

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: P776481

Luminaire Tested: HCDJBL3040CSD-HCD82TRMW-4000lm-3000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776481
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: HCDJBS3040CSD-HCD82TRMW-4000lm-3000K
Description: 8 INCH ROUND NARROW MATTE WHITE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT
Ballast/Driver: -

Summary

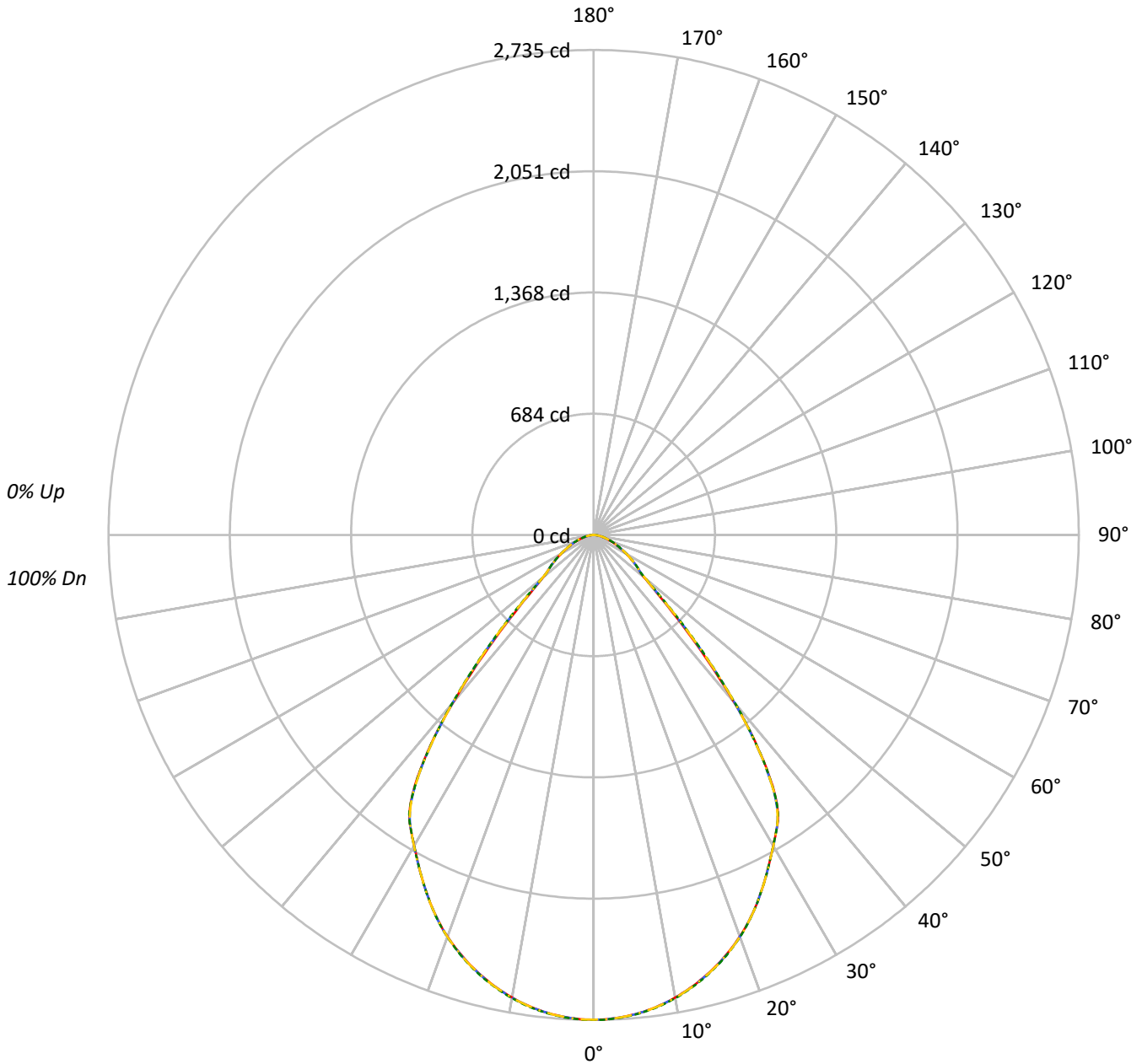
Lumens per Lamp: N/A
Luminaire Lumens: 4123.0 lumens
Efficiency: N/A
Efficacy: 107.1 lumens/watt
Spacing Criteria (0/90/45): 1.12 / 1.12 / 1.12
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

Input Watts (W): 38.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20										
RC	80					70					50					30					10					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	112	108	105	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°	83473	83473	83473	83473
5°	83133	83203	83133	83203
10°	82125	82249	82125	82249
15°	80513	80636	80513	80636
20°	78307	78385	78307	78385
25°	75057	75070	75057	75070
30°	71381	71381	71381	71381
35°	66316	66185	66316	66185
40°	49013	49591	49013	49591
45°	28816	30219	28816	30219
50°	17636	17859	17636	17859
55°	15111	15133	15111	15133
60°	12890	13012	12890	13012
65°	10952	11205	10952	11205
70°	9301	9721	9301	9721
75°	7762	8363	7762	8363
80°	6189	7015	6189	7015
85°	3853	5360	3853	5360

