

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: P776306

Luminaire Tested: HCDJBL3040CSD-HCD4TRMW-4000lm-3000K

Issue Date: 2/7/2024

Test Information

Test Method: LM-79-2019
Report Number: P776306
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2310613A001)
Test Lab:
Issue Date: 2/7/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL3040CSD-HCD4TRMW-4000lm-3000K
Description: 4 INCH ROUND MEDIUM MATTE WHITE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT
Ballast/Driver: -

Summary

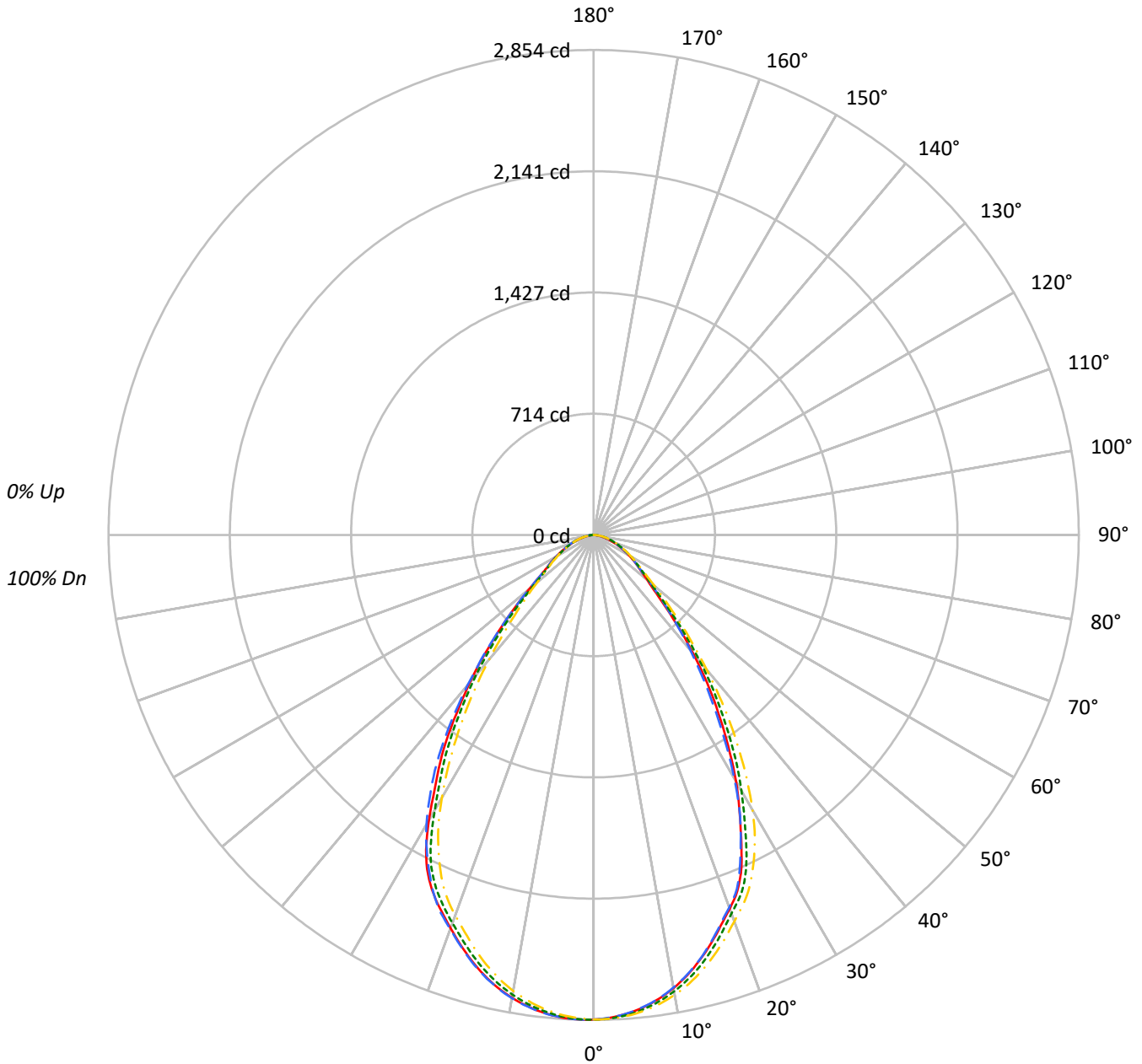
Lumens per Lamp: N/A
Luminaire Lumens: 3978.3 lumens
Efficiency: N/A
Efficacy: 103.3 lumens/watt
Spacing Criteria (0/90/45): 1.03 / 1.03 / 1.02
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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	108	105	102	109	106	103	100	102	99	97	98	96	94	95	93	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	78	95	88	82	77	85	80	76	82	78	75	80	76	73	72								
4	91	82	75	69	89	80	74	69	78	72	68	76	71	67	74	70	66	65								
5	85	75	68	62	83	74	67	62	72	66	61	70	65	61	68	64	60	58								
6	80	69	62	56	78	68	61	56	66	60	56	65	60	55	64	59	55	53								
7	75	64	57	51	74	63	56	51	62	56	51	60	55	51	59	54	50	49								
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45								
9	67	55	48	44	65	55	48	43	54	48	43	53	47	43	52	47	43	41								
10	63	52	45	40	62	51	45	40	50	44	40	49	44	40	49	44	40	38								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	358936	358936	358936	358936
5°	355065	356404	358374	357288
10°	346059	348563	353471	351119
15°	331208	335130	343703	340081
20°	313562	317593	329754	325415
25°	285926	295272	315434	309727
30°	243380	252709	281599	271761
35°	196514	207037	236074	226150
40°	149500	160293	185889	176574
45°	105612	114796	136883	128251
50°	80547	85285	96249	89651
55°	68610	71528	73942	70497
60°	60005	63252	64234	61465
65°	51279	55835	54882	53601
70°	43493	49675	46805	47540
75°	35010	44346	39191	41866
80°	24424	38556	30077	35730
85°	8519	30468	13573	25991

