

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: P776603

Luminaire Tested: HCDJBL54050CSD-HCD4TRH-5000lm-4000K

Issue Date: 2/7/2024

Test Information

Test Method: LM-79-2019
Report Number: P776603
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-HCD4TRH-5000lm-4000K
Description: 4 INCH ROUND MEDIUM HAZE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT
Ballast/Driver: -

Summary

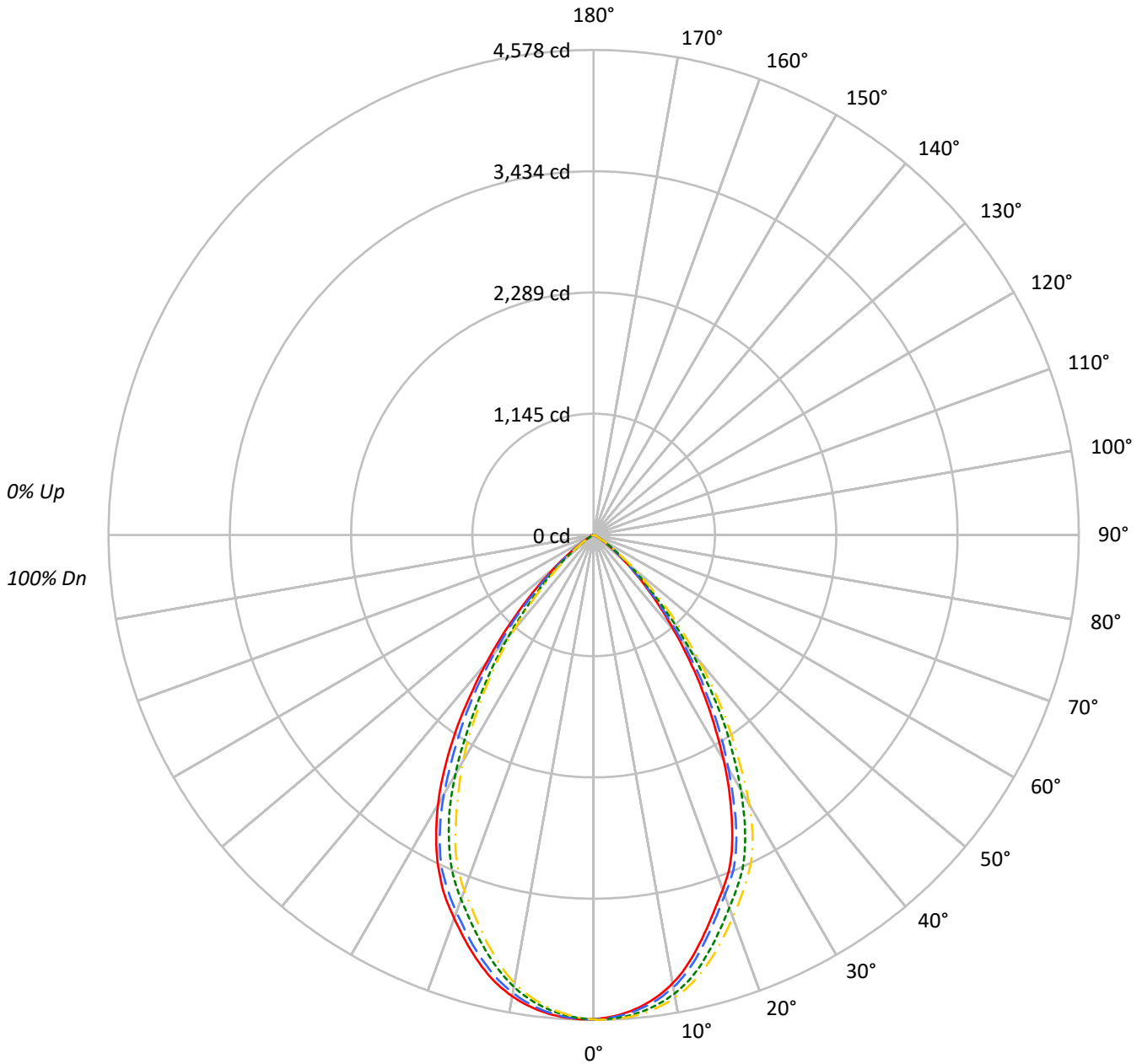
Lumens per Lamp: N/A
Luminaire Lumens: 5152.7 lumens
Efficiency: N/A
Efficacy: 107.3 lumens/watt
Spacing Criteria (0/90/45): 0.98 / 0.98 / 0.98
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 48
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									50									30									10									0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	113	110	107	105	111	108	105	103	104	102	100	100	99	97	97	95	94	92																			
2	107	101	97	93	104	100	96	92	96	93	90	93	91	88	91	88	86	85																			
3	101	94	88	84	99	92	87	83	90	85	82	87	84	81	85	82	79	78																			
4	95	87	81	76	93	85	80	75	83	78	75	81	77	74	79	76	73	71																			
5	89	80	74	69	88	79	73	69	77	72	68	76	71	68	74	70	67	65																			
6	84	75	68	63	83	74	68	63	72	67	63	71	66	62	69	65	62	60																			
7	80	70	63	58	78	69	63	58	68	62	58	66	61	58	65	61	57	56																			
8	75	65	58	54	74	64	58	54	63	58	54	62	57	53	61	57	53	52																			
9	71	61	54	50	70	60	54	50	59	54	50	58	53	50	58	53	49	48																			
10	68	57	51	47	67	57	51	47	56	50	46	55	50	46	54	50	46	45																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	575473	575473	575473	575473
5°	567704	573199	574286	569700
10°	549196	561796	565157	553655
15°	514304	535802	544596	524089
20°	477073	501421	515711	490211
25°	429799	466736	481358	448142
30°	356554	403826	426845	379573
35°	274329	324982	349533	289631
40°	194711	232989	258848	205554
45°	126205	149288	169382	128340
50°	72970	86832	94526	69974
55°	35896	43773	44299	32232
60°	15052	17090	17594	12535
65°	7832	8130	8398	6551
70°	4563	4747	5115	3864
75°	2772	3015	3015	2334
80°	1377	2102	1739	1377
85°	722	1444	722	722

