

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: P776793

Luminaire Tested: HCDJBS4050CSD-HCD82TRMW-5000lm-4000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776793
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B064-HCD82TRMW)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBS4050CSD-HCD82TRMW-5000lm-4000K
Description: 8 INCH ROUND NARROW MATTE WHITE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5038.0 lumens
Efficiency: N/A
Efficacy: 105.0 lumens/watt
Spacing Criteria (0/90/45): 1.12 / 1.12 / 1.12
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

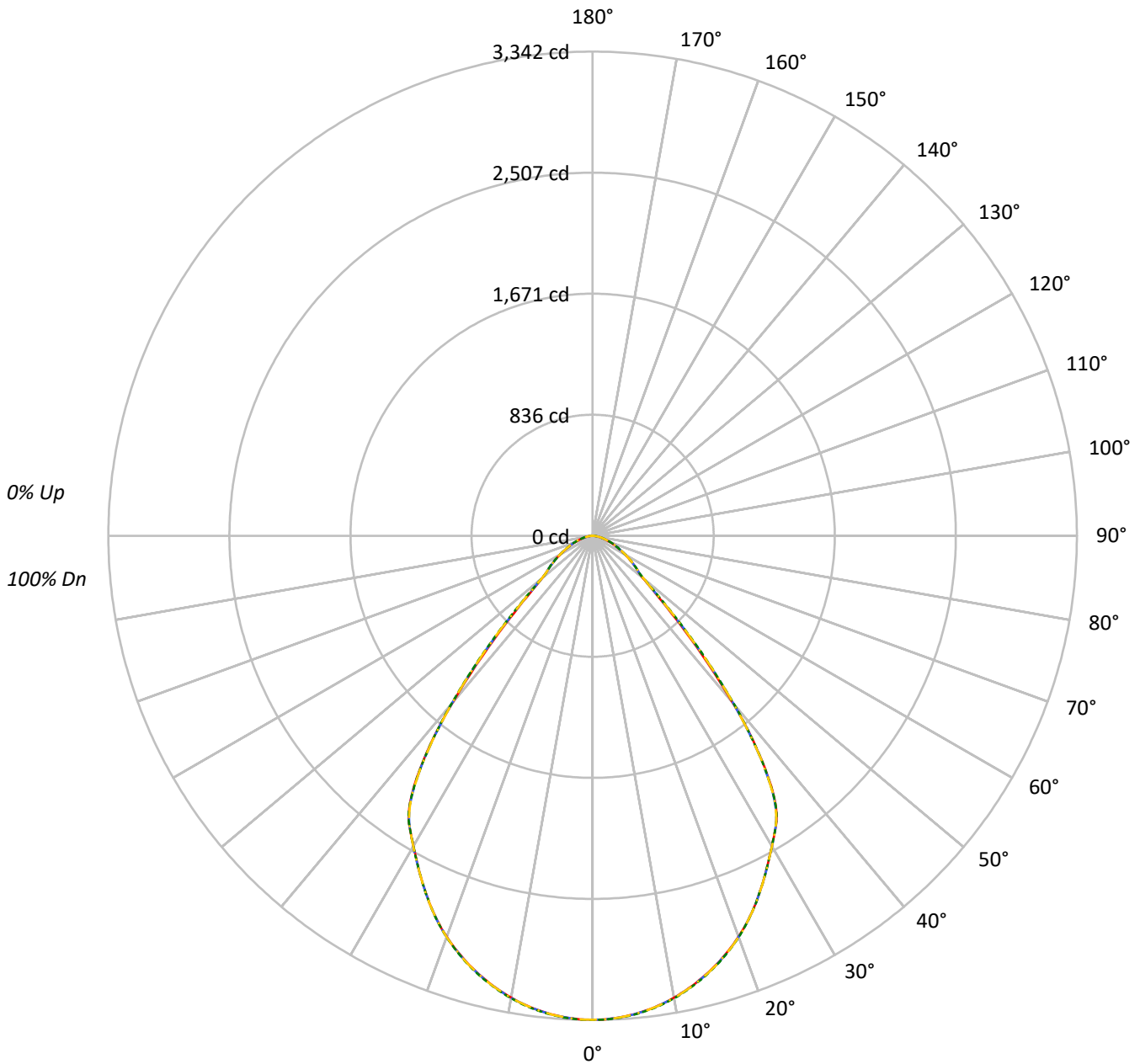
Input Watts (W): 48
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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					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	103	109	106	103	101	102	100	98	98	96	95	95	93	92	90								
2	105	99	93	89	102	97	92	88	93	90	86	90	87	84	87	85	83	81								
3	98	90	84	79	96	88	83	78	86	81	77	83	79	75	81	77	74	72								
4	91	82	75	70	89	81	74	70	79	73	69	76	72	68	74	70	67	65								
5	86	75	68	63	84	74	68	63	72	67	62	71	65	61	69	64	61	59								
6	80	69	62	57	79	69	62	57	67	61	56	65	60	56	64	59	55	54								
7	75	64	57	52	74	63	57	52	62	56	51	61	55	51	59	55	51	49								
8	71	60	52	47	69	59	52	47	58	52	47	57	51	47	55	50	47	45								
9	67	55	48	44	66	55	48	44	54	48	43	53	47	43	52	47	43	42								
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°	101999	101999	101999	101999
5°	101579	101668	101579	101668
10°	100351	100500	100351	100500
15°	98381	98533	98381	98533
20°	95685	95779	95685	95779
25°	91715	91728	91715	91728
30°	87224	87224	87224	87224
35°	81030	80870	81030	80870
40°	59889	60595	59889	60595
45°	35210	36924	35210	36924
50°	21549	21820	21549	21820
55°	18470	18491	18470	18491
60°	15748	15894	15748	15894
65°	13379	13690	13379	13690
70°	11363	11872	11363	11872
75°	9484	10215	9484	10215
80°	7578	8580	7578	8580
85°	4694	6551	4694	6551

