

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: P776612

Luminaire Tested: HCDJBS4050CSD-HCD4TRMB-5000lm-3500K

Issue Date: 2/7/2024

Test Information

Test Method: LM-79-2019
Report Number: P776612
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-HCD4TRMB-5000lm-3500K
Description: 4 INCH ROUND MEDIUM MATTE BLACK TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2988.5 lumens
Efficiency: N/A
Efficacy: 62.3 lumens/watt
Spacing Criteria (0/90/45): 0.95 / 0.95 / 0.94
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

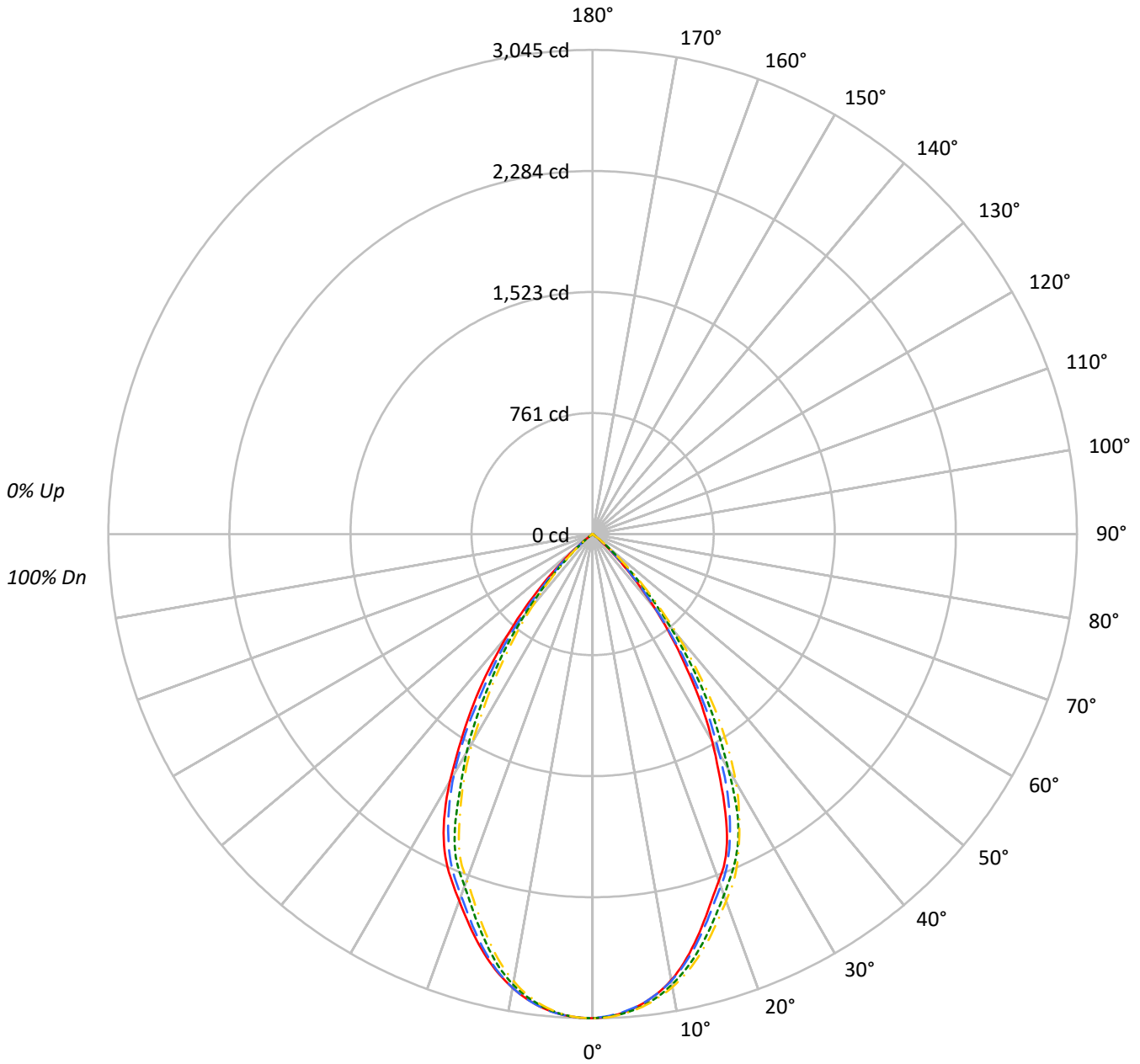
Input Watts (W): 48
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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					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	113	111	108	106	111	108	106	104	104	103	101	101	99	98	97	96	95	93								
2	108	103	98	95	105	101	97	94	98	95	92	95	92	90	92	90	88	86								
3	102	95	90	86	100	94	89	85	91	87	84	89	86	83	87	84	82	80								
4	97	89	83	79	95	88	82	78	85	81	77	83	80	76	82	78	76	74								
5	91	83	77	72	90	82	76	72	80	75	71	78	74	71	77	73	70	69								
6	87	77	71	67	85	77	71	67	75	70	66	74	69	66	72	68	65	64								
7	82	72	66	62	81	72	66	62	70	65	61	69	65	61	68	64	61	59								
8	78	68	62	58	77	67	62	57	66	61	57	65	60	57	64	60	57	55								
9	74	64	58	54	73	63	58	54	62	57	53	62	57	53	61	56	53	52								
10	70	60	54	50	69	60	54	50	59	54	50	58	53	50	57	53	50	48								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	383112	383112	383112	383112
5°	378082	379396	380520	379813
10°	363937	367553	370326	367668
15°	337970	347312	351990	343377
20°	310870	323379	328495	315410
25°	276040	299771	305672	284566
30°	218443	247870	260557	230170
35°	158796	188678	200923	169167
40°	99409	124610	138246	109250
45°	44940	66778	76940	51329
50°	13020	20421	26608	15330
55°	2062	2062	2787	2589
60°	831	831	956	831
65°	566	566	566	566
70°	331	515	515	515
75°	243	438	243	438
80°	0	362	362	362
85°	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 180°
 Vertical Angle: 45°
 Luminance: 76940 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	282.6	9.5