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 157.5°
 Vertical Angle: 45°
 Luminance: 173209 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	426.7	8.3
10°-20°	1139.0	22.1
20°-30°	1492.9	29.0
30°-40°	1250.2	24.3
40°-50°	633.9	12.3
50°-60°	173.2	3.4
60°-70°	29.1	0.6
70°-80°	6.8	0.1
80°-90°	0.8	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°	3058.6	59.4
0°-40°	4308.8	83.6
0°-60°	5116.0	99.3
0°-90°	5152.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5152.7	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	4573	4573	4573	4573	4573	
5°	4494	4537	4546	4510	4494	423
15°	3947	4112	4180	4022	3947	1106
25°	3095	3361	3466	3227	3095	1403
35°	1786	2115	2275	1885	1786	1112
45°	709	839	952	721	709	558
55°	164	200	202	147	164	159
65°	26	27	28	22	26	29
75°	6	6	6	5	6	6
85°	0	1	0	0	0	1
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°	4572.7	4572.7	4572.7	4572.7	4572.7	4572.7	4572.7	4572.7	4572.7	4572.7	4572.7
0.5°	4567.5	4567.9	4569.9	4573.2	4574.6	4576.1	4576.6	4576.1	4572.3	4571.3	4571.8
1°	4563.6	4564.1	4567.5	4571.3	4574.6	4576.6	4577.5	4577.0	4573.7	4571.8	4571.8
1.5°	4558.4	4560.3	4564.1	4568.9	4573.7	4576.6	4577.5	4577.5	4573.2	4571.3	4569.4
2°	4552.6	4555.5	4559.3	4565.6	4571.3	4575.1	4577.5	4577.0	4572.3	4569.4	4567.9
2.5°	4545.5	4548.8	4554.5	4560.8	4568.4	4573.7	4576.1	4575.1	4570.3	4566.5	4564.6
3°	4537.3	4541.6	4547.4	4555.5	4563.6	4569.9	4573.2	4573.2	4567.0	4563.2	4560.3
3.5°	4527.8	4533.0	4540.2	4547.8	4558.9	4566.0	4569.4	4568.9	4563.6	4558.9	4555.0
4°	4517.7	4523.4	4530.6	4539.7	4553.1	4560.8	4565.6	4564.6	4558.9	4553.6	4549.3
4.5°	4506.7	4512.4	4521.1	4531.1	4545.9	4555.0	4560.8	4559.8	4552.2	4546.9	4541.6
5°	4493.8	4501.4	4509.6	4520.1	4537.3	4548.3	4554.1	4553.1	4545.9	4539.7	4534.0
5.5°	4480.4	4487.6	4497.6	4509.1	4528.2	4540.2	4546.9	4545.5	4537.8	4531.1	4524.4
6°	4464.6	4473.2	4485.2	4497.1	4517.2	4531.1	4538.8	4537.8	4529.2	4522.0	4514.8
6.5°	4449.3	4459.3	4470.8	4484.7	4506.2	4521.5	4530.1	4528.2	4519.6	4511.0	4502.9
7°	4431.6	4442.1	4455.5	4470.8	4493.8	4510.5	4519.6	4518.7	4508.6	4500.0	4490.4
7.5°	4412.9	4423.4	4438.8	4455.5	4480.4	4498.6	4507.7	4506.7	4497.1	4487.1	4476.6
8°	4392.8	4404.8	4421.1	4439.2	4466.0	4485.2	4494.7	4492.8	4484.7	4473.7	4461.7
8.5°	4371.3	4383.7	4401.4	4421.1	4450.2	4470.3	4481.3	4480.4	4470.3	4458.9	4445.5
9°	4347.8	4361.2	4379.9	4401.9	4434.0	4455.0	4466.0	4465.1	4455.5	4443.1	4428.2
9.5°	4323.9	4337.8	4357.9	4381.3	4415.3	4437.8	4450.2	4449.3	4440.2	4426.3	4409.6
10°	4297.6	4312.9	4334.5	4359.3	4396.2	4419.6	4431.6	4432.1	4422.5	4408.6	4390.0
10.5°	4268.9	4285.2	4310.0	4335.4	4374.6	4399.0	4412.9	4414.4	4404.3	4388.5	4369.9
11°	4240.2	4256.9	4281.8	4310.5	4352.2	4378.0	4393.3	4393.8	4384.2	4368.4	4347.4
11.5°	4207.7	4226.8	4252.6	4283.3	4328.7	4356.0	4371.8	4373.2	4363.6	4346.4	4323.4
12°	4173.7	4193.3	4221.1	4254.5	4303.4	4331.1	4348.3	4350.7	4341.6	4323.4	4299.5
12.5°	4138.8	4158.9	4188.0	4223.0	4274.6	4305.3	4325.4	4328.2	4318.2	4299.0	4273.7
13°	4102.9	4123.9	4153.6	4191.9	4245.5	4278.9	4298.6	4302.4	4292.8	4272.7	4246.4
13.5°	4065.1	4086.1	4118.7	4156.5	4214.8	4248.8	4272.3	4276.6	4266.5	4245.9	4218.7
14°	4025.8	4048.8	4080.9	4121.1	4182.3	4219.1	4243.1	4247.8	4238.3	4218.2	4188.0
14.5°	3987.1	4008.6	4042.1	4083.7	4147.8	4187.6	4212.9	4220.1	4210.5	4189.0	4158.4
15°	3947.4	3970.3	4003.4	4047.4	4112.4	4155.0	4182.3	4188.5	4179.9	4157.9	4127.3
15.5°	3907.2	3930.6	3964.1	4009.1	4077.5	4121.1	4151.2	4158.9	4149.3	4127.8	4095.7
16°	3867.9	3890.9	3925.8	3970.3	4041.1	4087.6	4119.1	4127.3	4118.7	4095.7	4063.2
16.5°	3827.3	3851.2	3886.1	3933.0	4005.3	4053.1	4084.7	4096.7	4087.1	4064.1	4029.7
17°	3788.5	3811.0	3846.9	3893.3	3967.0	4018.2	4050.7	4063.2	4054.1	4031.6	3995.2
17.5°	3748.3	3771.8	3806.7	3855.0	3929.2	3981.3	4016.7	4028.7	4021.1	3997.1	3961.7
18°	3709.1	3733.0	3768.4	3816.7	3892.3	3945.9	3981.3	3994.3	3987.1	3963.6	3925.8
18.5°	3669.4	3693.3	3728.7	3777.5	3854.5	3909.6	3946.4	3961.7	3952.2	3929.7	3890.4
19°	3633.0	3656.0	3690.9	3739.7	3817.2	3872.3	3911.0	3924.4	3918.2	3895.2	3856.0
19.5°	3596.2	3619.1	3654.5	3702.4	3781.3	3836.4	3875.6	3890.0	3884.2	3861.2	3822.5
20°	3562.2	3583.7	3618.2	3666.5	3744.0	3800.0	3839.2	3856.5	3850.7	3827.8	3788.0
20.5°	3525.8	3548.3	3582.8	3630.1	3708.6	3763.6	3804.8	3822.0	3816.7	3794.3	3753.6
21°	3490.4	3512.4	3547.8	3594.3	3673.2	3728.7	3769.4	3786.1	3782.8	3760.3	3719.6