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°

Vertical Angle: 45°

Luminance: 37214 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	314.0	6.2
10°-20°	876.4	17.4
20°-30°	1251.5	24.8
30°-40°	1306.8	25.9
40°-50°	678.8	13.5
50°-60°	311.2	6.2
60°-70°	188.7	3.7
70°-80°	90.4	1.8
80°-90°	20.3	0.4
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°	2441.9	48.5
0°-40°	3748.7	74.4
0°-60°	4738.6	94.1
0°-90°	5038.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5038.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	3341	3341	3341	3341	3341	
5°	3314	3317	3314	3317	3314	314
15°	3113	3117	3113	3117	3113	876
25°	2723	2723	2723	2723	2723	1251
35°	2174	2170	2174	2170	2174	1309
45°	816	855	816	855	816	663
55°	347	347	347	347	347	310
65°	185	190	185	190	185	185
75°	80	87	80	87	80	86
85°	13	19	13	19	13	18
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°	3340.9	3340.9	3340.9	3340.9	3340.9	3340.9	3340.9	3340.9	3340.9	3340.9	3340.9
0.5°	3340.4	3339.4	3340.4	3340.4	3342.3	3340.4	3340.4	3339.4	3340.4	3339.4	3340.4
1°	3339.9	3338.9	3339.9	3339.9	3341.3	3339.9	3339.9	3338.9	3339.9	3338.9	3339.9
1.5°	3338.5	3337.5	3338.5	3338.5	3340.4	3338.5	3338.5	3337.5	3338.5	3337.5	3338.5
2°	3336.5	3335.6	3336.5	3336.5	3338.5	3336.5	3336.5	3335.6	3336.5	3335.6	3336.5
2.5°	3334.2	3333.2	3334.2	3334.6	3336.1	3334.6	3334.2	3333.2	3334.2	3333.2	3334.2
3°	3331.3	3330.3	3331.3	3331.8	3333.7	3331.8	3331.3	3330.3	3331.3	3330.3	3331.3
3.5°	3327.9	3327.0	3327.9	3328.4	3330.3	3328.4	3327.9	3327.0	3327.9	3327.0	3327.9
4°	3323.6	3323.1	3324.1	3324.6	3326.5	3324.6	3324.1	3323.1	3323.6	3323.1	3324.1
4.5°	3319.3	3318.8	3319.8	3320.3	3322.2	3320.3	3319.8	3318.8	3319.3	3318.8	3319.8
5°	3314.5	3313.6	3314.5	3315.5	3317.4	3315.5	3314.5	3313.6	3314.5	3313.6	3314.5
5.5°	3308.8	3308.3	3309.3	3310.2	3312.1	3310.2	3309.3	3308.3	3308.8	3308.3	3309.3
6°	3303.0	3302.1	3303.5	3304.5	3305.9	3304.5	3303.5	3302.1	3303.0	3302.1	3303.5
6.5°	3296.3	3295.9	3297.3	3298.3	3299.7	3298.3	3297.3	3295.9	3296.3	3295.9	3297.3
7°	3289.6	3288.7	3290.1	3291.1	3293.0	3291.1	3290.1	3288.7	3289.6	3288.7	3290.1
7.5°	3282.0	3281.0	3282.9	3283.9	3285.8	3283.9	3282.9	3281.0	3282.0	3281.0	3282.9
8°	3273.9	3273.4	3274.8	3275.8	3278.2	3275.8	3274.8	3273.4	3273.9	3273.4	3274.8
8.5°	3265.2	3264.8	3266.7	3267.6	3269.5	3267.6	3266.7	3264.8	3265.2	3264.8	3266.7
9°	3256.6	3256.1	3257.6	3259.0	3260.9	3259.0	3257.6	3256.1	3256.6	3256.1	3257.6
9.5°	3246.6	3246.6	3248.0	3249.4	3251.4	3249.4	3248.0	3246.6	3246.6	3246.6	3248.0
10°	3237.0	3236.5	3238.4	3239.9	3241.8	3239.9	3238.4	3236.5	3237.0	3236.5	3238.4
10.5°	3226.5	3226.0	3227.9	3229.3	3231.7	3229.3	3227.9	3226.0	3226.5	3226.0	3227.9
11°	3215.5	3215.5	3216.9	3218.8	3220.7	3218.8	3216.9	3215.5	3215.5	3215.5	3216.9
11.5°	3204.5	3204.0	3205.9	3207.3	3209.3	3207.3	3205.9	3204.0	3204.5	3204.0	3205.9
12°	3192.5	3192.5	3193.9	3195.9	3197.8	3195.9	3193.9	3192.5	3192.5	3192.5	3193.9
12.5°	3180.1	3180.1	3182.0	3183.9	3185.3	3183.9	3182.0	3180.1	3180.1	3180.1	3182.0
13°	3167.6	3167.6	3169.5	3171.0	3172.9	3171.0	3169.5	3167.6	3167.6	3167.6	3169.5
13.5°	3154.2	3154.2	3156.1	3158.5	3159.5	3158.5	3156.1	3154.2	3154.2	3154.2	3156.1
14°	3141.3	3140.8	3142.7	3144.6	3146.1	3144.6	3142.7	3140.8	3141.3	3140.8	3142.7
14.5°	3126.9	3126.9	3128.9	3130.8	3132.2	3130.8	3128.9	3126.9	3126.9	3126.9	3128.9
15°	3112.6	3113.1	3115.0	3116.4	3117.4	3116.4	3115.0	3113.1	3112.6	3113.1	3115.0
15.5°	3097.7	3098.2	3100.1	3101.6	3102.5	3101.6	3100.1	3098.2	3097.7	3098.2	3100.1
16°	3082.9	3082.9	3084.8	3086.3	3087.2	3086.3	3084.8	3082.9	3082.9	3082.9	3084.8
16.5°	3067.6	3067.6	3069.5	3070.5	3071.9	3070.5	3069.5	3067.6	3067.6	3067.6	3069.5
17°	3051.3	3051.3	3053.2	3054.7	3055.6	3054.7	3053.2	3051.3	3051.3	3051.3	3053.2
17.5°	3034.6	3035.1	3037.0	3037.9	3038.9	3037.9	3037.0	3035.1	3034.6	3035.1	3037.0
18°	3017.8	3017.8	3019.7	3020.7	3021.7	3020.7	3019.7	3017.8	3017.8	3017.8	3019.7
18.5°	3000.6	3000.6	3002.5	3003.0	3003.9	3003.0	3002.5	3000.6	3000.6	3000.6	3002.5
19°	2982.4	2982.4	2984.3	2985.3	2985.8	2985.3	2984.3	2982.4	2982.4	2982.4	2984.3
19.5°	2963.7	2964.2	2965.7	2966.6	2967.1	2966.6	2965.7	2964.2	2963.7	2964.2	2965.7
20°	2945.1	2945.1	2946.5	2947.0	2948.0	2947.0	2946.5	2945.1	2945.1	2945.1	2946.5
20.5°	2925.5	2925.5	2926.9	2926.9	2927.9	2926.9	2926.9	2925.5	2925.5	2925.5	2926.9
21°	2905.4	2905.4	2906.8	2906.8	2907.3	2906.8	2906.8	2905.4	2905.4	2905.4	2906.8