10°-20°	741.3	24.8
20°-30°	946.1	31.7
30°-40°	723.3	24.2
40°-50°	270.3	9.0
50°-60°	22.0	0.7
60°-70°	2.0	0.1
70°-80°	0.8	0.0
80°-90°	0.1	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°	1970.0	65.9
0°-40°	2693.3	90.1
0°-60°	2985.7	99.9
0°-90°	2988.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2988.5	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	3044	3044	3044	3044	3044	
5°	2993	3003	3012	3006	2993	281
15°	2594	2666	2702	2636	2594	726
25°	1988	2159	2201	2049	1988	894
35°	1034	1228	1308	1101	1034	644
45°	252	375	432	288	252	212
55°	9	9	13	12	9	15
65°	2	2	2	2	2	2
75°	0	1	0	1	0	1
85°	0	0	0	0	0	0
90°	0	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°	3044.2	3044.2	3044.2	3044.2	3044.2	3044.2	3044.2	3044.2	3044.2	3044.2	3044.2
0.5°	3043.3	3040.9	3040.9	3040.9	3043.3	3043.7	3045.2	3046.1	3044.7	3043.3	3043.3
1°	3041.4	3039.0	3038.6	3039.0	3041.4	3042.3	3043.7	3044.7	3044.2	3043.3	3042.8
1.5°	3038.6	3035.7	3035.3	3035.7	3039.0	3040.4	3041.9	3043.3	3042.3	3041.9	3042.3
2°	3034.8	3031.9	3031.0	3031.9	3036.2	3037.6	3039.0	3040.4	3040.4	3040.0	3040.4
2.5°	3030.1	3026.8	3026.3	3027.7	3032.4	3033.8	3035.3	3037.1	3037.6	3037.1	3037.6
3°	3024.4	3021.1	3020.6	3022.5	3027.7	3029.6	3031.0	3032.9	3033.8	3033.8	3034.3
3.5°	3017.8	3014.0	3014.5	3016.8	3022.5	3024.4	3026.3	3028.2	3029.6	3030.1	3030.1
4°	3010.2	3006.9	3006.9	3009.8	3016.8	3018.7	3020.1	3022.5	3024.4	3025.3	3025.3
4.5°	3001.7	2998.4	2998.9	3002.7	3010.7	3012.6	3014.0	3016.4	3018.7	3019.7	3019.7
5°	2992.8	2989.0	2989.5	2994.2	3003.2	3005.0	3006.5	3009.3	3012.1	3013.5	3013.1
5.5°	2982.4	2978.1	2980.0	2984.7	2994.7	2996.5	2998.4	3001.3	3004.6	3006.0	3005.0
6°	2971.5	2967.3	2969.2	2974.8	2985.7	2987.6	2989.5	2992.8	2996.5	2998.0	2996.5
6.5°	2959.7	2956.0	2958.3	2964.0	2975.3	2978.1	2980.0	2983.3	2987.6	2989.0	2987.6
7°	2947.0	2943.2	2946.0	2951.7	2964.0	2967.3	2969.6	2973.4	2977.2	2979.1	2977.7
7.5°	2933.3	2930.0	2932.4	2938.5	2951.7	2955.5	2958.8	2962.1	2965.9	2968.2	2966.8
8°	2918.7	2915.8	2918.2	2924.8	2938.5	2942.7	2947.0	2950.8	2954.5	2956.0	2954.5