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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°	3363.2	3394.3	3435.9	3487.1	3564.6	3623.0	3665.6	3684.7	3678.5	3653.6	3611.0
23°	3316.7	3347.4	3392.3	3447.8	3528.2	3584.2	3630.6	3648.3	3640.7	3611.0	3572.7
23.5°	3265.1	3296.2	3345.9	3403.4	3491.4	3545.9	3593.3	3609.1	3597.1	3568.9	3534.5
24°	3210.0	3243.5	3295.2	3356.0	3454.5	3507.2	3555.5	3569.9	3553.6	3526.3	3495.7
24.5°	3152.2	3186.1	3242.1	3305.7	3409.1	3468.9	3518.2	3531.1	3510.0	3483.7	3457.4
25°	3095.2	3128.7	3187.1	3250.7	3361.2	3430.6	3480.9	3491.9	3466.5	3441.1	3410.0
25.5°	3033.5	3068.4	3128.7	3193.3	3311.0	3384.2	3443.1	3452.6	3423.0	3393.8	3361.7
26°	2973.7	3011.5	3068.4	3130.6	3257.4	3335.4	3398.6	3404.3	3373.2	3340.7	3311.0
26.5°	2911.0	2951.7	3004.3	3065.6	3203.4	3284.7	3351.2	3356.9	3323.0	3288.5	3257.4
27°	2849.8	2890.9	2938.8	2999.5	3147.4	3231.1	3301.4	3302.9	3270.3	3236.4	3201.9
27.5°	2785.6	2828.7	2868.9	2934.9	3090.9	3178.5	3249.3	3250.7	3217.2	3183.7	3143.5
28°	2722.5	2766.0	2801.9	2871.8	3031.6	3123.4	3191.9	3193.3	3163.6	3129.7	3083.7
28.5°	2656.0	2702.4	2734.5	2809.1	2968.4	3067.5	3131.6	3136.4	3111.0	3075.1	3022.0
29°	2590.0	2637.3	2667.0	2747.8	2905.7	3009.1	3069.9	3076.1	3054.5	3018.2	2958.4
29.5°	2522.5	2569.4	2602.9	2688.5	2841.1	2949.3	3003.4	3014.8	2997.1	2960.3	2892.3
30°	2453.6	2499.5	2539.7	2627.8	2778.9	2887.1	2934.0	2949.3	2937.3	2899.0	2822.0
30.5°	2382.8	2430.1	2476.6	2568.4	2708.1	2821.1	2861.2	2883.3	2877.0	2837.3	2751.7
31°	2313.9	2360.8	2413.9	2504.3	2641.6	2753.1	2791.4	2814.8	2813.4	2775.1	2681.3
31.5°	2245.5	2290.4	2351.2	2441.6	2575.6	2681.3	2717.2	2745.0	2749.3	2708.6	2609.1
32°	2177.5	2221.5	2287.6	2374.2	2513.9	2611.0	2645.5	2673.7	2683.3	2641.6	2539.2
32.5°	2112.9	2152.6	2223.0	2307.7	2445.9	2540.7	2574.6	2604.3	2619.1	2574.6	2469.4
33°	2048.3	2087.1	2158.9	2238.3	2380.4	2467.5	2505.7	2534.5	2551.2	2509.1	2400.0
33.5°	1982.3	2021.5	2092.8	2167.9	2315.8	2393.8	2436.8	2464.6	2484.7	2439.7	2332.5
34°	1917.7	1955.0	2024.9	2096.7	2252.6	2317.2	2368.9	2395.7	2414.8	2368.4	2265.6
34.5°	1852.2	1887.6	1956.9	2029.2	2182.8	2241.1	2301.4	2328.2	2346.4	2300.0	2199.5
35°	1785.6	1819.1	1890.4	1962.7	2115.3	2165.1	2232.5	2261.7	2275.1	2229.2	2132.5
35.5°	1724.4	1755.0	1824.9	1898.6	2045.5	2091.9	2164.6	2195.7	2206.2	2156.0	2066.5
36°	1662.2	1692.3	1760.3	1835.9	1979.4	2019.1	2096.2	2128.2	2133.0	2084.2	2000.5
36.5°	1599.0	1630.1	1715.8	1772.7	1903.8	1948.3	2027.8	2062.7	2061.2	2011.5	1933.0
37°	1536.4	1567.5	1649.8	1700.5	1833.5	1878.0	1957.4	1994.3	1988.5	1940.7	1864.6
37.5°	1473.7	1505.3	1584.2	1640.2	1760.8	1810.5	1886.6	1926.8	1919.6	1869.9	1796.2
38°	1411.0	1443.1	1518.7	1579.4	1691.9	1745.0	1816.7	1858.4	1848.8	1800.0	1726.8
38.5°	1352.2	1385.6	1452.6	1519.1	1619.1	1678.0	1748.3	1790.0	1779.4	1731.1	1659.3
39°	1295.7	1329.2	1391.9	1458.9	1551.7	1613.4	1680.4	1721.5	1712.0	1664.1	1593.3
39.5°	1239.7	1271.3	1331.1	1394.3	1482.3	1547.4	1613.9	1655.0	1644.5	1596.7	1528.7
40°	1185.2	1213.9	1270.8	1329.7	1418.2	1484.7	1547.4	1587.6	1575.6	1530.6	1463.2
40.5°	1130.6	1160.3	1212.4	1267.5	1350.7	1419.6	1483.3	1521.5	1509.1	1464.6	1402.9
41°	1078.5	1106.2	1153.6	1206.2	1289.0	1357.9	1421.1	1458.9	1442.6	1396.7	1339.2
41.5°	1027.8	1056.5	1096.7	1147.4	1226.8	1295.7	1358.4	1395.2	1377.0	1332.1	1278.5
