

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: P776616

Luminaire Tested: HCDJBS4050CSD-HCD4TRMW-5000lm-3000K

Issue Date: 2/7/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776616  
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: HCDJBS4050CSD-HCD4TRMW-5000lm-3000K  
Description: 4 INCH ROUND MEDIUM MATTE WHITE TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

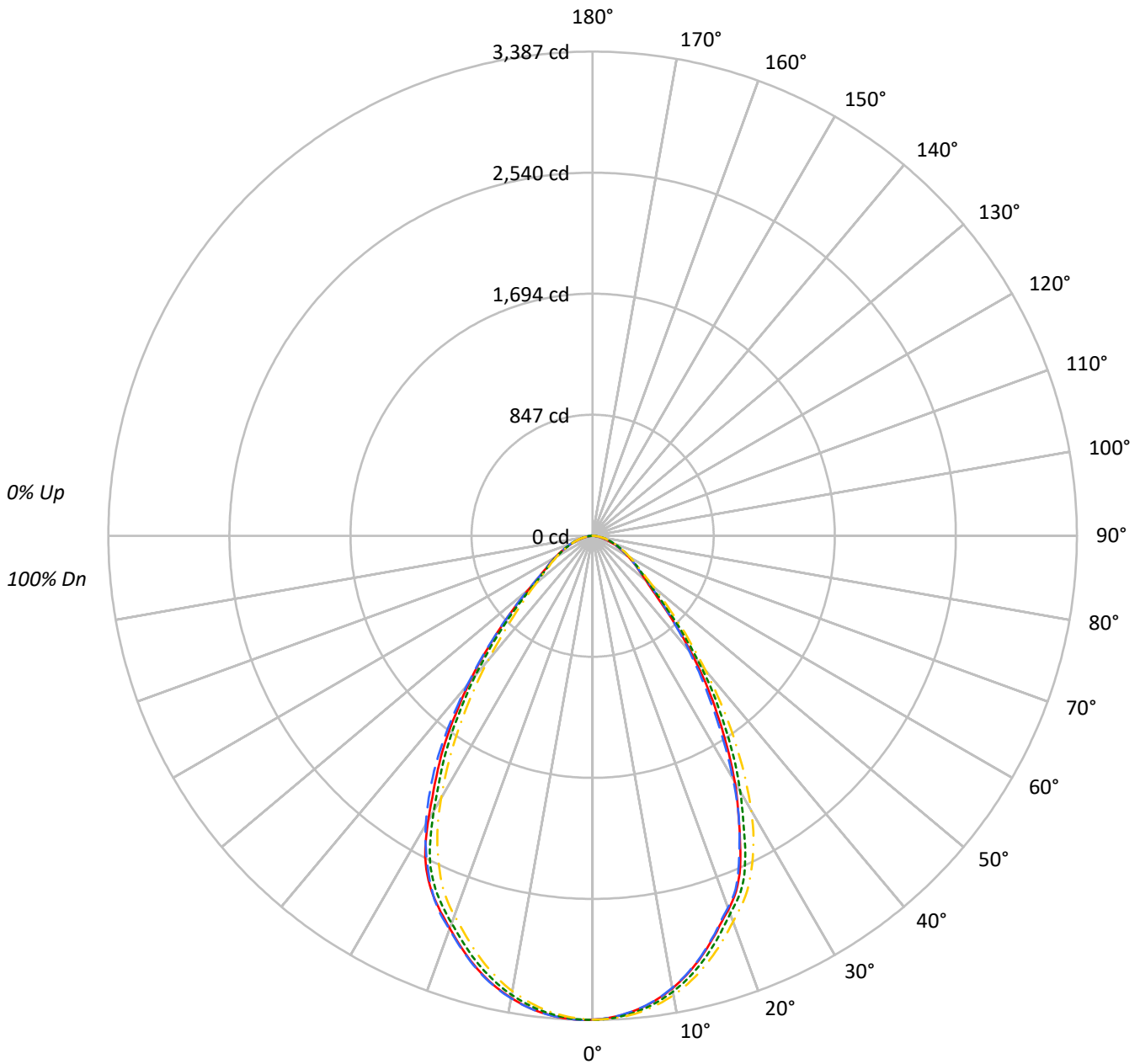
Lumens per Lamp: N/A  
Luminaire Lumens: 4722.0 lumens  
Efficiency: N/A  
Efficacy: 98.4 lumens/watt  
Spacing Criteria (0/90/45): 1.03 / 1.03 / 1.02  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

Input Watts (W): 48  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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					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					100			
1	112	108	105	102	109	106	103	100	102	99	97	98	96	94	95	93	92	90					90			
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80					80			
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	76	73	72					72			
4	91	82	75	69	89	80	74	69	78	72	68	76	71	67	74	70	66	65					65			
5	85	75	68	62	83	74	67	62	72	66	61	70	65	61	68	64	60	58					58			
6	80	69	62	56	78	68	61	56	66	60	56	65	60	55	64	59	55	53					53			
7	75	64	57	51	74	63	56	51	62	56	51	60	55	51	59	54	50	49					49			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45					45			
9	67	55	48	44	65	55	48	43	54	48	43	53	47	43	52	47	43	41					41			
10	63	52	45	40	62	51	45	40	50	44	40	49	44	40	49	44	40	38					38			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	426027	426027	426027	426027
5°	421439	423018	425367	424079
10°	410747	413724	419539	416753
15°	393122	397773	407949	403649
20°	372182	376963	391400	386231
25°	339374	350468	374408	367632
30°	288865	299938	334233	322550
35°	233247	245738	280198	268430
40°	177444	190259	220635	209579
45°	125350	136260	162459	152207
50°	95583	101222	114242	106411
55°	81446	84913	87765	83684
60°	71206	75057	76240	72968
65°	60867	66257	65156	63637
70°	51625	58984	55562	56408
75°	41574	52612	46534	49694
80°	28990	45804	35657	42397
85°	10108	36244	16028	30901