8.5°	2902.6	2900.7	2903.6	2909.7	2924.3	2929.1	2934.7	2938.0	2941.3	2943.7	2941.8
9°	2885.6	2884.2	2887.5	2893.7	2909.2	2915.4	2921.5	2924.8	2928.1	2929.5	2928.1
9.5°	2866.8	2866.8	2870.5	2877.1	2893.2	2900.3	2907.3	2911.6	2913.5	2914.9	2913.5
10°	2847.9	2847.9	2852.1	2859.2	2876.2	2884.7	2892.2	2896.5	2897.9	2898.9	2897.4
10.5°	2828.1	2828.1	2832.8	2840.8	2859.7	2867.7	2876.2	2880.9	2881.9	2882.3	2880.4
11°	2805.4	2806.3	2812.5	2820.5	2840.8	2850.2	2859.7	2864.4	2865.3	2864.9	2862.5
11.5°	2782.3	2784.2	2791.2	2799.7	2821.4	2832.3	2842.7	2846.9	2846.9	2846.5	2843.2
12°	2757.7	2760.6	2768.6	2778.0	2802.1	2813.4	2824.3	2829.0	2829.0	2827.1	2823.8
12.5°	2732.2	2735.5	2744.5	2755.8	2780.9	2793.1	2804.9	2810.1	2809.6	2806.8	2803.0
13°	2705.8	2710.1	2720.4	2732.7	2759.1	2772.4	2785.6	2790.8	2789.4	2785.6	2779.9
13.5°	2678.4	2684.1	2695.0	2708.2	2737.4	2751.1	2764.3	2769.5	2768.6	2764.3	2757.7
14°	2650.6	2657.2	2669.9	2684.1	2713.4	2729.4	2742.6	2748.8	2746.9	2741.2	2733.7
14.5°	2622.3	2629.8	2643.5	2659.1	2689.8	2706.8	2720.0	2726.1	2724.2	2718.1	2708.6
15°	2594.0	2602.0	2616.6	2633.1	2665.7	2683.2	2697.3	2703.5	2701.6	2694.0	2683.6
15.5°	2564.7	2574.1	2589.2	2607.6	2641.6	2659.1	2674.2	2679.9	2678.0	2669.9	2657.7
16°	2535.4	2545.8	2562.8	2581.2	2616.1	2635.5	2650.6	2656.3	2653.9	2644.9	2631.7
16.5°	2507.1	2518.4	2535.9	2555.3	2591.1	2610.9	2625.6	2633.1	2629.8	2619.9	2605.3
17°	2478.8	2490.1	2508.5	2529.3	2565.6	2585.9	2601.5	2608.1	2604.8	2594.0	2578.9
17.5°	2450.5	2462.3	2481.6	2503.3	2539.7	2560.4	2576.0	2582.2	2579.3	2568.0	2551.5
18°	2422.2	2434.9	2454.7	2476.9	2514.2	2535.4	2551.0	2558.1	2553.8	2542.0	2525.0
18.5°	2394.8	2408.9	2428.3	2450.9	2488.2	2510.4	2526.5	2532.6	2527.9	2515.6	2497.7
19°	2369.3	2383.9	2404.2	2425.9	2463.2	2485.9	2501.5	2507.6	2502.4	2489.7	2470.8
19.5°	2345.2	2360.3	2379.7	2401.9	2439.2	2461.3	2477.9	2483.5	2478.3	2463.7	2444.3
20°	2321.2	2336.7	2356.1	2378.3	2414.6	2437.3	2455.2	2459.9	2452.8	2439.2	2419.3
20.5°	2297.6	2312.7	2332.5	2354.2	2391.0	2414.1	2431.6	2436.8	2429.7	2414.6	2394.8
21°	2273.5	2289.1	2307.9	2330.1	2367.4	2391.0	2407.5	2413.7	2406.1	2391.0	2370.7