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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°	2840.8	2840.8	2841.7	2841.2	2842.2	2841.2	2841.7	2840.8	2840.8	2840.8	2841.7
23°	2818.3	2818.3	2818.7	2818.7	2819.2	2818.7	2818.7	2818.3	2818.3	2818.3	2818.7
23.5°	2795.3	2795.3	2795.8	2795.3	2795.8	2795.3	2795.8	2795.3	2795.3	2795.3	2795.8
24°	2771.8	2771.4	2771.8	2771.4	2771.8	2771.4	2771.8	2771.4	2771.8	2771.4	2771.8
24.5°	2747.0	2747.0	2747.9	2747.4	2747.4	2747.4	2747.9	2747.0	2747.0	2747.0	2747.9
25°	2722.6	2722.6	2723.0	2723.0	2723.0	2723.0	2723.0	2722.6	2722.6	2722.6	2723.0
25.5°	2698.1	2697.7	2698.6	2698.1	2698.1	2698.1	2698.6	2697.7	2698.1	2697.7	2698.6
26°	2673.3	2672.8	2673.3	2673.7	2673.3	2673.7	2673.3	2672.8	2673.3	2672.8	2673.3
26.5°	2647.9	2648.4	2648.4	2648.4	2648.4	2648.4	2648.4	2647.9	2648.4	2648.4	2648.4
27°	2623.0	2623.0	2623.5	2623.5	2623.0	2623.5	2623.5	2623.0	2623.0	2623.0	2623.5
27.5°	2597.6	2597.6	2598.6	2598.6	2597.6	2598.6	2598.6	2597.6	2597.6	2597.6	2598.6
28°	2572.8	2572.8	2573.7	2573.2	2573.2	2573.2	2573.7	2572.8	2572.8	2572.8	2573.7
28.5°	2547.9	2547.9	2548.8	2548.4	2547.9	2548.4	2548.8	2547.9	2547.9	2547.9	2548.8
29°	2522.5	2523.5	2523.9	2523.5	2523.5	2523.5	2523.9	2523.5	2522.5	2523.5	2523.9
29.5°	2498.1	2498.6	2499.5	2499.5	2498.6	2499.5	2499.5	2498.6	2498.1	2498.6	2499.5
30°	2474.2	2474.7	2475.1	2475.1	2474.2	2475.1	2475.1	2474.7	2474.2	2474.7	2475.1
30.5°	2450.2	2451.2	2451.7	2451.2	2449.8	2451.2	2451.7	2451.2	2450.2	2451.2	2451.7
31°	2426.8	2427.3	2428.2	2427.8	2427.3	2427.8	2428.2	2427.3	2426.8	2427.3	2428.2
31.5°	2404.3	2404.3	2404.8	2404.3	2403.3	2404.3	2404.8	2404.3	2404.3	2404.3	2404.8
32°	2380.9	2380.9	2380.9	2380.4	2380.4	2380.4	2380.9	2380.9	2380.9	2380.9	2380.9
32.5°	2357.4	2355.5	2355.0	2354.5	2356.9	2354.5	2355.0	2355.5	2357.4	2355.5	2355.0
33°	2331.6	2326.8	2325.8	2324.4	2332.5	2324.4	2325.8	2326.8	2331.6	2326.8	2325.8
33.5°	2300.0	2292.8	2293.3	2290.4	2300.9	2290.4	2293.3	2292.8	2300.0	2292.8	2293.3
34°	2262.2	2254.0	2256.9	2251.2	2263.6	2251.2	2256.9	2254.0	2262.2	2254.0	2256.9
34.5°	2221.5	2210.0	2214.8	2209.1	2220.5	2209.1	2214.8	2210.0	2221.5	2210.0	2214.8
35°	2174.1	2163.6	2166.0	2162.2	2169.8	2162.2	2166.0	2163.6	2174.1	2163.6	2166.0
35.5°	2121.0	2115.3	2112.4	2109.0	2114.3	2109.0	2112.4	2115.3	2121.0	2115.3	2112.4
36°	2062.6	2063.6	2055.0	2051.1	2059.3	2051.1	2055.0	2063.6	2062.6	2063.6	2055.0
36.5°	2001.4	2005.7	1994.2	1989.9	1998.5	1989.9	1994.2	2005.7	2001.4	2005.7	1994.2
37°	1938.2	1942.0	1931.5	1925.7	1936.3	1925.7	1931.5	1942.0	1938.2	1942.0	1931.5
37.5°	1872.6	1872.6	1865.4	1860.2	1869.7	1860.2	1865.4	1872.6	1872.6	1872.6	1865.4
38°	1804.2	1799.4	1798.0	1793.7	1802.8	1793.7	1798.0	1799.4	1804.2	1799.4	1798.0
38.5°	1732.9	1724.3	1728.1	1724.7	1733.8	1724.7	1728.1	1724.3	1732.9	1724.3	1728.1
39°	1658.2	1650.1	1655.8	1655.4	1664.9	1655.4	1655.8	1650.1	1658.2	1650.1	1655.8
39.5°	1582.1	1576.4	1583.1	1585.0	1593.6	1585.0	1583.1	1576.4	1582.1	1576.4	1583.1
40°	1502.7	1504.1	1510.8	1516.1	1520.4	1516.1	1510.8	1504.1	1502.7	1504.1	1510.8
40.5°	1423.2	1430.4	1437.6	1446.7	1447.2	1446.7	1437.6	1430.4	1423.2	1430.4	1437.6
41°	1346.2	1358.2	1367.3	1377.8	1374.4	1377.8	1367.3	1358.2	1346.2	1358.2	1367.3
41.5°	1270.1	1284.0	1296.9	1309.4	1302.2	1309.4	1296.9	1284.0	1270.1	1284.0	1296.9
42°	1197.4	1211.7	1227.0	1240.4	1232.8	1240.4	1227.0	1211.7	1197.4	1211.7	1227.0