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 30457 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	257.0	6.2
10°-20°	717.2	17.4
20°-30°	1024.2	24.8
30°-40°	1069.5	25.9
40°-50°	555.5	13.5
50°-60°	254.6	6.2
60°-70°	154.4	3.7
70°-80°	74.0	1.8
80°-90°	16.6	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°	1998.4	48.5
0°-40°	3067.9	74.4
0°-60°	3878.0	94.1
0°-90°	4123.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4123.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2734	2734	2734	2734	2734	
5°	2713	2715	2713	2715	2713	257
15°	2547	2551	2547	2551	2547	717
25°	2228	2228	2228	2228	2228	1024
35°	1779	1776	1779	1776	1779	1071
45°	667	700	667	700	667	543
55°	284	284	284	284	284	254
65°	152	155	152	155	152	152
75°	66	71	66	71	66	71
85°	11	15	11	15	11	14
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°	2734.1	2734.1	2734.1	2734.1	2734.1	2734.1	2734.1	2734.1	2734.1	2734.1	2734.1
0.5°	2733.7	2733.0	2733.7	2733.7	2735.3	2733.7	2733.7	2733.0	2733.7	2733.0	2733.7
1°	2733.3	2732.6	2733.3	2733.3	2734.5	2733.3	2733.3	2732.6	2733.3	2732.6	2733.3
1.5°	2732.2	2731.4	2732.2	2732.2	2733.7	2732.2	2732.2	2731.4	2732.2	2731.4	2732.2
2°	2730.6	2729.8	2730.6	2730.6	2732.2	2730.6	2730.6	2729.8	2730.6	2729.8	2730.6
2.5°	2728.7	2727.9	2728.7	2729.0	2730.2	2729.0	2728.7	2727.9	2728.7	2727.9	2728.7
3°	2726.3	2725.5	2726.3	2726.7	2728.3	2726.7	2726.3	2725.5	2726.3	2725.5	2726.3
3.5°	2723.6	2722.8	2723.6	2724.0	2725.5	2724.0	2723.6	2722.8	2723.6	2722.8	2723.6
4°	2720.0	2719.6	2720.4	2720.8	2722.4	2720.8	2720.4	2719.6	2720.0	2719.6	2720.4
4.5°	2716.5	2716.1	2716.9	2717.3	2718.9	2717.3	2716.9	2716.1	2716.5	2716.1	2716.9
5°	2712.6	2711.8	2712.6	2713.4	2714.9	2713.4	2712.6	2711.8	2712.6	2711.8	2712.6
5.5°	2707.9	2707.5	2708.3	2709.1	2710.6	2709.1	2708.3	2707.5	2707.9	2707.5	2708.3
6°	2703.2	2702.4	2703.6	2704.4	2705.5	2704.4	2703.6	2702.4	2703.2	2702.4	2703.6
6.5°	2697.7	2697.3	2698.5	2699.3	2700.5	2699.3	2698.5	2697.3	2697.7	2697.3	2698.5
7°	2692.2	2691.4	2692.6	2693.4	2695.0	2693.4	2692.6	2691.4	2692.2	2691.4	2692.6
7.5°	2686.0	2685.2	2686.7	2687.5	2689.1	2687.5	2686.7	2685.2	2686.0	2685.2	2686.7
8°	2679.3	2678.9	2680.1	2680.9	2682.8	2680.9	2680.1	2678.9	2679.3	2678.9	2680.1
8.5°	2672.3	2671.9	2673.4	2674.2	2675.8	2674.2	2673.4	2671.9	2672.3	2671.9	2673.4
9°	2665.2	2664.8	2666.0	2667.2	2668.7	2667.2	2666.0	2664.8	2665.2	2664.8	2666.0
9.5°	2657.0	2657.0	2658.2	2659.3	2660.9	2659.3	2658.2	2657.0	2657.0	2657.0	2658.2
10°	2649.1	2648.8	2650.3	2651.5	2653.1	2651.5	2650.3	2648.8	2649.1	2648.8	2650.3
10.5°	2640.5	2640.1	2641.7	2642.9	2644.8	2642.9	2641.7	2640.1	2640.5	2640.1	2641.7
11°	2631.5	2631.5	2632.7	2634.3	2635.8	2634.3	2632.7	2631.5	2631.5	2631.5	2632.7
11.5°	2622.5	2622.1	2623.7	2624.9	2626.4	2624.9	2623.7	2622.1	2622.5	2622.1	2623.7
12°	2612.7	2612.7	2613.9	2615.5	2617.0	2615.5	2613.9	2612.7	2612.7	2612.7	2613.9
12.5°	2602.5	2602.5	2604.1	2605.7	2606.8	2605.7	2604.1	2602.5	2602.5	2602.5	2604.1
13°	2592.4	2592.4	2593.9	2595.1	2596.7	2595.1	2593.9	2592.4	2592.4	2592.4	2593.9
13.5°	2581.4	2581.4	2583.0	2584.9	2585.7	2584.9	2583.0	2581.4	2581.4	2581.4	2583.0
14°	2570.8	2570.4	2572.0	2573.6	2574.7	2573.6	2572.0	2570.4	2570.8	2570.4	2572.0
14.5°	2559.1	2559.1	2560.6	2562.2	2563.4	2562.2	2560.6	2559.1	2559.1	2559.1	2560.6
15°	2547.3	2547.7	2549.3	2550.4	2551.2	2550.4	2549.3	2547.7	2547.3	2547.7	2549.3
15.5°	2535.2	2535.6	2537.1	2538.3	2539.1	2538.3	2537.1	2535.6	2535.2	2535.6	2537.1
16°	2523.0	2523.0	2524.6	2525.8	2526.6	2525.8	2524.6	2523.0	2523.0	2523.0	2524.6
16.5°	2510.5	2510.5	2512.1	2512.8	2514.0	2512.8	2512.1	2510.5	2510.5	2510.5	2512.1
17°	2497.2	2497.2	2498.7	2499.9	2500.7	2499.9	2498.7	2497.2	2497.2	2497.2	2498.7
17.5°	2483.5	2483.9	2485.4	2486.2	2487.0	2486.2	2485.4	2483.9	2483.5	2483.9	2485.4
18°	2469.8	2469.8	2471.3	2472.1	2472.9	2472.1	2471.3	2469.8	2469.8	2469.8	2471.3
18.5°	2455.7	2455.7	2457.2	2457.6	2458.4	2457.6	2457.2	2455.7	2455.7	2455.7	2457.2
19°	2440.8	2440.8	2442.4	2443.1	2443.5	2443.1	2442.4	2440.8	2440.8	2440.8	2442.4
19.5°	2425.5	2425.9	2427.1	2427.9	2428.3	2427.9	2427.1	2425.9	2425.5	2425.9	2427.1
20°	2410.2	2410.2	2411.4	2411.8	2412.6	2411.8	2411.4	2410.2	2410.2	2410.2	2411.4
20.5°	2394.2	2394.2	2395.4	2395.4	2396.1	2395.4	2395.4	2394.2	2394.2	2394.2	2395.4
21°	2377.7	2377.7	2378.9	2378.9	2379.3	2378.9	2378.9	2377.7	2377.7	2377.7	2378.9