42°	978.9	1006.2	1041.6	1090.0	1167.5	1236.4	1297.6	1333.0	1311.0	1268.9	1217.2
42.5°	929.7	957.4	988.5	1034.0	1109.1	1176.1	1237.8	1269.9	1247.8	1206.7	1157.4
43°	882.8	909.6	935.4	978.5	1052.2	1118.2	1178.5	1209.6	1185.6	1147.4	1098.1
43.5°	837.3	864.1	885.6	923.0	995.2	1061.2	1120.6	1150.7	1124.4	1086.1	1039.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	709.1	734.0	745.5	766.0	838.8	901.4	955.5	973.2	951.7	917.7	870.3
45.5°	669.9	693.8	701.9	718.2	791.4	849.8	903.3	916.3	897.6	865.1	817.2
46°	631.1	655.0	659.8	670.3	744.5	801.4	854.1	862.7	845.5	812.4	766.5
46.5°	594.3	617.7	618.7	625.8	700.0	754.5	803.3	807.7	794.3	761.2	717.2
47°	557.4	580.4	580.4	584.7	657.4	708.6	754.5	756.9	744.0	714.4	668.9
47.5°	524.4	545.5	543.5	545.5	616.3	664.6	706.7	707.2	695.7	668.4	623.9
48°	491.4	512.4	508.6	509.1	577.0	623.0	661.7	660.3	649.3	620.6	580.9
48.5°	459.8	480.4	476.1	476.6	540.2	583.3	616.7	614.4	604.8	577.5	539.7
49°	429.2	449.3	444.0	445.9	505.3	544.5	573.7	571.3	562.2	536.8	500.0
49.5°	400.5	419.6	414.8	416.7	471.8	508.1	533.0	531.1	520.6	497.1	466.5
50°	372.7	390.9	387.6	390.4	443.5	473.7	493.8	492.8	482.8	464.1	433.5
50.5°	346.4	363.6	361.7	365.1	414.8	443.5	460.8	459.8	450.2	431.1	400.5
51°	321.1	337.3	337.3	341.6	386.6	413.4	427.8	426.8	417.2	397.6	367.5
51.5°	296.7	312.4	313.4	318.7	357.9	383.7	394.7	394.3	384.2	364.6	334.4
52°	274.2	289.0	290.9	297.1	329.7	353.6	361.7	361.2	351.2	331.6	306.2
52.5°	252.2	266.5	269.4	275.6	305.3	323.4	328.7	328.7	318.7	301.9	279.9
53°	231.6	244.5	248.3	255.0	281.3	298.1	301.9	301.4	291.9	276.1	256.0
53.5°	212.0	223.9	228.7	235.4	259.8	273.7	277.0	275.1	267.0	252.2	233.0
54°	193.8	204.8	210.0	216.3	238.8	249.8	253.6	251.2	243.5	230.1	212.4
54.5°	178.0	187.6	192.3	198.6	218.2	227.8	231.1	228.7	221.1	208.6	192.8
55°	163.6	171.3	176.1	181.8	199.5	207.7	210.0	208.6	201.9	190.0	176.6
55.5°	149.8	157.4	161.7	167.5	181.8	188.5	190.9	190.0	183.7	173.7	160.8
56°	135.4	143.5	147.4	152.6	165.6	171.3	173.7	172.7	167.5	158.4	144.5
56.5°	121.1	129.7	133.0	137.8	150.2	155.5	157.9	156.5	151.7	141.6	129.2
57°	106.7	115.3	118.7	123.0	134.4	139.7	142.1	140.2	136.4	127.3	115.3
57.5°	96.2	101.4	104.3	108.1	119.6	124.4	126.3	125.8	121.5	113.4	102.9
58°	87.1	91.4	93.8	96.7	106.7	110.5	112.4	112.0	108.6	101.4	91.9
58.5°	78.9	82.8	84.2	86.1	95.2	98.6	100.0	100.0	97.1	90.9	82.3
59°	71.8	75.1	76.1	77.5	84.7	87.1	89.0	89.0	86.6	81.8	74.2
59.5°	65.6	68.4	68.4	69.9	75.6	78.0	79.4	79.4	77.5	73.2	66.5
60°	59.8	62.2	62.7	63.2	67.9	69.9	70.8	71.3	69.9	66.0	60.3
60.5°	54.5	56.9	56.9	56.9	61.2	62.7	63.6	64.6	63.2	60.3	55.0
61°	49.8	52.2	52.2	51.7	55.5	56.9	57.4	58.4	56.9	54.5	49.8
61.5°	45.9	47.8	47.8	47.4	50.2	51.7	52.2	53.1	51.7	49.8	45.9
62°	42.1	44.0	43.5	43.5	45.9	46.9	47.4	48.3	47.4	45.5	42.6
62.5°	39.2	40.7	40.2	39.7	42.6	43.5	43.5	44.0	43.1	42.1	39.7
63°	35.9	37.8	37.3	36.4	39.2	40.2	40.7	41.1	40.2	39.2	36.4
63.5°	33.0	34.9	34.0	33.5	35.9	36.8	37.3	37.8	37.3	35.9	33.5
64°	30.6	32.1	31.6	31.1	33.0	33.5	34.4	34.9	34.4	33.0	30.1
64.5°	28.2	29.7	29.2	28.7	29.7	30.1	31.6	32.1	31.6	29.7	27.8
65°	26.3	27.8	27.3	26.3	27.3	27.8	28.2	28.7	28.2	27.8	25.8
65.5°	24.4	25.4	25.4	24.4	25.4	25.8	26.3	26.8	26.3	25.8	23.9
66°	22.5	23.9	23.4	23.0	23.4	23.9	24.4	24.9	24.4	23.9	22.5