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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°	2189.0	2203.6	2222.0	2251.3	2295.7	2318.8	2333.9	2341.0	2335.3	2319.7	2297.1
23°	2155.0	2170.1	2189.5	2223.9	2270.7	2292.8	2306.1	2314.5	2311.2	2294.7	2270.2
23.5°	2118.2	2134.3	2155.5	2192.8	2244.7	2265.0	2275.4	2284.8	2285.3	2269.2	2241.4
24°	2077.1	2094.1	2119.6	2160.2	2218.3	2235.3	2242.8	2254.6	2258.4	2242.8	2211.2
24.5°	2033.7	2050.7	2081.4	2125.8	2189.5	2205.1	2210.2	2222.0	2230.5	2214.5	2178.1
25°	1987.9	2004.5	2044.1	2090.8	2158.8	2172.5	2175.8	2188.5	2201.3	2185.7	2144.2
25.5°	1939.8	1957.3	2004.9	2052.6	2126.7	2138.0	2139.0	2153.1	2170.1	2154.6	2108.8
26°	1889.8	1909.1	1965.8	2015.8	2091.8	2101.7	2103.1	2117.3	2136.6	2122.0	2072.9
26.5°	1838.8	1861.0	1923.3	1977.1	2053.5	2063.9	2067.7	2080.9	2100.7	2086.6	2034.7
27°	1787.4	1813.8	1880.3	1937.0	2012.5	2025.7	2032.3	2044.6	2062.5	2047.9	1996.4
27.5°	1738.3	1767.1	1835.5	1895.9	1967.2	1986.5	1996.4	2007.8	2023.3	2007.8	1958.7
28°	1688.7	1722.7	1788.3	1852.0	1919.5	1946.4	1959.6	1971.0	1979.9	1964.8	1918.1
28.5°	1640.6	1679.7	1740.2	1805.8	1867.6	1903.9	1922.8	1933.2	1936.0	1920.9	1877.0
29°	1594.3	1637.3	1691.5	1758.6	1814.7	1861.0	1885.1	1895.0	1891.2	1872.8	1834.1
29.5°	1548.5	1594.3	1641.5	1708.5	1760.5	1816.1	1844.0	1853.9	1842.1	1823.7	1788.8
30°	1503.2	1550.4	1592.0	1656.1	1705.7	1769.0	1801.5	1812.8	1793.0	1772.7	1740.6
30.5°	1458.4	1505.1	1544.3	1601.4	1653.8	1720.3	1756.7	1768.5	1740.6	1719.4	1692.5
31°	1412.6	1458.4	1495.7	1548.1	1603.3	1670.3	1712.8	1725.1	1689.7	1666.1	1642.5
31.5°	1366.8	1410.3	1449.0	1491.9	1554.7	1619.8	1667.0	1677.9	1638.7	1612.3	1592.4
32°	1320.6	1361.6	1400.8	1437.2	1508.9	1568.4	1622.2	1630.7	1590.1	1560.3	1539.6
32.5°	1274.3	1310.2	1353.1	1383.8	1462.2	1517.9	1576.9	1581.1	1541.0	1509.8	1489.1
33°	1226.2	1259.7	1304.5	1329.1	1417.8	1467.8	1530.6	1532.5	1494.3	1459.8	1435.3
33.5°	1177.1	1209.2	1255.4	1275.3	1370.6	1418.3	1482.5	1483.4	1446.1	1410.7	1381.0
34°	1128.5	1161.1	1204.9	1222.9	1323.4	1371.1	1434.8	1434.3	1401.3	1362.1	1325.8
34.5°	1081.3	1111.0	1154.9	1171.9	1274.8	1324.8	1385.2	1383.3	1354.1	1314.9	1273.4
35°	1033.6	1064.3	1104.9	1121.4	1228.1	1280.5	1335.7	1334.3	1307.8	1268.2	1219.1
35.5°	988.8	1019.5	1053.4	1072.3	1176.2	1234.2	1283.3	1284.7	1260.6	1221.0	1168.1
36°	944.4	974.1	1002.0	1024.7	1126.1	1187.5	1231.8	1235.2	1215.3	1173.3	1118.6
36.5°	901.0	929.8	952.0	977.9	1077.0	1141.7	1179.5	1185.1	1166.7	1124.7	1070.4
37°	858.0	884.5	899.6	931.7	1028.9	1095.9	1128.0	1134.1	1118.6	1075.2	1021.8
37.5°	815.6	840.6	849.1	886.4	980.8	1048.2	1076.1	1086.0	1070.0	1026.1	976.5
38°	773.1	795.3	799.5	840.6	935.4	1000.1	1028.0	1038.3	1022.3	977.0	930.3
38.5°	730.6	750.4	753.3	796.2	890.1	951.5	978.4	991.6	976.0	928.8	884.5
39°	689.1	706.5	708.9	752.8	847.2	904.3	929.8	944.9	930.7	884.9	839.2
39.5°	646.1	660.8	664.5	712.2	801.9	857.1	881.6	898.6	885.4	837.3	794.8
40°	605.1	616.9	621.1	669.7	758.5	811.8	833.5	851.4	841.5	793.4	750.4
40.5°	564.0	573.9	581.5	630.1	716.0	767.0	785.8	805.7	797.2	751.4	706.5