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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°	2324.9	2324.9	2325.6	2325.2	2326.0	2325.2	2325.6	2324.9	2324.9	2324.9	2325.6
23°	2306.4	2306.4	2306.8	2306.8	2307.2	2306.8	2306.8	2306.4	2306.4	2306.4	2306.8
23.5°	2287.6	2287.6	2288.0	2287.6	2288.0	2287.6	2288.0	2287.6	2287.6	2287.6	2288.0
24°	2268.5	2268.1	2268.5	2268.1	2268.5	2268.1	2268.5	2268.1	2268.5	2268.1	2268.5
24.5°	2248.1	2248.1	2248.9	2248.5	2248.5	2248.5	2248.9	2248.1	2248.1	2248.1	2248.9
25°	2228.1	2228.1	2228.5	2228.5	2228.5	2228.5	2228.5	2228.1	2228.1	2228.1	2228.5
25.5°	2208.1	2207.8	2208.5	2208.1	2208.1	2208.1	2208.5	2207.8	2208.1	2207.8	2208.5
26°	2187.8	2187.4	2187.8	2188.2	2187.8	2188.2	2187.8	2187.4	2187.8	2187.4	2187.8
26.5°	2167.0	2167.4	2167.4	2167.4	2167.4	2167.4	2167.4	2167.4	2167.0	2167.4	2167.4
27°	2146.7	2146.7	2147.0	2147.0	2146.7	2147.0	2147.0	2146.7	2146.7	2146.7	2147.0
27.5°	2125.9	2125.9	2126.7	2126.7	2125.9	2126.7	2126.7	2125.9	2125.9	2125.9	2126.7
28°	2105.5	2105.5	2106.3	2105.9	2105.9	2105.9	2106.3	2105.5	2105.5	2105.5	2106.3
28.5°	2085.2	2085.2	2085.9	2085.6	2085.2	2085.6	2085.9	2085.2	2085.2	2085.2	2085.9
29°	2064.4	2065.2	2065.6	2065.2	2065.2	2065.2	2065.6	2065.2	2064.4	2065.2	2065.6
29.5°	2044.4	2044.8	2045.6	2045.6	2044.8	2045.6	2045.6	2044.8	2044.4	2044.8	2045.6
30°	2024.8	2025.2	2025.6	2025.6	2024.8	2025.6	2025.6	2025.2	2024.8	2025.2	2025.6
30.5°	2005.3	2006.0	2006.4	2006.0	2004.9	2006.0	2006.4	2006.0	2005.3	2006.0	2006.4
31°	1986.1	1986.5	1987.3	1986.9	1986.5	1986.9	1987.3	1986.5	1986.1	1986.5	1987.3
31.5°	1967.7	1967.7	1968.1	1967.7	1966.9	1967.7	1968.1	1967.7	1967.7	1967.7	1968.1
32°	1948.5	1948.5	1948.5	1948.1	1948.1	1948.1	1948.5	1948.5	1948.5	1948.5	1948.5
32.5°	1929.3	1927.7	1927.3	1926.9	1928.9	1926.9	1927.3	1927.7	1929.3	1927.7	1927.3
33°	1908.1	1904.2	1903.4	1902.3	1908.9	1902.3	1903.4	1904.2	1908.1	1904.2	1903.4
33.5°	1882.3	1876.4	1876.8	1874.5	1883.1	1874.5	1876.8	1876.4	1882.3	1876.4	1876.8
34°	1851.3	1844.7	1847.0	1842.3	1852.5	1842.3	1847.0	1844.7	1851.3	1844.7	1847.0
34.5°	1818.1	1808.7	1812.6	1807.9	1817.3	1807.9	1812.6	1808.7	1818.1	1808.7	1812.6
35°	1779.3	1770.7	1772.6	1769.5	1775.8	1769.5	1772.6	1770.7	1779.3	1770.7	1772.6
35.5°	1735.8	1731.1	1728.8	1726.0	1730.3	1726.0	1728.8	1731.1	1735.8	1731.1	1728.8
36°	1688.0	1688.8	1681.8	1678.6	1685.3	1678.6	1681.8	1688.8	1688.0	1688.8	1681.8
36.5°	1637.9	1641.4	1632.0	1628.5	1635.5	1628.5	1632.0	1641.4	1637.9	1641.4	1632.0
37°	1586.2	1589.3	1580.7	1576.0	1584.6	1576.0	1580.7	1589.3	1586.2	1589.3	1580.7
37.5°	1532.5	1532.5	1526.7	1522.4	1530.2	1522.4	1526.7	1532.5	1532.5	1532.5	1526.7
38°	1476.5	1472.6	1471.4	1467.9	1475.4	1467.9	1471.4	1472.6	1476.5	1472.6	1471.4
38.5°	1418.2	1411.1	1414.3	1411.5	1419.0	1411.5	1414.3	1411.1	1418.2	1411.1	1414.3
39°	1357.1	1350.4	1355.1	1354.7	1362.6	1354.7	1355.1	1350.4	1357.1	1350.4	1355.1
39.5°	1294.8	1290.1	1295.6	1297.2	1304.2	1297.2	1295.6	1290.1	1294.8	1290.1	1295.6
40°	1229.8	1231.0	1236.5	1240.8	1244.3	1240.8	1236.5	1231.0	1229.8	1231.0	1236.5
40.5°	1164.8	1170.7	1176.5	1184.0	1184.4	1184.0	1176.5	1170.7	1164.8	1170.7	1176.5
41°	1101.7	1111.5	1119.0	1127.6	1124.8	1127.6	1119.0	1111.5	1101.7	1111.5	1119.0
41.5°	1039.4	1050.8	1061.4	1071.6	1065.7	1071.6	1061.4	1050.8	1039.4	1050.8	1061.4
42°	979.9	991.7	1004.2	1015.2	1008.9	1015.2	1004.2	991.7	979.9	991.7	1004.2