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 202.5°  
 Vertical Angle: 45°  
 Luminance: 164701 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	316.6	6.7
10°-20°	862.5	18.3
20°-30°	1169.3	24.8
30°-40°	1038.5	22.0
40°-50°	635.8	13.5
50°-60°	352.6	7.5
60°-70°	216.4	4.6
70°-80°	107.0	2.3
80°-90°	23.2	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°	2348.4	49.7
0°-40°	3386.9	71.7
0°-60°	4375.4	92.7
0°-90°	4722.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4722.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	3385	3385	3385	3385	3385	
5°	3336	3348	3367	3357	3336	315
15°	3017	3053	3131	3098	3017	846
25°	2444	2524	2696	2648	2444	1110
35°	1518	1600	1824	1747	1518	946
45°	704	766	913	855	704	562
55°	371	387	400	381	371	335
65°	204	222	219	214	204	205
75°	86	108	96	102	86	92
85°	7	25	11	21	7	13
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°	3385.2	3385.2	3385.2	3385.2	3385.2	3385.2	3385.2	3385.2	3385.2	3385.2	3385.2
0.5°	3383.8	3384.3	3383.3	3381.5	3386.1	3384.7	3384.7	3385.7	3386.6	3387.5	3386.6
1°	3381.5	3381.9	3381.0	3379.2	3384.7	3384.3	3384.3	3386.1	3387.1	3388.0	3387.1
1.5°	3378.2	3378.2	3377.3	3375.9	3382.4	3382.9	3382.9	3385.7	3387.1	3388.0	3387.1
2°	3374.5	3374.1	3373.1	3372.2	3379.6	3380.6	3381.5	3383.8	3386.1	3387.5	3386.1
2.5°	3369.9	3369.4	3368.5	3367.5	3375.9	3377.8	3379.2	3382.4	3384.7	3386.1	3384.7
3°	3364.3	3364.3	3363.4	3362.4	3371.7	3374.1	3376.4	3380.1	3382.4	3383.8	3382.4
3.5°	3358.3	3358.3	3356.9	3356.9	3367.1	3369.9	3372.7	3376.8	3379.6	3381.0	3379.6
4°	3351.8	3351.3	3349.9	3350.4	3361.5	3365.2	3368.0	3373.1	3376.4	3377.8	3376.4
4.5°	3344.8	3343.9	3342.5	3343.4	3355.5	3359.2	3362.9	3368.5	3372.2	3374.1	3372.2
5°	3336.0	3335.5	3334.6	3335.5	3348.5	3353.1	3357.3	3363.4	3367.1	3369.4	3367.5
5.5°	3327.1	3326.2	3325.3	3326.7	3340.1	3345.7	3350.4	3357.8	3361.5	3363.8	3362.4
6°	3317.8	3316.4	3315.5	3316.9	3331.8	3338.3	3343.9	3351.3	3355.5	3357.8	3356.9
6.5°	3307.2	3305.8	3305.8	3307.2	3322.5	3329.5	3336.0	3343.9	3349.0	3351.3	3350.4
7°	3296.5	3295.1	3294.6	3296.5	3312.7	3320.2	3327.6	3336.0	3342.0	3344.3	3342.9
7.5°	3284.4	3282.5	3282.1	3284.9	3302.0	3310.4	3318.3	3327.6	3333.6	3336.4	3335.0
8°	3272.3	3270.5	3269.5	3272.3	3290.0	3299.7	3308.6	3318.3	3324.3	3327.6	3326.2
8.5°	3258.8	3257.0	3256.1	3258.8	3278.4	3288.6	3297.9	3308.6	3315.1	3317.8	3317.4
9°	3244.9	3242.6	3241.7	3245.4	3265.3	3276.5	3286.7	3297.4	3305.3	3308.6	3307.6
9.5°	3229.6	3226.8	3226.3	3230.5	3251.4	3264.0	3274.6	3286.7	3294.6	3297.9	3296.9
10°	3214.2	3211.0	3210.5	3214.7	3237.5	3250.5	3262.1	3274.6	3283.0	3287.2	3285.8
10.5°	3198.0	3194.7	3194.3	3198.5	3222.6	3236.5	3248.6	3262.1	3270.5	3275.1	3274.2
11°	3180.8	3177.5	3176.6	3181.7	3205.9	3221.2	3234.2	3249.1	3257.9	3262.6	3261.6
11.5°	3162.7	3158.5	3158.5	3164.1	3190.1	3205.4	3219.8	3234.2	3244.9	3249.1	3248.6
12°	3144.1	3140.4	3139.9	3145.5	3172.9	3189.2	3204.0	3219.8	3231.0	3235.6	3234.2
12.5°	3124.6	3120.4	3120.4	3125.5	3153.9	3171.5	3187.3	3204.5	3215.6	3220.7	3219.4
13°	3104.6	3100.4	3099.5	3106.0	3135.3	3153.9	3170.6	3188.7	3200.3	3205.9	3204.5
13.5°	3082.8	3078.1	3079.1	3085.1	3116.2	3134.8	3152.9	3172.0	3184.1	3189.6	3188.7
14°	3062.3	3057.2	3056.8	3063.3	3095.8	3115.3	3133.9	3153.9	3167.3	3172.9	3171.0
14.5°	3040.0	3034.9	3034.5	3041.9	3074.4	3095.3	3115.3	3135.7	3150.1	3155.2	3153.4
15°	3017.3	3011.2	3010.8	3018.7	3053.0	3074.4	3095.8	3116.7	3131.1	3137.1	3135.3
15.5°	2993.6	2988.0	2988.0	2995.4	3030.3	3053.0	3074.9	3097.6	3112.0	3118.5	3117.2
16°	2969.4	2963.9	2963.4	2971.3	3007.5	3031.2	3054.0	3078.1	3093.0	3099.5	3097.6
16.5°	2945.3	2938.8	2938.8	2947.6	2984.3	3008.4	3032.6	3057.2	3073.0	3079.5	3077.7
17°	2921.1	2913.7	2914.1	2923.0	2960.1	2985.2	3010.8	3036.3	3052.1	3059.1	3057.7
17.5°	2896.5	2888.6	2888.6	2897.9	2935.5	2962.0	2988.0	3014.5	3031.2	3038.6	3036.3
18°	2870.5	2863.0	2862.6	2872.3	2911.4	2937.8	2965.2	2992.2	3009.8	3017.3	3015.4
18.5°	2846.3	2838.0	2837.0	2847.2	2886.3	2913.2	2941.6	2969.9	2988.0	2995.4	2993.6
19°	2823.1	2814.3	2812.9	2822.6	2861.2	2889.5	2917.9	2947.1	2966.2	2974.1	2971.7
19.5°	2800.8	2791.5	2790.1	2799.9	2837.5	2865.8	2894.2	2924.8	2943.4	2952.2	2950.4
20°	2779.0	2769.2	2768.3	2777.6	2814.7	2843.5	2872.8	2902.5	2922.5	2930.9	2929.9
20.5°	2755.7	2746.0	2745.0	2754.8	2792.4	2821.2	2850.5	2880.7	2900.7	2910.4	2909.5
21°	2732.5	2722.7	2722.3	2732.5	2770.1	2800.3	2829.1	2858.9	2879.8	2890.5	2889.5



