

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: P776619

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

Issue Date: 2/7/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776619  
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-5000K  
Description: 4 INCH ROUND MEDIUM MATTE WHITE TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

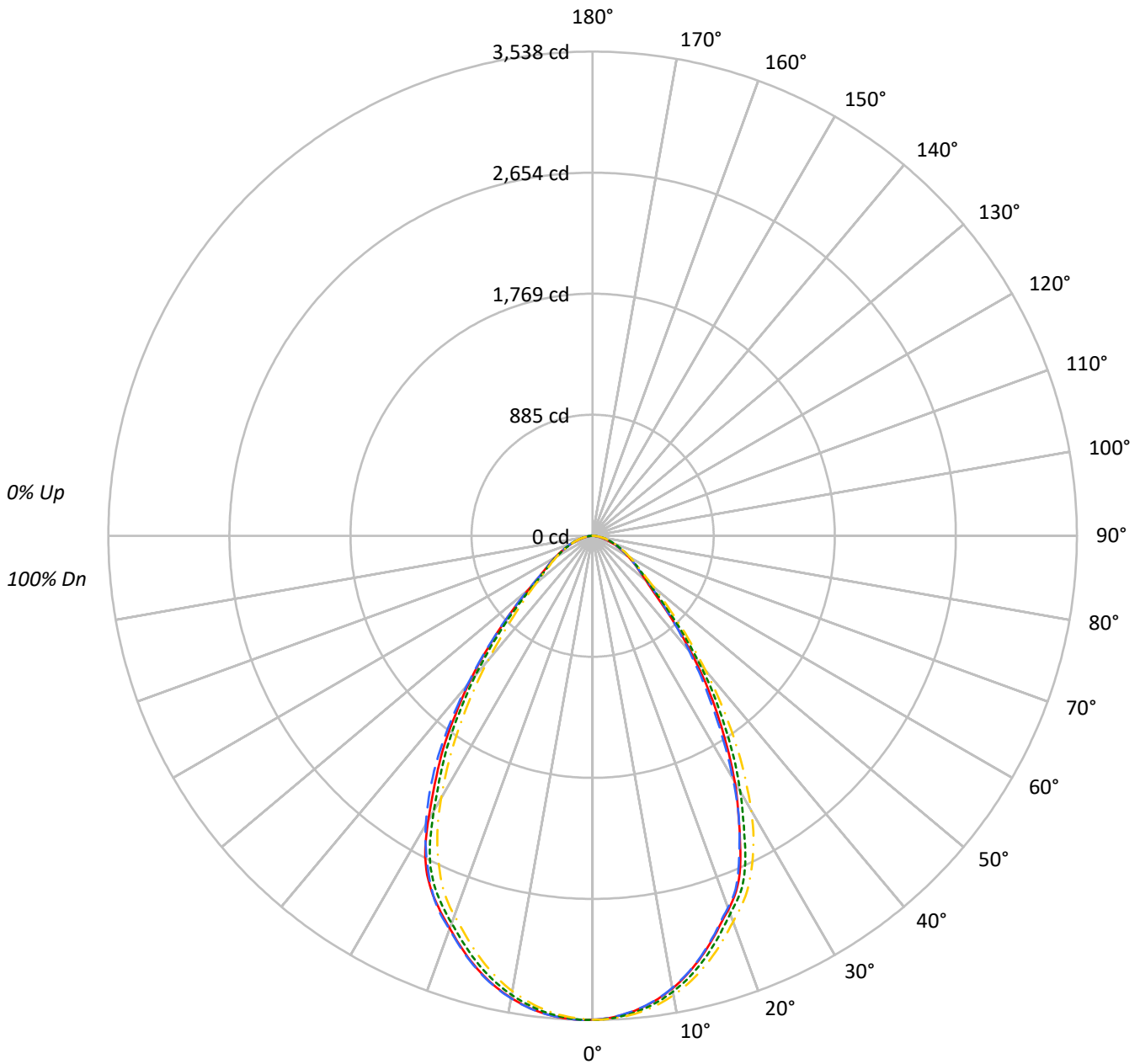
Lumens per Lamp: N/A  
Luminaire Lumens: 4933.1 lumens  
Efficiency: N/A  
Efficacy: 102.8 lumens/watt  
Spacing Criteria (0/90/45): 1.03 / 1.03 / 1.02  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

Input Watts (W): 48  
Input Voltage (V): NR  
Input Current (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



TEST NUMBER: P776619  
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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°	445080	445080	445080	445080
5°	440274	441929	444380	443041
10°	429123	432215	438298	435385
15°	410698	415571	426189	421694
20°	388816	393824	408905	403507
25°	354551	366146	391141	384073
30°	301784	313351	349187	336980
35°	243664	256723	292735	280429
40°	185379	198769	230509	218943
45°	130957	142347	169738	159024
50°	99871	105764	119352	111168
55°	85088	88708	91692	87436
60°	74402	78430	79638	76215
65°	63577	69235	68074	66496
70°	53943	61597	58027	58947
75°	43422	54994	48625	51931
80°	30222	47833	37252	44354
85°	10541	37832	16750	32200