42.5°	922.3	933.7	947.4	960.3	952.9	960.3	947.4	933.7	922.3	933.7	947.4
43°	866.3	877.7	893.0	905.9	899.6	905.9	893.0	877.7	866.3	877.7	893.0
43.5°	813.1	823.3	839.7	853.8	847.1	853.8	839.7	823.3	813.1	823.3	839.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	667.4	674.4	692.4	705.4	699.9	705.4	692.4	674.4	667.4	674.4	692.4
45.5°	624.7	631.0	648.2	660.3	656.0	660.3	648.2	631.0	624.7	631.0	648.2
46°	584.3	591.4	606.3	617.6	614.1	617.6	606.3	591.4	584.3	591.4	606.3
46.5°	547.5	555.4	565.9	577.7	574.9	577.7	565.9	555.4	547.5	555.4	565.9
47°	513.1	522.1	529.5	540.9	538.1	540.9	529.5	522.1	513.1	522.1	529.5
47.5°	482.5	491.9	495.8	506.8	503.7	506.8	495.8	491.9	482.5	491.9	495.8
48°	455.1	463.3	465.7	476.6	472.3	476.6	465.7	463.3	455.1	463.3	465.7
48.5°	430.4	437.1	439.0	448.4	443.4	448.4	439.0	437.1	430.4	437.1	439.0
49°	408.1	413.2	415.2	423.0	418.3	423.0	415.2	413.2	408.1	413.2	415.2
49.5°	388.9	392.4	394.8	400.7	395.2	400.7	394.8	392.4	388.9	392.4	394.8
50°	371.3	374.4	377.2	381.1	376.0	381.1	377.2	374.4	371.3	374.4	377.2
50.5°	356.8	359.1	361.5	364.6	359.5	364.6	361.5	359.1	356.8	359.1	361.5
51°	344.7	347.0	348.2	350.5	346.2	350.5	348.2	347.0	344.7	347.0	348.2
51.5°	334.5	336.4	337.6	338.4	335.6	338.4	337.6	336.4	334.5	336.4	337.6
52°	326.6	327.4	328.2	328.6	327.0	328.6	328.2	327.4	326.6	327.4	328.2
52.5°	319.2	319.6	320.0	320.0	320.0	320.0	320.0	319.6	319.2	319.6	320.0
53°	312.1	312.5	312.5	312.5	312.9	312.5	312.5	312.5	312.1	312.5	312.5
53.5°	305.5	305.5	305.5	305.1	305.9	305.1	305.5	305.5	305.5	305.5	305.5
54°	298.4	298.4	298.4	298.0	298.8	298.0	298.4	298.4	298.4	298.4	298.4
54.5°	291.4	291.4	291.4	291.0	291.8	291.0	291.4	291.4	291.4	291.4	291.4
55°	283.9	283.9	283.9	283.9	284.3	283.9	283.9	283.9	283.9	283.9	283.9
55.5°	276.5	276.5	276.9	276.5	276.9	276.5	276.9	276.5	276.5	276.5	276.9
56°	269.1	269.1	269.5	269.5	269.5	269.5	269.5	269.1	269.1	269.1	269.5
56.5°	261.6	262.0	262.0	262.0	262.0	262.0	262.0	262.0	261.6	262.0	262.0
57°	254.2	254.6	254.6	254.6	254.6	254.6	254.6	254.6	254.2	254.6	254.6
57.5°	246.7	247.1	247.5	247.5	247.5	247.5	247.5	247.1	246.7	247.1	247.5
58°	239.3	240.1	240.1	240.5	240.5	240.5	240.1	240.1	239.3	240.1	240.1
58.5°	231.9	233.0	233.0	233.4	233.4	233.4	233.0	233.0	231.9	233.0	233.0
59°	224.8	226.0	226.4	226.4	226.4	226.4	226.4	226.0	224.8	226.0	226.4
59.5°	218.2	219.3	219.7	219.7	219.7	219.7	219.7	219.3	218.2	219.3	219.7
60°	211.1	212.7	213.1	213.5	213.1	213.5	213.1	212.7	211.1	212.7	213.1
60.5°	204.4	206.0	206.8	206.8	206.8	206.8	206.8	206.0	204.4	206.0	206.8
61°	198.2	199.7	200.5	200.5	200.5	200.5	200.5	199.7	198.2	199.7	200.5
61.5°	191.9	193.5	194.3	194.7	194.7	194.7	194.3	193.5	191.9	193.5	194.3
62°	185.6	187.2	188.4	188.4	188.4	188.4	188.4	187.2	185.6	187.2	188.4
62.5°	179.8	181.3	182.5	182.5	182.5	182.5	182.5	181.3	179.8	181.3	182.5
63°	173.5	175.5	177.0	177.0	177.0	177.0	177.0	175.5	173.5	175.5	177.0
63.5°	168.0	170.0	171.2	171.5	171.5	171.5	171.2	170.0	168.0	170.0	171.2
64°	162.5	164.1	165.7	166.1	166.1	166.1	165.7	164.1	162.5	164.1	165.7
64.5°	157.1	158.6	160.6	160.6	160.6	160.6	160.6	158.6	157.1	158.6	160.6
65°	151.6	153.1	155.1	155.5	155.1	155.5	155.1	153.1	151.6	153.1	155.1
65.5°	146.5	148.0	150.0	150.4	150.4	150.4	150.0	148.0	146.5	148.0	150.0
66°	141.4	143.0	144.9	145.3	145.3	145.3	144.9	143.0	141.4	143.0	144.9