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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°	2648.9	2634.9	2634.0	2649.8	2700.0	2731.6	2762.2	2793.8	2815.2	2826.3	2825.0
23°	2614.5	2600.1	2596.9	2615.9	2672.1	2704.6	2736.2	2771.1	2793.4	2803.6	2799.9
23.5°	2577.8	2562.9	2556.9	2580.1	2640.1	2674.9	2709.3	2747.4	2770.6	2778.5	2773.8
24°	2536.5	2522.1	2514.2	2541.1	2604.3	2643.3	2680.0	2721.8	2746.9	2752.5	2745.5
24.5°	2491.9	2480.3	2471.4	2499.8	2566.2	2609.4	2648.9	2695.3	2721.8	2724.6	2716.2
25°	2444.0	2436.1	2427.8	2456.6	2523.9	2573.2	2616.4	2666.5	2696.3	2695.3	2685.1
25.5°	2397.1	2389.7	2385.5	2411.5	2479.8	2532.7	2582.0	2636.8	2668.9	2664.2	2652.1
26°	2349.7	2342.3	2343.7	2365.0	2433.8	2490.9	2547.1	2604.8	2638.7	2632.2	2619.2
26.5°	2302.3	2292.1	2301.4	2317.7	2384.6	2447.3	2510.0	2569.9	2606.1	2597.3	2585.2
27°	2255.4	2243.3	2257.7	2270.3	2336.2	2402.2	2473.7	2534.1	2571.8	2562.5	2552.3
27.5°	2210.8	2194.1	2213.1	2221.0	2289.8	2356.7	2436.1	2497.0	2534.1	2526.2	2518.8
28°	2166.7	2143.9	2165.3	2172.7	2243.3	2309.8	2396.6	2457.5	2493.3	2490.9	2483.5
28.5°	2123.0	2096.5	2116.0	2125.3	2198.3	2265.6	2355.3	2417.5	2448.2	2453.3	2448.7
29°	2077.5	2049.1	2065.4	2077.5	2153.7	2222.4	2310.7	2374.8	2400.8	2414.7	2412.9
29.5°	2033.4	2002.2	2014.8	2029.6	2109.1	2179.7	2265.2	2330.2	2351.6	2374.8	2374.8
30°	1987.8	1954.8	1963.2	1981.8	2064.0	2136.9	2217.8	2283.7	2300.0	2333.9	2335.8
30.5°	1941.8	1908.9	1910.7	1933.5	2019.9	2094.7	2169.9	2233.1	2247.5	2289.3	2293.5
31°	1894.0	1861.0	1859.6	1885.2	1975.3	2051.0	2120.2	2181.5	2195.5	2245.2	2251.2
31.5°	1846.6	1813.6	1809.0	1837.8	1928.8	2006.9	2070.1	2127.7	2145.3	2199.2	2206.2
32°	1796.4	1767.2	1757.9	1790.4	1883.3	1962.3	2021.7	2073.3	2097.9	2151.8	2162.0
32.5°	1748.1	1719.3	1706.8	1742.5	1837.3	1916.7	1973.4	2019.4	2051.5	2101.6	2117.9
33°	1700.7	1671.9	1657.5	1696.1	1788.5	1868.9	1922.3	1965.1	2005.5	2050.5	2073.8
33.5°	1653.8	1626.9	1608.3	1650.1	1740.2	1821.0	1871.2	1913.0	1960.0	1999.9	2026.8
34°	1608.3	1579.5	1559.5	1603.6	1692.4	1771.8	1820.1	1864.7	1915.8	1950.2	1981.8
34.5°	1562.8	1533.0	1511.7	1557.2	1645.9	1721.2	1769.9	1814.1	1869.8	1900.0	1932.1
35°	1518.2	1485.6	1463.3	1511.2	1599.5	1670.5	1719.3	1763.0	1823.8	1852.2	1882.8
35.5°	1474.5	1441.5	1417.8	1465.2	1555.3	1622.2	1669.6	1714.2	1775.5	1805.3	1831.3
36°	1431.3	1394.6	1374.1	1418.7	1509.3	1572.5	1618.0	1665.0	1725.4	1758.3	1780.6
36.5°	1387.2	1349.1	1331.4	1371.4	1466.1	1524.7	1569.3	1615.7	1675.6	1711.0	1728.1
37°	1342.6	1305.4	1289.6	1325.8	1422.0	1476.4	1517.7	1565.5	1625.0	1663.1	1675.6
37.5°	1298.0	1261.7	1247.8	1280.3	1378.3	1429.9	1468.0	1515.8	1574.8	1617.1	1624.1
38°	1253.4	1219.0	1206.4	1235.7	1335.1	1383.4	1417.4	1467.1	1527.0	1568.3	1572.0
38.5°	1208.8	1175.8	1165.1	1194.4	1291.5	1337.9	1369.0	1419.2	1481.9	1520.5	1519.1
39°	1166.0	1135.8	1125.6	1153.5	1244.1	1292.4	1320.7	1371.4	1434.1	1471.7	1468.0
39.5°	1122.4	1095.9	1086.6	1113.5	1200.9	1246.9	1275.7	1326.3	1389.0	1423.4	1416.9
40°	1080.1	1056.4	1047.1	1073.6	1158.1	1201.3	1227.8	1281.2	1343.0	1374.6	1366.7
40.5°	1039.2	1017.8	1010.4	1035.5	1113.5	1154.0	1182.3	1238.0	1301.7	1326.8	1316.5
41°	999.7	980.2	975.1	997.9	1071.3	1108.9	1137.2	1194.8	1256.2	1279.8	1269.2
41.5°	959.8	943.0	940.3	961.6	1030.4	1064.8	1095.0	1153.5	1209.7	1233.4	1222.7
42°	920.3	907.7	908.2	925.9	991.4	1021.6	1052.7	1113.5	1164.2	1187.4	1177.2