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 202.5°
 Vertical Angle: 45°
 Luminance: 138770 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	266.8	6.7
10°-20°	726.7	18.3
20°-30°	985.1	24.8
30°-40°	874.9	22.0
40°-50°	535.7	13.5
50°-60°	297.1	7.5
60°-70°	182.3	4.6
70°-80°	90.1	2.3
80°-90°	19.6	0.5
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°	1978.6	49.7
0°-40°	2853.5	71.7
0°-60°	3686.3	92.7
0°-90°	3978.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3978.3	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2852	2852	2852	2852	2852	
5°	2811	2821	2837	2828	2811	265
15°	2542	2572	2638	2610	2542	713
25°	2059	2126	2272	2230	2059	935
35°	1279	1348	1537	1472	1279	797
45°	593	645	769	721	593	473
55°	313	326	337	321	313	283
65°	172	188	184	180	172	172
75°	72	91	81	86	72	77
85°	6	21	9	18	6	11
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°	2852.1	2852.1	2852.1	2852.1	2852.1	2852.1	2852.1	2852.1	2852.1	2852.1	2852.1
0.5°	2850.9	2851.3	2850.5	2848.9	2852.9	2851.7	2851.7	2852.5	2853.2	2854.0	2853.2
1°	2848.9	2849.3	2848.6	2847.0	2851.7	2851.3	2851.3	2852.9	2853.6	2854.4	2853.6
1.5°	2846.2	2846.2	2845.4	2844.2	2849.7	2850.1	2850.1	2852.5	2853.6	2854.4	2853.6
2°	2843.1	2842.7	2841.9	2841.1	2847.4	2848.2	2848.9	2850.9	2852.9	2854.0	2852.9
2.5°	2839.2	2838.8	2838.0	2837.2	2844.2	2845.8	2847.0	2849.7	2851.7	2852.9	2851.7
3°	2834.5	2834.5	2833.7	2832.9	2840.7	2842.7	2844.6	2847.8	2849.7	2850.9	2849.7
3.5°	2829.4	2829.4	2828.2	2828.2	2836.8	2839.2	2841.5	2845.0	2847.4	2848.6	2847.4
4°	2823.9	2823.5	2822.3	2822.7	2832.1	2835.2	2837.6	2841.9	2844.6	2845.8	2844.6
4.5°	2818.0	2817.2	2816.1	2816.8	2827.0	2830.2	2833.3	2838.0	2841.1	2842.7	2841.1
5°	2810.6	2810.2	2809.4	2810.2	2821.2	2825.1	2828.6	2833.7	2836.8	2838.8	2837.2
5.5°	2803.2	2802.4	2801.6	2802.8	2814.1	2818.8	2822.7	2829.0	2832.1	2834.1	2832.9
6°	2795.3	2794.1	2793.4	2794.5	2807.1	2812.5	2817.2	2823.5	2827.0	2829.0	2828.2
6.5°	2786.3	2785.1	2785.1	2786.3	2799.2	2805.1	2810.6	2817.2	2821.5	2823.5	2822.7
7°	2777.3	2776.1	2775.8	2777.3	2791.0	2797.3	2803.5	2810.6	2815.7	2817.6	2816.5
7.5°	2767.1	2765.6	2765.2	2767.5	2782.0	2789.1	2795.7	2803.5	2808.6	2811.0	2809.8
8°	2757.0	2755.4	2754.6	2757.0	2771.8	2780.1	2787.5	2795.7	2800.8	2803.5	2802.4
8.5°	2745.6	2744.1	2743.3	2745.6	2762.1	2770.7	2778.5	2787.5	2793.0	2795.3	2794.9
9°	2733.9	2731.9	2731.1	2734.3	2751.1	2760.5	2769.1	2778.1	2784.8	2787.5	2786.7
9.5°	2721.0	2718.6	2718.2	2721.7	2739.4	2749.9	2758.9	2769.1	2775.8	2778.5	2777.7
10°	2708.0	2705.3	2704.9	2708.4	2727.6	2738.6	2748.4	2758.9	2766.0	2769.5	2768.3
10.5°	2694.3	2691.6	2691.2	2694.7	2715.1	2726.8	2737.0	2748.4	2755.4	2759.3	2758.5
11°	2679.9	2677.1	2676.3	2680.6	2701.0	2713.9	2724.9	2737.4	2744.8	2748.7	2748.0
11.5°	2664.6	2661.1	2661.1	2665.8	2687.7	2700.6	2712.7	2724.9	2733.9	2737.4	2737.0
12°	2648.9	2645.8	2645.4	2650.1	2673.2	2686.9	2699.4	2712.7	2722.1	2726.0	2724.9
12.5°	2632.5	2629.0	2629.0	2633.3	2657.2	2672.0	2685.3	2699.8	2709.2	2713.5	2712.3
13°	2615.7	2612.2	2611.4	2616.8	2641.5	2657.2	2671.3	2686.5	2696.3	2701.0	2699.8
13.5°	2597.3	2593.4	2594.1	2599.2	2625.5	2641.1	2656.4	2672.4	2682.6	2687.3	2686.5
14°	2580.1	2575.8	2575.4	2580.8	2608.2	2624.7	2640.3	2657.2	2668.5	2673.2	2671.6
14.5°	2561.3	2557.0	2556.6	2562.8	2590.2	2607.8	2624.7	2641.9	2654.0	2658.3	2656.8
15°	2542.1	2537.0	2536.6	2543.3	2572.2	2590.2	2608.2	2625.9	2638.0	2643.1	2641.5
15.5°	2522.1	2517.4	2517.4	2523.7	2553.1	2572.2	2590.6	2609.8	2621.9	2627.4	2626.2
16°	2501.8	2497.1	2496.7	2503.3	2533.9	2553.8	2573.0	2593.4	2605.9	2611.4	2609.8
16.5°	2481.4	2475.9	2475.9	2483.4	2514.3	2534.7	2555.0	2575.8	2589.1	2594.5	2593.0
17°	2461.1	2454.8	2455.2	2462.6	2494.0	2515.1	2536.6	2558.1	2571.4	2577.3	2576.1
17.5°	2440.3	2433.7	2433.7	2441.5	2473.2	2495.5	2517.4	2539.7	2553.8	2560.1	2558.1
18°	2418.4	2412.2	2411.8	2420.0	2452.9	2475.2	2498.3	2521.0	2535.8	2542.1	2540.5
18.5°	2398.1	2391.0	2390.2	2398.8	2431.7	2454.4	2478.3	2502.2	2517.4	2523.7	2522.1
19°	2378.5	2371.1	2369.9	2378.1	2410.6	2434.5	2458.3	2483.0	2499.0	2505.7	2503.7
19.5°	2359.7	2351.9	2350.7	2358.9	2390.6	2414.5	2438.4	2464.2	2479.9	2487.3	2485.7
20°	2341.3	2333.1	2332.3	2340.1	2371.4	2395.7	2420.4	2445.4	2462.2	2469.3	2468.5
20.5°	2321.7	2313.5	2312.7	2321.0	2352.7	2376.9	2401.6	2427.0	2443.9	2452.1	2451.3
21°	2302.2	2293.9	2293.6	2302.2	2333.9	2359.3	2383.6	2408.6	2426.2	2435.2	2434.5