TEST NUMBER: P776481

CATALOG NUMBER: HCDJBL3040CSD-HCD82TRMW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	126.5	128.5	130.4	131.2	130.8	131.2	130.4	128.5	126.5	128.5	130.4
68°	121.8	123.8	126.1	126.5	126.5	126.5	126.1	123.8	121.8	123.8	126.1
68.5°	117.5	119.1	121.4	121.8	121.8	121.8	121.4	119.1	117.5	119.1	121.4
69°	112.8	114.8	117.1	117.5	117.5	117.5	117.1	114.8	112.8	114.8	117.1
69.5°	108.5	110.1	112.8	113.2	113.2	113.2	112.8	110.1	108.5	110.1	112.8
70°	104.2	105.7	108.5	108.9	108.9	108.9	108.5	105.7	104.2	105.7	108.5
70.5°	99.9	101.4	104.2	104.6	104.6	104.6	104.2	101.4	99.9	101.4	104.2
71°	96.0	97.5	99.9	100.7	100.7	100.7	99.9	97.5	96.0	97.5	99.9
71.5°	91.6	93.2	96.0	96.7	96.3	96.7	96.0	93.2	91.6	93.2	96.0
72°	87.7	89.3	92.0	92.8	92.4	92.8	92.0	89.3	87.7	89.3	92.0
72.5°	83.8	85.4	88.1	88.9	88.5	88.9	88.1	85.4	83.8	85.4	88.1
73°	79.9	81.5	84.2	85.0	85.0	85.0	84.2	81.5	79.9	81.5	84.2
73.5°	76.4	77.9	80.7	81.5	81.5	81.5	80.7	77.9	76.4	77.9	80.7
74°	72.8	74.4	76.8	77.9	77.5	77.9	76.8	74.4	72.8	74.4	76.8
74.5°	69.3	70.5	73.2	74.4	74.0	74.4	73.2	70.5	69.3	70.5	73.2
75°	65.8	67.0	69.7	70.9	70.9	70.9	69.7	67.0	65.8	67.0	69.7
75.5°	62.3	63.8	66.2	67.4	67.4	67.4	66.2	63.8	62.3	63.8	66.2
76°	59.1	60.3	63.1	64.2	63.8	64.2	63.1	60.3	59.1	60.3	63.1
76.5°	55.6	57.2	59.5	60.7	60.7	60.7	59.5	57.2	55.6	57.2	59.5
77°	52.5	54.0	56.4	57.6	57.6	57.6	56.4	54.0	52.5	54.0	56.4
77.5°	49.7	50.9	53.3	54.4	54.4	54.4	53.3	50.9	49.7	50.9	53.3
78°	46.6	47.8	50.1	51.7	51.3	51.7	50.1	47.8	46.6	47.8	50.1
78.5°	43.5	44.6	47.4	48.6	48.6	48.6	47.4	44.6	43.5	44.6	47.4
79°	40.7	41.9	44.3	45.8	45.4	45.8	44.3	41.9	40.7	41.9	44.3
79.5°	38.0	38.8	41.5	42.7	42.7	42.7	41.5	38.8	38.0	38.8	41.5
80°	35.2	36.0	38.8	39.9	39.9	39.9	38.8	36.0	35.2	36.0	38.8
80.5°	32.5	33.3	36.0	37.2	37.2	37.2	36.0	33.3	32.5	33.3	36.0
81°	29.8	30.5	33.3	34.5	34.5	34.5	33.3	30.5	29.8	30.5	33.3
81.5°	27.4	27.8	30.5	32.1	32.1	32.1	30.5	27.8	27.4	27.8	30.5
82°	24.7	25.5	27.8	29.4	29.4	29.4	27.8	25.5	24.7	25.5	27.8
82.5°	22.3	22.7	25.5	27.0	27.0	27.0	25.5	22.7	22.3	22.7	25.5
83°	20.0	20.4	23.1	24.7	24.3	24.7	23.1	20.4	20.0	20.4	23.1
83.5°	17.6	18.0	20.8	21.9	21.9	21.9	20.8	18.0	17.6	18.0	20.8
84°	15.3	15.7	18.4	19.6	19.6	19.6	18.4	15.7	15.3	15.7	18.4
84.5°	12.9	13.3	16.1	17.6	17.6	17.6	16.1	13.3	12.9	13.3	16.1
85°	11.0	11.4	14.1	15.3	15.3	15.3	14.1	11.4	11.0	11.4	14.1
85.5°	9.0	9.4	12.1	12.9	12.9	12.9	12.1	9.4	9.0	9.4	12.1
86°	7.0	7.8	10.2	11.0	11.0	11.0	10.2	7.8	7.0	7.8	10.2
86.5°	5.5	6.3	8.2	9.0	9.0	9.0	8.2	6.3	5.5	6.3	8.2
87°	4.3	4.7	6.3	7.0	7.0	7.0	6.3	4.7	4.3	4.7	6.3
87.5°	3.1	3.5	4.7	5.5	5.1	5.5	4.7	3.5	3.1	3.5	4.7
88°	2.0	2.3	3.5	3.9	3.1	3.9	3.5	2.3	2.0	2.3	3.5
88.5°	1.2	1.6	2.3	2.7	2.0	2.7	2.3	1.6	1.2	1.6	2.3