42.5°	1127.0	1140.9	1157.6	1173.4	1164.3	1173.4	1157.6	1140.9	1127.0	1140.9	1157.6
43°	1058.6	1072.5	1091.1	1106.9	1099.3	1106.9	1091.1	1072.5	1058.6	1072.5	1091.1
43.5°	993.5	1005.9	1026.0	1043.3	1035.1	1043.3	1026.0	1005.9	993.5	1005.9	1026.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	815.5	824.1	846.1	861.9	855.2	861.9	846.1	824.1	815.5	824.1	846.1
45.5°	763.3	771.0	792.0	806.9	801.6	806.9	792.0	771.0	763.3	771.0	792.0
46°	714.0	722.6	740.8	754.7	750.4	754.7	740.8	722.6	714.0	722.6	740.8
46.5°	669.0	678.6	691.5	705.9	702.5	705.9	691.5	678.6	669.0	678.6	691.5
47°	626.9	637.9	647.0	660.9	657.5	660.9	647.0	637.9	626.9	637.9	647.0
47.5°	589.6	601.1	605.9	619.3	615.4	619.3	605.9	601.1	589.6	601.1	605.9
48°	556.1	566.1	569.0	582.4	577.1	582.4	569.0	566.1	556.1	566.1	569.0
48.5°	525.9	534.1	536.5	548.0	541.7	548.0	536.5	534.1	525.9	534.1	536.5
49°	498.7	504.9	507.3	516.8	511.1	516.8	507.3	504.9	498.7	504.9	507.3
49.5°	475.2	479.5	482.4	489.6	482.9	489.6	482.4	479.5	475.2	479.5	482.4
50°	453.7	457.5	460.9	465.6	459.4	465.6	460.9	457.5	453.7	457.5	460.9
50.5°	436.0	438.8	441.7	445.5	439.3	445.5	441.7	438.8	436.0	438.8	441.7
51°	421.1	424.0	425.4	428.3	423.1	428.3	425.4	424.0	421.1	424.0	425.4
51.5°	408.7	411.1	412.5	413.5	410.1	413.5	412.5	411.1	408.7	411.1	412.5
52°	399.1	400.1	401.0	401.5	399.6	401.5	401.0	400.1	399.1	400.1	401.0
52.5°	390.0	390.5	391.0	391.0	391.0	391.0	391.0	390.5	390.0	390.5	391.0
53°	381.4	381.9	381.9	381.9	382.4	381.9	381.9	381.9	381.4	381.9	381.9
53.5°	373.3	373.3	373.3	372.8	373.8	372.8	373.3	373.3	373.3	373.3	373.3
54°	364.7	364.7	364.7	364.2	365.1	364.2	364.7	364.7	364.7	364.7	364.7
54.5°	356.1	356.1	356.1	355.6	356.5	355.6	356.1	356.1	356.1	356.1	356.1
55°	347.0	347.0	347.0	347.0	347.4	347.0	347.0	347.0	347.0	347.0	347.0
55.5°	337.9	337.9	338.3	337.9	338.3	337.9	338.3	337.9	337.9	337.9	338.3
56°	328.8	328.8	329.3	329.3	329.3	329.3	329.3	328.8	328.8	328.8	329.3
56.5°	319.7	320.2	320.2	320.2	320.2	320.2	320.2	319.7	320.2	320.2	320.2
57°	310.6	311.1	311.1	311.1	311.1	311.1	311.1	310.6	311.1	311.1	311.1
57.5°	301.5	302.0	302.5	302.5	302.5	302.5	302.5	302.0	301.5	302.0	302.5
58°	292.4	293.4	293.4	293.8	293.8	293.8	293.4	293.4	292.4	293.4	293.4
58.5°	283.3	284.7	284.7	285.2	285.2	285.2	284.7	284.7	283.3	284.7	284.7
59°	274.7	276.1	276.6	276.6	276.6	276.6	276.6	276.1	274.7	276.1	276.6
59.5°	266.6	268.0	268.5	268.5	268.5	268.5	268.5	268.0	266.6	268.0	268.5
60°	257.9	259.9	260.3	260.8	260.3	260.8	260.3	259.9	257.9	259.9	260.3
60.5°	249.8	251.7	252.7	252.7	252.7	252.7	252.7	251.7	249.8	251.7	252.7
61°	242.2	244.1	245.0	245.0	245.0	245.0	245.0	244.1	242.2	244.1	245.0
61.5°	234.5	236.4	237.4	237.8	237.8	237.8	237.4	236.4	234.5	236.4	237.4
62°	226.8	228.8	230.2	230.2	230.2	230.2	230.2	228.8	226.8	228.8	230.2
62.5°	219.7	221.6	223.0	223.0	223.0	223.0	223.0	221.6	219.7	221.6	223.0
63°	212.0	214.4	216.3	216.3	216.3	216.3	216.3	214.4	212.0	214.4	216.3
63.5°	205.3	207.7	209.1	209.6	209.6	209.6	209.1	207.7	205.3	207.7	209.1
64°	198.6	200.5	202.4	202.9	202.9	202.9	202.4	200.5	198.6	200.5	202.4
64.5°	191.9	193.8	196.2	196.2	196.2	196.2	196.2	193.8	191.9	193.8	196.2
65°	185.2	187.1	189.5	190.0	189.5	190.0	189.5	187.1	185.2	187.1	189.5
65.5°	179.0	180.9	183.3	183.8	183.8	183.8	183.3	180.9	179.0	180.9	183.3
66°	172.8	174.7	177.1	177.5	177.5	177.5	177.1	174.7	172.8	174.7	177.1