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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°	2231.7	2220.0	2219.2	2232.5	2274.8	2301.4	2327.2	2353.8	2371.8	2381.2	2380.1
23°	2202.8	2190.6	2187.9	2203.9	2251.3	2278.7	2305.3	2334.7	2353.4	2362.1	2358.9
23.5°	2171.8	2159.3	2154.2	2173.8	2224.3	2253.6	2282.6	2314.7	2334.3	2340.9	2337.0
24°	2137.0	2124.9	2118.2	2140.9	2194.1	2227.0	2257.9	2293.2	2314.3	2319.0	2313.1
24.5°	2099.4	2089.6	2082.2	2106.1	2162.1	2198.4	2231.7	2270.9	2293.2	2295.5	2288.5
25°	2059.1	2052.5	2045.4	2069.7	2126.4	2167.9	2204.3	2246.6	2271.6	2270.9	2262.2
25.5°	2019.6	2013.3	2009.8	2031.7	2089.3	2133.9	2175.4	2221.5	2248.5	2244.6	2234.5
26°	1979.7	1973.4	1974.6	1992.6	2050.5	2098.6	2146.0	2194.5	2223.1	2217.6	2206.7
26.5°	1939.7	1931.1	1939.0	1952.7	2009.0	2061.9	2114.7	2165.2	2195.7	2188.3	2178.1
27°	1900.2	1890.0	1902.2	1912.7	1968.3	2023.9	2084.2	2135.0	2166.7	2158.9	2150.3
27.5°	1862.6	1848.5	1864.6	1871.2	1929.2	1985.5	2052.5	2103.7	2135.0	2128.4	2122.1
28°	1825.5	1806.3	1824.3	1830.5	1890.0	1946.0	2019.2	2070.5	2100.6	2098.6	2092.4
28.5°	1788.7	1766.4	1782.8	1790.6	1852.1	1908.8	1984.4	2036.8	2062.6	2066.9	2063.0
29°	1750.3	1726.4	1740.1	1750.3	1814.5	1872.4	1946.8	2000.8	2022.7	2034.5	2032.9
29.5°	1713.1	1686.9	1697.5	1710.0	1776.9	1836.4	1908.4	1963.2	1981.2	2000.8	2000.8
30°	1674.8	1647.0	1654.0	1669.7	1739.0	1800.4	1868.5	1924.1	1937.8	1966.4	1967.9
30.5°	1636.0	1608.2	1609.8	1629.0	1701.8	1764.8	1828.2	1881.4	1893.6	1928.8	1932.3
31°	1595.7	1567.9	1566.7	1588.3	1664.2	1728.0	1786.3	1838.0	1849.7	1891.6	1896.7
31.5°	1555.8	1528.0	1524.1	1548.3	1625.1	1690.8	1744.0	1792.6	1807.4	1852.9	1858.7
32°	1513.5	1488.9	1481.0	1508.4	1586.7	1653.2	1703.3	1746.8	1767.5	1812.9	1821.5
32.5°	1472.8	1448.5	1438.0	1468.1	1548.0	1614.9	1662.6	1701.4	1728.4	1770.7	1784.4
33°	1432.9	1408.6	1396.5	1429.0	1506.9	1574.6	1619.6	1655.6	1689.6	1727.6	1747.2
33.5°	1393.4	1370.7	1355.0	1390.2	1466.2	1534.3	1576.5	1611.8	1651.3	1684.9	1707.6
34°	1355.0	1330.7	1313.9	1351.1	1425.8	1492.8	1533.5	1571.0	1614.1	1643.1	1669.7
34.5°	1316.6	1291.6	1273.6	1311.9	1386.7	1450.1	1491.2	1528.4	1575.4	1600.8	1627.8
35°	1279.1	1251.7	1232.9	1273.2	1347.6	1407.4	1448.5	1485.3	1536.6	1560.5	1586.3
35.5°	1242.3	1214.5	1194.5	1234.5	1310.4	1366.7	1406.7	1444.2	1495.9	1521.0	1542.9
36°	1205.9	1175.0	1157.7	1195.3	1271.6	1324.9	1363.2	1402.7	1453.6	1481.4	1500.2
36.5°	1168.7	1136.6	1121.7	1155.4	1235.2	1284.5	1322.1	1361.3	1411.8	1441.5	1456.0
37°	1131.1	1099.8	1086.5	1117.0	1198.1	1243.8	1278.7	1319.0	1369.1	1401.2	1411.8
37.5°	1093.5	1063.0	1051.3	1078.7	1161.3	1204.7	1236.8	1277.1	1326.8	1362.4	1368.3
38°	1056.0	1027.0	1016.4	1041.1	1124.9	1165.6	1194.1	1236.0	1286.5	1321.3	1324.5
38.5°	1018.4	990.6	981.6	1006.3	1088.1	1127.2	1153.4	1195.7	1248.5	1281.0	1279.9
39°	982.4	957.0	948.3	971.8	1048.1	1088.9	1112.7	1155.4	1208.2	1239.9	1236.8
39.5°	945.6	923.3	915.5	938.2	1011.7	1050.5	1074.8	1117.4	1170.3	1199.2	1193.7
40°	910.0	890.0	882.2	904.5	975.7	1012.1	1034.4	1079.5	1131.5	1158.1	1151.5
40.5°	875.5	857.5	851.3	872.4	938.2	972.2	996.1	1043.1	1096.7	1117.8	1109.2
41°	842.3	825.8	821.5	840.7	902.6	934.3	958.1	1006.7	1058.3	1078.3	1069.3
41.5°	808.6	794.5	792.2	810.2	868.1	897.1	922.5	971.8	1019.2	1039.1	1030.1
42°	775.3	764.8	765.2	780.0	835.2	860.7	886.9	938.2	980.8	1000.4	991.8