TEST NUMBER: P776481

CATALOG NUMBER: HCDJBL3040CSD-HCD82TRMW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

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



TEST NUMBER: P776481

CATALOG NUMBER: HCDJBL3040CSD-HCD82TRMW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2734.1	2734.1	2734.1	2734.1	2734.1	2734.1
0.5°	2733.7	2735.3	2733.7	2733.7	2733.0	2733.7
1°	2733.3	2734.5	2733.3	2733.3	2732.6	2733.3
1.5°	2732.2	2733.7	2732.2	2732.2	2731.4	2732.2
2°	2730.6	2732.2	2730.6	2730.6	2729.8	2730.6
2.5°	2729.0	2730.2	2729.0	2728.7	2727.9	2728.7
3°	2726.7	2728.3	2726.7	2726.3	2725.5	2726.3
3.5°	2724.0	2725.5	2724.0	2723.6	2722.8	2723.6
4°	2720.8	2722.4	2720.8	2720.4	2719.6	2720.0
4.5°	2717.3	2718.9	2717.3	2716.9	2716.1	2716.5
5°	2713.4	2714.9	2713.4	2712.6	2711.8	2712.6
5.5°	2709.1	2710.6	2709.1	2708.3	2707.5	2707.9
6°	2704.4	2705.5	2704.4	2703.6	2702.4	2703.2
6.5°	2699.3	2700.5	2699.3	2698.5	2697.3	2697.7
7°	2693.4	2695.0	2693.4	2692.6	2691.4	2692.2
7.5°	2687.5	2689.1	2687.5	2686.7	2685.2	2686.0
8°	2680.9	2682.8	2680.9	2680.1	2678.9	2679.3
8.5°	2674.2	2675.8	2674.2	2673.4	2671.9	2672.3
9°	2667.2	2668.7	2667.2	2666.0	2664.8	2665.2
9.5°	2659.3	2660.9	2659.3	2658.2	2657.0	2657.0
10°	2651.5	2653.1	2651.5	2650.3	2648.8	2649.1
10.5°	2642.9	2644.8	2642.9	2641.7	2640.1	2640.5
11°	2634.3	2635.8	2634.3	2632.7	2631.5	2631.5
11.5°	2624.9	2626.4	2624.9	2623.7	2622.1	2622.5
12°	2615.5	2617.0	2615.5	2613.9	2612.7	2612.7
12.5°	2605.7	2606.8	2605.7	2604.1	2602.5	2602.5
13°	2595.1	2596.7	2595.1	2593.9	2592.4	2592.4
13.5°	2584.9	2585.7	2584.9	2583.0	2581.4	2581.4
14°	2573.6	2574.7	2573.6	2572.0	2570.4	2570.8
14.5°	2562.2	2563.4	2562.2	2560.6	2559.1	2559.1
15°	2550.4	2551.2	2550.4	2549.3	2547.7	2547.3
15.5°	2538.3	2539.1	2538.3	2537.1	2535.6	2535.2
16°	2525.8	2526.6	2525.8	2524.6	2523.0	2523.0
16.5°	2512.8	2514.0	2512.8	2512.1	2510.5	2510.5
17°	2499.9	2500.7	2499.9	2498.7	2497.2	2497.2
17.5°	2486.2	2487.0	2486.2	2485.4	2483.9	2483.5
18°	2472.1	2472.9	2472.1	2471.3	2469.8	2469.8
18.5°	2457.6	2458.4	2457.6	2457.2	2455.7	2455.7
19°	2443.1	2443.5	2443.1	2442.4	2440.8	2440.8
19.5°	2427.9	2428.3	2427.9	2427.1	2425.9	2425.5
20°	2411.8	2412.6	2411.8	2411.4	2410.2	2410.2
20.5°	2395.4	2396.1	2395.4	2395.4	2394.2	2394.2
21°	2378.9	2379.3	2378.9	2378.9	2377.7	2377.7



