2031.7	2089.3	2156.9	2220.1
26°	1994.3	1984.4	2013.0	2071.4	2140.2	2203.8
26.5°	1975.2	1965.3	1994.7	2053.5	2123.1	2187.1
27°	1956.2	1946.6	1976.0	2035.3	2105.6	2170.8
27.5°	1937.1	1927.1	1957.4	2017.0	2088.1	2153.3
28°	1917.6	1907.7	1938.3	1998.3	2069.8	2135.8
28.5°	1897.7	1888.2	1918.8	1979.6	2052.0	2118.3
29°	1878.6	1869.1	1900.1	1960.5	2033.3	2100.5
29.5°	1858.8	1849.2	1880.6	1941.5	2015.0	2082.2
30°	1838.5	1829.0	1861.2	1922.4	1996.3	2063.9
30.5°	1817.8	1808.7	1841.3	1902.5	1976.8	2045.6
31°	1797.2	1788.4	1820.6	1883.0	1957.4	2026.5
31.5°	1776.5	1767.7	1800.3	1862.7	1938.3	2007.8
32°	1755.0	1747.1	1780.1	1842.5	1918.4	1988.4
32.5°	1734.3	1726.0	1759.4	1821.8	1898.5	1969.3
33°	1712.9	1704.5	1738.3	1801.5	1877.5	1948.6
33.5°	1691.4	1683.9	1717.7	1780.5	1856.8	1929.1
34°	1669.6	1662.0	1696.6	1759.4	1836.1	1908.1
34.5°	1647.3	1639.7	1674.3	1737.5	1814.2	1887.8
35°	1624.2	1617.1	1652.1	1716.5	1793.2	1865.9
35.5°	1601.6	1594.0	1629.8	1694.2	1771.3	1846.0
36°	1578.1	1569.0	1606.7	1671.9	1749.5	1824.2
36.5°	1551.5	1542.7	1581.7	1647.7	1727.2	1802.7
37°	1522.9	1513.7	1553.9	1623.8	1703.3	1779.7
37.5°	1493.5	1482.7	1524.9	1597.2	1679.1	1758.6
38°	1462.1	1450.9	1493.9	1569.0	1654.4	1734.3
38.5°	1430.2	1418.3	1462.1	1539.6	1629.0	1710.5
39°	1397.7	1385.7	1429.9	1509.8	1602.0	1685.5
39.5°	1364.3	1352.3	1396.9	1479.5	1573.4	1661.6
40°	1329.7	1317.8	1364.3	1447.7	1542.7	1635.4
40.5°	1296.3	1283.2	1330.5	1415.5	1512.5	1607.9
41°	1260.9	1249.0	1297.9	1382.9	1481.1	1579.7
41.5°	1226.3	1214.8	1264.1	1349.2	1449.3	1550.3
42°	1190.9	1181.0	1230.7	1315.4	1417.1	1520.1
42.5°	1156.4	1146.4	1197.3	1281.6	1382.9	1487.9
43°	1120.2	1111.8	1164.3	1246.6	1348.8	1453.7
43.5°	1085.6	1078.1	1130.5	1211.2	1313.4	1418.3