42.5°	743.6	736.2	738.2	750.7	801.6	824.7	853.2	904.5	945.2	962.8	954.6
43°	711.9	708.4	711.9	722.5	769.1	790.6	820.4	870.8	907.2	924.5	917.0
43.5°	680.6	681.0	685.7	695.1	736.6	757.7	789.4	838.8	870.8	887.3	880.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	593.4	606.3	614.1	619.6	645.0	667.3	698.2	742.9	769.1	779.7	776.5
45.5°	568.3	583.2	591.8	596.5	616.8	639.5	671.2	712.3	737.8	745.6	743.3
46°	544.8	561.3	571.0	574.6	589.8	612.1	644.2	682.6	706.5	712.3	711.2
46.5°	522.5	540.1	549.9	553.0	564.4	587.5	618.0	654.0	676.7	679.8	680.2
47°	502.2	519.8	530.7	532.3	541.3	562.8	593.4	626.6	647.4	647.8	650.1
47.5°	483.8	500.2	511.5	512.7	519.8	539.7	569.9	599.6	618.8	618.4	621.9
48°	467.3	482.6	493.2	494.3	499.4	518.6	547.9	574.6	591.8	590.2	593.7
48.5°	451.7	465.4	475.5	476.7	481.0	498.6	526.8	550.7	565.2	563.6	567.1
49°	437.6	449.3	459.9	459.9	464.6	480.6	506.1	527.6	539.3	537.8	541.3
49.5°	423.9	434.1	443.8	443.8	449.3	463.0	487.3	506.1	515.1	513.9	517.4
50°	411.4	419.6	428.6	428.6	435.6	447.0	468.9	485.3	491.6	491.2	493.9
50.5°	399.6	405.9	413.3	414.5	421.9	432.1	451.7	465.8	470.5	470.5	472.0
51°	388.3	393.3	400.0	400.8	409.0	418.4	435.2	447.4	450.5	450.9	451.7
51.5°	376.9	380.8	386.7	388.3	397.3	405.5	419.6	430.1	432.1	432.9	432.1
52°	366.3	369.1	374.2	375.7	386.3	393.0	405.1	414.1	414.9	415.7	414.1
52.5°	355.8	357.7	362.0	364.4	375.0	381.2	391.0	398.4	399.2	399.6	397.3
53°	345.6	347.6	350.7	353.0	364.0	369.9	378.1	384.0	385.1	384.7	381.6
53.5°	336.2	337.8	340.1	342.5	353.4	358.9	365.6	371.0	371.4	371.0	367.9
54°	327.6	328.8	330.3	332.7	343.6	349.1	353.8	358.5	358.9	358.1	355.4
54.5°	320.2	320.9	322.1	324.5	333.9	338.6	342.9	346.8	347.6	346.0	343.6
55°	312.7	313.5	314.7	316.6	326.0	330.7	334.2	336.2	337.0	335.8	335.0
55.5°	305.3	306.1	307.2	309.2	318.2	322.5	326.0	328.0	328.8	327.6	326.4
56°	297.8	298.6	299.8	301.4	310.4	314.7	317.8	319.8	320.2	319.0	317.8
56.5°	290.0	291.2	292.4	294.3	302.5	306.5	309.2	311.5	311.5	310.8	309.6
57°	282.6	283.8	284.9	286.5	295.5	298.6	301.0	302.9	302.9	302.2	301.0
57.5°	275.1	276.3	277.1	279.1	287.7	290.8	293.2	295.1	295.9	294.3	292.8
58°	267.7	268.9	269.7	271.6	280.2	283.4	285.3	287.3	287.7	286.5	284.5
58.5°	260.3	261.4	262.6	264.6	272.8	275.5	277.5	279.8	279.5	278.7	276.7
59°	253.2	254.4	255.6	257.5	265.4	268.1	270.1	272.0	271.2	270.5	268.9
59.5°	245.8	247.4	248.5	250.1	258.3	260.7	262.2	264.2	263.4	262.6	261.1
60°	238.4	240.7	241.5	243.4	251.3	254.0	255.2	256.8	255.2	255.2	253.6
60.5°	231.3	233.7	234.8	236.4	244.6	246.6	248.1	249.3	247.4	247.4	246.2
61°	224.3	226.6	228.2	229.7	237.6	239.9	241.1	242.3	239.9	239.9	239.1
61.5°	217.6	220.0	221.9	223.5	230.9	233.3	234.1	235.2	232.5	232.5	232.1
62°	210.6	213.3	215.7	216.8	224.3	226.6	227.4	228.6	225.1	225.4	225.4
62.5°	203.9	207.0	209.0	210.6	217.6	220.0	221.1	221.5	218.0	218.4	218.8
63°	197.3	200.4	203.1	204.7	211.4	213.7	214.5	214.9	211.0	211.4	212.1
63.5°	191.0	194.1	196.9	198.4	205.1	207.4	208.2	207.8	203.9	204.7	205.9
64°	184.7	187.9	191.4	192.6	199.2	201.2	202.0	201.2	197.3	198.0	199.6
64.5°	178.5	182.0	185.5	187.1	193.3	195.3	196.1	194.9	190.6	191.8	193.7
65°	172.2	175.7	180.0	181.2	187.5	189.4	190.2	188.7	184.3	185.5	187.5
65.5°	166.3	169.9	174.2	175.7	182.0	183.6	184.7	182.4	177.7	179.3	181.6
66°	160.5	164.4	168.7	170.3	176.1	178.1	178.9	176.5	171.8	173.4	176.1