TEST NUMBER: P776603
 CATALOG NUMBER: HCDJBL54050CSD-HCD4TRH-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	18.2	19.1	18.7	18.2	18.7	19.1	19.6	19.6	19.6	19.1	17.7
68°	16.7	17.7	17.7	17.2	17.2	17.7	18.2	18.2	18.2	17.7	16.7
68.5°	15.8	16.7	16.7	16.3	16.3	16.3	16.7	17.2	16.7	16.7	15.3
69°	14.8	15.3	15.3	14.8	15.3	15.3	15.8	15.8	15.8	15.3	14.4
69.5°	13.4	14.4	14.4	13.9	14.4	14.4	14.8	14.8	14.8	14.4	13.4
70°	12.4	13.4	13.4	12.9	12.9	13.4	13.9	13.9	13.9	13.4	12.4
70.5°	11.5	12.4	12.4	12.0	12.4	12.4	12.9	12.9	12.9	12.4	11.5
71°	11.0	11.5	11.5	11.0	11.5	11.5	12.0	12.0	12.0	11.5	11.0
71.5°	10.0	10.5	10.5	10.5	10.5	10.5	11.0	11.0	11.0	10.5	10.0
72°	9.1	10.0	10.0	9.6	10.0	10.0	10.0	10.5	10.0	10.0	9.6
72.5°	8.6	9.1	9.1	9.1	9.1	9.6	9.6	9.6	9.6	9.1	8.6
73°	7.7	8.6	8.6	8.1	8.6	8.6	9.1	9.1	8.6	8.6	8.1
73.5°	7.2	7.7	7.7	7.7	8.1	8.1	8.1	8.1	8.1	7.7	7.7
74°	6.7	7.2	7.2	7.2	7.7	7.7	7.7	7.7	7.7	7.2	7.2
74.5°	6.2	6.7	6.7	6.7	6.7	7.2	7.2	7.2	7.2	6.7	6.2
75°	5.7	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.2	6.2	5.7
75.5°	5.3	5.7	5.7	5.7	5.7	6.2	6.2	6.2	5.7	5.7	5.3
76°	4.8	5.3	5.3	5.3	5.3	5.7	5.7	5.3	5.3	5.3	4.8
76.5°	4.3	4.8	4.8	4.8	5.3	5.3	5.3	5.3	4.8	4.8	4.8
77°	3.8	4.3	4.3	4.3	4.8	4.8	4.8	4.8	4.8	4.3	4.3
77.5°	3.3	3.8	4.3	4.3	4.3	4.3	4.3	4.3	4.3	3.8	3.8
78°	3.3	3.3	3.8	3.8	3.8	4.3	3.8	3.8	3.8	3.8	3.3
78.5°	2.9	3.3	3.3	3.3	3.8	3.8	3.8	3.3	3.3	3.3	3.3
79°	2.4	2.9	2.9	3.3	3.3	3.3	3.3	3.3	3.3	2.9	2.9
79.5°	2.4	2.4	2.9	2.9	2.9	3.3	2.9	2.9	2.9	2.4	2.9
80°	1.9	2.4	2.4	2.4	2.9	2.9	2.9	2.4	2.4	2.4	2.4
80.5°	1.9	1.9	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.9	1.9
81°	1.4	1.9	1.9	2.4	2.4	2.4	2.4	1.9	1.9	1.9	1.9
81.5°	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.9
82°	1.0	1.4	1.4	1.9	1.9	1.9	1.9	1.4	1.4	1.4	1.4
82.5°	1.0	1.0	1.4	1.4	1.4	1.9	1.4	1.4	1.4	1.0	1.4
83°	0.5	1.0	1.4	1.4	1.4	1.4	1.4	1.4	1.0	1.0	1.0
83.5°	0.5	1.0	1.0	1.4	1.4	1.4	1.4	1.0	1.0	1.0	1.0
84°	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0
84.5°	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5	1.0
85°	0.5	0.5	0.5	1.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5
85.5°	0.0	0.5	0.5	0.5	0.5	1.0	0.5	0.5	0.5	0.5	0.5
86°	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
86.5°	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.5
87°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776603
CATALOG NUMBER: HCDJBL54050CSD-HCD4TRH-5000lm-4000K