TEST NUMBER: P776242

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	981.1	975.9	1028.0	1105.9	1205.7	1309.4
45.5°	946.5	942.1	993.8	1069.3	1169.1	1271.6
46°	912.3	908.3	958.4	1035.5	1132.1	1233.9
46.5°	878.9	874.5	923.0	999.7	1094.0	1196.9
47°	844.3	841.1	889.6	964.4	1056.6	1159.5
47.5°	811.3	808.1	854.7	928.2	1019.2	1122.6
48°	779.1	775.5	821.7	894.0	982.3	1085.2
48.5°	746.5	743.3	787.9	857.8	944.5	1048.6
49°	714.3	711.9	754.5	824.0	908.3	1012.9
49.5°	682.1	680.1	722.3	789.1	872.1	976.3
50°	651.1	649.1	689.7	754.9	835.6	941.3
50.5°	620.1	618.1	657.5	718.7	799.8	904.7
51°	590.3	588.3	625.3	687.3	765.2	870.2
51.5°	561.3	558.9	594.7	653.5	731.0	835.2
52°	531.5	529.9	564.1	620.9	697.6	801.4
52.5°	503.3	501.7	534.3	586.7	664.2	766.8
53°	475.4	473.4	504.4	556.9	631.6	733.4
53.5°	448.4	446.0	475.0	525.9	600.2	700.0
54°	422.2	419.4	446.4	494.5	568.8	667.4
54.5°	396.3	393.5	419.4	465.1	539.0	634.8
55°	373.3	367.7	392.3	436.5	509.2	603.4
55.5°	349.8	343.1	365.3	408.6	480.2	571.6
56°	326.8	318.4	339.9	381.6	452.0	541.8
56.5°	303.3	295.0	314.8	355.0	424.9	511.2
57°	279.8	272.3	291.0	329.5	397.9	482.6
57.5°	259.2	250.0	267.5	305.7	371.7	453.6
58°	239.3	229.0	244.9	282.2	346.2	425.7
58.5°	219.8	208.7	223.8	260.0	322.0	398.7
59°	201.9	189.6	203.1	238.1	298.1	372.5
59.5°	183.7	171.3	184.0	217.8	275.1	347.0
60°	166.6	153.8	165.8	198.8	252.8	321.6
60.5°	150.3	137.5	148.3	179.7	231.4	297.3
61°	135.6	123.6	134.0	161.8	210.7	273.9
61.5°	120.4	109.7	120.0	145.5	191.2	251.6
62°	106.9	96.2	106.1	132.0	172.9	230.2
62.5°	94.6	82.3	92.2	118.1	154.6	208.7
63°	83.1	71.2	78.3	104.5	137.5	188.0
63.5°	71.6	61.6	67.6	91.0	123.2	167.8
64°	61.6	52.5	58.0	77.5	109.3	147.9
64.5°	52.5	45.3	50.1	66.8	95.4	130.8
65°	46.9	38.6	42.9	57.2	81.5	114.1
65.5°	41.3	33.0	37.0	48.5	70.0	97.4
66°	35.8	27.8	31.4	40.9	59.2	80.7



TEST NUMBER: P776242

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	19.5	18.7	20.3	24.2	34.6	41.7
68°	17.5	17.5	18.3	21.1	29.0	33.4
68.5°	16.3	16.3	17.1	18.7	24.2	27.4
69°	15.5	15.1	15.9	17.5	21.1	23.9
69.5°	14.3	14.3	15.1	16.3	19.1	21.9
70°	13.5	13.5	14.3	15.5	17.9	20.7
70.5°	12.7	12.7	13.1	14.3	16.7	19.5
71°	11.5	11.5	12.3	13.5	15.5	18.3
71.5°	10.7	10.7	11.5	12.7	14.7	17.1
72°	10.3	10.3	10.7	11.9	13.9	15.9
72.5°	9.5	9.5	9.9	11.1	12.7	15.1
73°	8.7	8.7	9.1	10.3	11.9	14.3
73.5°	8.3	8.3	8.7	9.5	11.1	13.1
74°	7.6	7.6	8.0	8.7	10.3	12.3
74.5°	7.2	7.2	7.6	8.3	9.5	11.5
75°	6.8	6.8	7.2	8.0	9.1	10.7
75.5°	6.4	6.4	6.8	7.2	8.3	9.9
76°	6.0	6.0	6.0	6.8	8.0	9.5
76.5°	5.6	5.6	5.6	6.4	7.2	8.7
77°	5.2	5.2	5.2	6.0	6.8	8.3
77.5°	4.8	4.8	4.8	5.6	6.4	7.6
78°	4.4	4.4	4.8	5.2	6.0	7.2
78.5°	4.0	4.0	4.4	4.8	5.2	6.8
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: P776242

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-3500K

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°	2339.4	2383.5	2410.9	2421.2	2423.2	2393.8	2345.7	2287.3	2233.6	2197.4	2174.4
22°	2325.8	2370.4	2398.6	2409.3	2410.9	2381.5	2332.2	2272.2	2217.7	2181.2	2157.7



44°	1382.5	1466.8	1520.1	1547.1	1560.2	1510.9	1427.9	1326.9	1223.1	1138.9	1081.6
44.5°	1346.8	1433.8	1488.7	1515.7	1529.2	1478.0	1394.5	1293.5	1189.8	1105.1	1046.3



66.5°	64.0	103.8	130.4	140.7	149.5	132.4	104.1	75.5	49.7	40.9	34.2
67°	51.7	87.9	114.9	125.6	131.6	116.1	91.0	64.4	44.1	35.8	27.8



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°	2156.5	2147.8	2172.8	2224.5	2283.3	2339.4
22°	2139.4	2129.9	2156.1	2208.2	2268.2	2325.8



44°	1050.6	1044.3	1096.3	1176.2	1278.4	1382.5
44.5°	1016.0	1009.7	1061.4	1140.1	1243.0	1346.8

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66.5°	30.6	24.2	26.6	34.2	50.1	64.0
67°	25.0	20.7	23.1	28.6	41.7	51.7

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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)