TEST NUMBER: P776306

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRMW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	143.6	147.6	152.6	154.6	160.1	161.6	162.4	158.9	154.2	155.8	159.3
68°	138.6	142.1	147.6	149.5	155.0	156.6	157.3	153.4	148.7	150.3	153.8
68.5°	133.5	137.4	142.9	144.4	149.9	151.5	151.9	147.9	142.9	144.8	148.7
69°	128.4	132.3	137.8	139.7	144.8	146.4	146.8	142.5	137.8	139.7	143.6
69.5°	123.3	127.2	133.1	135.0	140.1	141.7	141.7	137.4	132.3	134.6	138.6
70°	118.2	122.1	128.4	130.7	135.0	136.6	137.0	132.3	127.2	129.6	133.5
70.5°	113.1	117.0	123.7	126.0	130.7	131.9	132.3	127.2	122.1	124.5	128.8
71°	108.4	112.3	119.0	121.3	126.0	127.2	127.2	122.1	117.4	119.4	124.1
71.5°	103.7	107.6	114.3	117.0	121.3	122.9	122.5	117.0	112.3	114.7	119.4
72°	98.6	102.9	109.6	112.3	116.6	118.2	117.8	112.3	107.6	110.0	114.7
72.5°	93.9	98.2	105.3	108.0	112.3	113.9	113.5	107.6	102.9	105.3	110.4
73°	89.2	93.5	100.6	103.7	108.0	109.2	108.8	102.9	98.2	100.6	105.7
73.5°	84.9	88.8	96.3	99.4	103.7	104.9	104.1	98.2	93.5	95.9	101.4
74°	80.6	84.5	92.0	95.5	99.4	101.0	100.2	93.9	89.2	91.6	97.1
74.5°	76.3	80.2	87.7	91.2	95.1	96.7	95.5	89.6	84.9	87.3	92.8
75°	72.0	75.9	83.4	87.3	91.2	92.4	91.6	84.9	80.6	83.0	88.5
75.5°	67.7	71.6	79.5	83.0	87.3	88.5	87.3	81.0	76.3	78.7	84.5
76°	63.8	67.7	75.1	79.5	83.0	84.5	83.0	76.3	72.0	74.4	80.6
76.5°	59.9	63.4	71.2	75.1	79.1	80.6	79.1	72.4	68.1	70.5	76.3
77°	56.0	59.5	67.3	71.6	75.1	76.7	75.1	68.1	63.8	66.1	72.4
77.5°	52.1	55.6	63.4	67.7	71.6	73.2	71.2	64.2	59.9	62.2	68.5
78°	48.1	51.7	59.9	64.2	67.7	69.3	67.3	60.3	56.0	58.7	64.6
78.5°	44.2	47.7	56.0	60.3	64.2	65.4	63.4	56.4	52.4	54.8	61.1
79°	40.7	43.8	52.4	56.8	60.3	61.8	59.9	52.4	48.5	50.9	57.5
79.5°	37.2	40.3	48.5	53.2	56.8	58.3	56.4	48.9	45.0	47.0	53.6
80°	33.7	36.8	45.0	49.7	53.2	54.8	52.4	45.0	41.5	43.4	50.1
80.5°	30.1	33.3	41.9	46.6	50.1	51.3	49.3	41.5	38.0	39.9	46.6
81°	26.6	29.7	38.4	43.1	46.6	47.7	45.8	38.0	34.4	36.8	43.4
81.5°	23.5	26.2	35.2	39.5	43.1	44.6	42.3	34.8	31.3	33.3	39.9
82°	20.0	23.1	32.1	36.4	39.9	41.1	39.1	31.7	27.8	29.7	36.8
82.5°	16.8	20.0	29.0	33.3	36.4	38.0	36.0	28.6	24.7	26.6	34.1
83°	13.7	17.2	26.2	30.1	33.7	34.8	33.3	25.4	21.1	23.1	31.3
83.5°	11.7	14.5	23.1	27.0	30.5	31.7	30.1	21.9	18.0	20.4	28.2
84°	9.8	12.9	20.7	24.3	27.4	28.6	27.0	19.2	14.9	17.6	25.4
84.5°	7.8	11.4	18.0	21.1	24.3	25.4	24.3	16.8	12.1	14.9	22.7
85°	5.9	9.4	15.3	18.0	21.1	22.3	21.1	14.5	9.4	12.9	20.0
85.5°	4.7	7.8	12.9	15.3	18.0	19.6	18.8	12.5	7.8	11.4	17.2
86°	3.5	6.3	10.6	12.5	15.3	16.8	16.0	11.0	6.7	9.8	14.9
86.5°	2.7	4.7	8.2	9.8	12.5	13.7	13.7	9.0	5.5	8.2	12.5
87°	1.6	3.1	5.5	7.0	9.8	11.0	11.0	7.4	4.3	6.7	10.2
87.5°	0.8	2.0	3.1	4.3	7.0	8.6	8.6	5.9	3.5	5.1	7.8
88°	0.4	0.8	1.2	2.0	4.7	5.9	6.3	4.3	2.3	3.9	5.5
88.5°	0.0	0.4	0.4	0.8	2.3	3.1	3.9	2.7	1.6	2.3	3.1