41°	523.9	532.4	541.8	590.9	674.4	724.0	740.1	759.4	756.1	711.7	662.2
41.5°	484.2	492.3	503.6	552.2	631.5	680.6	695.7	712.7	713.6	669.7	620.2
42°	447.9	452.6	466.3	513.0	589.5	639.0	651.8	667.8	669.7	631.0	578.2
42.5°	411.6	415.8	431.4	477.6	549.8	597.5	608.8	624.9	627.7	591.9	538.5
43°	377.6	379.9	396.5	442.2	511.6	556.0	566.8	582.9	587.1	555.5	500.3
43.5°	343.6	345.5	364.4	407.3	474.8	514.0	527.7	541.8	546.1	515.9	463.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	252.5	250.1	274.2	310.6	375.2	398.8	417.7	429.5	432.3	413.4	364.4
45.5°	225.1	222.3	248.3	281.3	342.2	361.1	382.3	394.1	396.9	379.9	331.3
46°	199.6	196.8	223.2	253.4	309.1	323.3	346.9	358.7	361.5	346.4	301.6
46.5°	175.1	172.7	200.1	228.0	278.5	290.3	312.0	323.8	326.1	313.4	273.7
47°	157.6	155.8	177.5	203.4	248.7	259.1	280.4	290.7	293.1	282.7	246.8
47.5°	140.6	138.3	160.0	179.8	220.4	229.9	250.1	260.1	263.4	254.4	221.8
48°	123.7	120.8	142.5	157.6	193.5	202.9	222.8	230.8	234.6	227.5	198.7
48.5°	106.7	103.8	125.1	138.3	168.5	177.5	196.3	203.9	207.7	200.1	177.0
49°	89.7	86.4	107.6	121.8	144.9	154.8	171.3	177.9	181.7	175.6	156.2
49.5°	77.9	75.0	90.1	106.7	123.2	133.6	148.2	154.3	158.1	152.9	137.3
50°	66.5	64.2	76.5	91.6	104.3	114.2	126.5	133.1	135.9	131.7	119.9
50.5°	56.6	54.7	64.2	76.5	87.3	96.8	107.1	113.7	116.1	112.8	103.4
51°	47.7	45.8	52.9	61.4	72.2	80.7	89.2	95.8	97.7	94.9	88.7
51.5°	39.2	37.8	42.9	50.0	62.8	66.5	73.6	79.3	81.2	79.8	75.0
52°	32.1	30.7	34.0	39.6	53.3	56.6	62.8	65.1	66.5	66.1	62.8
52.5°	25.5	24.1	26.4	30.2	43.9	47.2	51.9	55.7	56.6	56.6	53.8
53°	19.4	18.4	19.8	22.7	34.5	37.3	41.5	45.8	47.2	46.7	44.8
53.5°	17.0	16.0	17.5	16.5	25.0	27.4	30.7	36.3	37.3	37.3	35.9
54°	14.6	13.2	14.6	13.7	15.6	17.9	20.3	26.4	27.4	27.8	26.4
54.5°	12.3	10.4	12.3	11.8	11.3	12.7	14.2	17.0	17.9	17.9	17.9
55°	9.4	8.0	9.4	9.4	9.4	9.9	10.9	12.3	12.7	13.2	13.2
55.5°	7.1	7.1	7.1	7.6	8.0	8.5	9.0	9.4	9.9	10.4	9.9
56°	6.6	6.1	6.1	6.6	7.1	7.6	7.6	8.0	8.5	8.5	8.5
56.5°	5.7	5.7	5.7	5.7	6.1	6.6	7.1	7.1	7.6	7.6	7.6
57°	5.2	5.2	5.2	5.2	5.7	5.7	6.1	6.6	6.6	6.6	6.6
57.5°	4.7	4.7	4.7	4.7	5.2	5.2	5.7	5.7	6.1	6.1	6.1
58°	4.2	4.2	4.2	4.2	4.7	4.7	4.7	5.2	5.2	5.2	5.2
58.5°	3.8	3.8	3.8	3.8	4.2	4.2	4.2	4.7	4.7	4.7	4.7
59°	3.8	3.8	3.8	3.8	3.8	3.8	4.2	4.2	4.2	4.2	4.2
59.5°	3.3	3.3	3.3	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8
60°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.8	3.8	3.8	3.8
60.5°	2.8	2.8	2.8	2.8	3.3	3.3	3.3	3.3	3.3	3.3	3.3
61°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.3	3.3	3.3	3.3
61.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
62°	2.4	2.4	2.4	2.4	2.4	2.8	2.8	2.8	2.8	2.8	2.8
62.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.8	2.8
63°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
63.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
64°	1.9	1.9	1.9	1.9	1.9	2.4	2.4	2.4	2.4	2.4	2.4
64.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4
65°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
65.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
66°	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9