42.5°	882.7	873.8	876.1	891.0	951.4	978.8	1012.7	1073.6	1121.9	1142.8	1133.0
43°	845.0	840.8	845.0	857.6	912.8	938.4	973.7	1033.6	1076.8	1097.3	1088.4
43.5°	807.9	808.3	813.9	825.0	874.3	899.4	937.0	995.5	1033.6	1053.1	1045.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	704.3	719.6	728.9	735.4	765.6	792.1	828.8	881.7	912.8	925.4	921.7
45.5°	674.5	692.2	702.4	708.0	732.1	759.1	796.7	845.5	875.7	885.0	882.2
46°	646.7	666.2	677.8	682.0	700.1	726.6	764.7	810.2	838.5	845.5	844.1
46.5°	620.2	641.1	652.7	656.4	669.9	697.3	733.5	776.3	803.2	806.9	807.4
47°	596.0	616.9	629.9	631.8	642.5	668.0	704.3	743.8	768.4	768.8	771.6
47.5°	574.2	593.7	607.2	608.6	616.9	640.6	676.4	711.7	734.5	734.0	738.2
48°	554.7	572.8	585.3	586.7	592.8	615.5	650.4	682.0	702.4	700.5	704.7
48.5°	536.1	552.4	564.4	565.8	570.9	591.8	625.3	653.6	670.8	669.0	673.1
49°	519.4	533.3	545.9	545.9	551.4	570.5	600.7	626.2	640.2	638.3	642.5
49.5°	503.1	515.2	526.8	526.8	533.3	549.6	578.4	600.7	611.4	610.0	614.1
50°	488.2	498.0	508.7	508.7	517.0	530.5	556.5	576.0	583.5	583.0	586.3
50.5°	474.3	481.7	490.6	492.0	500.8	512.9	536.1	552.8	558.4	558.4	560.3
51°	460.8	466.9	474.8	475.7	485.5	496.6	516.6	531.0	534.7	535.2	536.1
51.5°	447.4	452.0	459.0	460.8	471.5	481.3	498.0	510.5	512.9	513.8	512.9
52°	434.8	438.1	444.1	446.0	458.5	466.4	480.8	491.5	492.4	493.4	491.5
52.5°	422.3	424.6	429.7	432.5	445.0	452.5	464.1	472.9	473.8	474.3	471.5
53°	410.2	412.5	416.2	419.0	432.0	439.0	448.8	455.7	457.1	456.7	452.9
53.5°	399.1	400.9	403.7	406.5	419.5	426.0	433.9	440.4	440.9	440.4	436.7
54°	388.8	390.2	392.1	394.9	407.9	414.4	420.0	425.5	426.0	425.1	421.8
54.5°	380.0	380.9	382.3	385.1	396.3	401.8	406.9	411.6	412.5	410.7	407.9
55°	371.2	372.1	373.5	375.8	387.0	392.5	396.7	399.1	400.0	398.6	397.7
55.5°	362.4	363.3	364.7	367.0	377.7	382.8	387.0	389.3	390.2	388.8	387.4
56°	353.5	354.5	355.8	357.7	368.4	373.5	377.2	379.5	380.0	378.6	377.2
56.5°	344.2	345.6	347.0	349.3	359.1	363.7	367.0	369.8	369.8	368.9	367.5
57°	335.4	336.8	338.2	340.1	350.7	354.5	357.2	359.6	359.6	358.6	357.2
57.5°	326.6	328.0	328.9	331.2	341.4	345.2	348.0	350.3	351.2	349.3	347.5
58°	317.8	319.1	320.1	322.4	332.6	336.3	338.7	341.0	341.4	340.1	337.7
58.5°	308.9	310.3	311.7	314.0	323.8	327.0	329.4	332.2	331.7	330.8	328.4
59°	300.6	302.0	303.4	305.7	315.0	318.2	320.5	322.9	321.9	321.0	319.1
59.5°	291.7	293.6	295.0	296.8	306.6	309.4	311.3	313.6	312.6	311.7	309.9
60°	282.9	285.7	286.6	289.0	298.2	301.5	302.9	304.7	302.9	302.9	301.0
60.5°	274.6	277.3	278.7	280.6	290.3	292.7	294.5	295.9	293.6	293.6	292.2
61°	266.2	269.0	270.8	272.7	282.0	284.8	286.2	287.6	284.8	284.8	283.8
61.5°	258.3	261.1	263.4	265.3	274.1	276.9	277.8	279.2	275.9	275.9	275.5
62°	249.9	253.2	256.0	257.4	266.2	269.0	269.9	271.3	267.1	267.6	267.6
62.5°	242.0	245.7	248.1	249.9	258.3	261.1	262.5	262.9	258.8	259.2	259.7
63°	234.1	237.9	241.1	243.0	250.9	253.6	254.6	255.0	250.4	250.9	251.8
63.5°	226.7	230.4	233.7	235.5	243.4	246.2	247.1	246.7	242.0	243.0	244.4
64°	219.3	223.0	227.2	228.6	236.5	238.8	239.7	238.8	234.1	235.1	236.9
64.5°	211.8	216.0	220.2	222.1	229.5	231.8	232.7	231.3	226.2	227.6	230.0
65°	204.4	208.6	213.7	215.1	222.5	224.8	225.8	223.9	218.8	220.2	222.5
65.5°	197.4	201.6	206.7	208.6	216.0	217.9	219.3	216.5	210.9	212.8	215.6
66°	190.5	195.1	200.2	202.1	209.0	211.4	212.3	209.5	203.9	205.8	209.0