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 202.5°  
 Vertical Angle: 45°  
 Luminance: 172070 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	330.8	6.7
10°-20°	901.1	18.3
20°-30°	1221.6	24.8
30°-40°	1084.9	22.0
40°-50°	664.3	13.5
50°-60°	368.4	7.5
60°-70°	226.1	4.6
70°-80°	111.8	2.3
80°-90°	24.3	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°	2453.4	49.7
0°-40°	3538.4	71.7
0°-60°	4571.0	92.7
0°-90°	4933.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4933.1	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	3537	3537	3537	3537	3537	
5°	3485	3498	3518	3507	3485	329
15°	3152	3190	3271	3237	3152	884
25°	2553	2637	2817	2766	2553	1160
35°	1586	1671	1905	1825	1586	988
45°	736	800	954	894	736	587
55°	388	404	418	398	388	350
65°	214	232	229	223	214	214
75°	89	113	100	107	89	96
85°	7	26	12	22	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°	3536.6	3536.6	3536.6	3536.6	3536.6	3536.6	3536.6	3536.6	3536.6	3536.6	3536.6
0.5°	3535.1	3535.6	3534.6	3532.7	3537.5	3536.1	3536.1	3537.1	3538.0	3539.0	3538.0
1°	3532.7	3533.2	3532.2	3530.3	3536.1	3535.6	3535.6	3537.5	3538.5	3539.5	3538.5
1.5°	3529.3	3529.3	3528.3	3526.9	3533.7	3534.1	3534.1	3537.1	3538.5	3539.5	3538.5
2°	3525.4	3524.9	3524.0	3523.0	3530.7	3531.7	3532.7	3535.1	3537.5	3539.0	3537.5
2.5°	3520.6	3520.1	3519.1	3518.1	3526.9	3528.8	3530.3	3533.7	3536.1	3537.5	3536.1
3°	3514.7	3514.7	3513.8	3512.8	3522.5	3524.9	3527.4	3531.2	3533.7	3535.1	3533.7
3.5°	3508.4	3508.4	3507.0	3507.0	3517.6	3520.6	3523.5	3527.8	3530.7	3532.2	3530.7
4°	3501.6	3501.1	3499.7	3500.2	3511.8	3515.7	3518.6	3524.0	3527.4	3528.8	3527.4
4.5°	3494.3	3493.4	3491.9	3492.9	3505.5	3509.4	3513.3	3519.1	3523.0	3524.9	3523.0
5°	3485.1	3484.6	3483.7	3484.6	3498.2	3503.1	3507.5	3513.8	3517.6	3520.1	3518.1
5.5°	3475.9	3474.9	3474.0	3475.4	3489.5	3495.3	3500.2	3507.9	3511.8	3514.2	3512.8
6°	3466.2	3464.7	3463.8	3465.2	3480.8	3487.6	3493.4	3501.1	3505.5	3507.9	3507.0
6.5°	3455.0	3453.6	3453.6	3455.0	3471.1	3478.3	3485.1	3493.4	3498.7	3501.1	3500.2
7°	3443.9	3442.4	3441.9	3443.9	3460.9	3468.6	3476.4	3485.1	3491.4	3493.9	3492.4
7.5°	3431.3	3429.3	3428.8	3431.7	3449.7	3458.4	3466.7	3476.4	3482.7	3485.6	3484.2
8°	3418.6	3416.7	3415.7	3418.6	3437.1	3447.3	3456.5	3466.7	3473.0	3476.4	3474.9
8.5°	3404.6	3402.6	3401.7	3404.6	3424.9	3435.6	3445.3	3456.5	3463.3	3466.2	3465.7
9°	3390.0	3387.6	3386.6	3390.5	3411.4	3423.0	3433.7	3444.8	3453.1	3456.5	3455.5
9.5°	3374.0	3371.1	3370.6	3375.0	3396.8	3409.9	3421.1	3433.7	3441.9	3445.3	3444.4
10°	3358.0	3354.6	3354.1	3358.5	3382.2	3395.8	3408.0	3421.1	3429.8	3434.2	3432.7
10.5°	3341.0	3337.6	3337.1	3341.5	3366.7	3381.3	3393.9	3408.0	3416.7	3421.6	3420.6
11°	3323.0	3319.6	3318.7	3324.0	3349.2	3365.3	3378.8	3394.4	3403.6	3408.4	3407.5
11.5°	3304.1	3299.7	3299.7	3305.6	3332.7	3348.8	3363.8	3378.8	3390.0	3394.4	3393.9
12°	3284.7	3280.8	3280.3	3286.1	3314.8	3331.8	3347.3	3363.8	3375.4	3380.3	3378.8
12.5°	3264.3	3259.9	3259.9	3265.3	3294.9	3313.3	3329.8	3347.8	3359.4	3364.8	3363.3
13°	3243.4	3239.1	3238.1	3244.9	3275.5	3294.9	3312.4	3331.3	3343.4	3349.2	3347.8
13.5°	3220.6	3215.8	3216.7	3223.1	3255.6	3275.0	3293.9	3313.8	3326.4	3332.3	3331.3
14°	3199.3	3193.9	3193.4	3200.2	3234.2	3254.6	3274.0	3294.9	3309.0	3314.8	3312.8
14.5°	3176.0	3170.6	3170.2	3177.9	3211.9	3233.7	3254.6	3276.0	3291.0	3296.3	3294.4
15°	3152.2	3145.9	3145.4	3153.7	3189.6	3211.9	3234.2	3256.1	3271.1	3277.4	3275.5
15.5°	3127.4	3121.6	3121.6	3129.4	3165.8	3189.6	3212.4	3236.2	3251.2	3258.0	3256.5
16°	3102.2	3096.4	3095.9	3104.1	3142.0	3166.8	3190.5	3215.8	3231.3	3238.1	3236.2
16.5°	3077.0	3070.2	3070.2	3079.4	3117.7	3143.0	3168.2	3193.9	3210.4	3217.2	3215.3
17°	3051.7	3044.0	3044.5	3053.7	3092.5	3118.7	3145.4	3172.1	3188.6	3195.9	3194.4
17.5°	3026.0	3017.8	3017.8	3027.5	3066.8	3094.4	3121.6	3149.3	3166.8	3174.5	3172.1
18°	2998.8	2991.1	2990.6	3000.8	3041.5	3069.2	3097.8	3126.0	3144.4	3152.2	3150.3
18.5°	2973.6	2964.9	2963.9	2974.6	3015.3	3043.5	3073.1	3102.7	3121.6	3129.4	3127.4
19°	2949.3	2940.1	2938.7	2948.8	2989.1	3018.7	3048.3	3078.9	3098.8	3107.1	3104.6
19.5°	2926.0	2916.3	2914.9	2925.1	2964.4	2994.0	3023.6	3055.6	3075.0	3084.2	3082.3
20°	2903.2	2893.0	2892.1	2901.8	2940.6	2970.7	3001.3	3032.3	3053.2	3061.9	3061.0
20.5°	2879.0	2868.8	2867.8	2878.0	2917.3	2947.4	2978.0	3009.5	3030.4	3040.6	3039.6
21°	2854.7	2844.5	2844.0	2854.7	2894.0	2925.5	2955.6	2986.7	3008.5	3019.7	3018.7