TEST NUMBER: P776612

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMB-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
68°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
68.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
69°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
69.5°	0.9	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
70°	0.9	0.9	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
70.5°	0.9	0.9	0.9	0.9	1.4	1.4	1.4	0.9	0.9	0.9	1.4
71°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.4
71.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
72°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
73°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
73.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
74°	0.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
74.5°	0.5	0.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
75°	0.5	0.5	0.5	0.9	0.9	0.9	0.9	0.5	0.5	0.5	0.9
75.5°	0.5	0.5	0.5	0.5	0.9	0.9	0.9	0.5	0.5	0.5	0.9
76°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
76.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
77°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
77.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
78°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
78.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
79°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
79.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80°	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80.5°	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
81°	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.5
81.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.5
82°	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	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	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: P776612

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMB-5000lm-3500K

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: P776612

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMB-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	3044.2	3044.2	3044.2	3044.2	3044.2	3044.2
0.5°	3043.3	3044.2	3044.7	3045.2	3045.2	3043.3
1°	3043.3	3043.7	3043.7	3044.2	3043.7	3041.4
1.5°	3042.3	3042.3	3042.3	3042.3	3041.4	3038.6
2°	3040.4	3040.0	3040.0	3039.5	3037.6	3034.8
2.5°	3037.6	3036.7	3036.2	3035.7	3033.4	3030.1
3°	3034.3	3032.4	3031.9	3031.0	3028.6	3024.4
3.5°	3029.6	3027.2	3026.8	3025.3	3022.0	3017.8
4°	3023.9	3021.1	3020.6	3018.7	3015.0	3010.2
4.5°	3017.8	3014.0	3013.1	3011.2	3007.4	3001.7
5°	3011.2	3006.5	3004.6	3002.2	2998.4	2992.8
5.5°	3003.2	2997.5	2995.1	2992.8	2987.6	2982.4
6°	2994.2	2987.6	2985.2	2981.9	2977.2	2971.5
6.5°	2984.7	2977.2	2974.4	2970.6	2965.4	2959.7
7°	2974.4	2965.9	2962.1	2957.8	2951.7	2947.0
7.5°	2963.0	2953.6	2948.9	2943.7	2937.6	2933.3
8°	2951.2	2940.4	2934.7	2928.6	2923.4	2918.7
8.5°	2938.0	2926.2	2919.6	2912.5	2906.9	2902.6
9°	2923.9	2911.1	2903.1	2895.1	2889.4	2885.6
9.5°	2908.8	2894.6	2885.6	2876.2	2869.6	2866.8
10°	2892.7	2877.1	2866.8	2856.8	2850.7	2847.9
10.5°	2875.3	2858.7	2846.5	2835.6	2829.9	2828.1
11°	2857.3	2838.9	2825.2	2813.4	2807.3	2805.4
11.5°	2838.0	2817.2	2802.6	2789.8	2783.2	2782.3
12°	2816.7	2795.0	2778.5	2764.8	2758.2	2757.7
12.5°	2795.0	2770.5	2753.0	2738.9	2732.2	2732.2
13°	2772.4	2745.0	2727.1	2712.4	2705.3	2705.8
13.5°	2747.8	2719.0	2699.7	2684.1	2678.4	2678.4
14°	2722.3	2692.1	2671.8	2655.8	2648.7	2650.6
14.5°	2696.4	2663.8	2643.0	2627.5	2619.9	2622.3
15°	2669.9	2635.5	2613.8	2598.2	2591.1	2594.0
15.5°	2642.6	2607.2	2584.5	2568.9	2561.9	2564.7
16°	2615.2	2577.9	2555.3	2538.3	2532.6	2535.4
16.5°	2587.3	2549.6	2526.0	2509.0	2503.3	2507.1
17°	2559.0	2520.8	2495.8	2479.3	2473.6	2478.8
17.5°	2530.7	2491.5	2466.5	2450.5	2444.8	2450.5
18°	2502.9	2462.3	2437.7	2420.7	2416.5	2422.2
18.5°	2475.0	2434.4	2408.5	2392.0	2388.2	2394.8
19°	2447.2	2406.1	2380.6	2364.6	2361.7	2369.3
19.5°	2420.7	2380.2	2355.6	2339.6	2336.3	2345.2
20°	2395.3	2355.1	2329.7	2315.0	2311.7	2321.2
20.5°	2370.7	2331.1	2305.6	2290.5	2288.1	2297.6
21°	2346.2	2307.0	2280.6	2265.5	2264.5	2273.5