TEST NUMBER: P776616

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMW-5000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	170.5	175.1	181.2	183.5	190.0	191.9	192.8	188.6	183.0	184.9	189.1
68°	164.5	168.6	175.1	177.5	184.0	185.8	186.8	182.1	176.5	178.4	182.6
68.5°	158.4	163.1	169.6	171.4	177.9	179.8	180.2	175.6	169.6	171.9	176.5
69°	152.4	157.0	163.5	165.8	171.9	173.7	174.2	169.1	163.5	165.8	170.5
69.5°	146.3	151.0	157.9	160.3	166.3	168.2	168.2	163.1	157.0	159.8	164.5
70°	140.3	144.9	152.4	155.2	160.3	162.1	162.6	157.0	151.0	153.8	158.4
70.5°	134.3	138.9	146.8	149.6	155.2	156.6	157.0	151.0	144.9	147.7	152.8
71°	128.7	133.3	141.2	144.0	149.6	151.0	151.0	144.9	139.4	141.7	147.3
71.5°	123.1	127.8	135.6	138.9	144.0	145.9	145.4	138.9	133.3	136.1	141.7
72°	117.1	122.2	130.1	133.3	138.4	140.3	139.8	133.3	127.8	130.5	136.1
72.5°	111.5	116.6	125.0	128.2	133.3	135.2	134.7	127.8	122.2	125.0	131.0
73°	105.9	111.0	119.4	123.1	128.2	129.6	129.1	122.2	116.6	119.4	125.4
73.5°	100.8	105.5	114.3	118.0	123.1	124.5	123.6	116.6	111.0	113.8	120.3
74°	95.7	100.3	109.2	113.4	118.0	119.9	118.9	111.5	105.9	108.7	115.2
74.5°	90.6	95.2	104.1	108.2	112.9	114.7	113.4	106.4	100.8	103.6	110.1
75°	85.5	90.1	98.9	103.6	108.2	109.6	108.7	100.8	95.7	98.5	105.0
75.5°	80.4	85.0	94.3	98.5	103.6	105.0	103.6	96.2	90.6	93.4	100.3
76°	75.7	80.4	89.2	94.3	98.5	100.3	98.5	90.6	85.5	88.3	95.7
76.5°	71.1	75.3	84.5	89.2	93.8	95.7	93.8	85.9	80.8	83.6	90.6
77°	66.4	70.6	79.9	85.0	89.2	91.1	89.2	80.8	75.7	78.5	85.9
77.5°	61.8	66.0	75.3	80.4	85.0	86.9	84.5	76.2	71.1	73.9	81.3
78°	57.1	61.3	71.1	76.2	80.4	82.2	79.9	71.5	66.4	69.7	76.7
78.5°	52.5	56.7	66.4	71.5	76.2	77.6	75.3	66.9	62.3	65.0	72.5
79°	48.3	52.0	62.3	67.4	71.5	73.4	71.1	62.3	57.6	60.4	68.3
79.5°	44.1	47.8	57.6	63.2	67.4	69.2	66.9	58.1	53.4	55.7	63.6
80°	40.0	43.7	53.4	59.0	63.2	65.0	62.3	53.4	49.2	51.6	59.5
80.5°	35.8	39.5	49.7	55.3	59.5	60.9	58.5	49.2	45.1	47.4	55.3
81°	31.6	35.3	45.5	51.1	55.3	56.7	54.4	45.1	40.9	43.7	51.6
81.5°	27.9	31.1	41.8	46.9	51.1	53.0	50.2	41.3	37.2	39.5	47.4
82°	23.7	27.4	38.1	43.2	47.4	48.8	46.5	37.6	33.0	35.3	43.7
82.5°	20.0	23.7	34.4	39.5	43.2	45.1	42.7	33.9	29.3	31.6	40.4
83°	16.3	20.4	31.1	35.8	40.0	41.3	39.5	30.2	25.1	27.4	37.2
83.5°	13.9	17.2	27.4	32.1	36.2	37.6	35.8	26.0	21.4	24.2	33.4
84°	11.6	15.3	24.6	28.8	32.5	33.9	32.1	22.8	17.7	20.9	30.2
84.5°	9.3	13.5	21.4	25.1	28.8	30.2	28.8	20.0	14.4	17.7	26.9
85°	7.0	11.1	18.1	21.4	25.1	26.5	25.1	17.2	11.1	15.3	23.7
85.5°	5.6	9.3	15.3	18.1	21.4	23.2	22.3	14.9	9.3	13.5	20.4
86°	4.2	7.4	12.5	14.9	18.1	20.0	19.0	13.0	7.9	11.6	17.7
86.5°	3.3	5.6	9.8	11.6	14.9	16.3	16.3	10.7	6.5	9.8	14.9
87°	1.9	3.7	6.5	8.4	11.6	13.0	13.0	8.8	5.1	7.9	12.1
87.5°	0.9	2.3	3.7	5.1	8.4	10.2	10.2	7.0	4.2	6.0	9.3
88°	0.5	0.9	1.4	2.3	5.6	7.0	7.4	5.1	2.8	4.6	6.5
88.5°	0.0	0.5	0.5	0.9	2.8	3.7	4.6	3.3	1.9	2.8	3.7