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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°	2767.3	2752.8	2751.8	2768.3	2820.7	2853.7	2885.8	2918.8	2941.1	2952.7	2951.3
23°	2731.4	2716.4	2713.0	2732.9	2791.6	2825.6	2858.6	2895.0	2918.3	2928.9	2925.1
23.5°	2693.1	2677.5	2671.2	2695.5	2758.1	2794.5	2830.4	2870.2	2894.5	2902.7	2897.9
24°	2649.9	2634.8	2626.6	2654.7	2720.7	2761.5	2799.8	2843.5	2869.7	2875.6	2868.3
24.5°	2603.3	2591.2	2581.9	2611.5	2680.9	2726.1	2767.3	2815.9	2843.5	2846.4	2837.7
25°	2553.3	2545.1	2536.3	2566.4	2636.8	2688.2	2733.4	2785.8	2816.8	2815.9	2805.2
25.5°	2504.3	2496.5	2492.2	2519.3	2590.7	2646.0	2697.4	2754.7	2788.2	2783.3	2770.7
26°	2454.8	2447.0	2448.5	2470.8	2542.6	2602.3	2661.0	2721.2	2756.7	2749.9	2736.3
26.5°	2405.3	2394.6	2404.3	2421.3	2491.2	2556.7	2622.2	2684.8	2722.7	2713.5	2700.8
27°	2356.3	2343.6	2358.7	2371.8	2440.7	2509.6	2584.4	2647.5	2686.8	2677.1	2666.4
27.5°	2309.7	2292.2	2312.1	2320.3	2392.2	2462.1	2545.1	2608.6	2647.5	2639.2	2631.4
28°	2263.6	2239.8	2262.1	2269.9	2343.6	2413.0	2503.8	2567.4	2604.7	2602.3	2594.6
28.5°	2217.9	2190.3	2210.7	2220.4	2296.6	2366.9	2460.6	2525.6	2557.7	2563.0	2558.2
29°	2170.4	2140.8	2157.8	2170.4	2250.0	2321.8	2414.0	2481.0	2508.2	2522.7	2520.8
29.5°	2124.3	2091.8	2104.9	2120.4	2203.4	2277.2	2366.5	2434.4	2456.7	2481.0	2481.0
30°	2076.7	2042.3	2051.0	2070.4	2156.3	2232.5	2316.9	2385.9	2402.9	2438.3	2440.2
30.5°	2028.7	1994.2	1996.1	2019.9	2110.2	2188.3	2267.0	2333.0	2348.0	2391.7	2396.1
31°	1978.7	1944.2	1942.8	1969.5	2063.6	2142.7	2215.0	2279.1	2293.7	2345.6	2351.9
31.5°	1929.2	1894.7	1889.9	1920.0	2015.1	2096.6	2162.6	2222.8	2241.2	2297.5	2304.8
32°	1876.8	1846.2	1836.5	1870.4	1967.5	2050.0	2112.1	2166.0	2191.7	2248.0	2258.7
32.5°	1826.3	1796.2	1783.1	1820.5	1919.5	2002.5	2061.7	2109.7	2143.2	2195.6	2212.6
33°	1776.8	1746.7	1731.6	1771.9	1868.5	1952.5	2008.3	2052.9	2095.2	2142.2	2166.5
33.5°	1727.8	1699.6	1680.2	1723.9	1818.0	1902.5	1954.9	1998.6	2047.6	2089.3	2117.5
34°	1680.2	1650.1	1629.2	1675.3	1768.0	1851.0	1901.5	1948.1	2001.5	2037.4	2070.4
34.5°	1632.6	1601.6	1579.3	1626.8	1719.5	1798.1	1849.1	1895.2	1953.4	1985.0	2018.5
35°	1586.0	1552.1	1528.8	1578.8	1671.0	1745.2	1796.2	1841.8	1905.4	1935.0	1967.0
35.5°	1540.4	1506.0	1481.2	1530.7	1624.9	1694.8	1744.3	1790.9	1854.9	1886.0	1913.2
36°	1495.3	1456.9	1435.6	1482.2	1576.8	1642.8	1690.4	1739.4	1802.5	1837.0	1860.3
36.5°	1449.2	1409.4	1390.9	1432.7	1531.7	1592.8	1639.4	1688.0	1750.6	1787.5	1805.4
37°	1402.6	1363.8	1347.3	1385.1	1485.6	1542.4	1585.6	1635.5	1697.7	1737.5	1750.6
37.5°	1356.0	1318.1	1303.6	1337.6	1440.0	1493.8	1533.6	1583.6	1645.3	1689.4	1696.7
38°	1309.4	1273.5	1260.4	1291.0	1394.8	1445.3	1480.7	1532.7	1595.3	1638.5	1642.3
38.5°	1262.8	1228.4	1217.2	1247.8	1349.2	1397.7	1430.3	1482.7	1548.2	1588.5	1587.0
39°	1218.2	1186.6	1175.9	1205.1	1299.7	1350.2	1379.8	1432.7	1498.2	1537.5	1533.6
39.5°	1172.5	1144.9	1135.2	1163.3	1254.6	1302.6	1332.7	1385.6	1451.1	1487.0	1480.2
40°	1128.4	1103.6	1093.9	1121.6	1209.9	1255.1	1282.7	1338.5	1403.1	1436.1	1427.8
40.5°	1085.7	1063.3	1055.6	1081.8	1163.3	1205.6	1235.2	1293.4	1359.9	1386.1	1375.4
41°	1044.4	1024.0	1018.7	1042.5	1119.2	1158.5	1188.1	1248.3	1312.3	1337.1	1325.9
41.5°	1002.7	985.2	982.3	1004.6	1076.5	1112.4	1143.9	1205.1	1263.8	1288.5	1277.4
42°	961.4	948.3	948.8	967.3	1035.7	1067.2	1099.7	1163.3	1216.2	1240.5	1229.8