CANDELA DISTRIBUTION (continued):

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



TEST NUMBER: P776603

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRH-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	4572.7	4572.7	4572.7	4572.7	4572.7	4572.7
0.5°	4571.8	4571.3	4571.8	4570.8	4569.9	4567.5
1°	4570.8	4568.4	4567.5	4566.0	4565.1	4563.6
1.5°	4568.4	4564.6	4562.2	4560.8	4560.3	4558.4
2°	4565.1	4559.8	4556.9	4555.0	4554.1	4552.6
2.5°	4560.3	4554.1	4549.3	4546.4	4545.9	4545.5
3°	4555.5	4546.9	4541.6	4537.8	4536.8	4537.3
3.5°	4549.8	4539.2	4532.1	4528.2	4527.3	4527.8
4°	4542.6	4530.1	4522.0	4516.7	4516.3	4517.7
4.5°	4534.5	4520.6	4511.0	4505.7	4504.3	4506.7
5°	4525.4	4509.6	4499.0	4492.8	4490.9	4493.8
5.5°	4514.8	4497.6	4484.7	4478.9	4477.5	4480.4
6°	4503.8	4484.7	4470.8	4463.2	4462.2	4464.6
6.5°	4491.4	4469.9	4455.5	4447.8	4445.9	4449.3
7°	4477.5	4454.5	4438.3	4430.1	4427.3	4431.6
7.5°	4462.2	4437.8	4420.6	4411.5	4408.6	4412.9
8°	4446.4	4419.6	4401.9	4391.4	4388.5	4392.8
8.5°	4428.7	4399.5	4380.9	4370.3	4367.0	4371.3
9°	4410.0	4378.5	4358.9	4346.9	4343.1	4347.8
9.5°	4389.5	4356.5	4335.9	4321.5	4318.7	4323.9
10°	4368.4	4332.5	4310.0	4296.2	4291.4	4297.6
10.5°	4345.5	4306.7	4283.3	4268.4	4264.1	4268.9
11°	4321.1	4280.4	4255.0	4237.8	4232.1	4240.2
11.5°	4295.7	4252.6	4223.9	4205.3	4201.0	4207.7
12°	4269.9	4222.5	4191.9	4171.8	4166.5	4173.7
12.5°	4241.2	4191.4	4158.4	4136.8	4130.1	4138.8
13°	4212.4	4159.3	4123.9	4100.5	4093.3	4102.9
13.5°	4181.8	4126.8	4089.5	4063.2	4056.5	4065.1
14°	4150.7	4092.8	4052.2	4025.8	4017.7	4025.8
14.5°	4117.2	4057.9	4016.3	3988.5	3978.9	3987.1
15°	4085.6	4022.5	3977.0	3948.8	3938.3	3947.4
15.5°	4051.2	3986.1	3940.7	3910.0	3898.6	3907.2
16°	4017.2	3950.2	3901.9	3869.9	3858.9	3867.9
16.5°	3981.8	3914.4	3866.5	3831.1	3820.1	3827.3
17°	3947.4	3876.1	3827.8	3790.4	3780.4	3788.5
17.5°	3911.5	3840.7	3790.0	3752.6	3740.2	3748.3
18°	3875.1	3803.4	3751.2	3713.4	3701.4	3709.1
18.5°	3839.2	3766.5	3715.3	3675.6	3663.6	3669.4
19°	3804.3	3730.1	3678.9	3640.7	3627.3	3633.0
19.5°	3769.4	3696.2	3643.5	3605.3	3590.9	3596.2
20°	3735.4	3660.3	3607.7	3569.4	3555.0	3562.2
20.5°	3699.5	3624.4	3571.8	3534.0	3518.7	3525.8
21°	3666.5	3588.0	3533.0	3494.7	3482.3	3490.4