TEST NUMBER: P776616  
CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMW-5000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0



TEST NUMBER: P776616

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMW-5000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	3385.2	3385.2	3385.2	3385.2	3385.2	3385.2
0.5°	3384.3	3386.6	3384.7	3382.9	3383.3	3383.8
1°	3384.7	3386.1	3383.3	3381.0	3381.0	3381.5
1.5°	3383.8	3384.7	3381.5	3378.7	3378.2	3378.2
2°	3382.9	3382.9	3379.2	3375.4	3374.5	3374.5
2.5°	3381.0	3380.1	3376.4	3372.2	3370.3	3369.9
3°	3378.7	3376.8	3372.2	3368.0	3365.2	3364.3
3.5°	3375.9	3373.1	3368.0	3362.9	3359.7	3358.3
4°	3372.2	3368.9	3362.4	3357.8	3353.6	3351.8
4.5°	3368.0	3362.9	3356.9	3350.8	3346.6	3344.8
5°	3363.4	3356.9	3349.9	3343.9	3338.7	3336.0
5.5°	3357.3	3350.4	3342.9	3336.0	3330.4	3327.1
6°	3350.8	3343.4	3334.6	3327.6	3321.6	3317.8
6.5°	3344.3	3336.0	3326.2	3318.8	3311.3	3307.2
7°	3336.9	3327.1	3316.9	3308.6	3300.7	3296.5
7.5°	3329.0	3317.4	3307.2	3297.9	3289.5	3284.4
8°	3319.7	3308.1	3296.5	3286.3	3277.4	3272.3
8.5°	3310.4	3297.4	3285.3	3274.6	3264.9	3258.8
9°	3300.2	3285.8	3273.2	3261.2	3250.5	3244.9
9.5°	3289.5	3274.2	3260.7	3248.2	3236.5	3229.6
10°	3277.9	3261.2	3247.2	3234.2	3221.7	3214.2
10.5°	3265.8	3248.2	3232.8	3219.4	3206.3	3198.0
11°	3252.3	3234.2	3218.0	3203.6	3189.6	3180.8
11.5°	3238.9	3219.8	3202.6	3187.3	3171.5	3162.7
12°	3224.5	3204.0	3186.4	3169.2	3153.9	3144.1
12.5°	3209.6	3187.8	3169.2	3151.1	3134.8	3124.6
13°	3193.8	3171.0	3152.0	3132.9	3115.8	3104.6
13.5°	3177.5	3154.3	3133.4	3113.9	3094.9	3082.8
14°	3160.4	3136.2	3114.8	3093.9	3073.5	3062.3
14.5°	3142.7	3117.6	3095.3	3073.5	3052.1	3040.0
15°	3124.1	3098.1	3074.9	3051.7	3029.8	3017.3
15.5°	3105.1	3077.7	3054.0	3030.3	3007.5	2993.6
16°	3085.6	3057.7	3032.6	3008.0	2984.8	2969.4
16.5°	3065.6	3036.8	3010.8	2985.7	2960.6	2945.3
17°	3044.7	3014.5	2988.5	2962.9	2936.9	2921.1
17.5°	3023.8	2993.6	2965.7	2938.8	2912.3	2896.5
18°	3002.4	2971.3	2943.4	2915.5	2888.1	2870.5
18.5°	2980.6	2948.5	2920.6	2892.3	2864.4	2846.3
19°	2957.8	2927.6	2898.3	2870.0	2842.1	2823.1
19.5°	2936.9	2905.3	2876.5	2848.6	2820.3	2800.8
20°	2916.5	2883.9	2856.1	2826.8	2798.5	2779.0
20.5°	2896.0	2863.5	2833.8	2805.0	2775.7	2755.7
21°	2875.1	2841.7	2812.4	2782.7	2752.9	2732.5