42.5°	922.1	912.9	915.3	930.9	993.9	1022.6	1058.0	1121.6	1172.1	1193.9	1183.7
43°	882.8	878.4	882.8	895.9	953.7	980.4	1017.2	1079.9	1125.0	1146.3	1137.1
43.5°	844.0	844.5	850.3	861.9	913.4	939.6	978.9	1040.1	1079.9	1100.2	1092.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	735.8	751.8	761.5	768.3	799.8	827.5	865.8	921.1	953.7	966.8	962.9
45.5°	704.7	723.1	733.8	739.6	764.9	793.0	832.3	883.3	914.8	924.5	921.6
46°	675.6	696.0	708.1	712.5	731.4	759.1	798.8	846.4	876.0	883.3	881.8
46.5°	647.9	669.8	681.9	685.8	699.8	728.5	766.3	811.0	839.1	843.0	843.5
47°	622.7	644.5	658.1	660.0	671.2	697.9	735.8	777.0	802.7	803.2	806.1
47.5°	599.9	620.2	634.3	635.8	644.5	669.3	706.6	743.5	767.3	766.8	771.2
48°	579.5	598.4	611.5	613.0	619.3	643.1	679.5	712.5	733.8	731.9	736.2
48.5°	560.1	577.1	589.7	591.1	596.5	618.3	653.2	682.9	700.8	698.9	703.2
49°	542.6	557.2	570.3	570.3	576.1	596.0	627.5	654.2	668.8	666.8	671.2
49.5°	525.6	538.2	550.4	550.4	557.2	574.1	604.2	627.5	638.7	637.2	641.6
50°	510.1	520.3	531.4	531.4	540.2	554.2	581.4	601.8	609.6	609.1	612.5
50.5°	495.5	503.3	512.5	514.0	523.2	535.8	560.1	577.5	583.4	583.4	585.3
51°	481.4	487.8	496.0	497.0	507.2	518.8	539.7	554.7	558.6	559.1	560.1
51.5°	467.4	472.2	479.5	481.4	492.6	502.8	520.3	533.4	535.8	536.8	535.8
52°	454.3	457.7	464.0	465.9	479.0	487.3	502.3	513.5	514.4	515.4	513.5
52.5°	441.2	443.6	448.9	451.8	464.9	472.7	484.8	494.1	495.0	495.5	492.6
53°	428.5	431.0	434.9	437.8	451.4	458.6	468.8	476.1	477.6	477.1	473.2
53.5°	416.9	418.8	421.7	424.7	438.2	445.0	453.3	460.1	460.6	460.1	456.2
54°	406.2	407.7	409.6	412.5	426.1	432.9	438.7	444.6	445.0	444.1	440.7
54.5°	397.0	398.0	399.4	402.3	414.0	419.8	425.1	430.0	431.0	429.0	426.1
55°	387.8	388.7	390.2	392.6	404.3	410.1	414.5	416.9	417.9	416.4	415.4
55.5°	378.6	379.5	381.0	383.4	394.6	399.9	404.3	406.7	407.7	406.2	404.8
56°	369.3	370.3	371.8	373.7	384.9	390.2	394.1	396.5	397.0	395.5	394.1
56.5°	359.6	361.1	362.5	365.0	375.2	380.0	383.4	386.3	386.3	385.3	383.9
57°	350.4	351.9	353.3	355.3	366.4	370.3	373.2	375.6	375.6	374.7	373.2
57.5°	341.2	342.6	343.6	346.0	356.7	360.6	363.5	365.9	366.9	365.0	363.0
58°	332.0	333.4	334.4	336.8	347.5	351.4	353.8	356.2	356.7	355.3	352.8
58.5°	322.7	324.2	325.7	328.1	338.3	341.7	344.1	347.0	346.5	345.6	343.1
59°	314.0	315.5	316.9	319.3	329.1	332.4	334.9	337.3	336.3	335.4	333.4
59.5°	304.8	306.7	308.2	310.1	320.3	323.2	325.2	327.6	326.6	325.7	323.7
60°	295.6	298.5	299.4	301.9	311.6	315.0	316.4	318.4	316.4	316.4	314.5
60.5°	286.8	289.7	291.2	293.1	303.3	305.8	307.7	309.2	306.7	306.7	305.3
61°	278.1	281.0	282.9	284.9	294.6	297.5	299.0	300.4	297.5	297.5	296.5
61.5°	269.8	272.8	275.2	277.1	286.3	289.3	290.2	291.7	288.3	288.3	287.8
62°	261.1	264.5	267.4	268.9	278.1	281.0	282.0	283.4	279.1	279.5	279.5
62.5°	252.9	256.7	259.2	261.1	269.8	272.8	274.2	274.7	270.3	270.8	271.3
63°	244.6	248.5	251.9	253.8	262.1	265.0	266.0	266.4	261.6	262.1	263.0
63.5°	236.8	240.7	244.1	246.1	254.3	257.2	258.2	257.7	252.9	253.8	255.3
64°	229.1	233.0	237.3	238.8	247.0	249.5	250.4	249.5	244.6	245.6	247.5
64.5°	221.3	225.7	230.0	232.0	239.8	242.2	243.1	241.7	236.4	237.8	240.2
65°	213.5	217.9	223.3	224.7	232.5	234.9	235.9	233.9	228.6	230.0	232.5
65.5°	206.3	210.6	216.0	217.9	225.7	227.6	229.1	226.2	220.3	222.3	225.2
66°	199.0	203.8	209.2	211.1	218.4	220.8	221.8	218.9	213.1	215.0	218.4