TEST NUMBER: P776793

CATALOG NUMBER: HCDJBL54050CSD-HCD82TRMW-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	154.6	157.0	159.4	160.3	159.8	160.3	159.4	157.0	154.6	157.0	159.4
68°	148.8	151.2	154.1	154.6	154.6	154.6	154.1	151.2	148.8	151.2	154.1
68.5°	143.6	145.5	148.4	148.8	148.8	148.8	148.4	145.5	143.6	145.5	148.4
69°	137.8	140.2	143.1	143.6	143.6	143.6	143.1	140.2	137.8	140.2	143.1
69.5°	132.6	134.5	137.8	138.3	138.3	138.3	137.8	134.5	132.6	134.5	137.8
70°	127.3	129.2	132.6	133.0	133.0	133.0	132.6	129.2	127.3	129.2	132.6
70.5°	122.0	123.9	127.3	127.8	127.8	127.8	127.3	123.9	122.0	123.9	127.3
71°	117.2	119.2	122.0	123.0	123.0	123.0	122.0	119.2	117.2	119.2	122.0
71.5°	112.0	113.9	117.2	118.2	117.7	118.2	117.2	113.9	112.0	113.9	117.2
72°	107.2	109.1	112.5	113.4	112.9	113.4	112.5	109.1	107.2	109.1	112.5
72.5°	102.4	104.3	107.7	108.6	108.2	108.6	107.7	104.3	102.4	104.3	107.7
73°	97.6	99.5	102.9	103.8	103.8	103.8	102.9	99.5	97.6	99.5	102.9
73.5°	93.3	95.2	98.6	99.5	99.5	99.5	98.6	95.2	93.3	95.2	98.6
74°	89.0	90.9	93.8	95.2	94.8	95.2	93.8	90.9	89.0	90.9	93.8
74.5°	84.7	86.1	89.5	90.9	90.4	90.9	89.5	86.1	84.7	86.1	89.5
75°	80.4	81.8	85.2	86.6	86.6	86.6	85.2	81.8	80.4	81.8	85.2
75.5°	76.1	78.0	80.9	82.3	82.3	82.3	80.9	78.0	76.1	78.0	80.9
76°	72.3	73.7	77.0	78.5	78.0	78.5	77.0	73.7	72.3	73.7	77.0
76.5°	68.0	69.9	72.7	74.2	74.2	74.2	72.7	69.9	68.0	69.9	72.7
77°	64.1	66.0	68.9	70.3	70.3	70.3	68.9	66.0	64.1	66.0	68.9
77.5°	60.8	62.2	65.1	66.5	66.5	66.5	65.1	62.2	60.8	62.2	65.1
78°	56.9	58.4	61.3	63.2	62.7	63.2	61.3	58.4	56.9	58.4	61.3
78.5°	53.1	54.6	57.9	59.3	59.3	59.3	57.9	54.6	53.1	54.6	57.9
79°	49.8	51.2	54.1	56.0	55.5	56.0	54.1	51.2	49.8	51.2	54.1
79.5°	46.4	47.4	50.7	52.2	52.2	52.2	50.7	47.4	46.4	47.4	50.7
80°	43.1	44.0	47.4	48.8	48.8	48.8	47.4	44.0	43.1	44.0	47.4
80.5°	39.7	40.7	44.0	45.5	45.5	45.5	44.0	40.7	39.7	40.7	44.0
81°	36.4	37.3	40.7	42.1	42.1	42.1	40.7	37.3	36.4	37.3	40.7
81.5°	33.5	34.0	37.3	39.2	39.2	39.2	37.3	34.0	33.5	34.0	37.3
82°	30.1	31.1	34.0	35.9	35.9	35.9	34.0	31.1	30.1	31.1	34.0
82.5°	27.3	27.8	31.1	33.0	33.0	33.0	31.1	27.8	27.3	27.8	31.1
83°	24.4	24.9	28.2	30.1	29.7	30.1	28.2	24.9	24.4	24.9	28.2
83.5°	21.5	22.0	25.4	26.8	26.8	26.8	25.4	22.0	21.5	22.0	25.4
84°	18.7	19.1	22.5	23.9	23.9	23.9	22.5	19.1	18.7	19.1	22.5
84.5°	15.8	16.3	19.6	21.5	21.5	21.5	19.6	16.3	15.8	16.3	19.6
85°	13.4	13.9	17.2	18.7	18.7	18.7	17.2	13.9	13.4	13.9	17.2
85.5°	11.0	11.5	14.8	15.8	15.8	15.8	14.8	11.5	11.0	11.5	14.8
86°	8.6	9.6	12.4	13.4	13.4	13.4	12.4	9.6	8.6	9.6	12.4
86.5°	6.7	7.7	10.0	11.0	11.0	11.0	10.0	7.7	6.7	7.7	10.0
87°	5.3	5.7	7.7	8.6	8.6	8.6	7.7	5.7	5.3	5.7	7.7
87.5°	3.8	4.3	5.7	6.7	6.2	6.7	5.7	4.3	3.8	4.3	5.7
88°	2.4	2.9	4.3	4.8	3.8	4.8	4.3	2.9	2.4	2.9	4.3
88.5°	1.4	1.9	2.9	3.3	2.4	3.3	2.9	1.9	1.4	1.9	2.9