TEST NUMBER: P776603

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRH-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	3557.4	3469.4	3404.8	3367.0	3354.5	3363.2
23°	3520.6	3423.9	3357.9	3316.7	3306.2	3316.7
23.5°	3483.3	3378.9	3308.1	3264.6	3255.0	3265.1
24°	3446.4	3330.1	3256.0	3209.6	3199.0	3210.0
24.5°	3401.9	3279.9	3202.9	3149.3	3140.2	3152.2
25°	3356.0	3227.3	3148.8	3087.1	3080.9	3095.2
25.5°	3305.7	3173.7	3092.8	3022.5	3015.8	3033.5
26°	3254.5	3119.6	3035.4	2957.4	2952.2	2973.7
26.5°	3197.1	3063.6	2975.1	2894.3	2884.7	2911.0
27°	3138.3	3006.7	2913.9	2832.1	2816.7	2849.8
27.5°	3074.2	2945.9	2850.7	2769.9	2749.3	2785.6
28°	3008.6	2883.7	2785.6	2709.6	2683.7	2722.5
28.5°	2938.8	2819.6	2719.1	2650.2	2617.2	2656.0
29°	2866.5	2752.2	2652.6	2590.4	2555.5	2590.0
29.5°	2793.3	2683.3	2585.2	2529.2	2490.0	2522.5
30°	2721.5	2612.0	2518.7	2467.5	2427.8	2453.6
30.5°	2647.4	2540.7	2451.2	2401.9	2366.0	2382.8
31°	2577.5	2467.9	2388.0	2335.9	2302.9	2313.9
31.5°	2509.1	2393.8	2322.0	2267.0	2238.8	2245.5
32°	2441.6	2320.6	2256.9	2196.2	2174.6	2177.5
32.5°	2375.6	2246.4	2191.4	2126.3	2109.1	2112.9
33°	2306.7	2171.8	2123.9	2058.4	2043.1	2048.3
33.5°	2239.7	2096.7	2054.1	1990.9	1977.0	1982.3
34°	2172.2	2025.8	1986.1	1923.9	1910.5	1917.7
34.5°	2104.3	1955.0	1915.8	1856.9	1842.1	1852.2
35°	2034.9	1885.2	1845.9	1794.3	1777.5	1785.6
35.5°	1965.6	1819.6	1774.6	1733.0	1713.4	1724.4
36°	1895.7	1754.1	1696.7	1669.9	1653.1	1662.2
36.5°	1826.3	1690.0	1630.6	1607.2	1592.8	1599.0
37°	1756.9	1625.8	1564.1	1544.0	1532.5	1536.4
37.5°	1689.0	1562.2	1498.1	1481.3	1472.7	1473.7
38°	1623.0	1498.1	1431.6	1418.2	1412.4	1411.0
38.5°	1558.4	1434.5	1366.0	1355.0	1353.6	1352.2
39°	1494.3	1372.2	1305.3	1293.3	1295.2	1295.7
39.5°	1432.1	1310.5	1243.5	1231.6	1234.5	1239.7
40°	1369.9	1251.2	1182.8	1170.8	1175.6	1185.2
40.5°	1309.1	1191.9	1124.4	1111.5	1118.7	1130.6
41°	1249.3	1133.0	1067.5	1053.1	1063.2	1078.5
41.5°	1190.4	1075.6	1011.0	997.1	1008.6	1027.8
42°	1132.1	1021.5	957.4	942.6	954.5	978.9
42.5°	1076.1	966.5	905.7	889.0	903.8	929.7
43°	1021.1	914.4	855.5	836.8	853.6	882.8
43.5°	967.0	863.2	806.7	785.2	805.3	837.3



TEST NUMBER: P776603

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRH-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	813.9	721.1	671.8	645.9	669.4	709.1
45.5°	766.0	676.6	631.1	603.8	627.3	669.9
46°	718.7	634.5	591.9	563.6	587.1	631.1
46.5°	672.2	594.3	553.6	525.8	549.3	594.3
47°	627.8	555.5	518.2	491.9	513.9	557.4
47.5°	583.7	517.2	484.2	460.3	479.9	524.4
48°	542.1	482.3	452.2	429.7	448.8	491.4
48.5°	503.8	449.3	421.5	401.4	419.1	459.8
49°	466.0	417.2	391.9	374.6	390.9	429.2
49.5°	433.5	387.1	364.1	350.7	366.0	400.5
50°	401.0	357.4	337.8	327.3	340.7	372.7
50.5°	368.4	329.7	312.4	304.3	317.7	346.4
51°	335.9	303.8	288.5	282.8	295.2	321.1
51.5°	308.6	278.9	266.0	262.7	273.7	296.7
52°	283.3	256.0	244.5	243.1	253.1	274.2
52.5°	258.4	233.0	224.4	223.9	234.0	252.2
53°	236.4	212.0	205.3	205.3	215.3	231.6
53.5°	215.3	192.8	187.6	188.5	197.6	212.0
54°	195.7	175.6	170.8	172.7	180.9	193.8
54.5°	178.5	161.2	156.9	158.9	167.5	178.0
55°	162.7	146.9	143.1	145.0	153.1	163.6
55.5°	146.9	132.1	128.7	131.1	138.8	149.8
56°	131.1	117.7	114.8	117.2	124.4	135.4
56.5°	117.2	103.3	101.0	103.3	110.0	121.1
57°	104.3	91.9	90.0	92.3	98.6	106.7
57.5°	92.8	82.3	80.9	83.3	89.0	96.2
58°	82.8	74.2	72.7	75.1	80.9	87.1
58.5°	74.6	66.5	66.0	67.9	73.2	78.9
59°	67.0	60.3	59.8	62.2	67.0	71.8
59.5°	60.8	54.5	54.1	56.5	60.8	65.6
60°	55.0	49.8	49.3	51.7	56.0	59.8
60.5°	50.2	45.5	45.0	47.4	51.2	54.5
61°	45.9	41.6	41.1	43.5	46.9	49.8
61.5°	42.6	38.3	37.8	40.2	43.5	45.9
62°	39.2	34.9	34.9	36.8	40.2	42.1
62.5°	36.4	32.1	32.1	34.0	36.8	39.2
63°	33.0	29.7	29.7	31.6	34.0	35.9
63.5°	30.1	27.3	27.8	29.2	31.6	33.0
64°	27.8	25.4	25.4	26.8	29.2	30.6
64.5°	25.8	23.4	23.4	24.9	26.8	28.2
65°	23.9	22.0	22.0	23.0	24.9	26.3
65.5°	22.0	20.1	20.6	21.5	23.4	24.4
66°	20.6	18.7	19.1	20.1	21.5	22.5