TEST NUMBER: P776619

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

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	178.1	183.0	189.3	191.7	198.5	200.4	201.4	197.0	191.2	193.2	197.5
68°	171.8	176.2	183.0	185.4	192.2	194.1	195.1	190.2	184.4	186.4	190.7
68.5°	165.5	170.3	177.1	179.1	185.9	187.8	188.3	183.5	177.1	179.6	184.4
69°	159.2	164.0	170.8	173.3	179.6	181.5	182.0	176.7	170.8	173.3	178.1
69.5°	152.9	157.7	165.0	167.4	173.7	175.7	175.7	170.3	164.0	167.0	171.8
70°	146.6	151.4	159.2	162.1	167.4	169.4	169.9	164.0	157.7	160.6	165.5
70.5°	140.3	145.1	153.4	156.3	162.1	163.6	164.0	157.7	151.4	154.3	159.7
71°	134.4	139.3	147.5	150.5	156.3	157.7	157.7	151.4	145.6	148.0	153.8
71.5°	128.6	133.5	141.7	145.1	150.5	152.4	151.9	145.1	139.3	142.2	148.0
72°	122.3	127.6	135.9	139.3	144.6	146.6	146.1	139.3	133.5	136.4	142.2
72.5°	116.5	121.8	130.6	134.0	139.3	141.2	140.7	133.5	127.6	130.6	136.9
73°	110.7	116.0	124.7	128.6	134.0	135.4	134.9	127.6	121.8	124.7	131.0
73.5°	105.3	110.2	119.4	123.3	128.6	130.1	129.1	121.8	116.0	118.9	125.7
74°	100.0	104.8	114.1	118.4	123.3	125.2	124.2	116.5	110.7	113.6	120.4
74.5°	94.6	99.5	108.7	113.1	117.9	119.9	118.4	111.1	105.3	108.2	115.0
75°	89.3	94.2	103.4	108.2	113.1	114.5	113.6	105.3	100.0	102.9	109.7
75.5°	84.0	88.8	98.5	102.9	108.2	109.7	108.2	100.5	94.6	97.6	104.8
76°	79.1	84.0	93.2	98.5	102.9	104.8	102.9	94.6	89.3	92.2	100.0
76.5°	74.3	78.6	88.3	93.2	98.0	100.0	98.0	89.8	84.4	87.4	94.6
77°	69.4	73.8	83.5	88.8	93.2	95.1	93.2	84.4	79.1	82.0	89.8
77.5°	64.5	68.9	78.6	84.0	88.8	90.8	88.3	79.6	74.3	77.2	84.9
78°	59.7	64.1	74.3	79.6	84.0	85.9	83.5	74.7	69.4	72.8	80.1
78.5°	54.8	59.2	69.4	74.7	79.6	81.0	78.6	69.9	65.0	67.9	75.7
79°	50.5	54.4	65.0	70.4	74.7	76.7	74.3	65.0	60.2	63.1	71.3
79.5°	46.1	50.0	60.2	66.0	70.4	72.3	69.9	60.7	55.8	58.2	66.5
80°	41.7	45.6	55.8	61.6	66.0	67.9	65.0	55.8	51.4	53.9	62.1
80.5°	37.4	41.3	51.9	57.8	62.1	63.6	61.2	51.4	47.1	49.5	57.8
81°	33.0	36.9	47.6	53.4	57.8	59.2	56.8	47.1	42.7	45.6	53.9
81.5°	29.1	32.5	43.7	49.0	53.4	55.3	52.4	43.2	38.8	41.3	49.5
82°	24.8	28.6	39.8	45.1	49.5	51.0	48.5	39.3	34.5	36.9	45.6
82.5°	20.9	24.8	35.9	41.3	45.1	47.1	44.7	35.4	30.6	33.0	42.2
83°	17.0	21.4	32.5	37.4	41.7	43.2	41.3	31.5	26.2	28.6	38.8
83.5°	14.6	18.0	28.6	33.5	37.9	39.3	37.4	27.2	22.3	25.2	34.9
84°	12.1	16.0	25.7	30.1	34.0	35.4	33.5	23.8	18.4	21.8	31.5
84.5°	9.7	14.1	22.3	26.2	30.1	31.5	30.1	20.9	15.0	18.4	28.1
85°	7.3	11.6	18.9	22.3	26.2	27.7	26.2	18.0	11.6	16.0	24.8
85.5°	5.8	9.7	16.0	18.9	22.3	24.3	23.3	15.5	9.7	14.1	21.4
86°	4.4	7.8	13.1	15.5	18.9	20.9	19.9	13.6	8.3	12.1	18.4
86.5°	3.4	5.8	10.2	12.1	15.5	17.0	17.0	11.2	6.8	10.2	15.5
87°	1.9	3.9	6.8	8.7	12.1	13.6	13.6	9.2	5.3	8.3	12.6
87.5°	1.0	2.4	3.9	5.3	8.7	10.7	10.7	7.3	4.4	6.3	9.7
88°	0.5	1.0	1.5	2.4	5.8	7.3	7.8	5.3	2.9	4.9	6.8
88.5°	0.0	0.5	0.5	1.0	2.9	3.9	4.9	3.4	1.9	2.9	3.9