TEST NUMBER: P776481

CATALOG NUMBER: HCDJBL3040CSD-HCD82TRMW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2325.2	2326.0	2325.2	2325.6	2324.9	2324.9
23°	2306.8	2307.2	2306.8	2306.8	2306.4	2306.4
23.5°	2287.6	2288.0	2287.6	2288.0	2287.6	2287.6
24°	2268.1	2268.5	2268.1	2268.5	2268.1	2268.5
24.5°	2248.5	2248.5	2248.5	2248.9	2248.1	2248.1
25°	2228.5	2228.5	2228.5	2228.5	2228.1	2228.1
25.5°	2208.1	2208.1	2208.1	2208.5	2207.8	2208.1
26°	2188.2	2187.8	2188.2	2187.8	2187.4	2187.8
26.5°	2167.4	2167.4	2167.4	2167.4	2167.4	2167.0
27°	2147.0	2146.7	2147.0	2147.0	2146.7	2146.7
27.5°	2126.7	2125.9	2126.7	2126.7	2125.9	2125.9
28°	2105.9	2105.9	2105.9	2106.3	2105.5	2105.5
28.5°	2085.6	2085.2	2085.6	2085.9	2085.2	2085.2
29°	2065.2	2065.2	2065.2	2065.6	2065.2	2064.4
29.5°	2045.6	2044.8	2045.6	2045.6	2044.8	2044.4
30°	2025.6	2024.8	2025.6	2025.6	2025.2	2024.8
30.5°	2006.0	2004.9	2006.0	2006.4	2006.0	2005.3
31°	1986.9	1986.5	1986.9	1987.3	1986.5	1986.1
31.5°	1967.7	1966.9	1967.7	1968.1	1967.7	1967.7
32°	1948.1	1948.1	1948.1	1948.5	1948.5	1948.5
32.5°	1926.9	1928.9	1926.9	1927.3	1927.7	1929.3
33°	1902.3	1908.9	1902.3	1903.4	1904.2	1908.1
33.5°	1874.5	1883.1	1874.5	1876.8	1876.4	1882.3
34°	1842.3	1852.5	1842.3	1847.0	1844.7	1851.3
34.5°	1807.9	1817.3	1807.9	1812.6	1808.7	1818.1
35°	1769.5	1775.8	1769.5	1772.6	1770.7	1779.3
35.5°	1726.0	1730.3	1726.0	1728.8	1731.1	1735.8
36°	1678.6	1685.3	1678.6	1681.8	1688.8	1688.0
36.5°	1628.5	1635.5	1628.5	1632.0	1641.4	1637.9
37°	1576.0	1584.6	1576.0	1580.7	1589.3	1586.2
37.5°	1522.4	1530.2	1522.4	1526.7	1532.5	1532.5
38°	1467.9	1475.4	1467.9	1471.4	1472.6	1476.5
38.5°	1411.5	1419.0	1411.5	1414.3	1411.1	1418.2
39°	1354.7	1362.6	1354.7	1355.1	1350.4	1357.1
39.5°	1297.2	1304.2	1297.2	1295.6	1290.1	1294.8
40°	1240.8	1244.3	1240.8	1236.5	1231.0	1229.8
40.5°	1184.0	1184.4	1184.0	1176.5	1170.7	1164.8
41°	1127.6	1124.8	1127.6	1119.0	1111.5	1101.7
41.5°	1071.6	1065.7	1071.6	1061.4	1050.8	1039.4
42°	1015.2	1008.9	1015.2	1004.2	991.7	979.9
42.5°	960.3	952.9	960.3	947.4	933.7	922.3
43°	905.9	899.6	905.9	893.0	877.7	866.3
43.5°	853.8	847.1	853.8	839.7	823.3	813.1

TEST NUMBER: P776481

CATALOG NUMBER: HCDJBL3040CSD-HCD82TRMW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	705.4	699.9	705.4	692.4	674.4	667.4
45.5°	660.3	656.0	660.3	648.2	631.0	624.7
46°	617.6	614.1	617.6	606.3	591.4	584.3
46.5°	577.7	574.9	577.7	565.9	555.4	547.5
47°	540.9	538.1	540.9	529.5	522.1	513.1
47.5°	506.8	503.7	506.8	495.8	491.9	482.5
48°	476.6	472.3	476.6	465.7	463.3	455.1
48.5°	448.4	443.4	448.4	439.0	437.1	430.4
49°	423.0	418.3	423.0	415.2	413.2	408.1
49.5°	400.7	395.2	400.7	394.8	392.4	388.9
50°	381.1	376.0	381.1	377.2	374.4	371.3
50.5°	364.6	359.5	364.6	361.5	359.1	356.8
51°	350.5	346.2	350.5	348.2	347.0	344.7
51.5°	338.4	335.6	338.4	337.6	336.4	334.5
52°	328.6	327.0	328.6	328.2	327.4	326.6
52.5°	320.0	320.0	320.0	320.0	319.6	319.2
53°	312.5	312.9	312.5	312.5	312.5	312.1
53.5°	305.1	305.9	305.1	305.5	305.5	305.5
54°	298.0	298.8	298.0	298.4	298.4	298.4
54.5°	291.0	291.8	291.0	291.4	291.4	291.4
55°	283.9	284.3	283.9	283.9	283.9	283.9
55.5°	276.5	276.9	276.5	276.9	276.5	276.5
56°	269.5	269.5	269.5	269.5	269.1	269.1
56.5°	262.0	262.0	262.0	262.0	262.0	261.6
57°	254.6	254.6	254.6	254.6	254.6	254.2
57.5°	247.5	247.5	247.5	247.5	247.1	246.7
58°	240.5	240.5	240.5	240.1	240.1	239.3
58.5°	233.4	233.4	233.4	233.0	233.0	231.9
59°	226.4	226.4	226.4	226.4	226.0	224.8
59.5°	219.7	219.7	219.7	219.7	219.3	218.2
60°	213.5	213.1	213.5	213.1	212.7	211.1
60.5°	206.8	206.8	206.8	206.8	206.0	204.4
61°	200.5	200.5	200.5	200.5	199.7	198.2
61.5°	194.7	194.7	194.7	194.3	193.5	191.9
62°	188.4	188.4	188.4	188.4	187.2	185.6
62.5°	182.5	182.5	182.5	182.5	181.3	179.8
63°	177.0	177.0	177.0	177.0	175.5	173.5
63.5°	171.5	171.5	171.5	171.2	170.0	168.0
64°	166.1	166.1	166.1	165.7	164.1	162.5
64.5°	160.6	160.6	160.6	160.6	158.6	157.1
65°	155.5	155.1	155.5	155.1	153.1	151.6
65.5°	150.4	150.4	150.4	150.0	148.0	146.5
66°	145.3	145.3	145.3	144.9	143.0	141.4