TEST NUMBER: P776603

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRH-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	16.3	15.3	15.3	16.3	17.2	18.2
68°	15.3	14.4	14.4	15.3	16.3	16.7
68.5°	14.4	13.4	13.4	13.9	14.8	15.8
69°	13.4	12.4	12.4	12.9	13.9	14.8
69.5°	12.4	11.5	11.5	12.0	12.9	13.4
70°	11.5	10.5	10.5	11.5	12.0	12.4
70.5°	11.0	10.0	10.0	10.5	11.0	11.5
71°	10.0	9.1	9.1	9.6	10.0	11.0
71.5°	9.6	8.6	8.6	9.1	9.6	10.0
72°	8.6	8.1	8.1	8.6	8.6	9.1
72.5°	8.1	7.2	7.2	7.7	8.1	8.6
73°	7.7	6.7	6.7	7.2	7.7	7.7
73.5°	7.2	6.2	6.2	6.7	6.7	7.2
74°	6.7	5.7	5.7	6.2	6.2	6.7
74.5°	6.2	5.3	5.3	5.7	5.7	6.2
75°	5.7	4.8	4.8	5.3	5.3	5.7
75.5°	5.3	4.8	4.8	4.8	4.8	5.3
76°	4.8	4.3	4.3	4.3	4.3	4.8
76.5°	4.3	3.8	3.8	3.8	3.8	4.3
77°	3.8	3.3	3.3	3.3	3.8	3.8
77.5°	3.8	3.3	3.3	3.3	3.3	3.3
78°	3.3	2.9	2.9	2.9	2.9	3.3
78.5°	2.9	2.9	2.9	2.9	2.9	2.9
79°	2.9	2.4	2.4	2.4	2.4	2.4
79.5°	2.4	2.4	2.4	2.4	1.9	2.4
80°	2.4	1.9	1.9	1.9	1.9	1.9
80.5°	1.9	1.9	1.9	1.9	1.4	1.9
81°	1.9	1.4	1.4	1.4	1.4	1.4
81.5°	1.4	1.4	1.4	1.4	1.4	1.4
82°	1.4	1.4	1.4	1.0	1.0	1.0
82.5°	1.4	1.0	1.0	1.0	1.0	1.0
83°	1.0	1.0	1.0	1.0	1.0	0.5
83.5°	1.0	1.0	1.0	1.0	0.5	0.5
84°	1.0	0.5	0.5	0.5	0.5	0.5
84.5°	0.5	0.5	0.5	0.5	0.5	0.5
85°	0.5	0.5	0.5	0.5	0.5	0.5
85.5°	0.5	0.5	0.5	0.5	0.0	0.0
86°	0.5	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776603
CATALOG NUMBER: HCDJBL54050CSD-HCD4TRH-5000lm-4000K

CANDELA DISTRIBUTION (continued):

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



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Cooper Lighting Solutions Photometric Lab
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Scaled Data Report





— 0°-180° - - 45°-225° - - - - 90°-270° - · - · 135°-315°

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Scaled Data Report





21.5°	3450.7	3475.6	3512.0	3558.9	3638.3	3693.3	3734.5	3752.2	3748.8	3725.8	3685.2
22°	3409.6	3438.3	3475.1	3523.9	3601.4	3658.9	3699.0	3718.2	3714.4	3690.4	3649.8



44°	792.8	818.7	837.3	869.9	941.6	1006.2	1064.1	1090.0	1065.6	1027.3	981.8
44.5°	750.7	775.6	790.4	817.2	890.0	951.7	1009.1	1030.1	1007.7	972.7	925.8



66.5°	21.1	22.0	22.0	21.1	21.5	22.0	22.5	23.0	22.5	22.0	20.6
67°	19.6	20.6	20.1	19.6	20.1	20.6	21.1	21.1	21.1	20.6	19.1



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

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21.5°	3631.6	3550.2	3492.8	3453.1	3443.1	3450.7
22°	3594.3	3510.0	3449.8	3411.5	3400.0	3409.6



44°	914.8	814.4	760.3	737.8	758.9	792.8
44.5°	864.6	767.0	714.8	690.9	713.9	750.7



66.5°	19.1	17.7	17.7	18.7	20.1	21.1
67°	17.7	16.3	16.7	17.7	18.7	19.6

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

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(END OF REPORT)