TEST NUMBER: P776619  
CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMW-5000lm-5000K

**CANDELA DISTRIBUTION (continued):**

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



TEST NUMBER: P776619

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

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	3536.6	3536.6	3536.6	3536.6	3536.6	3536.6
0.5°	3535.6	3538.0	3536.1	3534.1	3534.6	3535.1
1°	3536.1	3537.5	3534.6	3532.2	3532.2	3532.7
1.5°	3535.1	3536.1	3532.7	3529.8	3529.3	3529.3
2°	3534.1	3534.1	3530.3	3526.4	3525.4	3525.4
2.5°	3532.2	3531.2	3527.4	3523.0	3521.0	3520.6
3°	3529.8	3527.8	3523.0	3518.6	3515.7	3514.7
3.5°	3526.9	3524.0	3518.6	3513.3	3509.9	3508.4
4°	3523.0	3519.6	3512.8	3507.9	3503.6	3501.6
4.5°	3518.6	3513.3	3507.0	3500.7	3496.3	3494.3
5°	3513.8	3507.0	3499.7	3493.4	3488.0	3485.1
5.5°	3507.5	3500.2	3492.4	3485.1	3479.3	3475.9
6°	3500.7	3492.9	3483.7	3476.4	3470.1	3466.2
6.5°	3493.9	3485.1	3474.9	3467.2	3459.4	3455.0
7°	3486.1	3475.9	3465.2	3456.5	3448.2	3443.9
7.5°	3477.8	3465.7	3455.0	3445.3	3436.6	3431.3
8°	3468.1	3456.0	3443.9	3433.2	3424.0	3418.6
8.5°	3458.4	3444.8	3432.2	3421.1	3410.9	3404.6
9°	3447.8	3432.7	3419.6	3407.0	3395.8	3390.0
9.5°	3436.6	3420.6	3406.5	3393.4	3381.3	3374.0
10°	3424.5	3407.0	3392.4	3378.8	3365.7	3358.0
10.5°	3411.8	3393.4	3377.4	3363.3	3349.7	3341.0
11°	3397.8	3378.8	3361.9	3346.8	3332.3	3323.0
11.5°	3383.7	3363.8	3345.8	3329.8	3313.3	3304.1
12°	3368.6	3347.3	3328.9	3310.9	3294.9	3284.7
12.5°	3353.1	3330.3	3310.9	3292.0	3275.0	3264.3
13°	3336.6	3312.8	3292.9	3273.0	3255.1	3243.4
13.5°	3319.6	3295.4	3273.5	3253.1	3233.2	3220.6
14°	3301.7	3276.4	3254.1	3232.3	3210.9	3199.3
14.5°	3283.2	3257.0	3233.7	3210.9	3188.6	3176.0
15°	3263.8	3236.6	3212.4	3188.1	3165.3	3152.2
15.5°	3243.9	3215.3	3190.5	3165.8	3142.0	3127.4
16°	3223.5	3194.4	3168.2	3142.5	3118.2	3102.2
16.5°	3202.7	3172.6	3145.4	3119.2	3093.0	3077.0
17°	3180.8	3149.3	3122.1	3095.4	3068.2	3051.7
17.5°	3159.0	3127.4	3098.3	3070.2	3042.5	3026.0
18°	3136.7	3104.1	3075.0	3045.9	3017.3	2998.8
18.5°	3113.9	3080.4	3051.2	3021.6	2992.5	2973.6
19°	3090.1	3058.5	3028.0	2998.3	2969.2	2949.3
19.5°	3068.2	3035.2	3005.1	2976.0	2946.4	2926.0
20°	3046.9	3012.9	2983.8	2953.2	2923.6	2903.2
20.5°	3025.5	2991.6	2960.5	2930.4	2899.8	2879.0
21°	3003.7	2968.7	2938.2	2907.1	2876.0	2854.7