TEST NUMBER: P776306
CATALOG NUMBER: HCDJBL3040CSD-HCD4TRMW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.0



TEST NUMBER: P776306

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRMW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2852.1	2852.1	2852.1	2852.1	2852.1	2852.1
0.5°	2851.3	2853.2	2851.7	2850.1	2850.5	2850.9
1°	2851.7	2852.9	2850.5	2848.6	2848.6	2848.9
1.5°	2850.9	2851.7	2848.9	2846.6	2846.2	2846.2
2°	2850.1	2850.1	2847.0	2843.9	2843.1	2843.1
2.5°	2848.6	2847.8	2844.6	2841.1	2839.6	2839.2
3°	2846.6	2845.0	2841.1	2837.6	2835.2	2834.5
3.5°	2844.2	2841.9	2837.6	2833.3	2830.5	2829.4
4°	2841.1	2838.4	2832.9	2829.0	2825.5	2823.9
4.5°	2837.6	2833.3	2828.2	2823.1	2819.6	2818.0
5°	2833.7	2828.2	2822.3	2817.2	2812.9	2810.6
5.5°	2828.6	2822.7	2816.5	2810.6	2805.9	2803.2
6°	2823.1	2816.8	2809.4	2803.5	2798.5	2795.3
6.5°	2817.6	2810.6	2802.4	2796.1	2789.8	2786.3
7°	2811.4	2803.2	2794.5	2787.5	2780.8	2777.3
7.5°	2804.7	2794.9	2786.3	2778.5	2771.4	2767.1
8°	2796.9	2787.1	2777.3	2768.7	2761.3	2757.0
8.5°	2789.1	2778.1	2767.9	2758.9	2750.7	2745.6
9°	2780.5	2768.3	2757.7	2747.6	2738.6	2733.9
9.5°	2771.4	2758.5	2747.2	2736.6	2726.8	2721.0
10°	2761.7	2747.6	2735.8	2724.9	2714.3	2708.0
10.5°	2751.5	2736.6	2723.7	2712.3	2701.4	2694.3
11°	2740.1	2724.9	2711.2	2699.0	2687.3	2679.9
11.5°	2728.8	2712.7	2698.3	2685.3	2672.0	2664.6
12°	2716.7	2699.4	2684.6	2670.1	2657.2	2648.9
12.5°	2704.1	2685.7	2670.1	2654.8	2641.1	2632.5
13°	2690.8	2671.6	2655.6	2639.5	2625.1	2615.7
13.5°	2677.1	2657.6	2639.9	2623.5	2607.5	2597.3
14°	2662.6	2642.3	2624.3	2606.7	2589.5	2580.1
14.5°	2647.8	2626.6	2607.8	2589.5	2571.4	2561.3
15°	2632.1	2610.2	2590.6	2571.1	2552.7	2542.1
15.5°	2616.1	2593.0	2573.0	2553.1	2533.9	2522.1
16°	2599.6	2576.1	2555.0	2534.3	2514.7	2501.8
16.5°	2582.8	2558.5	2536.6	2515.5	2494.3	2481.4
17°	2565.2	2539.7	2517.8	2496.3	2474.4	2461.1
17.5°	2547.6	2522.1	2498.6	2475.9	2453.6	2440.3
18°	2529.6	2503.3	2479.9	2456.4	2433.3	2418.4
18.5°	2511.2	2484.2	2460.7	2436.8	2413.3	2398.1
19°	2492.0	2466.6	2441.9	2418.0	2394.5	2378.5
19.5°	2474.4	2447.8	2423.5	2400.0	2376.1	2359.7
20°	2457.2	2429.8	2406.3	2381.6	2357.7	2341.3
20.5°	2439.9	2412.5	2387.5	2363.2	2338.6	2321.7
21°	2422.3	2394.1	2369.5	2344.4	2319.4	2302.2