TEST NUMBER: P776616

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMW-5000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2811.0	2775.7	2743.2	2705.6	2671.2	2648.9
23°	2787.3	2752.9	2719.0	2677.2	2640.1	2614.5
23.5°	2762.2	2728.3	2692.6	2646.1	2605.2	2577.8
24°	2734.8	2704.2	2664.2	2613.6	2568.1	2536.5
24.5°	2706.5	2675.8	2634.5	2578.7	2528.6	2491.9
25°	2676.3	2647.5	2602.4	2543.4	2487.7	2444.0
25.5°	2644.7	2616.4	2569.0	2507.2	2444.5	2397.1
26°	2611.7	2584.3	2533.7	2471.0	2399.9	2349.7
26.5°	2575.9	2546.7	2495.6	2432.4	2353.9	2302.3
27°	2541.1	2508.6	2456.1	2392.5	2308.8	2255.4
27.5°	2505.8	2465.4	2415.2	2351.6	2263.3	2210.8
28°	2469.1	2419.9	2372.5	2308.4	2219.2	2166.7
28.5°	2431.5	2371.5	2327.4	2263.3	2175.5	2123.0
29°	2392.5	2322.8	2280.5	2216.4	2132.3	2077.5
29.5°	2353.4	2271.2	2231.7	2168.5	2089.6	2033.4
30°	2311.2	2219.6	2181.1	2119.8	2046.8	1987.8
30.5°	2267.5	2169.5	2128.1	2071.0	2002.7	1941.8
31°	2222.0	2120.2	2072.8	2021.7	1956.7	1894.0
31.5°	2175.0	2072.8	2019.9	1970.6	1911.2	1846.6
32°	2127.2	2026.4	1967.4	1920.5	1865.2	1796.4
32.5°	2077.5	1980.9	1915.8	1869.8	1817.8	1748.1
33°	2026.8	1935.8	1866.6	1819.7	1766.7	1700.7
33.5°	1975.7	1890.7	1816.4	1768.6	1717.5	1653.8
34°	1926.0	1845.2	1768.6	1718.4	1665.9	1608.3
34.5°	1876.8	1796.0	1719.8	1666.8	1615.3	1562.8
35°	1828.5	1747.2	1671.0	1616.2	1563.7	1518.2
35.5°	1781.1	1697.9	1621.8	1566.5	1515.8	1474.5
36°	1733.7	1648.2	1572.0	1517.7	1467.1	1431.3
36.5°	1686.3	1599.5	1522.8	1468.9	1420.1	1387.2
37°	1639.4	1549.3	1473.6	1418.7	1373.7	1342.6
37.5°	1590.6	1501.4	1425.3	1370.4	1329.6	1298.0
38°	1542.3	1455.0	1377.4	1322.1	1283.1	1253.4
38.5°	1494.5	1409.9	1330.5	1275.2	1238.0	1208.8
39°	1447.1	1365.3	1286.3	1227.8	1192.0	1166.0
39.5°	1397.8	1320.3	1242.2	1181.8	1145.6	1122.4
40°	1350.0	1275.7	1199.5	1136.3	1100.1	1080.1
40.5°	1301.7	1231.1	1157.7	1092.2	1055.5	1039.2
41°	1257.1	1185.5	1115.9	1049.0	1011.3	999.7
41.5°	1209.7	1141.9	1075.4	1008.5	969.1	959.8
42°	1164.6	1097.3	1034.6	968.1	929.1	920.3
42.5°	1119.1	1054.1	997.4	931.0	891.0	882.7
43°	1076.4	1011.3	957.4	893.8	853.8	845.0
43.5°	1031.3	970.9	919.4	857.6	818.1	807.9



TEST NUMBER: P776616

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMW-5000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	907.3	855.2	809.3	758.2	720.1	704.3
45.5°	866.4	819.0	775.3	728.0	690.8	674.5
46°	828.3	784.2	742.8	699.6	662.5	646.7
46.5°	790.2	749.3	710.8	671.7	636.0	620.2
47°	754.0	716.3	680.1	644.3	610.9	596.0
47.5°	719.6	683.8	651.8	619.2	587.7	574.2
48°	686.1	653.2	623.4	596.0	566.3	554.7
48.5°	655.9	623.0	597.4	573.7	545.9	536.1
49°	625.3	595.1	573.3	552.4	527.3	519.4
49.5°	597.9	568.6	550.0	531.9	510.1	503.1
50°	571.9	543.5	527.7	512.4	493.8	488.2
50.5°	547.2	519.8	506.8	494.3	478.5	474.3
51°	524.0	498.9	487.8	477.1	463.6	460.8
51.5°	503.1	479.4	469.7	461.3	449.7	447.4
52°	483.1	461.3	453.4	445.5	436.7	434.8
52.5°	464.6	445.0	437.6	431.1	423.7	422.3
53°	447.4	429.7	422.7	417.2	411.6	410.2
53.5°	431.1	415.8	408.8	404.6	400.0	399.1
54°	416.2	402.8	396.7	393.0	389.8	388.8
54.5°	403.2	391.6	386.5	383.3	380.5	380.0
55°	393.5	381.4	377.2	374.4	371.6	371.2
55.5°	383.3	372.6	367.9	365.1	362.4	362.4
56°	373.5	363.3	358.6	356.3	353.5	353.5
56.5°	363.7	354.0	349.8	347.0	344.2	344.2
57°	353.5	344.2	340.5	337.7	335.4	335.4
57.5°	344.2	334.5	330.8	328.4	326.6	326.6
58°	334.9	325.7	321.9	319.6	317.8	317.8
58.5°	325.7	316.4	312.6	310.8	308.9	308.9
59°	315.9	307.5	303.8	302.0	300.6	300.6
59.5°	307.1	298.2	295.0	293.6	292.2	291.7
60°	298.2	289.9	286.6	285.2	283.8	282.9
60.5°	289.4	281.1	278.3	277.3	275.9	274.6
61°	281.1	273.2	270.4	269.0	268.0	266.2
61.5°	272.7	265.3	262.5	261.1	259.7	258.3
62°	264.8	257.4	255.0	253.6	252.3	249.9
62.5°	256.9	249.5	246.7	246.2	244.4	242.0
63°	249.0	242.0	239.7	238.8	236.9	234.1
63.5°	242.0	234.6	232.3	231.8	229.5	226.7
64°	234.6	227.6	225.3	224.8	222.1	219.3
64.5°	227.2	220.7	218.3	217.9	215.1	211.8
65°	220.2	213.7	211.8	211.4	208.1	204.4
65.5°	213.2	207.2	205.3	204.4	201.2	197.4
66°	206.7	200.7	198.8	198.4	194.2	190.5