TEST NUMBER: P776619

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

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2936.7	2899.8	2865.9	2826.5	2790.6	2767.3
23°	2912.0	2876.0	2840.6	2796.9	2758.1	2731.4
23.5°	2885.8	2850.3	2813.0	2764.4	2721.7	2693.1
24°	2857.1	2825.1	2783.3	2730.4	2682.9	2649.9
24.5°	2827.5	2795.5	2752.3	2694.0	2641.6	2603.3
25°	2796.0	2765.9	2718.8	2657.2	2598.9	2553.3
25.5°	2763.0	2733.4	2683.9	2619.3	2553.8	2504.3
26°	2728.5	2699.9	2647.0	2581.5	2507.2	2454.8
26.5°	2691.1	2660.6	2607.2	2541.2	2459.1	2405.3
27°	2654.7	2620.8	2565.9	2499.4	2412.1	2356.3
27.5°	2617.8	2575.6	2523.2	2456.7	2364.5	2309.7
28°	2579.5	2528.1	2478.6	2411.6	2318.4	2263.6
28.5°	2540.2	2477.6	2431.5	2364.5	2272.8	2217.9
29°	2499.4	2426.6	2382.5	2315.5	2227.6	2170.4
29.5°	2458.7	2372.8	2331.5	2265.5	2183.0	2124.3
30°	2414.5	2318.9	2278.6	2214.5	2138.3	2076.7
30.5°	2368.9	2266.5	2223.3	2163.6	2092.2	2028.7
31°	2321.3	2215.0	2165.5	2112.1	2044.2	1978.7
31.5°	2272.3	2165.5	2110.2	2058.8	1996.6	1929.2
32°	2222.3	2117.0	2055.4	2006.3	1948.6	1876.8
32.5°	2170.4	2069.4	2001.5	1953.4	1899.1	1826.3
33°	2117.5	2022.4	1950.0	1901.0	1845.7	1776.8
33.5°	2064.1	1975.3	1897.6	1847.6	1794.3	1727.8
34°	2012.2	1927.7	1847.6	1795.2	1740.4	1680.2
34.5°	1960.7	1876.3	1796.7	1741.4	1687.5	1632.6
35°	1910.2	1825.3	1745.7	1688.5	1633.6	1586.0
35.5°	1860.7	1773.9	1694.3	1636.5	1583.6	1540.4
36°	1811.2	1721.9	1642.3	1585.6	1532.7	1495.3
36.5°	1761.7	1671.0	1590.9	1534.6	1483.6	1449.2
37°	1712.7	1618.6	1539.5	1482.2	1435.1	1402.6
37.5°	1661.8	1568.6	1489.0	1431.7	1389.0	1356.0
38°	1611.3	1520.0	1439.0	1381.2	1340.5	1309.4
38.5°	1561.3	1473.0	1390.0	1332.2	1293.4	1262.8
39°	1511.8	1426.4	1343.9	1282.7	1245.3	1218.2
39.5°	1460.3	1379.3	1297.8	1234.7	1196.8	1172.5
40°	1410.4	1332.7	1253.1	1187.1	1149.3	1128.4
40.5°	1359.9	1286.1	1209.4	1141.0	1102.7	1085.7
41°	1313.3	1238.6	1165.8	1095.9	1056.6	1044.4
41.5°	1263.8	1192.9	1123.5	1053.6	1012.4	1002.7
42°	1216.7	1146.3	1080.8	1011.4	970.7	961.4
42.5°	1169.2	1101.2	1042.0	972.6	930.9	922.1
43°	1124.5	1056.6	1000.3	933.8	892.0	882.8
43.5°	1077.4	1014.3	960.5	895.9	854.7	844.0



TEST NUMBER: P776619

CATALOG NUMBER: HCDJBL4050CSD-HCD4TRMW-5000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	947.8	893.5	845.4	792.1	752.3	735.8
45.5°	905.1	855.6	810.0	760.5	721.7	704.7
46°	865.3	819.2	776.0	730.9	692.1	675.6
46.5°	825.5	782.8	742.5	701.8	664.4	647.9
47°	787.7	748.4	710.5	673.1	638.2	622.7
47.5°	751.8	714.4	680.9	646.9	613.9	599.9
48°	716.8	682.4	651.3	622.7	591.6	579.5
48.5°	685.3	650.8	624.1	599.4	570.3	560.1
49°	653.2	621.7	598.9	577.1	550.8	542.6
49.5°	624.6	594.0	574.6	555.7	532.9	525.6
50°	597.4	567.8	551.3	535.3	515.9	510.1
50.5°	571.7	543.1	529.5	516.4	499.9	495.5
51°	547.4	521.2	509.6	498.4	484.4	481.4
51.5°	525.6	500.9	490.7	481.9	469.8	467.4
52°	504.7	481.9	473.7	465.4	456.2	454.3
52.5°	485.3	464.9	457.2	450.4	442.6	441.2
53°	467.4	448.9	441.6	435.8	430.0	428.5
53.5°	450.4	434.4	427.1	422.7	417.9	416.9
54°	434.9	420.8	414.5	410.6	407.2	406.2
54.5°	421.3	409.1	403.8	400.4	397.5	397.0
55°	411.1	398.5	394.1	391.2	388.3	387.8
55.5°	400.4	389.2	384.4	381.5	378.6	378.6
56°	390.2	379.5	374.7	372.2	369.3	369.3
56.5°	380.0	369.8	365.5	362.5	359.6	359.6
57°	369.3	359.6	355.7	352.8	350.4	350.4
57.5°	359.6	349.4	345.6	343.1	341.2	341.2
58°	349.9	340.2	336.3	333.9	332.0	332.0
58.5°	340.2	330.5	326.6	324.7	322.7	322.7
59°	330.0	321.3	317.4	315.5	314.0	314.0
59.5°	320.8	311.6	308.2	306.7	305.3	304.8
60°	311.6	302.8	299.4	298.0	296.5	295.6
60.5°	302.4	293.6	290.7	289.7	288.3	286.8
61°	293.6	285.4	282.5	281.0	280.0	278.1
61.5°	284.9	277.1	274.2	272.8	271.3	269.8
62°	276.6	268.9	266.4	265.0	263.5	261.1
62.5°	268.4	260.6	257.7	257.2	255.3	252.9
63°	260.1	252.9	250.4	249.5	247.5	244.6
63.5°	252.9	245.1	242.7	242.2	239.8	236.8
64°	245.1	237.8	235.4	234.9	232.0	229.1
64.5°	237.3	230.5	228.1	227.6	224.7	221.3
65°	230.0	223.3	221.3	220.8	217.4	213.5
65.5°	222.8	216.5	214.5	213.5	210.1	206.3
66°	216.0	209.7	207.7	207.2	202.9	199.0