TEST NUMBER: P776306

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRMW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2368.3	2338.6	2311.2	2279.5	2250.5	2231.7
23°	2348.4	2319.4	2290.8	2255.6	2224.3	2202.8
23.5°	2327.2	2298.6	2268.5	2229.4	2194.9	2171.8
24°	2304.1	2278.3	2244.6	2202.0	2163.6	2137.0
24.5°	2280.3	2254.4	2219.6	2172.6	2130.3	2099.4
25°	2254.8	2230.5	2192.6	2142.9	2095.9	2059.1
25.5°	2228.2	2204.3	2164.4	2112.3	2059.5	2019.6
26°	2200.4	2177.3	2134.7	2081.8	2021.9	1979.7
26.5°	2170.3	2145.6	2102.6	2049.3	1983.2	1939.7
27°	2140.9	2113.5	2069.3	2015.7	1945.2	1900.2
27.5°	2111.2	2077.1	2034.8	1981.2	1906.9	1862.6
28°	2080.2	2038.8	1998.8	1944.8	1869.7	1825.5
28.5°	2048.5	1998.1	1960.9	1906.9	1832.9	1788.7
29°	2015.7	1957.0	1921.3	1867.3	1796.5	1750.3
29.5°	1982.8	1913.5	1880.2	1827.0	1760.5	1713.1
30°	1947.2	1870.1	1837.6	1785.9	1724.5	1674.8
30.5°	1910.4	1827.8	1793.0	1744.8	1687.3	1636.0
31°	1872.0	1786.3	1746.4	1703.3	1648.5	1595.7
31.5°	1832.5	1746.4	1701.8	1660.3	1610.2	1555.8
32°	1792.2	1707.3	1657.5	1618.0	1571.4	1513.5
32.5°	1750.3	1668.9	1614.1	1575.4	1531.5	1472.8
33°	1707.6	1630.9	1572.6	1533.1	1488.5	1432.9
33.5°	1664.6	1593.0	1530.3	1490.0	1447.0	1393.4
34°	1622.7	1554.6	1490.0	1447.8	1403.5	1355.0
34.5°	1581.2	1513.1	1448.9	1404.3	1360.9	1316.6
35°	1540.5	1472.0	1407.8	1361.7	1317.4	1279.1
35.5°	1500.6	1430.5	1366.4	1319.8	1277.1	1242.3
36°	1460.7	1388.7	1324.5	1278.7	1236.0	1205.9
36.5°	1420.8	1347.6	1283.0	1237.6	1196.5	1168.7
37°	1381.2	1305.3	1241.5	1195.3	1157.3	1131.1
37.5°	1340.1	1265.0	1200.8	1154.6	1120.2	1093.5
38°	1299.4	1225.8	1160.5	1113.9	1081.0	1056.0
38.5°	1259.1	1187.9	1120.9	1074.4	1043.1	1018.4
39°	1219.2	1150.3	1083.8	1034.4	1004.3	982.4
39.5°	1177.7	1112.3	1046.6	995.7	965.2	945.6
40°	1137.4	1074.8	1010.6	957.3	926.8	910.0
40.5°	1096.7	1037.2	975.3	920.2	889.2	875.5
41°	1059.1	998.8	940.1	883.8	852.1	842.3
41.5°	1019.2	962.0	906.1	849.7	816.4	808.6
42°	981.2	924.5	871.6	815.7	782.8	775.3
42.5°	942.9	888.1	840.3	784.3	750.7	743.6
43°	906.9	852.1	806.7	753.0	719.4	711.9
43.5°	868.9	818.0	774.6	722.5	689.2	680.6

TEST NUMBER: P776306

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRMW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	764.4	720.6	681.8	638.8	606.7	593.4
45.5°	729.9	690.0	653.2	613.3	582.0	568.3
46°	697.9	660.7	625.8	589.4	558.1	544.8
46.5°	665.8	631.3	598.8	566.0	535.8	522.5
47°	635.2	603.5	573.0	542.9	514.7	502.2
47.5°	606.3	576.1	549.1	521.7	495.1	483.8
48°	578.1	550.3	525.2	502.2	477.1	467.3
48.5°	552.6	524.9	503.3	483.4	459.9	451.7
49°	526.8	501.4	483.0	465.4	444.2	437.6
49.5°	503.7	479.1	463.4	448.1	429.7	423.9
50°	481.8	457.9	444.6	431.7	416.0	411.4
50.5°	461.1	438.0	427.0	416.4	403.1	399.6
51°	441.5	420.4	411.0	402.0	390.6	388.3
51.5°	423.9	403.9	395.7	388.7	378.9	376.9
52°	407.0	388.7	382.0	375.3	367.9	366.3
52.5°	391.4	375.0	368.7	363.2	356.9	355.8
53°	376.9	362.0	356.2	351.5	346.8	345.6
53.5°	363.2	350.3	344.4	340.9	337.0	336.2
54°	350.7	339.3	334.2	331.1	328.4	327.6
54.5°	339.7	329.9	325.6	322.9	320.6	320.2
55°	331.5	321.3	317.8	315.5	313.1	312.7
55.5°	322.9	313.9	310.0	307.6	305.3	305.3
56°	314.7	306.1	302.2	300.2	297.8	297.8
56.5°	306.5	298.2	294.7	292.4	290.0	290.0
57°	297.8	290.0	286.9	284.5	282.6	282.6
57.5°	290.0	281.8	278.7	276.7	275.1	275.1
58°	282.2	274.4	271.2	269.3	267.7	267.7
58.5°	274.4	266.5	263.4	261.8	260.3	260.3
59°	266.1	259.1	256.0	254.4	253.2	253.2
59.5°	258.7	251.3	248.5	247.4	246.2	245.8
60°	251.3	244.2	241.5	240.3	239.1	238.4
60.5°	243.8	236.8	234.4	233.7	232.5	231.3
61°	236.8	230.1	227.8	226.6	225.8	224.3
61.5°	229.7	223.5	221.1	220.0	218.8	217.6
62°	223.1	216.8	214.9	213.7	212.5	210.6
62.5°	216.4	210.2	207.8	207.4	205.9	203.9
63°	209.8	203.9	202.0	201.2	199.6	197.3
63.5°	203.9	197.7	195.7	195.3	193.3	191.0
64°	197.7	191.8	189.8	189.4	187.1	184.7
64.5°	191.4	185.9	184.0	183.6	181.2	178.5
65°	185.5	180.0	178.5	178.1	175.3	172.2
65.5°	179.6	174.6	173.0	172.2	169.5	166.3
66°	174.2	169.1	167.5	167.1	163.6	160.5