TEST NUMBER: P776612

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMB-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2272.1	2232.0	2202.2	2183.3	2178.6	2189.0
23°	2242.8	2202.2	2170.1	2147.9	2143.2	2155.0
23.5°	2212.6	2169.7	2135.7	2109.7	2106.9	2118.2
24°	2179.6	2132.8	2096.0	2067.7	2065.8	2077.1
24.5°	2144.6	2092.7	2056.9	2024.3	2022.4	2033.7
25°	2107.4	2049.3	2013.4	1978.5	1977.6	1987.9
25.5°	2069.1	2002.6	1968.6	1933.7	1932.3	1939.8
26°	2028.5	1953.5	1920.5	1889.8	1884.1	1889.8
26.5°	1986.5	1902.0	1872.3	1845.4	1837.4	1838.8
27°	1943.6	1852.5	1820.9	1802.0	1789.7	1787.4
27.5°	1898.3	1803.4	1766.6	1755.7	1741.1	1738.3
28°	1852.0	1757.6	1714.2	1709.5	1693.0	1688.7
28.5°	1805.8	1712.8	1663.2	1661.3	1644.8	1640.6
29°	1758.1	1669.4	1614.1	1611.3	1594.8	1594.3
29.5°	1710.4	1627.4	1566.5	1559.4	1545.2	1548.5
30°	1664.2	1583.9	1519.3	1507.5	1494.3	1503.2
30.5°	1617.0	1539.1	1473.5	1453.7	1442.3	1458.4
31°	1571.2	1493.3	1427.7	1399.4	1391.4	1412.6
31.5°	1526.8	1444.7	1381.9	1348.0	1339.5	1366.8
32°	1481.5	1395.1	1335.2	1296.5	1290.4	1320.6
32.5°	1436.7	1345.1	1289.4	1246.0	1243.2	1274.3
33°	1391.8	1294.1	1242.2	1197.4	1196.4	1226.2
33.5°	1347.0	1243.2	1194.6	1147.8	1150.2	1177.1
34°	1299.3	1194.1	1146.9	1099.7	1103.9	1128.5
34.5°	1251.2	1147.4	1097.8	1051.6	1057.2	1081.3
35°	1200.7	1101.1	1050.1	1003.4	1010.5	1033.6
35.5°	1152.1	1057.7	1004.4	955.7	963.8	988.8
36°	1098.3	1015.7	958.6	910.4	916.6	944.4
36.5°	1047.8	972.3	915.6	867.0	868.9	901.0
37°	995.9	929.8	871.7	824.1	823.1	858.0
37.5°	946.8	886.8	828.8	782.1	778.8	815.6
38°	897.2	842.0	786.3	740.5	735.8	773.1
38.5°	851.0	797.2	744.3	699.9	694.7	730.6
39°	803.8	753.3	704.2	661.2	656.0	689.1
39.5°	758.0	708.9	662.2	621.6	617.8	646.1
40°	712.2	665.0	622.1	584.8	580.5	605.1
40.5°	669.3	622.5	582.9	547.5	543.7	564.0
41°	625.4	582.4	544.2	512.6	509.3	523.9
41.5°	583.4	542.3	506.9	479.1	474.3	484.2
42°	542.3	504.5	470.6	447.9	441.3	447.9
42.5°	502.2	466.8	435.6	416.3	409.2	411.6
43°	463.5	430.4	402.1	387.0	379.0	377.6
43.5°	429.0	392.7	370.5	357.8	348.8	343.6



TEST NUMBER: P776612

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMB-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	326.6	288.4	282.2	278.0	268.6	252.5
45.5°	296.4	256.8	255.3	253.4	244.0	225.1
46°	268.1	227.5	230.3	230.8	221.8	199.6
46.5°	241.2	200.1	206.3	209.1	199.6	175.1
47°	216.2	176.0	183.1	187.8	178.9	157.6
47.5°	193.0	158.6	161.9	168.5	161.9	140.6
48°	170.9	141.1	145.4	152.4	145.4	123.7
48.5°	151.0	124.1	128.4	136.4	128.4	106.7
49°	132.6	107.1	111.9	120.4	111.4	89.7
49.5°	115.6	90.1	95.3	104.3	94.4	77.9
50°	100.1	78.3	81.7	88.3	81.2	66.5
50.5°	86.4	68.0	69.9	75.0	68.0	56.6
51°	73.6	58.1	59.5	63.2	57.1	47.7
51.5°	62.8	49.6	49.6	52.4	47.2	39.2
52°	54.3	41.5	40.6	42.5	37.8	32.1
52.5°	46.3	34.0	33.0	33.5	29.7	25.5
53°	37.8	27.4	26.0	25.5	22.7	19.4
53.5°	29.7	21.2	19.8	18.9	16.5	17.0
54°	21.2	16.0	17.0	16.0	14.2	14.6
54.5°	16.0	13.7	14.6	13.2	11.8	12.3
55°	12.3	11.8	12.3	10.4	9.4	9.4
55.5°	9.4	9.4	9.4	7.6	7.6	7.1
56°	8.5	7.6	7.1	7.1	6.6	6.6
56.5°	7.1	6.6	6.1	6.1	6.1	5.7
57°	6.6	5.7	5.7	5.7	5.2	5.2
57.5°	5.7	5.2	5.2	5.2	4.7	4.7
58°	5.2	4.7	4.7	4.7	4.2	4.2
58.5°	4.7	4.2	4.2	4.2	4.2	3.8
59°	4.2	3.8	3.8	3.8	3.8	3.8
59.5°	3.8	3.8	3.8	3.8	3.3	3.3
60°	3.8	3.3	3.3	3.3	3.3	3.3
60.5°	3.3	3.3	3.3	3.3	3.3	2.8
61°	3.3	2.8	2.8	2.8	2.8	2.8
61.5°	2.8	2.8	2.8	2.8	2.8	2.8
62°	2.8	2.8	2.8	2.8	2.4	2.4
62.5°	2.8	2.4	2.4	2.4	2.4	2.4
63°	2.4	2.4	2.4	2.4	2.4	2.4
63.5°	2.4	2.4	2.4	2.4	2.4	2.4
64°	2.4	2.4	2.4	2.4	1.9	1.9
64.5°	2.4	1.9	1.9	1.9	1.9	1.9
65°	1.9	1.9	1.9	1.9	1.9	1.9
65.5°	1.9	1.9	1.9	1.9	1.9	1.9
66°	1.9	1.9	1.9	1.9	1.9	1.4