TEST NUMBER: P776793

CATALOG NUMBER: HCDJBL54050CSD-HCD82TRMW-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	0.5	0.5	0.0	0.5	0.5	0.0	0.0	0.0	0.5



TEST NUMBER: P776793

CATALOG NUMBER: HCDJBL54050CSD-HCD82TRMW-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	3340.9	3340.9	3340.9	3340.9	3340.9	3340.9
0.5°	3340.4	3342.3	3340.4	3340.4	3339.4	3340.4
1°	3339.9	3341.3	3339.9	3339.9	3338.9	3339.9
1.5°	3338.5	3340.4	3338.5	3338.5	3337.5	3338.5
2°	3336.5	3338.5	3336.5	3336.5	3335.6	3336.5
2.5°	3334.6	3336.1	3334.6	3334.2	3333.2	3334.2
3°	3331.8	3333.7	3331.8	3331.3	3330.3	3331.3
3.5°	3328.4	3330.3	3328.4	3327.9	3327.0	3327.9
4°	3324.6	3326.5	3324.6	3324.1	3323.1	3323.6
4.5°	3320.3	3322.2	3320.3	3319.8	3318.8	3319.3
5°	3315.5	3317.4	3315.5	3314.5	3313.6	3314.5
5.5°	3310.2	3312.1	3310.2	3309.3	3308.3	3308.8
6°	3304.5	3305.9	3304.5	3303.5	3302.1	3303.0
6.5°	3298.3	3299.7	3298.3	3297.3	3295.9	3296.3
7°	3291.1	3293.0	3291.1	3290.1	3288.7	3289.6
7.5°	3283.9	3285.8	3283.9	3282.9	3281.0	3282.0
8°	3275.8	3278.2	3275.8	3274.8	3273.4	3273.9
8.5°	3267.6	3269.5	3267.6	3266.7	3264.8	3265.2
9°	3259.0	3260.9	3259.0	3257.6	3256.1	3256.6
9.5°	3249.4	3251.4	3249.4	3248.0	3246.6	3246.6
10°	3239.9	3241.8	3239.9	3238.4	3236.5	3237.0
10.5°	3229.3	3231.7	3229.3	3227.9	3226.0	3226.5
11°	3218.8	3220.7	3218.8	3216.9	3215.5	3215.5
11.5°	3207.3	3209.3	3207.3	3205.9	3204.0	3204.5
12°	3195.9	3197.8	3195.9	3193.9	3192.5	3192.5
12.5°	3183.9	3185.3	3183.9	3182.0	3180.1	3180.1
13°	3171.0	3172.9	3171.0	3169.5	3167.6	3167.6
13.5°	3158.5	3159.5	3158.5	3156.1	3154.2	3154.2
14°	3144.6	3146.1	3144.6	3142.7	3140.8	3141.3
14.5°	3130.8	3132.2	3130.8	3128.9	3126.9	3126.9
15°	3116.4	3117.4	3116.4	3115.0	3113.1	3112.6
15.5°	3101.6	3102.5	3101.6	3100.1	3098.2	3097.7
16°	3086.3	3087.2	3086.3	3084.8	3082.9	3082.9
16.5°	3070.5	3071.9	3070.5	3069.5	3067.6	3067.6
17°	3054.7	3055.6	3054.7	3053.2	3051.3	3051.3
17.5°	3037.9	3038.9	3037.9	3037.0	3035.1	3034.6
18°	3020.7	3021.7	3020.7	3019.7	3017.8	3017.8
18.5°	3003.0	3003.9	3003.0	3002.5	3000.6	3000.6
19°	2985.3	2985.8	2985.3	2984.3	2982.4	2982.4
19.5°	2966.6	2967.1	2966.6	2965.7	2964.2	2963.7
20°	2947.0	2948.0	2947.0	2946.5	2945.1	2945.1
20.5°	2926.9	2927.9	2926.9	2926.9	2925.5	2925.5
21°	2906.8	2907.3	2906.8	2906.8	2905.4	2905.4