TEST NUMBER: P776306

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRMW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	158.1	153.0	151.9	151.1	146.8	143.6
68°	152.6	147.9	146.8	146.4	140.9	138.6
68.5°	147.9	143.2	141.3	140.9	136.2	133.5
69°	142.9	138.6	137.0	136.2	131.5	128.4
69.5°	137.8	133.9	132.3	131.5	126.4	123.3
70°	133.1	129.2	128.0	127.2	121.7	118.2
70.5°	128.4	124.9	123.3	122.5	116.6	113.1
71°	124.1	120.2	118.6	117.8	111.9	108.4
71.5°	119.4	115.5	114.3	113.1	107.2	103.7
72°	115.1	111.2	110.0	108.8	102.5	98.6
72.5°	110.4	106.9	105.7	104.1	97.8	93.9
73°	106.1	102.5	101.4	99.8	93.5	89.2
73.5°	101.8	98.2	97.1	95.5	88.8	84.9
74°	97.8	94.3	93.2	91.2	84.5	80.6
74.5°	93.5	90.0	88.8	87.3	80.2	76.3
75°	89.6	86.1	84.9	83.0	75.9	72.0
75.5°	85.7	82.2	81.0	79.1	72.0	67.7
76°	81.8	78.3	77.1	74.8	67.7	63.8
76.5°	77.9	74.4	73.2	70.8	63.4	59.9
77°	74.0	70.8	69.7	66.9	59.5	56.0
77.5°	70.5	66.9	65.8	63.4	55.6	52.1
78°	66.5	63.4	62.2	59.5	51.7	48.1
78.5°	63.0	59.9	58.7	56.0	48.1	44.2
79°	59.5	56.4	55.2	52.1	44.2	40.7
79.5°	56.0	52.8	51.7	48.5	40.7	37.2
80°	52.4	49.3	48.1	45.4	37.2	33.7
80.5°	48.9	46.2	45.0	41.9	33.7	30.1
81°	45.8	42.7	41.5	38.4	30.1	26.6
81.5°	42.3	39.5	38.4	35.2	27.0	23.5
82°	39.1	36.4	35.2	32.1	23.9	20.0
82.5°	36.0	33.3	32.1	29.4	20.7	16.8
83°	33.3	30.1	29.0	26.2	18.0	13.7
83.5°	30.1	27.0	25.8	23.5	15.7	11.7
84°	27.0	23.9	22.7	20.7	13.7	9.8
84.5°	23.9	21.1	20.0	18.0	12.1	7.8
85°	21.1	18.0	17.2	15.3	10.2	5.9
85.5°	18.0	15.3	14.1	12.9	8.2	4.7
86°	15.3	12.9	11.7	10.2	6.7	3.5
86.5°	12.5	10.2	9.0	7.8	5.1	2.7
87°	10.2	7.4	6.3	5.1	3.5	1.6
87.5°	7.4	4.7	3.5	2.7	2.0	0.8
88°	4.7	2.3	1.6	1.2	0.8	0.4
88.5°	2.3	0.8	0.4	0.4	0.4	0.0



TEST NUMBER: P776306

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRMW-4000lm-3000K

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°	2281.8	2271.2	2272.0	2281.4	2315.5	2340.5	2365.6	2390.6	2407.8	2417.2	2416.8
22°	2258.3	2246.6	2247.4	2257.9	2296.3	2322.1	2348.0	2372.2	2390.2	2400.0	2399.2



44°	650.1	655.2	661.5	669.3	704.9	726.8	757.7	805.9	835.6	850.9	845.0
44.5°	621.5	630.1	636.4	644.2	674.8	696.7	726.8	774.6	802.7	814.5	810.2



66.5°	155.0	158.5	163.6	164.8	170.6	172.6	173.0	170.3	165.6	167.1	170.3
67°	149.1	153.0	158.1	159.7	165.6	167.1	167.9	164.8	160.1	161.6	164.8



89°	0.0	0.4	0.0	0.0	0.8	1.2	1.6	1.6	0.8	1.2	1.2
89.5°	0.0	0.4	0.0	0.0	0.0	0.4	0.4	0.4	0.0	0.4	0.4

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21.5°	2404.3	2375.4	2350.7	2324.5	2298.3	2281.8
22°	2387.1	2357.7	2331.5	2302.6	2275.6	2258.3



44°	833.7	784.0	743.3	693.5	660.3	650.1
44.5°	798.0	751.9	712.7	665.4	632.9	621.5

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66.5°	168.7	163.6	162.0	161.6	157.7	155.0
67°	163.2	158.1	156.9	156.6	152.3	149.1

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

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Scaled Data Report



(END OF REPORT)