TEST NUMBER: P776612

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMB-5000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	1.4	1.4	1.4	1.4	1.4	1.4
68°	1.4	1.4	1.4	1.4	1.4	1.4
68.5°	1.4	1.4	1.4	1.4	1.4	1.4
69°	1.4	1.4	1.4	1.4	1.4	1.4
69.5°	1.4	1.4	1.4	1.4	1.4	0.9
70°	1.4	1.4	1.4	1.4	0.9	0.9
70.5°	1.4	1.4	1.4	0.9	0.9	0.9
71°	1.4	0.9	0.9	0.9	0.9	0.9
71.5°	0.9	0.9	0.9	0.9	0.9	0.9
72°	0.9	0.9	0.9	0.9	0.9	0.9
72.5°	0.9	0.9	0.9	0.9	0.9	0.9
73°	0.9	0.9	0.9	0.9	0.9	0.9
73.5°	0.9	0.9	0.9	0.9	0.9	0.9
74°	0.9	0.9	0.9	0.9	0.9	0.5
74.5°	0.9	0.9	0.9	0.9	0.5	0.5
75°	0.9	0.9	0.9	0.9	0.5	0.5
75.5°	0.9	0.9	0.9	0.5	0.5	0.5
76°	0.9	0.5	0.5	0.5	0.5	0.5
76.5°	0.5	0.5	0.5	0.5	0.5	0.5
77°	0.5	0.5	0.5	0.5	0.5	0.5
77.5°	0.5	0.5	0.5	0.5	0.5	0.5
78°	0.5	0.5	0.5	0.5	0.5	0.5
78.5°	0.5	0.5	0.5	0.5	0.5	0.5
79°	0.5	0.5	0.5	0.5	0.5	0.5
79.5°	0.5	0.5	0.5	0.5	0.5	0.5
80°	0.5	0.5	0.5	0.5	0.5	0.0
80.5°	0.5	0.5	0.5	0.5	0.0	0.0
81°	0.5	0.5	0.5	0.5	0.0	0.0
81.5°	0.5	0.5	0.5	0.5	0.0	0.0
82°	0.5	0.5	0.5	0.0	0.0	0.0
82.5°	0.5	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	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: P776612

CATALOG NUMBER: HCDJBL54050CSD-HCD4TRMB-5000lm-3500K

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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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°	2248.5	2263.6	2281.5	2305.6	2343.8	2368.4	2385.8	2390.5	2382.5	2366.5	2346.6
22°	2220.2	2234.8	2252.7	2280.1	2320.2	2343.8	2360.8	2366.9	2359.4	2342.9	2323.0



44°	312.4	312.0	332.3	372.9	441.8	473.9	488.5	501.7	506.0	480.5	430.4
44.5°	280.4	280.4	302.5	341.7	408.7	436.1	453.1	464.9	467.7	447.0	397.4



66.5°	1.4	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9
67°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.9



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°	2322.1	2283.4	2257.4	2242.3	2238.6	2248.5
22°	2298.5	2258.4	2230.5	2214.5	2210.2	2220.2

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44°	395.0	356.8	339.8	329.9	320.5	312.4
44.5°	360.6	321.9	310.6	303.0	294.0	280.4

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66.5°	1.9	1.9	1.9	1.9	1.4	1.4
67°	1.9	1.9	1.4	1.4	1.4	1.4

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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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Scaled Data Report



(END OF REPORT)