TEST NUMBER: P776793

CATALOG NUMBER: HCDJBL54050CSD-HCD82TRMW-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2841.2	2842.2	2841.2	2841.7	2840.8	2840.8
23°	2818.7	2819.2	2818.7	2818.7	2818.3	2818.3
23.5°	2795.3	2795.8	2795.3	2795.8	2795.3	2795.3
24°	2771.4	2771.8	2771.4	2771.8	2771.4	2771.8
24.5°	2747.4	2747.4	2747.4	2747.9	2747.0	2747.0
25°	2723.0	2723.0	2723.0	2723.0	2722.6	2722.6
25.5°	2698.1	2698.1	2698.1	2698.6	2697.7	2698.1
26°	2673.7	2673.3	2673.7	2673.3	2672.8	2673.3
26.5°	2648.4	2648.4	2648.4	2648.4	2648.4	2647.9
27°	2623.5	2623.0	2623.5	2623.5	2623.0	2623.0
27.5°	2598.6	2597.6	2598.6	2598.6	2597.6	2597.6
28°	2573.2	2573.2	2573.2	2573.7	2572.8	2572.8
28.5°	2548.4	2547.9	2548.4	2548.8	2547.9	2547.9
29°	2523.5	2523.5	2523.5	2523.9	2523.5	2522.5
29.5°	2499.5	2498.6	2499.5	2499.5	2498.6	2498.1
30°	2475.1	2474.2	2475.1	2475.1	2474.7	2474.2
30.5°	2451.2	2449.8	2451.2	2451.7	2451.2	2450.2
31°	2427.8	2427.3	2427.8	2428.2	2427.3	2426.8
31.5°	2404.3	2403.3	2404.3	2404.8	2404.3	2404.3
32°	2380.4	2380.4	2380.4	2380.9	2380.9	2380.9
32.5°	2354.5	2356.9	2354.5	2355.0	2355.5	2357.4
33°	2324.4	2332.5	2324.4	2325.8	2326.8	2331.6
33.5°	2290.4	2300.9	2290.4	2293.3	2292.8	2300.0
34°	2251.2	2263.6	2251.2	2256.9	2254.0	2262.2
34.5°	2209.1	2220.5	2209.1	2214.8	2210.0	2221.5
35°	2162.2	2169.8	2162.2	2166.0	2163.6	2174.1
35.5°	2109.0	2114.3	2109.0	2112.4	2115.3	2121.0
36°	2051.1	2059.3	2051.1	2055.0	2063.6	2062.6
36.5°	1989.9	1998.5	1989.9	1994.2	2005.7	2001.4
37°	1925.7	1936.3	1925.7	1931.5	1942.0	1938.2
37.5°	1860.2	1869.7	1860.2	1865.4	1872.6	1872.6
38°	1793.7	1802.8	1793.7	1798.0	1799.4	1804.2
38.5°	1724.7	1733.8	1724.7	1728.1	1724.3	1732.9
39°	1655.4	1664.9	1655.4	1655.8	1650.1	1658.2
39.5°	1585.0	1593.6	1585.0	1583.1	1576.4	1582.1
40°	1516.1	1520.4	1516.1	1510.8	1504.1	1502.7
40.5°	1446.7	1447.2	1446.7	1437.6	1430.4	1423.2
41°	1377.8	1374.4	1377.8	1367.3	1358.2	1346.2
41.5°	1309.4	1302.2	1309.4	1296.9	1284.0	1270.1
42°	1240.4	1232.8	1240.4	1227.0	1211.7	1197.4
42.5°	1173.4	1164.3	1173.4	1157.6	1140.9	1127.0
43°	1106.9	1099.3	1106.9	1091.1	1072.5	1058.6
43.5°	1043.3	1035.1	1043.3	1026.0	1005.9	993.5



TEST NUMBER: P776793

CATALOG NUMBER: HCDJBL54050CSD-HCD82TRMW-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	861.9	855.2	861.9	846.1	824.1	815.5
45.5°	806.9	801.6	806.9	792.0	771.0	763.3
46°	754.7	750.4	754.7	740.8	722.6	714.0
46.5°	705.9	702.5	705.9	691.5	678.6	669.0
47°	660.9	657.5	660.9	647.0	637.9	626.9
47.5°	619.3	615.4	619.3	605.9	601.1	589.6
48°	582.4	577.1	582.4	569.0	566.1	556.1
48.5°	548.0	541.7	548.0	536.5	534.1	525.9
49°	516.8	511.1	516.8	507.3	504.9	498.7
49.5°	489.6	482.9	489.6	482.4	479.5	475.2
50°	465.6	459.4	465.6	460.9	457.5	453.7
50.5°	445.5	439.3	445.5	441.7	438.8	436.0
51°	428.3	423.1	428.3	425.4	424.0	421.1
51.5°	413.5	410.1	413.5	412.5	411.1	408.7
52°	401.5	399.6	401.5	401.0	400.1	399.1
52.5°	391.0	391.0	391.0	391.0	390.5	390.0
53°	381.9	382.4	381.9	381.9	381.9	381.4
53.5°	372.8	373.8	372.8	373.3	373.3	373.3
54°	364.2	365.1	364.2	364.7	364.7	364.7
54.5°	355.6	356.5	355.6	356.1	356.1	356.1
55°	347.0	347.4	347.0	347.0	347.0	347.0
55.5°	337.9	338.3	337.9	338.3	337.9	337.9
56°	329.3	329.3	329.3	329.3	328.8	328.8
56.5°	320.2	320.2	320.2	320.2	320.2	319.7
57°	311.1	311.1	311.1	311.1	311.1	310.6
57.5°	302.5	302.5	302.5	302.5	302.0	301.5
58°	293.8	293.8	293.8	293.4	293.4	292.4
58.5°	285.2	285.2	285.2	284.7	284.7	283.3
59°	276.6	276.6	276.6	276.6	276.1	274.7
59.5°	268.5	268.5	268.5	268.5	268.0	266.6
60°	260.8	260.3	260.8	260.3	259.9	257.9
60.5°	252.7	252.7	252.7	252.7	251.7	249.8
61°	245.0	245.0	245.0	245.0	244.1	242.2
61.5°	237.8	237.8	237.8	237.4	236.4	234.5
62°	230.2	230.2	230.2	230.2	228.8	226.8
62.5°	223.0	223.0	223.0	223.0	221.6	219.7
63°	216.3	216.3	216.3	216.3	214.4	212.0
63.5°	209.6	209.6	209.6	209.1	207.7	205.3
64°	202.9	202.9	202.9	202.4	200.5	198.6
64.5°	196.2	196.2	196.2	196.2	193.8	191.9
65°	190.0	189.5	190.0	189.5	187.1	185.2
65.5°	183.8	183.8	183.8	183.3	180.9	179.0
66°	177.5	177.5	177.5	177.1	174.7	172.8