TEST NUMBER: P776481

CATALOG NUMBER: HCDJBL3040CSD-HCD82TRMW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	131.2	130.8	131.2	130.4	128.5	126.5
68°	126.5	126.5	126.5	126.1	123.8	121.8
68.5°	121.8	121.8	121.8	121.4	119.1	117.5
69°	117.5	117.5	117.5	117.1	114.8	112.8
69.5°	113.2	113.2	113.2	112.8	110.1	108.5
70°	108.9	108.9	108.9	108.5	105.7	104.2
70.5°	104.6	104.6	104.6	104.2	101.4	99.9
71°	100.7	100.7	100.7	99.9	97.5	96.0
71.5°	96.7	96.3	96.7	96.0	93.2	91.6
72°	92.8	92.4	92.8	92.0	89.3	87.7
72.5°	88.9	88.5	88.9	88.1	85.4	83.8
73°	85.0	85.0	85.0	84.2	81.5	79.9
73.5°	81.5	81.5	81.5	80.7	77.9	76.4
74°	77.9	77.5	77.9	76.8	74.4	72.8
74.5°	74.4	74.0	74.4	73.2	70.5	69.3
75°	70.9	70.9	70.9	69.7	67.0	65.8
75.5°	67.4	67.4	67.4	66.2	63.8	62.3
76°	64.2	63.8	64.2	63.1	60.3	59.1
76.5°	60.7	60.7	60.7	59.5	57.2	55.6
77°	57.6	57.6	57.6	56.4	54.0	52.5
77.5°	54.4	54.4	54.4	53.3	50.9	49.7
78°	51.7	51.3	51.7	50.1	47.8	46.6
78.5°	48.6	48.6	48.6	47.4	44.6	43.5
79°	45.8	45.4	45.8	44.3	41.9	40.7
79.5°	42.7	42.7	42.7	41.5	38.8	38.0
80°	39.9	39.9	39.9	38.8	36.0	35.2
80.5°	37.2	37.2	37.2	36.0	33.3	32.5
81°	34.5	34.5	34.5	33.3	30.5	29.8
81.5°	32.1	32.1	32.1	30.5	27.8	27.4
82°	29.4	29.4	29.4	27.8	25.5	24.7
82.5°	27.0	27.0	27.0	25.5	22.7	22.3
83°	24.7	24.3	24.7	23.1	20.4	20.0
83.5°	21.9	21.9	21.9	20.8	18.0	17.6
84°	19.6	19.6	19.6	18.4	15.7	15.3
84.5°	17.6	17.6	17.6	16.1	13.3	12.9
85°	15.3	15.3	15.3	14.1	11.4	11.0
85.5°	12.9	12.9	12.9	12.1	9.4	9.0
86°	11.0	11.0	11.0	10.2	7.8	7.0
86.5°	9.0	9.0	9.0	8.2	6.3	5.5
87°	7.0	7.0	7.0	6.3	4.7	4.3
87.5°	5.5	5.1	5.5	4.7	3.5	3.1
88°	3.9	3.1	3.9	3.5	2.3	2.0
88.5°	2.7	2.0	2.7	2.3	1.6	1.2



TEST NUMBER: P776481

CATALOG NUMBER: HCDJBL3040CSD-HCD82TRMW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.4	0.0	0.4	0.4	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



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Scaled Data Report





21.5°	2360.5	2360.9	2361.7	2361.7	2362.1	2361.7	2361.7	2360.9	2360.5	2360.9	2361.7
22°	2343.3	2343.3	2343.7	2343.7	2344.4	2343.7	2343.7	2343.3	2343.3	2343.3	2343.7



44°	762.2	770.8	788.8	802.1	796.2	802.1	788.8	770.8	762.2	770.8	788.8
44.5°	714.0	721.0	739.4	753.1	746.9	753.1	739.4	721.0	714.0	721.0	739.4



66.5°	135.9	137.9	139.8	140.2	140.6	140.2	139.8	137.9	135.9	137.9	139.8
67°	131.2	132.8	135.1	135.9	135.9	135.9	135.1	132.8	131.2	132.8	135.1



89°	0.4	0.8	1.2	2.0	1.2	2.0	1.2	0.8	0.4	0.8	1.2
89.5°	0.0	0.4	0.8	1.2	0.4	1.2	0.8	0.4	0.0	0.4	0.8

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21.5°	2361.7	2362.1	2361.7	2361.7	2360.9	2360.5
22°	2343.7	2344.4	2343.7	2343.7	2343.3	2343.3



44°	802.1	796.2	802.1	788.8	770.8	762.2
44.5°	753.1	746.9	753.1	739.4	721.0	714.0

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66.5°	140.2	140.6	140.2	139.8	137.9	135.9
67°	135.9	135.9	135.9	135.1	132.8	131.2

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89°	2.0	1.2	2.0	1.2	0.8	0.4
89.5°	1.2	0.4	1.2	0.8	0.4	0.0

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Scaled Data Report



(END OF REPORT)