TEST NUMBER: P776619

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

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	196.1	189.8	188.3	187.3	182.0	178.1
68°	189.3	183.5	182.0	181.5	174.7	171.8
68.5°	183.5	177.6	175.2	174.7	168.9	165.5
69°	177.1	171.8	169.9	168.9	163.1	159.2
69.5°	170.8	166.0	164.0	163.1	156.8	152.9
70°	165.0	160.2	158.7	157.7	150.9	146.6
70.5°	159.2	154.8	152.9	151.9	144.6	140.3
71°	153.8	149.0	147.1	146.1	138.8	134.4
71.5°	148.0	143.2	141.7	140.3	133.0	128.6
72°	142.7	137.8	136.4	134.9	127.2	122.3
72.5°	136.9	132.5	131.0	129.1	121.3	116.5
73°	131.5	127.2	125.7	123.8	116.0	110.7
73.5°	126.2	121.8	120.4	118.4	110.2	105.3
74°	121.3	117.0	115.5	113.1	104.8	100.0
74.5°	116.0	111.6	110.2	108.2	99.5	94.6
75°	111.1	106.8	105.3	102.9	94.2	89.3
75.5°	106.3	101.9	100.5	98.0	89.3	84.0
76°	101.4	97.1	95.6	92.7	84.0	79.1
76.5°	96.6	92.2	90.8	87.8	78.6	74.3
77°	91.7	87.8	86.4	83.0	73.8	69.4
77.5°	87.4	83.0	81.5	78.6	68.9	64.5
78°	82.5	78.6	77.2	73.8	64.1	59.7
78.5°	78.1	74.3	72.8	69.4	59.7	54.8
79°	73.8	69.9	68.4	64.5	54.8	50.5
79.5°	69.4	65.5	64.1	60.2	50.5	46.1
80°	65.0	61.2	59.7	56.3	46.1	41.7
80.5°	60.7	57.3	55.8	51.9	41.7	37.4
81°	56.8	52.9	51.4	47.6	37.4	33.0
81.5°	52.4	49.0	47.6	43.7	33.5	29.1
82°	48.5	45.1	43.7	39.8	29.6	24.8
82.5°	44.7	41.3	39.8	36.4	25.7	20.9
83°	41.3	37.4	35.9	32.5	22.3	17.0
83.5°	37.4	33.5	32.0	29.1	19.4	14.6
84°	33.5	29.6	28.1	25.7	17.0	12.1
84.5°	29.6	26.2	24.8	22.3	15.0	9.7
85°	26.2	22.3	21.4	18.9	12.6	7.3
85.5°	22.3	18.9	17.5	16.0	10.2	5.8
86°	18.9	16.0	14.6	12.6	8.3	4.4
86.5°	15.5	12.6	11.2	9.7	6.3	3.4
87°	12.6	9.2	7.8	6.3	4.4	1.9
87.5°	9.2	5.8	4.4	3.4	2.4	1.0
88°	5.8	2.9	1.9	1.5	1.0	0.5
88.5°	2.9	1.0	0.5	0.5	0.5	0.0



TEST NUMBER: P776619  
CATALOG NUMBER: HCDJBS4050CSD-HCD4TRMW-5000lm-5000K

**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°	2829.5	2816.3	2817.3	2829.0	2871.2	2902.3	2933.3	2964.4	2985.7	2997.4	2996.9
22°	2800.3	2785.8	2786.7	2799.8	2847.4	2879.4	2911.5	2941.6	2963.9	2976.0	2975.1



44°	806.1	812.4	820.2	829.9	874.1	901.3	939.6	999.3	1036.2	1055.1	1047.8
44.5°	770.7	781.4	789.1	798.8	836.7	863.9	901.3	960.5	995.4	1010.0	1004.6



66.5°	192.2	196.6	202.9	204.3	211.6	214.0	214.5	211.1	205.3	207.2	211.1
67°	184.9	189.8	196.1	198.0	205.3	207.2	208.2	204.3	198.5	200.4	204.3



89°	0.0	0.5	0.0	0.0	1.0	1.5	1.9	1.9	1.0	1.5	1.5
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°	2981.4	2945.4	2914.9	2882.4	2849.8	2829.5
22°	2960.0	2923.6	2891.1	2855.2	2821.7	2800.3



44°	1033.7	972.1	921.6	860.0	818.7	806.1
44.5°	989.6	932.3	883.8	825.1	784.8	770.7



66.5°	209.2	202.9	200.9	200.4	195.6	192.2
67°	202.4	196.1	194.6	194.1	188.8	184.9

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89°	1.0	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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(END OF REPORT)