TEST NUMBER: P776793

CATALOG NUMBER: HCDJBL54050CSD-HCD82TRMW-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	160.3	159.8	160.3	159.4	157.0	154.6
68°	154.6	154.6	154.6	154.1	151.2	148.8
68.5°	148.8	148.8	148.8	148.4	145.5	143.6
69°	143.6	143.6	143.6	143.1	140.2	137.8
69.5°	138.3	138.3	138.3	137.8	134.5	132.6
70°	133.0	133.0	133.0	132.6	129.2	127.3
70.5°	127.8	127.8	127.8	127.3	123.9	122.0
71°	123.0	123.0	123.0	122.0	119.2	117.2
71.5°	118.2	117.7	118.2	117.2	113.9	112.0
72°	113.4	112.9	113.4	112.5	109.1	107.2
72.5°	108.6	108.2	108.6	107.7	104.3	102.4
73°	103.8	103.8	103.8	102.9	99.5	97.6
73.5°	99.5	99.5	99.5	98.6	95.2	93.3
74°	95.2	94.8	95.2	93.8	90.9	89.0
74.5°	90.9	90.4	90.9	89.5	86.1	84.7
75°	86.6	86.6	86.6	85.2	81.8	80.4
75.5°	82.3	82.3	82.3	80.9	78.0	76.1
76°	78.5	78.0	78.5	77.0	73.7	72.3
76.5°	74.2	74.2	74.2	72.7	69.9	68.0
77°	70.3	70.3	70.3	68.9	66.0	64.1
77.5°	66.5	66.5	66.5	65.1	62.2	60.8
78°	63.2	62.7	63.2	61.3	58.4	56.9
78.5°	59.3	59.3	59.3	57.9	54.6	53.1
79°	56.0	55.5	56.0	54.1	51.2	49.8
79.5°	52.2	52.2	52.2	50.7	47.4	46.4
80°	48.8	48.8	48.8	47.4	44.0	43.1
80.5°	45.5	45.5	45.5	44.0	40.7	39.7
81°	42.1	42.1	42.1	40.7	37.3	36.4
81.5°	39.2	39.2	39.2	37.3	34.0	33.5
82°	35.9	35.9	35.9	34.0	31.1	30.1
82.5°	33.0	33.0	33.0	31.1	27.8	27.3
83°	30.1	29.7	30.1	28.2	24.9	24.4
83.5°	26.8	26.8	26.8	25.4	22.0	21.5
84°	23.9	23.9	23.9	22.5	19.1	18.7
84.5°	21.5	21.5	21.5	19.6	16.3	15.8
85°	18.7	18.7	18.7	17.2	13.9	13.4
85.5°	15.8	15.8	15.8	14.8	11.5	11.0
86°	13.4	13.4	13.4	12.4	9.6	8.6
86.5°	11.0	11.0	11.0	10.0	7.7	6.7
87°	8.6	8.6	8.6	7.7	5.7	5.3
87.5°	6.7	6.2	6.7	5.7	4.3	3.8
88°	4.8	3.8	4.8	4.3	2.9	2.4
88.5°	3.3	2.4	3.3	2.9	1.9	1.4



TEST NUMBER: P776793

CATALOG NUMBER: HCDJBL54050CSD-HCD82TRMW-5000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.5	0.0	0.5	0.5	0.0	0.0



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Scaled Data Report





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

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Scaled Data Report





21.5°	2884.3	2884.8	2885.7	2885.7	2886.2	2885.7	2885.7	2884.8	2884.3	2884.8	2885.7
22°	2863.2	2863.2	2863.7	2863.7	2864.7	2863.7	2863.7	2863.2	2863.2	2863.2	2863.7



44°	931.3	941.8	963.8	980.1	972.9	980.1	963.8	941.8	931.3	941.8	963.8
44.5°	872.4	881.0	903.5	920.3	912.6	920.3	903.5	881.0	872.4	881.0	903.5



66.5°	166.1	168.5	170.8	171.3	171.8	171.3	170.8	168.5	166.1	168.5	170.8
67°	160.3	162.2	165.1	166.1	166.1	166.1	165.1	162.2	160.3	162.2	165.1



89°	0.5	1.0	1.4	2.4	1.4	2.4	1.4	1.0	0.5	1.0	1.4
89.5°	0.0	0.5	1.0	1.4	0.5	1.4	1.0	0.5	0.0	0.5	1.0

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21.5°	2885.7	2886.2	2885.7	2885.7	2884.8	2884.3
22°	2863.7	2864.7	2863.7	2863.7	2863.2	2863.2

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44°	980.1	972.9	980.1	963.8	941.8	931.3
44.5°	920.3	912.6	920.3	903.5	881.0	872.4



66.5°	171.3	171.8	171.3	170.8	168.5	166.1
67°	166.1	166.1	166.1	165.1	162.2	160.3

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89°	2.4	1.4	2.4	1.4	1.0	0.5
89.5°	1.4	0.5	1.4	1.0	0.5	0.0

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Scaled Data Report



(END OF REPORT)