TEST NUMBER: P776616

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMW-5000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	187.7	181.6	180.2	179.3	174.2	170.5
68°	181.2	175.6	174.2	173.7	167.2	164.5
68.5°	175.6	170.0	167.7	167.2	161.7	158.4
69°	169.6	164.5	162.6	161.7	156.1	152.4
69.5°	163.5	158.9	157.0	156.1	150.1	146.3
70°	157.9	153.3	151.9	151.0	144.5	140.3
70.5°	152.4	148.2	146.3	145.4	138.4	134.3
71°	147.3	142.6	140.8	139.8	132.9	128.7
71.5°	141.7	137.0	135.6	134.3	127.3	123.1
72°	136.6	131.9	130.5	129.1	121.7	117.1
72.5°	131.0	126.8	125.4	123.6	116.1	111.5
73°	125.9	121.7	120.3	118.5	111.0	105.9
73.5°	120.8	116.6	115.2	113.4	105.5	100.8
74°	116.1	112.0	110.6	108.2	100.3	95.7
74.5°	111.0	106.8	105.5	103.6	95.2	90.6
75°	106.4	102.2	100.8	98.5	90.1	85.5
75.5°	101.7	97.6	96.2	93.8	85.5	80.4
76°	97.1	92.9	91.5	88.7	80.4	75.7
76.5°	92.4	88.3	86.9	84.1	75.3	71.1
77°	87.8	84.1	82.7	79.4	70.6	66.4
77.5°	83.6	79.4	78.0	75.3	66.0	61.8
78°	79.0	75.3	73.9	70.6	61.3	57.1
78.5°	74.8	71.1	69.7	66.4	57.1	52.5
79°	70.6	66.9	65.5	61.8	52.5	48.3
79.5°	66.4	62.7	61.3	57.6	48.3	44.1
80°	62.3	58.5	57.1	53.9	44.1	40.0
80.5°	58.1	54.8	53.4	49.7	40.0	35.8
81°	54.4	50.6	49.2	45.5	35.8	31.6
81.5°	50.2	46.9	45.5	41.8	32.1	27.9
82°	46.5	43.2	41.8	38.1	28.3	23.7
82.5°	42.7	39.5	38.1	34.8	24.6	20.0
83°	39.5	35.8	34.4	31.1	21.4	16.3
83.5°	35.8	32.1	30.7	27.9	18.6	13.9
84°	32.1	28.3	26.9	24.6	16.3	11.6
84.5°	28.3	25.1	23.7	21.4	14.4	9.3
85°	25.1	21.4	20.4	18.1	12.1	7.0
85.5°	21.4	18.1	16.7	15.3	9.8	5.6
86°	18.1	15.3	13.9	12.1	7.9	4.2
86.5°	14.9	12.1	10.7	9.3	6.0	3.3
87°	12.1	8.8	7.4	6.0	4.2	1.9
87.5°	8.8	5.6	4.2	3.3	2.3	0.9
88°	5.6	2.8	1.9	1.4	0.9	0.5
88.5°	2.8	0.9	0.5	0.5	0.5	0.0



TEST NUMBER: P776616

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMW-5000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.0	0.5	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°	2708.3	2695.8	2696.7	2707.9	2748.3	2778.0	2807.8	2837.5	2857.9	2869.1	2868.6
22°	2680.5	2666.5	2667.5	2680.0	2725.5	2756.2	2786.9	2815.7	2837.0	2848.6	2847.7



44°	771.6	777.7	785.1	794.4	836.7	862.7	899.4	956.5	991.8	1009.9	1003.0
44.5°	737.7	747.9	755.4	764.7	800.9	826.9	862.7	919.4	952.8	966.7	961.6



66.5°	184.0	188.1	194.2	195.6	202.5	204.9	205.3	202.1	196.5	198.4	202.1
67°	177.0	181.6	187.7	189.5	196.5	198.4	199.3	195.6	190.0	191.9	195.6



89°	0.0	0.5	0.0	0.0	0.9	1.4	1.9	1.9	0.9	1.4	1.4
89.5°	0.0	0.5	0.0	0.0	0.0	0.5	0.5	0.5	0.0	0.5	0.5



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21.5°	2853.8	2819.4	2790.1	2759.0	2727.9	2708.3
22°	2833.3	2798.5	2767.3	2733.0	2700.9	2680.5



44°	989.5	930.5	882.2	823.2	783.7	771.6
44.5°	947.2	892.4	846.0	789.7	751.2	737.7

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66.5°	200.2	194.2	192.3	191.9	187.2	184.0
67°	193.7	187.7	186.3	185.8	180.7	177.0

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89°	0.9	0.0	0.0	0.0	0.5	0.0
89.5°	0.0	0.0	0.0	0.0	0.5	0.0

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Scaled Data Report



(END OF REPORT)